Orsted Hornsea Project Three Submission to Norfolk Vanguard DL1 (16/01/2019)

Response to ExA Questions

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1 Introduction

Set out below are Ørsted Hornsea Project Three (UK) Ltd's (Hornsea Three) response to Norfolk Vanguard first written questions, required for submission today, Wednesday 16 January 2019.

This document has been prepared by Hornsea Three in response to Norfolk Vanguard's Examining Authority's ("ExA") letter of 19 December 2018 ("the Rule 8 letter") and ExA questions issued on the same day. In support of our responses we make reference to a number of documents that have formed part of the Hornsea Three examination. These documents include:-

Hornsea Three Application

- 6.3.4 ES Volume 3 - Ch 4 - Landscape and Visual Resources (Hornsea Three ExA doc ref APP-076).
- 6.3.7 ES Volume 3 - Ch 7 - Traffic and Transport (Hornsea Three ExA doc ref APP-079).
- 6.4.5.2 ES Volume 4 - 5.2- Cumulative Effects Screening Matrix (Hornsea Three ExA doc ref APP-097).
- Appendix B to 6.6.7.1 ES Volume 6 - 7.1 - Transport Assessment (Hornsea Three ExA doc ref APP-159).

Hornsea Three Examination Material

- Statement of Common Ground between Hornsea Project Three (UK) Ltd and Natural England (Hornsea Three ExA doc ref REP1-218).
- Statement of Common Ground between Hornsea Three and Norfolk County Council (issued at DL4 to Hornsea Three Examination on 15.01.2019).
- Hornsea Three Outline Code of Construction Practice (Outline CoCP) (issued at DL4 to Hornsea Three Examination on 15.01.2019).
- Appendix 16 to Hornsea Three's response to Deadline 1 Q1.15.3 (Hornsea Three ExA doc ref REP1-174) (CEA for NV and Thanet Ext).
- Appendix 49 to Hornsea Three's response to Deadline 1: Q1.2.79 (Hornsea Three ExA doc ref REP1- 005) (CEA for NV and Thanet Ext).
- Applicant Responses to the Examining Authority's First Written Question Q1.7.4 (Hornsea Three ExA doc ref REP1-122).

It is noted that all of these documents are already in the public domain (published on the Planning Inspectorates website) but have been attached to this submission in full for completeness.

Hornsea Three also references the Statement of Common Ground between Hornsea Project Three (UK) Ltd and Norfolk Vanguard Ltd and Norfolk Boreas (which we understand Norfolk Vanguard will be submitting into the examination at this deadline).

2 Ørsted Hornsea Project Three Response to Norfolk Vanguard Questions

PINS Ref. No.	Question is addressed to:	ExA Question	Response
11.10	Applicant/**Orsted**/Norfolk County Council/Other Councils	ES 24.8.1 and paragraph 385 Cumulative Impacts during construction (i) The Hornsea Project Three study area was divided into 183 highway links and 34 onshore cable route sections. The maximum HGV traffic demand has been presented for each of the 34 sections but the Hornsea Project Three Preliminary Environmental Information Report (PEIR) did not include an assignment of daily HGV movements to the 183 highway links.	Hornsea Three (and associated proposed export transmission cable that runs from Weybourne to Norwich Main) is divided in 214 highway links and 21 cable route sections. The maximum HGV traffic demand has been presented for each of the 21 sections in Appendix A of the Transport Assessment (Volume 6, Annex 7.1 – Transport Assessment PINS reference APP-159). Table 7.4 of the ES Volume 3, Chapter 7 – Traffic and Transport PINS reference APP-079) informs of the agreement with NCC for the link and traffic assessment number and locations.
		(ii) Is the necessary data now available for the Applicant to undertake a full cumulative impact assessment of both projects?	Hornsea Three are working closely with Norfolk Vanguard to enable a full cumulative assessment to be completed. This is captured in the Statement of Common Ground between both parties which Hornsea Three has submitted into its examination and which we (Hornsea Three) understand Norfolk Vanguard will submit into their examination.

11.11	Applicant/**Orsted**/Norfolk County Council/Other Councils	The on-shore cable route would cross with the proposed Hornsea Project Three cable route to the north of Reepham. (i) Please provide an assessment of the potential traffic and highway impacts arising from the simultaneous construction of both projects in the same vicinity and outline any measures which may be required to mitigate any impacts.	Paragraph 7.13 of Chapter 7 (Traffic and Transport) of the Hornsea Project Three Environmental Statement (ES Volume 3, Chapter 7 – Traffic and Transport, Hornsea Three reference APP-079 of Hornsea Three's Examination Library) provides an assessment of the cumulative potential traffic and highway impacts arising from the simultaneous construction of The Hornsea Three and other considered projects, included Norfolk Vanguard on five highway links highlighted from the original significance of effects assessment. As part of the cumulative effect assessment, the percentage change due to Hornsea Three (maximum daily change) Plus Tier 3 (including Tier 2) developments is considered in Table 7.24 of the Hornsea Three ES Volume 3, Chapter 7 – Traffic and Transport). Again, within the Hornsea Three ES, paragraph 7.3.1.7 states that for Tier 3 (including Tier 2) developments, there are no exceedances of the IEMA thresholds in terms of total traffic flows and also that in accordance with the assessment of road links due to HGV increases as described in section 7.11, five road links are assessed within the Assessment of significance for the construction phase in paragraph 7.13.2.
		(ii) Would it be possible to secure appropriate sequencing of construction activities? If so, how could this be achieved in the dDCO?	The assessments undertaken by Hornsea Three do not support the imposition of a Requirement or other control to achieve sequencing of construction. In the opinion of Hornsea Three such a Requirement would not be reasonable or necessary and so fail the relevant legal and policy tests. The Hornsea Three and Norfolk Vanguard team are cooperating and will continue to do so to effectively manage the construction of both projects. The assessments undertaken by Hornsea Three do not support the imposition of a Requirement or other control to achieve sequencing of construction. In the opinion of Hornsea Three such a Requirement would not be reasonable or necessary and so fail the relevant legal and policy tests. The Hornsea Three and Norfolk Vanguard team are cooperating and will continue to do so to effectively manage the construction of both projects

			Furthermore, to manage the interaction of the projects, the final Construction Traffic Management Plan for Hornsea Three will confirm cumulative traffic impacts with Norfolk Vanguard and set out the measures to ensure that the cumulative environmental impacts are managed to levels such that they are acceptable by Norfolk County Council as the local highway authority. Appendix A of the Hornsea Three Outline CoCP (issued at DL4 to Hornsea Three Examination on 15.01.2019) includes the provision for a Communication Plan to be developed, managed and implemented by the Stakeholder Manager for Hornsea Three. That Communication Plan will set out the process of continued engagement between Hornsea Three, the Local Highway Authority and Norfolk Vanguard. This will ensure that as construction programmes are refined post-consent that this information is regularly shared between parties, particularly traffic demand on shared road links. This will also ensure that commitments to manage cumulative construction traffic demand are fully delivered; for example, on a given road the two projects may have committed to programme works that ensure each scheme's peak traffic does not overlap. Regularly programmed sharing of information will ensure that the final approved TMPs accurately reflect the expected construction traffic demand of both projects, and provide certainty to the Local Highway Authority that commitments remain feasible and deliverable.

			Further, Hornsea Three have advised Norfolk Vanguard that they will add the following text into their next revision of the Outline CoCP:- • In the event that both Norfolk Vanguard and Hornsea Three have concurrent construction works in the vicinity of the parishes of Oulton and Cawston, the Hornsea Three Communication Plan will document the following measures:- i) How Hornsea Three will engage with Norfolk Vanguard; ii) How Hornsea Three and Norfolk Vanguard will engage with the Local Highway Authority; and iii) Measures that Hornsea Three and Norfolk Vanguard will initiate to ensure that if any complaints are made by the local community how these are communicated between the two developers (potentially via Hornsea Three appointed Community Liaison Officer).
11.12	**Applicant**	The written representations of Broadland District Council [RR-175] and Oulton Parish Council [RR-141] note that the Hornsea Three project main compound is to be located on the former airfield east of Oulton and the Norfolk Vanguard project has 2 construction compounds planned in Oulton which would utilise the same access road (B1149/The Street). What are the traffic implications of these arrangements and have the cumulative impacts of all three compounds been assessed? In particular Oulton Parish Council contends that the Applicant has used Hornsea Three PEIR documents to assess cumulative impacts but the main compound did not appear in those PEIR documents.	Hornsea Three would refer to the Statement of Common Ground between both parties (Hornsea Three examination reference REP1-222) which states that there may be cumulative impacts on a small number of shared road links during construction of Hornsea Three should it overlap with Norfolk Vanguard/Norfolk Boreas and relevant discussions between the two parties are ongoing. One such link is The Street (linking B1149 with Oulton Street). Hornsea Three and Norfolk Vanguard/Norfolk Boreas will be looking to reach an agreement on these matters and continues to engage with Norfolk County Council as the highways authority to reach a shared common point of agreement. Once agreement has been reached, traffic management measures will be captured in a revised Hornsea Three Outline CTMP to be submitted in due course into the Hornsea Three examination.

12.5	Applicant	Section 26.8.1 of ES Chapter 26 [APP-350] states that it is not anticipated that any of the projects considered in the Cumulative Impact Assessment would lead to a cumulative impact in conjunction with the project, with the exception of Hornsea Project Three Offshore Wind Farm. The magnitude of impacts associated with Hornsea Project Three was not known at the time of writing. Is the necessary information now available to undertake a full cumulative impact assessment of both projects? If so, please provide this. Oulton Parish Council are concerned that there is a lack of information on the cumulative impact on the residents of Oulton. Please explain what the nature and likely cumulative impacts would be and any proposed mitigation.	Hornsea Three assessed the potential for cumulative impacts with Norfolk Vanguard/Norfolk Boreas within the topic specific chapters of the Hornsea Three Environmental Statement which accompanied the Hornsea Three application. As set out in Annex 5.2: Cumulative Effects Screening Matrix (APP-097) of the Hornsea Three Environmental Statement, this utilised information from the Norfolk Vanguard/Norfolk Boreas PEIR which was the most up to date information at the time of assessment. It is noted that since the Hornsea Three application, the Norfolk Vanguard Application has been submitted and entered Examination. Hornsea Three refers to its submission Appendix 16 to Hornsea Three's response to Deadline 1, which provides an explanation of the effect of the recent changes in status of the Norfolk Vanguard/Norfolk Boreas and Thanet Extension projects on the Hornsea Three Cumulative Effects Assessment (CEA). The response also includes consideration of recent updates (e.g. change in status and Non Material Changes) to other offshore wind projects considered within the original Hornsea Three CEA and new onshore planning applications on the Hornsea Three CEA. No changes to the significance of effects assessed within the Environmental Statement was identified. On this basis Hornsea Three consider that a cumulative impact assessment of both projects has been undertaken, with the exception of ongoing work in respect to traffic and transport on the local road network and in Oulton which is ongoing as set out in the Statement of Common Ground between both parties (REP1-222).

14.21	Applicant/Orsted/Norfolk County Council	The onshore cable route would cross with the proposed Hornsea Project Three cable route to the north of Reepham. Please provide an assessment of the potential landscape impacts arising from the simultaneous construction of both projects in the same vicinity with compounds being located in the same vicinity and outline any measures which may be required to mitigate any impacts.	Hornsea Three would refer to their response to Q1.7.4 of their Response to the ExA's First Written Questions (REP1-122). This states that paragraph 4.11.1.7 of the Hornsea Three ES [APP-076] refers to landscape effects of Hornsea Three when considered individually, whereas section 4.13.2 of APP-076 provides a cumulative effect assessment. Within this assessment, Norfolk Vanguard and the associated elements of Norfolk Boreas are identified as a Tier 3 cumulative project, with potential to result in in-combination effects with the construction of the Hornsea Three onshore cable corridor (Table 4.16 of APP-076). In this regard, Section 4.13.2.3 of APP-076 considers the cumulative landscape and visual effects of the projects (Hornsea Three and Norfolk Vanguard) should they be constructed at the same time in the areas of overlap including north of Reepham. Construction activity in this location would increase if the projects were to be constructed at the same time. However, within this local area the combined duration is still likely to be short term and cumulative effects on landscape character and visual effects would not be significant.
		Would it be possible to secure appropriate sequencing of construction activities? If so, how could this be achieved in the dDCO?	See response to Q11.11
14.24	Norfolk County Council, Breckland District Council, Necton Parish Council, The Applicant	A cumulative impact assessment has been undertaken - Tables 29.15, 29.16 The potential for cumulative impacts has been assessed. Please comment on the conclusions in the following instances: Onshore Cable Route: impacts on visual receptors on Marriott's Way at the intersection of the cable route with the Hornsea Project Three.	Hornsea Three would refer to the response provided in respect to 14.21 which sets out the approach to cumulative impact assessment. The conclusions noted within this response would apply to all areas of potential overlap, including at Marriot's Way.

18.26	Applicant	There is potential for the cable route that would be constructed as part of this project and the route that would form part of the Orsted Wind Power (H3) project to cross at Reepham. Please describe how you would expect both projects to work together to minimise impacts on PROW FP18 and FP34 and how would this be secured?	Hornsea Three have proposed that the junction of Reepham FP34, Reepham FP18 and the construction access, together with the junction of the construction access at Cawston Road, will be managed and controlled to ensure the safe flow of construction traffic and pedestrians by the use of signage and speed restrictions. It may also be necessary to use a banksman when construction traffic is using this access. The principle of this management has been agreed with NCC (as set out in the Statement of Common Ground between Hornsea Three and NCC issued at DL4 to Hornsea Three Examination on 15.01.2019). Hornsea Three has also agreed with NCC that further details of the management to be applied at this location would be developed during detailed design and contained within a Public Right of Way Management Plan which will form an appendix to the final CoCP submitted for Hornsea Three and secured under Requirement 17 of the draft DCO. As noted in Hornsea Three's response to 11.11 (ii), Appendix A of the Hornsea Three Outline CoCP (issued at DL4 to Hornsea Three Examination on 15.01.2019) includes the provision for a Communication Plan to be developed, managed and implemented by the Stakeholder Manager for Hornsea Three. That Communication Plan will set out the process of continued engagement Hornsea Three and Norfolk Vanguard. This will ensure that as construction programmes are refined post-consent that this information is regularly shared between parties. This will ensure that any commitments needed to manage cumulative construction impacts are captured in the relevant management plans for each project.

19.11	**Orsted**	Comment on whether you consider account should still be taken of the Gross Vale Added (GVA) supported by construction activity and to demand for housing, accommodation and local services in the Local Impact Areas in the CIA, in light of the Applicant's responses to these points in [APP-355]	We note the reasons for Norfolk Vanguard not assessing Gross Value Added due to the technical challenges, and Hornsea Three is content with this approach given that employment impacts have been estimated. Whilst this differs to the approach adopted by Hornsea Three, Norfolk Vanguards approach nevertheless provides an alternative measure of the economic benefits which Norfolk Vanguard will support locally. Hornsea Three is content with Vattenfall not estimating the potential impact of the scheme on the demand for local accommodation and other local services given the scale of the potential scale for these impacts to arise locally in practice. However, it should be recognised that the extra demand can provide some economic benefit locally from which businesses and residents can benefit. Hornsea Three is committed to working with the relevant local stakeholders, including the developer of Norfolk Vanguard, to promote the achievement of this local economic benefit.
23.45	Applicant	In relation to the in-combination assessment with the Hornsea 3 and Thanet Offshore Wind Farm projects, please set out how you intend to monitor the progress of these examinations and update your in-combination assessment as and when relevant information from these other examinations becomes available?	Hornsea Three submission hawse have made into our examination in response to an ExA Question (Appendix 49 to the Hornsea Three 's response to Deadline 1). The submission provides an update to the Hornsea Three cumulative effects assessment (CEA) taking into account those projects which were considered in the Hornsea Three CEA but have either changed in status or have made changes to project parameters and/or updated impact assessments since the Hornsea Three application. The note also considers any new projects which have entered the planning process since the Hornsea Three application.

23.52	Applicant	The Applicant is requested to revisit its in-combination assessment for the River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC and provide greater justification for a finding of no in combination effects, with reference to NE's Relevant Representations (4.5.11) suggesting that an 'in combination' assessment with Hornsea 3 OWF should also be undertaken as this cable route passes about 360m to east of Booton Common and construction periods may overlap.	In consultation with Hornsea Three, Natural England clarified that their area of concern regarding Booton Common related to surface runoff potentially contaminating the SSSI. Text from the NE SoCG between Hornsea Three and NE [REP1-218 of Hornsea Three Examination Library] shows that there is no concern about the assessment or mitigation measures for Booton Common: "*The Applicant* [Hornsea Three] *has sufficiently clarified the approval process associated with crossing method statement for the HDD at BlackWater Drain for Natural England to agree on this issue. The Applicant has clarified that measures to prevent sediment pollution will be suitable for intense rainfall events associated with climate change, and therefore Natural England agree on this issue."* Therefore, there is no assessed potential for cumulative impacts between the projects at this location.

Hornsea Project Three
Offshore Wind Farm

Hornsea Project Three

Offshore Wind Farm

Environmental Statement:
Volume 3, Chapter 4 - Landscape and Visual Resources

PINS Document Reference: 6.3.4
APFP Regulation 5(2)(a)

Date: May 2018

Hornsea 3
Offshore Wind Farm

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Environmental Impact Assessment

Environmental Statement

Volume 6

Chapter 4: Landscape and Visual Resources

Liability
This report has been prepared by LDA Design, with all reasonable skill, care and diligence within the terms of their contracts with Orsted.

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This report is also downloadable from the Hornsea Project Three offshore wind farm website at:

www.hornseaproject3.co.uk

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Front cover picture: Kite surfer near a UK offshore wind farm © Orsted Hornsea Project Three (UK) Ltd., 2018.

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Glossary

Term	Definition
Characteristics	Elements, or combinations of elements, which make a contribution to distinctive landscape character.
Designated landscape	Areas of landscape identified as being of importance at international, national or local levels, either defined by statute or identified in development plans or other documents.
Development	Any proposal that results in a change to the landscape and/or visual environment.
Elements	Individual parts which make up the landscape, such as, for example, trees, hedges and buildings.
Feature	Particularly prominent or eye-catching elements in the landscape, such as tree clumps, church towers or wooded skylines.
Historic Landscape Characterisation	Historic characterisation is the identification and interpretation of the historic dimension of the present-day landscape or townscape within a given area.
Indirect effects	Effects that result indirectly from the proposed project as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effects.
Key characteristics	Those combinations of elements which are particularly important to the current character of the landscape and help to give an area its particularly distinctive sense of place.
Key routes	Any transport or recreational route that is specifically promoted or can otherwise be expected to receive an increased number of users or draw users from outside the local area. This includes, but is not limited to, main roads (A-roads/motorways), rail lines, navigable waterways, national cycle routes, national trails or other long distance paths identified on Ordnance Survey mapping.
Land cover	The surface cover of the land, usually expressed in terms of vegetation cover, or lack of it. Related to, but not the same as land use.
Land use	What land is used for, based on broad categories of functional land cover, such as urban and industrial use and the different types of agriculture and forestry.
Landform	The shape and form of the land surface which has resulted from combinations of geology, geomorphology, slope, elevation and physical processes.
Landscape	An area, as perceived by people, the character of which is a result of the action and interaction of natural and/or human factors.
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Character Areas (LCAs)	These are single unique areas which are the discrete geographical areas of a particular landscape type.
Landscape Character Assessment	The process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscape distinctive. The process results in the production of a Landscape Character Assessment.
Landscape Character Types /Landscape typology (LCTs)	These are distinct types of landscape that are relatively homogenous in character. They are generic in nature in that they may occur indifferent areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetic attributes.
Landscape classification	A process of sorting the landscape into different types using selected criteria, but without attaching relative values to different sorts of landscape.
Landscape effects	Effects on the landscape as a resource in its own right.
Landscape quality (condition)	A measure of physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
Landscape receptors	Defined aspects of the landscape resource that have the potential to be affected by the proposal.
Landscape strategy	The overall vision and objectives for what the landscape should be like in the future, and what is thought to be desirable for a particular landscape type or area as a whole, usually expressed in formally adopted plans and programmes or related documents.
Landscape value	The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons
National Landscape Character Areas (NCA)	Broad character areas of the land as defined by Natural England.
National Seascape Character Areas (NSCA)	Broad character areas of the sea, as defined by Natural England and the Marine Management Organisation
Onshore elements of Hornsea Three	Hornsea Three landfall area, onshore cable corridor, the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid substation.
Perception	Combines the sensory (that we receive through our senses) with the cognitive (our knowledge and understanding gained from many sources and experiences).
Photomontage	A visualisation which superimposes an image of a proposed development upon a Viewpoint or series of Viewpoints.
Receptor area	The geographic area covered by a landscape or visual receptor.
Seascape	Landscapes with views of the coast or seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other.
Statement of Environmental Opportunity	A statement identifying the environmental qualities, including landscape characteristics, which should be maintained and/or enhanced. It can include education about an area. These statements are included in the National Character Area profiles published by Natural England.
Susceptibility	The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences.
Tranquillity	A state of calm and quietude associated with peace, considered to be a significant asset in the landscape.
Visual amenity	The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area.
Visual effects	Effects on specific views and on general visual amenity experienced by people.
Visual Receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Visualisation	A computer simulation, photomontage or other technique illustrating the predicted appearance of a development.
Zone of Theoretical Visibility (ZTV)	A map, usually digitally produced, showing areas of land within which a development is theoretically visible.

Term	Definition
Zone of Visual Influence (ZVI)	Area within which a proposed development may have an influence or effect on visual amenity.

Acronyms

Unit	Description
AONB	Area of Outstanding Natural Beauty
CoCP	Code of Construction Practice
CTV	Coastal Towns and Villages
DCLG	Department for Communities and Local Government
DCM	Drained Coastal Marshes
DCO	Development Consent Order
DECC	Department of Energy & Climate Change
DPD	Development Plan Document
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
GLVIA3	Guidelines for Landscape and Visual Impact Assessment
GOEE	Government Office for the East of England
HDD	Horizontal Directional Drilling
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
JB	Joint Bay
LCA	Local Landscape Character Area
LCT	Landscape Character Type
LDF	Local development framework
LVIA	Landscape and Visual Impact Assessment
MHWS	Mean High Water Spring
MLWS	Mean Low Water Spring
NCA	National Landscape Character Area
NE	Natural England
NPS	National Policy Statement
NSBLPZ	Norwich Southern Bypass Landscape Protection Zone
NSCA	National Seascape Character Area
NSIP	Nationally Significant Infrastructure Project
Outline EMP	Outline Ecological Management Plan
Outline LMP	Outline Landscape Management Plan
PEIR	Preliminary Environmental Information Report
PPG	Planning Policy Guidance
PPS	Planning Policy Statements
PRoW	Public Right of Way
QNB	Qualities of Natural Beauty
RHA	Rolling Heath and Arable
RPaG	Registered Park and Garden
SMP	Shoreline Management Plan
SPD	Supplementary Planning Document
TJB	Transition Joint Bay
ZTV	Zone of Theoretical Visibility
ZVI	Zone of Visual Influence

Units

Unit	Description
km	Kilometre (distance)
m	Metre (distance)
m^2	Metres squared (area)
MW	Megawatt (power)

4. Landscape and Visual Resources

4.1 Introduction

4.1.1.1 This chapter of the Environmental Statement presents an assessment of the potential impacts of Hornsea Project Three offshore wind farm (hereafter referred to as 'Hornsea Three') on landscape and visual resources. Specifically, this chapter considers the potential impact of Hornsea Three landward of Mean Low Water Springs (MLWS) during its construction, operation and maintenance, and decommissioning phases.

4.1.1.2 This chapter summarises information from technical reports and information, which are included in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, annex 4.2: Extracts from National Landscape Character Area Descriptions, annex 4.3: Extracts from Local Landscape Character Descriptions, annex 4.4: Qualities of Natural Beauty of the Norfolk Coast AONB, annex 4.5: Photograph Panels, Wirelines and Photomontages and annex 4.6: Residential Visual Amenity.

4.1.1.3 A separate assessment of landscape and visual impacts of the proposed offshore High Voltage Alternating Current (HVAC) booster station(s) which would be located within the offshore HVAC booster station search area which is located, at its closest point, approximately 35 km from the Norfolk coast is presented in volume 6 annex 4.7: Effects of the Offshore HVAC Booster Station.

4.1.1.4 The effects of the offshore components of Hornsea Three on offshore receptors are considered in volume 2, chapter 10: Seascape and Visual Resources.

4.1.1.5 The impacts of Hornsea Three on historic landscapes are assessed in volume 3, chapter 5: Historic Environment.

4.2 Purpose of this chapter

4.2.1.1 The primary purpose of the Environmental Statement is to support the Development Consent Order (DCO) application for Hornsea Three under the Planning Act 2008 (the 2008 Act) and accompanies the application to the Secretary of State for Development Consent.

4.2.1.2 In particular, this Environmental Statement chapter:

- Presents the existing baseline established from desk studies, dedicated surveys and consultation;
- Presents the potential effects on landscape and visual receptors arising from Hornsea Three, based on the information gathered and the analysis and assessments undertaken to date;
- Identifies any assumptions and limitations encountered in compiling the environmental information; and
- Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the possible landscape and visual effects identified at the relevant stage in the EIA process.

4.2.1.3 Three elements of Hornsea Three are likely to have an impact on landscape and visual receptors, they are considered in the following order throughout this chapter:

- The onshore cable corridor, including the landfall area (landward of MLWS) and the section of the onshore cable corridor between the onshore HVDC converter/HVAC substation and the existing Norwich Main Substation, as well as the main construction compound ;
- The onshore HVAC booster station; and
- The onshore HVDC converter/HVAC substation.

4.2.1.4 The potential effects of the offshore HVAC booster station on onshore receptors is summarised in Section 4.16 of this chapter.

4.3 Study area

4.3.1.1 The Hornsea Three landscape and visual resources study areas are described in detail in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and have been established in order to focus the assessment upon the likely significant effects. These are informed by the extent of Zone of Theoretical Visibility (ZTV) studies and Zones of Visual Influence (ZVIs) (see section 4.7) as well professional judgement. These study areas are summarised below and illustrated on Figure 4.1.

- Onshore cable corridor: the footprint of the onshore cable corridor, accesses, construction compounds and storage areas plus 1 km; and
- Onshore HVAC booster station and onshore HVDC converter/HVAC substation: 5 km from the footprint of the permanent land take (the areas identified as 'Onshore HVAC Booster Station' and 'Onshore HVDC Converter/HVAC Substation' on Figure 4.1, which excludes the landscape areas).

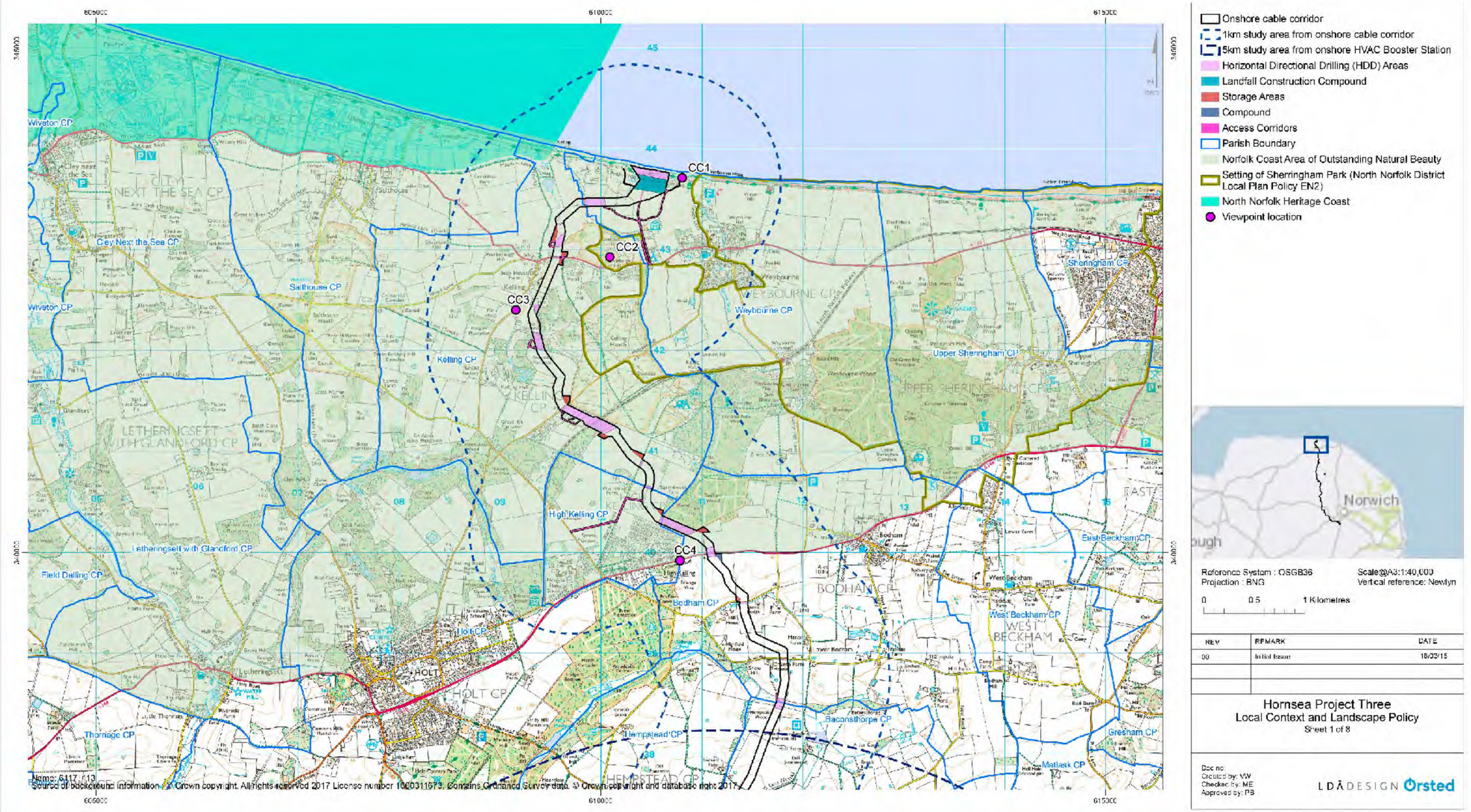

Figure 4.1: Local Context and Landscape Policy Sheet 1 of 8.

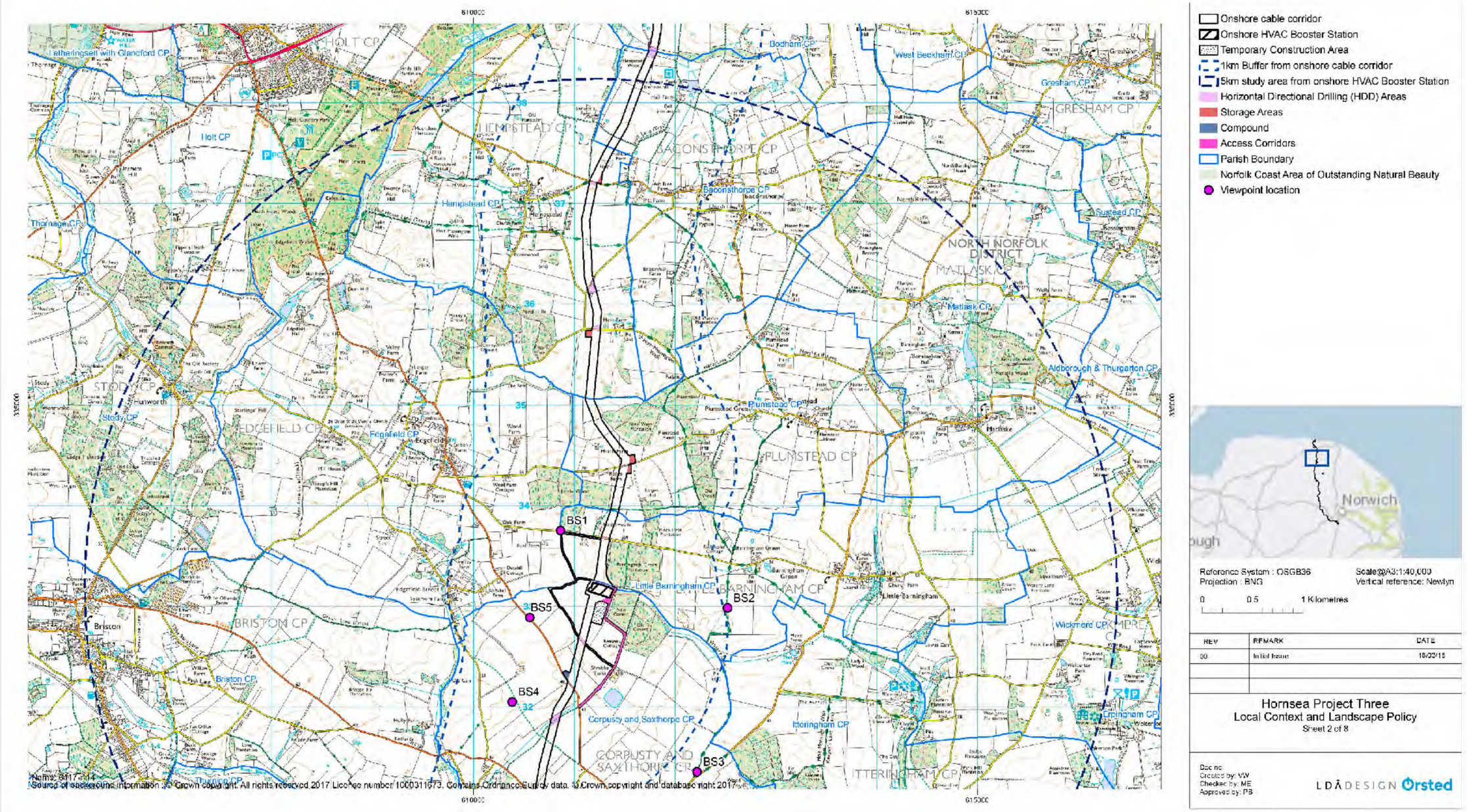

Figure 4.1: Local Context and Landscape Policy Sheet 2 of 8.

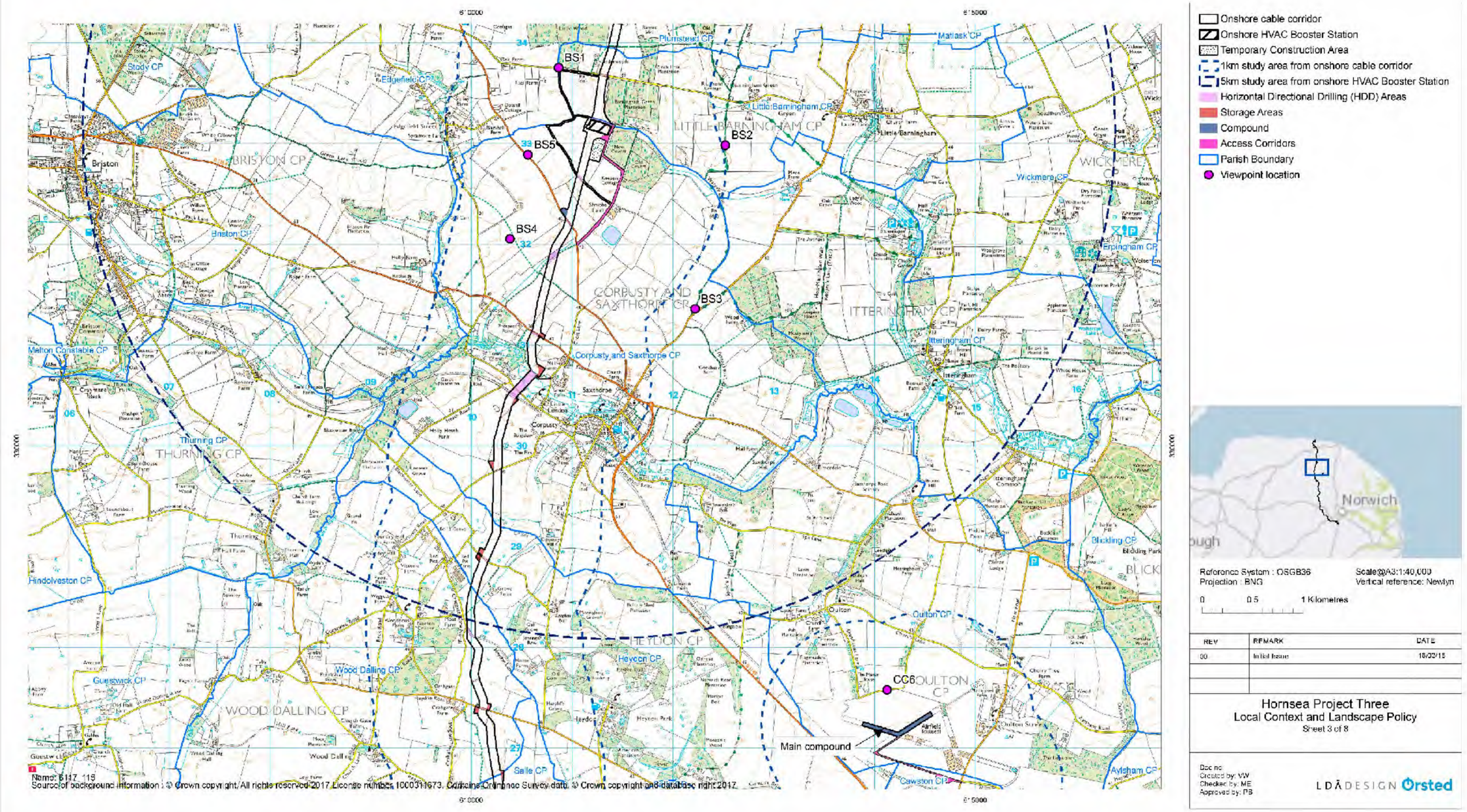

Figure 4.1: Local Context and Landscape Policy Sheet 3 of 8.

Figure 4.1: Local Context and Landscape Policy Sheet 4 of 8.

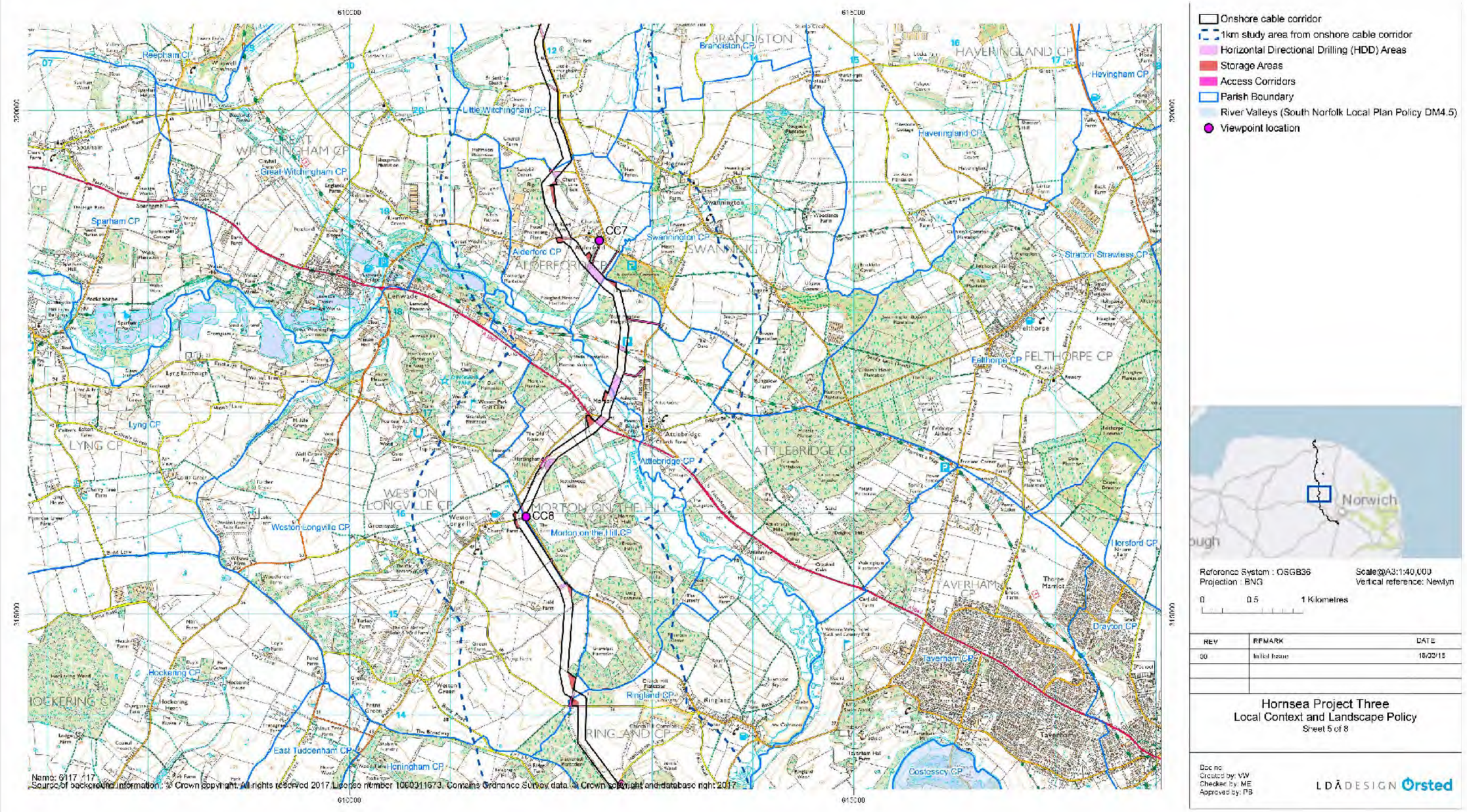

Figure 4.1: Local Context and Landscape Policy Sheet 5 of 8.

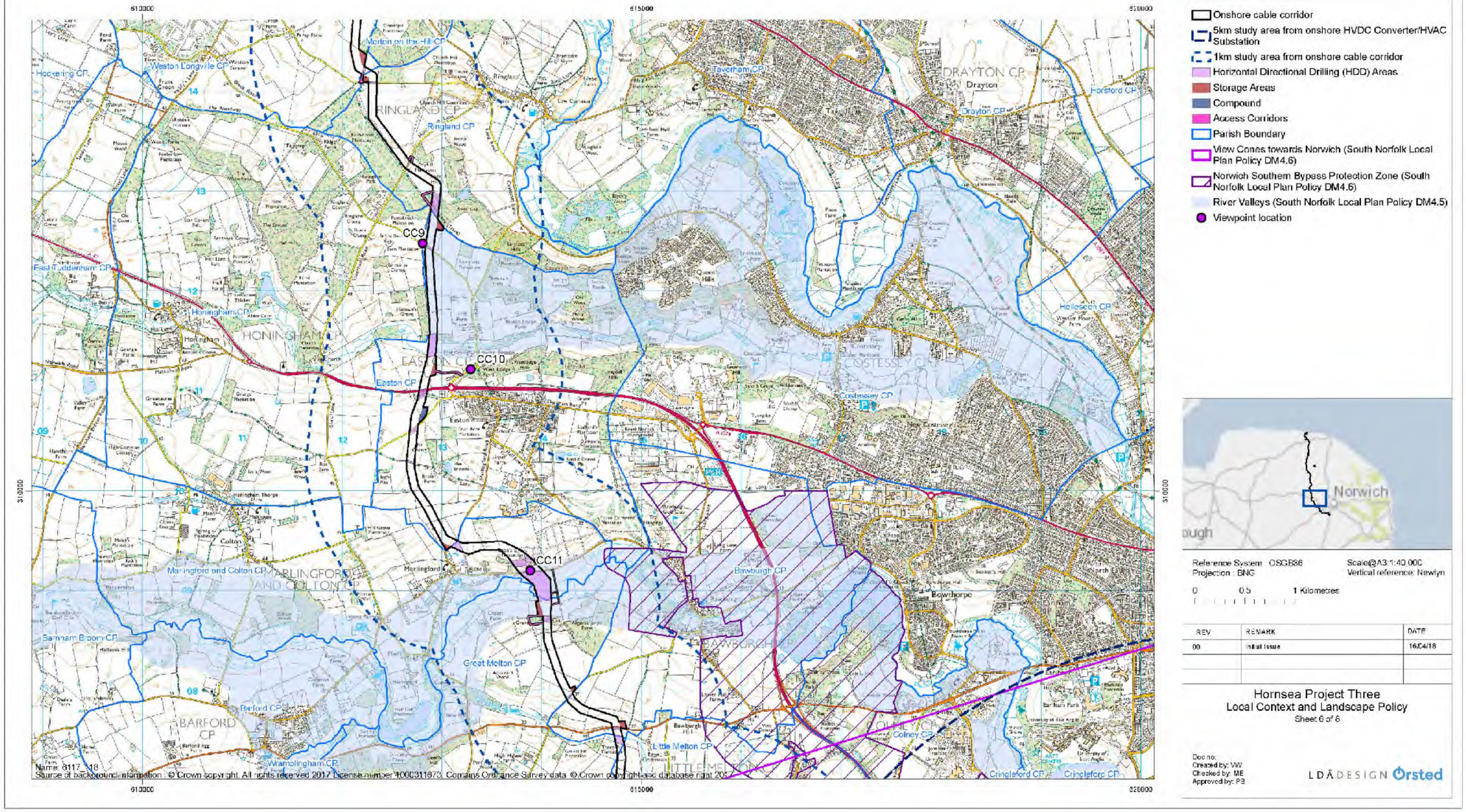

Figure 4.1: Local Context and Landscape Policy Sheet 6 of 8.

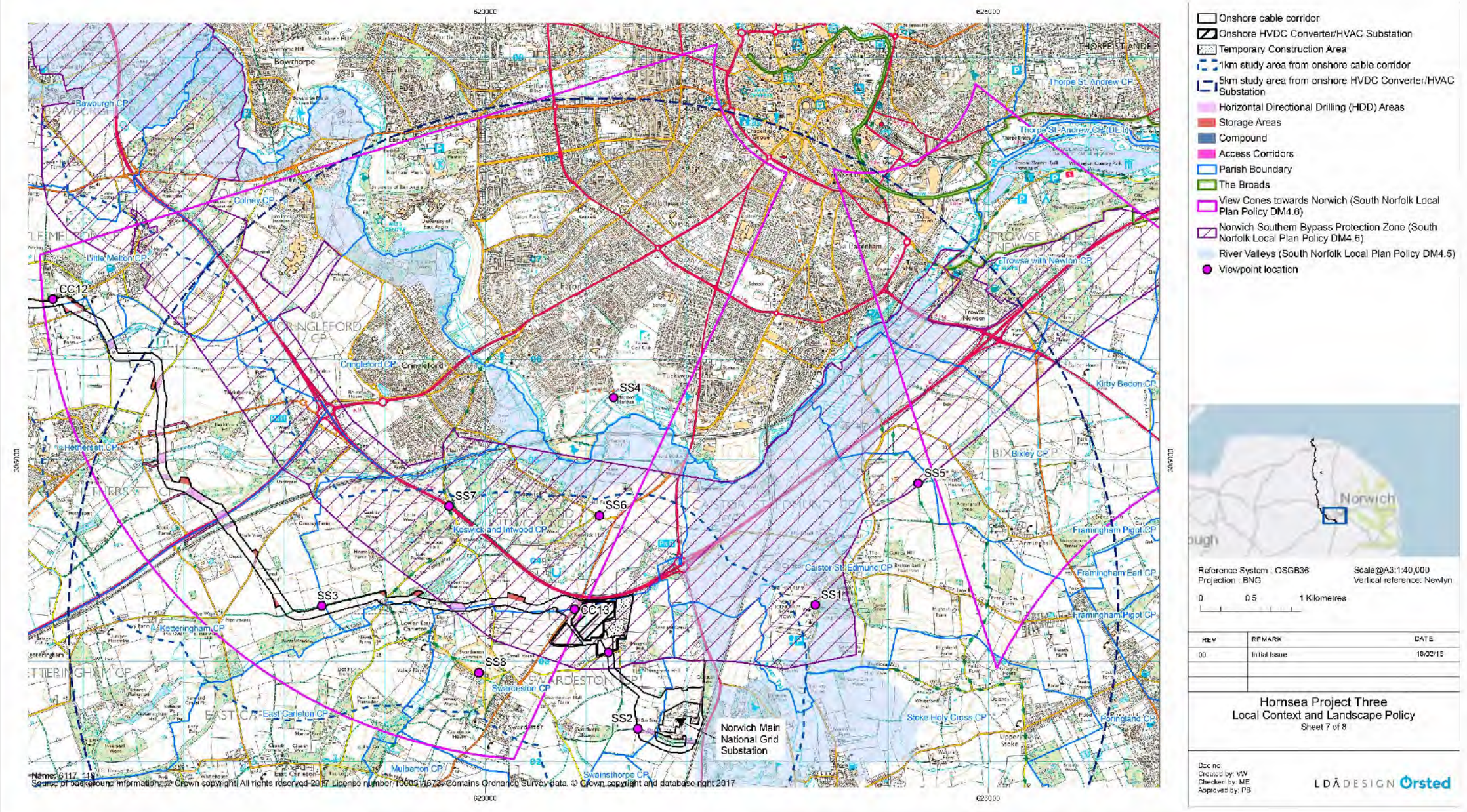

Figure 4.1: Local Context and Landscape Policy Sheet 7 of 8.

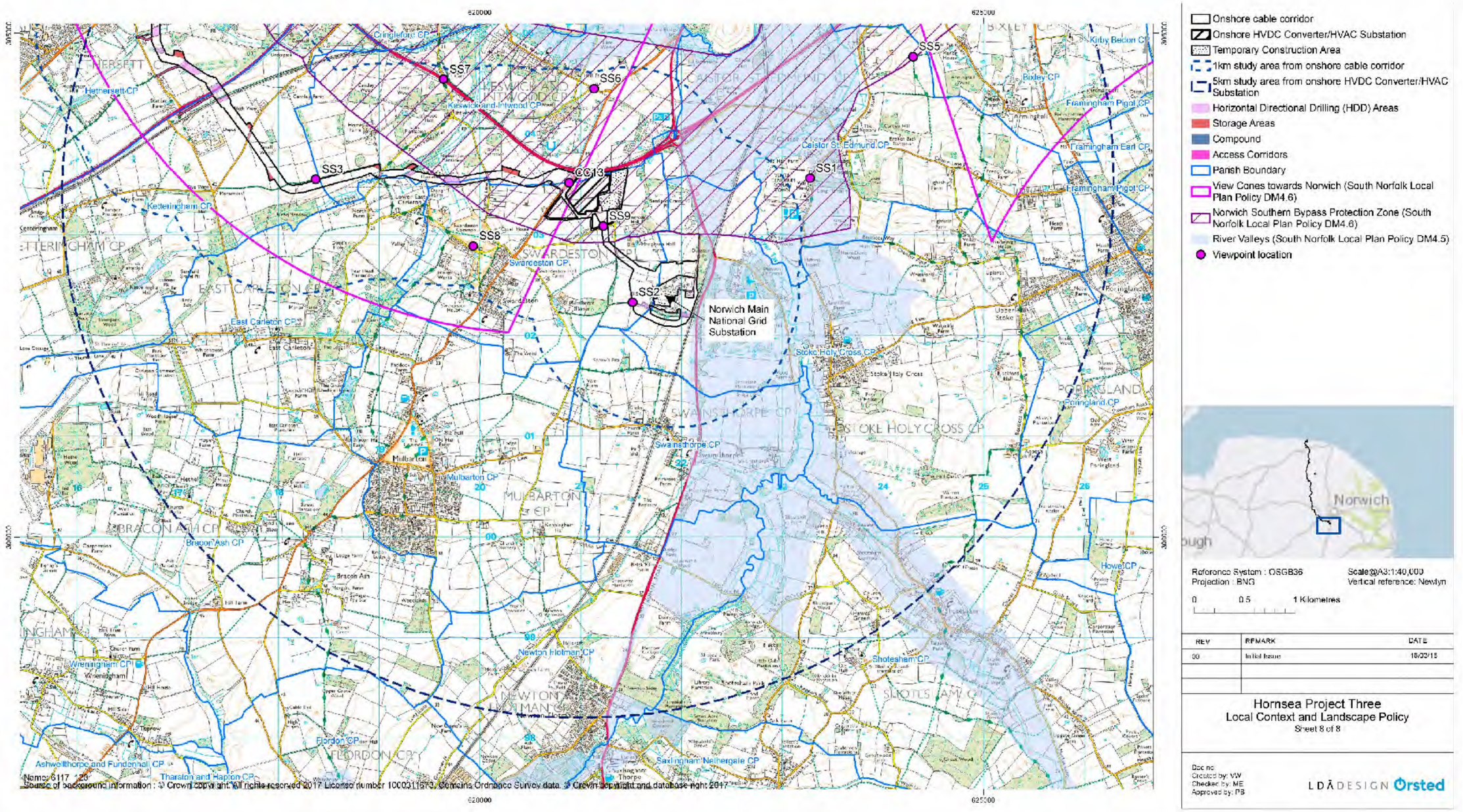

Figure 4.1: Local Context and Landscape Policy Sheet 8 of 8.

4.4 Planning policy context

4.4.1.1 This section reviews the various levels of planning policy that is relevant to the landscape and visual resources that are likely to be affected by Hornsea Three.

4.4.2 National Policy Statements

4.4.2.1 Planning policy on offshore renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to landscape and visual resources, is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change (DECC), 2011a), the NPS for Renewable Energy Infrastructure (EN-3) (DECC, 2011b) and the NPS for Electricity Networks Infrastructure (EN-5) (DECC, 2011c).

4.4.2.2 NPS EN-1, NPS EN-3 and NPS EN-5 include guidance on those matters to be considered in the assessment. These are summarised in Table 4.1.

Table 4.1: Summary of NPS EN-1, EN-3 and EN-5 provisions relevant to this chapter.

Summary of NPS EN-1, NPS EN-3 and NPS EN-5 provision	How and where considered in the Environmental Statement
Summary of NPS EN-1 policy relevant to the assessment of Landscape and Visual Resources	
A number of guides have been produced to assist in addressing landscape issues (paragraph 5.9.5).	Relevant guidance documents informing this assessment are set out in section 4.9.
The assessment should make reference to existing landscape character assessments and related studies (paragraph 5.9.5).	The existing published landscape character assessments are referred to in section 4.7.
The assessment should make reference to relevant planning policies (paragraph 5.9.5).	Relevant planning policy is referred to in section 4.4 and national policy summarised in this table.
The assessment should include the effects on landscape character and individual landscape elements during construction and operation (paragraph 5.9.6).	Assessment of effects on the landscape and landscape elements are assessed in section 4.11.
The assessment should include the visibility and conspicuousness of the project and potential impacts on views and visual amenity during construction and operation, including light pollution effects and nature conservation (paragraph 5.9.7).	Assessments of effects on visual resources, including night time effects, are assessed in section 4.11. The details of the lighting during construction, operation and decommissioning are not certain at this stage, but measures will be implemented as described in section 4.10.5.
There is a requirement that "*proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity*" (paragraph 2.4.2).	Details of the landscape proposals for the onshore cable corridor, onshore HVAC booster station and onshore HVDC converter/HVAC substation are set out in section 4.11, summarised in Table 4.12. Details of the proposals and management of landscape proposals for the onshore HVAC booster station and onshore HVDC converter/HVAC substation are detailed in the Outline Landscape Management Plan (Outline LMP) (document reference A8.7). Details of mitigation and enhancement of habitats and vegetation along the onshore cable route are detailed in the Outline Ecological Management Plan (Outline EMP) (document reference A8.6).
The NPS notes that "*In sites with nationally recognised designations, consent for renewable energy projects should only be granted where it can be demonstrated that the objectives of designation of the area would not be compromised by the development, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits*" (paragraph 2.5.33)	Assessments of effects on national designations are discussed in sections 4.11 to 4.14.
Seascape and visual effects are considered within the NPS. The inter-visibility between land and sea is noted (paragraph 2.6.201 – 2.6.206).	While this reference is for seascape effects, visual effects are considered in sections 4.11 and 4.16. The effects of the offshore infrastructure on seascape and visual resources are considered in volume 2, chapter 10: Seascape and Visual Resources.
Summary of NPS EN-5 policy relevant to the assessment of Landscape and Visual Resources	
An alternative put forward is to put electricity lines underground (paragraph 1.7.3). This alternative to overhead lines was considered to have long term positive effects on landscape and visual resources (paragraph 1.7.5).	Details of the underground onshore cable corridor are set out in volume 1, chapter 3: Project Description.
Developers have a duty, under Schedule 9 of the Electricity Act 1989, to *"have regard to the desirability of preserving natural beauty…"* when formulating proposals for new electricity infrastructure works (paragraph 2.2.6).	The cables will be buried underground which will minimise effects on natural beauty. Designed-in mitigation planting is proposed for the onshore HVAC booster station and onshore HVDC converter /HVAC substation and the colour of buildings will be agreed so as to reduce landscape and visual impacts. Details of the landscape proposals of the onshore HVAC booster station and the onshore HVDC converter/HVAC substation are set out in the Outline LMP (document reference A8.7). Details of mitigation and enhancement of habitats and vegetation along the onshore cable route are detailed in the Outline EMP (document reference A8.6).
Paragraph 2.6.1 states *that "when considering impacts for electricity networks infrastructure, all of the generic impacts covered in NPS EN-1 are likely to be relevant, even if they only apply during one phase of the development (such as construction)…".*	Refer to section 4.11 for the consideration of the potential effects on landscape and visual resources during construction, operation and decommissioning.

Summary of NPS EN-1, NPS EN-3 and NPS EN-5 provision	How and where considered in the Environmental Statement
Paragraph 2.8.2 comments that *"new substations, sealing end compounds and other above ground installations that form connection, switching and voltage transformation points on the electricity networks can also give rise to landscape and visual impacts."*	The onshore assessment considers the potential effects on the landscape and visual resources of all onshore components of Hornsea Three, from landfall in the intertidal area to the connection to the Norwich Main Substation.

4.4.2.3 NPS EN-1 and NPS EN-3 highlight a number of points relating to the determination of an application. These are summarised in Table 4.2.

4.4.2.4 NPS EN-3 refers to the generic impacts which are covered in Section 5.9 of EN-1 (see paragraphs 2.6.33, 2.6.198 and 2.6.207) and does not raise significant additional points relevant to this chapter, except in relation to offshore elements visible from the shore as noted in Table 4.2.

Table 4.2: Summary of NPS EN-1, and NPS EN-3 policy on decision making relevant to this chapter.

Summary of NPS EN-1 and NPS EN-3 policy on decision making (and mitigation)	How and where considered in the Environmental Statement
Summary of NPS EN-1 policy on decision making relevant to the assessment of Landscape and Visual Resources	
Has the chapter assessed the maximum extent of the proposed development where details are still to be finalised (paragraph 4.2.8).	This chapter assesses the maximum design scenario defined in section 4.8.1, complying with this requirement of NPS EN-1.
Has the chapter considered the existing landscape character (paragraph 5.9.8).	Section 4.7 describes the existing landscape character. Effects on landscape character are assessed in sections 4.11 to 4.14.
Having regard to siting, operational and other relevant constraints, does the project minimise harm to the landscape and provide reasonable mitigation where possible and appropriate (paragraph 5.9.8).	Details of the landscape proposals for the onshore cable corridor, onshore HVAC booster station and onshore HVDC converter/HVAC substation are set out in the chapter in section 4.10, summarised in Table 4.12 and detailed in the Outline LMP (document reference A8.7). Details of mitigation and enhancement of habitats and vegetation along the onshore cable route are detailed in the Outline EMP (document reference A8.6).
Nationally designated areas have the highest status of protection in relation to landscape and scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the decision maker should have regard to in its decisions (paragraphs 5.9.9 – 5.9.11).	Consideration of nationally designated areas has been included in the assessment in section 4.7.5 and in section 4.11.
Does the proposal compromise the purpose of a nationally designated area (paragraph 5.9.12).	Consideration for nationally designated areas has been included in the assessment in section 4.11.
The scale of nationally significant infrastructure projects will mean that they would often be visible within many miles of the site of the proposed infrastructure. The decision maker should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project (paragraph 5.9.15).	The effects of the project on landscape and visual resources are assessed in section 4.11.
In reaching a judgement, the decision maker should consider whether any adverse impact is temporary, such as during construction and /or whether any adverse impact on the landscape would be capable of being reversed in a timescale that the decision maker considers reasonable (paragraph 5.9.16).	The potential effects of the temporary and permanent elements of Hornsea Three on the landscape are assessed in section 4.11.
The IPC should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation (paragraph 5.9.17).	Details of the landscape proposals are set out in the chapter in section 4.10, summarised in Table 4.12 and detailed in the Outline LMP (document reference A8.7).
The decision maker would have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local areas, outweigh the benefits of the project (paragraph 5.9.18).	The potential effects of the temporary and permanent elements of the project on the visual resources in the surrounding area are assessed in section 4.11.
Does the project provide reasonable visual mitigation where possible and appropriate (paragraphs 5.9.21, 5.9.22 and 5.9.23).	Details of the landscape proposals are set out in the chapter in section 4.10, summarised in Table 4.12 and detailed in the Outline LMP (document reference A8.7).
Summary of NPS EN-3 policy on decision making relevant to the assessment of Landscape and Visual Resources	
Where the applicant has identified a precise route for the cable from the wind farm to a precise location for the onshore substation and connection to the transmission network, the EIA should assess the effects of the cable (paragraph 2.7.37).	An 80m corridor within which the cables will be constructed has been identified. Effects of the onshore cable are assessed in sections 4.11 to 4.14.
Where the precise details of a proposed development are not known, then the applicant should assess the effects the project could have (as set out in EN-1 paragraph 4.2.8) to ensure that the project as it may be constructed has been properly assessed (the Rochdale Envelope). In this way the maximum adverse case scenario will be assessed and the IPC should allow for this uncertainty in its consideration of the application and consent.	This chapter assesses the maximum design scenario defined in section 4.8.1, complying with this requirement of NPS EN-3.
Where a proposed offshore wind farm will be visible from the shore, an SVIA (Seascape and Visual Impact Assessment) should be undertaken which is proportionate to the scale of the potential impacts. Impact on seascape should be addressed in addition to the landscape and visual effects discussed in EN-1 (paragraph 2.6.201 – 2.6.206).	Only the offshore HVAC booster station(s) could potentially be visible from the shore at the north Norfolk coast; other permanent offshore elements of Hornsea Three would not be visible. A proportionate assessment of the offshore HVAC booster station(s) viewed from the Norfolk Coast is presented in in volume 6 annex 4.7: Effects of the Offshore HVAC Booster Station. A SVIA is presented in volume 2, Chapter 10: Seascape and Visual Resources, addressing effects on offshore receptors.

4.4.2.5 Further advice, specifically in relation to the Hornsea Three, has been sought through consultation with the statutory authorities and from the PINS scoping opinion in December 2016 (see Table 4.4).

4.4.3 Other relevant policies

4.4.3.1 A number of other national policies and guidance are relevant to landscape and visual impact including:

- National Planning Policy Framework;
- Planning Practice Guidance for Natural Environment;
- Planning Practice Guidance for Design.

4.4.3.2 A full summary of the relevant Statutory Development Plan documents in all Local Authority areas affected by the proposed onshore infrastructure for Hornsea Three is provided in the Planning Statement which accompanies the application. Relevant non-statutory documents, such as landscape character assessments, are referred to throughout this chapter.

4.4.3.3 Key provisions of relevant national and local policies are set out in Table 4.3 along with details as to how these have been addressed within the assessment.

Table 4.3: Summary of other relevant policies relevant to Landscape and Visual Resources.

Summary of other relevant policies	How and where considered in the Environmental Statement
National Planning Policy Framework	
Paragraphs 17, 58 and 126 – taking account of, and responding to, local character	Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance).
Paragraph 17 – amenity for occupants of land and buildings	Section 4.15 and volume 6, annex 4.6: Residential Visual Amenity.
Paragraphs 58, 61 and 64 – design should provide for function, include appropriate landscaping, integrate development into the environment and use available mitigation and enhancement opportunities.	Section 4.10 sets out design measures and mitigation.
Paragraph 113 – protection of designated landscapes should take account of the hierarchy of nationally and locally designated sites.	Section 4.7.3 (baseline).
National Planning Practice Guidance	
Planning Practice Guidance for Natural Environment (2014) paragraphs 003 and 004– refer to the consideration of nationally designated landscapes in respect of their statutory purposes, and points to the relevance on management plans for these areas.	Section 4.7.3 (baseline).
Planning Practice Guidance for Design (2014) – consideration of landscape character, views into a site and landform should inform design.	Section 4.10 sets out design measures and mitigation.
Local Planning Policy	
North Norfolk Core Strategy and Development Management Policies (2008)	
EN1 *Norfolk Coast Area of Outstanding Natural Beauty and The Broads* – sets out policy in relation to the protection of the Norfolk Coast AONB.	Section 4.7.3 (baseline.
EN2 *Protection and Enhancement of Landscape and Settlement Character* – sets out policy in relation to the protection of:	
• landscape character, features and skylines; and the landscape settings of settlements	Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance).
• views into and out of Historic Parks and Gardens and effects on the defined setting of Sheringham Park.	Volume 3, chapter 5: Historic Environment assesses effects on the settings of historic landscapes. Effects on public views from these landscapes and parks are addressed in sections 4.7.6 (visual baseline), and 4.11; (assessment of significance).
• effects on nocturnal character.	Night time effects due to lighting are included in assessments in section and 4.11; (assessment of significance).
EN3 *Undeveloped Coast* – sets out policy aiming to protect open coastal character.	Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance).
EN4 *Design* – requires design to be appropriate to context, respect landscape character, retain important landscape features.	Section 4.10 sets out design measures and mitigation.
EN4 *Design* – seeks to protect residential amenity.	Section 4.15 and volume 6, annex 4.6: Residential Visual Amenity.
EN7 *Renewable energy* – provides policy specifically in relation to renewable energy developments and their effects on landscape and residential amenity, as well as cumulative effects with other development..	Landscape and residential amenity are dealt with as set out above. Section 4.14 considers cumulative effects.
Joint Core Strategy for Broadland, Norwich and South Norfolk (2014)	
Policy 2 *Promoting Good Design* – sets out policy in relation to local distinctiveness and landscape character	Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance).
Broadland District Council Development Management DPD (2015)	
GC4 *Design* – requires development design to have regard to character, in respect of scale, landscaping and appearance and potential effects on the amenity of existing properties.	Section 4.10 sets out design measures and mitigation. Section 4.15 and volume 6, annex 4.6: Residential Visual Amenity.
EN2 *Landscape* – sets out policy in relation to the protection of:	
• visually sensitive skylines, hillsides and valley sides, and important views	Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance).
• nocturnal character.	Night time effects due to lighting are included in assessments in section 4.11; (assessment of significance).

Summary of other relevant policies	How and where considered in the Environmental Statement
• Historic Parks and Gardens	Volume 3, chapter 5: Historic Environment assesses effects on the settings of historic landscapes. Effects on public views from these landscapes and parks are addressed in sections 4.7.6 (visual baseline), and 4.11; (assessment of significance).
• Landscape features which make an important contribution to character	Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance).
South Norfolk Development Management Policies Document (2015)	
Policy DM1.4 *Environmental Quality and Local Distinctiveness* – sets out policy in relation to the approach to and justification for design measures and mitigation strategies in relation to local character.	Section 4.10 sets out design measures and mitigation.
Policy DM3.8 *Design Principles* – sets out a requirement for design to reflect local character and retain important natural features.	Section 4.10 sets out design measures and mitigation.
Policy DM4.5 *Landscape Character and River Valleys* – requires development to respect landscape character (and the related characteristics, features and strategy) with particular regard to be had to River Valley and Valley Urban Fringe LCTs	Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance).
Policy DM4.6 *Landscape Setting of Norwich* – sets out policy aiming to protect the openness of a zone around the Southern Bypass, avoid undermining the rural character of undeveloped approaches to Norwich and specific Key Views of the city.	Section 4.7.5 (designated landscapes)
Policy DM4.9 *Incorporating Landscape into Design* – sets out an expectation of landscape proposals, appropriate to local character, as part of development.	Section 4.10 sets out design measures and mitigation.

4.5 Consultation

4.5.1.1 Table 4.4 below summarises the issues raised relevant to landscape and visual resources, which have been identified during consultation activities to date. Table 4.4 also indicates either how these issues have been addressed within this Environmental Statement or how the Applicant has had regard to them. Further information on the consultation activities undertaken for Hornsea Three can be found in the Consultation Report (document reference number A5.1) that accompanies the DCO application.

Table 4.4: Summary of key consultation issues raised during consultation activities undertaken for Hornsea Three relevant to landscape and visual resources.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
December 2016	PINs – Scoping Report	Table 12.1 notes that there are eight national 'landscape designations' identified within the onshore ECR corridor (the Hornsea Three onshore cable corridor) (Table 2.1). The table identifies a further 22 landscape designations within 12 km of the onshore ECR corridor.	All identified landscape designations are included in the baseline assessment (section 4.7.3) and carried through to the assessment stage (section 4.11).
		Table 12.3 of the Scoping Report proposes scoping out any indirect impacts that fall outside the influence of the Zone of Theoretical Visibility (ZTV) for all phases of the development. Visual impacts from the offshore HVAC booster stations are scoped out on the grounds that they are too far offshore to have any significant visual impacts onshore. Impacts of the onshore ECR [cable] corridor are scoped out for the operational stage on the grounds that there will be no significant changes to landscape character or visual amenity as the cable will be buried underground. The Secretary of State agrees that the matters identified in Table 12.3 can be scoped out of the landscape and visual impact assessment (LVIA).	These items have been scoped out and justification for doing so is set out in Table 4.7.
December 2016	PINs – Scoping Report	The Secretary of State recognises that the proposed study area for the landscape and visual resources assessment is broad at this stage and welcomes that the study area, including the locations of the substation and HVAC booster station (if required), will be refined by making use of the Scottish Natural Heritage 2014 guidance and the application of a ZTV. The Environmental Statement should describe the ZTV model used, and provide information on the area covered, the timing of any survey work, and the methodology used. The Secretary of State welcomes that the locations of viewpoints will be agreed with the local authorities.	The study areas presented for the various elements of this assessment are described at section 4.3 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The study areas have been identified based a review of the ZTVs and field work. The ZTVs are presented at Figure 4.5 and Figure 4.6, and the method used for their preparation is described in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, Appendix A: ZTV and Photomontage Methodology. The number and location of representative viewpoints within the Hornsea Three landscape and visual resources study areas for the onshore HVAC booster station and the onshore HVDC converter/HVAC substation have been consulted on and agreed with North Norfolk District Council (NNDC), South Norfolk District Council (SNDC), Broadland District Council (BDC), Norfolk County Council (NCC) and the Norfolk Coast Partnership (NCP). The LVIA methodology is described at volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The field work undertaken is discussed in section 4.6.3.
		The Secretary of State notes that Figure 12.1 of the Scoping Report identifies a number of relevant designations that lie outside but in proximity to the study area (defined as land within the onshore ECR corridor search area above MLWS), such as, for example, The Broads, which is in the vicinity of the potential location of the electrical connection point. However, paragraph 12.1.10 and the accompanying Table 12.1 suggest that features outside the study area, such as Registered Parks and Gardens (also considered in the Historic Environment section), will be considered in the assessment, although The Broads is not listed. The Secretary of State recommends that consideration is given to such features when defining the study area, and that the study area is described clearly and consistently in the Environmental Statement. The Applicant's attention is drawn to the comments of NE in their scoping response in respect of the Norfolk Coast AONB.	The study areas for the onshore cable corridor, the onshore HVAC booster station and the onshore HVDC converter/HVAC substation are illustrated on Figure 4.1, and described at section 4.3 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The effects upon all landscape designations within the study areas are considered within this chapter. Registered Parks and Gardens are a heritage designation and effects on them are not considered within this chapter, but are assessed in volume 3, chapter 5: Historic Environment.
		The Secretary of State welcomes the proposal to use photomontages, wirelines and annotated Viewpoints to illustrate the outcomes of the field surveys.	Wirelines of the onshore HVAC booster station and the onshore HVDC converter/HVAC substation from the representative viewpoints that show the maximum design scenario, and photomontages that show illustrative schemes from selected viewpoints are include in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages.
		The Secretary of State notes and welcomes the reference to the application of the guidance on cumulative assessments contained in the 'Guidelines for Landscape and Visual Impact Assessment'.	Cumulative methodology is presented at section 4.12 and the cumulative assessment is presented at section 4.14.
December 2016	PINs – Scoping Report	Cross-reference should be made from this topic chapter of the Environmental Statement to the Historic Environment and Ecology and Nature Conservation Environmental Statement chapters.	Cross references have been made to all relevant chapters within the Environmental Statement.
		The Secretary of State recommends that draft versions of the Code of Construction Practice (CoCP) and Written Scheme of Investigation (WSI) and landscape planting proposals are submitted with the DCO application and agreed with relevant statutory consultees.	An Outline LMP (document reference A8.7) for the onshore cable corridor, onshore HVAC booster station and the onshore HVDC converter/HVAC substation is submitted with the Environmental Statement and will be agreed with relevant statutory consultees, presenting landscape proposals including planting mixes. An Outline CoCP (document reference A8.5) is also submitted presenting strategies, control measures and monitoring procedures for managing the potential environmental impacts of constructing the onshore elements of Hornsea Three. These documents are intended to help limit effects during construction and operation phases.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
		The Secretary of State recommends that the physical scope of the study areas should be identified for each of the environmental topics and should be sufficiently robust in order to undertake the assessment. This should include at least the whole of the application site, and include all offsite works. For certain topics, such as landscape and transport, the study area will need to be wider. The extent of the study areas should be on the basis of recognised professional guidance and best practice, whenever this is available, and determined by establishing the physical extent of the likely impacts. The study areas should also be agreed with the relevant consultees and, where this is not possible, this should be stated clearly in the Environmental Statement and a reasoned justification given.	The Hornsea Three landscape and visual resources study areas for the onshore cable corridor, the onshore HVAC booster station and the onshore HVDC converter/HVAC substation are illustrated on Figure 4.1, and described, including reasoning, at section 4.3 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology.
		The assessment should consider: • Environmental impacts during construction works; • Environmental impacts on completion/operation of the proposed development; • Where appropriate, environmental impacts a suitable number of years after completion of the proposed development (for example, in order to allow for traffic growth or maturing of any landscape proposals); and • Environmental impacts during decommissioning.	The assessment of landscape and visual impacts has been undertaken at construction, operation and maintenance, and decommissioning phases. Assessment during the operation and maintenance phases includes potential changes over time as proposed planting matures (sections 4.11 to 4.14).
Within Scoping Report dated December 2016	Historic England – in appendix of Scoping Report	We note that registered parks & gardens are considered as landscape designations within the Landscape and Visual Impact chapter. We will highlight that these are designated heritage assets (as defined and identified within the NPPF) and should therefore also be considered within the historic environment chapter (with regarded and reference to the LVIA) and in-line with the relevant criteria and methodology as set out above.	The setting of Registered Parks and Gardens, as heritage assets are considered within volume 3, chapter 5: Historic Environment. They are not a landscape designation and effects on them are not assessed within this chapter. This has changed from the PEIR stage to ensure compliance with best practice guidance.
Within Scoping Report dated December 2016	Natural England – in appendix of Scoping Report	Natural England is the statutory adviser to Government on nature conservation in England and promotes the conservation of England's wildlife and natural features. With regards to landscape and visual impacts we only advise where highly sensitive visual receptors are located within a designated landscape and are undertaking 'countryside recreations activities' (walking, riding bikes etc.), where the appreciation of the visual amenity provided by the designated landscape is an important aspect of their experience.	Visual receptors within designated landscapes are considered in the assessment within this chapter.
Within Scoping Report dated December 2016)	Natural England – in appendix of Scoping Report	As infrastructure associated with the proposed wind farm is evidently near the Norfolk Coast Area of Outstanding Natural Beauty (AONB), consideration should be given to the direct and indirect effects upon this designated landscape. In particular consideration should be given to the effect upon its purpose for designation, as well as the content of its management plan.	The effects of the proposals on the Norfolk Coast AONB are considered in sections 4.11 to 4.14.
Within Scoping Report dated December 2016	Natural England – in appendix of Scoping Report	The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies. We encourage the use of Landscape Character assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed. Natural England supports the publication Guidelines for Landscape and Visual Impact Assessment, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for LVIA.	The baseline landscape character, including reference to landscape character assessments, is presented in section 4.7. Effects on landscape character are set out in sections 4.11 to 4.14. A full LVIA has been undertaken following the Guidelines for Landscape and Visual Assessment: Third Edition and is presented in this chapter.
Within Scoping Report dated December 2016	Norfolk County Council – in appendix of Scoping Report	The County Council welcomes reference on pages 309 (Ecology) and 322 (landscape) to the need to take into account the onshore cumulative impacts arising from this and other proposals/developments. The EIA should consider the opportunities for any potential synergy with other planned/proposed wind farms (i.e. the Vanguard and Boreas Wind Farm Proposals) particularly in relation to the possibility of sharing onshore infrastructure such as cable corridors; relay stations and substation connection points.	An assessment of potential cumulative impacts is included at section 4.14, including assessments with relevant wind farms.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
Within Scoping Report dated December 2016	Norfolk County Council – in appendix of Scoping Report	For both offshore and any associated onshore development/infrastructure (e.g. work compound, sub-station; relay stations etc.) the EIA/PEIR will need to provide: • An assessment of the impact of the development on the landscape and seascape character (where visible from onshore), including landscape in neighbouring counties where they fall within the zone of visual influence; • An assessment of the visual intrusion caused by the development which should include the preparation of a Zone of Visual Intrusion plan/map; • Photomontages illustrating the impact of the development (See also Grid Connection Issues below); • An assessment of the cumulative impact of this development taken together with the other (a) operational wind farms, (b) permitted wind farms in the area and (c) development proposals likely to come forward; and • An assessment of the impact of the development on the heritage landscape.	This chapter presents effects of the development on landscape character. Effects on seascape character are presented in volume 2, chapter 10: Seascape and Visual Resources. ZTVs have been generated for both the onshore HVAC booster station and the onshore HVDC converter/HVAC substation and are presented at Figure 4.5 and Figure 4.6 of this chapter. Wirelines of the onshore HVAC booster station and the onshore HVDC converter/HVAC substation from the representative viewpoints that show the maximum design scenario, and photomontages that show illustrative schemes from selected viewpoints are included in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. The cumulative effects assessment is set out in sections 4.14 of this chapter. The effects of the historic landscape are presented in volume 3, chapter 5: Historic Environment.
		The EIA/PEIR will need to evaluate the impact on the landscape of upgrading existing roads and creating new access routes in the construction and operational phase of the project (including enhanced signage) as all of this can sub-urbanise a rural landscape. It will also need to consider how these should be mitigated, perhaps through removal and reinstatement at the end of the project. Please also refer to Highway - Traffic and Access section.	Effects on the landscape of upgrading existing roads and creating new access routes in the construction, and operation and maintenance phase of the project are considered within this chapter. Reinstatement is described in volume 1, chapter 3: Project Description.
		The EIA/PEIR will need to address the impact of the wind farm on tourism, including tourism occurring in neighbouring counties, which may be affected if the natural landscape is altered sufficiently.	Effects on tourism are assessed in volume 3, chapter 10: Socio-economics.
Within Scoping Report dated December 2016	Norfolk County Council – in appendix of Scoping Report	The EIA/PEIR will need to address whether the existing overhead lines and substation are sufficient to be able to cope with the Wind Farm, or whether there will need to be any upgrading of any existing overhead power lines. The EIA/PEIR should also address the cumulative impact on the Grid Network arising from any existing or proposed Wind Farm in the area. In the event that new power lines are needed (or existing power lines up-graded) or any other infrastructure needs up-grading (e.g. sub-station) there will need to be a description of the route(s) including plans at an appropriate scale incorporating, for example: • an assessment of their impact (e.g. photomontages etc.) • details of temporary construction compounds • identification of any sensitive features along the route The EIA/PEIR should consider the possibility of putting over-head power lines underground in order to minimise their impact.	No new overhead lines are proposed as part of Hornsea Three. The cumulative effects assessment is set out in sections 4.14.
May 2017 to March 2018	Norfolk County Council, meetings and email exchange	LVIA methodology, viewpoint locations.	Draft summary method and viewpoint locations sent to NCC 18 January 2017. Report on type, number and format of visualisations sent to NCC, SNDC, NNDC and NCP on 21 December 2017. Response received from NCC 12 January 2018 agreeing approach. Report on method for assessing effects of offshore booster station on land based receptors, and viewpoints within the AONB sent to NCC, SNDC, NNDC and BDC on 21 December 2017. Response received from NCC 12 January 2018 agreeing approach. The final updated LVIA method is described in section 4.9 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The final updated method has not been consulted on, although it is robust and in compliance with GLVIA3.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
December 2016 to March 2018	North Norfolk District Council, meetings and email exchange	LVIA methodology, viewpoint locations, presentation of visualisations – agreement on the type, number and format.	Discussions on draft summary method and viewpoint locations at meetings on 07 February 2017 and 14 June 2017. Report on type, number and format of visualisations sent to NCC, SNDC, NNDC and NCP on 21 December 2017. No response received from NNDC. Report on method for assessing effects of offshore booster station on land based receptors, and viewpoints within the AONB sent to NCC, SNDC, NNDC and BDC on 21 December 2017. No response received from NNDC. The final updated LVIA method is described in section 4.9 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The final updated LVIA method has not been consulted on although it is robust and in compliance with GLVIA3.
December 2016 to March 2018	South Norfolk District Council	LVIA methodology, viewpoint locations presentation of visualisations – agreement on the type, number and format, substation design, planting specifications.	Discussions on draft summary method, viewpoint locations and design matters discussed at meetings on 18 January 2017 and 14 June 2017. Report on type, number and format of visualisations sent to NCC, SNDC, NNDC and NCP on 21 December 2017. SNDC responded 17 January 2018 agreeing approach. Stated that they would like visualisations based on photography from the A47. There are no locations to stop on the A47 as it passes the site to take photography so photos were taken from a moving car and are presented in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. The final updated LVIA method is described in section 4.9 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The final updated LVIA method has not been consulted on although it is robust and in compliance with GLVIA3. Planting proposals and landscape design approach for the onshore HVAC booster station and the onshore HVDC converter/HVAC substation are presented in the Outline LMP (document reference A8.7).
December 2017	Broadland District Council	Presentation of visualisations – agreement on the type, number and format,	Report on type, number and format of visualisations sent to NCC, SNDC, NNDC and NCP on 21 December 2017. No response received from BDC.
December 2017 and January 2018	Norfolk Coast Partnership	Viewpoints within the AONB, method for assessing effects of offshore HVAC booster station on land based receptors within the AONB.	Report on method for assessing effects of offshore booster station on land based receptors, and viewpoints within the AONB sent to NCC, SNDC, NNDC and BDC on 21 December 17. First response received from BDC on 22 December 2017 and second response on 23 January 2018 agreeing approach.
March and April 2017	Natural England	LVIA methodology, viewpoint locations.	Email received from NE 10 March 2017 stating that they agree with the draft summary methodology and that the local planning authorities are better placed to comment on viewpoint locations.

4.6 Methodology to inform the baseline

4.6.1.1 This methodology relates to the baseline conditions which were identified by a desktop review of:

- Published seascape and landscape character assessments;
- Ordnance Survey 1:25,000 mapping; and
- Aerial photography.

4.6.1.2 A number of site visits were also conducted in order to establish the existing landscape character and to identify the likely views available for the various landscape and visual receptors that are located within landscape and visual resources study areas defined in section 4.3.

4.6.2 Desktop study

4.6.2.1 Information on the landscape and visual resources within the landscape and visual resources study areas (as defined in section 4.3) was collected through a detailed desktop review of existing studies and datasets. These are summarised at Table 4.5.

Table 4.5: Summary of key desktop reports.

Title	Source	Year	Author
Seascape Characterisation around the English Coast (Marine Plan Areas 3 and 4 and Part of Area 6 Pilot Study) Report no. NECR106	Natural England website	2012	URS Scott Wilson for Natural England
National Character Area Profiles	UK Government website	2014	Natural England
North Norfolk Landscape Character Assessment	North Norfolk District Council website	2009	North Norfolk District Council Planning Policy Team
Broadland District Landscape Character Assessment	Broadland District Council website	2008 (updated 2013)	Chris Blandford Associates
South Norfolk District Landscape Character Assessment	South Norfolk District Council website	2001 (updated 2006 and 2008)	Land Use Consultants
South Norfolk District Landscape Designations Review	South Norfolk District Council website	2012	Chris Blandford Associates
Norfolk Coast Area of Outstanding Natural Beauty Integrated Landscape Guidance	Norfolk Coast AONB website	2014	Norfolk Coast Partnership
Norfolk Coast Area of Outstanding Natural Beauty Management Plan Strategy 2014-19	Norfolk Coast AONB website	2014	Norfolk Coast Partnership

Identification of designated sites

4.6.2.2 All designated sites within the landscape and visual resources study areas that could be affected by the construction, operation and maintenance, and decommissioning of the onshore elements of Hornsea Three (as well as compounds, storage areas and accesses) were identified using the three step process described below:

- Step 1: All landscape designations of international, national and local importance within the Hornsea Three landscape and visual resources study areas were identified using a number of sources. The designated sites include The Broads, the North Coast AONB and a number of other areas protected by local policy.
- Step 2: Information was compiled on the relevant features for each of these landscape designations.
- Step 3: Using the above information and expert judgement, landscape designations were included for further consideration if:
  - A landscape designation directly overlaps with Hornsea Three; or
  - Landscape designations and associated features were located within the Hornsea Three landscape and visual resources study areas.

4.6.2.3 Designated landscapes considered in this assessment are illustrated on Figure 4.1 and discussed in further detail at section 4.7.

4.6.3 Site specific surveys

4.6.3.1 A series of site visits were undertaken to survey the Hornsea Three onshore cable corridor, the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the surrounding areas to verify the documented landscape and visual baseline; select and photograph viewpoints; and assess the effects of the Hornsea Three on landscape and visual resources.

4.6.3.2 Viewpoint locations were selected as a result of field work and desktop surveys that included the generation of ZTVs, as well as through consultation with NCC, NNDC, BDC, SNDC and NCP. The viewpoints are designed to provide a representation of views available in a variety of directions and from a variety of distances. The viewpoints are located on publicly accessible locations such as Public Rights of Way (PRoW) and coincide with the ZTV. Site visits were undertaken on 16, 17 and 23 November 2017 to confirm the Hornsea Three landscape and visual resources study areas and undertake photography, and 17, 18 and 19 January 2018 to undertake photography and impact assessment. Site visits were undertaken during winter and in good visibility. The assessment allows for seasonal variation in vegetation patterns.

4.7 Baseline environment

4.7.1.1 This section reviews the landscape and visual resources that are within the landscape and visual resources study areas, utilising the ZTVs, ZVIs and site assessment work to scope out receptors where significant effects are unlikely to occur.

4.7.1.2 Due to the differences in the extents of the landscape and visual resources study areas for the onshore cable corridor (including compounds, storage areas and accesses) and the onshore HVAC booster station and onshore HVDC converter/HVAC substation, this chapter considers the baseline environment of these different elements separately.

4.7.2 Zone of Theoretical Visibility (ZTV) and Zone of Visual Influence (ZVI) studies

4.7.2.1 The ZTV and ZVI studies of the onshore HVAC booster station and onshore HVDC converter/HVAC substation are presented on Figure 4.5 and Figure 4.7. These have been used in combination with further desk study and fieldwork to identify landscape and visual receptors unlikely to be influenced by the proposed onshore HVAC booster station and onshore HVDC converter/HVAC substation.

ZTVs

4.7.2.2 The ZTV studies were generated, based on the maximum design scenarios for the onshore HVAC booster station and onshore HVDC converter/HVAC substation. The analysis was carried out using a topographic model and including settlements and woodlands (with heights derived from NEXTMAP 25 surface mapping data) as visual barriers.

4.7.2.3 The ZTV studies were used to aid the identification of those receptors that are likely to be most affected by the proposed development and those where potential visibility is so limited that significant effects would not occur and further consideration is unnecessary. However, areas shown as having potential visibility may have visibility of the development screened by local features such as trees, hedgerows, embankments or buildings that are not included in the model.

ZVIs

4.7.2.4 As noted above, areas shown as having theoretical visibility may have visibility of Hornsea Three screened by local features such as trees, hedgerows, embankments or buildings. The anticipated main area of visibility, based on site observations, is annotated on Figure 4.5 and Figure 4.7 as the ZVI. These are described in the following paragraphs.

ZVI of the onshore HVAC booster station

4.7.2.5 Site observations confirm that extensive vegetation within the wider landscape would notably reduce the extent of visibility of the onshore HVAC booster station from that illustrated by the ZTV. Across the onshore HVAC booster station study area vegetation cover is much more extensive than indicated by the ZTV; field boundaries are typically formed from mature hedgerows with some hedgerow trees and areas of trees and scrub, and there is extensive tree and vegetation cover within and on the edge of settlements. The ZVI would be confined to the area shown on Figure 4.5 comprising an area of arable farmland west of woodlands which lie immediately east of the proposed onshore HVAC booster station, only extending east of the onshore HVAC booster station for a short distance between at Barringham Green Plantation and New Covert. The ZVI would extend up to approximately 1 km from the HVAC booster station east of Edgefield Street, and up to approximately 1.5 km to the south west in the vicinity of Viewpoint BS4 (see Figure 4.5 and volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages).

4.7.2.6 Beyond these areas, there are isolated locations from where the onshore HVAC booster station would be visible that are not included in the ZVI because they are small areas and the onshore HVAC booster station would have limited influence on views – for example in the vicinity of Viewpoint BS2 to the east (see Figure 4.5 and volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages).

ZVI of the onshore HVDC converter/HVAC substation

4.7.2.7 Site observations confirm that extensive vegetation within the wider landscape would notably reduce the extent of visibility of the HVDC converter/HVAC substation from that illustrated by the ZTV. Across the onshore HVDC converter/HVAC substation study area vegetation cover is much more extensive than indicated by the ZTV; field boundaries are typically formed from mature hedgerows with some hedgerow trees and areas of trees and scrub, and there is extensive tree and vegetation cover within and on the edge of settlements and along roads. The ZVI would be confined to the area shown on Figure 4.7 comprising:

- An area of predominantly arable farmland south of the site up to Gowthorpe Manor and local roads west and east of Gowthorpe Manor. As far south east as Norwich Main substation. Up to approximately 1 km from the onshore HVDC converter/HVAC substation;
- An area of predominantly arable farmland west of the site up to Intwood Lane. Up to approximately 0.9 km from the onshore HVDC converter/HVAC substation;
- An area of farmland and parkland around Keswick Hall, and a park and ride site north of the A47. Up to approximately 1.2 km from the onshore HVDC converter/HVAC substation; and
- Arable fields up to trees and woodland that lies west of an existing quarry and vegetation around Mangreen Hall. Up to approximately 0.4 km from the onshore HVDC converter/HVAC substation.

4.7.2.8 Beyond these areas there are isolated locations from where the proposed onshore HVDC converter/HVAC substation would be visible that are not included in the ZVI because they are small areas and the onshore HVDC converter/HVAC substation would have limited influence on views – for example in the vicinity of Viewpoints SS1 and SS5 to the east, SS4 and SS7 to the north and north west, and SS3 to the west (see Figure 4.7 and volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages).

4.7.3 Landscape Baseline

4.7.3.1 Landscape and seascape character assessments have been published by Natural England, the District Councils and the AONB Partnership.

National Seascape Character Areas (NSCAs)

4.7.3.2 In October 2012, Natural England published the final version of Report NECR106 'Seascape Characterisation around the English Coast (Marine Plan Areas 3 and 4 and Part of Area 6 Pilot Study)'. The document identifies NSCAs which present the seascape character baseline at a national level. The only NSCA that fall within the Hornsea Three landscape and visual resources study areas are Norfolk Coastal Waters and East Midlands Coastal Waters, which fall within the onshore cable corridor study area, as illustrated on Figure 4.2. There are no NSCAs within the onshore HVAC booster station or onshore HVDC converter/HVAC substation study areas. Given the short term and limited extent of the construction activities associated with the onshore cable corridor, there would be no significant effects on seascape character and so effects on these NSCAs are not considered further.

National Character Areas

4.7.3.3 Natural England has produced a series of national countryside character reports, which identify the baseline landscape character of England at a national level. The NCAs that are coincident with at least one of the landscape and visual resources study areas are:

- NCA77: North Norfolk Coast;
- NCA78: Central North Norfolk;
- NCA83: South Norfolk and High Suffolk Claylands; and
- NCA84: Mid Norfolk.

4.7.3.4 Key characteristics for these NCAs are outlined in volume 6, annex 4.2: Extracts from National Landscape Character Area Descriptions, and the location of onshore elements of Hornsea Three in relation to them is illustrated on Figure 4.2.

4.7.3.5 Paragraphs 5.13-5.15 of GLVIA3 indicates that landscape character studies at the national or regional level are best used to "*set the scene*" and understand the landscape context. It indicates that Local Authority Assessments provide more detail and that these should be used to form the basis of the assessment of effects on landscape character, as such effects on NCAs are not considered further.

Local Landscape Character

4.7.3.6 North Norfolk, Broadland and South Norfolk Districts each have local landscape character assessments, which are referred to below. Extracts of each of these are included volume 6, annex 4.3: Extracts from Local Landscape Character Descriptions.

Onshore Cable Corridor

Local Landscape Character

4.7.3.7 Local landscape character baseline within the Hornsea Three onshore cable corridor study area is defined by the following assessments:

- Norfolk Coast AONB Integrated Landscape Guidance;
- North Norfolk Landscape Character Assessment;
- Broadland District Landscape Character Assessment; and
- South Norfolk District Landscape Character Assessment.

4.7.3.8 The Norfolk Coast AONB guidance notes at section 2.1 that it *"does not seek to override the detailed information contained in each of the district-based landscape character assessment reports; instead it summarises and presents information from the detailed reports in a consistent, user-friendly format which relates to the landscapes of the AONB."* As this guidance defers to the North Norfolk Landscape Character Assessment, which also covers a greater extent of the onshore cable corridor study area, the North Norfolk assessment will be considered as the baseline and the AONB guidance will not be considered further.

4.7.3.9 Given the limited spatial extent of the onshore cable corridor in relation to individual LCAs and the nature of potential effects (i.e. short-term construction activity followed by landscape reinstatement) the only LCAs likely to experience notable effects as a result of the construction of the Hornsea Three onshore cable corridor are those that are coincident with it. LCAs that fall within the onshore cable corridor study area for the onshore cable corridor but outside of the corridor itself would experience no direct effects and are therefore excluded from detailed consideration. LCAs within the onshore cable corridor study area for the onshore cable corridor are illustrated on Figure 4.3. The following LCAs are coincident with the Hornsea Three onshore cable corridor and are considered in further detail at sections 4.11 to 4.14:

- North Norfolk Landscape Character Assessment:
  - CTV1 Weybourne to Sheringham;
  - DCM2 Blakeney, Wiveton, Cley and Salthouse;
  - RHA2 Salthouse and Kelling Area;
  - SV8 Gresham, Aldborough and Erpingham;
  - TF2 Snoring, Stibbard and Hindolveston;
  - TF3 Hempstead, Bodham, Aylmerton and Wickmere Area;
  - WP2 Holt to Cromer; and
  - WP5 Plumstead and Barningham.
- Broadland District Landscape Character Assessment:
  - A1 Wensum River Valley;
  - C1 Foulsham and Reepham Plateau Farmland;
  - D1 Cawston Tributary Farmland;
  - D2 Weston Green Tributary Farmland; and
  - E1 Blickling and Oulton Wooded Estatelands.
- South Norfolk District Landscape Character Assessment:
  - A2 Yare/Tiffey Rural River Valley;
  - A3 Tud Rural River Valley;

- B1 Tas Tributary Farmland;
- C1 Yare Tributary Farmland with Parkland;
- D1 Wymondham Settled Plateau Farmland; and
- G1 Easton Fringe Farmland.

Onshore HVAC Booster Station

4.7.3.10 The ZTV and ZVI studies for the onshore HVAC booster station are presented at Figure 4.5, and have been used in combination with further desk study and fieldwork to identify landscape receptors which are unlikely to have any visibility of the onshore HVAC booster station that are, as a result, not considered in further detail. Landscape receptors within the HVAC booster station study area are set out below.

Local Landscape Character

4.7.3.11 Local landscape character baseline within the Hornsea Three onshore HVAC booster station study area is defined by the following assessments:

- North Norfolk Landscape Character Assessment; and
- Broadland District Landscape Character Assessment.

4.7.3.12 The LCAs that fall within the HVAC booster station study area are illustrated on Figure 4.3, these are:

- North Norfolk Landscape Character Assessment:
  - LV5 Saxthorpe to Itteringham;
  - SV3 Thornage to Brinton;
  - SV8 Gresham, Aldborough and Erpingham;
  - TF2 Snoring, Stibbard and Hindolveston;
  - TF3 Hempstead, Bodham, Aylmerton and Wickmere Area;
  - WP2 Holt to Cromer;
  - WP4 Wolterton and Mannington Halls;
  - WP5 Plumstead and Barningham; and
  - WP7 Thursford, Swanton Novers and Melton Constable.
- Broadland District Landscape Character Assessment:
  - C1 Foulsham and Reepham Plateau Farmland; and
  - E1 Blickling and Oulton Wooded Estatelands.

4.7.3.13 Of the LCAs listed above LV5, SV3, WP2, WP7, C1 and E1 lie largely outside the onshore HVAC booster station study area. As a result, effects on these would be unlikely to be greater than negligible and they are not considered further in assessing effects of the onshore HVAC booster station.

4.7.3.14 LCAs TF2 and WP4 both show a greater degree of potential visibility although views of the onshore HVAC booster station are unlikely to have a notable effect on the character of these LCAs. In the case of WP4 views would be very constrained with only a small part of the booster station seen through or just above woodland; similar but more distant those illustrated at viewpoint BS2. Views would potentially be more open although the layering effect of intervening vegetation is likely to mean views would be heavily filtered. These two LCAs are also not considered further in assessing effects of the onshore HVAC booster station.

4.7.3.15 The remaining LCAs are considered in further detail at section 4.11.

Onshore HVDC Converter/HVAC Substation

4.7.3.16 The ZTV and ZVI studies for the onshore HVDC converter/HVAC substation are presented at Figure 4.7, and have been used in combination with further desk study and fieldwork to identify landscape receptors unlikely to have any visibility of the onshore HVDC converter/HVAC substation that are, as a result, not considered in further detail. Landscape receptors within the onshore HVAC booster station study area are set out below.

Local Landscape Character

4.7.3.17 Local landscape character baseline within the onshore HVDC converter/HVAC substation onshore HVAC booster station study area is defined by the following assessments:

- South Norfolk District Landscape Character Assessment; and
- Broads Landscape Character Assessment.

4.7.3.18 Only one LCA included in the Broads Landscape Character Assessment falls within the onshore HVDC converter/HVAC substation study area, 10 Yare - Whitlingham Lane and Country Park. However, the majority of this LCA is located outside the onshore HVAC booster station study area and is located approximately 4.9 km from the onshore HVDC converter/HVAC substation at its closest point. Given the distance it is unlikely to experience significant effects and is not considered in further detail.

4.7.3.19 LCAs identified in the South Norfolk assessment that fall within the onshore HVDC converter/HVAC substation study area are illustrated on Figure 4.3, these are:

- South Norfolk District Landscape Character Assessment:
  - A1 Tas Rural River Valley;
  - B1 Tas Tributary Farmland;
  - B3 Rockland Tributary Farmland;
  - B5 Chet Tributary Farmland;
  - C1 Yare Tributary Farmland with Parkland;
  - D1 Wymondham Settled Plateau Farmland;
  - D2 Poringland Settled Plateau Farmland; and
  - F1 Yare Valley Urban Fringe.

4.7.3.20 Of the LCAs listed above B3 and B5 lie largely outside the onshore HVDC converter/HVAC substation study area with their closest points at 4.8 km and 5 km away, respectively. As a result, effects on these would be unlikely to be greater than negligible and they are not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.3.21 A1 lies in relatively close proximity and potential visibility is shown on the ZTV; however woodland surrounding Mangreen Quarry is likely to limit views in reality and the presence of the quarry itself mean the onshore HVDC converter/HVAC substation is unlikely to have any effect on the character of this LCA. It is therefore not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.3.22 D1 and D2 fall within the Settled Plateau Farmland character type which is characterised by a greater degree of settlement than other types within the area. Although the ZTV indicates potential visibility, these LCA's are relatively distant at 1.2 km and 2.7 km respectively and the onshore HVDC converter/HVAC substation would generally be seen in the context of settlement and other infrastructure. It is unlikely that the onshore HVDC converter/HVAC substation would have a notable effect on the character of these LCAs and they are therefore not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.3.23 F1 is within an urban fringe character type which in this case is heavily influenced by the A47 corridor, multiple transmission lines on large pylons and its proximity to urban areas. The onshore HVDC converter/HVAC substation would not influence the character of this area and it is therefore not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.3.24 The remaining LCAs, B1 and C1, are considered in further detail at section 4.11.

4.7.4 Historic Landscape Characterisation

4.7.4.1 The historic landscape character that the onshore elements of Hornsea Three (including compounds, storage areas and access roads) are located within are included in volume 3, chapter 5: Historic Environment.

4.7.5 Designated Landscapes or Landscape Protected by Policy

Onshore Cable Corridor

4.7.5.1 The following designated landscapes or areas of landscape protected by policy lie within the onshore cable corridor study area, as illustrated on Figure 4.1:

- Norfolk Coast AONB;
- North Norfolk Heritage Coast;
- Setting of Sheringham Park (North Norfolk District Local Plan Policy EN2);
- River Valleys (South Norfolk Local Plan Policy DM4.5); and
- Norwich Southern Bypass Landscape Protection Zone (South Norfolk Local Plan Policy DM4.6).

4.7.5.2 Given the limited spatial extent of the onshore cable corridor in relation to these designated areas and the nature of potential effects (i.e. short-term construction activity followed by landscape reinstatement) it is unlikely that construction of the onshore cable corridor would undermine the special qualities or reasons for designation of these landscapes. Significant effects are therefore not anticipated and these designations are not considered further in relation to the onshore cable corridor.

Onshore HVAC Booster Station

4.7.5.3 There are no designated landscapes located within the onshore HVAC booster station study area .

Onshore HVDC Converter/HVAC Substation

4.7.5.4 The following designated landscapes or landscapes protected by policy lie within the onshore HVDC converter/HVAC substation study area, as illustrated on Figure 4.1:

- Broads National Park;
- River Valleys (South Norfolk Local Plan Policy DM4.5); and
- Norwich Southern Bypass Landscape Protection Zone (South Norfolk Local Plan Policy DM4.6).

4.7.5.5 The Broads National Park lies almost entirely outside of the onshore HVDC converter/HVAC substation study area, extending as a sliver no more than 350 m into the study area and falling largely outside of the ZTV and completely outside the ZVI. Effects on the Broads are therefore unlikely to be significant and this designation is not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.5.6 Areas within the onshore HVDC Converter/HVAC substation study area that are covered by South Norfolk Local Plan Policy DM4.5 are coincident with the A1 and F1 character areas. These have previously been identified as unlikely to experience notable landscape effects as a result of the onshore HVDC converter/HVAC substation and thus this landscape designated by local policy is also not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.5.7 Three attributes concerned with protecting the setting of Norwich and the openness of the A47 corridor are defined by South Norfolk Local Plan Policy DM4.6: The Norwich Southern Bypass Landscape Protection Zone (NSBLPZ); Key Views 'cones' and Undeveloped Approaches. The NSPLPZ and Key Views 'cones' (shown as View Cones) are illustrated on Figure 4.1. The B1113 between Swardeston and Norwich where it runs through the NSBLPZ is an Undeveloped Approach, as are other roads approaching Norwich to the west and east. . This is primarily a land use policy, such as greenbelt, rather than a landscape designation to protect inherent qualities of the landscape itself. Relevant consideration of this policy in relation to the onshore HVDC converter/HVAC substation are considered at section 4.11.

Offshore HVAC Booster Station

4.7.5.8 In addition the onshore elements identified in section 4.7 it was agreed through consultation (see Table 4.4) that potential visual effects on receptors on the north Norfolk coast including the Norfolk Coast AONB resulting from the offshore HVAC booster station would be considered as part of the landscape and visual resources assessment. A commentary on the effects of the offshore HVAC booster station on the Qualities of Natural Beauty of the AONB has been included within volume 6, annex 4.7: Effects of the Offshore HVAC Booster Station and summarised in section 4.16.

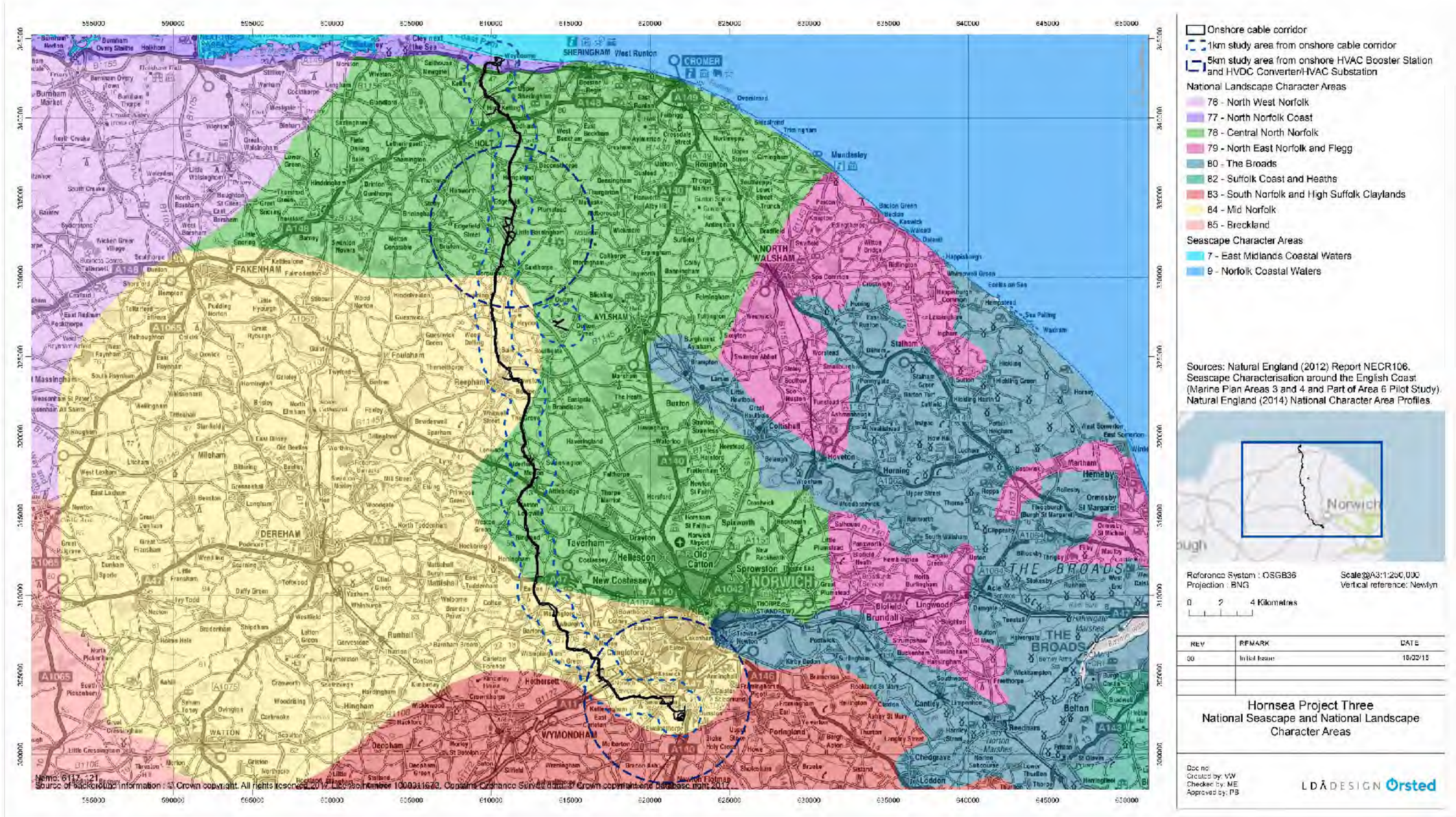

Figure 4.2: National Seascape Character Areas and National Character Areas.

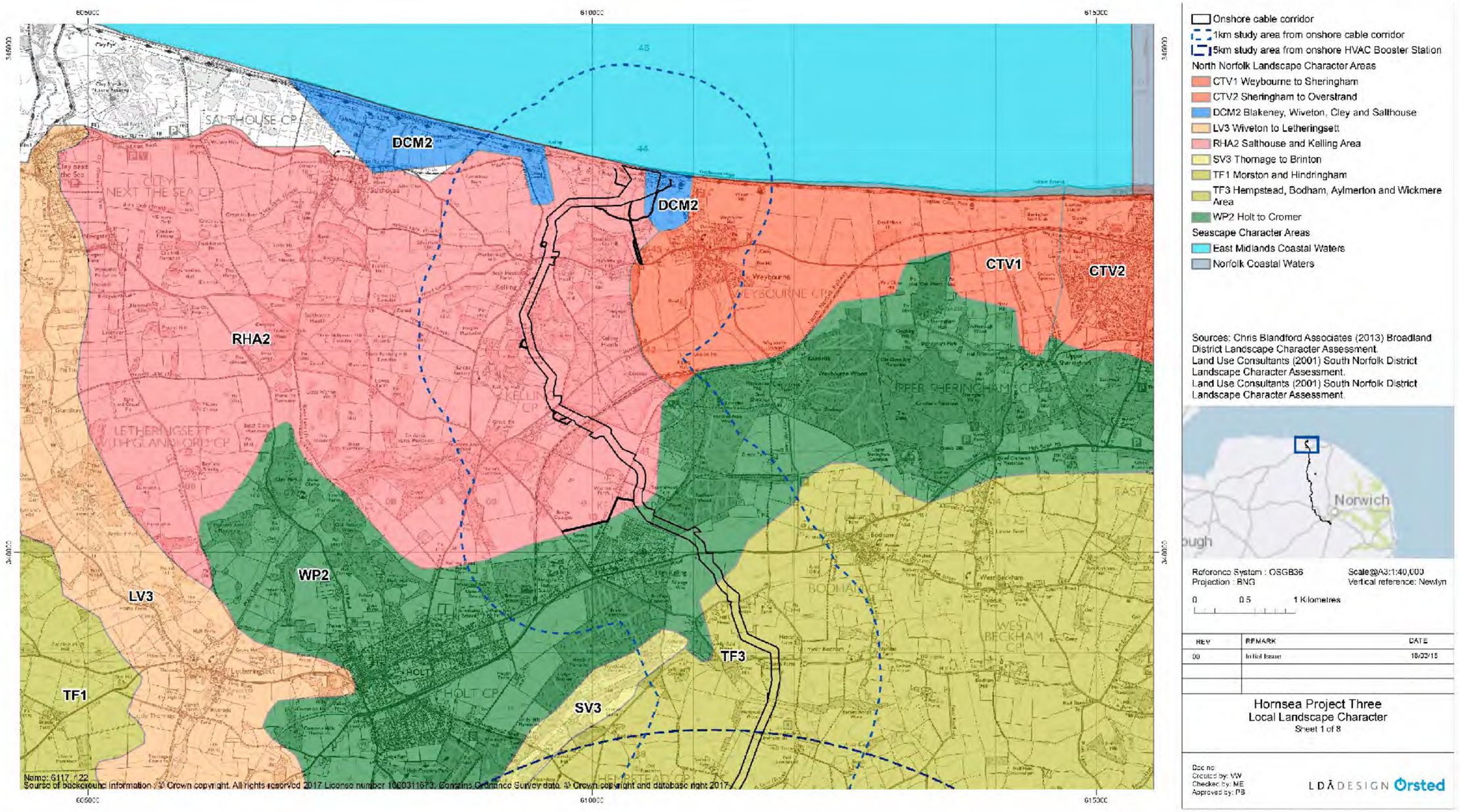

Figure 4.3: Local Landscape Character Sheet 1 of 8.

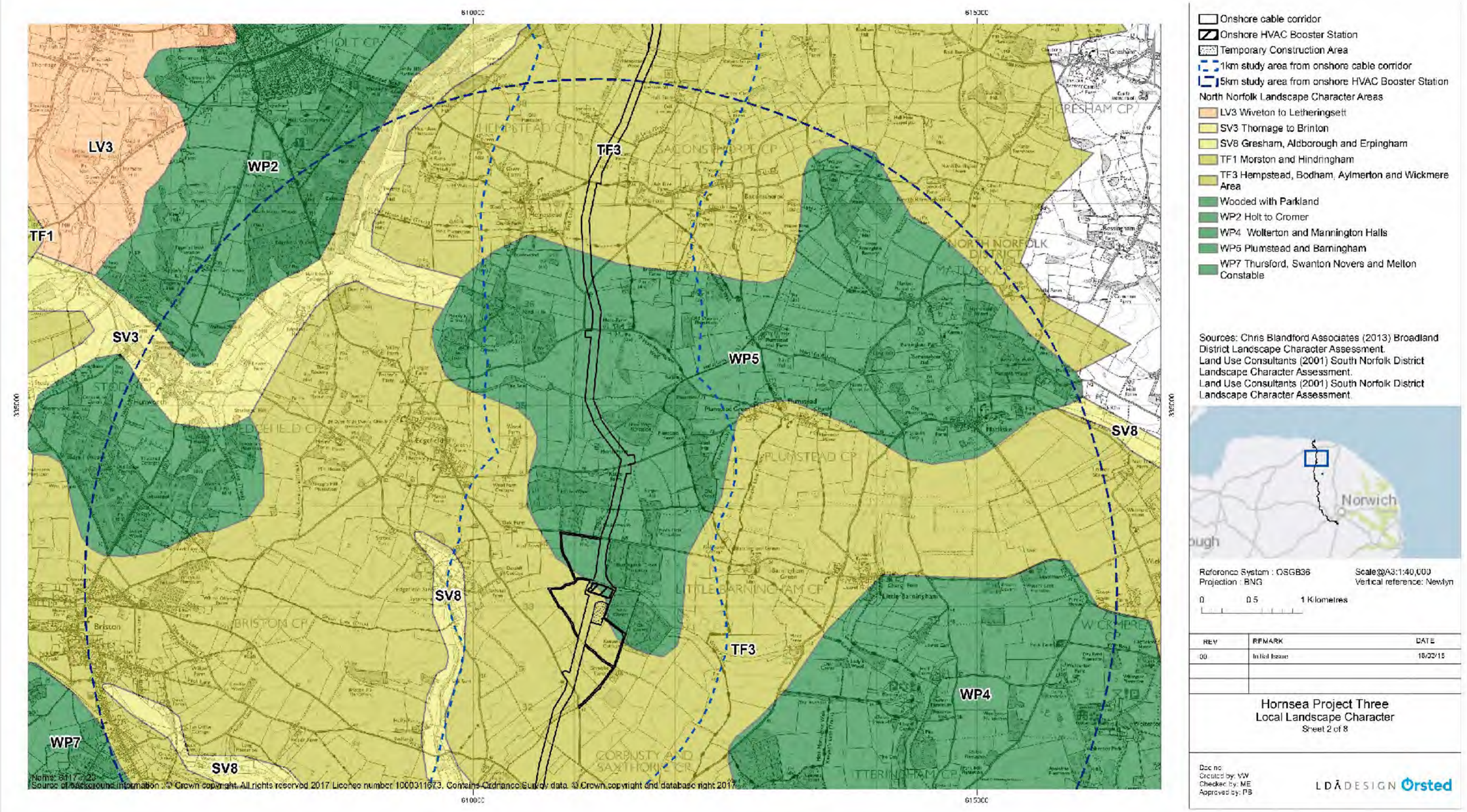

Figure 4.3: Local Landscape Character Sheet 2 of 8

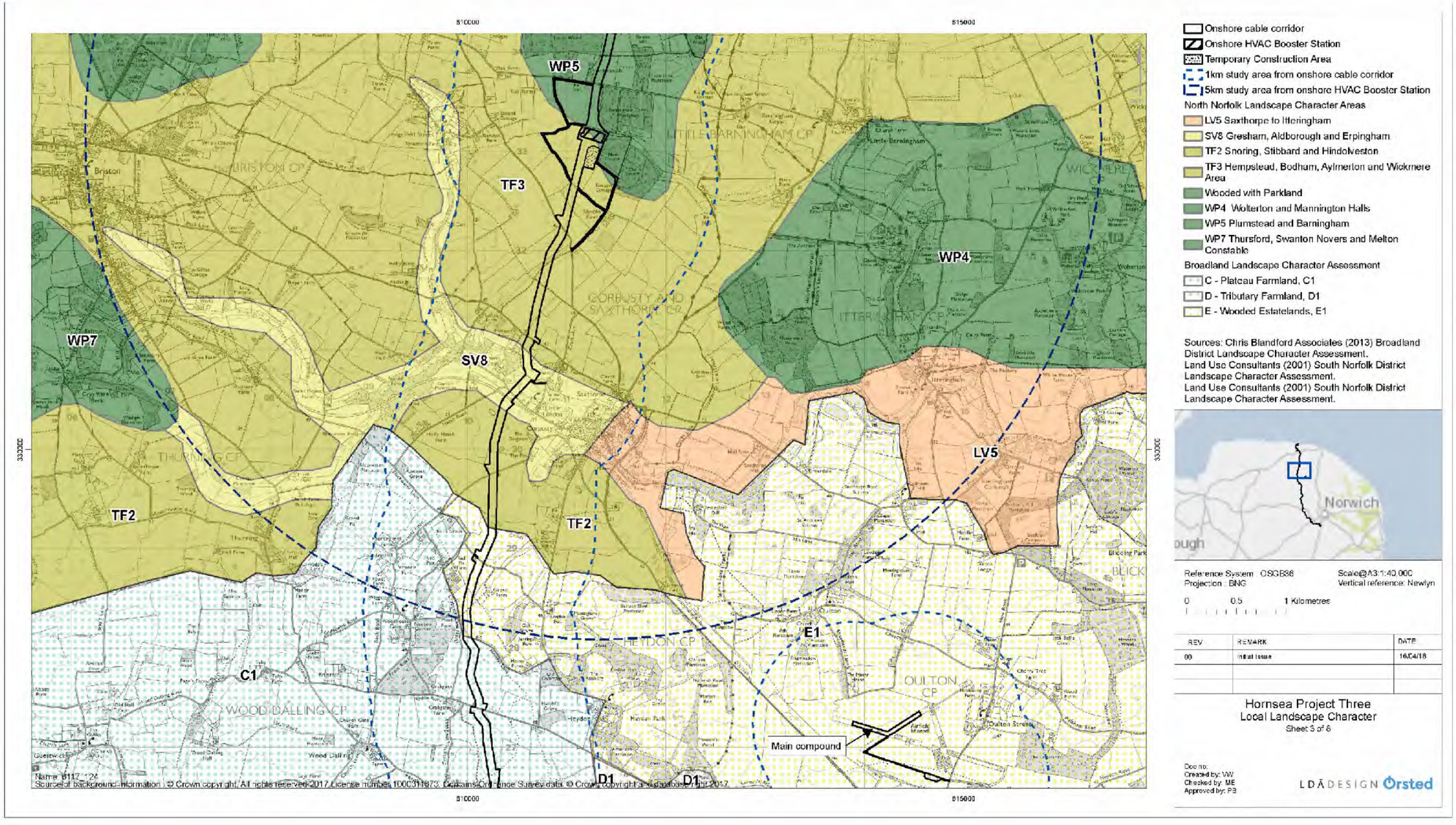

Figure 4.3: Local Landscape Character Sheet 3 of 8.

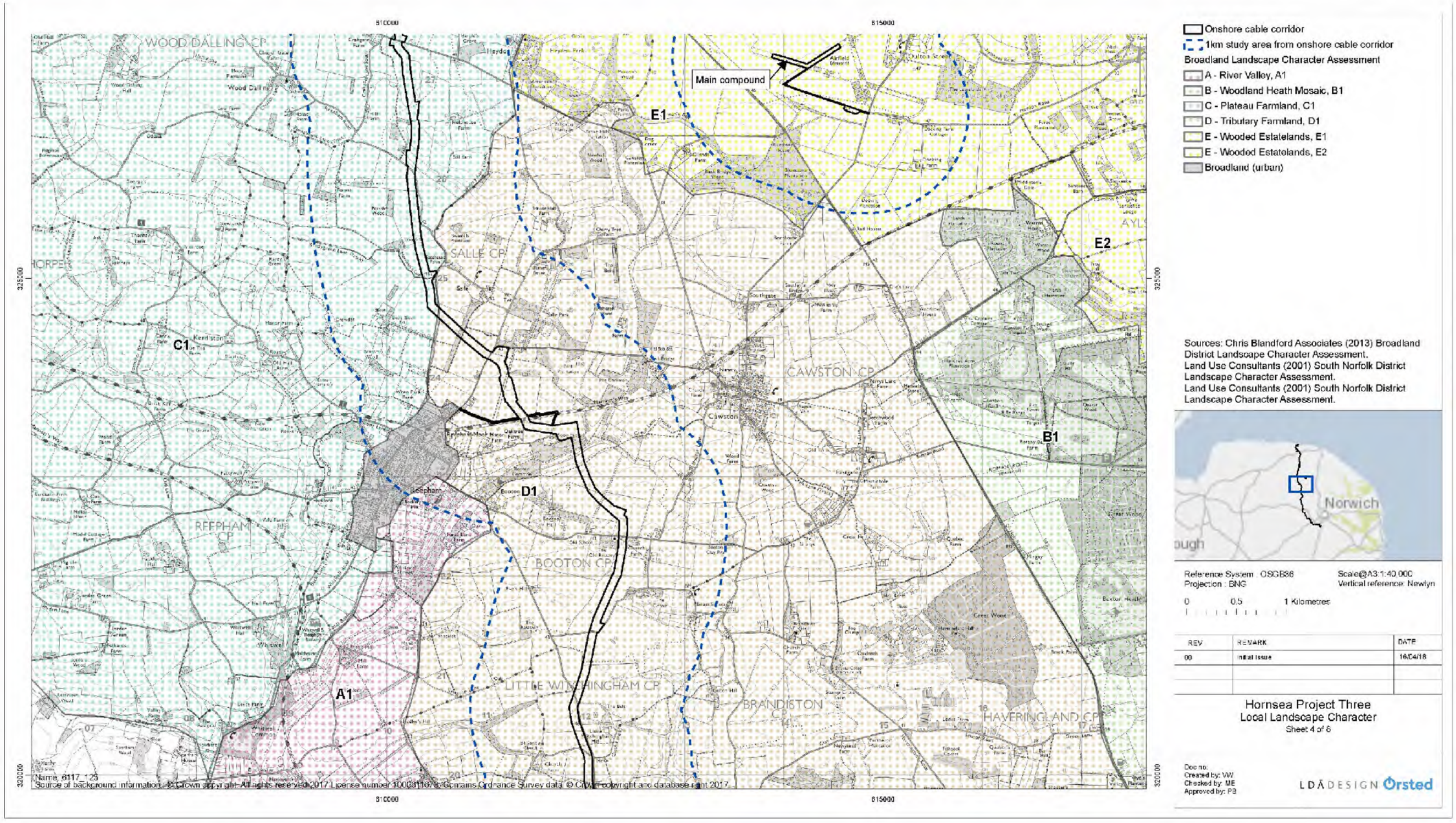

Figure 4.3: Local Landscape Character Sheet 4 of 8.

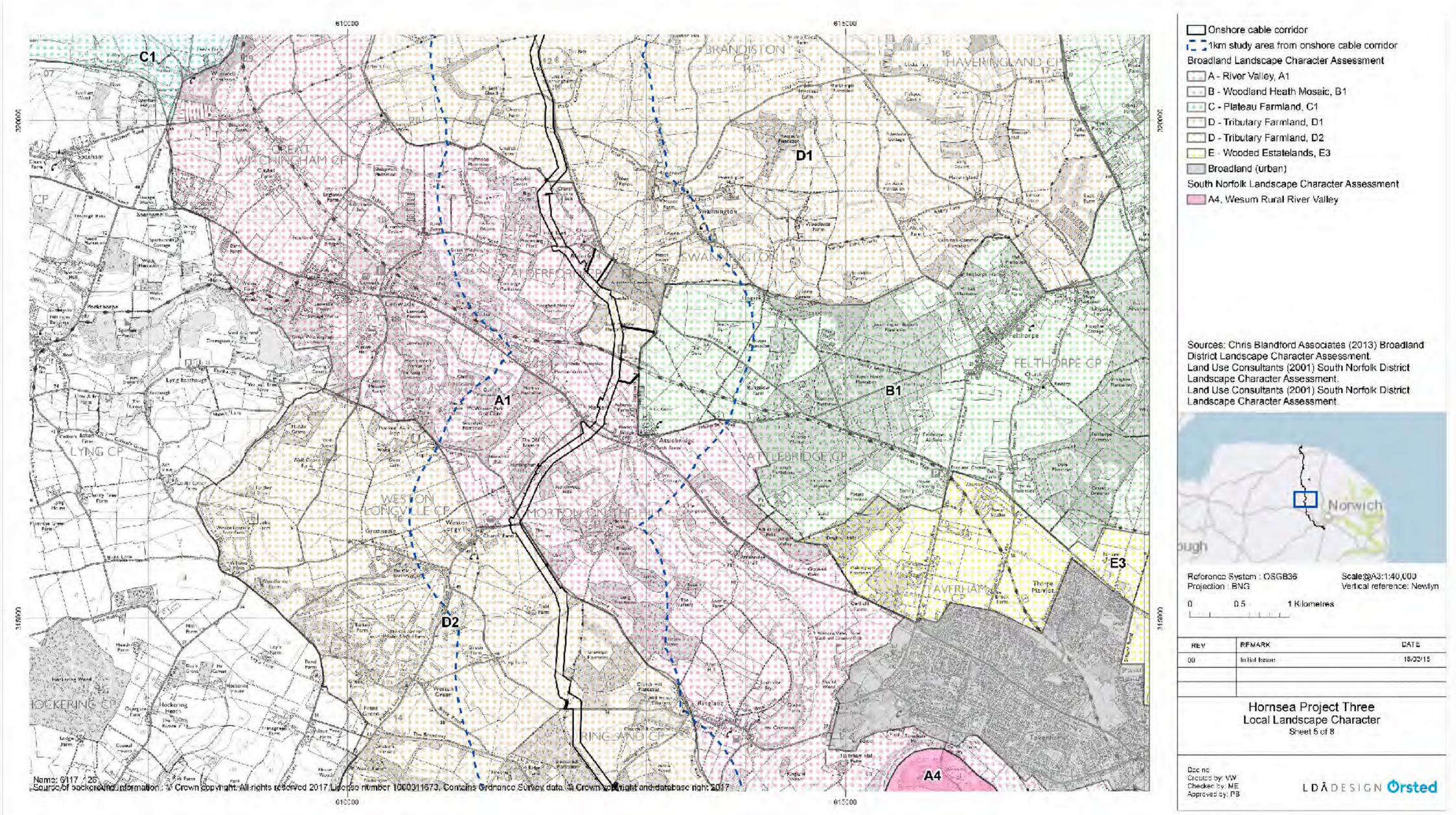

Figure 4.3: Local Landscape Character Sheet 5 of 8.

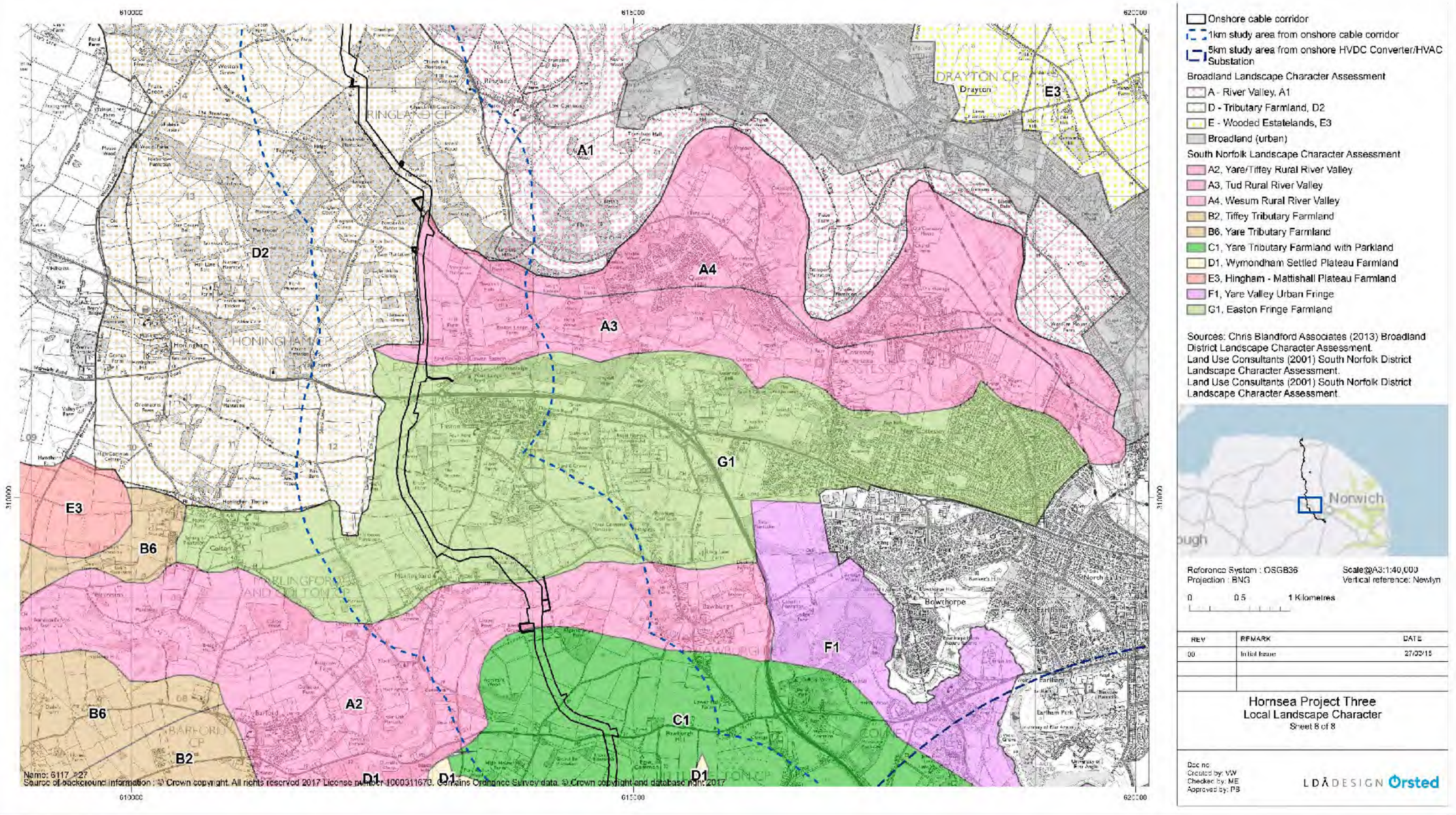

Figure 4.3: Local Landscape Character Sheet 6 of 8.

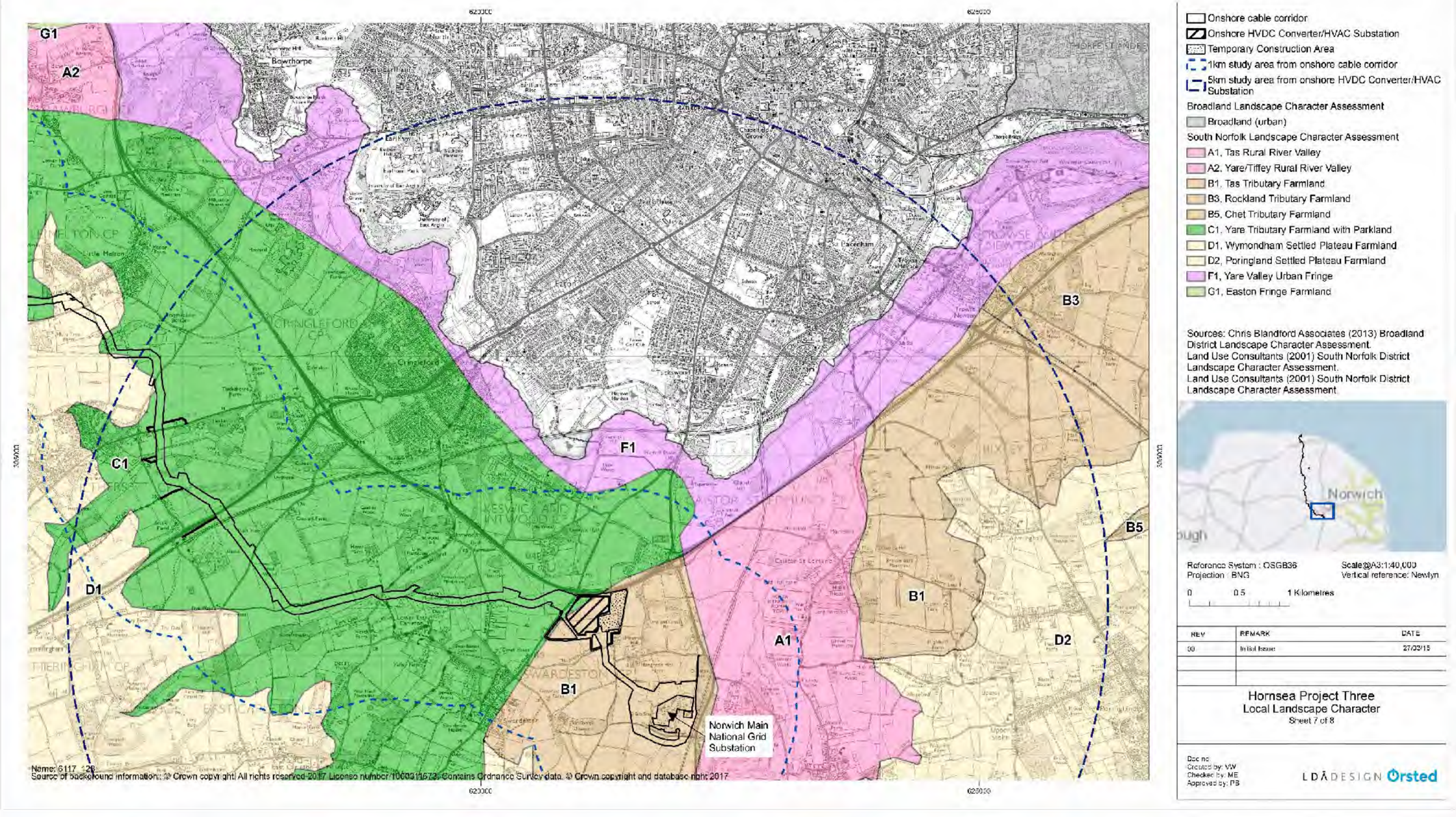

Figure 4.3: Local Landscape Character Sheet 7 of 8.

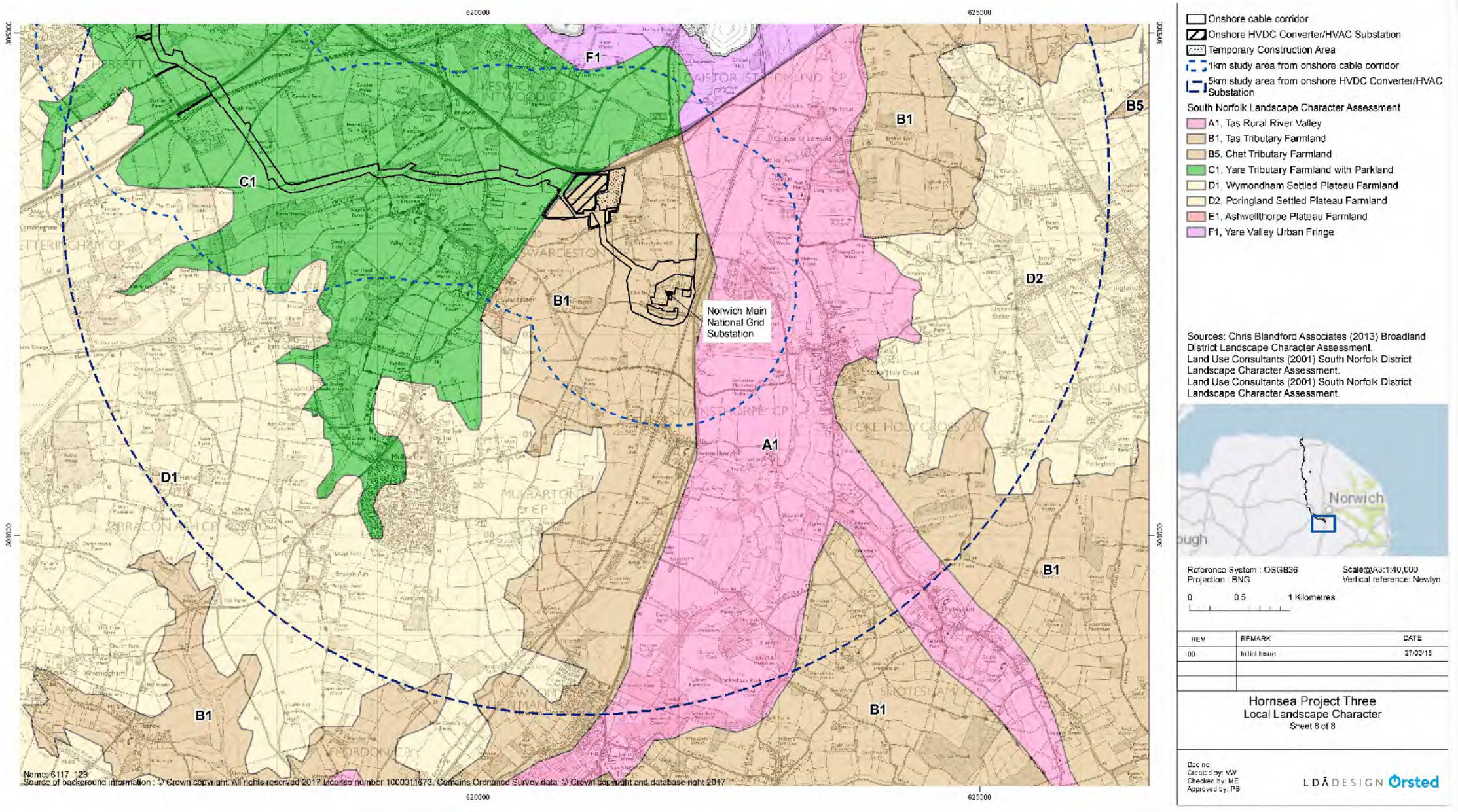

Figure 4.3: Local Landscape Character Sheet 8 of 8.

4.7.6 Visual Baseline

4.7.6.1 Visual receptors are "the different groups of people who may experience views of the development" (GLVIA3, para 6.3). In order to identify those groups who may be significantly affected the ZTV study, baseline desk study and site visits have been used.

4.7.6.2 The different types of groups assessed encompass residents within settlements; people using key routes such as roads; cycle ways or long distance paths; people within accessible or recreational landscapes; people using Public Rights of Way; or people visiting key viewpoints. In dealing with Public Rights of Way and local roads, receptors are grouped into areas where effects might be expected to be broadly similar, or areas which share particular factors in common.

4.7.6.3 The visual receptors that have been considered within this chapter are set out below while the sensitivity for visual receptor types is set out in section 4.9.1.

Onshore Cable Corridor

4.7.6.4 The onshore cable corridor study area has been determined by the footprint of the corridor, accesses, construction compounds and storage areas plus 1 km, as described in section 4.3 and illustrated on Figure 4.1. Hereafter within this chapter, 'onshore cable corridor' refers to the corridor, accesses, construction compounds and storage areas, and this is illustrated on Figure 4.1, Figure 4.2, Figure 4.3, Figure 4.4, Figure 4.5, Figure 4.6, Figure 4.7, Figure 4.8, Figure 4.9 and Figure 4.10. The study area extends broadly south from the landfall at Weybourne beach for approximately 40 km before turning southeast and continuing to where it terminates in the vicinity of the existing Norwich Main substation near Dunston, to the south of Norwich. The onshore cable corridor study area encompasses a primarily rural area incorporating areas of woodland, farmland and frequent small settlements.

4.7.6.5 The existing Oulton airfield site hosts numerous large scale agricultural sheds, poultry sheds and silos although extensive vegetation within the airfield site and around its perimeter largely screen existing buildings from publicly accessible locations in the surrounding area. The photograph panel from viewpoint CC6, illustrated on Figure 4.1 and presented in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages, shows the most open existing view into the site although this is briefly glimpsed from a gap in a tree belt and located on a seldom used single track road. The Hornsea Three main construction compound would be located close to existing poultry sheds on the former runway in the middle of the airfield site. The nature of temporary buildings, equipment and materials stored at the main construction compound would not be fundamentally different from existing uses on the airfield site and given the extent of screening from existing vegetation it is unlikely that effects on visual receptors resulting from the Hornsea Three main construction compound would be significant; it is therefore not considered further.

4.7.6.6 Visual receptors within the onshore cable corridor study area are set out below; distances/directions stated are approximate and given from the nearest edge of the onshore cable corridor.

Settlements

4.7.6.7 In this assessment, impacts on settlements include all of the routes, public spaces, homes and businesses within them. The following settlements are located within the onshore cable corridor study area (listed north to south), with approximate distances and directions of the settlements from the onshore cable corridor noted:

- Weybourne – 300 m south east;
- Kelling – 30 m west;
- High Kelling – 30 m south;
- Hempstead – 380 m west;
- Baconsthorpe – 560 m east;
- Edgefield Street – 1 km west;
- Saxthorpe and Corpustry – 100 m south east;
- Norton Corner – 460 m west;
- Heydon – 1 km east;
- Wood Dalling – 980 m southwest;
- Reepham – 450 m south west;
- Booton – 630 m south west;
- Hengrave and Swannington – 800 m east;
- Alderford – 90 m north east;
- Attlebridge – 200 m east;
- Morton – 80 m west;
- Weston Longville – 110 m west;
- Ringland – 1 km east;
- Easton – 300 m east;
- Marlingford – 130 m south;
- Bawburgh – 1 km north west;
- Little Melton – 10 m north;
- Hethersett – 500 m west;
- Lower East Carleton – 240 m south;
- Swardeston – 640 m south;
- Dunston – 410 m east; and
- Swainsthorpe – 880 m south.

4.7.6.8 Of the settlements listed above, Edgefield Street, Heydon, Wood Dalling, Ringland, Bawburgh and Swainsthorpe all lie largely outside of the onshore cable corridor study area at a distance where construction phase impacts are unlikely to be greater than negligible and as such they are not considered in further detail in assessing effects of the onshore cable corridor. In addition to the settlements listed above there are other areas of dispersed settlement, such as isolated farms, manor houses and small hamlets, throughout the onshore cable corridor study area which may be referred to in section 4.11 as necessary.

Key Routes

4.7.6.9 The following key road, rail and recreational routes are pass within the onshore cable corridor study area (listed north to south):

- Peddars Way and Norfolk Coast Path – crosses corridor;
- A149 – crosses corridor;
- North Norfolk Railway – crosses corridor;
- A148 – crosses corridor;
- Holt-Mannington Walk – crosses corridor (two locations);
- Marriot's Way – crosses corridor (two locations);
- National Cycle Network Route 1 – crosses corridor (two locations);
- A1067 – crosses corridor;
- A47 – crosses corridor;
- A11 – crosses corridor;
- Rail line between Norwich and Wymondham – crosses corridor;
- Tas Valley Way – crosses corridor;
- Rail line between Norwich and Ipswich – 20 m east; and
- A140 – 40 m east.

4.7.6.10 Two of these routes, Marriot's Way and National Cycle Route 1, follow the same path as they pass through the onshore cable corridor study area so will be considered together. These key routes are considered in further detail at section 4.11.

Accessible and Recreational Landscapes

4.7.6.11 The following accessible and recreational landscapes are located within the onshore cable corridor study area (listed north to south):

- Weybourne Beach – corridor crosses this area;
- Fox Hill/Muckleburgh Hill – 20 m east;
- Kelling Heath – 10 m east;
- Bodham Wood – corridor crosses this area;
- Bodham Common and adjacent woodland* – 400 m south west;
- Alderford Common – 10 m north;
- Church Hill Common – 530 m east;
- Ringland Hills – 410 m south east;
- Swardeston Common – 260 m south; and
- Venta Icenorum Roman Town – 730 m south west.

4.7.6.12 Of the areas listed above Bodham Common and adjacent woodland, Alderford Common, Church Hill Common, Ringland Hills and Swardeston Common are all wooded areas from within which construction activity would be screened from view, although glimpsed views might be possible from parts of some of these areas. As a result, visual impacts on receptors in these areas are unlikely to be significant and are not considered further in assessing effects of the onshore cable corridor.

4.7.6.13 Although the Hornsea Three onshore cable corridor crosses the southern section of Bodham Wood this would be achieved using HDD. Construction activity associated with this would be located outside of the woodland and is unlikely to be visible from within the majority of the accessible landscape. As a result, visual impacts on receptors in this area are unlikely to be significant and are not considered further in assessing effects of the onshore cable corridor.

4.7.6.14 The only section of the Hornsea Three onshore cable corridor within 1 km of Venta Icenorum Roman Town is the existing access to Norwich Main substation which is surrounded by woodland. Construction activity associated with the onshore cable corridor is unlikely to be seen from Venta Icenorum and thus unlikely to be significant, as such impacts on this accessible area of landscape are not considered further in assessing effects of the onshore cable corridor.

Local Roads and Public Rights of Way

4.7.6.15 Local routes within settlements are assessed as part of the settlements identified at paragraph 4.7.6.7, all other local routes within the onshore cable corridor study area are grouped by parish for ease of reference. The following parishes contain local routes that fall within the onshore cable corridor study area (listed north to south):

- Salthouse;
- Kelling;
- Weybourne;
- High Kelling;
- Holt;
- Bodham;
- Hempstead;
- Baconsthorpe;
- Edgefield;
- Plumstead;
- Little Barningham;
- Corpustry and Saxthorpe;

- Heydon;
- Wood Dalling;
- Salle;
- Reepham;
- Cawston;
- Booton;
- Brandiston;
- Little Witchingham;
- Great Witchingham;
- Swannington;
- Alderford;
- Weston Longville;
- Attlebridge;
- Moreton on the Hill;
- Ringland;
- Honingham;
- Easton;
- Marlingford and Colton;
- Bawburgh;
- Great Melton;
- Little Melton;
- Colney;
- Hethersett;
- Cringleford;
- Ketteringham;
- Keswick and Intwood;
- East Carleton;
- Caistor St Edmund;
- Swardeston;
- Stoke Holy Cross;
- Swainsthorpe; and
- Mulbarton.

4.7.6.16 The parishes of High Kelling, Cawston, Brandiston, Great Witchingham, Colney, Cringleford, Swainsthorpe and Mulbarton all lie largely outside the onshore cable corridor study area or only have very short sections of routes within it. Overall, visual impacts on local roads and Public Rights of Way in these parishes are unlikely to be significant, due to their distance from the onshore cable corridor and very limited extent of routes within the onshore cable corridor study area, and they are therefore not considered further in assessing effects of the onshore cable corridor.

4.7.6.17 The parishes of Briston, Itteringham and Taverham fall partly within the onshore cable corridor study area although are not included in the list above as they contain no local roads or Public Rights of Way that fall within the onshore cable corridor study area. Visual impacts on local routes in these parishes are therefore not considered in in assessing effects of the onshore cable corridor.

Specific Viewpoints

4.7.6.18 No specifically promoted viewpoints or viewpoints marked on OS maps have been identified within the Hornsea Three onshore cable corridor study area.

Onshore HVAC Booster Station

4.7.6.19 The study area for the Hornsea Three onshore HVAC booster station has been determined by its footprint plus 5 km, as described in section 4.3 and illustrated on Figure 4.1. It encompasses a largely rural area primarily given over to agriculture with frequent small blocks of woodland and contains a number of small settlements. The landform is undulating with some shallow valleys and a low ridgeline to the north of the onshore booster station, as illustrated by Figure 4.4. The ZTV study for the booster station is presented at Figure 4.5, this has been used in combination with further desk study and fieldwork to identify visual receptors unlikely to have any visibility of the onshore HVAC booster station that are, as a result, not considered in further detail. Visual receptors within the onshore HVAC booster station study area are set out below; distances/directions stated are approximate and given from the nearest edge of the booster station footprint.

Settlements

4.7.6.20 In the landscape and visual resources assessment of the Environmental Statement, impacts on settlements include all of the routes, public spaces, homes and businesses within them. The following settlements are located within the onshore HVAC booster station study area:

- Edgefield Street – 1.2 km west;
- Edgefield – 1.6 km north west;
- Plumstead – 2.0 km north east;
- Corpusty and Saxthorpe – 2.2 km south;
- Little Barningham – 2.2 km east;
- Hempstead – 3.3 km north;
- Itteringham – 3.6 km south east;
- Matlaske – 3.7 km north east;
- Baconsthorpe – 3.8km north;
- Hunworth – 4.3 km north west; and
- Briston – 4.3 km west.

4.7.6.21 Of the settlements listed above, Plumstead, Hempstead, Baconsthorpe, and Hunworth lie outside of the ZTV and are not considered further. Edgefield Street, Corpustry and Saxthorpe, Little Barningham, Itteringham, Matlaske and Briston are all shown by the ZTV to have some limited areas of potential visibility on their periphery however their distance from the onshore HVAC booster station and the extent of localised vegetation mean that, in reality, views would be limited. Due to such a small extent of each of these settlements potentially experiencing views the effects would not be significant and they are therefore also excluded from further consideration.

4.7.6.22 The remaining settlement, Edgefield, is considered in further detail at section 4.11.

4.7.6.23 In addition to the settlements listed above there are other areas of dispersed settlement, such as isolated farms, manor houses and small hamlets, throughout the onshore HVAC booster station study area which are referred to in section 4.11 as necessary.

Key Routes

4.7.6.24 The only key road, rail or recreational route that passes within the onshore HVAC booster station study area is the Holt-Mannington Walk which passes approximately 1.1 km to the east of the proposed onshore HVAC booster station at its closest point. Intervening hedgerows and woodland would limit potential views and where they are possible the HVAC booster station would be largely screened from view. Two viewpoints are located on this route, as illustrated on Figure 4.5; BS2 is located at the closest point on the route to the onshore HVAC booster station, 1.2 km east, and BS3 slightly further afield (see visualisations in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages). These are the closest and most open views likely from this route and as a result it is not considered further as effects would not be significant.

Accessible and Recreational Landscapes

4.7.6.25 The following accessible and recreational landscapes are located within the onshore HVAC booster station study area:

- Mannington Hall – 2.8 km east;
- Holt Country Park / Edgefield Woods / Holt Lowes – 4.2 km north west
- Hunworth Common – 4.8 km north west; and
- Wolterton Hall – 4.8km east.

4.7.6.26 Holt Country Park / Edgefield Woods / Holt Lowes and Hunworth Common are both located outside of the ZTV and are not considered further. Although in private ownership, and therefor subject to potential access restrictions, the areas of parkland around Mannington Hall and Wolterton Hall have various permissive routes and accessible areas and are currently promoted as visitor attractions. These are shown to have some limited potential visibility by the ZTV, however, they are both surrounded by extensive parkland vegetation, including mature hedgerows and tree belts that limit views out and make visibility of the onshore HVAC booster station unlikely. They are therefore not considered further.

Local Routes (Roads and Public Rights of Way)

4.7.6.27 Local routes within settlements are assessed as part of the settlements identified at paragraph 4.7.6.20, all other local routes within the onshore HVAC booster station study area are grouped into areas where potential effects are likely to be similar. These are:

- Routes within 1 km of the HVAC booster station – 0.1 km east;
- Routes immediately north of Corpustry and Saxthorpe 1.0 km south;
- Routes surrounding Little Barningham and Itteringham – 1.1 km east;
- Routes west and south west of Edgefield and Edgefield Street – 1.8 km north west;
- Routes south of the B1354 – 1.9 km south; and
- Routes to the north of Edgefield and Plumpstead – 2.2 km north.

4.7.6.28 The ZTV illustrates that there would be no potential visibility of the onshore HVAC booster station from the study area to the north of Edgefield and Plumpstead so local routes here are excluded from further consideration as effects would not be significant. Although the ZTV indicates potential visibility of the onshore HVAC booster station from areas to the south of the B1354, in reality, the layering effect of localised vegetation not modelled by the ZTV means that views in this area are unlikely. Routes south of the B1354 are therefore also excluded from further consideration as effects would not be significant. Routes around Itteringham and Little Barningham are also shown to have potential visibility on the ZTV although, as demonstrated at viewpoint BS2, views in this direction would be highly constrained by the woodland adjacent to the booster station. These routes are also not considered further as effects are unlikely to be significant.

Specific Viewpoints

4.7.6.29 No specifically promoted viewpoints, or viewpoints marked on OS maps have been identified within the Hornsea Three onshore HVAC booster station onshore HVAC booster station study area.

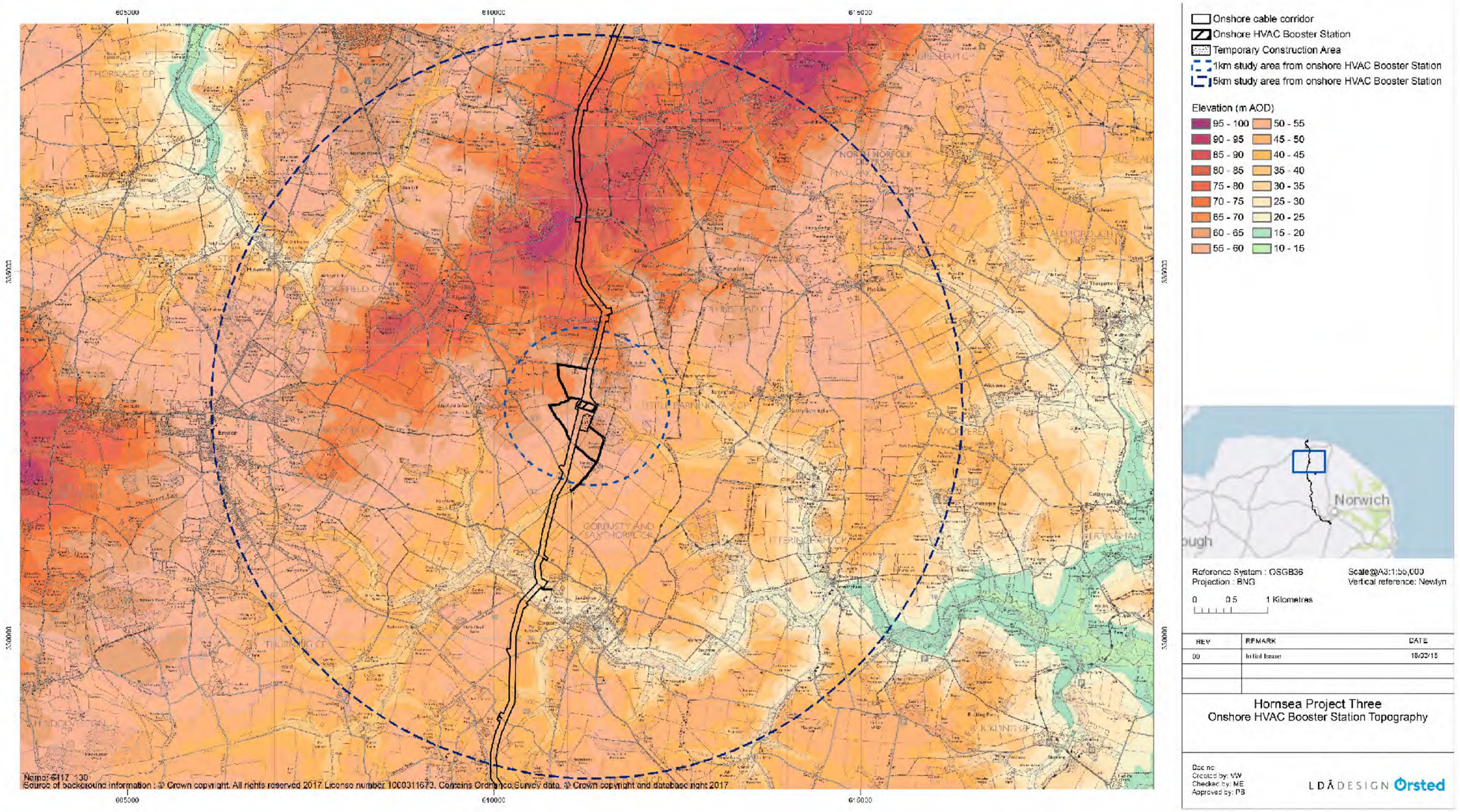

Figure 4.4: Onshore HVAC Booster Station Topography.

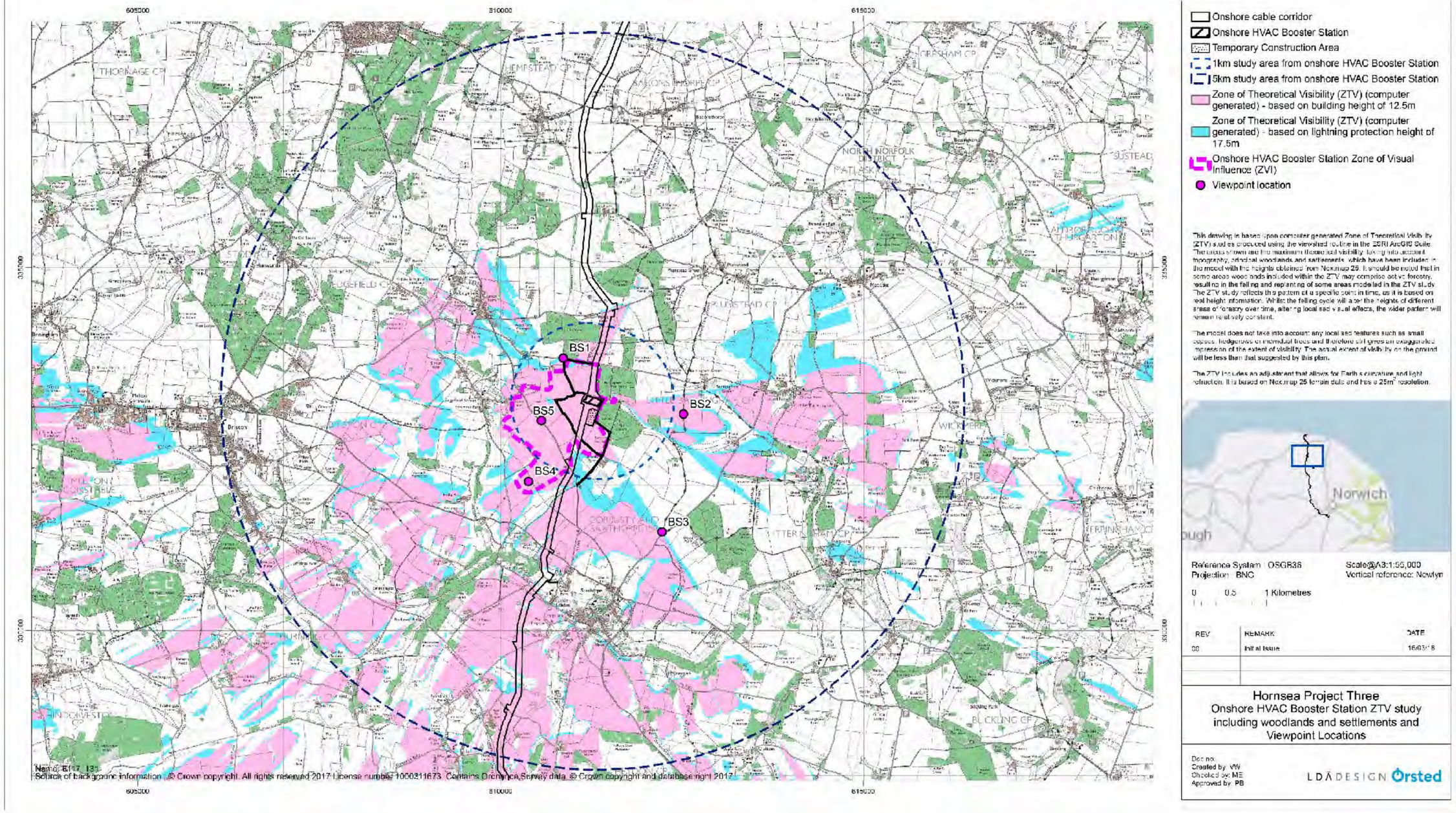

Figure 4.5: Onshore HVAC Booster Station Zone of Theoretical Visibility and Viewpoint Locations.

Onshore HVDC Converter/HVAC Substation

4.7.6.30 The study area for the Hornsea Three onshore HVDC converter/HVAC substation has been determined by the footprint plus 5 km, as described in section 4.3 and illustrated on Figure 4.1.

4.7.6.31 The northern quadrant of the onshore HVDC converter/HVAC substation study area encompasses the southern edge of Norwich and its suburbs which are cut through by the River Yare valley and surrounded by wetlands and parkland. To the south of the A47 the onshore HVDC converter/HVAC substation study area becomes more rural and primarily in agricultural use. There are numerous settlements ranging from hamlets to large commuter villages and the area is scattered with small woodlands. As illustrated by Figure 4.6 the landform of the onshore HVDC converter/HVAC substation study area gently undulates with two distinct river valleys, those of the Yare and the Tas, cutting through it. To the east of the study area lies an area of notably higher ground in the vicinity of Poringland.

4.7.6.32 The ZTV study for the onshore HVDC converter/HVAC substation is presented at Figure 4.7, this has been used in combination with further desk study and fieldwork to identify visual receptors unlikely to have any visibility of the onshore HVAC booster station that are, as a result, not considered in further detail. Visual receptors within the onshore HVDC converter/HVAC substation study area are set out below; distances/directions stated are approximate and given from the nearest edge of the booster station footprint.

Settlements

4.7.6.33 All settlements apart from Swardeston and Keswick lie outside the ZVI.

4.7.6.34 In the landscape and visual resources assessment of the Environmental Statement, impacts on settlements include all of the routes, public spaces, homes and businesses within them. The following settlements are located within the onshore HVDC converter/HVAC substation study area:

- Swardeston – 0.7 km south west;
- Keswick – 0.9 km north;
- Dunston – 1.6 km south east;
- Swainsthorpe – 1.9 km south;
- Cringleford – 2.0 km north west;
- Norwich – 2.0 km north;
- Caistor St Edmund – 2.3 km east;
- Stoke Holy Cross – 2.4 km south east;
- East Carleton – 2.6 km south west;
- Mulbarton – 2.6 km south west;
- Arminghall – 3.8 km north east;
- Bracon Ash – 3.8 km south west;
- Upper Stoke – 4.1 km east;
- Ketteringham – 4.3 km west;
- Poringland – 4.3 km east;
- Newton Flotman – 4.4 km south;
- Trowse Newton – 4.4 km north east;
- Hethersett – 4.8 km north west; and
- Shotesham – 4.8 km south east.

4.7.6.35 The ZTV illustrates that of the above list of settlements Dunston, Poringland and Newton Flotman have extremely limited potential visibility with site work confirming views would be unlikely; they are therefore not considered further. Keswick, East Carleton, Ketteringham and Trowse Newton are all shown by the ZTV to have some degree of potential visibility however the extent of localised vegetation in and around these settlements mean views of the onshore HVDC converter/HVAC substation would be unlikely in reality, they are also therefore not considered further.

4.7.6.36 Hethersett, Shotesham and Bracon Ash are all illustrated to have somewhat more potential visibility although their distance from the onshore HVDC converter/HVAC substation and the layering effect of vegetation in the intervening landscape mean views would be unlikely and they are not considered further as effects are unlikely to be significant.

4.7.6.37 Potential visibility is also shown across the southern edge of Norwich that falls within the onshore HVDC converter/HVAC substation onshore HVDC converter/HVAC substation study area, including Cringleford. The density of buildings and extent of garden vegetation in these urban areas mean views would be unlikely and they are therefore not considered further as effects would not be significant.

4.7.6.38 Arminghall, Mulbarton and Upper Stoke are all shown by the ZTV to have some potential visibility around their periphery however, due to such a small extent of each of these settlements potentially experiencing views the effects would not be significant and they are therefore also excluded from further consideration.

4.7.6.39 Potential visibility is also shown at Caistor St Edmund. Viewpoint SS1 is located on the periphery of this settlement and provides a closer, more open view than is possible from elsewhere in the settlement. The scale of effect at this viewpoint is considered to be negligible and as such it is unlikely effects at Caistor St Edmund would be significant and it is not considered further.

4.7.6.40 In addition to the settlements listed above there are other areas of dispersed settlement, such as isolated farms, manor houses and small hamlets, throughout the onshore HVDC converter/HVAC substation study area which are referred to in section 4.11 as necessary.

Key Routes

4.7.6.41 The following key road, rail and recreational routes are located within the onshore HVDC converter/HVAC substation study area for the onshore HVDC converter/HVAC substation:

- A47 – 0.0 km north;
- A140 – 0.8 km east;
- Rail line between Norwich and Stowmarket – 1.2 km east;

- Tas Valley Way – 1.2 km south west;
- Rail line between Norwich and Wymondham – 1.7 km north;
- Boudicca Way – 2.0 km east;
- A11 – 2.6 km north west;
- A146 – 3.2 km north;
- A1042 – 4.1 km north east;
- A147 – 4.6 km north; and
- National Cycle Network (NCN) Route 1 – 4.6 km north east.

4.7.6.42 Of those routes listed above the A146, A1042, A147 and NCN Route 1 all pass through the onshore HVDC converter/HVAC substation study area in built up areas of Norwich where potential views out of the city towards the onshore HVDC converter/HVAC substation are unlikely, as illustrated by the ZTV, and they are therefore not considered further as effects are unlikely to be significant.

4.7.6.43 The two rail lines follow a routes through the onshore HVDC converter/HVAC substation study area lined, in the most part, by dense vegetation and often running through areas of cutting or areas shown by the ZTV to have no potential visibility. Views would be unlikely from trains travelling these routes and they are therefore not considered further as effects would not be significant.

4.7.6.44 Although the ZTV indicates potential visibility from the A140 and A11 this would, in reality be considerably more limited due to the extent of roadside vegetation. Where views are possible they would be briefly glimpsed through roadside vegetation, this would impact such small sections of the routes that effects would not be significant. They are not considered further.

Accessible and Recreational Landscapes

4.7.6.45 All of these accessible and recreational landscapes lie outside the ZVI.

4.7.6.46 The following accessible and recreational landscapes are located within the onshore HVDC converter/HVAC substation study area:

- Swardeston Common – 0.8 km south west;
- Eaton Common – 1.4 km north;
- Venta Icenorum – 1.5 km east;
- Dunston Common – 1.6 km south east;
- Marston Marshes – 1.7 km north;
- Mulbarton Common – 2.6 km south west;
- Shotesham Common – 3.8km south east;
- Trowse Common – 4.5 km north east; and
- Bracon Common – 4.7 km south west.

4.7.6.47 Locations within Dunston Common and Bracon Common do not generally experience views out, on account of the areas being covered by woodland, and they are not considered further. Trowse Common, while not being covered by woodland, is bounded by mature trees and houses which mean views out are also very constrained. It is also excluded from further consideration as views of the onshore HVDC converter/HVAC substation would be unlikely and therefore effects would not be significant.

4.7.6.48 Viewpoints SS4 and SS8 are located at the areas of Marston Marshes and Swardeston Common where there would potentially be the most open views of Hornsea Three. The scale of effect at these locations is assessed to be negligible, as set out in Table 4.14 and volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages, and effects on receptors within these areas would not therefore be significant so they are not considered further. Eaton Common is located immediately adjacent to Marston Marshes with a similar pattern of landform and vegetation cover, as such, effects here are unlikely to be different to those at Marston Marshes and it is therefore also excluded from further consideration as effects are unlikely to be significant.

4.7.6.49 Viewpoint SS1 is located within Venta Icenorum at the location with the most elevated and open view towards the site of the onshore HVDC converter/HVAC substation. This illustrates views would be extremely limited and as such effects at Venta Icenorum would not be significant, it is not considered further.

Local Routes (Roads and Public Rights of Way)

4.7.6.50 Local routes within settlements are assessed as part of the settlements identified at paragraph 4.7.6.20, all other local routes within the onshore HVDC converter/HVAC substation study area are grouped into areas where potential effects are likely to be similar. These are:

- Local routes to the north of the A47 – 0.1 km north;
- Local routes east of the Tas Valley – 1.9 km east;
- Local routes west of the B1113 – 0.8 km west;
- Local routes between the B1113 and A140, north of Swainsthorpe – 0.2 km south; and
- Local routes between the B1113 and A140, south of Swainsthorpe – 2.1 km south.

4.7.6.51 While the ZTV illustrates potential visibility from local routes between the B1113 and A140, south of Swainsthorpe and local routes west of the B1113 in reality these typically run alongside hedgerows or shelterbelts to the edge of fields which, combined with the layering effect of other vegetation in the landscape, mean views would be constrained. In conjunction with their increased distance from the onshore HVDC converter/HVAC substation and the presence of other transmission infrastructure within potential views it is unlikely effects on these groups would be significant and they are not considered further.

Specific Viewpoints

4.7.6.52 No specifically promoted viewpoints, or viewpoints marked on OS maps have been identified within the Hornsea Three onshore HVDC converter/HVAC substation onshore HVDC converter/HVAC substation study area.

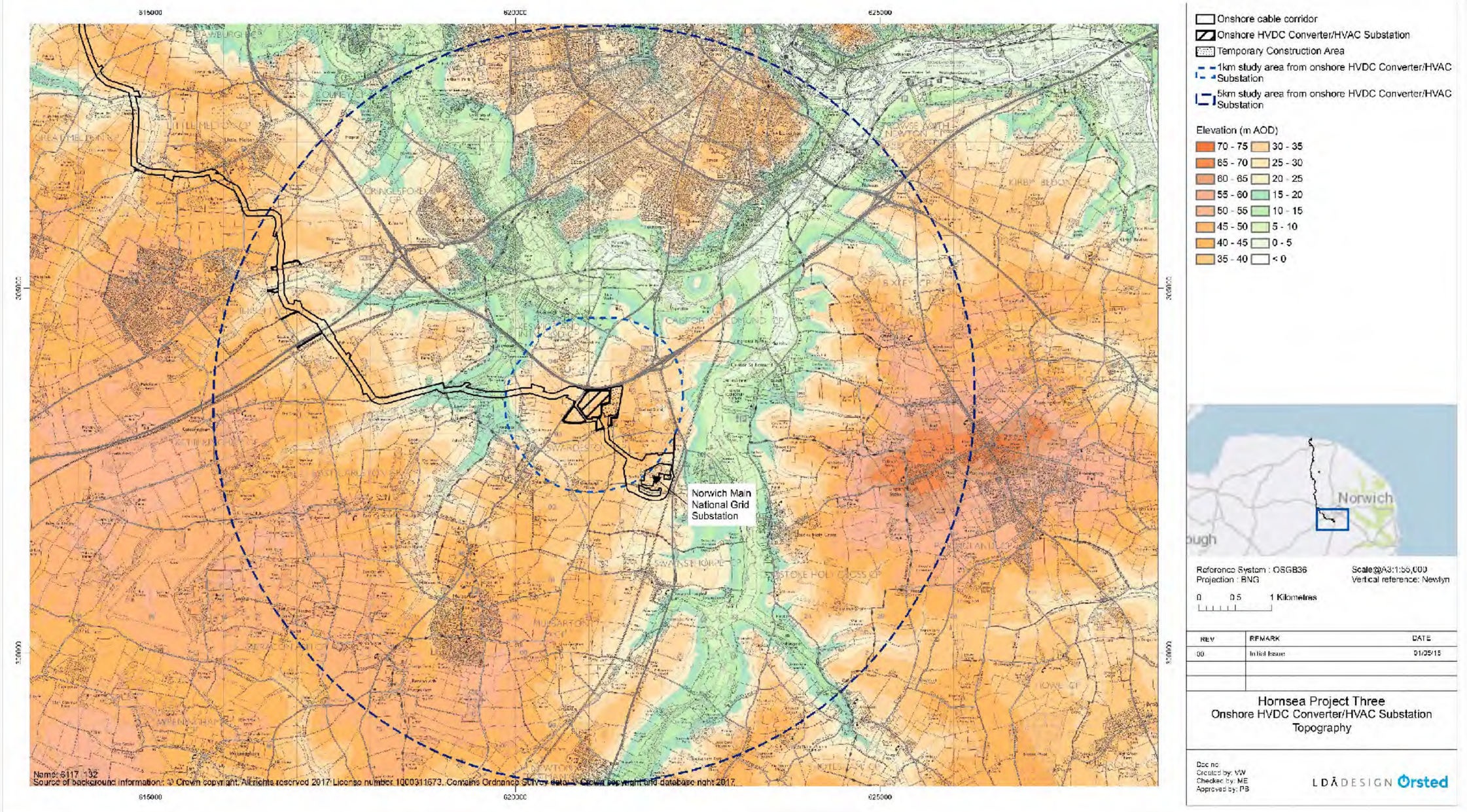

Figure 4.6: Onshore HVDC Converter/HVAC Substation Topography.

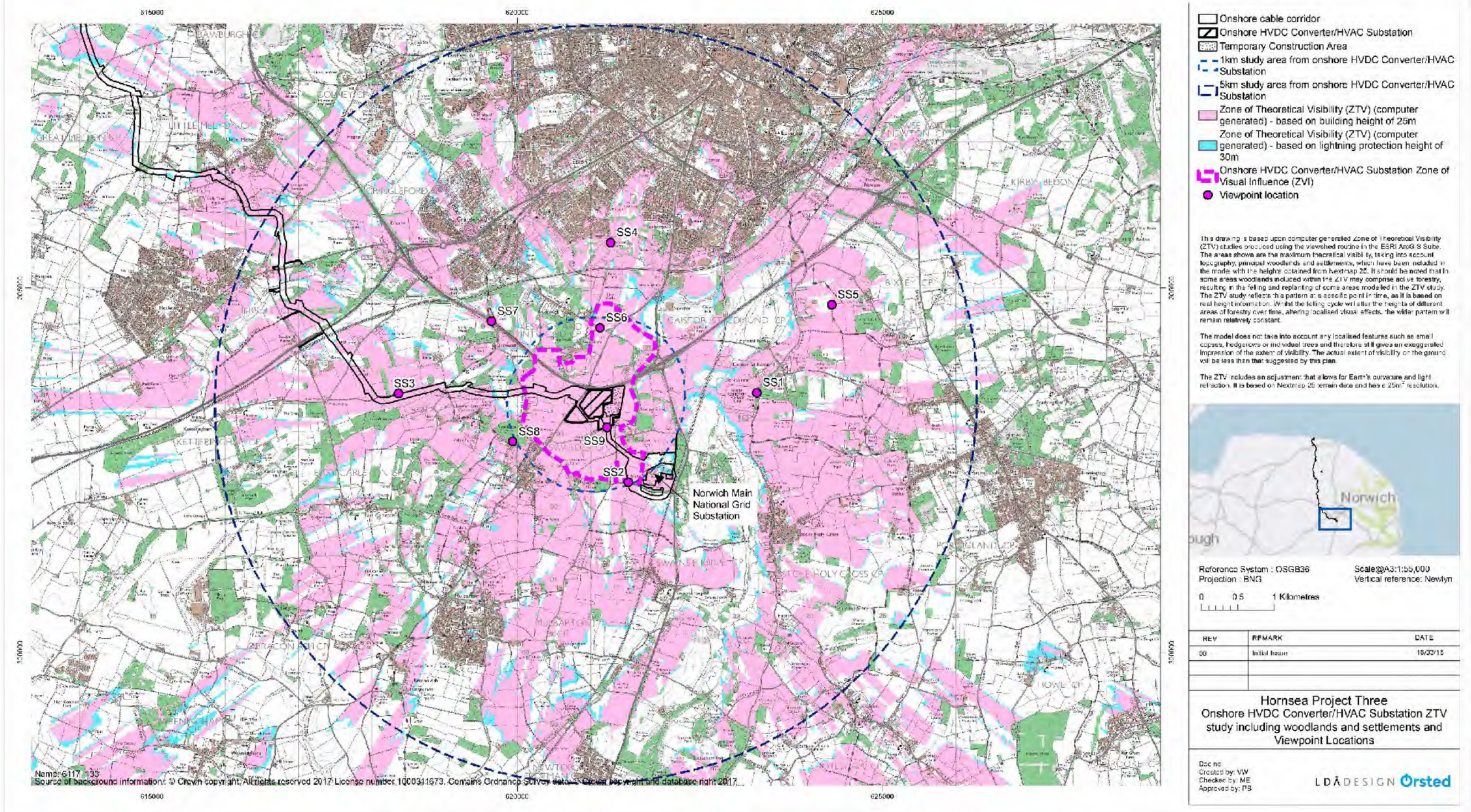

Figure 4.7: Onshore HVDC Converter/HVAC Substation Zone of Theoretical Visibility and Viewpoint Locations.

4.7.7 Future baseline scenario

4.7.7.1 With regard to development within the Norfolk Coast AONB, it is unlikely that there will be much change in terms of development, other than small additions to existing properties, conversions of properties and potentially, small developments within villages.

4.7.7.2 Outside the Norfolk Coast AONB small to medium sized residential developments are likely on the edges of some of the larger villages and on the edges of Norwich. The fringes of Norwich are also likely to see an increase in the amount of business and commercial development. All development will increase the amount of vehicles on the roads.

4.7.7.3 As far as long term change in the countryside is concerned, the biggest is likely to result from climate change. The Countryside Agency (now Natural England) and Scottish Natural Heritage published 'Topic Paper 9: Climate change and natural forces – the consequences for landscape character', in 2002. The paper provides an insight into the effects of climate change on landscape character, for the different regions of the different parts of the British Isles.

4.7.8 Data limitations

4.7.8.1 Currently there is no known limitation in the data that has informed this chapter.

4.8 Key parameters for assessment

4.8.1 Maximum design scenario

4.8.1.1 The maximum design scenarios identified in Table 4.6 have been selected as those having the potential to result in the greatest effect on an identified resource, receptor or receptor group. These scenarios have been selected from the details provided in the project description (volume 1, chapter 3: Project Description). Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the project Design Envelope (e.g. different building and infrastructure layout), to that assessed here be taken forward in the final design scheme.

4.8.2 Impacts scoped out of the assessment

4.8.2.1 On the basis of the baseline environment and the project description outlined in volume 1, chapter 3: Project Description, a number of impacts have been scoped out of the assessment for landscape and visual resources as agreed during consultation at the scoping stage (see Table 4.4). These impacts are outlined, together with a justification for scoping them out, in Table 4.7. In addition, some potential impacts have been scoped out of a full assessment and thus have only been considered at a high-level as, based on the baseline information and project description (as set out in volume 1, chapter 3: Project Description), effects are identified as unlikely to be significant (see section 4.7).

Table 4.6: Maximum design scenario considered for the assessment of potential impacts on landscape and visual resources.

Potential impact	Maximum design scenario	Justification
Construction phase		
Onshore Cable Corridor Temporary impacts of construction works along the onshore cable corridor may affect designated and non-designated landscape resources. Temporary impact of construction works along the onshore cable corridor may affect visual receptors.	Onshore cable corridor construction activity including: • 60,000 m² landfall construction compound and works incorporating HDD with 6 exit pits measuring 50 m x 5 m; • Approximately 53 km long, 80 m wide onshore cable corridor working area including (total area approx. 4,300,000 m²); • Up to 120 HDD locations per phase (up to 105 minor HDDs and 15 major HDDs per phase), including 15 HDD compounds; • 40,000 m² main construction compound located at Oulton Airfield; • Up to five secondary compounds (total area approx. 33,000 m²); • Up to 55 storage areas; • Site access roads; • 60 m wide grid export cable working area between onshore HVDC converter/HVAC substation and Norwich Main substation; and • When locations for compounds have been chosen, the impacts of the compounds and the side access (including access track crossings and culvert/bridge crossings) for both options will be similar, as it is assumed that the same number of accesses and areas of compounds will be used for both HVDC and HVAC options. The maximum duration of construction for the Hornsea Three onshore cable corridor is 30 months (approximately 2.5 years), this therefore means that the maximum duration over which construction could occur would be 5.5 years incorporating two phases (assuming a three-year gap with no active construction between the two phases). The work in each phase is expected to progress along the Hornsea Three onshore cable corridor with a typical active construction works duration of three months at any particular location.	The maximum extent of works and maximum duration over which these will occur.
Onshore HVAC Booster Station Temporary impacts of construction works for the onshore HVAC booster station may affect designated and non-designated landscape resources. Temporary impact of construction works for the onshore HVAC booster station may affect visual receptors.	Onshore HVAC booster station construction activity including: • 30,407 m² permanent area of site; • 25,000 m² temporary works area; • Buildings/equipment up to 12.5 m height across the permanent area of site; and • Lightning protection up to 17.5 m height across the permanent area of site. The maximum duration of construction for the onshore HVAC booster station is two years, this therefore means that the maximum duration over which construction could occur would be five years incorporating two phases (assuming a three-year gap with no active construction activity between the two phases).	The maximum extent of works and the maximum envelope in which buildings and lightning protection could be present. The maximum duration over which construction activity would occur.

Potential impact	Maximum design scenario	Justification
Onshore HVDC Converter/HVAC Substation Temporary impacts of construction works for the onshore HVDC converter/HVAC substation may affect designated and non-designated landscape resources. Temporary impact of construction works for the onshore HVDC converter/HVAC substation may affect visual receptors.	Onshore HVDC converter/HVAC substation construction activity including: • 149,302 m2 permanent area of site; • 91,000 m2 temporary works area; • Buildings/equipment up to 25 m height across the permanent area of site; and • Lightning protection up to 30 m height across the permanent area of site. The maximum duration of construction for the onshore HVDC converter/HVAC substation is three years, this therefore means that the maximum duration over which construction could occur would be six years incorporating two phases (assuming a three-year gap with no active construction activity between the two phases).	The maximum extent of works and the maximum envelope in which buildings and lightning protection could be present. The maximum duration over which construction activity would occur.
Operation phase		
Onshore HVAC Booster Station The impact of the onshore HVAC booster station during the operation and maintenance phase may affect designated and non-designated landscape resources. The impact of the onshore HVAC booster station during the operation and maintenance phase may directly affect visual receptors.	Permanent extent of the HVAC booster station including: • 30,407 m2 permanent area of site; • Buildings/equipment up to 12.5 m height across the permanent area of site; • Lightning protection up to 17.5 m height across the permanent area of site; and • Landscape mitigation planting.	The maximum envelope in which buildings/equipment and lightning protection could be present.
Onshore HVDC Converter/HVAC Substations The impact of the onshore HVDC converter/HVAC substation during the operation phase may affect designated and non-designated landscape resources. The impact of the onshore HVDC converter/HVAC substation during the operation phase may affect visual receptors.	Permanent extent of the onshore HVDC converter/HVAC substation including: • 149,302 m2 permanent area of site; • Buildings/equipment up to 25 m height across the permanent area of site; • Lightning protection up to 30 m height across the permanent area of site; • Landscape mitigation planting.	The maximum envelope in which buildings/equipment and lightning protection could be present.
Decommissioning phase		
Onshore HVAC Booster Station Temporary impacts of decommissioning works for the onshore HVAC booster station may affect designated and non-designated landscape resources. Temporary impact of decommissioning works for the onshore HVAC booster station may affect visual receptors.	Removal of buildings/equipment across the permanent area of site.	The maximum envelope in which buildings/equipment and lightning protection could be present.
Onshore HVDC Converter/HVAC Substation Temporary impacts of decommissioning works for the onshore HVDC converter/HVAC substation may affect designated and non-designated landscape resources. Temporary impact of decommissioning works for the onshore HVDC converter/HVAC substation may affect visual receptors.	Removal of buildings/equipment across the permanent area of site.	The maximum envelope in which buildings/equipment and lightning protection could be present.

Table 4.7: Impacts scoped out of the assessment for landscape and visual resources.

Potential impact	Justification
Construction phase	
All impacts of the offshore elements of Hornsea Three on landscape and visual receptors	Impacts during construction will be short to medium term and temporary and are unlikely to be significant.

Potential impact	Justification
All impacts on landscape and visual receptors outside of the onshore cable corridor study area	The assessment is designed to focus on the likely significant effects of the onshore cable route. Landscape and visual receptors at distances greater than 1 km from the onshore cable corridor are not anticipated to experience significant effects.
All impacts on landscape and visual receptors outside of the onshore HVAC booster station study area or the onshore HVDC converter/HVAC substation study area	The assessment is designed to focus on the likely significant effects of the HVAC booster station or HVDC converter/HVAC substation. Landscape and visual receptors at distances greater than 5 km from these components are not anticipated to experience significant effects.
Operation and maintenance phase	
All impacts of the offshore elements of Hornsea Three on landscape and visual receptors, except the offshore HVAC booster station which is the closest offshore element to the coast	The offshore HVAC booster station is assessed at section 4.16. In line with the findings of this, impacts of the remaining, more distant, offshore elements on land based receptors are scoped out on the grounds that they are too far offshore to have any significant impacts.
All impacts of the onshore cable corridor on landscape and visual receptors	As set out in Table 4.3, Table 12.3 of the Scoping Report proposes scoping out impacts of the onshore cable route corridor are scoped out for the operation and maintenance phase on the grounds that there will be no significant changes to landscape character or visual amenity as the cable will be buried underground. As such, the operation and maintenance phase of the onshore cable corridor will not be likely to give rise to any adverse landscape or visual effects that could be considered significant. The Secretary of State agreed in their Scoping Opinion that the matters identified in Table 12.3 could be scoped out of the landscape and visual impact assessment (LVIA).
All impacts on landscape and visual receptors outside of the HVAC booster station study area or the HVDC converter/HVAC substation study area	The assessment is designed to focus on the likely significant effects of the HVAC booster station or HVDC converter/HVAC substation. Landscape and visual receptors at distances greater than 5 km from these components are not anticipated to experience significant effects.
Decommissioning phase	
All impacts of the offshore elements of Hornsea Three on landscape and visual receptors	Impacts due to decommissioning will be short to medium term and temporary and are unlikely to be significant.
All impacts of the onshore cable corridor on landscape and visual receptors	The decommissioning requirements of the onshore cable route will not cause any changes to the landscape character or visual amenity of the onshore cable corridor study area due to the minimal activities (i.e. cables will be left in the ground, as described in volume 1, chapter 3: Project Description) . Decommissioning activities for the onshore cable corridor will not be likely to give rise to any adverse landscape or visual effects that could be considered significant.
All impacts on landscape and visual receptors outside of the HVAC booster station study area or the HVDC converter/HVAC substation study area	The assessment is designed to focus on the likely significant effects of the HVAC booster station or HVDC converter/HVAC substation. Landscape and visual receptors at distances greater than 5 km from these components are not anticipated to experience significant effects.

4.9 Impact assessment methodology

4.9.1.1 The landscape and visual resources EIA has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology, adapting it in some instances to ensure compliance with GLVIA3. Specific to the landscape and visual resources EIA, the following guidance documents have also been considered:

- Council of Europe, The European Landscape Convention (2000, ratified 2006) ETS No. 176;
- Topic Paper 6: Techniques and Criteria for judging Capacity and Sensitivity (Countryside Agency and Scottish Natural Heritage, 2004);
- An Approach to Landscape Character Assessment, Natural England, 2014; and
- GLVIA3.

4.9.1.2 In addition, the landscape and visual resources EIA has considered the legislative framework as described in section 4.4.

4.9.1.3 The LVIA for the construction, operation and maintenance, and decommissioning phases of the onshore elements of Hornsea Three follows the LVIA methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. This is summarised in the following sections.

4.9.1.4 The criteria for determining the significance of effects is a two stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts.

4.9.1 Sensitivity

4.9.1.1 The sensitivity of landscape resources and visual receptors to a development is dependent on a range of factors and is classified on a five point scale (negligible, low, medium, high and very high), informed by assessments of susceptibility and value as set out in Table 4.8 and Table 4.9.

Table 4.8: Definition of terms relating to the susceptibility and value of landscape resources.

	Definition	
	Landscape resource susceptibility	Landscape resource value*
Very High	Exceptional landscape quality, no or limited potential for substitution. Key elements features well known to the wider public. Little or no tolerance to change.	Nationally/internationally designated/valued landscape, or key elements or features of nationally/internationally designated landscapes.
High	Strong/distinctive landscape character; absence of landscape detractors. Low tolerance to change.	Regionally/nationally designated/valued countryside and landscape features.
Medium	Some distinctive landscape characteristics; few landscape detractors. Medium tolerance to change.	Locally/regionally designated/valued countryside and landscape features.
Low	Absence of distinctive landscape characteristics; presence of landscape detractors. High tolerance to change.	Undesignated countryside and landscape features.
Negligible	Absence of positive landscape characteristics. Significant presence of landscape detractors. High tolerance to change.	Undesignated countryside and landscape features.

* Also informed by assessment of factors outlined in Box 5.1 of GLVIA3 (see volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology).

4.9.1.2 For visual receptors; judgements of susceptibility and value are closely interlinked considerations; for example the most valued views are likely to be those which people go and visit because of the available view – and it is at those viewpoints that their expectations will be highest. The value attributed to visual receptors also relates to the value of the view – for example a National Trail is nationally valued for its access, not necessarily for its views. Views will be treated as valued where there is documentary evidence of that value – such as recommendations to visitors; or reference within special qualities of designated areas.

Table 4.9: Definition of terms relating to the sensitivity of visual receptors.

Sensitivity	Definition
Very High	Visitors to valued viewpoints or routes which people might visit purely to experience the view, e.g. promoted or well-known viewpoints, routes from which views that form part of the special qualities of a designated landscape can be well appreciated; key designed views; panoramic viewpoints marked on maps.

Sensitivity	Definition
High	People in locations where they are likely to pause to appreciate the view, such as from local waypoints such as benches; or at key views to/from local landmarks. Visitors to local attractions, heritage assets or public parks where views are an important contributor to the experience, or key views into/out of Conservation Areas would also fall into this category. People in the streets around their home, or using public rights of way, navigable waterways or accessible open space (public parks, open access land). Users of promoted scenic rail and road routes.
Medium	Users of cycle routes, local roads and railways. Users of A-roads which are promoted scenic routes.
Low	Outdoor workers. Users of sports facilities such as cricket grounds and golf courses.
Negligible	Users of Motorways and A-roads; shoppers at retail parks, people at their (indoor) places of work.

4.9.2 Magnitude of change

4.9.2.1 The magnitude of change of a particular proposal depends on:

- Nature of proposed development and change to existing baseline;
- Scale of proposed change;
- Duration of change;
- Extent of change; and
- Reversibility.

4.9.2.2 The magnitude of impact is rated within the range of Major, Moderate, Minor, Negligible and No Change, and is informed by combining the scale, duration and extent of an impact.

4.9.2.3 The scale of impacts is assessed as summarised in Table 4.10.

Table 4.10: Definition of terms relating to the scale of an impact.

Scale	Definition	
	Landscape resource	Visual resource
Large	Total loss or addition or/very substantial loss or addition of key elements/features/patterns of the baseline, i.e. pre-development landscape and/or introduction of dominant, uncharacteristic elements with the attributes of the receiving landscape.	Complete or very substantial change in view involving complete or very substantial obstruction of existing view or complete change in character and composition of baseline, e.g. through removal of key elements.
Medium	Partial loss or addition of or moderate alteration to one or more key elements/features/patterns of the baseline, i.e. pre-development landscape and/or introduction of elements that may be prominent, but may not necessarily be substantially uncharacteristic with the attributes of the receiving landscape.	Moderate change in view: which may involve partial obstruction of existing view or partial change in character and composition of baseline, i.e., pre-development view through the introduction of new elements or removal of existing elements. Change may be prominent, but would not substantially alter scale and character of the surroundings and the wider setting. Composition of the views would alter. View character may be partially changed through the introduction of features which, although uncharacteristic, may not necessarily be visually discordant.
Small	Minor loss or addition of or alteration to one or more key elements/features/patterns of the baseline, i.e., pre-development landscape and/or introduction of elements that may not be uncharacteristic with the surrounding landscape.	Minor change in baseline, i.e., pre-development view – change would be distinguishable from the surroundings whilst composition and character would be similar to the pre- change circumstances.
Negligible	Very minor loss or addition of or alteration to one or more key elements/features/patterns of the baseline, i.e., pre-development landscape and/or introduction of elements that are not uncharacteristic with the surrounding landscape approximating to a 'no-change' situation.	Very slight change in baseline, i.e., pre-development view – change barely distinguishable from the surroundings. Composition and character of view substantially unaltered.
No change	No loss, alteration or addition to the receiving landscape resource.	No alteration to the existing view.

4.9.2.4 The duration of impacts falls into two criteria, temporary and permanent. Where impacts are identified they can be:

- Temporary short term (0-2 years);
- Temporary medium term (2-5 years);
- Temporary long term (5-15 years); or
- Permanent (15 years or greater).

4.9.2.5 The extent of impacts indicates the geographic area over which effects are felt. Where impacts are identified they can be:

- Limited – site, or part of site, or small part of a receptor area (< approx. 10%);
- Localised – site and surroundings up to 2 km, or part of receptor area (up to approx. 25%);
- Intermediate – up to approx. 2-4 km, or around half of receptor area; or
- Wide – beyond 4 km, or more than half of receptor.

4.9.3 Significance of Effects

4.9.3.1 The significance of the effect upon landscape and visual resources is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The significance of effects on landscape and visual receptors is evaluated according to a scale: substantial, major, moderate, minor or negligible as set out in Table 4.11. Where a range of significance of effect is presented, the final assessment for each effect is based upon expert judgement.

Table 4.11: Matrix used for assessment of significance showing the combinations of receptor sensitivity and the magnitude of impact.

		Magnitude of impact				
Sensitivity of receptor		*No change*	*Negligible*	*Minor*	*Moderate*	*Major*
	Negligible	Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
	Low	Negligible	Negligible or minor	Negligible or minor	Minor	Minor or moderate
	Medium	Negligible	Negligible or minor	Minor	Moderate	Moderate or major
	High	Negligible	Minor	Minor or moderate	Moderate or major	Major or substantial
	Very high	Negligible	Minor	Moderate or major	Major or substantial	Substantial

4.9.3.2 For the purposes of this assessment those effects indicated as being of substantial, or major significance are regarded as significant. Effects of moderate and lesser significance have been identified in the assessment, but are not considered significant. Where impacts have been judged to be negligible magnitude the overall effects will usually be considered neutral as such a small change is unlikely to be notably detrimental or beneficial.

4.9.3.3 Effects are defined as adverse, neutral or positive. Neutral effects are those which overall are neither adverse nor positive, but may incorporate a combination of both.

4.9.3.4 The decision regarding the significance of effect and the decision regarding whether an effect is beneficial or adverse are entirely separate. For example, a rating of major and positive would indicate an effect that was of great significance and on balance positive, but not necessarily that the proposals would be extremely beneficial. Whether an effect is positive, neutral or adverse is identified based on professional judgement.

4.10 Measures adopted as part of Hornsea Three

4.10.1.1 As part of the project design process, a number of designed-in measures have been identified to reduce the potential for impacts on landscape and visual resources (see Table 4.12). T As there is a commitment to implementing these measures, they are considered inherently part of the design of Hornsea Three and have therefore been considered in the assessment presented in section 4.10 (i.e. the determination of magnitude and therefore significance assumes implementation of those measures). These measures are considered standard industry practice for this type of development.

4.10.2 Onshore Cable Corridor

4.10.2.1 The onshore cable corridor, including the landfall area, has been developed taking into account a number of constraints; in particular, ecological and landscape. The onshore cable corridor will be buried underground for its entire length; burying the cable would lead to less landscape and visual effects than overhead power lines.

4.10.2.2 Where hedgerows and trees occur within the working area (and cable installation is not limited to HDD techniques), they will be removed. The width of hedge removed will be limited where possible – for example if the project is delivered in two phases the construction contractor may not need to remove the full 80 m temporary easement. Further details on hedgerow removal, retention and replacement can be found in volume 3, chapter 3: Ecology and Nature Conservation, the Outline EMP (document reference A8.6) and the Outline LMP (document reference A8.7).

4.10.2.3 Where possible, the cable corridor avoids areas of woodland and trees. Where the cable corridor crosses areas of woodland these will mostly be retained by use of HDD. Where this is not possible, Hornsea Three will seek to minimise tree loss by micro-siting cable routes to avoid trees during the construction phase.

4.10.2.4 Many hedges that are crossed by the onshore cable corridor will be retained by HDD. Where works are required to hedgerows, these will be minimised, with the course of action for each hedgerow to have been pre-determined and outlined in the Outline EMP (document reference A8.6) and the Outline LMP (document reference A8.7). Prior to the commencement of any works to a hedgerow, an Ecological Clerk of Works (ECoW) will be present on site to ensure that the specified protection and mitigation measures are appropriately implemented.

4.10.3 Construction Compounds and Storage Areas for the Onshore Cable Corridor

4.10.3.1 The Outline CoCP (document reference A8.5) describes proposals for a main construction compound at Oulton Airfield and a series of secondary construction compounds and storage areas along the onshore cable route; these are shown on Figure 4.1.

4.10.3.2 The site identified for the main construction compound at Oulton Airfield already comprises hard standing suitable for the temporary placement of site facilities (such as offices, briefing rooms, catering facilities, storage and the like typically housed in port-a-cabins); the location is shown on Figure 4.1 sheets 3 and 4 of 8. Hornsea Three will be set within the existing context of hardstanding including former runways, buildings including poultry sheds and a solar farm, and in a location that is partially enclosed by development and vegetation, helping to minimise landscape and visual impacts.

4.10.3.3 The secondary construction compounds would be in place for periods of up to 3 months (per phase) then removed and the sites restored to their original condition when the work front in that locality has passed, helping to minimise landscape and visual impacts due to the short term duration of the works.

Storage Areas

4.10.3.4 It is envisaged that each storage area will be in place for periods of one month (per phase) and the sites restored to their original condition when the work front has passed, helping to minimise landscape and visual impacts due to the short-term presence.

4.10.4 Onshore HVAC Booster Station and Onshore HVDC Converter/HVAC Substation

4.10.4.1 The onshore HVAC booster station is located in a gently undulating landscape that is occupied by predominantly mixed farmland with a strong existing landscape framework. Similarly, the onshore HVDC converter/HVAC substation site is located in gently undulating landscape of predominantly mixed farmland that is influenced by the A47 which lies immediately to the north. The landscape in the onshore HVDC converter/HVAC substation study area is influenced by developments including the settlement of Norwich to the north, Norwich Main substation to the south east, and a quarry to the east of the site.

4.10.4.2 The landscapes within the study areas of the onshore HVAC booster station and onshore HVDC converter/HVAC substation are characterised by fields and local roads enclosed by dense hedgerows, hedgerow trees, tree blocks and woodlands. This provides layers of vegetation that would help to screen and filter views of Hornsea Three, and integrate the onshore HVAC booster station and onshore HVDC converter/HVAC substation into the landscape. To supplement this existing landscape screening, proposals for mitigation planting would provide further screening. Landscape proposals are detailed in the Outline LMP (document reference A8.7).

4.10.4.3 While it is recognised that the onshore HVAC booster station and onshore HVDC converter/HVAC substation would not be screened entirely in some views, a strong landscape structure around them would assist in mitigating visual and landscape impacts.

4.10.4.4 Proposals are designed to:

- Minimise the heights of structures to reduce their visibility from the surrounding landscape. It has been possible to identify maximum design scenarios for the heights and footprints of the onshore HVAC booster station and onshore HVDC converter/HVAC substation. Buildings and equipment will not be a uniform height throughout the developed areas, and much of the equipment will be lower and cover smaller footprints than the maximum design scenarios;
- Reduce the landscape and visual impacts of Hornsea Three by filtering and screening views of the developments and integrating them into their landscape contexts;
- Retain and protect all existing trees, hedgerows and other vegetation except where removal is necessary to construct and maintain Hornsea Three;
- Enhance existing landscape features such as hedgerows by planting gaps with hedgerow plants and trees along field edges adjacent to the onshore HVAC booster station and onshore HVDC converter/HVAC substation; and
- Utilise native species that are present locally.

4.10.4.5 The onshore HVAC booster station and onshore HVDC converter/HVAC substation lie within different landscapes and are different in terms of, inter alia, scale and appearance. In addition to the generic objectives listed above, the design principles followed are specifically designed to respond to the proposals and contexts for each development as described below, as illustrated in the Outline LMP (document reference A8.7).

Onshore HVAC Booster Station Landscape Proposals

4.10.4.6 Key design principles are as follows:

- The onshore HVAC booster station is located close to existing woodlands and in local low point in the landscape so that it will be largely screened in views from the east, and seen with a woodland backdrop in views from the west;
- Create a HVAC booster station enclosed by a mixed wood which appears as an extension to the existing woods to the east. This will be appropriate to local landscape character and also help to screen and filter views of the onshore HVAC booster station infrastructure from surrounding landscape and visual receptors, and integrate it into its landscape context;
- Along the line of the onshore cable route, a strip of mature trees and scrub along the field boundary immediately north of the onshore HVAC booster station, and hedgerows bounding fields further to the north and to the south, are to be retained by installation of cables by horizontal direct drilling (HDD); and
- Create areas of new woodland and scrub, and new and strengthened hedgerows with hedgerow trees that would provide further screening and filtering of views and enhance landscape character.

Onshore HVDC Converter/HVAC Substation Landscape Proposals

4.10.4.7 Key design principles are as follows:

- The onshore HVDC converter/HVAC substation is contained within existing hedged field boundaries, two lines of pylons and overhead lines to the south west, the B1113 to the west and the A47 to the north. These features and associated vegetation help to limit the spread of effects on landscape character beyond the site and provide some filtering and screening of views;
- Existing hedgerows and hedgerow trees along the route of the onshore cable corridor are, where possible, to be retained at the site boundaries of the onshore HVDC converter/HVAC substation by use of HDD. There will be some locations where hedges and trees will need to be removed such as at the proposed site entrance as illustrated on drawing number 6117_512 of the Outline LMP (document reference A8.7); the locations for this removal will be confirmed during post consent / pre-commencement of the onshore HVDC converter/HVAC substation;
- New woodland and scrub planting is proposed around the onshore HVDC converter/HVAC substation. This will be appropriate to local landscape character and also help to screen and filter views of the onshore HVDC converter/HVAC substation from surrounding landscape and visual receptors, and integrate it into its landscape context;
- Strengthen existing hedgerows by planting gaps with new hedge plants and hedgerow trees that will provide further screening and filtering of views and enhance landscape character;
- Minimise harm to the NSBLPZ. Policy DM4.6 Landscape Setting of Norwich of the South Norfolk Development Management Policies Document (2015) aims to protect the openness of the NSBLPZ around the southern bypass (A47) and, where possible, enhance the landscape setting of the southern bypass. There are existing open views of countryside looking south across the site from the A47 and these will be obscured by the onshore HVDC converter/HVAC substation. A short distance west and east of the site existing southern views from the A47 are obscured by roadside vegetation or embankments, restricting views of open countryside;
- The proposed onshore HVDC converter/HVAC substation will be set back from the A47 with woodland and woodland edge planting is proposed between the substation and the road. This will, as planting matures, create a view of woodland in the foreground with the onshore HVDC converter/HVAC substation beyond. This will create a longer section of A47 with views of open countryside obscured, but views of the onshore HVDC converter/HVAC substation will be filtered by proposed and existing vegetation and existing landform; and
- Minimise harm to the Undeveloped Approaches to Norwich. Policy DM4.6 Landscape Setting of Norwich of the South Norfolk Development Management Policies Document (2015) aims to protect Undeveloped Approaches to Norwich, including the B1113. The policy states that all development proposals within the visual zone of influence viewed from the identified Undeveloped Approaches to Norwich should reinforce and avoid undermining the rural character of the Undeveloped Approaches to Norwich.

4.10.4.8 The onshore HVDC converter/HVAC substation is set back from the B1113 with woodland and woodland edge planting proposed between the substation and this road. Existing trees and hedges along the B1113 will be retained and protected except where it is necessary for them to be removed for construction and operation of the onshore HVDC converter/HVAC substation. A permanent gap will be required at the site entrance on the B1113, but its width will be the minimum required for construction and operation in order to maximise screening of the onshore HVDC converter/HVAC substation.

4.10.4.9 The illustrative landscape proposals also show potential tree planting within the edges of fields adjacent to residential properties to the south west (House on the Hill) and south east (Pond Cottage, Holly View Cottage, Park View Cottage, Mangreen Cottage) to provide additional screening. This will be offered as optional mitigation, to be taken forward should residents wish this, and it is not essential to mitigate the effects. Some residents may prefer to retain the openness of views (including some visibility of the onshore HVDC converter/HVAC substation) rather than having a tree belt close to their house. This is discussed in the assessment of effects on residential visual amenity, volume 6, annex 4.6: Residential Visual Amenity.

4.10.4.10 The assessment of effects within this chapter is based on only the following areas of planting or seeding being implemented shown within the Outline LMP (document reference A8.7):

- Areas defined as 'Minimum area of planting' or 'Minimum area of planting and seeding' on the illustrative planting and seeding proposals for the onshore HVAC booster station and onshore HVDC converter/HVAC substation shown on drawings 6117_500 and 6117_510; and
- Planting for the onshore HVAC booster station and onshore HVDC converter/HVAC substation shown on drawings 6117_501 and 6117_511.

4.10.4.11 There is potential for additional planting or seeding to be implemented within the onshore HVAC booster station and onshore HVDC converter/HVAC substation which will be determined post consent / pre-commencement of the onshore HVAC booster station and HVDC converter/HVAC substation, as noted on drawings 6117_500 and 6117_510. This has not been factored into the assessment of effects within the Environmental Statement.

4.10.4.12 The façade style and general external treatment of the onshore HVAC booster station and onshore HVDC/HVAC substation buildings will be discussed with the relevant Local Planning Authorities. Façade treatments can be used to reduce the visual impact of buildings, and to break up the impression of massing between different built elements within the same site. Hornsea Three will continue to discuss these principles with the relevant stakeholders as the project design work progresses, and in response to ongoing consultation. These potential additional mitigation measures have not been taken into consideration for the determination of effects in the Environmental Statement..

4.10.5 Lighting

4.10.5.1 Lighting during operation will take into account guidance from the Institute of Lighting Professionals (Institute of Lighting Professionals, 2011 'Guidance Notes for the Reduction of Obtrusive Light'). Lighting during the onshore construction phase will be short term and temporary, used only when required (and generally limited to certain working hours) and designed to avoid unnecessary illumination. Light spill during out of hours working will be minimised through the use of task-orientated lighting. At permanent onshore infrastructure (e.g. onshore HVAC booster station and HVDC converter/HVAC substation), security lighting may be required during operation to ensure a safe working environment. Light spill from these elements would be minimised through design, in particular the use of directional lighting. Further details on the lighting strategy for temporary works and permanent infrastructure (onshore and offshore) is set out in volume 1, chapter 3: Project Description, and in the Outline CoCP (document reference A8.5).

Table 4.12: Summary of designed-in measures adopted as part of Hornsea Three.

Measures adopted as part of Hornsea Three	Justification
The location of the onshore cable corridor avoids as many landscape features as possible (e.g. areas of woodland).	To reduce the impact of the project upon existing landscape features.
The onshore cable corridor will be buried underground for its entire length.	To reduce the potential landscape and visual impact of Hornsea Three
The location of the onshore HVAC booster station is in a natural low point in the landform and closely associated with existing woodland.	To reduce the potential landscape and visual impact of Hornsea Three.
An Outline LMP (document reference A8.7) has been produced and will be followed. The Outline LMP contains illustrative landscape proposals including minimising removal of existing vegetation and implementation of mitigation planting for the onshore HVAC booster station and onshore HVDC/HVAC substation. It also details management of the proposed planting to enable the proposed planting to thrive.	To reduce the potential landscape and visual impact of Hornsea Three and help integrate it into the landscape. To enhance existing hedgerows and biodiversity.
Replacement hedgerow planting along the onshore cable corridor (where practical) with shallow rooted shrubs. The Outline LMP (document reference A8.7) describes how hedgerows will be replaced and maintained along the onshore cable corridor.	Mitigation for hedgerows removed. Shallow rooted plants only over the onshore cable corridor to prevent disturbance of the cables by tree roots.
Gapping up of derelict hedgerows that are impacted upon by the construction phase (where practical). Increasing diversity in species-poor hedgerows. Replacement tree planting, on a one for one basis within hedgerows, not over the cables, of any trees removed during the construction works. The Outline LMP (document reference A8.7) describes how hedgerows and trees will be protected, enhanced and maintained along the onshore cable corridor.	Enhancement of landscape character, visual resources and ecological habitats. Trees not replanted over the onshore cable corridor to prevent disturbance of the cables by tree roots.
Restoration and repair of gates and fences that have been removed/damaged during the construction works.	Mitigation and enhancement of landscape character and visual resources.

4.11 Assessment of significance

4.11.1 Construction phase

4.11.1.1 The impacts of the onshore construction of Hornsea Three have been assessed on landscape and visual resources. The potential impacts arising from the construction of Hornsea Three are listed in Table 4.6, along with the maximum design scenario against which each construction phase impact has been assessed.

4.11.1.2 A description of the potential effects on landscape and visual receptors caused by each identified impact is given below.

Onshore Cable Corridor

Landscape Effects

Local Landscape Character

Magnitude of impact

4.11.1.3 The onshore cable corridor passes through a series of landscapes that can be broadly categorised as rural. Typically, they comprise extensive areas of farmland with fields defined by hedgerows and tree belts in varying proportions and frequently there are small to medium size blocks of woodland. Settlement is typically small to medium sized villages and there are frequently isolated houses and farms. Towards the southern end of the onshore cable corridor shallow river valleys become a more frequently occurring character type.

4.11.1.4 As noted at section 4.7 only those character areas within the cable corridor itself would potentially be likely to experience notable impacts on landscape character. These would be direct as a result of short term construction activity involving the digging of cable trenches, HDD works and the removal of short sections of hedgerow and some individual or small groups of trees in a localised part of each landscape character area. Although occurring in concert as part of Hornsea Three, some of these activities are not dissimilar in nature to other 'normal', short term activities that may occur at any time in any landscape (e.g. temporary road and other construction works, tree and hedgerow management, ploughing or digging of farmland).

4.11.1.5 Continuous tree belts, woodlands, watercourses and transport infrastructure, and many hedgerows would all be crossed using HDD techniques and would experience no direct impacts. Where hedgerows are removed they would be reinstated as would all ground crossed and disturbed by the onshore cable corridor. Individual or small groups of trees that are removed may not be replaced however the loss of these would not be particularly notable when considered on the wider scale of any individual landscape character area.

4.11.1.6 The impact of construction lighting on landscape receptors would be limited to those areas where artificial light is not currently present at night (i.e. away from settlements, street lighting, busy roads and other artificial light sources). Impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day. These impacts would be transient due to construction activity progressing along the route of the onshore cable corridor.

4.11.1.7 The impacts are predicted to be of local spatial extent, short term duration (two construction phases of three months at any particular location), small scale and reversible. It is predicted that the effects would affect landscape receptors directly. The magnitude of impact would be negligible.

Sensitivity of the receptor

4.11.1.8 Construction activity would be transient and could not be considered completely atypical of any of the character areas crossed due to the present extent of a range of human activity within them. Construction of the onshore cable corridor is unlikely to result in undue consequences for the maintenance of the baseline landscape character of any area that it crosses and thus all character areas are considered to be of low susceptibility.

4.11.1.9 The value of landscape character areas crossed by the onshore cable corridor varies. Those falling within the North Norfolk AONB are generally considered to be of high value due to the national designation of the landscape. Elsewhere, the 2012 South Norfolk Landscape Planning Policies Review identifies river valley character types within South Norfolk as being of particular value and these areas, further covered by South Norfolk Local Plan Policy DM4.5, are considered to be of medium value. Although equivalent reviews and policy do not exist for North Norfolk and Broadland districts the similarities between river valley character types across all these areas suggest that they should be considered of equivalent value. There is no further documentary evidence to suggest that other landscape character areas or types within the onshore cable corridor study area are of increased value and these are generally considered to be low value.

4.11.1.10 Landscape receptors are deemed to be of low susceptibility, and range from high to low value. The sensitivity of landscape character areas is therefore, considered to range from medium to low.

Significance of the effect

4.11.1.11 Overall, the sensitivity of landscape character areas is considered to range from medium to low and the magnitude of the impact is deemed to be negligible. The effect would range from **minor adverse to negligible** significance, which is not significant.

Visual Effects

Settlements

Magnitude of impact

4.11.1.12 A total of 27 settlements have been identified within the onshore cable corridor study area for the Hornsea Three onshore cable corridor of which five have been excluded from further consideration due to likely negligible impact, as detailed at section 4.7.6. The magnitude of impact on visual receptors within the remaining 21 settlements would vary with those closest to the cable corridor generally experiencing the greatest effects and those more distant experiencing effects of lesser magnitude.

4.11.1.13 The Hornsea Three onshore cable corridor does not pass directly through any settlements although it does run within approximately 100 m of five of the identified settlements and it is at these where visual impacts would be greatest; the proximity of the onshore cable corridor to three of these is illustrated on Figure 4.8, Figure 4.9 and Figure 4.10 (Kelling, Longville and Little Melton). These have been illustrated because they are the closest settlements to the onshore cable corridor with potential to experience the greatest impacts. Impacts would arise from the introduction of construction activities (excavations, temporary work lighting, individual tree felling, limited hedgerow removal, etc.) into views that presently, in the most part, look out across open fields adjacent to the settlements as illustrated by viewpoints CC3, CC4 and CC12 in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages (viewpoint locations are shown on Figure 4.1). In all cases the maximum design scenario would see construction activity present in any one location for no more than three months so the impact would be temporary short term and reversible i.e. landscape features would be reinstated following completion of construction activities. In the two phase construction scenario the temporary short term impacts would occur twice, separated by a period of up to three years, although would not result in impacts of notably different magnitude.

4.11.1.14 Views would tend to be limited to the periphery of nearby settlements, on the sides closest to the cable corridor, and would often be partially obscured by buildings or vegetation. These may include views of excavators, other heavy plant and HGV's, temporary compounds and storage areas and, at High Kelling, HDD compounds. Further within settlements it is likely that views of Hornsea Three would be completely obscured.

4.11.1.15 Beyond this, in settlements more distant from the cable corridor, the potential for views and therefore the magnitude of impact would rapidly diminish as the layering of vegetation within the flat or gently undulating landscape interrupts views of construction activities. The scale of impacts would vary depending on the exact nature of views available from individual settlements although beyond approximately 200 m impacts are likely to be negligible.

4.11.1.16 The most affected settlements would be those smaller settlements where construction activity would be seen from a wider extent, such as Kelling (see Figure 4.8), or those where the onshore cable corridor passes very close to part of the settlement, such as at Little Melton (see Figure 4.10). In this case impacts may be large scale but only experienced in very localised areas over a short period of time with the wider settlement relatively unaffected.

4.11.1.17 Construction lighting is likely to have limited impact on settlements due to the existing presence of artificial light sources. Lighting may be more notable where settlements are particularly small or where street lighting is limited. Impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day.

4.11.1.18 The impacts on visual receptors within settlements are predicted to be of localised spatial extent, up to large scale, temporary short term duration and reversible. It is predicted that the impact would, in some instances, affect the receptor directly. The magnitude would range from minor at settlements where the construction works would be most visible, such as Kelling, through to negligible and no change on settlements where views of the construction works would be very limited or non-existent.

Sensitivity of receptor

4.11.1.19 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors within settlements is considered to be high.

Significance of effect

4.11.1.20 Overall, the sensitivity visual receptors within settlements is considered to be high and the magnitude of the impact is deemed to range from moderate to no change. The effects on settlements would range from **moderate adverse** significance, at the most affected settlements, to **negligible** significance, which is not significant.

Key Routes

Magnitude of impact

4.11.1.21 As detailed at section 4.7.6 a total of 14 key routes have been identified within the onshore cable corridor study area for the Hornsea Three onshore cable corridor and all but two of these are crossed by the cable corridor. These comprise six main roads, three rail lines and five promoted long distance walking/cycle routes, one of which is a National Trail.

4.11.1.22 Where intersected by the cable corridor the majority of these routes would be crossed using HDD which would avoid the need for closures or diversions. The exceptions to this are the Holt-Mannington Walk, the Tas Valley Way and, potentially, the Peddars Way and Norfolk Coast Path (see viewpoint CC1 in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) as set out in volume 1, chapter 3: Project Description. Impacts would primarily arise from the introduction of construction activity, and sometimes temporary construction or HDD compounds, into views at close proximity to each of the routes. These would be seen over short sections, up to several hundred meters, of these long distance routes.

4.11.1.23 The transient nature of construction activities and short term duration of activities at any one location would result in impacts on all visual receptors using key routes being temporary short term. In the two phase construction scenario the temporary short term impacts would occur twice, separated by a period of up to three years, although would not result in impacts of notably different magnitude.

4.11.1.24 In the case of people travelling by car or train, views of Hornsea Three would tend to be very brief in relation to journey time, seen as the cable corridor is passed at high speed. The magnitude of impacts on these receptors would be negligible due to the brief, and temporary short term changes to views.

4.11.1.25 Those travelling by foot or cycle would generally experience views of construction activity for longer, when travelling on a given route, due to the lower speed of travel and would experience a more notable change to the baseline as a result.

4.11.1.26 In order for construction activities to cross the Holt-Mannington Walk, the Tas Valley Way and, potentially, the Peddars Way and Norfolk Coast Path would require temporary closure or diversion of routes. Users of these routes would experience changed views as a result of diversions. Impacts on diverted sections are likely to be similar to those on routes crossed by HDD i.e. close views of construction activities over a short extent of the route. Some offshore activity associated with the landfall and works in the intertidal zone would also be visible from the Peddars Way and Norfolk Coast Path.

4.11.1.27 Two routes, the Holt-Mannington Walk and Marriot's Way/NCN Route 1, are crossed by the Hornsea Three onshore cable corridor at two locations. Due to construction activity progressing along the onshore cable corridor, the crossings are likely to be made successively so users of the routes would experience views of construction activities for a longer period of time. The total duration for the crossings of each route across two phases would, however, remain temporary short term.

4.11.1.28 Impacts associated with construction lighting would only occur during periods where core working hours as set out in the Outline CoCP (document reference A8.5) extend beyond the hours of daylight (e.g. autumn/winter), which at most would be for a few hours each day. Furthermore it is noted that when this does occur, it is likely that other existing uses will already be creating artificial illumination (e.g. vehicles and street lighting) which minimises the effect of Hornsea Three. The impact of construction lighting may be more notable for users of unlit PRoW and cycle routes although these are likely to see less use during hours of darkness. Any activities outside of the core working hours would need to be agreed with the relevant Environmental Heath Office in consultation with relevant stakeholders as required.

4.11.1.29 The overall impacts on visual receptors using key routes within the onshore cable corridor study area is predicted to be of limited spatial extent, up to large scale, temporary short term duration and would be reversible. It is predicted that the impact would affect the receptor directly. The magnitude is therefore, considered to be minor.

Sensitivity of the receptor

4.11.1.30 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors using key routes is considered to range from very high (users of the Peddars Way and Norfolk Coast Path) to negligible (users of major A-roads).

Significance of the effect

4.11.1.31 Overall, for users of the Peddars Way and Norfolk Coast Path, it is predicted that the sensitivity of the receptor is considered to be very high and the magnitude of the impact is deemed to be minor. The effect would be of **moderate adverse** significance, which is not significant.

4.11.1.32 Overall, for users of other long distance paths, it is predicted that the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be minor. The effect would be of **moderate-minor adverse** significance, which is not significant.

4.11.1.33 Overall, for rail users, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude of the impact is deemed to be minor. The effect would be of **minor adverse** significance, which is not significant.

4.11.1.34 Overall, for users key road routes, it is predicted that the sensitivity of the receptor is considered to be negligible and the magnitude of the impact is deemed to be minor. The effect would be of **negligible** significance, which is not significant.

Accessible and Recreational Landscapes

Magnitude of impact

4.11.1.35 Only three accessible and recreational landscapes have been identified, at section 4.7.6, as having the potential to experience significant effects as a result of the construction activities associated with the Hornsea Three onshore cable corridor; Weybourne Beach, Fox Hill/Muckleburgh Hill and Kelling Heath.

4.11.1.36 The accessible landscapes of both Kelling Heath and Fox Hill/Muckleburgh Hill occupy elevated areas comprising a mix of woodland cover and more open areas of heathland crossed by numerous paths. Users of these areas would experience intermittent, elevated views of construction activities including temporary construction and HDD compounds. Some offshore activity associated with the landfall and works in the intertidal zone would be visible from some areas on Fox Hill/Muckleburgh Hill, as illustrated by viewpoint CC2 in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. Along the southern edge of Kelling Heath views of works to the cable corridor would be at close proximity but more typically across the two areas the works would be seen from a distance of several hundred meters.

4.11.1.37 Weybourne beach would experience effects the same as those described for the Peddars Way/ England Coast Path, as described above, which follow a route along the beach as they pass through the onshore cable corridor study area.

4.11.1.38 Where construction activities are visible within these areas the construction lighting would be also, although other light sources associated with settlements, roads and shipping would also be seen in the distance. Construction lighting would be likely to have the most notable impact at Weybourne beach due to the close proximity of the receptor to the lighting, however, all of these accessible landscapes would be more frequently visited during the hours of daylight. Impacts associated with construction lighting would only occur during periods where core working hours as set out in the Outline CoCP (document reference A8.5) extend beyond the hours of daylight (e.g. autumn/winter), which at most would be for a few hours each day. Any activities outside of the core working hours would need to be agreed with the relevant Environmental Heath Office in consultation with relevant stakeholders as required.

4.11.1.39 The overall impact on visual receptors within accessible and recreational landscapes is predicted to be of localised spatial extent, up to large scale, temporary short term duration and reversible. It is predicted that the impact would affect the receptor directly. The magnitude would range from minor, where the construction works would be seen up close (Weybourne Beach), through to negligible where views of the construction works would be very limited or non-existent (Kelling Heath).

Sensitivity of the Receptor

4.11.1.40 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors within accessible and recreational landscapes is considered to be high.

Significance of the effect

4.11.1.41 Overall, the sensitivity of visual receptors within accessible and recreational landscapes is considered to be high and the magnitude of the impact is deemed to range from minor to negligible. The effect would be up to **moderate-minor adverse** significance, which is not significant.

Local Routes (Roads and Public Rights of Way)

Magnitude of impact

4.11.1.42 Impacts on local roads and Public Rights of Way would occur as a result of construction activities being seen by users of these routes. The greatest magnitude impacts would be experienced where the Hornsea Three onshore cable corridor intersects routes and they are crossed, such as at viewpoints CC4, CC5, CC8, CC9 and CC13 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages); for these routes the nature of impacts would be the same as described for Key Routes above. Where routes are not crossed by the cable corridor views would generally be intermittent due to the extent of roadside and field boundary vegetation that filters or screens views. The greatest magnitude impacts would typically be experienced within a few tens of meters of the construction activities where they are most visible and where routes run parallel to the cable corridor and thus experience close views over a greater extent. Beyond approximately 100 m from the cable corridor the layering effect of vegetation in the surrounding landscape would frequently result in views becoming very limited; where construction activities are seen they would be in the distance and are unlikely to be especially notable.

4.11.1.43 As described for Key Routes, views of construction lighting are likely to have limited impact on road users but may be more notable from unlit PRoW, although these are likely to see less use during hours of darkness. In all cases impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day.

4.11.1.44 The overall impact on visual receptors using local routes is predicted to be of localised spatial extent, ranging from large scale to negligible, temporary short term duration and reversible. It is predicted that the impact would affect the receptor directly. The magnitude would range from minor, where the construction works would be seen up close, through to negligible or no change where views of the construction works would be very limited or non-existent.

Sensitivity of the Receptor

4.11.1.45 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors using PRoW group is considered to be high while those using local roads are considered to be medium.

Significance of the effect

4.11.1.46 Overall, for users of PRoW, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to range between minor and no change. The effect would be of up to **moderate-minor adverse** significance, which is not significant.

4.11.1.47 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of the impact is deemed to minor. The effect would be of **minor adverse** significance, which is not significant.

Figure 4.8: Onshore cable corridor aerial photo: Kelling.

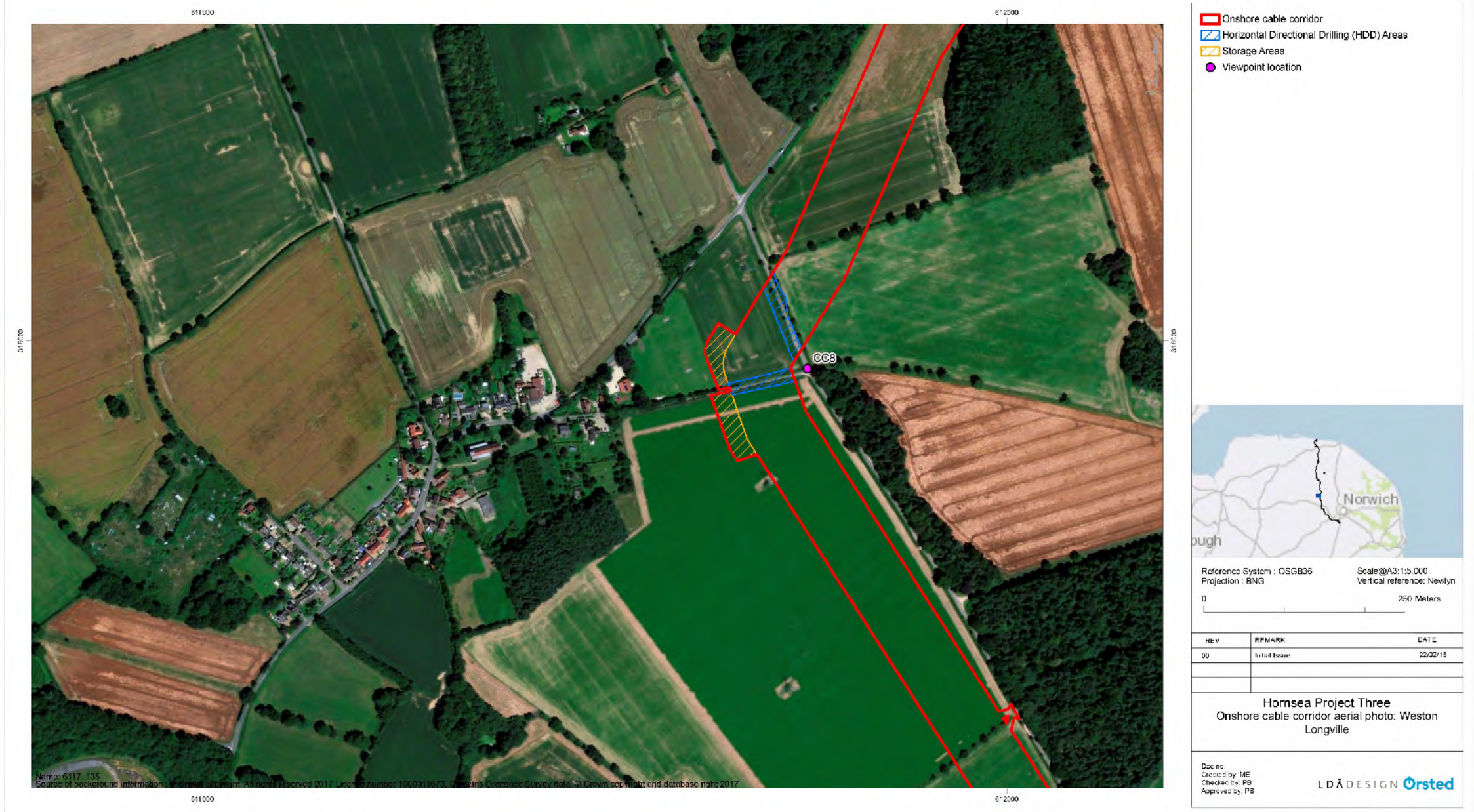

Figure 4.9: Onshore cable corridor aerial photo: Weston Longville.

Figure 4.10: Onshore cable route aerial photo: Little Melton.

Onshore HVAC Booster Station

Landscape and Visual Effects

4.11.1.48 The only landscape receptor likely to experience construction effects from the construction works associated with the HVAC booster station that are markedly different to the operational effects is the onshore HVAC booster itself, which would temporarily (short term to medium term) take on the character of a construction site. There would be a localised alteration to the fabric of the site to establish access and working areas within the site. The temporary construction area, adjacent to the onshore HVAC booster station, would be removed and ground reinstated following the construction phase; other site infrastructure would remain throughout the operation of the Hornsea Three.

4.11.1.49 In terms of visual receptors, residents of some of the nearby houses, primarily those close to the site on Sweetbriar Lane and with more open views, would be likely to see vehicle movements and some of the ground works during construction. These effects would be different in nature to those experienced once the onshore HVAC booster station is complete, but lower in terms of their magnitude and significance. Much of the preliminary construction work would be at ground level and therefore potentially screened by intervening vegetation and/or landform.

4.11.1.50 The presence of vehicles, plant and machinery on site would give rise to landscape and visual effects, but these would be restricted to localised and short to medium term, temporary views of construction activity, which would not give rise to notable landscape character or visual effects over and above those of the operational site.

4.11.1.51 Construction lighting may be required, at certain times, throughout the onshore HVAC booster station site and the adjacent temporary construction compound associated with it. Lighting would be task based and designed to avoid light spill and, where visible, would generally be seen from a distance resulting in limited impact. In all cases impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day.

4.11.1.52 The primary landscape and visual effects arising from the Hornsea Three would be from the permanent onshore HVAC booster station and therefore greater focus is placed on landscape and visual effects the operation and maintenance phase as discussed at section 4.11.2.

Onshore HVDC Converter/HVAC Substation

Landscape and Visual Effects

4.11.1.53 The only landscape receptor likely to experience construction effects that are markedly different to the operational effects is the site itself, which would temporarily (short term to medium term) take on the character of a construction site. There would be a localised alteration to the fabric of the site to establish access and working areas within the site. The temporary construction area, adjacent to the onshore HVDC converter/HVAC substation, would be removed and ground reinstated following the construction phase; other site infrastructure would remain throughout the operation of the Hornsea Three.

4.11.1.54 In terms of visual receptors, residents of some of the nearby houses, primarily those close to the site on Mangreen and Mangreen Lane, would be likely to see vehicle movements and some of the ground works during construction. These effects would be different in nature to those experienced once the onshore HVDC Converter/HVAC substation is complete, but lower in terms of their magnitude and significance despite the slightly closer proximity. Much of the preliminary construction work would be at ground level and therefore potentially screened by intervening vegetation and/or landform.

4.11.1.55 The presence of vehicles, plant and machinery on site would give rise to landscape and visual effects, but these would be restricted to localised and short to medium term, temporary views of construction activity, which would not give rise to notable landscape character or visual effects over and above those of the operational site.

4.11.1.56 Construction lighting may be required, at certain times, throughout the onshore HVDC Converter/HVAC substation site and the adjacent temporary construction compound associated with it. Lighting would be task based and designed to avoid light spill and, where visible, would generally be seen from a distance and in relatively close proximity to other artificial light sources such as traffic on the A47. In all cases impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day.

4.11.1.57 The primary landscape and visual effects arising from the Hornsea Three would be from the permanent onshore HVDC Converter/HVAC substation and therefore greater focus is placed on landscape and visual effects of the operation and maintenance phase as discussed at section 4.11.2.

Future monitoring

4.11.1.58 No landscape and visual monitoring to test the predictions made within the construction phase impact assessment is considered necessary.

4.11.2 Operation and Maintenance Phase

4.11.2.1 The impacts of the onshore operation and maintenance of Hornsea Three have been assessed on landscape and visual resources. The environmental impacts arising from the operation and maintenance of Hornsea Three are listed in Table 4.6, along with the maximum design scenario against which each operation and maintenance phase impact has been assessed.

4.11.2.2 In line with the decommissioning strategy set out in volume 1, chapter 3: Project Description, operation and maintenance phase impacts of the onshore HVAC booster station and onshore HVDC converter/HVAC substation are considered to be reversible as a strategy is in place for the complete removal of both the electrical infrastructure and the concrete foundations, should it be required. Despite this, in line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, impacts lasting greater than 15 years are considered permanent due to the length of time in relation to a person's life time. Thus, an impact may be considered both permanent duration and reversible. The overall assessment of effect does not rely on the reversibility of the impact and would remain the same whether the electrical infrastructure and concrete foundations of the onshore HVAC booster station and onshore HVDC converter/HVAC substation elements were removed or not.

4.11.2.3 A description of the potential effect on landscape and visual receptors caused by each identified impact is given below.

Onshore HVAC Booster Station

Landscape Effects

4.11.2.4 The greatest impacts on landscape character would be experienced within the site itself, which would be changed from part of an arable field to an HVAC booster station; impacts here would be large scale. Impacts on landscape character would extend across the field that the onshore HVAC booster station is located within, and across the field to the immediate north of this. These would be medium scale within approximately 150 m beyond which the landform becomes more elevated and impacts would rapidly reduce to small scale, becoming negligible beyond these two fields.

4.11.2.5 In assessing landscape value of the site and land within the ZVI the criteria set out in Box 5.1 of GLVIA and listed in volume 4, annex 4.1: Landscape and Visual Impact Assessment Methodology, appendix C are referred to.

4.11.2.6 The site and landscape within the area covered by the ZVI has no notable scenic quality above other areas of arable farmland within wider area. The character of the fields within and surrounding the onshore HVAC booster station site are common to the character of the landscape within the host LCAs and there are no elements of the site or its surroundings what could be identified as 'rare' that could potentially be affected by Hornsea Three. The landscape of the site and its surrounds is typical of the host LCAs and does not contain a particular character with few elements which are important examples of these landscapes, most notably the woodland to the east.

4.11.2.7 As detailed in Volume 3, Chapter 3: Ecology and Nature Conservation, the site and surrounding area is predominantly low value arable farmland and the woodland to the east is a County Wildlife Site of ecological value. The site contains protected species such as foraging bats and nesting birds. These aspects are fairly typical of a rural, agricultural landscape. There are no below ground heritage assets in the vicinity of the onshore HVAC booster station and there are no above ground heritage assets within the ZVI, nor are there any known cultural associations with the landscape of the surrounding area.

4.11.2.8 There are a number of PRoW within the ZVI of the onshore HVAC booster station, the main recreational value of which is likely to be to local residents for the access they provide and not particularly dependent on the experience of the landscape itself or due to notable perceptual qualities. There are none within the site.

4.11.2.9 In addition to the factors in Box 5.1 of GLVIA3 discussed above, the landscape has a value to the people who live in the area. This is not unusual and is the case with most land within Norfolk.

TF3 Hempstead, Bodham, Aylmerton and Wickmere Area

Magnitude of impact

4.11.2.10 There are two units of this character area that fall within the onshore HVAC booster station study area. The site lies partly within one of these while the other is located approximately 3.3 km to the north and would experience no effects. Impacts on the host LCA would be large scale within the onshore HVAC booster station site itself, where part of an arable field would become the booster station with new woodland planting to the perimeter of the site. On completion, the scale of impacts beyond the site, across fields to the south and west, would reduce rapidly to negligible as described in paragraph 4.11.2.3.

4.11.2.11 Proposed woodland planting would grow to partially screen the onshore HVAC booster station and help it become more integrated in the landscape although it is unlikely to notably reduce the scale of landscape impacts in the adjacent fields.

4.11.2.12 The impacts are predicted to be of limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the TF3 character area directly. The within the site itself magnitude of impact would be major rapidly reducing with distance outside the site. The overall magnitude of impact on LCA TF3 would be negligible.

Sensitivity of the receptor

4.11.2.13 The North Norfolk Landscape Character Assessment evaluates the condition of this LCA as being fair to moderate, with the majority having been affected by commercial agriculture which has removed the underlying structure. This landscape will be valued by the local population.

4.11.2.14 The tributary farmland landscape type is relatively open and large scale and characterised by long views over rolling landscapes with distant woodland and fields enclosed by hedgerows with trees. Skylines are prominent as are features that break them, such as telecoms towers and churches. The North Norfolk Landscape Character Assessment notes this landscape as being "moderately sensitive depending upon the location within the Area and the type of development proposed". The TF3 character area is particularly influenced by estate parkland which increases the susceptibility of this LCA to this type of infrastructure development although there is some degradation to the condition of the LCA and its strength of character. On balance it is considered that this LCA is of medium susceptibility.

4.11.2.15 The receptor is deemed to be of medium susceptibility and low value. The sensitivity of the receptor is considered to be medium.

Significance of the effect

4.11.2.16 Within the site itself, magnitude of impact would be major and the significance of effect would be **major adverse**, which is significant. Effects would rapidly reduce outside the site and would not be significant.

4.11.2.17 The overall effects on LCA TF3 would be of **negligible** magnitude and **minor adverse** significance, which is not significant.

<u>WP5 Plumstead and Barningham</u>

Magnitude of impact

4.11.2.18 The site lies partly within this LCA where impacts would be large scale within the onshore HVAC booster station site itself, where part of an arable field would become the booster station with new woodland planting to the perimeter of the site. On completion, the scale of impacts beyond the site, across fields to the north, would reduce rapidly to negligible as described in paragraph 4.11.2.3.

4.11.2.19 Proposed woodland planting would grow to partially screen the onshore HVAC booster station and help it become more integrated in the landscape although it is unlikely to notably reduce the scale of landscape impacts in the adjacent fields.

4.11.2.20 The impact is predicted to be of limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the WP5 character area directly. The overall magnitude of impact on LCA WP5 would be negligible.

Sensitivity of the receptor

4.11.2.21 The wooded with parkland LCT is relatively enclosed with views limited by the extensive tree and woodland cover which includes both deciduous and coniferous plantations of all ages. The WP5 character area is more open than the norm within its type, less influenced by parkland and well removed from larger settlements. The condition of this LCA is considered to be generally good while its strength of character is moderate. The North Norfolk Landscape Character Assessment identifies the sensitivity of the key characteristics of the parent LCT as ranging between moderate and moderate to high although notes in relation to the LCA that "the very rural, sensitive and relatively intact nature of the landscape in this Area would be considerably disturbed by the introduction of large scale features". Given the generally good condition of this LCA and the elevated sensitivity noted by the character assessment the susceptibility is considered to be high-medium.

4.11.2.22 The North Norfolk Landscape Character Assessment highlights that this LCA is fairly remote, situated away from larger settlements and busier roads and is, as a result, quiet. This landscape will be valued by the local population although there is no indication that it should be considered more widely valued within the documented baseline.

4.11.2.23 The receptor is deemed to be of high-medium susceptibility and low value. The sensitivity of the receptor is considered to be high-medium.

Significance of the effect

4.11.2.24 Within the site itself, the magnitude of impact would be major and the significance of effect would be **major adverse**, which is significant. Effects would rapidly reduce outside the site and would not be significant.

4.11.2.25 The overall effects on LCA WP5 would be of negligible magnitude and **minor-negligible adverse** significance, which is not significant.

Visual Effects

4.11.2.26 Visualisations produced for representative viewpoints are used to aid the assessment of effects on visual receptors for the onshore HVAC booster station. These visualisations, along with a description of the effects and a judgement of the scale of effect at each viewpoint, both upon completion and long term once proposed mitigation planting begins to mature, is included within volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. The scale of effect at each viewpoint is summarised in Table 4.13.

Table 4.13: Scale of impact at onshore HVAC booster station viewpoints.

VP	Name	Distance/Direction	Scale of Impact (on completion)	Scale of Impact (long term)
BS1	Sweetbriar Lane	0.6km, NW	Negligible	Negligible
BS2	Holt-Mannington Walk, Barningham Green	1.2km, E	Negligible	Negligible
BS3	Holt-Mannington Walk, Watery Lane	1.9km, SE	No change	No change
BS4	Public Footpath (Corpusty FP14)	1.3km, SW	Small	Negligible
BS5	B1149	0.6km, SW	Medium	Small

Settlements

- Edgefield

Magnitude of impact

4.11.2.27 The ZTV indicates potential views of the onshore HVAC booster station would primarily occur from the B1149 to the north of the village where it could be seen relatively distantly across fields and set against a backdrop of woodland and is likely to be barely perceptible. Potential visibility of the upper, lighting protection elements, is also indicated along the southern edge of settlement in the vicinity of The Pigs pub and extending along the adjacent roads, Pecks Lane and Plumpstead Road. Within the core of the settlement views are unlikely due to the extent of garden vegetation and presence of buildings screening views out. Proposed planting to the perimeter of the onshore HVAC booster station is unlikely to be seen in views from Edgefield as only the upper parts of the booster station are likely to be visible, as such impacts on completion and long term would be similar.

4.11.2.28 The impacts are predicted to be of negligible scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors at Edgefield directly. The magnitude would be negligible.

Sensitivity of the receptor

4.11.2.29 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors within Edgefield is considered to be high.

Significance of the effect

4.11.2.30 Overall, the sensitivity of the receptor is considered to be high and the magnitude of impact is deemed to be negligible. The effect would be of **minor neutral** significance, which is not significant.

Local Routes (Roads and Public Rights of Way)

- Routes within 1 km of the HVAC booster station

Magnitude of impact

4.11.2.31 This group includes parts of the B1149, Sweetbriar Lane and Ramsgate Street as well as some PRoW to the north and east. Within this area the ZTV indicates potential views on much of the routes to south of Little Wood and west of the woodland immediately adjacent to the site of the proposed onshore HVAC booster station; to the east of this woodland there are no views from routes within this group. Viewpoints BS1 and BS5 indicate the type of views potentially available where the scale of impact ranges from medium to negligible upon completion and ranging from small to negligible when proposed woodland planting to the perimeter of the onshore HVAC booster station matures.

4.11.2.32 The closest route within the group to the onshore HVAC booster station is the bridleway to the east that runs through Barningham Green Plantation and New Covert. Views would not be possible for the majority of this route although where it briefly runs between the two blocks of woodland there would be relatively open views of one edge of the booster station seen at close proximity. Proposed woodland planting would soften the built form seen here although would not result in a notable change to the scale of impacts as it matures over time.

4.11.2.33 The impacts on visual receptors using PRoW are predicted to be small scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be negligible.

4.11.2.34 The impacts on visual receptors using local roads is predicted to be small scale, intermediate spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be minor.

Sensitivity of the receptor

4.11.2.35 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

Significance of the effect

4.11.2.36 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be negligible. The effect would be of **minor adverse** significance, which is not significant.

4.11.2.37 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of the impact is deemed to be minor. The effect would be of **minor adverse** significance, which is not significant.

- Routes immediately north of Corpustry and Saxthorpe

Magnitude of impact

4.11.2.38 This group includes roads and PRoW immediately north of Corpustry and Saxthorpe and beyond 1 km from the onshore HVAC booster station. The ZTV indicates potential visibility extending between Strawberry Lane and the unnamed road between the B1345 and Edgefield Street. This potential visibility is in several large patches confined to areas of higher ground with several PRoW experiencing little or no visibility on account of running through lower lying areas. Potential visibility covers an intermediate extent of the routes in this group although, in reality, vegetation including roadside hedgerows is likely to reduce this to a localised extent. Viewpoints BS3 and BS4 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) are both located within this area and the scale of impacts are judged to be no change and small respectively upon completion. In views from the south west the proposed woodland planting is likely to provide some additional screening as it matures and consequently the scale of impact at viewpoint BS4 is judged to reduce to negligible scale in the long term.

4.11.2.39 The impacts visual receptors using PRoW is predicted to be negligible scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be negligible.

4.11.2.40 The impact for visual receptors using local roads is predicted to be small-negligible scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be minor-negligible.

Sensitivity of the receptor

4.11.2.41 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

Significance of the effect

4.11.2.42 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of impact is deemed to be negligible. The effect would be of **minor adverse** significance, which is not significant.

4.11.2.43 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of impact would be minor-negligible. The effect would be of **negligible** significance, which is not significant.

- Routes west and south west of Edgefield and Edgefield Street

Magnitude of impact

4.11.2.44 This group lies entirely outside the ZVI.

4.11.2.45 This group is centred around the junctions of Briston Road, Ramsgate Street, Rectory Road and Sweetbriar Lane to the southwest of Edgefield. The ZTV indicates that the two PRoW in this group, a footpath extending south of Sweetbriar Lane and a footpath extending east from Rectory Road, would have no potential visibility. Impacts would therefore result in no change to PRoW in this group. Views from local roads would be less than that shown by the ZTV as the majority of these are lined with tall hedgerows that prevent views out. Any views of the onshore HVAC booster station would be glimpsed through gaps in these hedgerows where it would be seen as a distant feature set against woodland beyond and would not be readily distinguishable. Proposed woodland to the perimeter of the onshore HVAC booster station site would further reduce the number of potential views as it matures but it is unlikely to result in a notable difference to the scale of impacts.

4.11.2.46 The impact for visual receptors using local roads is predicted to be negligible scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be negligible.

Sensitivity of the receptor

4.11.2.47 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

Significance of the effect

4.11.2.48 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of impact would be no change. The effect would be of **negligible** significance, which is not significant.

4.11.2.49 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of impact would be negligible. The effect would be of **negligible** significance, which is not significant.

Onshore HVDC Converter/HVAC Substation

Landscape Effects

4.11.2.50 The greatest impacts on landscape character would be experienced within the site itself, which would be changed from parts of arable fields, crossed by power lines, to an onshore HVDC converter/HVAC substation; impacts here would be large scale. Medium scale effects would extend across the field immediately south west of the double row of pylons adjacent to the site and as far as Mangreen Lane. Medium scale impacts would also extend across the field immediately east of the onshore HVDC converter/HVAC substation as far as Mangreen, covering an area coincident with that of the construction phase works area. Small scale impacts on landscape character would extend to the field to the west of the site, beyond the B1113 and bounded by the A47 to the north and the double row of pylons to the south. Beyond these areas impacts on landscape character would be negligible, largely as a result of the influence of existing infrastructure and layers of vegetation including woodlands, trees and hedgerows within the landscape.

4.11.2.51 In assessing landscape value of the site and land within the ZVI the criteria set out in Box 5.1 of GLVIA and listed in volume 4, annex 4.1: Landscape and Visual Impact Assessment Methodology, appendix C are referred to.

4.11.2.52 The onshore HVDC converter/HVAC substation site and its immediate surroundings are heavily visually influenced by the presence of the A47 and electricity transmission infrastructure and not considered to be of particular scenic quality, and there are no landscape elements or features that would be considered 'rare' or particularly important examples within their character types. The condition of the site is fairly typical of agricultural landscapes in the surrounding area. The site and local landscape comprises, inter alia, intensively farmed arable farmland and there are no atypical wildlife features within the site and no underground heritage assets have been identified within the site or its close vicinity. There are number of grade II and II* listed buildings in the vicinity of the onshore HVDC converter/HVAC substation, as detailed in Volume 3, Chapter 5: Historic Environment, the closest being Mangreen Hall, Gowthorpe Manor and Keswick Hall.

4.11.2.53 The landscapes in and around the onshore HVDC converter/HVAC substation site are not remote and there is little sense of tranquillity due to proximity to Norwich and road and grid infrastructure. There are a number of PRoW and recreational access areas within the ZVI of the onshore HVDC converter/HVAC substation, the main recreational value of which is likely to be to local residents. The site and the landscape within the ZVI, and a wider area extending along the southern bypass (A47), are protected by local Policy DM4.6 which recognises the role that the landscape has as part of the experience of seeing the City within its setting, but, as noted in the 2012 South Norfolk Landscape Planning Policies Review (Chris Blandford Associates 2012) and the 2001 South Norfolk Landscape Assessment, Volume 3, Implications for Policy document (Land Use Consultants 2001) *"the setting of the Norwich Southern Bypass is not of special landscape character or quality …"*.

4.11.2.54 In addition to the factors in Box 5.1 of GLVIA3 discussed above, the landscape has a value to the people who live in the area. This is not unusual and is the case with most land within Norfolk.

B1 Tas Tributary Farmland

Magnitude of impact

4.11.2.55 There are two units of this LCA within the onshore HVDC converter/HVAC substation study area with only that hosting the site, the larger of the two units, likely to experience any impacts on landscape character. Impacts on the host LCA would be large scale within the onshore HVDC converter/HVAC substation site itself, where the majority of two arable fields would become the converter/substation with new woodland planting to the perimeter of the site. On completion, the scale of impacts beyond the site, across fields to the south and west, would reduce rapidly to negligible as described in paragraph 4.11.2.42.

4.11.2.56 Proposed woodland planting would grow to partially screen the onshore HVAC booster station and help it become more integrated in the landscape although it would not notably reduce the scale of landscape impacts in the adjacent fields.

4.11.2.57 The impact is predicted to be of limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the B1 character area directly. The overall magnitude of impact on LCA B1 would be negligible.

Sensitivity of the receptor

4.11.2.58 This LCA is characterised as an open, gently undulating landscape with large open fields defined by hedgerows and scattered hedgerow trees. Settlement is present as a small number of large villages and it is cut through by a number of major transport corridors. The South Norfolk Landscape Character Assessment notes particular sensitivities of this LCA include: infill development, loss of vegetation structure, sloping topography and open landscape, potential for adverse effects on views to/from Norwich and the bypass, and, views to/from The Broads.

4.11.2.59 The northern tip of the LCA, which contains the site, is heavily influenced by existing infrastructure including the A47 and two double rows of pylons that terminate at Norwich Main substation approximately 0.9 km south west of the onshore HVDC converter/HVAC substation site and also within this LCA. Although views to and from the bypass would be possible, wider visibility would be limited and there is unlikely to be intervisibility with either the wider city of Norwich or The Broads. On balance, the susceptibility of this LCA is considered to be medium.

4.11.2.60 This LCA will be valued by the local population although there is no wider recognition of its value within the documented baseline and existing infrastructure is a notable detractor in the localised area close to the onshore HVDC converter/HVAC substation.

4.11.2.61 The receptor is deemed to be of medium susceptibility and low value. The sensitivity of the receptor is medium-low.

Significance of the effect

4.11.2.62 The within the site itself magnitude of impact would be major and the significance of effect would be **major-moderate adverse**, which is significant. This assessment of significance within the site is higher than would result from strictly following Table 4.11 and is based on following the method in section 4.11 and professional judgement. Effects would rapidly reduce outside the site and would not be significant.

4.11.2.63 The overall effects on LCA B1 would be of negligible magnitude and **negligible** significance, which is not significant.

C1 Yare Tributary Farmland with Parkland

Magnitude of impact

4.11.2.64 This LCA extends from the site and extends broadly north west to the edge of the onshore HVDC converter/HVAC substation study area and extending considerably beyond that. The site is located on the boundary between this LCA and the adjacent B1 LCA. Impacts on this LCA would be large scale within the onshore HVDC converter/HVAC substation site itself, where part of an arable field would become the converter/substation with new woodland planting to the perimeter of the site. On completion, the scale of impacts beyond the site itself would be limited to an area of small scale impacts beyond the B1113, as described in paragraph 4.11.1.43. Elsewhere within this LCA impacts on landscape character would be negligible.

4.11.2.65 Proposed woodland planting would grow to partially screen the onshore HVAC booster station and help it become more integrated in the landscape although it would not notable reduce the scale of landscape impacts in this LCA.

4.11.2.66 The impact is predicted to be of limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the C1 character area directly. The overall magnitude of impact on LCA C1 would be negligible.

Sensitivity of the receptor

4.11.2.67 This LCA is defined as having a shelving landform with gently undulating topography. It is sparsely settled and occupied by peaceful farmland, small farm woodlands and large parkland estates. Particular sensitivities of this LCA identified by the South Norfolk Landscape Character Assessment include: loss of rural farmland character, loss of clarity of the urban/rural divide, openness of views and potential impact on views to Norwich, and, loss of mature tree boundaries (without replacement). It is noted as being a transitional landscape forming part of the transition between the rural and urban landscape and it is this characteristic that is most readily apparent in the vicinity of the onshore HVDC converter/HVAC substation site with other key characteristics providing lesser influence. It is considered that within this transitional area that the susceptibility to the type of development proposed is generally lower than elsewhere in the LCA although overall susceptibility of this LCA is considered to be medium.

4.11.2.68 The 2012 South Norfolk Landscape Planning Policies Review provided a review of policy designed to protect specific LCAs across South Norfolk. This review specifically considers landscape value in identifying landscapes of particular importance although only river valley character types are given special consideration. As such, this landscape will be valued by the local population although there is no wider recognition of its value and existing infrastructure is something of a detractor in the localised area close to the onshore HVDC converter/HVAC substation.

4.11.2.69 The receptor is deemed to be of medium susceptibility and low value. The sensitivity of the receptor is medium-low.

Significance of the effect

4.11.2.70 The within the site itself magnitude of impact would be major and the significance of effect would be **major-moderate adverse**, which is significant. Effects would rapidly reduce outside the site and would not be significant.

4.11.2.71 The overall effects on LCA C1 would be of negligible magnitude and **negligible** significance, which is not significant.

Visual Effects

4.11.2.72 Visualisations produced for representative viewpoints are used to aid the assessment of effects on visual receptors within the onshore HVDC converter/HVAC substation study area. These visualisations, along with a description of the effects and a judgement of the scale of impact at each viewpoint, both upon completion and long term once proposed mitigation planting begins to mature, is included within volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. The scale of impact at each viewpoint is summarised in Table 4.14 below:

Table 4.14: Scale of impact at onshore HVDC converter/HVAC substation viewpoints.

VP	Name	Distance/Direction	Scale of Impact (on completion)	Scale of Impact (long term)
SS1	Venta Icenorum	2.0km, E	Negligible	Negligible
SS2	Bridleway (Swardeston BR12)	1.0km, S	Small	Small-Negligible
SS3	Bridleway (Keswick BR3)	2.5km, W	Small-Negligible	Small-Negligible
SS4	Marston Marshes	2.0km, N	Negligible	Negligible
SS5	Boudicca Way	3.2km, NE	Small	Small
SS6	Low Road	0.9km, N	Medium	Medium
SS7	Tas Valley Way	1.6km, NW	Small	Small

VP	Name	Distance/Direction	Scale of Impact (on completion)	Scale of Impact (long term)
SS8	Swardeston Common	1.0km, SW	Negligible	Negligible
SS9	Mangreen Lane	0.2km, S	Large	Large

Settlements

- Swardeston – 0.7 km south west

Magnitude of impact

4.11.2.73 Swardeston lies outside the ZVI.

4.11.2.74 Swardeston is a compact and well vegetated village with extensive garden and roadside vegetation throughout along with extensive tree cover in and around the village common. Although the ZTV indicates relatively extensive visibility this would be limited to the periphery of the settlement. There would potentially be views from the open area of the cricket ground, to one end of the common, which would be similar to those seen at viewpoint SS8 where the scale of impact is considered to be negligible. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have no impact on views from Swardeston so the scale of impact at completion and in the long term would remain the same.

4.11.2.75 The impact is predicted to be of negligible scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors at Swardeston directly. The magnitude of impact would be negligible.

Sensitivity of the receptor

4.11.2.76 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors within Swardeston is considered to be high.

Significance of the effect

4.11.2.77 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be negligible. The effect would be of **minor neutral** significance, which is not significant.

- Swainsthorpe – 1.9 km south

Magnitude of impact

4.11.2.78 Swainsthorpe lies outside the ZVI.

4.11.2.79 Swainsthorpe is a relatively spread out settlement straddling the railway line which runs between Norwich and Stowmarket. Mature garden vegetation is extensive within the village and fields immediately surrounding it, particularly to the north, are bounded by mature tree belts. The combination of these limit views towards the site such that visibility of Hornsea Three would be considerably less than suggested by the ZTV. The most open view would be from Church Road at the western edge of the village although here the onshore HVDC converter/HVAC substation would be seen distantly, through or above trees and in the context of power lines running on pylons passing overhead. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have no effect on views from Swainsthorpe so the scale of impact at completion and in the long term would be the same.

4.11.2.80 The impact would be of negligible scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors at Swainsthorpe directly. The magnitude of impact would be negligible.

Sensitivity of the receptor

4.11.2.81 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors within Edgefield is considered to be high.

Significance of the effect

4.11.2.82 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be negligible. The effect would be of **minor neutral** significance, which is not significant.

- Stoke Holy Cross – 2.4 km south east

Magnitude of impact

4.11.2.83 Stoke Holy Cross lies outside the ZVI.

4.11.2.84 This settlement runs along the far side of the River Tas valley from the onshore HVDC converter/HVAC substation. As with other settlements in the onshore HVDC converter/HVAC substation study area it is relatively well vegetated although becomes more open to the west of Norwich Road as the settlement extends into the valley bottom. Elevated views looking across the settlement and river valley are possible from some of the roads to the east of Norwich Road although these aren't aligned with the site. Visibility of the onshore HVDC converter/HVAC substation is likely to be limited the western edge of the village where views would be similar in nature, but more distant to those illustrated at viewpoint SS1 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages). Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have no effect on views from Stoke Holy Cross so the scale of impact at completion and in the long term would be the same.

4.11.2.85 The impact is predicted to be of negligible scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors at Stoke Holy Cross directly. The magnitude of impact would be negligible.

Sensitivity of the receptor

4.11.2.86 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors within Stoke Holy Cross is considered to be high.

Significance of the effect

4.11.2.87 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be negligible. The effect would be of **minor neutral** significance, which is not significant.

Key Routes

- A47

Magnitude of impact

4.11.2.88 The A47 runs from the north east to north west of the onshore HVDC converter/HVAC substation study area following a broad arc to the centre of the study area where it passes immediately adjacent to the site. The route is lined with dense roadside vegetation along much of its length as it passes through the onshore HVDC converter/HVAC substation study area and embankments to either side are also present in parts. The most open views of the onshore HVDC converter/HVAC substation would occur as the road passes immediately adjacent where impacts would be large scale over a very localised area, as illustrated by a series of photographs taken from a moving car travelling east to west in the southern carriageway presented in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages.

4.11.2.89 Elsewhere along the route channelled views would be seen looking along the road itself within approximately 1.5 km of the onshore HVDC converter/HVAC substation. These views would be similar, although from less elevated vantage points, to those at viewpoint SS7 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) where the scale of impact would be minor. Beyond this potential visibility breaks up and the presence of bridges crossing the road limits longer range views for road users. Hornsea Three would frequently be seen in the context of existing pylons and overhead wires, as illustrated by viewpoint SS7. As it matures proposed woodland planting would provide some screening, particularly at low level, as the A47 passes the onshore HVDC converter/HVAC substation and would lead to a slight reduction in the scale of impact.

4.11.2.90 Upon completion the impact is predicted to be of up to large scale, intermediate spatial extent, temporary long term duration and reversible. It is predicted that the impact would affect the receptors on the A47 directly. The magnitude if impact would be major-moderate.

4.11.2.91 When mitigation planting matures the impact is predicted to be of up to large-medium scale, intermediate spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors on the A47 directly. The magnitude would be moderate.

Sensitivity of the receptor

4.11.2.92 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on the A47 is considered to be medium.

Significance of the effect

4.11.2.93 Overall, upon completion the magnitude of the impact would be major-moderate. The effect would be of **moderate adverse** significance, which is not significant.

4.11.2.94 When proposed mitigation begins to mature and provide screening the magnitude of the impact would be moderate. The effect would be of **moderate adverse** significance, which is not significant.

- Tas Valley Way

Magnitude of impact

4.11.2.95 The Tas Valley Way lies outside the ZVI.

4.11.2.96 This route extends broadly south from Norwich, passing to the east of the onshore HVDC converter/HVAC substation, as it heads towards Bracon Ash and out of the onshore HVDC converter/HVAC substation study area. The ZTV indicates potential visibility, albeit intermittently, along much of its length. In reality this would be considerably reduced as a result of passing alongside hedgerows and tree belts along its route and other intervening vegetation in the wider landscape. Where views of the onshore HVDC converter/HVAC substation are possible these would be seen relatively distantly and in the context of the pylons passing the site and other infrastructure such as the distant but often prominent masts at Poringland. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have little effect, as it matures, on views from this route so the scale of impact at completion and in the long term would be the same. Viewpoint SS7 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages), where impacts are judged to be of minor scale, is located on the Tas Valley Way at one of its closest locations to the onshore HVDC converter/HVAC substation.

4.11.2.97 The impact is predicted to be of minor scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors on the Tas Valley Way directly. The magnitude would be minor-negligible.

Sensitivity of the receptor

4.11.2.98 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on the Tas Valley Way is considered to be high.

Significance of the effect

4.11.2.99 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be minor-negligible. The effect would be of **minor adverse** significance, which is not significant.

- Boudicca Way

Magnitude of impact

4.11.2.100 Boudicca Way lies outside the ZVI.

4.11.2.101 This route follows a broadly north-south route in the eastern part of the onshore HVDC converter/HVAC substation study area. It extends from Norwich southwards following a relatively elevated route past Arminghall and Stoke Holy Cross with a spur forking west to Venta Icenorum. As illustrated by the ZTV views would potentially be possible from a relatively wide extent of the route due to its elevated position. The onshore HVDC converter/HVAC substation would generally be seen appearing above dense woodland and below existing power lines. Viewpoints SS1 and SS5 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) are located on the Boudicca Way and the scale of impacts at these is judged to be negligible and small respectively. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have little effect, as it matures, on views from this route so the scale of impact at completion and in the long term would be the same.

4.11.2.102 The impact is predicted to be of small scale, intermediate spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors on the Boudicca Way directly. The magnitude of impact would be minor.

Sensitivity of the receptor

4.11.2.103 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on the Boudicca Way is considered to be high.

Significance of the effect

4.11.2.104 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be minor. The effect would be of **moderate-minor adverse** significance, which is not significant.

<u>Accessible and Recreational Landscapes</u>

- Mulbarton Common

Magnitude of impact

4.11.2.105 Mulbarton Common lies outside the ZVI.

4.11.2.106 This area of open space is located at the northern end of Mulbarton. It is a flat, grassed amenity space dotted with occasional large trees. Large houses with mature garden vegetation bound the space with a school also present to the south. The ZTV indicates two bands of potential visibility extending across the common. In reality there would be no visibility of the onshore HVDC converter/HVAC substation due to intervening landform, and vegetation and development north of the open space. A wireline illustrating the maximum design scenario seen from this open space is presented on the wireline from Heritage Viewpoint Mulbarton (volume 3, chapter 5: Historic Environment) which confirms that the onshore HVDC converter/HVAC substation would not be visible.

4.11.2.107 The scale and magnitude of impact would be no change.

Sensitivity of the receptor

4.11.2.108 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on Mulbarton Common is considered to be high.

Significance of the effect

4.11.2.109 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be no change. The effect would be of **negligible** significance, which is not significant.

- Shotesham Common

Magnitude of impact

4.11.2.110 Shotesham Common lies outside the ZVI.

4.11.2.111 This area extends south west from Maltkiln Farm, following a narrow valley to Shotesham, just beyond the onshore HVDC converter/HVAC substation study area. This narrow valley is occupied by relatively open fields bounded by hedgerows and trees which would serve to break up views to a much greater extent than illustrated by the ZTV. Where the onshore HVDC converter/HVAC substation could potentially be seen it would be quite distant and only the upper parts would be visible appearing over the tops of trees and below existing pylons. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would not be seen beyond existing woodland from here so the scale of impact at completion and in the long term would be the same.

4.11.2.112 The impact is predicted to be of negligible scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors within Shotesham Common directly. The magnitude would be negligible.

Sensitivity of the receptor

4.11.2.113 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on Shotesham Common is considered to be high.

Significance of the effect

4.11.2.114 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be negligible. The effect would be of **minor neutral** significance, which is not significant.

Local Routes (Roads and Public Rights of Way)

- Local routes to the north of the A47

Magnitude of impact

4.11.2.115 Parts of the B1113, Low Road and a minor road leading to Keswick Hall north of the A47 lie within the ZVI as illustrated on Figure 4.7. All other local routes within this group lie outside the ZVI.

4.11.2.116 This group includes the B1113 and some PRoW and local roads to the south of Eaton. The ZTV shows fragmented potential visibility across this group of routes and in reality this would be reduced due to the extent of vegetation and development screening views. Where views are possible they would be brief glimpses, similar in nature to that illustrated by viewpoint SS6 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) where the scale of impact is judged to be medium scale. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation is unlikely to be seen from these routes, even as it matures and so would have little effect on views from this route; the scale of impact at completion and in the long term would therefore be the same. The onshore HVDC converter/HVAC substation would be less visible from PRoW than from local roads.

4.11.2.117 The impact is predicted to be of medium scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be moderate-minor.

Sensitivity of the receptor

4.11.2.118 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

Significance of the effect

4.11.2.119 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be moderate-minor. The effect would be of **minor adverse** significance, which is not significant.

4.11.2.120 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of the impact would be moderate-minor. The effect would be of **minor adverse** significance, which is not significant.

- Local routes between the B1113 and A140, north of Swainsthorpe

Magnitude of impact

4.11.2.121 Only PRoW and local roads up to approximately 1km south of the onshore HVDC converter/HVAC substation lie within the as illustrated on Figure 4.7. All other local routes within this group lie outside the ZVI.

4.11.2.122 This group includes Mangreen Lane and Mangreen, immediately south of the onshore HVDC converter/HVAC substation, Gowthorpe Lane, Hickling Lane byway, and a number of other footpaths and bridleways. Views of the onshore HVDC converter/HVAC substation would tend to be quite intermittent across much of this area, despite what is indicated by the ZTV, as a result of extensive roadside, field boundary and other vegetation. Where views are possible the scale of impact would vary notably with distance. Hornsea Three would be seen in the context of pylons and overhead wires which run south of the site and, from some locations, road and other development to the north of the site. At close proximity, such as at viewpoint SS9, the scale of impact would be large while further afield, such as at viewpoint SS2, the scale of impact would rapidly reduce to small (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages). In close proximity the proposed woodland planting would soften the appearance of the onshore HVDC converter/HVAC substation but would not entirely screen it and would not notably reduce impacts as it matures. In more distant views, such as at viewpoint SS2, the proposed woodland planting would provide some additional screening and consequently reduce the scale of impacts slightly.

4.11.2.123 On completion, the impact for visual receptors using PRoW is predicted to be up to medium scale, limited spatial extent, temporary long term duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be moderate-minor.

4.11.2.124 As mitigation planting matures, the impact for visual receptors using PRoW is predicted to be up to medium-small scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be minor.

4.11.2.125 The impact for visual receptors using local roads is predicted to be up to large scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be moderate.

Sensitivity of the receptor

4.11.2.126 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

Significance of the effect

4.11.2.127 On completion, for users of PRoW in the group the magnitude of the impact would be moderate-minor. The effect would be of major-moderate adverse significance, which is significant.

4.11.2.128 As mitigation planting matures the magnitude of the impact would be minor. The effect would be of moderate adverse significance, which is not significant.

4.11.2.129 Overall, for users of local roads in the group the impact would moderate. The effect would be of moderate adverse significance, which is not significant.

- Local routes east of the Tas Valley

Magnitude of impact

4.11.2.130 Local routes east of the Tas Valley lie outside the ZVI.

4.11.2.131 This group comprises local roads and PRoW located on elevated ground between the Tas Valley and the settlements of Arminghall and Upper Stoke. Impacts on this group would be similar to those previously described for the Boudicca Way. As illustrated by the ZTV views would potentially be possible from a relatively wide extent of the group due to the elevated position, although these might be somewhat intermittent or glimpsed as a result of field boundary and roadside vegetation screening views in some locations. The onshore HVDC converter/HVAC substation would generally be seen appearing above dense woodland and below existing power lines. Viewpoints SS1 and SS5 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) are located within the broad area occupied by this group and the scale of impact at these is judged to be negligible and small respectively. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have little effect, as it matures, on views from these routes so the scale of impact at completion and in the long term would remain the same.

4.11.2.132 The impact is predicted to be of small scale, intermediate spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude of impact would be minor.

Sensitivity of the receptor

4.11.2.133 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

Significance of the effect

4.11.2.134 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of impact would be minor. The significance of effect would be moderate adverse significance, which is not significant.

4.11.2.135 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of impact would be minor. The effect would be of minor adverse significance, which is not significant.

South Norfolk Local Plan Policy DM4.6

4.11.2.136 As noted in section 4.7, this is primarily a land use policy tool rather than a designation to protect inherent qualities of the landscape itself, and significance of effects on the landscape, views and approaches protected by the policy are not assessed. The assessment below is presented as a narrative on description of potential effects.

4.11.2.137 Policy DM4.6 states:

"Policy DM 4.6 Landscape Setting of Norwich All development proposals will not harm and where possible should enhance the landscape setting of Norwich with regard to the following considerations:

NSBLPZ

All development proposals within the Norwich Southern Bypass Landscape Protection Zone (NSBLPZ), as shown on the Policies Map, should have regard to protecting the openness of the Zone and, where possible, enhancing the landscape setting of the southern bypass, including the practice of wild flower planting and management regimes.

Key Views

All development proposals located within the Key Views 'cones' shown on the Policies Map should ensure they do not obstruct the long distance views to and from the City.

Undeveloped Approaches

"All development proposals within the visual zone of influence viewed from the identified Undeveloped Approaches to Norwich should reinforce and avoid undermining the rural character of the Undeveloped Approaches to Norwich."

The NSBLPZ

4.11.2.138 This policy was reviewed in the 2012 South Norfolk Landscape Planning Policies Review (Chris Blandford Associates 2012) although the document defers to the 2001 South Norfolk Landscape Assessment, Volume 3, Implications for Policy document (Land Use Consultants 2001) in which it states "*the setting of the Norwich Southern Bypass is not of special landscape character or quality except in relation to the harm that unsuitable and uncharacteristic development in this area could cause, particularly as a result of the areas high levels of visual accessibility to and from the road and as part of the setting of Norwich.*" The 2001 document further states that the "*NSBPZ itself is not based on any intrinsic quality/character of the landscape.*" [Note, the NSBPZ is now referred to as the NSBLPZ.]

4.11.2.139 The 2001 report defines the purpose of the NSBPZ:

"The purpose of the NSBPZ is to ensure that the new bypass does not come to be regarded as a development corridor or the development boundary for the City. The aim of planning policy is to protect the areas that contribute to the landscape setting of the road from development. The NSBPZ is not intended to be a Green Belt, nor to provide blanket restriction on all development. However, any proposed future development (over and above current allocations) within this zone will require very special justification and/or need to be approved through the Local Plan Review. Such exception could be made, for example, on the basis of an indisputable regional economic need or strategic requirement. Any development permitted would need to include appropriate commitments to mitigate landscape impacts, for example, by conserving particular landscape assets that contribute to local landscape character as defined in the landscape character assessment".

4.11.2.140 Figure 4 in annex 4.5: Photograph Panels, Wirelines and Photomontages shows a series of photographs of the existing view looking approximately south-west taken from a car travelling west past the site on the southern carriageway of the A47. No locations on the A47 near the site were found at which to stop and take panoramic photographs, so these single moving shots were taken. They show that, looking south-west towards the countryside when travelling along this section of the A47, existing views from the west and east of the site are truncated by vegetation and roadside embankments (e.g. views A47_1, A47_2, A47_4, A47_16 and A47_17; obstructed views continue further west and east from these locations). Views across countryside open up close to and passing the site, with intermittent screening by existing vegetation. These images only show a single photograph frame looking sideways to the direction of travel, and do not illustrate the main direction of view travelling forwards including the existing pylons and overhead wires, road infrastructure and moving vehicles; they therefore do not show the complete view or the extent of infrastructure already dominant in views. The onshore HVDC converter/HVAC substation would obstruct views across open countryside from part of this section of road. The onshore HVDC converter/HVAC substation would be softened and partially screened by proposed woodland planting between it and the road as shown in the Outline LMP (document reference A8.7), but it would still be clearly visible. The onshore HVDC converter/HVAC substation would therefore affect the landscape of the NSBLPZ as seen from travellers in fast moving vehicles on the A47 where it approaches and passes the site, but it would not establish the bypass as a 'development corridor'.

Key Views

4.11.2.141 The onshore HVDC converter/HVAC substation would lie on the eastern edge of a view cone as shown on Figure 4.1 but is unlikely to obstruct long distance views to from the City. There is potential for onshore HVDC converter/HVAC substation to be visible in some views but it is unlikely to cause significant harm to them.

Undeveloped Approaches

4.11.2.142 The onshore HVDC converter/HVAC substation would be visible from the B1113 which is defined as one of the 'undeveloped approaches', where it passes between Swardeston and the A47. It would be seen in the context of existing large scale infrastructure including pylons and overhead lines and the A47 with associated moving traffic. This section of the road is lined by almost continuous roadside and field boundary vegetation in the form of hedges, scrub and trees which would restrict visibility of the onshore HVDC converter/HVAC substation, with greatest potential visibility as it passes the site. Viewpoint CC13 (annex 4.5 - Photograph Panels, Wirelines and Photomontages) is located on this road adjacent to the site of the onshore HVDC converter/HVAC substation, where a section of hedge would be removed to create a new site entrance, and trees planted between the hedge and the substation as illustrated in the Outline LMP (document reference A8.7). The onshore HVDC converter/HVAC substation would affect this 'undeveloped approach' adjoining the A47, in an area where it is already influenced by large scale infrastructure.

4.11.3 Decommissioning phase

4.11.3.1 The impacts of the onshore decommissioning of Hornsea Three have been assessed on landscape and visual resources. The environmental effects arising from the decommissioning of Hornsea Three are listed in Table 4.6, along with the maximum design scenario against which each decommissioning phase impact has been assessed.

4.11.3.2 A description of the potential effect on landscape and visual receptors caused by each identified impact is given below.

Onshore HVAC Booster Station

4.11.3.3 The only landscape receptor likely to experience decommissioning effects that are markedly different to the operational effects is the site itself, which would temporarily (short term to medium term) take on the character of a demolition and restoration site. There would be a localised alteration to the fabric of the site to establish access and working areas within the site. The onshore HVAC booster station and its foundations, and any temporary works area, would be removed and ground reinstated during the decommissioning phase.

4.11.3.4 In terms of visual receptors, residents of some of the nearby houses, primarily those close to the site on Sweetbriar Lane and with more open views, would be likely to see vehicle movements and some of the ground works during decommissioning. These impacts would be different in nature to those experienced during the construction, and operation and maintenance phases, but similar in terms of their scale of impact. Due to the shorter-term the effects would be of lower significance than those that occur during the operation and maintenance phase.

4.11.3.5 The presence of vehicles, plant and machinery on site would give rise to landscape and visual impacts, but these would be restricted to localised and short to medium term, temporary views of demolition and restoration activity, which would not give rise to notable landscape character or visual effects over and above those of the operational site.

4.11.3.6 The primary landscape and visual effects arising from the Hornsea Three would be from the permanent onshore HVAC booster station and therefore greater focus is placed on landscape and visual effects the operation and maintenance phase as discussed at section 4.11.2.

Onshore HVDC Converter/HVAC Substation

4.11.3.7 The only landscape receptor likely to experience decommissioning effects that are markedly different to the operational effects is the site itself, which would temporarily (short term to medium term) take on the character of a demolition and restoration site. There would be a localised alteration to the fabric of the site to establish access and working areas within the site. The onshore HVDC converter/HVAC substation and its foundations, and any temporary works area, would be removed and ground reinstated during the decommissioning phase.

4.11.3.8 In terms of visual receptors, residents of some of the nearby houses, primarily those close to the site on Mangreen and Mangreen Lane, would be likely to see vehicle movements and some of the ground works during decommissioning. These impacts would be different in nature to those experienced during the construction, and operation maintenance phases, but similar in terms of their scale of impact. Due to the shorter-term the effects would be of lower significance than those that occur during the operation and maintenance phase.

4.11.3.9 The presence of vehicles, plant and machinery on site would give rise to landscape and visual impacts, but these would be restricted to localised and short to medium term, temporary views of demolition and restoration activity, which would not give rise to notable landscape character or visual effects over and above those of the operational site.

4.11.3.10 The primary landscape and visual effects arising from the Hornsea Three would be from the permanent onshore HVDC converter/HVAC substation and therefore greater focus is placed on landscape and visual effects the operation and maintenance phase as discussed at section 4.11.2.

4.12 Cumulative Effect Assessment Methodology

4.12.1 Screening of other projects and plans into the Cumulative Effect Assessment

4.12.1.1 The Cumulative Effect Assessment (CEA) takes into account the impact associated with Hornsea Three together with other projects and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise undertaken as part of the 'CEA long list' of projects (see annex 5.3: Cumulative Effects Screening Matrix). Each project on the CEA long list has been considered on a case by case basis for scoping in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

4.12.1.2 In undertaking the CEA for Hornsea Three, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside Hornsea Three. For example, relevant projects and plans that are already under construction are likely to contribute to cumulative impact with Hornsea Three (providing effect or spatial pathways exist), whereas projects and plans not yet approved or not yet submitted are less certain to contribute to such an impact, as some may not achieve approval or may not ultimately be built due to other factors. For this reason, all relevant projects and plans considered cumulatively alongside Hornsea Three have been allocated into 'Tiers', reflecting their current stage within the planning and development process. This allows the CEA to present several future development scenarios, each with a differing potential for being ultimately built out. Appropriate weight may therefore be given to each Tier in the decision making process when considering the potential cumulative impact associated with Hornsea Three (e.g. it may be considered that greater weight can be placed on the Tier 1 assessment relative to Tier 2). An explanation of each tier is included below:

- Tier 1: Hornsea Three considered alongside:
    - Other project/plans currently under construction; and/or
    - Those with consent, and, where applicable (i.e. for low carbon electricity generation projects), that have been awarded a Contract for Difference (CFD) but have not yet been implemented; and/or
    - Those currently operational that were not operational when baseline data was collected, and/or those that are operational but have an on-going impact.
- Tier 2: All projects/plans considered in Tier 1, as well as:
    - Those project/plans that have consent but, where relevant (i.e. for low carbon electricity generation projects) have no CFD; and/or
    - Submitted but not yet determined.
- Tier 3: All projects/plans considered in Tier 2, as well as those on relevant plans and programmes likely to come forward but have not yet submitted an application for consent (the PINS programme of projects and the adopted development plan including supplementary planning documents are the most relevant sources of information, along with information from the relevant planning authorities regarding planned major works being consulted upon, but not yet the subject of a consent application). Specifically, this Tier includes all projects where the developer has advised PINS in writing that they intend to submit an application in the future, those projects where a Scoping Report is available and/or those projects which have published a PEIR.

4.12.1.3 It is noted that offshore wind farms seek consent for a maximum design scenario and the as built offshore wind farm will be selected from the range of consented scenarios. In addition, the maximum design scenario quoted in the application (and the associated Environmental Statement) are often refined during the determination period of the application. For example, it is noted that the Applicant for Hornsea Project One has gained consent for an overall maximum number of turbines of 240, as opposed to 332 considered in the Environmental Statement. Similarly, Hornsea Project Two has gained consent for an overall maximum number of turbines of 300, as opposed to 360 considered in the Environmental Statement. The CEA presented in this landscape and visual resources chapter has been undertaken on the basis of information presented in the Environmental Statements for the other projects, plans and activities. Given that this broadly represents a worst-case scenario, the level of cumulative impact on landscape and visual resources would likely be reduced from those presented here.

4.12.1.4 The specific projects scoped into this CEA and the tiers into which they have been allocated, are outlined in Table 4.15. The projects included as operational in this assessment have been commissioned since the baseline studies for Hornsea Three were undertaken and as such were excluded from the baseline assessment.

4.12.1.5 The cumulative impact assessment methodology for landscape and visual resources is presented in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology.

Table 4.15: List of other projects and plans considered within the CEA.

Tier	Phase	Project/Plan	Distance from Hornsea Three if within CEA study areas	Details	Date of Construction (if applicable)	Overlap of construction phase with Hornsea Three construction phase	Overlap of operation phase with Hornsea Three operation phase
1	*Residential*						
	Construction and operation and maintenance phases	2011/1804/O - Land North Of Hethersett Village Centre Little Melton Road Hethersett Norfolk	Onshore cable corridor 0 m Onshore HVDC converter/HVAC substation 4.52 km	Residential led mixed use development of 1196 dwellings and associated uses.	Ongoing to 2016	Yes	Yes
	Construction and operation and maintenance phases	2015/1594 - Phase A1-A land north of Hethersett Village Centre, Little Melton Road, Hethersett	Onshore cable corridor 133 m Onshore HVDC converter/HVAC substation 5 km	Residential development of 95 dwellings with associated open space and infrastructure.	2018 to 2029	Yes	Yes
	Construction and operation and maintenance phases	2017/0151 - Land North Of Hethersett Village Centre Little Melton Road Including Extension To Thickthorn Park & Ride Hethersett (phase 1)	Onshore cable corridor 115 m	Reserved matters following outline planning permission 2011/1804/O - proposed residential development (phase A1-B) comprising 91 dwellings including 20% affordable housing and associated open space and infrastructure.	2018 onwards	Yes	Yes
	Construction and operation and maintenance phases	2013/0092 - Land south of Ringwood Close, Little Melton	Onshore cable corridor 1 m	Outline application for up to 20 residential units and associated highways works with all matters reserved.	2020 to 2021	Yes	Yes
	Construction and operation and maintenance phases	2012/1644 - Land West Of School Cantley Lane Cringleford Norfolk	Onshore HVDC converter/HVAC substation 2.55 km	Outline Planning application for residential development and associated works including new access	2019 to 2021	Yes	Yes
	Unknown	2017/2247 - Land Off Bobbins Way Swardeston	Onshore HVDC converter/HVAC substation 0.9 km	Reserved matters application for demolition of existing buildings, residential development of 38 dwellings and ancillary works following outline permission 2014/1642 for access, appearance, landscaping, layout and scale.	Unknown	Unknown	Unknown
	Sport, leisure and tourism						
	Operation and maintenance	PF/13/1026 - Kelling Heath Holiday Park, Sandy Hill Lane, Weybourne, Holt	Onshore cable corridor 0 m	Creation of 20 hard standings (former rally field Area A) for the siting of 20 woodland lodges with associated access and infrastructure. Demolition of chicken sheds (Area B), change of use of land and creation of hard standings for the siting of 17 static caravans with associated access and infrastructure.	2017 to 2018	No	Yes
	Construction and operation and maintenance phases	20151644 – 1-4 Station Road, Swannington, Attlebridge	Onshore cable corridor 249 m	Demolition of 4 Existing Units and Development of 10 Residential Units, Together with Associated Access (Outline).	2022 to 2023	Yes	Yes
	Mixed use						
	Construction	2014/2611 - Land north and south of Dereham Road, Easton	Onshore cable corridor 0 m	The erection of 890 dwellings; the creation of a village heart to feature an extended primary school, a new village hall, a retail store and areas of public open space; the relocation and increased capacity of the allotments; and associated infrastructure including public open space and highway works.	2018 to 2028	Yes	Yes
	Employment, office, laboratory and research facilities						

Tier	Phase	Project/Plan	Distance from Hornsea Three if within CEA study areas	Details	Date of Construction (if applicable)	Overlap of construction phase with Hornsea Three construction phase	Overlap of operation phase with Hornsea Three operation phase
	Construction and operation and maintenance phases	2016/0764 - Land west of Ipswich Road, Keswick	Onshore cable corridor 736 m Onshore HVDC converter/HVAC substation 865 m	Outline Application for Proposed employment development consisting of B1, B2 and B8 uses, associated access and landscaping; and proposed link road between the A140 and the B1113 with some matters reserved.	2021 to 2023	Yes	Yes
	Retail						
	Construction and operation and maintenance phases	20170052 – Land off Church Lane, Honingham	Onshore cable corridor 252 m	Greater Norwich Food Enterprise Zone.	Unknown	Unknown	Yes
	Agriculture						
	Operation and maintenance phase	20170789 - Land North of Church Farm, Church Road, Booton, NR10 4NZ	55 m	Erection of Grain Store (Revised Proposal) Approved 19 July 2017	2020	Yes	No
	Extraction and quarrying						
	Construction and operation and maintenance phases	C/7/2014/7030 - Mangreen Quarry, Swardeston, Norwich	Onshore cable corridor 0 m Onshore HVDC converter/HVAC substation 361 m	(I) For a southern extension to Mangreen Quarry and ancillary works with progressive restoration to agriculture and nature conservation by the importation of inert restoration materials; (II) Retention of existing consented facilities at Mangreen Quarry; (III) Establishment of crossing point over Mangreen Lane; and (IV) Proposed variation to approved restoration scheme at Mangreen Quarry.	2019 to 2024	Yes	Yes
3	*Energy and Infrastructure*						
	Construction, operation and maintenance and decommissioning phases	EN010079 - Norfolk Vanguard Offshore Wind Farm	Onshore cable corridor 0 m	Norfolk Vanguard is a proposed offshore windfarm with an approximate capacity of 1800 MW off the coast of Norfolk.	2020 to 2024	Yes	Yes

4.12.1.6 Of these, the following are not considered in detail:

- North Norfolk PF/13/1026 and South Norfolk 2013/0092 – These developments are complete (or substantially complete) and form part of the current baseline;
- South Norfolk 2016/0764 – This application was refused in July 2017 and has not been appealed; and
- 2012/1644 – This application for a small number of houses is located nearly 2km from the cable corridor within a built-up area and would have very localised impacts that would not interact with those of the proposal.

4.13 Maximum design scenario

4.13.1.1 The maximum design scenarios identified in Table 4.16 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative impacts presented and assessed in this section have been selected from the details provided in the Hornsea Three project description (volume 1, chapter 3: Project Description), as well as the information available on other projects and plans, in order to inform a 'maximum design scenario'. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the project Design Envelope (e.g. different onshore HVAC booster station or HVDC converter/HVAC substation layout), to that assessed here be taken forward in the final design scheme.

Table 4.16: Maximum design scenario considered for the assessment of potential cumulative impacts on landscape and visual resources.

Potential impact	Maximum design scenario	Justification
Construction phase		
Onshore Cable Corridor The temporary impact of the construction works along the onshore cable corridor may combine with temporary impacts from the construction of other developments.	Tier 1 • 2014/2611 • 2011/1804/O, 2017/0151 & 2015/1594 • 2014/1642 & 2017/2247 • 20151644 • 20170052 • 20170789 • C/7/2014/7030 Tier 3 • EN010079	This list comprises projects which could potentially lead to cumulative impacts with Hornsea Three. Outcome of the CEA will be greatest when the greatest number of other schemes, present or planned, are considered.
Onshore HVAC Booster Station	None	The onshore HVAC booster station would not cause cumulative impacts with other identified developments.
Onshore HVDC Converter/HVAC Substation The temporary impact of the construction works for the substation may combine with ongoing quarrying/restoration, and construction of developments within 5km	Tier 1 • 2014/1642 & 2017/2247 • C/7/2014/7030	This list comprises projects which could potentially lead to cumulative impacts with Hornsea Three. Outcome of the CEA will be greatest when the greatest number of other schemes, present or planned, are considered.
Operation phase		
Onshore HVAC Booster Station	None	The onshore HVAC booster station would not cause cumulative impacts with other identified developments.
Onshore HVDC Converter/HVAC Substation The impacts arising from the operational substation may combine with operational impacts of developments within 5km	Tier 1 • 2014/1642 & 2017/2247	The quarry which is subject to application C/7/2017/7030 is due to be restored by 2021, and would be unlikely to be operational at the same time as Hornsea Three and is therefore excluded.
Decommissioning phase		
Onshore HVAC Booster Station	None	The onshore HVAC booster station would not cause cumulative impacts with other identified developments.
Onshore HVDC Converter/HVAC Substation	None	2017/2247 is permanent development, and C/7/2014/7030 is due to be restored by 2021. None of the identified projects will be decommissioned at the same time as Hornsea Three.

Cumulative Effect Assessment

4.13.1.2 A description of the significance of cumulative effects upon landscape and visual receptors arising from each identified impact is given below. Where the magnitude of impact on landscape and visual receptors resulting from Hornsea Three alone is assessed to be negligible or no change it is considered that the effect is of such limited significance that it cannot therefore contribute towards any notable cumulative effect. In this case, an assessment of cumulative effects on the receptor in question is not required as effects would not be significant.

4.13.2 Construction Phase

4.13.2.1 The effects of other projects in construction would vary according to their scale – for instance it can be expected that the construction of nearly 1200 homes at North Hethersett would involve a significant construction project over a number of years; whereas the construction of a grain store or 10 homes would be completed more rapidly and involve a smaller scale of activity (in all likelihood before the construction of Hornsea Three).

4.13.2.2 The combined effects if all of the Tier 1 and Tier 3 projects were to be constructed simultaneously would be to slightly increase construction activity in the following areas:

- East of Reepham – Hornsea Three underground cable, grain store and Vanguard underground cable;
- Near Swannington – Hornsea Three underground cable,10 homes;
- Near Easton – Hornsea Three underground cable, housing development around Easton and Food Enterprise Zone to the west;
- North Hethersett – Hornsea Three underground cable, phased construction of 1196 homes; and
- Near Swardeston – Hornsea Three underground cable and substation, construction of 38 homes at Swardeston and ongoing extraction and restoration at Mangreen Quarry.

Onshore Cable Corridor

Landscape Effects

4.13.2.3 As set out in section 4.11 landscape effects resulting from the construction of the Hornsea Three onshore cable corridor would range from minor adverse to negligible significance. Should the Vanguard underground cable be constructed within the construction phase of Hornsea Three, the combined effects of both developments would occur to a local area where the two routes cross north of Reepham. Within this local area the combined duration is still likely to be short term and cumulative effects on landscape character are unlikely to be significant.

Visual Effects

4.13.2.4 The only visual effects of the construction of the onshore cable corridor that would result in impacts greater than negligible magnitude occur as a result of large scale effects occurring over a limited spatial extent for a short term duration. In order for cumulative effects with another development to occur that are greater than for those of Hornsea Three alone they would either have to notably increase the extent of effects or the duration as the scale cannot be increased further.

4.13.2.5 Where this arises it would involve developments that in themselves have notably greater effects than those of Hornsea Three (i.e. the larger housing projects), and the addition of the relatively smaller effects arising from Hornsea Three would not give rise to a greater cumulative effect. The combination of effects of Hornsea Three and any other project, therefore, would be no greater than any of the projects on their own and thus there would be no notable cumulative visual effects arising from Hornsea Three.

Onshore HVAC Booster Station

4.13.2.6 As set out in Table 4.16 there are no other projects that coincide with the construction phase of Hornsea Three that would result in cumulative effects with the onshore HVAC booster station.

Onshore HVDC converter/HVAC substation

Landscape Effects

4.13.2.7 As set out in section 4.11 landscape effects of greater than negligible scale resulting from the onshore HVDC converter/HVAC substation only occur within the site itself and within those fields immediately adjacent. The lack of direct impact or visibility of both Mangreen Quarry (C/7/2014/7030) and the housing development at Swardeston 2017/2247) from within these areas would mean that no cumulative landscape effects would occur.

Visual Effects

4.13.2.8 There are very few or, more likely, no views in which the onshore HVDC converter/HVAC substation and Mangreen Quarry would be seen together, on account of intervening woodland and therefore cumulative effects between the two schemes are unlikely to occur.

4.13.2.9 The only receptor likely to experience views of both the onshore HVDC converter/HVAC substation and housing development at Swardeston during construction would be the footpath immediately north of Gowthorpe Manor. At this location the relatively modest housing development is unlikely to give rise to effects of greater than negligible magnitude and thus effects would be no different to those of Hornsea Three alone.

Future monitoring

4.13.2.10 No future monitoring is required.

4.13.3 Operation and maintenance phase

4.13.3.1 The only project requiring consideration in the operation and maintenance phase is the proposed development of 38 homes at Swardeston (2017/2247), located approximately 0.9 km south west of the proposed onshore HVDC converter/HVAC substation.

Onshore HVDC converter/HVAC substation

Landscape Effects

4.13.3.2 As set out in section 4.11 landscape effects of greater than negligible scale resulting from the onshore HVDC converter/HVAC substation only occur within the site itself and within those fields immediately adjacent. The lack of direct impact or visibility with the housing development at Swardeston from within these areas would mean that no cumulative landscape effects would occur.

Visual Effects

4.13.3.3 In operation, the housing development at Swardeston would become integral to the settlement and as a relatively modest addition to the existing village it would not notably alter the scale or extent of the existing village or its relationship with any other nearby visual receptors. The only receptor likely to experience views of both the onshore HVDC converter/HVAC substation and housing development would be the footpath immediately north of Gowthorpe Manor. At this location the housing development would not be seen as distinct from the rest of the village and effects would therefore be negligible. Cumulative effects would therefore be no different to those of Hornsea Three alone.

4.13.4 Decommissioning phase

4.13.4.1 No developments have been identified that require consideration in respect of cumulative effects during decommissioning.

4.14 Residential Visual Amenity

4.14.1.1 Effects on residential visual amenity due to Hornsea Three are presented in volume 6, annex 4.6: Residential Visual Amenity. This concludes that no residential properties would be affected to the extent that Hornsea Three would be sufficiently "oppressive" or "overbearing" that the property would be rendered an unattractive place in which to live.

4.15 Effects of the Offshore HVAC Booster Station

4.15.1.1 Effects of the offshore HVAC booster station on land based receptors on the Norfolk Coast are presented in volume 6, annex 4.7: Effects of the Offshore HVAC Booster Station. This concludes that all landscape and visual effects on land based receptors will be **negligible** significance which is not significant in EIA terms.

4.16 Transboundary effects

4.16.1.1 A screening of transboundary impacts has been carried out and is presented in volume 4, annex 5.4: Transboundary Impacts Screening Note. This screening exercise identified that there was no potential for significant transboundary effects with regard to landscape and visual resources from Hornsea Three upon the interests of other EEA States.

4.17 Inter-related effects

4.17.1.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the proposal on the same receptor. These are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the project (construction, operation and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three key project stages (e.g., construction phase noise, operational noise and noise during decommissioning and dismantling of the onshore HVAC booster station and HVDC converter/HVAC substation).
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on a given visual receptor, such as people using public rights of way (e.g., construction dust and noise and increased traffic), may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.

4.17.1.2 A description of the likely inter-related effects arising from Hornsea Three on landscape and visual resources is provided in volume 3, chapter 11: Inter-Related Effects (Onshore).

4.18 Conclusion and Summary

4.18.1.1 This chapter of the Environmental Statement has presented the results of the EIA for the potential impacts which may arise as a result of the onshore components of Hornsea Three on landscape and visual receptors.

4.18.1.2 A series of desk based and field surveys of the Hornsea Three onshore cable corridor, onshore HVAC booster station area and onshore HVDC converter/HVAC substation area were undertaken in 2017 and 2018. This information has been collated to create an accurate picture of baseline conditions, from which the assessment of impacts and effects can be made.

4.18.1.3 The methods used to assess the magnitude of impact of the proposed change and significance of effects on landscape and visual receptors have regard to national standards and guidance.

4.18.1.4 During the construction phase the onshore cable corridor would result in temporary short-term landscape and visual impacts which would not be significant. Effects on landscape character would range from **minor adverse** to **negligible**. Effects on visual receptors would range from **moderate adverse** to **negligible**, which would not be significant. During the operation phase the onshore cable corridor would be buried and not result in any landscape or visual impacts.

4.18.1.5 Impacts due to the onshore HVAC booster station and onshore HVDC converter/HVAC substation would be greatest during the operation phase. During the construction and decommissioning phases the impacts would be short to medium term and temporary, and would therefore not be as great.

4.18.1.6 During the operation phase impacts on landscape character due to the onshore HVAC booster station would be **major adverse** within the site itself, which is significant. Overall effects on the two local landscape character areas which would be affected by the onshore HVAC booster station would be of **minor adverse** or lower, which would not be significant. Visual effects due to the onshore HVAC booster station would range from **minor adverse** to **neutral**, which would not be significant.

4.18.1.7 During the operation phase impacts on landscape character due to the onshore HVDC converter/HVAC substation would be **major adverse** within the site itself, which is significant. Overall effects on the two local landscape character areas which would be affected by the onshore HVDC converter/HVAC substation would be of **minor adverse**, which would not be significant. Visual effects due to the onshore HVDC converter/HVAC substation would range from **major-moderate adverse** to **neutral**. The only significant visual effects would occur to users of local PRoW south of the site on completion of development, but these would reduce and not be significant as proposed planting matures.

4.18.1.8 Hornsea Three would not result in any significant effects on designated landscapes.

4.18.1.9 Hornsea Three would affect landscape protected by SNDC Policy DM4.6.

4.18.1.10 Cumulative impacts from projects screened into the assessment have been assessed using a tiered approach. No cumulative impacts due to Hornsea Three have been identified.

4.18.1.11 No residential properties would be affected to the extent that Hornsea Three would be sufficiently “oppressive” or “overbearing” that the property would be rendered an unattractive place in which to live.

4.18.1.12 Offshore components of Hornsea Three would not cause any significant landscape or visual effects on land based receptors.

4.18.1.13 Screening of potential transboundary impacts (as presented in volume 4, annex 5.4: Transboundary Impacts Screening Note) has identified that there was no potential for significant transboundary effects with regard to landscape and visual receptors.

4.18.1.14 A summary of the findings of the landscape and visual resources EIA are presented in Table 4.17.

Table 4.17: Summary of potential environment effects, mitigation and monitoring.

Description of impact	Measures adopted as part of the project	Receptor	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Construction Phase								
Onshore Cable Corridor – landscape The temporary impact of the construction works along the onshore cable corridor may affect designated and non-designated landscape and seascape receptors	The Outline LMP (document reference A8.7) and Outline CoCP (document reference A8.5) provides methods to minimise impacts.	Landscape character	Negligible	Sensitivity of landscape receptors ranges between Medium and Low	Significance of effects upon landscape receptors would range between **Minor Adverse** and **Negligible**, which is not significant	None	n/a	None
Onshore Cable Corridor – visual The temporary impact of the construction works along the onshore cable corridor may affect visual receptors	The Outline LMP (document reference A8.7) and Outline CoCP (document reference A8.5) provides methods to minimise impacts.	Settlements	Minor to no change	High	**Moderate Adverse** to **Negligible**, which is not significant	None	n/a	None
		Key routes	Minor	Very High (users of the England Coast Path) to negligible (users of major A-roads)	England Coast Path **Moderate Adverse** Other long distance paths **Moderate-Minor Adverse** Rail users **Minor Adverse** Key road routes **Negligible** These effects are not significant	None	n/a	None
		Accessible and Recreational Landscapes	Minor to Negligible	High	Up to **Moderate-Minor Adverse**, which is not significant	None	n/a	None
		Local Routes (Roads and Public Rights of Way)	Minor to Negligible	High (PRoW) to Medium (local roads)	PRoW **Moderate-Minor Adverse** Local roads **Minor Adverse** These effects are not significant	None	n/a	None
Operation and Maintenance Phase								
Onshore HVAC Booster Station - landscape The permanent onshore HVAC booster station may affect landscape receptors	The Outline LMP (document reference A8.7) provides methods to minimise impacts	LCA TF3 Hempstead, Bodham, Aylmerton and Wickmere Area	Within the site Major The LCA overall Negligible	Medium	Within the site **Major Adverse**, which is significant The LCA overall **Minor Adverse**, which is not significant	None	n/a	None
		LCA WP5 Plumstead and Barningham	Within the site Major The LCA overall Negligible	Medium	Within the site **Major Adverse**, which is significant The LCA overall **Minor-Negligible Adverse**, which is not significant	None	n/a	None

Description of impact	Measures adopted as part of the project	Receptor	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Onshore HVAC Booster Station - visual The permanent onshore HVAC booster station may affect visual receptors	The Outline LMP (document reference A8.7) provides methods to minimise impacts	Settlement: Edgefield	Negligible	High	**Minor Neutral**, which is not significant	None	n/a	None
		Local Routes within 1 km of the HVAC booster station	Minor	High (PRoW) to Medium (local roads)	PRoW **Minor Adverse** Local roads **Minor Adverse** These effects are not significant	None	n/a	None
		Local Routes immediately north of Corpustry and Saxthorpe	Negligible	Minor-negligible	PRoW **Minor Adverse** Local roads **Negligible** These effects are not significant	None	n/a	None
		Local Routes west and south west of Edgefield and Edgefield Street	No change	Negligible	**Negligible**, which is not significant	None	n/a	None
Onshore HVDC Converter/HVAC Substation - landscape The permanent onshore HVDC converter/HVAC substation may affect landscape receptors	The Outline LMP (document reference A8.7) provides methods to minimise impacts	LCA B1 Tas Tributary Farmland	Within the site Major The LCA overall Negligible	Low	Within the site **Major-Moderate Adverse**, which is significant The LCA overall **Negligible**, which is not significant	None	n/a	None
		LCA C1 Yare Tributary Farmland with Parkland	Within the site Major The LCA overall Negligible	Medium-Low	Within the site **Major-Moderate Adverse**, which is significant The LCA overall **Negligible**, which is not significant	None	n/a	None
Onshore HVDC Converter/HVAC Substation - visual The permanent onshore HVAC booster station may affect visual receptors	The Outline LMP (document reference A8.7) provides methods to minimise impacts	Settlements: Swardeston, Swainsthorpe and Stoke Holy Cross	Negligible	High	**Minor Neutral**, which is not significant	None	n/a	None
		Key Routes: A47	Major-Moderate	Medium	**Moderate Adverse**, which is not significant	None	n/a	None
		Key Routes: Tas Valley Way	Minor-Negligible	High	**Minor Adverse**, which is not significant	None	n/a	None
		Key Routes: Boudicca Way	Minor	High	**Moderate-Minor Adverse**, which is not significant	None	n/a	None
		Accessible and Recreational Landscapes: Mulbarton Common	No change	High	**Negligible**, which is not significant	None	n/a	None
		Accessible and Recreational Landscapes: Shotesham Common	Negligible	High	**Minor Neutral**, which is not significant	None	n/a	None

Description of impact	Measures adopted as part of the project	Receptor	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
		Local Routes to the north of the A47	Moderate-Minor	High (PRoW) to Medium (local roads)	PRoW **Minor Adverse** Local roads **Minor Adverse** These effects are not significant	None	n/a	None
		Local Routes between the B1113 and A140, north of Swainsthorpe	Moderate-Minor reducing to minor as planting matures (PRoW) Large (local roads)	High (PRoW) to Medium (local roads)	PRoW: **Major-Moderate Adverse** on completion, which is significant. Reducing to **Moderate-Minor Adverse** as planting matures (Outline LMP (document reference A8.7)), which is not significant. Local roads: **Moderate Adverse**, which is not significant	None	n/a	None
		Local routes east of the Tas Valley	Minor	High (PRoW) to Medium (local roads)	PRoW **Moderate Adverse** Local roads **Minor Adverse** These effects are not significant	None	n/a	None

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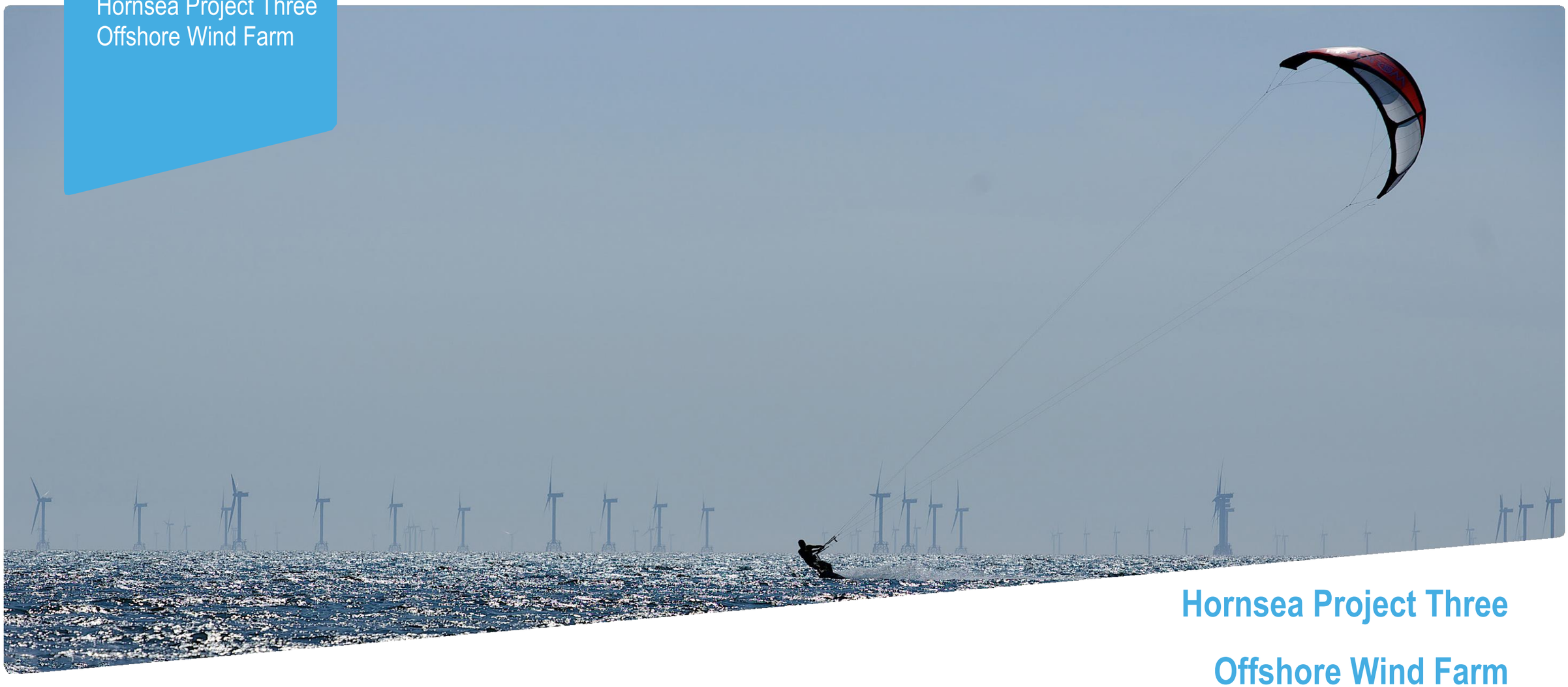
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Environmental Statement:
Volume 3, Chapter 7 – Traffic and Transport

PINS Document Reference: A6.3.7
APFP Regulation 5(2)(a)

Date: May 2018

Hornsea 3
Offshore Wind Farm

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Environmental Impact Assessment

Environmental Statement

Volume 3

Chapter 7 – Traffic and Transport

Liability

This report has been prepared by RPS, with all reasonable skill, care and diligence within the terms of their contract with Orsted Power (UK) Ltd.

Report Number: A6.3.7

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Date: May 2018

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Front cover picture: Kite surfer near a UK offshore wind farm © Orsted Hornsea Project Three (UK) Ltd., 2018.

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Glossary

Term	Definition
Abnormal Indivisible Loads	Loads or vehicles that exceed maximum vehicle weight, axle weight or dimensions as set out in the Road Vehicles (Construction and Use) Regulations 1986 as amended.
Construction Traffic Management Plan(s)	A plan(s) managing construction traffic, including protocols for delivery of Abnormal Indivisible Loads to site, personnel travel, measures for road cleaning and sustainable site travel measures relevant to those works.
Driver Delay	Delays incurred to the driver of vehicles as they move along the highway network.
Geotextile	Textile matting laid under aggregate to provide coherence and stability to a temporary road surface.
Growthed	The application of traffic growth rates to traffic flows.
Highway Link	Length of highway.
NATA/WebTAG Methodology	A standard national approach to undertaking assessments of major transport infrastructure projects.
Onshore elements of Hornsea Three	Hornsea Three landfall, onshore cable corridor, construction compounds (including main construction compound), the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid substation.
Pedestrian Amenity	The convenience or comfort of movement on foot.
Pedestrian Delay	Delay incurred to pedestrians moving from one side of a road to another.
Project Description	A summary of the engineering design elements of Hornsea Project Three.
Ratio of flow to capacity	A measure of the operational performance of one arm of a junction calculated as the number of vehicles using an arm of a junction divided by the theoretical maximum number of vehicles that are able to use the arm during a specified period.
Serious personal injury accident	An accident leading to serious injuries requiring hospital treatment.
Severance	Real or perceived difficulties moving between one part of a community to another.
Shuttle working	The use of either manual control or traffic signals to allow alternate traffic streams to pass through a length of highway where the width is reduced and insufficient to allow two vehicles to pass each other.
Slight accident	An accident leading to slight injuries which are defined as cuts, bruises or sprains requiring roadside attention but not normally requiring admission to hospital.
TRACK Analysis	Computer modelling of area taken up by a moving vehicle.
Traffic growth rate	An estimate of the rate of change in traffic flows from one year to another year.
Transport Assessment	A transport assessment is a comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies what measures will be taken to deal with the anticipated transport impacts of the scheme and to improve accessibility and safety for all modes of travel, particularly for alternatives to the car such as walking, cycling and public transport.
Trip Generation	The number of vehicle movements into and out of a development.
Trip Assignment	The routes that vehicles take between a site and other areas.
Trip Distribution	The proportion of vehicle trips between a site and other areas.
Trunk Road	A trunk road is a road maintained by a national government body, as distinct from the great majority of roads, which are maintained by local Highway Authorities.

Acronyms

Acronyms	Description
AADT	Annual Average Daily Traffic
AoS	Appraisal of Sustainability
ATC	Automatic Traffic Counter
CoCP	Code of Construction Practice
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
HDD	Horizontal Directional Drilling
HE	Highways England
HGV	Heavy Goods Vehicle
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IEMA	Institute of Environmental Management and Assessment
IHT	Institution of Highways and Transportation
MCCs	Manual Classified Count
MD	Main Distributor
MHWS	Mean High Water Spring
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
PINS	Planning Inspectorate
PEIR	Preliminary Environmental Information Report

Acronyms	Description
PIA	Personal Injury Accident
SRN	Strategic Road Network
TEMPRO	Trip End Model Presentation Programme
TA	Traffic Assessment
WebTAG	Web Transport Analysis Guidance

Units

Unit	Description
“	Inches (distance)
ft	Feet (distance)
GW	Gigawatt (power)
km	Kilometre (distance)
kW	Kilowatt (power)
m	Metre (distance)
m^2	Metres squared (area)
mph	Miles per hour (speed)
t	Tonne (weight)

7. Traffic and Transport

7.1 Introduction

7.1.1.1 This chapter of the Environmental Statement presents the results of the Environmental Impact Assessment (EIA) for the potential impacts of the Hornsea Project Three offshore wind farm (hereafter referred to as Hornsea Three) on traffic and transport. Specifically, this chapter considers the potential impacts of Hornsea Three landward of Mean High Water Spring (MHWS) during its construction, operation and maintenance, and decommissioning phases.

7.1.1.2 Those impacts of Hornsea Three on noise and vibration and air quality relating to traffic are assessed in volume 3, chapter 8: Noise and Vibration and chapter 9: Air Quality respectively.

7.1.1.3 This chapter summarises information contained within technical reports, which are included at volume 6, annex 7.1: Transport Assessment; annex 7.2: Description of Network Links and Sensitivity; annex 7.3: Baseline Traffic Flows; annex 7.4: Personal Injury Accident Locations; annex 7.5: Public Transport Networks; annex 7.6: Construction Vehicle Trip Generation Assumptions; annex 7.7: Traffic Flows with Construction Traffic; and annex 7.8: Traffic and Transport Figures.

7.2 Purpose of this chapter

7.2.1.1 The primary purpose of the Environmental Statement is to support the Development Consent Order (DCO) application for Hornsea Three under the Planning Act 2008 (the 2008 Act) and accompanies the application to the Secretary of State for Development Consent.

7.2.1.2 It is intended that the Environmental Statement will provide statutory and non-statutory consultees with sufficient information to complete the examination of Hornsea Three and will form the basis of agreement on the content of the DCO.

7.2.1.3 In particular, this Environmental Statement chapter:

- Presents the existing environmental baseline established from studies, and consultation;
- Presents the potential environmental effects on traffic and transport arising from Hornsea Three, based on the information gathered and the analysis and assessments undertaken;
- Identifies any residual effects;
- Identifies any assumptions and limitations encountered in compiling the environmental information; and
- Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.

7.3 Study area

7.3.1.1 The Hornsea Three traffic and transport study area includes the onshore elements of Hornsea Three (i.e. the Hornsea Three landfall area, the onshore cable corridor, HVAC booster station, HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid substation), together with the compounds (including main construction compound), storage areas, construction accesses and all highways, Public Rights of Way (PRoW), private accesses and railways in the vicinity that are anticipated to be used by, or affected by, the construction, operational and decommissioning traffic. The Hornsea Three traffic and transport study area also includes parts of the wider transport network that provide links between the onshore cable corridor and onshore HVDC converter/HVAC substation site and HVAC booster station and the local and strategic transport networks.

7.3.1.2 The study area has been defined for the purposes of undertaking the EIA. The movement of Abnormal Indivisible Loads are low in number (less than 20), will be spread over a period of time and expected to result in no more than one movement in any one day, potentially during the night. The port of entry and the routes the Abnormal Indivisible Loads will take will be influenced from Highways England (HE) and Norfolk County Council and will be based upon each port's capabilities to accommodate the large loads and the available routes from these in terms of their geometries and layout being able to accommodate the large vehicles. HE and Norfolk County Council can only agree the port of entry and the route once the detailed dimensions and weight of the load, the heavy haulage contractor and the resultant transport vehicle has been defined and the requisite permission is sought to enable such movement. In terms of the number of movements, these will not result in any significant effects and so is scoped out of this assessment.

7.3.1.3 In summary, the Hornsea Three traffic and transport study area therefore extends from the A148 at Fakenham to the A149 at Cromer, following the A1067 and A140 to the south to the Norwich ring road (as shown in Figure 7.1). This study area has been discussed and agreed with the Local Highway Authority.

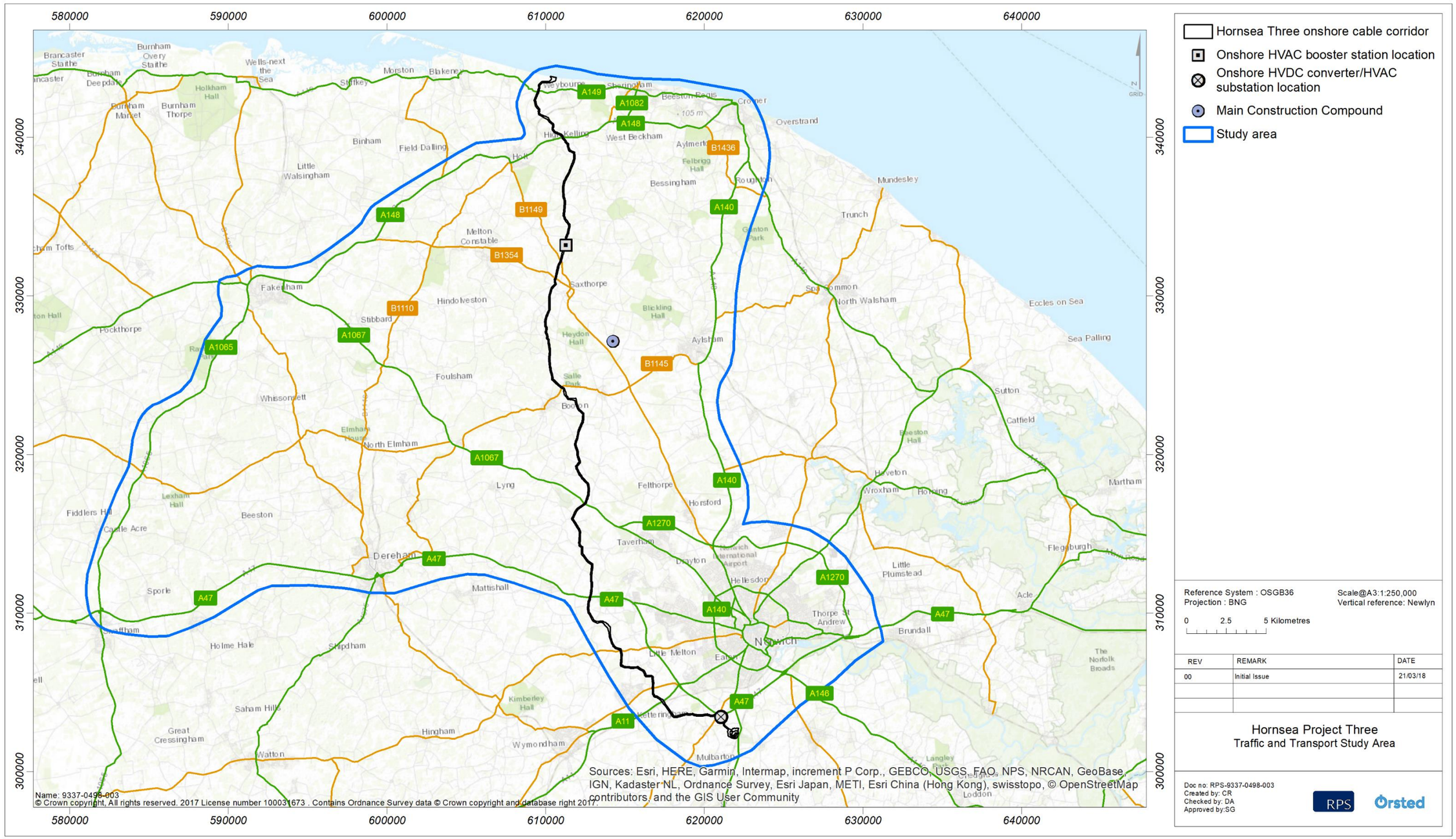

Figure 7.1: Hornsea Project Three traffic and transport study area.

7.4 Planning policy context

7.4.1 National Policy Statement

7.4.1.1 Planning policy on offshore renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to traffic and transport is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1) (DECC, 2011a) and the NPS for Renewable Energy Infrastructure (EN-3) (DECC, 2011b).

7.4.1.2 NPS EN-1 includes guidance on what matters are to be considered in the assessment. These are summarised in Table 7.1.

Table 7.1: Summary of NPS EN-1 provisions relevant to traffic and transport.

Summary of NPS EN-1 provision	How and where considered in the Environmental Statement
Introduction	
The transport of materials, goods and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, for example through increased congestion. Impacts may include economic, social and environmental effects. Environmental impacts may result particularly from increases in noise and emissions from road transport. Disturbance caused by traffic and abnormal indivisible loads generated during the construction phase will depend on the scale and type of the proposal (paragraph 5.13.1).	This chapter of the Environmental Statement considers all relevant potential transport impacts during the construction, operation and maintenance, and decommissioning phases of development. The Hornsea Three traffic and transport study area has been established through discussions with the relevant Highway Authorities. Noise is considered in volume 3, chapter 8: Noise and Vibration, air impacts are considered in volume 3, chapter 9: Air Quality and environmental impacts acting in combination on receptors are considered in volume 3, chapter 11: Inter-Related Effects.
The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in section 2.2 of NPS EN-1 (paragraph 5.13.2).	This chapter of the Environmental Statement identifies possible transport impacts and ways to mitigate them in section 7.11. The mitigation of these impacts is incorporated into the development proposals.
Applicant's assessment	
If a project is likely to have significant transport implications, the applicant's Environmental Statement should include a Transport Assessment (TA) using the NATA/WebTAG methodology stipulated in Department for Transport (DfT) guidance (DfT, 2007), or any successor to such methodology. Applicants should consult the Highways Agency and Highways Authorities as appropriate on the assessment and mitigation (paragraph 5.13.3).	A Traffic Assessment (TA) is submitted with the DCO Application in accordance with the NATA/WebTAG methodology stipulated in DfT guidance (DfT, 2007) and its replacement Planning Practice Guidance, with its scope discussed and agreed with the relevant Highway Authorities including HE. The TA is presented at volume 6, annex 7.1: Transport Assessment.
Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts (paragraph 5.13.4).	Where appropriate it is expected that movement by sustainable means will be facilitated and encouraged. However, it is recognised that the linear nature of the works, the absence of a fixed permanent work site along the Hornsea Three onshore cable corridor and the rural nature of much of the onshore cable corridor may make it difficult to implement a standard travel plan for onshore cable corridor working.
If additional transport infrastructure is proposed, applicants should discuss with network providers the possibility of co-funding by Government for any third-party benefits. Guidance has been issued in England which explains the circumstances where this may be possible, although the Government cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time (paragraph 5.13.5).	Additional transport infrastructure is limited to the provision of a number of mostly temporary construction accesses along the Hornsea Three onshore cable corridor. Accesses will be removed where appropriate and where agreed with landowners and the land reinstated when the Hornsea Three onshore cable corridor construction is finished. Where accesses are not removed, they will remain in-situ, for example, the access to the onshore HVDC converter/HVAC substation.
Decision making	
A new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the Secretary of State should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the Secretary of State should consider requirements to mitigate adverse impacts on transport networks arising from the development, as set out below. Applicants may also be willing to enter into planning obligations for funding infrastructure and otherwise mitigating adverse impacts (paragraph 5.13.6).	Section 7.11 identifies possible transport impacts resulting from all phases of development and ensure mitigation measures (where relevant/necessary) incorporated into the scheme.
Provided that the applicant is willing to enter into planning obligations or requirements can be imposed to mitigate transport impacts identified in the NATA/WebTAG TA, with attribution of costs calculated in accordance with the DfT's guidance, then development consent should not be withheld, and appropriately limited weight should be applied to residual effects on the surrounding transport infrastructure (paragraph 5.13.7).	Section 7.11 identifies possible transport impacts resulting from all phases of development and any commitments made to implementing appropriate mitigation measures.
Mitigation	
Where mitigation is needed, possible demand management measures must be considered and if feasible and operationally reasonable, required, before considering requirements for the provision of new inland transport infrastructure to deal with remaining transport impacts (paragraph 5.13.8).	The proposed mitigation measures (see section 7.11) relate to the routeing and timing of heavy goods vehicle (HGV) movements and management of construction staff movement and do not require the provision of any new inland transport infrastructure apart from temporary improvements to the Hornsea Three onshore cable corridor accesses.

Summary of NPS EN-1 provision	How and where considered in the Environmental Statement
The Secretary of State should have regard to the cost-effectiveness of demand management measures compared to new transport infrastructure, as well as the aim to secure more sustainable patterns of transport development when considering mitigation measures (paragraph 5.13.9).	As stated above, no new provision of inland transport infrastructure apart from mostly temporary (with some remaining in-situ where appropriate) improvements to the Hornsea Three onshore cable corridor accesses, is proposed (see section 7.11).
The Secretary of State may attach requirements to a consent where there is likely to be substantial HGV traffic that: • Control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements; • Make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and • Ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force (paragraph 5.13.11).	Proposed HGV routes are identified and restrictions on HGV timing are proposed to avoid adverse impact on sensitive receptors, particularly schools. The design of the construction works will avoid the risk of HGV parking on surrounding highway. The transport of abnormal indivisible loads has been subject to necessary studies and is expected to cause minimal disruption.
If an applicant suggests that the costs of meeting any obligations or requirements would make the proposal economically unviable this should not in itself justify the relaxation by the Secretary of State of any obligations or requirements needed to secure the mitigation (paragraph 5.13.12).	The costs of transport mitigation currently envisaged by the applicant will not make Hornsea Three economically unviable.

7.4.1.3 NPS EN-3 also highlights a number of factors relating to the determination of an application and in relation to mitigation. These are summarised in Table 7.2.

Table 7.2: Summary of NPS EN-3 policy on decision making relevant to this chapter.

Summary of NPS EN-3 policy on decision making (and mitigation)	How and where considered in the Environmental Statement
Appraisal of Sustainability (AoS)	
Significant negative effects were identified for all three technologies covered by EN-3 for traffic and transport. (1.7.2 bullet point 4). The AoS relates to the NPS policy though and that for the majority of AoS objectives, the strategic effects of offshore wind are considered to be neutral (1.7.2 bullet point 1) and that positive effects are likely on the climate change objective in the medium and long term by supporting the transition to a low carbon economy (paragraph 1.7.2 bullet point 2).	Section 7.11 assesses the significance of effects of the Hornsea Three on traffic and transport receptors.
Offshore wind	
The extent to which generic impacts set out in EN-1 are relevant may depend upon the phase of the proposed development being considered. For example, land-based traffic and transport and noise issues may be relevant during the construction and decommissioning periods only, depending upon the specific proposal (paragraph 2.6.4).	This has been described and considered within the assessment of Hornsea Three. The impacts which have been scoped out of the assessment are outlined in section 7.8.2, along with the justification for scoping out.

7.4.1.4 NPS EN-5, to be read in conjunction with NPS EN-1 deals with electricity network infrastructure including onshore cable corridors and grid connections. No specific policy is set out in relation to transport and traffic.

7.4.1.5 Further advice in relation specifically to the Hornsea Three development has been sought through consultation with the statutory authorities (see section 7.5) and from the scoping opinion (see volume 4, annex 5.5: Scoping Report and PINS Scoping Opinion).

7.4.2 Other relevant policies

7.4.2.1 A number of other policies are relevant to traffic and transport including:

- National Planning Policy Framework (Department for Communities and Local Government (DCLG), 2012);
- North Norfolk Core Strategy (North Norfolk District Council, 2008);
- Joint Core Strategy for Broadland, Norwich and South Norfolk (Greater Norwich Growth Board, 2014);
- Development Management Development Plan Document (DPD) (Broadland District Council, 2015); and
- Development Management Policies Document (South Norfolk Council, 2015).

7.4.2.2 Key provisions of these policies are set out in Table 7.3 along with details as to how these have been addressed within the assessment.

Table 7.3: Summary of local policy relevant to this chapter.

Summary of provision	How and where considered in the Environmental Statement
National Planning Policy Framework	
With regard to traffic and transport, the NPPF states that "*All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:* • *the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;* • *safe and suitable access to the site can be achieved for all people; and* • *improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.*" (paragraph 32).	A TA, provided at volume 6, annex 7.1: Transport Assessment, assesses these criteria, the opportunities for sustainable transport, access and road safety, and the need for any transport improvements. It concludes that no severe impact would not arise.
Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development	
The Circular sets out the way in which the Highways Agency (now Highways England) will engage with communities and the development industry to deliver sustainable development and economic growth whilst safeguarding the primary function and purpose of the strategic road network. Circular 02/2013 states that *"the Highways Agency supports the economy through the provision of a safe and reliable strategic road network, which allows for the efficient movement of people and goods."* Similarly to the NPPF, Circular 02/2013 states that *"development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."*	A TA is provided at volume 6, annex 7.1: Transport Assessment and assesses the impact of Hornsea Three, concluding that no severe impact would not arise.
Planning Practice Guidance: Travel Plans, TAs and Statements	
The guidance provides a concise report on the use and importance of TAs / Statements and Travel Plans. It considers that TAs / Statements and Travel Plans should be proportionate to the size and scope of the proposed development, be tailored to particular local circumstances and be established at the earliest practicable possible stage of a development proposal. It sets out that: "*the scope and level of detail in a Transport Assessment or Statement will vary from site to site and then lists a host of elements that should be considered."*	A TA is provided at volume 6, annex 7.1: Transport Assessment, has been tailored to the local circumstances, and is proportionate to the size and scope of Hornsea Three.
Local Planning Policy	
North Norfolk District – the Adopted Core Strategy and Development Management Policies Development Plan Documents (DPDs) Development will be designed to reduce the need to travel and to maximise the use of sustainable forms of transport appropriate to its particular location. Development proposals will be considered against the following criteria: • the proposal provides for safe and convenient access on foot, cycle, public and private transport addressing the needs of all, including those with a disability; • the proposal is capable of being served by safe access to the highway network without detriment to the amenity or character of the locality; • outside designated settlement boundaries the proposal does not involve direct access on to a Principal Route, unless the type of development requires a Principal Route location; • the expected nature and volume of traffic generated by the proposal could be accommodated by the existing road network without detriment to the amenity or character of the surrounding area or highway safety; and • if the proposal would have significant transport implications, it is accompanied by a TA, the coverage and detail of which reflects the scale of development and the extent of the transport implications, and also, for non-residential schemes, a travel plan (Policy C5, North Norfolk Core Strategy).	This Environmental Statement chapter and the TA (volume 6, annex 7.1: Transport Assessment) outline the proposed accesses and locations in section 7.7 and 1.6 respectively and assesses these along with the transport implications against these criteria in section 7.11 and 1.6 respectively. Safe and convenient access is demonstrated; HGVs generated by Hornsea Three benefit from direct access onto the Principal Route network, and so this is proposed where possible; and the nature and volume of traffic generated by the proposal on the road network is assessed to conclude there would be no impact on highway congestion or highway safety.
Former railway trackbeds, and other railway land will be protected from development that would be prejudicial to the re-use of railway, or sustainable transport links and facilities in the following locations: Sheringham; Fakenham to the District Council boundary (to the south of Great Ryburgh); and sites currently in use as, or with potential for, rail freight terminal facilities in the following settlements: Cromer Fakenham Great Ryburgh and North Walsham (Policy CT 7, North Norfolk Core Strategy).	It is proposed that the Hornsea Three onshore cable corridor would use Horizontal Directional Drilling (HDD) to enable the construction of the onshore cable corridor around railway infrastructure. The construction of the onshore cable corridor is temporary and would have no long-term implications on the function of former railway trackbeds. The Hornsea Three onshore cable corridor does not impact upon any of those listed in the policy, but does cross Marriott's Way, which follows two disused railway lines, where HDD will be used.
Joint Core Strategy for Broadland, Norwich and South Norfolk Local Plan The transportation system will be enhanced to develop the role of Norwich as a Regional Transport Node, particularly through the implementation of the Norwich Area Transportation Strategy, and will improve access to rural areas. (Policy 6: Access and Transportation, Joint Core Strategy for Broadland, Norwich and South Norfolk).	It is proposed that traffic management measures will be used on rural roads, with passing places improved or built only where necessary, as set out in section 7.11. In addition, accesses for the Hornsea Three onshore cable corridor may require improvements to the highway network and farm accesses for HGV access, thus improving access to rural areas on a temporary basis during the construction phase and longer term where any improvements are retained.

Summary of provision	How and where considered in the Environmental Statement
"*Improved strategic links to the rest of the region and beyond and access to jobs, services and facilities across the area are also key to the success of this Joint Core Strategy. Good strategic access reduces the perceived isolation of Norfolk. Improvements help stimulate and enhance the local economy and make the area more attractive for inward investment. In some instances, the Joint Core Strategy may be able to deliver improvements, but it is often the case that improvements to infrastructure providing longer distance strategic links have to be delivered by outside agencies such as Network Rail and the Highways Agency. The Joint Core Strategy will ensure that it promotes these improvements by providing a context for them to occur and ensuring their importance is recognised. Any significant negative impacts of transport improvements will need to be addressed by appropriate mitigation measures.*" (paragraph 5.46, Improvements help stimulate)	Section 7.11 assesses the impact on the strategic road network and proposes mitigation measures where significant negative impacts are predicted.
Broadland District Council Development Management DPD (2015) "*It is important that new development is undertaken in such a way that highway safety, or the operation of the network, is not adversely affected. Proposals for new development will be expected to demonstrate a safe access to the highway and that the local highway network will continue to function for the future.*" (paragraph 8.14, Development Management DPD).	This Environmental Statement chapter proposes accesses, locations and management measures (see section 7.11) and the TA at volume 6, annex 7.1: Transport Assessment (section 1.6) such that safe access is achieved and that the local highway network would continue to function.
"*The County Council has defined a route hierarchy identifying principal routes that can carry significant amounts of through traffic and these routes are defined on the policies map. The function of these routes must not be impaired by inappropriately located development. New development should be treated such that traffic from the site has a good access to an appropriate route as defined by the County Councils route hierarchy. For example HGV generating development should have good access to a HGV Access Route or higher designation of route within the route hierarchy.*" (paragraph 8.15, Development Management DPD).	The Norfolk County Council route hierarchy has been considered within the assessment of Hornsea Three. The route options available utilise trunk, principal and main distributor roads where practicable. Lower classification roads are only used on access options to reach individual accesses where there are no other options available.
"*In general, new accesses onto or off other principal routes and main distributor routes are only acceptable where they support integrated and sustainable development objectives. Development served by side roads connecting to other defined principal routes must demonstrate that no significant adverse effects will result. With the exception of sites inside defined development areas, accesses will generally only be permitted where it can be demonstrated that the routes ability to perform its function as designated in the route hierarchy would not be impaired.*" (paragraph 8.17, Development Management DPD).	Access taken from main distributor roads will be required; however, HDD will be used at these points to allow the road to be utilised without compromising on the routes ability to perform its function. Access to HDD compounds and haul road will be short term and continuous. This Environmental Statement chapter and the TA at volume 6, annex 7.1: Transport Assessment assesses each access in section 7.11 and 1.6 respectively and seek to demonstrate that routes' ability to perform its function as designated in the route hierarchy would not be impaired.

Summary of provision	How and where considered in the Environmental Statement
South Norfolk District Management Policies Document (2015) *'Proposals for development that create new access / egress points (or intensify the use of existing access / egress points) onto the local highways network should ensure the safe and satisfactory functioning of the highway network'.*	This Environmental Statement chapter proposes accesses and management measures (see section 7.11) and the TA at volume 6, annex 7.1: Transport Assessment (section 1.6) such that safe access is achieved and that the local highway network would continue to function.
"The function of the principal routes and some main distributor routes is particularly important to the strategy for sustainable transport to serve the current and future needs and new development in the towns and villages of South Norfolk, and their function should be protected".	This Environmental Statement chapter proposes accesses, locations and management measures (see section 7.11) and the TA at volume 6, annex 7.1: Transport Assessment (section 1.6) such that safe access is achieved and that the local highway network would continue to function.
"Policy DM 3.11 Road Safety and the free flow of traffic: *Planning permission will be granted for development involving the formation or intensified use of a direct access onto a Corridor of Movement providing it would not:* *Prejudice the safe and free flow of traffic or planned proposals for sustainable transport initiatives along the Corridor of Movement".*	This Environmental Statement chapter proposes accesses, locations and management measures (see section 7.11) and the TA at volume 6, annex 7.1: Transport Assessment (section 1.6) such that safe access is achieved and that the local highway network would continue to function.

7.5 Consultation

7.5.1.1 Table 7.4 below summarises the issues raised relevant to traffic and transport, which have been identified during consultation activities to date. Table 7.4 also indicates either how these issues have been addressed within this Environmental Statement or how the Applicant has had regard to them. Further information on the consultation activities undertaken for Hornsea Three can be found in the Consultation Report (document reference number A5.1) that accompanies the application for Development Consent.

7.5.1.2 The general scope of assessment and methodologies contained within this chapter and the TA (volume 6, annex 7.1: Transport Assessment) have been agreed in advance with Norfolk County Council and HE. Due to their nature, some of the detailed elements (for example the configuration of trenches to result in a maximum design scenario) have not been discussed with Norfolk County Council or HE in advance. However, for those detailed elements that have not been discussed in advance, industry standard practices have been adopted to ensure a maximum design scenario is created and relevant guidance documents have been followed such that a reasonable maximum impact is assessed appropriately and in accordance with those documents.

Table 7.4: Summary of key consultation issues raised during consultation activities undertaken for Hornsea Three relevant to traffic and transport.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
December 2016	Norfolk County Council – Scoping Response	Access to compounds and corridor needs to be appropriate with adequate visibility splays.	All accesses have been considered with regard to current design standards. The DCO application proposes temporary 30 mph speed restrictions at all temporary accesses and visibility splays will be provided in accordance with such vehicle speeds.
December 2016	Norfolk County Council – Scoping Response	Some of the roads are traffic sensitive and are tourist routes and/or main roads, for which road opening notices are unlikely to be granted or be allowed to be affected during holiday seasons.	The access strategy seeks to avoid the use of tourist routes, wherever practicable, however, some use of all parts of the network is required for local access to the cable corridor.
December 2016	Norfolk County Council – Scoping Response	Need to ensure that Abnormal Indivisible Loads are capable of travelling along the accesses.	Considerations for Abnormal Indivisible Loads are set out in volume 6 annex 7.1: Transport Assessment.
February 2017	Norfolk County Council - Meeting	Traffic management measures should be adopted.	An Outline Construction Traffic Management Plan (CTMP (document reference A8.2)) and an Outline CoCP (document reference A8.5) which establish the principles that any subsequent CTMPs and CoCPs will follow are submitted with the application. The CTMPs form part of the CoCPs. The draft DCO submitted with the application requires that no phase of any works landward of MLWS may commence until, for that phase, a CoCP (which must accord with the outline CoCP) has been submitted to, and approved by, the relevant planning authority, in consultation with the relevant highway authority. Post consent / prior to the commencement of works (when there is greater certainty about parameters of Hornsea Three) CTMPs will be developed in consultation with Norfolk County Council as the Local Highway Authority and HE, prior to submission to the Local Planning Authorities for approval.
February 2017	Norfolk County Council - Meeting	Appointed contractor should be ETON6 (electronic transfer of notifications) compliant to enable permits to be issued by Norfolk County Council.	This will be contained within the Outline CTMP (document reference A8.2). An Outline CTMP accompanies the DCO Application (document reference A8.2).
February 2017	Norfolk County Council - Meeting	The Environmental Statement assessment scope would include identification of potential access and haul roads for the Hornsea Three cable corridor construction and not specific finally chosen access and haul roads, which will allow consultees to feed into the process. The Environmental Statement will set out principles for traffic management measures to control construction vehicles and traffic surveys will be carried out to allow a full EIA to be undertaken leading up to the final DCO application.	The published PEIR set out a range of accesses to the onshore cable corridor. The comments received pertaining to the PEIR have been reviewed and have informed the accesses that are presented within this chapter of the Environmental Statement.
May 2017	Norfolk County Council - Meeting	Agreement of traffic survey locations and timings/durations etc.	The traffic survey results have been used to inform the TA (see volume 6, annex 7.3: Baseline Traffic Flows). The traffic survey locations were agreed with Norfolk County Council.
September 2017	AECOM, on behalf of HE – Section 42 Response	Highway links where the increase in total flow or HGV flows are predicted to be less than 10% will be screened out of the assessment. AECOM acknowledge that this is the 'industry standard' approach for the sort of impacts considered in an EIA. However, it should be noted that Circular 02/2013 can require detailed scrutiny of traffic capacity and road safety impacts at significantly lower thresholds	This approach has only been applied to this Environmental Statement chapter. The TA (volume 6, annex 7.1: Transport Assessment) adopts an approach aligned to Circular 02/2013.
September 2017	AECOM, on behalf of HE – Section 42 Response	Construction vehicle movements at each access and compounds should be presented.	Volume 6 annex 7.1: Transport Assessment sets these movements out.
September 2017	AECOM, on behalf of HE – Section 42 Response	The management of interactions with the A47 improvements needs to be considered.	Orsted has engaged with HE and at the point of cross over between the onshore cable works and the proposed alignment of the dualled A47 (just west of Easton roundabout) the onshore cable can be installed by way of a HDD if required. The management of these interactions will be discussed and agreed with HE at a later date when the A47 dualling scheme is further developed.
September 2017	AECOM, on behalf of HE – Section 42 Response	A47 / B1535 priority junction should be assessed because it serves as the access to the main compound C1.	Compound option C1 is no longer proposed as part of Hornsea Three, this is as a result of the project refinement process. Further details are set out in volume 1, chapter 4: Site Selection and Consideration of Alternatives.
September 2017	AECOM, on behalf of HE – Section 42 Response	A47 access should be resisted.	Direct access from the A47 is not proposed.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
September 2017	AECOM, on behalf of HE – Section 42 Response	If traffic flows warrant it, an assessment of junctions on the trunk road should be undertaken.	A threshold of 30 vehicle movements during the network peak hour has been utilised as a threshold to warrant assessment.
September 2017	Norfolk County Council – Section 42 Response	The Local Highway Authority would like a TA.	A TA has been completed and is presented in volume 6 annex 7.1: Transport Assessment.
November 2017	Highways England - Meeting	Assessment methodology	It was agreed with HE that if the construction traffic flows through a junction on their network exceeded 30 vehicle movements during the network peak hours, then an assessment of the impact upon highway capacity of that junction would be undertaken. For the movement of construction staff, it was agreed that if the construction staff peak hour subsequently exceed the network peak hour, then an assessment of the impact upon highway capacity of that junction would be undertaken. These calculations are set out in volume 6 annex 7.1: Transport Assessment.
November 2017	Norfolk County Council - Meeting	Norfolk County Council will want to review details of proposed works to permanent accesses to the HVAC Booster Station and HVDC Converter station/HVAC substation.	Proposed access layouts to the onshore HVDC converter station/HVAC substation and HVAC booster station will be designed to current design standards to accommodate construction HGVs and Abnormal Indivisible Loads. Detailed layouts will be prepared prior to the commencement of any construction. Where traffic management measures are to be adopted the extent of these will be agreed with Norfolk County Council at the time of preparing the subsequent CTMPs secured prior to the commencement of works and activities at the substation sites.
December 2017	Strutt and Parker on behalf of landowners	Suitability of accesses and the potential to improve accesses to minimise impacts upon landowners.	The comments on the accesses were all reviewed and actioned accordingly. In one instance, there was a misunderstanding on the access strategy but in all other instances, the accesses were updated in accordance with the comments received.
March 2018	Broadland District Council - (Meeting	Local concern about management of traffic using the proposed main construction compound at Oulton Airfield.	The main compound at Oulton Street will be accessed from The Street, east of the B1149. Traffic management will be designed post submission as part of the subsequent CTMPs secured prior to the commencement of works and activities at the main compound, which might involve diversion route.

7.6 Methodology to inform the baseline

7.6.1 Desktop study

7.6.1.1 Information in Hornsea Three traffic and transport study area, along the accesses and adjacent roads, was collected through a detailed desktop review of existing studies and datasets. These are summarised at Table 7.5.

Table 7.5: Summary of key desktop sources.

Title	Source	Year	Author
Identification of sensitive receptors	Search along accesses	2017	N/A
Road geometries and layouts	Analysis of accesses	2017	N/A
Identification of facilities for sustainable travel	Desktop analysis	2017	N/A
Identification of potential route options	Norfolk County Council Route Hierarchy Map	2017	Norfolk County Council
Analysis of Personal Injury Accident data	Norfolk County Council	2013 to 2017	Norfolk County Council

7.6.2 Site specific surveys

7.6.2.1 In order to inform the EIA, site-specific surveys were undertaken in June 2017, the scope of which have been agreed with Norfolk County Council's Highway Authority. A summary of the surveys undertaken is outlined in Table 7.6.

Table 7.6: Summary of site-specific survey data.

Title	Extent of survey	Overview of survey	Survey contractor	Year	Reference to further information
Traffic Surveys	Along accesses where EIA was required and where capacity assessments were undertaken.	Daily traffic flows on key road links was measured by placing Automatic Traffic Counters (ATCs) for two-week periods and daily traffic flows through junctions was measured by undertaking Manual Classified Counts (MCCs).	Countsequential.	2017	Volume 6, annex 7.3: Baseline Traffic Flows.

7.7 Baseline environment

7.7.1.1 Details of the highway network are set out in volume 6, annex 7.2: Description of Network Links and Sensitivity. The following paragraphs provide an overview of the strategic highway network and the highway network providing access to the onshore elements of Hornsea Three.

7.7.1.2 The Norfolk County Council Route Hierarchy map, produced by Norfolk County Council Highway Network Management sets out a hierarchy of road types with higher classifications of road being at the top and illustrates trunk roads and principal roads in addition to Main Distributor (MD), HGV, tourist and accesses throughout Norfolk. The classification of links which comprise the roads shown on the Norfolk County Council Route Hierarchy map is shown in volume 6, annex 7.8: Traffic and Transport Figures, Figure 1.2.

7.7.2 Strategic/Principal Road Network

7.7.2.1 The main routes into the Hornsea Three traffic and transport study area from the wider Strategic Road Network (SRN) are via the A47 that runs east-west between Kings Lynn and Great Yarmouth, and the A11 which routes from junction 9A of the M11 to Norwich City Centre. The A47 is primarily a wide single carriageway road, becoming a dual carriageway from its junction with the Dereham Road/Church Lane roundabout to Blofield, east of Norwich, where it returns to a wide single carriageway. The A11 is a dual carriageway road from its junction with the A47 to its junction with the M11, and is accessed from the A47 via a grade-separated junction.

7.7.2.2 The A1270 Northern Distributor Road is a dual carriageway strategic distributor road which routes from the A47 east of Norwich via a grade-separated junction, routeing to the north of Norwich where it joins the A1067 via junctions for the A140 and B1149. The A140 and A1067 are key commuter roads between Norwich and North Norfolk within a highway network that has few trunk roads and A roads.

7.7.2.3 The A1270 Northern Distributor Road objectives are to reduce traffic levels and congestion on the existing road network, both within the urban area and beyond to the north. The A1270 opened in late 2017 / early 2018 and allows traffic to route north of Norwich, bypassing the A1042 and A140 which route towards and around the Norwich city centre.

Access to Hornsea Three onshore cable corridor

7.7.2.4 The Hornsea Three onshore cable corridor will be accessed using roads listed on the Route Hierarchy map wherever possible, although some use of narrow single carriageway and single track roads will be necessary to reach some accesses.

7.7.2.5 Up to two temporary haul roads will be constructed (typically one per phase – see Table 1.4 and volume 1, chapter 3: Project Description) along the majority of the Hornsea Three onshore cable corridor. The haul roads would provide HGV access to undertake trenching works and install the cables, with gaps only at some HDD locations and road crossings. The haul road will enable vehicles to move along the Hornsea Three onshore cable corridor and relieve the need for construction traffic to rely on longer sections of the local road network during construction.

7.7.2.6 Access from the highway network will be necessary for the transportation of materials for the construction of the haul road. Construction accesses from the road network to the Hornsea Three onshore cable corridor have sought to utilise existing field accesses or where the onshore cable corridor crosses the public highway and are shown on Figure 1.2 in volume 6, annex 7.8: Traffic and Transport Figures.

7.7.2.7 The Hornsea Three onshore cable corridor crosses a number of roads, disused railway lines and active railways. Major transport infrastructure including railways, and all public roads would be crossed using HDD. HDD will also be used to cross features such as main rivers and ordinary watercourses, major drains and ecologically designated sites as shown on Figure 1.2 in volume 6, annex 7.8: Traffic and Transport Figures. At HDD locations, temporary construction site accesses are located to ensure that access can continue to be provided to the whole route where an obstacle might prevent the installation of a haul road.

7.7.2.8 Access to the Hornsea Three onshore cable corridor and key transport links are described in 21 individual cable sections, each generally defined by a primary access from the road network of A and/or B road classification to the onshore cable corridor. In most cases a cable section will have multiple accesses. These 21 cable sections are specific to this chapter and have only been defined to assist with access routeing and traffic generation.

7.7.2.9 The Hornsea Three onshore cable corridor with HDD and access locations, along with cable sections are shown on Figure 1.2 in volume 6, annex 7.8: Traffic and Transport Figures.

7.7.2.10 The key roads are identified in the following paragraphs in order to provide an overview of some of the larger roads which will provide access to multiple sections of the Hornsea Three onshore cable corridor.

7.7.2.11 Sensitive receptors such as schools, care homes, hospitals and residential areas with poor footway provision have been identified within the vicinity of the Hornsea Three onshore cable corridor, shown on Figure 1.3 in volume 6, annex 7.8: Traffic and Transport Figures and highlighted in the paragraphs below.

A149

7.7.2.12 The A149 runs parallel to the coastline, routing from Kings Lynn to Cromer via Hunstanton, then south east to Caister-on-Sea, and is a key commuter road between the coastal towns. It is identified on the Norfolk Route Hierarchy Map as a '3B3 – Special Access' road between Cromer and Hunstanton. The A149 provides a potential access through Sheringham via the A1082, with good forward visibility and few sensitive receptors with the exception of Weybourne, which has some residential frontages and sensitive receptors with no footways. The A149 Sheringham Road runs underneath the former North Norfolk Railway Line; therefore, a railway bridge crossing over the A149 prevents vehicles over 4.3 m in height from accessing Weybourne from Sheringham via this route.

7.7.2.13 While the A149 is a principal road with good forward visibility and a wide carriageway, it routes through Cromer, an urban centre with a residential area, town centre, shops and schools. Residential frontages and a church access are located directly onto the main road, and a one-way system operates in the centre of Cromer. Eastbound vehicles route along the A149 Church Street, and westbound vehicles route along Louden Road. There are several signal controlled crossing points on both of these routes enabling pedestrians to safely cross from residential areas to shops and schools. Car parking bays are present along the route; the carriageway which is unsuitable for parking due to width or activities, is controlled by double yellow lines.

7.7.2.14 The remainder of the A149 has few sensitive receptors and is subject to variable speed limits (40 mph, 50 mph and national speed limit).

A148

7.7.2.15 The A148 routes north east from Kings Lynn to Cromer via Fakenham. The A148 is one of the primary routes through North Norfolk and is a key commuter road for the rural communities and coastal towns.

7.7.2.16 The A148 will provide HGV access to narrow single carriageway and single track roads adjacent to the Hornsea Three onshore cable corridor between the A148 and Baconsthorpe. South of Baconsthorpe, HGVs can access the Hornsea Three onshore cable corridor via the B1149.

A140

7.7.2.17 The A140 routes between the A149 junction located approximately 3.5 km south of Cromer to the B1145 junction south of Aylsham; from Aylsham the A140 routes south to Norwich. As a principal road with wide carriageways and good forward visibility, the A140 is a key commuter road into Norwich from North Norfolk. The speed limit of the A140 between Cromer and Norwich varies between 30 mph, 40 mph and the national speed limit.

7.7.2.18 The A140 routes through Roughton, a small village centre with shops and crossings, pub and church. The speed limit is reduced to 30 mph through this section, increasing to the national speed limit to the south of Roughton. Road width and forward visibility are retained through Roughton.

B1436

7.7.2.19 The B1436 routes from the A148 via a three-arm roundabout, routeing south to the A140 at Roughton via a three-arm mini roundabout. The B1436 routes through Felbrigg and is primarily a national speed limit carriageway road; however, the speed limit reduces to 30 mph near Roughton within the vicinity of some sensitive receptors such as residential frontages and primary school.

7.7.2.20 The B1436 allows construction vehicles to route onto the A148 from the A140, bypassing Cromer which has many sensitive receptors and may be sensitive to changes in vehicle movements during peak tourist season.

A1067

7.7.2.21 The A1067 routes from the A148 east of Fakenham, south east to the A140 and A1402 junctions in Norwich. The A1067 between Fakenham and Bawdeswell is a principal road with good forward visibility. The A1067 from Bawdeswell to the A140 is suitable for HGVs; it has good forward visibility, a suitable carriageway width and is used as an existing bus route. The speed limit varies between 30 mph, 40 mph, 50 mph and the national speed limit.

7.7.2.22 There are some sensitive receptors on this route as it routes into Norwich; however, the footways are wide within the vicinity of these sensitive receptors. The A1270 Northern Distributor Road is accessed from the A1067 via a three-arm roundabout; therefore, construction vehicles can route via the A148 and A1067 south and onto the lower section of the B1149 for some sections of the Hornsea Three onshore cable corridor.

B1149

7.7.2.23 The A148 provides access to the B1149 via four-arm roundabout in Holt. The B1149 routes between Holt and the A1270 Northern Distributor Road; however, it previously joined the A140 via a large three-arm roundabout west of Norwich International Airport. The construction of the A1270 Northern Distributor Road has resulted in the previous junction of the B1149 and A140 being blocked off, instead having the B1149 route onto the A1270 Northern Distributor Road and a separate grade-separated junction between the A1270 Northern Distributor Road and the A140 has been constructed.

7.7.2.24 The B1149 is a '3A2 - Main Distributor' road and runs broadly parallel to the Hornsea Three onshore cable corridor as it routes from landfall to the A1067. There are some sensitive receptors on the B1149 as it passes through villages such as Edgefield, Saxthorpe and Horsford. The speed limit varies between 30 mph, 40 mph, 50 mph, and the national speed limit.

A47

7.7.2.25 The A47 is one of the few trunk roads within Norfolk, and routes from Kings Lynn to Great Yarmouth. The A47, routes to the south of Norwich within the vicinity of the Hornsea Three onshore cable corridor.

7.7.2.26 The A47 has typical characteristics of a trunk road, namely national speed limit with a wide carriageway and few sensitive receptors. The A47 proves a key route for HGVs routing north and south along the cable access as HGVs can route around Norwich via the A47 without travelling through the city centre or on minor roads.

7.7.2.27 The B1108, B1172, A11 and A140 have junctions with the A47 to the south west of Norwich and are included within the Hornsea Three traffic and transport study area.

A11

7.7.2.28 To the south west of Norwich, the A11 routes south west from the A147 junction and forms bypasses around Hethersett and Wymondham.

7.7.2.29 The B1172 routes from the A11 junction with the A47 along the south of Hethersett with a foot and cycle path north of the carriageway.

7.7.2.30 In general, the A11 has wide carriageways and few sensitive receptors, though some residential frontages are present. A good footway provision is present in the vicinity of dwellings.

B1145 from Aylsham to Bawdeswell

7.7.2.31 The B1145 is classified by Norfolk County Council as a '3A2 – Main Distributor' road and is a key link to the A140 from Bawdeswell, Reepham and Cawston. A four-arm roundabout connects the B1145 to the A140 and Norwich Road. Routing west from Aylsham, the B1145 has a crossroad junction with the B1149 and a priority junction where it meets the A1067. The B1145 has generally good visibility with the exception of some bends on which visibility is reduced by high hedgerows and buildings. The speed limit varies between 20 mph, 30 mph, 40 mph, 50 mph and the national speed limit.

7.7.2.32 The B1145 provides an access for HGVs between the Hornsea Three onshore cable corridor and the A140, with wide carriageways and street lighting within the vicinity of Aylsham.

7.7.2.33 The B1145 routes through the village of Cawston and Reepham town centre which have a number of sensitive receptors including shops, narrow footways and residential frontages. The speed limit is reduced to 20 mph as it routes through Reepham.

B1108 Earlham Road/Watton Road

7.7.2.34 The B1108 Earlham Road/Watton Road routes from the A47, west of Norwich, to Barford approximately 11.5 km from Norwich. The B1108 continues to route through Barford and to the south west where it joins the A1065 at Bodney. Between the A47 and Barford, the B1108 has good forward visibility and width, with suitable footways either side of the carriageway in residential areas. The B1108 is a key commuter road from the west of Norwich into the city centre and its junction with the A147 via a four-arm roundabout enables access from the B1108 to the city centre.

7.7.2.35 The B1108 is classified as a '3A2 – Main Distributor' road within the Norfolk County Council Route Hierarchy. On this section of road there is on-street parking, with footways and lighting, and numerous sensitive receptors including a hospital, church and direct access to residential dwellings.

7.7.3 Traffic flows

7.7.3.1 In order to establish baseline traffic flow models, traffic surveys were undertaken at various points across the transport study area. 12 Manual Classified Counts were undertaken between 07:00 and 19:00 on Tuesday 13 June 2017 to establish a baseline scenario from which the impact of construction traffic on highway capacity could be assessed.

7.7.3.2 Daily traffic flows for 22 sites were obtained through the use of Automatic Traffic Counters as various points across the transport study area, primarily on principal and MD roads to the north of Norwich. Daily traffic flows at 4 sites have been obtained from the DfT website. Daily traffic flows at four sites were obtained by HE and the remaining data was extracted from the Norfolk County Council Northern Distributor Road TA.

7.7.3.3 These traffic surveys have been agreed with Norfolk County Council and volume 6, annex 7.3: Baseline Traffic Flows summarises the traffic flow information collected.

7.7.3.4 Norfolk County Council have advised that there are seasonal variations in traffic flows on the A149 and A148. The A140 runs north to south between the coastal town of Cromer and Norwich. The A148 runs from Cromer roughly on a south west route to Kings Lynn, whilst the A149 again runs from Cromer, due west following the coastline, before turning to Kings Lynn. All three routes pass through the Norfolk Coast Area of Outstanding Natural beauty and converge on the popular seaside town of Cromer.

7.7.3.5 Norfolk County Council do not hold any traffic data along the A149 or A148 on which to determine the extent of any seasonal variation along the key coastal areas.

7.7.3.6 There are some DfT permanent traffic counters on each of the above roads, but these only provide year on year Annual Average Daily Flow figures rather than information relating to seasonal flow variation. HE provide network journey time and traffic flow data via their web site WebTRIS. However, on interrogating the WebTRIS database (March 2018) at the time of writing there are no count sites on any of the above routes.

7.7.3.7 An analysis of the traffic survey data shows that annual average traffic flows are very low in the areas to the north of Norwich and they do not identify any distinct AM or PM peak hours. Although there are peaks, they are not as defined as on other parts of the network. Observations indicate that there are no existing highway capacity problems in this area under annual average conditions.

7.7.3.8 It is understood from Norfolk County Council that traffic flows are higher during the peak summer season, (mid-July to September) however, there is no data available on which to quantify the full extent of this. On the basis that traffic surveys have been undertaken outside of the peak summer season, the change in traffic flows as a result of the Hornsea Three construction vehicles relative to the baseline traffic flows are at a maximum and therefore represent the biggest impact in comparison to comparable traffic flows during the tourist season. As set out in the methodology (section 7.9), this will therefore be a robust assessment in terms of the rule 1 and rule 2 (see section 7.9.1.7) thresholds and thus identify the key road links for detailed assessment robustly. The peak tourist season increases the number of cars along these sections and although this results in higher total vehicle flows, the number of HGV movements remain similar since there is no such increase in freight movement. Because the majority of traffic generated by Hornsea Three are HGVs, the conclusions drawn from the detailed assessments undertaken in sections 7.11 and 7.13 are subsequently weighted towards HGV movements and thus the conclusions do not change as a result of peak seasonal traffic flows.

7.7.3.9 From a highway capacity perspective, the requirement for detailed assessment considers the change in traffic flow as a result of the construction traffic flows and thus is dependent upon these volumes. The construction traffic flow volumes do not alter due to the peak seasonal traffic flows and thus the conclusions drawn in this regard similarly do not change.

7.7.4 Tourist routes

7.7.4.1 The Norfolk County Council Route Hierarchy map outlines several roads which are listed as tourist routes. These sections of the highway network will differ greatly in volumes and profiles of traffic between a typical working day, and during the summer season, particularly the peak summer holiday period between mid-July and September. It is considered that the seasonal variation will be greater on the highway network closer to the coast due to the limited number of alternative routes and specific tourist attractions.

7.7.5 Access to onshore cable corridor

7.7.5.1 To assist with the calculation of construction vehicle movements and the movement of these to the Hornsea Three onshore cable corridor, the onshore cable corridor has been separated into several sections, as shown on Figure 1.2 in volume 6, annex 7.8: Traffic and Transport Figures.

7.7.5.2 The accesses into the Hornsea Three traffic and transport study area are the A148 west, A1065, A11, A140, A146 and A47 west. An additional access into the Hornsea Three traffic and transport study area is the A140 / B1145 four-arm roundabout at Aylsham, which enables construction staff travelling from the A140 corridor between Norwich and Cromer to be incorporated into the traffic flow model. It is assumed that all construction traffic will route to the Hornsea Three onshore cable corridor via these external points on the network. This maximises the number of links within the study area that have HGV movements generated along them. This is because it forces all HGVs to arrive from outside the study area which maximises the number of road links they travel on within the study area. If HGVs were to originate from within the study area then those HGVs would not travel on road links between their origin and the outer edge of the study area.

7.7.5.3 The accesses in each section are summarised in the following paragraphs to clarify the extent of the local highway network being utilised. Access from the wider network will be taken via the strategic roads listed above.

7.7.5.4 Access to the Hornsea Three onshore cable corridor and key transport links are described in 21 cable sections, with the Hornsea Three landfall area, the onshore HVAC booster station and HVDC converter/HVAC substation also discussed.

Landfall

7.7.5.5 The onshore cable corridor makes landfall at Weybourne, with access from the highway network taken via The Muckleburgh Museum, west of Weybourne. The museum has an existing 5 m wide access, and an additional road will be constructed parallel to the existing road to allow for two-way HGV movements with minimal impact on the Museum. The military museum access is taken from the A148.

7.7.5.6 The primary route option for HGVs routeing from the A148 to the A149 is via the A1082 at Sheringham, where a four-arm roundabout enables construction vehicles to route onto the A149 and route west to Weybourne. The remainder of the local highway network consists of single track and narrow single carriageway roads which are less suitable for significant HGV movements: The Church Street T-junction with the A149 at Weybourne has limited visibility to the left due to residential dwellings adjacent to the carriageway. Church Street routes to Holt Road and Holgate Hill which has residential frontages with a lack of pedestrian facilities. The remainder of Holt Road and Holgate Hill are narrow single carriageways with no frontage access or sensitive receptors. Therefore, to access the lower half of Cable Section 1 HDD locations, a haul road above will be utilised, or a construction access which is not within the Hornsea Three onshore cable corridor will route around HDD points.

7.7.5.7 The A149 routes from the Foxhills camping access through the centre of Weybourne to the point at which the A149 becomes subject to the national speed limit. There are no pedestrian facilities between the camping site and Weybourne, and high hedgerows limit forward visibility on bends. There are many sensitive receptors and a lack of footways to village facilities such as shops, pubs and a church. There is on-street parking and houses which front straight onto the road in the village, with poor visibility for several houses with driveways; the speed limit varies between 20 mph and 30 mph.

Landfall to Holgate Hill (Cable Section 1)

7.7.5.8 From landfall to Holgate Hill, the local highway network utilised for the construction of this section of the onshore cable corridor will utilise the A148 from the wider highway network. Access is taken from the A149 and from Holgate Hill.

7.7.5.9 The primary route option for HGVs from the A148 to the A149 will be taken via the four-arm roundabout at Sheringham; however, a railway bridge which crosses the A148 prevents vehicles over 4.3 m in height from accessing landfall and Cable Section 1. This will not be an issue for daily construction vehicles; however, the cable drums will have to be transported such that their transport height is less than 4.3 m.

Holgate Hill to woodland north east of High Kelling (Cable Section 2)

7.7.5.10 Access to Section 2 of the onshore cable corridor will be taken via an existing agricultural access corridor from Bridge Street, north east of Holt and west of High Kelling. The existing access, north of Holt Rugby Club, routes to Warren Road which provides access to residential dwellings, Warren Close and agricultural land. Warren Road routes from Bridge Street; however, utilising the farm track north of Holt rugby club results in HGVs avoiding residential dwellings, minimising the risk of conflict.

Woodland north east of High Kelling to woodland south of Church Road (Cable Section 3)

7.7.5.11 Access to Section 3 of the Hornsea Three onshore cable corridor will be taken from the A148 and from Manor House Road. The A148 is a principal road with wide carriageways, good forward visibility and few sensitive receptors within the vicinity of the onshore cable corridor. As the A148 routes south of Holt, some frontage access is taken directly from the principal road. The section of road necessary to access the Hornsea Three onshore cable corridor is subject to the national speed limit, with good visibility and few sensitive receptors.

Woodland South of Church Road to Woodland south and east of School Lane (Cable Section 4)

7.7.5.12 Access to Cable Section 4 will be taken via Hempstead Road, accessed from the A148 at Holt. Hempstead Road is a '3B2 – Local Access' road as identified on the Norfolk County Council Route Hierarchy map between the A148 and the Hornsea Three onshore cable corridor.

7.7.5.13 The north section of Hempstead Road routes from the A148 to the Hempstead Industrial Estate and has a 30 mph speed limit. To the south and east of the industrial estate, Hempstead Road is subject to the national speed limit.

Woodland (east of School Lane) to Plumstead Road (Cable Section 5)

7.7.5.14 There are few points at which the highway network crosses the Hornsea Three onshore cable corridor on Cable Section 5; the roads which do are primarily narrow single carriageway or single track roads. The landscape becomes increasingly rural and commuter or distributor roads are infrequent on sections of the cable corridor where there are few towns or villages.

7.7.5.15 Hempstead Road / Hole Farm Road and Plumstead Road route from the B1149 eastwards and provide access to the Hornsea Three onshore cable corridor.

Plumstead Road to the B1149 (Cable Section 6)

7.7.5.16 Cable section 6 routes from Plumstead Road to the B1149, and access to this section of the onshore cable corridor will be obtained from the existing access to the Organic Waste Processing Site, taken from the B1149 north of Saxthorpe and Corpusty. The B1149 is classified as a '3A2 – Main Distributor' road and is subject to the national speed limit in the vicinity of the site entrance.

7.7.5.17 Sweetbriar Lane routes from the B1149 eastwards towards the onshore cable corridor; however, it is single track with few passing places. Accesses are located on Sweetbriar Lane and background traffic flows are not likely to be significant. Access is also taken from the B1149 and from the Organic Waste Processing Site access.

7.7.5.18 Cable Section 6 has a temporary secondary compound associated with the onshore HVAC booster station. The vehicle movements associated with the temporary secondary compound have been included within the Cable Section 6 calculations and will be discussed further in Section 5.

HVAC booster station

7.7.5.19 The HVAC booster station is located north of the B1149 at Saxthorpe, situated within Cable Section 6. The access corridor from the B1149 to the booster station utilises part of an existing access for an Organic Waste Processing Plant which has daily HGV movements associated with its operation.

B1149 to land south of Town Close Lane (HDD) (Cable Section 7)

7.7.5.20 Access to Cable Section 7 will be taken primarily from the B1149 and B1354, both classified as '3A2 - Main Distributor' roads and subject to the national speed within the vicinity of the onshore cable corridor. The B1149 and B1354 reduce to 30 mph at Saxthorpe.

7.7.5.21 The B1149 allows for two-way vehicle movements, but has no footways. The B1149 will provide access to several accesses of the Hornsea Three onshore cable corridor via single track and narrow single carriageway roads. Access A25 on the B1149 is the only access for this section of the route as shown on Figure 1.2 in volume 6, annex 7.8: Traffic and Transport Figures.

7.7.5.22 In general, the B1354 has wide carriageways and few sensitive receptors in the Hornsea Three traffic and transport study area and is subject to the national speed limit. There are some sensitive receptors as the road routes through Melton Constable and Briston in the form of a school with narrow footways adjacent to the carriageway, and on-street parking which narrows the carriageway width; however, conditions in the vicinity of the onshore cable corridor are reasonable, with some frontage access, good visibility and negligible sensitivity receptors.

Land south of Town Close Lane to woodland north of Reepham Road (Cable Section 8)

7.7.5.23 Much of the road network located on Cable Section 8 varies between narrow single carriageway and single track roads; therefore, the use of the haul road as the primary means of access to the remainder of the onshore cable corridor, rather than the use of the local highway network, is likely to be of increased importance on this section of the onshore cable corridor.

7.7.5.24 Heydon Road is the primary access to Cable Section 8, with single track roads routeing from Heydon Road also crossing the cable corridor. Heydon Road is classified as a '3B2- Local Access' road between the B1149 and onshore cable corridor.

Land north of Reepham Road to woodland north of Reepham (Cable Section 9)

7.7.5.25 Cable Section 9 will be accessed from Wood Dalling Road which routes from the B1145 via a priority junction, and has a small industrial estate approximately 100 m north of the B1145 junction. There are a small number of dwellings which take access from Wood Dalling Road. To the south, within 200 m of the B1145 junction, there are a small number of dwellings with frontage access taken from Wood Dalling Road; however, north of this the road is primarily for agricultural access.

Woodland north of Reepham to woodland at Booton Common (Cable Section 10)

7.7.5.26 The B1145 crosses the cable corridor and provides access to Section 10 of the onshore cable corridor. The B1145 is classified by Norfolk County Council as a '3A2 – Main Distributor' road and routes from the B1149 via Cawston, with some sensitive receptors between the onshore cable corridor and B1149. Cawston has some sensitive receptors including frontage access and a small village centre with narrow footways. The B1145 is a signed HGV route between the B1149 and a small industrial estate to the north of Cawston, accessed via Chapel Street.

7.7.5.27 All accesses for Cable Section 10 will be taken from the B1145 Cawston Road. Two accesses where the onshore cable corridor crosses the B1145 allow construction vehicles to access the cable section north of Marriott's Way. An additional access utilises an existing farm track taken from the B1145, north east of Reepham, which routes south east to Marriott's Way. The access is located adjacent to where the B1145 becomes the national speed limit from a 30 mph zone to the west at Reepham. The access avoids any sensitive receptors in Reepham, and is located on the outskirts of the town where there are few dwellings.

Woodland east of Reepham to The Grove (Cable Section 11)

7.7.5.28 Cable Section 11 is located to the south east of Reepham. Access will be taken from the B1149 via Buxton Road, which turns to Church Road.

7.7.5.29 To the east, Buxton Road is identified as a '3B2 – Access' road as identified on the Norfolk County Council Route Hierarchy map. The speed reduces from the national speed limit to 30 mph at Eastgate, within the vicinity of dwellings with frontage access and no footways.

The Grove to woodland south of Church Farm Lane (Cable Section 12)

7.7.5.30 Cable Section 12 can be accessed from Reepham Road, north of Lenwade and Alderford. Reepham Road routes from the A1067 via Station Road, which has some residential accesses and footway provision within the vicinity of dwellings, on the eastern side of the carriageway.

7.7.5.31 Section 12 of the onshore cable corridor is relatively rural in nature; there are no principal, main distributor or HGV routes across this section; therefore, Reepham Road is the only access available from the A1067 to Cable Section 12.

Woodland south of Church Farm Lane to River Wensum (Cable Section 13)

7.7.5.32 Cable Section 13 can be accessed from the A1067 via Porter's Lane from the west, and Old Fakenham Road leading to Station Road and Reepham Road from the east. Old Fakenham Road and Porter's Lane both route from the A1067, and are typical rural roads with no lane markings and hedgerows either side of the carriageway.

7.7.5.33 Station Road passes through the small village of Attlebridge, which features dwellings that are accessed directly from the road via driveways. The Marriott's Way cycle route, National Cycle Route 1, crosses Station Road north of Attlebridge and south of Alderford.

River Wensum to woodland south west of Ringland (Cable Section 14)

7.7.5.34 The A1067 crosses the onshore cable corridor and provides access to Section 14 of the onshore cable corridor. It forms a junction with The Street at Attlebridge and construction vehicles can route onto The Street via its western junction with the A1067, which will avoid the residential area at the eastern junction between The Street and the A1067.

7.7.5.35 Marl Hill Road forms a junction with the A1067 west of Attlebridge. Marl Hill Road is a rural road with no road markings; little vegetation on the verges provides good forward visibility. Morton Lane and Ringland Lane are narrow rural roads with passing places. It gives access via Morton Lane and Ringland Lane.

Woodland south west of Ringland to A47 (Cable Section 15)

7.7.5.36 The A47 is a trunk road and gives access to Cable Section 15 north west of Easton, via Church Lane and Ringland Road. Church Lane is subject to the national speed limit and features two-way traffic with centre lines and leads to Ringland Road which gives access to Weston Road and Accesses A80 and A81. There are a small number of dwellings on this section of narrow rural road, with no footway provision.

7.7.5.37 Intwood Lane routes between the B1113 and a stream to the west. The cable will route through farmland from the stream to the B1113, with Intwood Lane being the only road which crosses the onshore cable corridor on this section.

A47 to Bawburgh Road (Cable Section 16)

7.7.5.38 Cable Section 16 is accessed from the A47 via Dereham Road, Church Lane and Marlingford Road. Church Lane is an unmarked rural road which is subject to the national speed limit, with some street lighting and a footway between Dereham Road and Saint Peter's church.

Bawburgh Road to woodland west of Little Melton (Cable Section 17)

7.7.5.39 Bawburgh Road forms a priority junction with a private track which travels southbound towards the B1108. The B1108 is a two-way rural road with centre lines, and is subject to the national speed limit. It is accessed via the A47, and with the exception of a small number of sparsely distributed dwellings, the B1108 does not pass through any sensitive receptors between the A47 junction and the onshore cable corridor. Access to Cable Section 17 will be taken directly from the B1108, or via Bawburgh Road which routes north from the B1108, crossing the onshore cable corridor.

Woodland west of Little Melton to A11 (Cable Section 18)

7.7.5.40 Cable Section 18 of the onshore cable corridor runs nearby to the western residential areas of Little Melton, and so to lessen the impacts on sensitive receptors, the majority of this section's construction vehicle movements will occur on the haul road.

7.7.5.41 The B1172 is accessible from the A47 and A11 at the Thickthorn Interchange, and gives direct access to the onshore cable corridor. The road is subject to the national speed limit, features two-way traffic with centre lines, and a footway on its northern side. The B1172 contains a small number of dwellings from the Thickthorn Interchange to Station Lane, which are all set back from the carriageway.

7.7.5.42 As the B1172 routes into Hethersett it becomes subject to a 40 mph speed limit, and forms a junction with Station Lane. Station Lane leads to the cable corridor, and is a narrow rural road with high hedgerows. Access is achieved via an existing track, which passes a small number of dwellings.

A11 to woodland north west of Swardeston (Cable Section 19)

7.7.5.43 Cable Section 19 is accessed from Station Lane, which itself is accessed from the southern side of the A11 with deceleration and acceleration lanes. The A11 is a trunk road, and the section that passes through Section 19 is dual carriageway and subject to the national speed limit.

7.7.5.44 Station Lane routes broadly north-south and features two-way traffic with a centre line from its junction with the A11 and its junction with the Ketteringham Recycling Centre access road. From this junction, Station Lane continues as a wide rural road, with good forward visibility. The onshore cable corridor is accessed from Cantley Lane which forms a bifurcated junction with Station Lane. Cantley Lane is a rural road with no markings and good forward visibility.

Woodland north west of Swardeston to B1113 (Cable Section 20)

7.7.5.45 Cable Section 20 is accessed from the B1113. Construction vehicles will route from the A47 via the northbound exit to the A140. This section of the A47 is dual carriageway and is subject to the national speed limit. The A47 forms a priority roundabout with the A140 following a deceleration lane, and then routes northbound to from a signalised junction with the B1113. The routes to the onshore cable corridor and features a two-way carriageway with centre lines.

7.7.5.46 Approximately 150 m north of the onshore cable corridor, there is a bridge where the A47 passes over the B1113. This bridge will not impact on the HGV movements towards the onshore cable corridor. Access will be achieved form the B1113 via Short Lane, The Common and Intwood Lane. All three roads are typical narrow rural roads with high vegetation on the verges.

B1113 to end of onshore cable corridor (Cable Section 21)

7.7.5.47 Access will be taken from the previously discussed B1113, a national speed limit '3A2 – Main Distributor' road with good visibility. The access for the onshore HVDC converter/HVAC substation will be the access for Cable Section 21. Accesses located on Mangreen Lane are not suitable for large HGV movements, therefore these accesses will not be used by HGVs.

7.7.5.48 The A140 will be utilised to route to the onshore cable corridor, and is subject to the national speed limit. It forms a junction with Mangreen Lane, which after approximately 60 m from the A140 forms an access. This utilises the existing Norwich Main National Grid substation access.

Onshore HVDC converter/HVAC substation

7.7.5.49 Access to the permanent onshore HVDC converter/HVAC substation (Access A118), will be taken from the previously discussed B1113, a national speed limit '3A2 – Main Distributor' road with good visibility. A permanent access will be designed as vehicle movements associated with the operation of the onshore HVDC converter/HVAC substation will occur daily. The designed access will incorporate a temporary wide access which will allow abnormal indivisible loads such as the transformers to enter the site, and the operational access will be instated once construction of the onshore HVDC converter/HVAC substation has been completed.

Main Compound at Oulton Street

7.7.5.50 The main compound at Oulton Street is currently accessed from The Street and Oulton Street, which routes broadly north to south between Blickling Road and the B1149. Traffic management measures will be developed as part of the subsequent CTMPs secured prior to the commencement of works and activities at the main compound, when the scope of the use of the main construction compound by the principal contractor is known. These traffic management measures may involve diversion routes.

7.7.6 Existing vehicle restrictions

7.7.6.1 Volume 6, annex 7.8: Traffic and Transport Figures, Figure 1.2, shows the Hornsea Three onshore cable corridor and proposed accesses, with links on potential routes within the Hornsea Three traffic and transport study area. There are restrictions on the passage of HGVs over 7.5 t at the following locations on the proposed accesses.

- Link 105: Hall Road to Reepham Road junction;
- Link 119: Marl Hill Road and Ringland Lane from A1067 to the onshore cable corridor;
- Link 165: Bawburgh Road from the Hornsea Three onshore cable corridor to B1108;
- Link 166: Stocks Hill from link 163/164 to B1108;
- Link 172: Cantley Lane from Station Lane to A47/A11; and
- Link 181: Gowthorpe Lane.

7.7.6.2 In addition, there are signs on the road network stating that the following routes are not suitable for HGVs:

- Links 6 to 9: Sandy Hill Lane;
- Link 87: B1145 in Reepham; and
- Link 100: Ketts Lane.

7.7.6.3 The above links pass through or lead up to urban areas with residential properties, other sensitive areas or are too narrow for accommodating two-way HGV movements and it appears to be for these reasons that there are 7.5 t weight restrictions in place or they are marked as being unsuitable for HGVs. These restrictions will be temporarily suspended for construction HGVs over the temporary period for which access is required.

7.7.6.4 Abnormal indivisible loads require prior permission to travel along the road network and so the above relates to HGVs that are permitted to travel along the road without any such prior permission.

7.7.7 Compound areas

7.7.7.1 A main construction compound will be sited at Oulton Airfield, near Oulton Street and up to five secondary compounds (smaller in scale) will also be required along the onshore cable corridor to facilitate construction works in those areas. The main compound will house the central offices, welfare facilities, and stores. It will act as a staging post and secure storage for equipment and component deliveries. Further details of the construction compounds and their proposed uses are provided in volume 1, chapter 3: Project Description.

7.7.7.2 Volume 6, annex 7.8: Traffic and Transport Figures, Figure 7.2, shows the onshore cable corridor, main construction compound, secondary compound areas and proposed accesses.

7.7.8 Sustainable transport modes

Public transport services

7.7.8.1 800 m is a distance adopted based upon a mix of guidance and professional judgement. 400 m is a target walking distance (Institution of Highways and Transportation (IHT), 1999. *Guidelines for Planning for Public Transport in Developments*) to achieve for new developments and that is generally accepted as a reasonable walking distance in urban areas. Some people will walk longer than this distance and especially in rural areas, walking distances can be expected to be slightly longer for such areas. A distance of 800 m is therefore considered reasonable for the purposes of accessibility in this location.

7.7.8.2 Details of bus services within 800 m of the Hornsea Three onshore cable corridor are summarised in Table 7.7 with routes shown at volume 6, annex 7.5: Public Transport Networks. There are no other bus services within 800 m of the Hornsea Three onshore cable corridor that are not listed in Table 7.7.

Table 7.7: Local Bus Services.

Stop (if within 800m of cable corridor)	Service	Route	Frequency (Monday to Friday)	Frequency (Saturday)	First service	Last service
Church, Weybourne	Coasthopper	Kings Lynn - Hunstanton - Wells-next-to-Sea - Weybourne - Sheringham - Cromer	Hourly	Hourly	09:42	18:42
		Cromer - Sheringham - Weybourne - Wells-next-to-Sea - Hunstanton - Kings Lynn	Hourly	Hourly	09:26	17:26

Stop (if within 800m of cable corridor)	Service	Route	Frequency (Monday to Friday)	Frequency (Saturday)	First service	Last service
High, Kelling, A148	5	North Walsham - Mundesley - Cromer - Holt	30 minutes	30 minutes	08:20	18:56
		Holt - Cromer - Mundesley - North Walsham	30 minutes	30 minutes	06:55	17:49
	19	Cromer - Weybourne - Holt	10:44 Monday, Wednesday and 10:27 Friday (Return 12:25 Monday, Wednesday and 12:43 Friday)			
	44	Holt - High Kelling - Sheringham	30 minutes	30 minutes	05:42	17:25
		Sheringham - High Kelling - Holt	30 minutes	30 minutes	10:18	00:03
The Street, Hempstead	16	Cromer - Baconsthorpe - Holt	Tuesday 10:38 (Return 12:25)			
	17	Holt - Baconsthorpe - Sheringham - West Runton	Tuesday 10:43 (Return 12:30)			
Green, Edgefield	43	Norwich - Reepham - Edgefield - Holt	Mon - Fri 06:48 (Return 18:38 and 19:05)			
Croft Lane, Saxthorpe	43	Norwich - Reepham - Edgefield - Holt	Mon - Fri 06:52 (Return 18:32 and 18:59)			
	45	Holt - Corpusty - Norwich	2 per day	2 per day	07:07	10:02
		Norwich - Corpusty - Holt	2 per day	2 per day	13:49	18:09
	45A	Norwich - Felthorpe - Reepham - Holt	Monday to Friday 17:26			
	45B	Norwich - Feltthorpe -Corpusty - Holt	Saturday 13:49 and 18:19			
Heydon Road	24	Fakenham - Reepham - Norwich	Tuesday 09:49 (Return 14:00)			
	43	Reepham - Aylsham - Norwich	6 per day	5 per day	10:12	18:36
		Norwich - Aylsham - Reepham	6 per day	6 per day	07:21	15:51
	45A	Norwich - Felthorpe - Holt	Monday to Friday 17:14			
	80	Aylsham - Reepham - Dereham	Friday 09:47 (Return 14:17)			
	98	Cawston - Reepham - Fulmodeston - Fakenham	Thursday 09:17 (Return 13:48)			
Hall Road, Alderford	24	Fakenham - Reepham - Norwich	Tuesday 10:04 (Return 13:46)			
	X29	Norwich - Foulsham - Fakenham	Hourly	Hourly	08:06	19:27

Stop (if within 800m of cable corridor)	Service	Route	Frequency (Monday to Friday)	Frequency (Saturday)	First service	Last service
Fakenham Road, Morton on the Hill		Fakenham - Foulsham - Norwich	Hourly	Hourly	06:56	17:12
Des Amis, Easton	4	Swanton Morley - Dereham - Easton - Norwich	Hourly	Hourly	06:39	17:38
		Norwich - Easton - Dereham - Swanton Morley	Hourly	Hourly	07:44	18:46
Kings Head, Bawburgh	15	Shipdham - Hardingham - Norwich	Wednesday 09:10 (Return 13:05)			
	806	Bawburgh - Wymondham	Friday 09:20 (Return 12:10)			
Colney Lane, Hethersett	6	Norwich - Hethersett - Wymondham - Watton	Hourly	Hourly	08:29	19:22
		Watton - Wymondham - Hethersett - Norwich	Hourly	Hourly	07:12	17:49
	6A	Attleborough - Hethersett - Norwich	One Service (07:12)	-		
		Norwich - Hethersett - Attleborough	Two Services Daily (16:57 and 19:22)			
	9A	Norwich - Cringleford - Hethersett	Monday to Friday 08:05 (Return 15:00 / 16:00)			
	14 / 15 / 15A	Thorpe St Andrew - Norwich - Hethersett - Wymondham	Every 15 minutes	Every 15 minutes	07:10	19:08
		Wymondham - Hethersett - Norwich - Thorpe St Andrew	Every 15 minutes	Every 15 minutes	06:34	19:14
	13A / 13B / 13C	Norwich - Hethersett - Attleborough	One morning and 4 evening services daily (07:41, 19:55, 20:55, 22:20, 23:08)			
		Attleborough - Hethersett - Norwich	6 services daily	5 services daily	16:42	22:46
Short Lane, Main Road	10A	East Harling - Swardeston - Norwich	2 services Monday to Friday 07:53 and 10:20			
		Norwich - Swardeston - East Harling	3 services Monday to Friday 13:31, 16:23 and 17:58			
	37 / 38	Long Stratton - Mulbarton - Norwich	Half Hourly	Half Hourly	07:41	18:11
		Norwich - Mulbarton - Long Stratton	Half Hourly	Half Hourly	07:33	18:21

Stop (if within 800m of cable corridor)	Service	Route	Frequency (Monday to Friday)	Frequency (Saturday)	First service	Last service
Hall, Dunston	1	Diss - Aslacton - Norwich	4 services per day (08:07, 10:01, 12:57 and 14:26)			
		Norwich - Aslacton - Diss	4 services per day (08:06, 10:01, 12:59 and 17:56)			
	2	Long Stratton - Norwich	Hourly	5 per day	07:28	21:10
		Norwich - Long Stratton	Hourly	6 per day	10:13	22:44
	38	Norwich - Long Stratton	Half Hourly	Half Hourly	06:59	18:44
		Long Stratton - Norwich	Half Hourly	Half Hourly	06:56	19:19
	40	Diss - Harleston - Norwich	Saturday 08:30 (Return 15:05)			
	83	Norwich - Pulham - Harleston	4 per day		10:51	18:01
		Harleston - Pulham - Norwich	5 per day	4 per day	07:40	17:44

Pedestrian infrastructure

7.7.8.3 It is generally accepted that a reasonable distance that people would be prepared to walk to work is 2 km (IHT, Guidelines for Providing for Journeys on Foot, 2000). There are residential areas within 2 km of the Hornsea Three onshore cable corridor from which, if footpath provision is available, there is potential for construction workers to undertake their journey on foot.

Cycle infrastructure

7.7.8.4 Designated cycle routes that cross or are in the vicinity of the onshore elements of Hornsea Three are:

- Holt Explorer Loop: Routes from Regional Route 30 north east crossing the onshore cable corridor on the edge of Kelling Heath to Weybourne where it then routes south east through Bodham and West Becham and continues south and then west through Baconsthorpe. It then crosses the onshore cable corridor as it routes west to Hempstead where it continues south west to Edgefield;
- Regional Route 30, located approximately 1 km west of the onshore cable corridor parallel to the onshore cable corridor from just south of Kelling Hall, through High Kelling and crosses the cable corridor in the vicinity of the property 'Quietways' from where it routes east and connects with the Holt Explorer Loop; and
- National Cycle Route 1 which is a long-distance cycle route connecting Dover and the Shetland Islands - via the east coast of England and Scotland routes to the west of the onshore cable corridor. It routes through Reepham, approximately 1 km west of the onshore cable corridor, through Whitwell and Lenwade, after which it crosses the onshore cable corridor to the north of Attlebridge and continues south east to Drayton.

7.7.8.5 It is generally accepted that a reasonable distance that people are willing to cycle to work is 5 km. There are a number of residential areas within 5 km of the onshore cable corridor which have access to these cycle routes, enabling construction workers to cycle to work.

7.7.9 Personal injury accident data

7.7.9.1 Personal Injury Accident (PIA) data obtained from Norfolk County Council has been used to consider the road safety record of the study area.

7.7.9.2 The area of analysis is over a significantly large area and therefore a two-stage process is undertaken as follows. After breaking the network into links, the injury accident rate was calculated and compared to the national average injury accident rate set out in Table RAS1002 of the DfT document 'Reported Road Casualties Great Britain 2016'.

7.7.9.3 This initial analysis was undertaken using PIA's from the Crashmap website for 2013, 2014 and 2015 and the injury accident rates are contained in Table 7.8.

Table 7.8: Summary of injury accident rates.

Link	AADT (1)	Link Length (Kilometres)	Personal Injury Accidents (PIAs) over 3 years (2)	PIAs per million vehicle-km (observed)	PIAs per million vehicle km (national average)
A148, west of The Street and east of Green Lane	12797	2.3	3	93	152
A148 west of Holt and east of Letheringsett	10550	10.2	11	94	152
A148, east of the B1149 roundabout and west of Station Road	11264	0.35	0	0	152
B1354 between the Swanton Road junction and B1110 junctions	3714	2.4	3	308	274
B1354 east of Melton Constable and west of Briston	5151	0.6	1	296	274
B1149 at Edgefield, north of the village hall and south of Hempstead Road	4174	0.5	2	878*	274
A148 at High Kelling, south of Kelling Hospital	12783	0.6	1	119	152

Link	AADT (1)	Link Length (Kilometres)	Personal Injury Accidents (PIAs) over 3 years (2)	PIAs per million vehicle-km (observed)	PIAs per million vehicle km (national average)
A148, east of Bodham and west of the Woodlands Leisure centre	12179	0.5	1	150	152
A148, west of the B1436 junction and east of the Lion's Mouth junction	13200	1.1	2	126	152
B1436, east of Felbrigg	8893	2.2	1	47	274
A140, south of Roughton and north of the Topshill Road junction	11079	2.7	3	92	152
A149 west of Weybourne and east of The Pheasant hotel	3282	1.1	0	0	152
A149 east of Weybourne, west of the North Norfolk Railway line	4390	3.5	3	179	152
A1067, north of Bridge Road and east of Little Ryburgh	8696	2	2	105	152
B1145 at Bawdeswell, between The Street junction and Hall Road junction	3119	0.45	0	0	274
B1145, west of Reepham and east of the Old Lane junction	2742	2.7	2	247	274
B1145 east of Cawston, west of the B1149 crossroads	3199	1.5	3	573*	274
B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	4448	4	7	360*	274
A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	14475	1.4	2	90	152
A1067, between Attlebridge and the Fir Covert Road junction	8276	2.9	3	114	152
A140 between the A47 and B1113 junctions	22881	0.6	0	0	473
B1113, south of the A47 near Norwich Sports ground	8141	1.8	2	125	448
A47 at Honingham	27245	1.6	5	105	473
A47 at Bawburgh	43804	2.2	2	19	473
A47 at Intwood	52775	3.4	17	87	473
A11 at Hethersett	48817	1.9	5	49	473
A1065 south of A148 and north of Pond Road	7854	1.3	0	0	473
A140 north of Hevingham	12500	1.5	4	195	473
A1067 at Lenwade	11778	2.5	5	156	473
A1065 at Weasenham, between B1145 and Massingham Road	5050	3.5	4	207	473

(1) Annual average daily traffic (AADT) derived from traffic surveys / DfT flows

(2) Information obtained from Crashmap website

* Links with accident rates more than 25% above the national average

7.7.9.4 Where observed accident rates are in excess of national averages this does not necessarily indicate a poor safety record. Indeed, because they are an average, this means than 50% of all roads will have an injury accident rate that exceeds the average.

7.7.9.5 For robustness, injury accident rates that were 25% higher than the national average rates have been assessed further as a second stage of the analysis.

7.7.9.6 Therefore, four links have been identified as having an injury accident rate of 25% higher than the national average and these links have been analysed in further detail, along with injury accidents occurring on the A47 trunk road.

7.7.9.7 To undertake this analysis, PIA data for these locations has been obtained from Norfolk County Council for the five-year period between 01 December 2012 and 30 November 2017 and analysed in terms of their location, severity and vehicles involved at volume 6, annex 7.4: Personal Injury Accident Locations and as described below. The roundabout, junctions or roads discussed below have a corresponding figure in volume 6, annex 7.8: Traffic and Transport Figures. The numbered PIA below (e.g. PIA 28) correspond to the PIA shown on these figures.

A11 / A47 Roundabout

7.7.9.8 PIA data has been obtained from Norfolk County Council for the five-year period 01 December 2012 and 30 November 2017, and covers the entirety of the A11 / A47 Thickthorn Interchange. This includes Thickthorn Interchange junctions with; Newmarket Road, the A11, the A47, Cantley Lane South, and the B1172. This data also covers the B1172 roundabout with Thickthorn Park and Ride, Thickthorn Bus Station, Travelodge Norwich Cringleford, and the service station.

7.7.9.9 There were 31 PIAs in the search over the 5-year period. Of these PIAs, two were serious and there were no fatalities.

7.7.9.10 The first serious accident, shown as PIA 28, occurred on the Thickthorn Interchange exit to the A47 southbound, and was the result of a motorcycle heading for the A11 westbound failing to give way to a car heading towards the A47 southbound. The other serious accident, PIA 11, was the result of a car failing to stop and shunting the rear of a stationary car on the A11 junction to the Thickthorn Interchange. The shunt pushed the stationary vehicle into the path of oncoming vehicles on the roundabout, causing a collision with a third car. Both these serious accidents were the result of driver error.

7.7.9.11 Of the 29 slight accidents, four involved goods vehicles. Two of these accidents were the result of drivers failing to give way, and two were due to drivers failing to judge speed. These accidents were the result of driver error.

7.7.9.12 At the B1172 roundabout with Thickthorn Park and Ride, there were two slight accidents which were the result of drivers not driving to suit the road conditions, and another failing to give way or judge another person's speed. There is one slight accident that occurred at the Park and Ride / Thickthorn Services roundabout, which was the result of a motorcyclist losing control.

7.7.9.13 The analysis shows a cluster of accidents at the western slip-road from the A11 to the Thickthorn Interchange. Four of these accidents are attributed to rear end shunts, and two are the result of drivers failing to give way.

7.7.9.14 Four slight accidents occurred on the A47 flyover. One accident was the result of a driver not driving to suit the road conditions, two were the result of drivers failing to judge other persons speed or give way, and one was due to an electrical fault reducing visibility of a stationary car.

7.7.9.15 From the analysis undertaken at this junction, it appears that driver error is the common factor in the PIA data obtained. There is nothing in relation to the existing highway layout or geometries that causes a road safety concern.

A47 between Sandy Lane and the B1535 junctions (inclusive of junctions)

7.7.9.16 PIA data has been obtained from Norfolk County Council for the five-year period between 01/12/2012 and 30/11/2017, and covers the A47 between Sandy Lane and the B1535, inclusive of the junctions.

7.7.9.17 There were 21 PIAs in the search over the 5-year period. Of these PIAs, one was fatal and four were serious.

7.7.9.18 The fatal incident occurred on the A47 junction with Wood Lane, and is shown as PIA 18. This was the result of a car turning right into Wood Lane from the A47 colliding with a motorcycle travelling southbound on the A47.

7.7.9.19 Over the period, there were four serious accidents. Two serious accidents occurred near the A47 / Sandy Lane junction, PIA 2 and 3. These were the result of careless driving and failure to judge speed. Serious accidents PIA 6 and 10 occurred on the A47 between the Sandy Lane and the B1535 junctions. One was due to loss of control of control, and the other was the result of a driver failing to judge another vehicles speed.

7.7.9.20 There were nine accidents involving goods vehicles. Two of these accidents involved good vehicles over 7.5 t and were both the result of driver failure to judge speed. Three involved goods vehicles of unknown weight and were also due to driver failure to look and judge speed.

7.7.9.21 There is a cluster of accidents near the A47 / Church Lane junction, which all occurred on the A47 carriageway, and were all the result of driver failure to look and/or judge speed.

7.7.9.22 Two slight accidents occurred at the A47 / Berry's Lane junction, and both contributing factors were drivers failing to judge speed.

7.7.9.23 Four slight accidents are recorded at the A47 / Wood Lane junction in which the contributing factors were driver's failure to look or judge speed of other vehicles.

7.7.9.24 From the analysis undertaken at this section of the road network, it appears that driver error is the common factor in the PIA data obtained. There is nothing in relation to the existing highway layout or geometries that causes a road safety concern.

A47 / A146 Junction

7.7.9.25 PIA data has been obtained from Norfolk County Council for the five-year period between 01 December 2012 and 30 November 2017, and covers the junction between the A146 / Loddon Road and the A47 / Norwich Southern Bypass.

7.7.9.26 There were 24 PIAs in the search over the 5-year period. Of these PIAs, three were serious and there were no fatalities.

7.7.9.27 The serious PIA which occurred on the A47 approaching the flyover travelling south east to north east was the result of a bus or coach driver failing to slow in time, causing a collision with the back of a stationary car. Further east of this collision, another serious accident occurred after a driver lost control over a flooded section of road that was the result of a blocked storm drain. The serious accident that occurred A47 eastbound slip road to the A146 was the result of a driver failing to give way at the signalised junction, and subsequently collided with a car travelling south east to north west on the A146.

7.7.9.28 There are four slight accidents involving goods vehicles, all of which were under 3.5 t. Accidents numbered 10 and 18 were the result of driver's failure to stop at a red light, and snowy conditions were a contributing factor in drivers failing to stop in accidents 13 and 23.

7.7.9.29 There are two distinct clusters within the area. The first cluster is the A47 northbound exit slip road signalised junction with the A146. These are the result of driver error, as all these accidents are attributed to drivers failing to stop at a red-light signal.

7.7.9.30 Another cluster is at the A47 southbound exit slip road signalised junction with the A146 / Loddon Road. These accidents are all shown to be the result of drivers failing to stop at a red light.

7.7.9.31 From the analysis undertaken at this section of the road network, it appears that driver error is the common factor in the PIA data obtained. There is nothing in relation to the existing highway layout or geometries that causes a road safety concern.

A148 / B1454 junction

7.7.9.32 PIA data has been obtained from Norfolk County Council for the 5-year period between 01 December 2012 and 30 November 2017, and covers the junctions between the A148 and the B1454, and the A148 and Elm Lane.

7.7.9.33 There were 6 PIAs in the search over the 5-year period. Of these PIAs, three were serious and there were no fatalities.

7.7.9.34 The serious PIA, shown as 2, was the result of a driver failing to give way to a car u-turning on the B1454, causing a collision. The serious PIA denoted as 3, was the consequence of a driver failing to give way turning right from the A148 to the B1454. PIA 6 was due to ice on the A148 causing the goods vehicle to jackknife in the path of an oncoming car.

7.7.9.35 The main contributing factor of the remaining slight PIAs is shown to be drivers failing to stop and/or judge another vehicle's speed.

7.7.9.36 From the analysis undertaken at this section of the road network, it appears that driver error is the common factor in the PIA data obtained. There is nothing in relation to the existing highway layout or geometries that causes a road safety concern.

B1145 – Reepham to B1149

7.7.9.37 PIA data has been obtained from Norfolk County Council for the 5-year period between 01 December 2012 and 30 November 2017, and covers; the B1149 between Aylsham Road and Buxton Road, and B1145 between the B1149 and Orchard Lane.

7.7.9.38 There were 15 PIAs in the search over the 5-year period. Of these PIAs, one was serious and there were no fatalities.

7.7.9.39 The only serious accident, denoted as PIA 6, occurred after a driver lost control on a wet road, and subsequently collided with an oncoming car.

7.7.9.40 The only PIA involving a goods vehicle under 3.5 t, denoted as PIA 4, was the result of the goods vehicle failing to judge a cars speed, resulting in a rear end shunt.

7.7.9.41 There were no clusters of injury accidents over the link.

Aylsham B1145 and A140

7.7.9.42 PIA data has been obtained from Norfolk County Council for the 5-year period between 01 December 2012 and 30 November 2017, and covers; the B1145 between Holt Road and the A140, and the A140 between the B1145 and Banningham Road.

7.7.9.43 There were 32 PIAs in the search over the 5-year period. Of these PIAs, eight were serious and there were no fatalities.

7.7.9.44 The first serious, denoted as 1 on the B1145, was the result of a driver losing control of their car after making contact with the verge. Further east of this accident, a serious accident, PIA 5, was the consequence of a motorcyclist losing control at the righthand bend travelling eastbound. The two remaining serious accidents on the B1145, PIA 9 and 11, were both due to a loss of traction pertaining to the road surface. PIA 9 involved a motorcyclist losing control after coming into contact with mud on the road, and PIA 11 occurred after a driver lost control on a bend in icy conditions. These serious accidents on the B1145 are all shown to be the result of drivers not driving to suit the conditions, or driving carelessly.

7.7.9.45 There are four serious accidents on the A140. Serious PIA 23 was the result of a car driver turning right from Buxton Road to the A140 across the path of a motorcyclist travelling southbound on the A140. PIA 25 occurred at the roundabout between the A140 and Burgh Road, and involved one car losing control at the roundabout.

7.7.9.46 The two further serious accidents on the A140, PIA 24 and 31, both occurred previous to the construction of the current roundabout at the junction between the A140 and Burgh Road. These accidents occurred at the previous crossroad design, and were both the result of careless driving. There was a cluster of slight accidents alongside these serious accidents. However, PIA 25 is the only accident to have occurred since the roundabout has been built and, except for PIA 28 which occurred during construction, the remaining accidents occurred at the previous crossroads.

7.7.9.47 There are four serious and nine slight accidents on the B1145 between the junction with the B1149 and the roundabout with Woodgate Way / Hobart Lane. With the exception of PIA 13, which involved a pedestrian, the accidents along this link mostly involved only one vehicle, and were due to drivers losing control by not driving to suit the conditions or speeding. The contributing factor the PIA which involved a pedestrian, was a driver not seeing the pedestrian walking in road in the dark, who was wearing no illumination/reflective clothing.

B1149 Holt to Oulton

7.7.9.48 PIA data has been obtained from Norfolk County Council for the 5-year period between 01/12/2012 and 30/11/2017, and covers the B1149 between the A148 / B110 roundabout and Heydon Road, inclusive of junctions. The search area also includes the B1354 between its junction with the B1149 and Tithe Barn Lane.

7.7.9.49 There were 27 PIAs in the search over the 5-year period. Of these PIAs, two were fatal and seven were serious.

7.7.9.50 A fatal accident occurred south of Saxthorpe on the B1149, shown as PIA 7. This was the result of a car losing control travelling southbound in wet conditions, and colliding head on with a car going northbound. A fatal accident occurred south of the B1149 junction with Hunworth Road, shown as PIA 25. This was the result of a driver losing control and colliding with a tree whilst exiting a right-hand bend travelling southbound.

7.7.9.51 There are three serious accidents within a cluster to the south of Saxthorpe, denoted as PIA 2,3 and 5. The contributing factor to these three accidents is shown as being a deer or an unspecified animal in the carriageway.

7.7.9.52 Serious PIA 13 was the result of a driver losing control by failing to drive to suit the wet conditions. Serious PIA 15 was also due to a driver not driving to suit the conditions, as the car lost control on the icy road surface. Serious PIA 16 was the result of a motorcycle travelling at excessive speeds for a bend in the road.

7.7.9.53 The serious PIA 27 close to the B1149 junction with Hunworth Road occurred after a driver travelling around the bend in excessive speed losing control, and colliding head on with an oncoming car.

7.7.9.54 There were 14 slight accidents on the B1149 section of the surveyed area. Ten of these incidents were due to drivers losing control, with three of these being in wet conditions and another occurring in snowy conditions. Three accidents were the result of drivers failing to look, and another was a HGV failing to give way to a tractor.

7.7.9.55 On the studied section of the B1354, there were three slight accidents. Two were a result of drivers failing to drive to suit the conditions (wet and snowy), and the other occurred after a driver failed to see a broken-down car in the road.

Summary

7.7.9.56 Whilst all accidents are regrettable, the data suggests that in the majority of instances human error is likely to have been the primary cause indicating that, in general, there are no specific road safety issues in the aforementioned areas.

7.7.10 Future baseline scenario

7.7.10.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 require that "*an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*" is included within the Environmental Statement. The Environmental Statement is not required to comply with the 2017 Regulations as the Environmental Statement is prepared under the 2009 Regulations.

7.7.10.2 The future baseline traffic scenario for the year in which construction is expected to be at its peak (assumed to be 2022) was determined based on the traffic surveys undertaken growthed to forecast traffic conditions on the local highway network during this future year. The construction phase generates the most vehicle movements in comparison to the operation and maintenance, and decommissioning phases. Therefore, undertaking assessments with a future baseline for the construction phase equates to an assessment of the maximum design scenario, and as such it is not necessary to individually assess the other phases.

7.7.10.3 Specific traffic surveys were undertaken to inform the baseline position for this assessment. These involved the placement of ATCs and MCCs on areas of the highway network. Annual Average Daily Traffic Flows were obtained from the Department of Transport for the A1067, A140, A148 and A149. This enabled a future baseline scenario to be established from which construction traffic will be assessed. Traffic flows to inform the baseline are reported in volume 6, annex 7.3: Baseline Traffic Flows.

7.7.10.4 To assess road safety along the adjacent highway network, PIA data has been obtained from Norfolk County Council for the latest available 5-year period. Personal injury data is reported in volume 6, annex 7.4: Personal Injury Accident Locations.

7.7.10.5 Future baseline scenarios were created using these data sets. Traffic growth rates were applied to the traffic flows.

7.7.10.6 The construction of Hornsea Three will generate the largest volume of vehicle movements. Vehicle movements generated during the decommissioning phase will generally be lower than those during the construction phase. Therefore, the assessment of the decommissioning phase has been undertaken on precautionary basis. Vehicle movements associated with operation and maintenance phase will be negligible in relation to the construction phase, therefore it is not necessary to assess this as a maximum design scenario has already been undertaken.

7.7.11 Data limitations

7.7.11.1 The baseline data and survey data have been obtained from recognised sources and methodologies with locations and types of surveys agreed with Norfolk County Council in advance. In this sense, there are only limited limitations to their use. The traffic survey data is considered representative of current conditions.

7.7.11.2 At this stage, there are no procurements in place and the resultant origins of materials cannot be confirmed. The procurement of material affects the movement of construction HGVs and thus affects the number of construction HGVs along each road link. It is likely that the origin of materials will change as the construction phase progresses as there is only a finite amount of material from each source. For example, an amount of material is sourced from one location, but when this amount is reached, material is then sourced from another location. This will change the movement of HGVs as the construction phase progresses and result in day-to-day variances. Section 7.8.3 has therefore devised a methodology that accounts for this day-to-day variance by approximately doubling the number of vehicles travelling to / from any particular location and thus maximising this variance within the assessment.

7.7.11.3 The Cumulative Effect Assessment contained in section 7.13 incorporates the A47 improvement works being promoted by HE. The key element of these works in relation to Hornsea Three is the overlapping of the construction areas and the construction methodologies and management to allow both to progress depending upon their respective timescales (i.e. one before the other or simultaneously).

7.7.11.4 Another consideration is the cumulative effect of construction traffic generated by both sets of works. However, there are no construction traffic flow estimates for the A47 improvement works available. Due to the location of these works being on the A47 trunk road, all associated construction vehicle movements would arrive along the A47 trunk road, which represents the outer areas of the study area being considered within this chapter. With the exception of the A47 itself, the construction traffic flows generated are not expected to route within the study area being considered within this chapter. As set out in section 7.13, even some allowance for such construction traffic would not affect the conclusions of this chapter. Although it is a data limitation in that the construction traffic generated by the A47 improvement works are not available, this does not affect the conclusions of this chapter.

7.7.11.5 The Norfolk Vanguard project has a published PEIR from which its construction traffic flows can be estimated albeit it is recognised this is not a final submission. Discussions with Norfolk Vanguard have identified that any changes to construction traffic flows from its PEIR to final submitted DCO application are expected to be only minimal.

7.8 Key parameters for assessment

7.8.1 Maximum design scenario

7.8.1.1 The maximum design scenarios identified in Table 7.9 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in volume 1, chapter 3: Project Description. Effects of greater significance are not predicted to arise should any other development scenario, based on details within the project Design Envelope, to that assessed here be taken forward in the final design scheme.

7.8.1.2 There is an inter-relationship with this chapter and the Noise and Vibration and Air Quality chapters (volume 3, chapter 8: Air Quality and chapter 9: Noise and Vibration) in so far as these two chapters consider traffic flows. The traffic flows will be used to inform the assessments of these two chapters and are therefore fully consistent with the above.

7.8.2 Impacts scoped out of the assessment

7.8.2.1 On the basis of the baseline environment and the project description outlined in volume 1, chapter 3: Project Description, a number of impacts are proposed to be scoped out of the assessment Traffic and Transport. These impacts are outlined, together with a justification for scoping them out, in Table 7.10.

7.8.2.2 The level of vehicle generation during the operation and maintenance, and decommissioning phases would be significantly lower than during the construction phase, thus, these impacts have been scoped out of the assessment.

7.8.2.3 During the operation and maintenance phase, the only vehicle movements generated will be maintenance visits, which will be typically one vehicle on an approximate weekly basis. These visits are likely to be made by light vehicles only and would use the existing road network and the permanent onshore HVAC booster station and HVDC converter/HVAC substation accesses constructed as part of Hornsea Three. One vehicle arrival per week is very low and infrequent and is significantly under thresholds (depending upon the sensitivity of receptors, increases of 10 % or 30 % in total traffic flows or 30 % in HGVs, as set out in section 7.9.1) on which assessment is required. Even if repair work was required for example to a section of cable, such vehicle movements would be low (a few vehicles per day) and would be under the thresholds on which assessment would be required. Therefore, there will be no significant effects resulting from the traffic generated during the operation and maintenance phase and an assessment of this is scoped out.

7.8.2.4 Vehicle movements generated during the decommissioning phase will be lower than those during the construction phase since the removal of materials does not need to be delicately transported and can be bulk loaded whilst some infrastructure will be retained in-situ. Given that some infrastructure will be left in-situ, this results in less transport requirement which results in fewer vehicle movements in comparison to the construction phase. Background traffic flows are generally increasing year on year, therefore, in comparison to the construction phase, the combination of lower Hornsea Three traffic flows against higher baseline traffic flows results in a lower impact. However, all mitigation measures that are identified for the construction phase will also be adopted during the decommissioning phase, thus, for a maximum design scenario, it can be determined that the identification of significant effects resulting from traffic generated during the construction phase, would also apply to the decommissioning phase. Therefore, as vehicle movements generated during the decommissioning phase will generally be lower than those during the construction phase, the assessment of the decommissioning phase has been undertaken on precautionary basis.

Table 7.9: Maximum design scenario considered for the assessment of potential impacts on traffic and transport.

Potential impact	Maximum design scenario	Justification
Construction phase		
The temporary impact of the construction work may affect driver delay (see glossary). The temporary impact of the construction work may affect severance of routes (see glossary). The temporary impact of the construction work may affect pedestrian delay (see glossary). The temporary impact of the construction work may affect pedestrian amenity (see glossary). The temporary impact of the construction work may affect driver delay (see glossary). The temporary impact of the construction work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal loads during construction works.	<u>Hornsea Three landfall area</u> The temporary construction compound of 42,000 m^2 at the Hornsea Three landfall area. Thrust bore crossing method at Hornsea Three landfall area with pits measuring 5 m x 25 m x 6 m. A reasonable assumption is that 75% of staff assumed to drive themselves to work and no access by public transport (Additional 25% of staff assumed to car share). The worst case would involve the import and export of all material. The shortest practical duration of works would maximise daily HGV movements. A reasonable duration of 32 months has been assumed.	A well-known occurrence at construction sites is staff organising travel amongst themselves to car share, especially in rural locations. Furthermore, contractors regularly provide transport for their staff via minibus. The actual mode share of construction staff is not reported for any similar site, however, a calculation that 75% of construction staff drive is considered a reasonable assumption for assessment purposes. The use of Thrust Bore, rather than an alternative trenchless technology, represents the highest number of vehicle movements due to the requirement to transport steel shuttering and additional craneage compared with other techniques such as HDD. Larger areas result in larger amounts of material and thus larger numbers of HGV movements. Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements.
The temporary impact of the construction work may affect driver delay (see glossary). The temporary impact of the construction work may affect severance of routes (see glossary). The temporary impact of the construction work may affect pedestrian delay (see glossary). The temporary impact of the construction work may affect pedestrian amenity (see glossary). The temporary impact of the construction work may affect driver delay (see glossary). The temporary impact of the construction work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal loads during construction works	<u>Onshore cable corridor</u> The route length is approximately 55 km. Duration of construction programme for the secondary compounds is 30 months (2.5 years) (secondary compounds, nor the storage areas, will not be in use for the full 30 month period). A reasonable assumption is that 75% of staff assumed to drive themselves to work and no access by public transport (Additional 25% of staff assumed to car share). • Widest cable trench option - six cable trenches up to 5 m width at surface (1.5 m at base) and 2 m depth up to 1,650,000 m^2 (5 m x 55,000 m x 6) from installation of up to six cable trenches; • On average 0.6 m stabilised backfill in each 2 m deep trench; • Up to 99,000 m^2 from jointing bays (based on 440 jointing bays (each jointing bay is 9 m x 25 m)); • Up to 3,960 m^2 from link boxes (based on 440 link boxes (each link box: is 3 m x 3 m)). Link boxes are permanent sub surface structures; • Up to 396,000 m^2 from installation of temporary haul road/accesses (6 m x 66,000 m per phase); • Up to 120 HDD locations per phase (up to 105 minor HDDs and 15 major HDDs per phase), including 15 HDD compounds; • Up to five secondary compounds (maximum area of construction compounds is 33,000 m^2 (average area 17,000 m^2)); and • Up to 55 storage areas; • 50% of the area of each compound would be surfaced with crushed aggregate. The aggregate would be removed when construction is complete; and • The haul road would be surfaced with aggregate on geotextile and would be removed at the end of each construction phase.	A well-known occurrence at construction sites is staff organising travel amongst themselves to car share, especially in rural locations. Furthermore, contractors regularly provide transport for their staff via minibus. The actual mode share of construction staff is not reported for any similar site, however, a calculation that 75% of construction staff drive is considered a reasonable assumption for assessment purposes. Maximising the depth and width of stabilised backfill/trenches would maximise HGV movements. Maximising the number of parallel trenches (minimum number of circuits per trench) would maximise HGV movements. The maximum design scenario in terms of traffic would be based on the minimum estimate of construction length. Larger areas/volumes result in larger amounts of material and thus larger numbers of HGV movements. Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements. The maximum intensity of construction for the Hornsea Three onshore cable corridor would occur if it was built in a single phase within a 30 month (approximately 2.5 years) duration.

Potential impact	Maximum design scenario	Justification
The temporary impact of the construction work may affect driver delay (see glossary). The temporary impact of the construction work may affect severance of routes (see glossary). The temporary impact of the construction work may affect pedestrian delay (see glossary). The temporary impact of the construction work may affect pedestrian amenity (see glossary). The temporary impact of the construction work may driver delay (see glossary). The temporary impact of the construction work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal loads during construction works.	<u>Onshore HVDC converter/HVAC substation</u> Up to 149,302 m^2 for permanent area of site (including an area which may be used for landscaping) plus a temporary works area of 91,000 m^2. Maximum building dimensions: up to 220 m length, 75 m width and 25 m height. The maximum intensity of construction for the onshore HVDC converter/HVAC substation would occur if it was built in a single phase with a three-year duration.	A maximum area/volume of site cleared for works would maximise HGV movements. Larger areas/volumes result in larger amounts of material and thus larger numbers of HGV movements. The maximum design scenario in terms of traffic would be based on the minimum estimate of construction duration. Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements.
The temporary impact of the construction work may affect driver delay (see glossary). The temporary impact of the construction work may affect severance of routes (see glossary). The temporary impact of the construction work may affect pedestrian delay (see glossary). The temporary impact of the construction work may affect pedestrian amenity (see glossary). The temporary impact of the construction work may affect driver delay (see glossary). The temporary impact of the construction work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal loads during construction works.	<u>Onshore HVAC booster station</u> Up to 30,407 m^2 for permanent area of site plus a temporary works area up to 25,000 m^2. Maximum building footprint of 9,000 m^2 (based on single building scenario (120 m length and 75 m width) and height up to 12.5 m). Up to 30,000 m^3 excavated for basement (based on 5m deep and area of 6,000 m^2). The maximum intensity of construction for the onshore HVAC booster station would occur if it was built in a single phase with a two-year duration. All topsoil and subsoil generated from levelling and earthworks would be removed from the site.	A maximum area/volume of site cleared for works would maximise HGV movements. Larger areas/volumes result in larger amounts of material and thus larger numbers of HGV movements. The maximum design scenario in terms of traffic would be based on the minimum estimate of construction duration. Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements.
Decommissioning phase		
The temporary impact of the decommissioning work may affect driver delay (see glossary). The temporary impact of the decommissioning work may affect severance of routes (see glossary). The temporary impact of the decommissioning work may affect pedestrian delay (see glossary). The temporary impact of the decommissioning work may affect pedestrian amenity (see glossary). The temporary impact of the decommissioning work may affect driver delay (see glossary). The temporary impact of the decommissioning work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal loads during decommissioning works.	<u>Onshore HVAC booster station</u> Up to 30,407 m^2 for permanent area of site. The maximum intensity of decommissioning for the onshore HVAC booster station would occur if it was demolished in a single phase with a two-year duration. <u>Onshore HVDC converter/HVAC substation</u> Up to 149,302 m^2 for permanent area of site The maximum intensity of decommissioning for the onshore HVDC converter/HVAC substation would occur if it was demolished in a single phase with a three-year duration.	A maximum area/volume of site cleared for decommissioning would maximise HGV movements. The maximum design scenario in terms of traffic would be based on the minimum estimate of decommissioning duration.

Table 7.10: Impacts scoped out of the assessment for traffic and transport.

Potential impact	Justification
Construction phase	
N/A	N/A
Operation and maintenance phase	
The impacts arising from the operation and maintenance of the onshore elements of Hornsea Three.	During the operation and maintenance phase, the only vehicle movements generated will be maintenance visits for the onshore HVDC converter/HVAC substation and HVAC booster station, which will be on an approximate weekly basis. These visits are likely to be made by light vehicles only and would use the existing road network and permanent onshore HVDC converter/HVAC substation access constructed as part of Hornsea Three. Such movement is very low and infrequent and will be significantly under thresholds on which assessment is required. No routine maintenance of the onshore cable corridor is required.
Decommissioning phase	
The impacts arising from the decommissioning of the Hornsea Three onshore cable corridor.	The export cables along the Hornsea Three onshore cable corridor will remain in situ after the decommissioning of Hornsea Three. Therefore, it is not anticipated that there will be any traffic and transport impacts associated with the decommissioning the onshore cable corridor.

7.8.3 Vehicle trip generation, distribution and assignment (construction)

7.8.3.1 Detailed assessments of vehicle generation have been carried out for the construction phase of development. The level of vehicle generation during the operation and maintenance, and decommissioning phases would be significantly lower than during the construction phase.

7.8.3.2 The level of vehicular trip generation associated with the construction phase of Hornsea Three is based on the assumptions set out in Table 7.9. Details of the technical parameters used for the construction stage trip generation calculations are presented in volume 6, annex 7.6: Construction Vehicle Trip Generation Assumptions.

7.8.3.3 For the purposes of estimating the construction traffic generation, the Hornsea Three onshore cable corridor is divided into 21 sections using professional judgement based upon groupings of accesses that share key sections of the highway network, as shown on Figure 1.2 in volume 6, annex 7.8: Traffic and Transport Figures. There will be up to five work fronts (i.e. up to five construction activities – see volume 1, chapter 3: Project Description) being undertaken at any one time. It is assumed that there would be one work front on each cable section. This means that up to five cable sections could be under construction at any one time.

7.8.3.4 A worst case scenario would be created when five adjacent cable sections (or near to one-another) are constructed at the same time because this would concentrate the construction vehicle movements onto the same road links, especially those near to the cable sections under construction. If five cable sections that were spread apart from each other were constructed at the same time, then this would spread the construction vehicles across all of the road links within the study area and thus result in fewer construction vehicle movements on each road link in comparison to the above.

7.8.3.5 Based on this, if five adjacent or nearby cable sections in the northern part of the Hornsea Three onshore cable corridor were assessed, then the construction traffic flows would be concentrated in the northern part of the study area. If five adjacent or nearby cable sections in the southern part of the Hornsea Three onshore cable corridor were assessed, then the construction traffic flows would be concentrated in the southern part of the study area.

7.8.3.6 Therefore, a range of scenarios have been created that concentrates the construction traffic flows at differing parts of the study area, as follows:

- Northern part of corridor: cable sections 1, 2, 3, 4 and 5 all under construction simultaneously;
- Middle (northern) part of corridor: cable sections 6, 8, 9, 10 and 11 all under construction simultaneously;
- Middle (southern) part of corridor: cable sections 12, 13, 14, 15 and 16 all under construction simultaneously; and
- Southern part of corridor: cable sections 17, 18, 19, 20 and 21 all under construction simultaneously.

7.8.3.7 The exact groupings of cable sections do not make any noticeable difference to the assessment. The important factor is that cable sections that are adjacent or near to one-another are grouped together.

7.8.3.8 Each of these four scenarios creates different traffic flows on each road link and junction within the study area. Therefore, to ensure a robust analysis, the maximum construction traffic flow for the four scenarios on each link and junction has been assumed as the peak construction traffic flows and has been assessed.

7.8.3.9 In terms of a network, this overestimates the total number of construction vehicles, however, in terms of individual links and junctions, it represents the peak construction traffic flow that could be generated along or through them and is thus a robust methodology.

7.8.3.10 The above has been devised using 20 of the 21 onshore cable corridor sections. The smallest cable section has been excluded from this process so as to include the largest generating sections and thus ensure a robust analysis.

7.8.3.11 Excluding onshore cable corridor section from the above does not result in a lower daily traffic generation on any link or junction. This is because the above has been devised to consider the traffic generation when five work fronts are ongoing at any one time. When five work fronts are ongoing at any one time, based on there being 21 onshore cable corridor sections, this means there will be 16 other onshore cable corridor sections that do not have any works ongoing.

7.8.3.12 The above considers five onshore cable corridor sections being grouped together (to replicate maximum provision of up to five active work fronts occurring along the onshore cable corridor at any one time), but in reality there any many different scenarios that could be created of five onshore cable corridor sections. What is important is grouping five adjacent cable sections to maximise the concentration of construction vehicle movements in that local area to generate peak estimations. Thus, it is evident that the above presents a robust methodology and that considering 20 of the 21 onshore cable corridor sections still allows for the peak construction vehicle movements on each link and junction to be identified.

7.8.3.13 Each of the 21 onshore cable corridor cable route sections has one or more construction accesses. The HGV routes to the accesses have been determined taking into account the suitability of the surrounding highway network including the existing accesses, the opportunities to provide access to sections of the onshore cable corridor along the haul road and the stated preferences of consultees, and in particular the Highway Authority.

7.8.3.14 Cable sections also relate to the physical features that act as barriers to movements of vehicles along the onshore cable corridor. In general, such barriers are defined by the HDD crossing locations although in some cases, where a HDD crossing is required it is still possible to achieve vehicle movement along the cable crossing. For example, where a HDD crossing is required to place cables below a gas pipeline it may be possible for HGVs to pass over the gas pipeline with suitable load spreading ground reinforcement.

7.8.3.15 Table 7.11 identifies the 21 onshore cable corridor sections, their lengths and the proposed HGV accesses.

Table 7.11: Onshore cable corridor sections, accesses and HGV routes.

Route Section	Description	Length / Kilometres	Accesses	Local Access Route
1	Landfall to Holgate Hill	2.96	47 (B)	A148 - A1082 - A149
			45 (B)	A148 - A1082 - A149
			44 (B)	A148 - A1082 - A149
			ACC_P_75	A148 - Bridge Road- Holgate Hill
2	Holgate Hill to woodland north east of High Kelling	1.61	42C - Monitoring Access Only	A148 - Bridge Road- Holgate Hill
			41 (B)	A148 - Bridge Road
3	Woodland northeast of High Kelling to woodland south of Church Road	2.53	ACC_P_74	A148
			ACC_P_73	A148
			ACC_P_72	A148 - Selbrigg Road
			ACC_P_71	A148 - Selbrigg Road
			ACC_P_70	A148 - Selbrigg Road
			ACC_P_69	A148 - Selbrigg Road
4	Woodland south of Church Road to woodland south and east of School Lane	2.47	ACC_P_68	A148 - Hempstead Road
			ACC_P_67	A148 - Hempstead Road
			39a(B)	B1149 - Hempstead Road - Hole Farm Road - School Lane
5	Woodland east of School Lane to Plumstead Road	1.92	ACC_P_66	B1149 - Hempstead Road - Hole Farm Road
			ACC_P_65	B1149 - Hempstead Road - Hole Farm Road
			ACC_P_64	B1149 - Plumstead Road
			ACC_P_63	B1149 - Plumstead Road
			ACC_P_62	B1149 - Sweetbriar Lane
			ACC_P_61	B1149 - Sweetbriar Lane
6	Plumstead Road to the B1149	2.3	37(E)	B1149 - Organic Waste Processing Site Access
			ACC_P_60	B1149
7	B1149 to land South of Town Close Lane	1.9	ACC_P_59	B1149
			ACC_P_58	B1149 - B1354
			ACC_P_57	B1149 - B1354
			36(C) - Monitoring Access Only	B1149 - B1354 - Croft Lane
			ACC_P_56	B1149 - B1354 - Town Close Lane
			35(C) - Monitoring Access Only	B1149 - B1354 - Town Close Lane
8	Land south of Town Close Lane to woodland north of Reepham Road	4.37	ACC_P_55	B1149 - Valley Road - Wood Dalling Road
			ACC_P_54	B1149 - Valley Road - Wood Dalling Road
			ACC_P_53	B1149 - Heydon Road - Heydon Road - Blackwater Lane
			ACC_P_52	B1149 - Heydon Road - Heydon Road - Blackwater Lane
			ACC_P_51	B1149 - Heydon Road - Heydon Road - Heydon Lane
			ACC_P_50	B1149 - Heydon Road - Heydon Road - Heydon Lane
			ACC_P_49	B1149 - Heydon Road
			ACC_P_48	B1149 - Heydon Road
9	Land north of Reepham Road to woodland north of Reepham	1.95	ACC_P_47	B1149 - B1145 - Wood Dalling Road - Reepham Road
			ACC_P_46	B1149 - B1145 - Wood Dalling Road - Reepham Road
			34(A)	B1149 - B1145 - Wood Dalling Road - Reepham Road
			33(A)	B1149 - B1145 - Wood Dalling Road - Reepham Road
			ACC_P_45	B1149 - B1145 - Wood Dalling Road - Reepham Road
			ACC_P_44	B1149 - B1145 - Wood Dalling Road
			ACC_P_43	B1149 - B1145 - Wood Dalling Road
10	Woodland north of Reepham to woodland at Booton Common	1.74	ACC_P_42	B1149 - B1145
			32 (B)	B1149 - B1145
			ACC_P_41	B1149 - B1145
11		2.19	ACC_P_40	B1149 - Buxton Road - Church Road

Route Section	Description	Length / Kilometres	Accesses	Local Access Route
	Woodland east of Reepham to The Grove		ACC_P_39	B1149 - Buxton Road - Church Road
			ACC_P_38	B1149 - Buxton Road - Church Road - Norwich Road - The Grove
			ACC_P_37	B1149 - Buxton Road - Church Road - Norwich Road - The Grove
12	The Grove to woodland south of Church Farm Lane	2.16	ACC_P_36	B1149 - Buxton Road - Church Road - Norwich Road
			ACC_P_35	B1149 - Buxton Road - Church Road - Norwich Road
			ACC_P_34	B1149 - Buxton Road - Church Road - Norwich Road - Church Road
			30(B)	B1149 - Buxton Road - Church Road - Norwich Road - Church Road
			29(B)	A1065 - A148 - B1149 - Buxton Road - Church Road - Norwich Road - Church Farm Lane
13	Woodland south of Church Farm Lane to River Wensum	2.34	ACC_P_33	A1067 - Station Road - Reepham Road - Church Farm Lane
			ACC_P_32	A1067 - Station Road - Reepham Road - Hall Road
			28(C) - Monitoring Access Only	A1067 - Station Road - Reepham Road - Hall Road
			27(C) - Monitoring Access Only	A1067 - Station Road - Reepham Road
			26(B)	A1067 - Station Road - Reepham Road
			25 (B)	A1067 - Station Road
			ACC_P_31	A1067 - Station Road
14	River Wensum to woodland south west of Ringland	5.24	ACC_P_30 - Monitoring Access Only	A1067 - The Street
			24(A)	A1067 - The Street
			ACC_P_29	A1067 - Marl Hill
			ACC_P_28	A1067 - Marl Hill - Morton Lane
			ACC_P_27	A1067 - Marl Hill - Morton Lane
			ACC_P_26	A1067 - Marl Hill - Morton Lane - Ringland Lane
			23(A)	A1067 - Marl Hill - Morton Lane - Ringland Lane
			ACC_P_25	A1067 - Marl Hill - Morton Lane - Ringland Lane
			ACC_P_24	A1067 - Marl Hill - Morton Lane - Ringland Lane
			22(B)	A1067 - Marl Hill - Morton Lane - Ringland Lane
			ACC_P_23	A1067 - Marl Hill - Morton Lane - Ringland Lane - Haul Road
			ACC_P_22	A1067 - Marl Hill - Morton Lane - Ringland Lane - Haul Road
			21(B)	A1067 - Marl Hill - Morton Lane - Ringland Lane - Haul Road
			20(B)	A1067 - Marl Hill - Morton Lane - Ringland Lane - Haul Road
			18(B)	A1067 - Marl Hill - Morton Lane - Ringland Lane - Haul Road
15	Woodland south west of Ringland to A47	2.1	17(B)	A47 - Taverham Road - Weston Road
			16(B)	A47 - Taverham Road - Weston Road
			ACC_P_21	A47 - Church Lane
16	A47 to Bawburgh Road	2.38	ACC_P_20	A47 - Dereham Road - Church Lane
			15(A)	A47 - Dereham Road - Church Lane
			ACC_P_19	A47 - Dereham Road - Church Lane - Broom Lane
			14(A)	A47 - Dereham Road - Marlingford Road
			ACC_P_18	A47 - Dereham Road - Marlingford Road
17	Bawburgh Road to woodland west of Little Melton	3.1	13(C)	A47 - B1108 - Stocks Hill - Marlingford Road - Bawburgh Road
			ACC_P_17	A47 - B1108 - Stocks Hill - Marlingford Road - Bawburgh Road
			ACC_P_16	A47 - B1108 - Stocks Hill - Marlingford Road - Bawburgh Road
			ACC_P_15	A47 - B1108 - Bawburgh Road
			ACC_P_14	A47 - B1108 - Bawburgh Road
			11(A)	A47 - B1108
			ACC_P_13	A47 - B1108

Route Section	Description	Length / Kilometres	Accesses	Local Access Route
18	Woodland west of Little Melton to A11	4.1	10(A)	B1172 - Colney Lane - Burnthouse Lane – Haul Road
			9(A)	B1172 - Colney Lane - Burnthouse Lane – Haul Road
			ACC_P_12	B1172 - Colney Lane - Burnthouse Lane – Haul Road
			ACC_P_11	B1172 - Colney Lane - Burnthouse Lane – Haul Road
			ACC_P_10	B1172 - Colney Lane - Burnthouse Lane - Little Melton Road
			ACC_P_9	B1172 - Colney Lane - Burnthouse Lane - Little Melton Road
			8(A)	B1172 - Colney Lane - Burnthouse Lane
			7(A)	B1172 - Colney Lane - Burnthouse Lane
			ACC_P_8	B1172 - Colney Lane - Burnthouse Lane
			6(B)	B1172 - Colney Lane - Burnthouse Lane
			50(B)	B1172 - Colney Lane
			5(A)	B1172
			4(C)	B1172
			4(B)	B1172 - Station Lane
			3(B)	B1172 - Station Lane
19	A11 to woodland north west of Swardeston	2.49	2(B)	A11 - Station Lane
			ACC_P_7	A11 - Station Lane - Cantley Lane
			ACC_P_6	A11 - Station Lane - Cantley Lane
			ACC_P_5	A11 - Station Lane - Cantley Lane – Haul Road
			ACC_P_4	A11 - Station Lane - Cantley Lane – Haul Road
20	Woodland north west of Swardeston to B1113	1.68	ACC_P_3	A47 - B1113 - Haul Road
			ACC_P_2	A47 - B1113 - Haul Road
			1(B)	A47 - B1113
21	B1113 to end of onshore cable corridor	1.89	ACC_P_1	A47 - B1113
			ACC_P_A	B1113 - Mangreen Lane
			ACC_P_B	B1113 - Mangreen Lane
			ACC_P_C	A140 - Mangreen
			ACC_P_D	A140 - Mangreen
			A(B)	A140 - Mangreen

7.8.3.16 In terms of the wider distribution of HGVs, this is wholly dependent upon the procurement of materials at the time of construction.

7.8.3.17 Therefore, assumptions have been made which seek to make reasonable estimates, but which also seek to incorporate a level of robustness.

7.8.3.18 From a high-level perspective, the A11 and the A47 (west) offer the key strategic routes to/from the largest catchment areas and it is likely that the majority of HGV movements would be via these two roads. Other key roads from outside the study area are the A148 (west), the A47 (east), the A146 and the A140.

7.8.3.19 An estimated distribution of HGVs has concentrated movement along the A11 and the A47 (west) as follows:

- A11 – 35%;
- A47 (west) – 35%;
- A148 (west) – 10%;
- A47 (east) – 5%;
- A146 – 5%; and
- A140 – 10%.

7.8.3.20 There is potential for materials to originate from very localised areas within the study area. The above assumes all material originates from outside the study area. Such an assumption means that all HGVs travel through the maximum number of links within the study area and thus represents a worst case scenario.

7.8.3.21 If local trips were assumed, then HGVs would not all be assigned onto the wider parts of the network and thus may underestimate the number of HGV movements on both the trunk road network and parts of the local road network within the study area.

7.8.3.22 If local trips were assumed then there may also be some different turning movements at some junctions, however, these would balance out against different turning movements at other junctions.

7.8.3.23 It is recognised that the above is estimated using professional judgement based upon a high-level review of the highway network and the study area in advance of any procurement of materials etc. It is also recognised that there will likely be day-to-day variances in the movement of material throughout the programme based on the procurements in place and the resultant origins of materials. For example, an amount of material is sourced from one location, but when this amount is reached, material is then sourced from another location. This will change the movement of HGVs as the construction phase progresses and result in day-to-day variances.

7.8.3.24 To ensure this assessment accounts for these day-to-day variances, a methodology has been adopted that increases the proportion of trips from each origin.

7.8.3.25 For assessment purposes only, it has been assumed that approximately double the proportion of HGVs would originate from the above six links and thus allows for day-to-day variances along them. This effectively doubles the total number of HGVs generated by the proposals when all road links are considered together as it effectively approximately doubles the number of HGVs on each link and through each junction. Although this would not happen in practice (because an increase from one origin would be offset by a decrease from another origin), it allows for a robust assessment that allows for day-to-day variances when individual links and junctions are considered.

7.8.3.26 The assessments do consider each road link and each junction separately and therefore the assessment methodology adopted allows for day-to-day variances to be considered and the upper of that variance to be assessed.

7.8.3.27 The assessment distribution of HGVs is therefore as follows:

- A11 – 50%;
- A47 (west) – 50%;
- A148 (west) – 25%;
- A47 (east) – 25%;
- A146 – 25%;
- A140 – 25%; and
- Total – 200%.

7.8.3.28 As above, a distribution of 200 % would not occur in practice, however, they allow for day-to-day variances and a robust assessment of the impact of construction vehicles and therefore form the basis of all assessments.

7.8.3.29 Data from the 2011 Census has been utilised to estimate the potential origin of construction staff using location of usual residence and place of work for the Broadland, North Norfolk and South Norfolk areas.

7.8.3.30 The onshore cable corridor extends through the Broadland, North Norfolk and South Norfolk datasets. Resident locations for the cumulative daytime populations of these datasets have been identified and aggregated to establish potential origins of construction staff.

7.8.3.31 In a similar manner to the HGV distribution, resident locations from within Norwich were excluded from this analysis. This distributes staff origins from outside of the study area and thus maximises the number of links within the study area that have staff movements generated along them. This is because it forces all staff to arrive from outside the study area which maximises the number of road links they travel on within the study area. If staff were to originate from within the study area then those staff would not travel on road links between their origin and the outer edge of the study area.

7.8.3.32 This has resulted in the following construction staff distribution:

- A148 (west) – 8%;
- A47 (east) – 28%;
- A146 – 11%;
- A47 (west) – 7%;
- A1065 – 6%;
- A11 – 16%;
- A140 – 13%; and
- A140 corridor between Comer and Norwich – 12%.

7.8.3.33 The above construction staff distribution results in a relatively equal spread of movement and appears to be representative of the local tourism accommodation in the surrounding areas and also the built-up areas in the surrounding areas, which provides confidence that the assumptions are suitable for assessment purposes. This view has been identified by identifying the surrounding built up areas and large tourist accommodation areas on maps and forming a judgement.

7.8.3.34 The above assumes that all material and construction staff travel directly to/from the cable accesses, which also form the same accesses to the secondary compounds and storage areas located along the onshore cable corridor.

7.8.3.35 However, this assumption does not incorporate an estimate for vehicle movements to / from the main compound at Oulton Street.

7.8.3.36 Following the experiences at Hornsea Project One and other projects, it has been identified that a main compound is needed as part of the construction process to manage the construction activities and to act as a central base for the construction operations to ensure they progress efficiently. The main compound will be used for storage of some materials, for example cable drums, and will be the key base for management to co-ordinate the operations, and supporting the efficient and safe construction of the onshore cable corridor as a whole. The location for a main compound at Oulton Street has been identified.

7.8.3.37 To estimate a number of construction vehicle movements, the results of the above trip generation, distribution and assignment exercise has been utilised. The above results in daily construction vehicle movements being assigned onto each link.

7.8.3.38 These were then reviewed and those on the B1149 near Oulton were disaggregated to remove all traffic associated with landfall, the onshore HVDC converter/HVAC substation and the onshore HVAC booster station, since these all have their own separate compounds. HGVs associated with concrete pouring at link boxes and aggregate for the haul road and secondary compounds will all deliver direct to their respective locations and so these were also removed. The remaining construction vehicle movements are those that could travel to and from the main compound at Oulton Street.

7.8.3.39 This is of course theoretical and it is recognised that not all staff and not all HGVs would travel to the main compound. However, this is considered a reasonable methodology to estimate the number of movements based on the peak movement at any one time.

7.8.3.40 Full details of the construction programme are set out in volume 1, chapter 3: Project Description. In summary onshore work is planned to commence in 2021 but could start as early as 2020. Hornsea Three may be constructed in a single phase or two phases, including the potential for an overlap or a gap between the completion of construction of one phase and the start of construction of another. However, if the construction activities of any phases are overlapping, the construction durations and total values for individual parameters will never exceed those stated for a single phase (i.e. the number of vehicle movements generated would be the same). Under a two-phase programme scenario, there could be a three year gap between phases and the total duration of the onshore cable corridor construction, including this three year gap, would be eight years. Under a single-phase construction programme, the minimum duration of the cable construction would be three years.

7.8.3.41 The shorter timescale would give rise to the highest daily traffic flows; therefore these assumptions have been used to calculate the construction vehicle movements.

Vehicle trip movements (construction)

7.8.3.42 The daily construction vehicle movements have been assigned onto the network in accordance with the above and are set out in Table 7.12.[1]

7.8.3.43 It can be seen that on the basis of the maximum design scenario with 100% of the haul road surfaced with aggregate the average number of HGV movements, assuming they are spread over an 11 hour working day, would be a maximum of 13 per hour for cable section 21 (B1113 to the end of the onshore cable corridor) and, for all other cable sections, less than 13 HGV movements per hour.

7.8.3.44 Using the assumptions above to estimate the potential number of vehicle movements at the main compound at Oulton Street, this equates to a peak of 130 daily staff vehicle movements) and a peak of 118 daily HGV movements).

Table 7.12: Daily construction vehicle movements

Link	Construction Staff	HGVs	Total Vehicle Movements
Link ID 35: A148, west of The Street and east of Green Lane	139	377	517
Link ID 34: A148 west of Holt and east of Letheringsett	139	377	517
Link ID 36: A148, east of the B1149 roundabout and west of Station Road	84	297	380
Link ID 50: B1354 between the Swanton Road junction and B1110 junctions	0	0	0
Link ID 55: B1354 east of Melton Constable and west of Briston	0	0	0
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	137	373	511
Link ID 37: A148 at High Kelling, south of Kelling Hospital	84	297	380
Link ID 41: A148, east of Bodham and west of the Woodlands Leisure centre	244	439	684
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	322	495	817
Link ID 190: B1436, east of Felbrigg	322	495	817
Link ID 49: A140, south of Roughton and north of the Topshill Road junction	322	495	817
Link ID 1: A149 west of Weybourne and east of The Pheasant Hotel	0	0	0
Link ID 2: A149 east of Weybourne, west of the North Norfolk Railway Line	133	221	354
Link ID 81: A1067, north of Bridge Road and east of Little Ryburgh	71	214	285
Link ID 84: B1145 at Bawdeswell, between The Street junction and Hall Road junction	0	0	0

[1] Table shows all links for which traffic data is available within the initial study area. Some of these links do not have any construction traffic flows generated along them and these links are retained within the table to illustrate this.

Link	Construction Staff	HGVs	Total Vehicle Movements
Link ID 86: B1145, west of Reepham and east of the Old Lane junction	0	0	0
Link ID 90: B1145 east of Cawston, west of the B1149 crossroads	243	379	622
Link ID 77: B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	81	0	81
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	283	495	777
Link ID 111: A1067, between Attlebridge and the Fir Covert Road junction	275	356	631
Link ID 145: A140 between the A47 and B1113 junctions	317	528	845
Link ID 146: B1113, south of the A47 near Norwich Sports ground	317	528	845
Link ID 129: A47 at Honingham	161	412	573
Link ID 157: A47 at Bawburgh	175	412	587
Link ID 147: A47 at Intwood	418	552	970
Link ID 153: A11 at Hethersett	128	283	411
Link ID 144: A47, between A140 and A146 junctions	412	392	803
Link ID 197: A1065, North of Swaffham	94	259	353
Link ID 195: A1065, east of Weasenham	94	259	353
Link ID 195: A1082, South of Sheringham	133	221	354
Link ID 200: A1270 Northern Distributor Road between A1067 and B1149 junction	316	356	671
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	416	562	978
Link ID 201: A1270 Northern Distributor Road between B1149 and A140 junctions	448	622	1070
Link ID 204: A1270 Northern Distributor Road between A140 and A47 junctions	465	629	1093
Link ID 118: A140 between A1270 and B1145	283	495	777
Link ID 204: A1270 between A140 and A47 (Near junction with A47)	465	629	1093
Link ID 137: A47 East of A1270 junction	401	263	664

7.9 Impact assessment methodology

7.9.1 Overview

7.9.1.1 The traffic and transport EIA has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology. Specific to this chapter, the following guidance documents have also been considered:

- Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Management and Assessment (IEMA), 1993);
- Volume 11 – Environmental Impact Assessment of the Design Manual for Roads and Bridges (DMRB) (Highways Agency et al, 2008); and
- Guidance on TA, (DfT, 2007)[2].

Guidelines for the Environmental Assessment of Road Traffic

7.9.1.2 In accordance with the 'Guidelines for the Environmental Assessment of Road Traffic' (IEMA, 1993), the significance of effects has been assessed by considering the interaction between the magnitude of the impact and the sensitivity of the receptor in the vicinity of transport corridors. This assessment has compared the future baseline situation in the year of construction, taking into account other schemes that are likely to affect the future baseline condition in the year of construction, against a scenario which includes the development of Hornsea Three.

7.9.1.3 Consistent with the IEMA guidelines, the following has been considered in this chapter:

- Driver Delay;
- Severance of Routes;
- Pedestrian Delay;
- Pedestrian Amenity;
- Accidents and Road Safety; and
- Hazardous, Dangerous and Abnormal Loads.

[2] Although this guidance has since been withdrawn, it has not been replaced and in the absence of any such replacement remains a useful guide that is frequently referred to by Transport and Highways professionals.

Technical methodologies

7.9.1.4 The technical methodology for undertaking the assessment of transport impacts is based upon the IEMA Guidelines for the Environmental Assessment of Road Traffic, as set out above. A TA has been prepared in accordance with the guidance contained within the DfT's Guidance on Transport Assessment (2007), and accompanies this chapter at volume 6, annex 7.1: Transport Assessment.

7.9.1.5 The DfT guidance relates, in particular, to the description of existing transport conditions, the assessment of highway safety and public transport services, the identification of traffic growth forecasts, the derivation of generated traffic and the distribution and assignment of traffic.

7.9.1.6 The assessment of abnormal indivisible load movements is informed by the Road Vehicles (Construction and Use) Regulations 1986 (as amended) and the Road Vehicles (Authorisation of Special Types) (General) Order 2003. The ability of vehicles to negotiate links and junctions is assessed using the TRACK computer programme (Savoy Computing Services Ltd, 2012) that models the areas required to allow the passage of vehicles and loads.

Screening tests

7.9.1.7 In order to establish whether a highway link should be included as part of the detailed environmental assessment the following tests, that are set out in the IEMA Guidelines, are applied:

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of HGV will increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas where traffic flows will increase by 10% or more.

7.9.1.8 Based on the above, any link where changes in total traffic flows or HGV flows resulting from the development are predicted to be less than 10% and 30% respectively is screened out of the assessment. It should be noted that changes in total traffic flows of less than 10% are generally considered to be insignificant given that the daily variations in background traffic flows may fluctuate by this amount. Based on the above, any link where changes in total traffic flows are predicted to be less than 30% when not in a sensitive location are also screened out of the assessment.

7.9.1.9 On links where the predicted change in total traffic flows or HGV flows are in excess of 30% or on sensitive links where the predicted change in total traffic flows are between 10% and 30% have been carried forward and subjected to a more detailed level of assessment in relation to potential transport environmental effects.

7.9.2 Impact assessment criteria

7.9.2.1 The criteria for determining the significance of effects is a two-stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts. This section describes the criteria to be applied in this chapter to assign values to the sensitivity of receptors and the magnitude of potential impacts. The terms used to define sensitivity and magnitude are based on those used in the DMRB methodology, which is described in further detail in volume 1, chapter 5: Environmental Impact Assessment Methodology.

7.9.2.2 The criteria for defining sensitivity in this chapter are outlined in Table 7.13.

Table 7.13: Definition of terms relating to the sensitivity of the receptor.

Sensitivity	Definition used in this chapter
Very High	Very High: Those receptors with greatest sensitivity due to site-specific characteristics which make them particularly sensitive to changes in traffic flow (e.g. community with high incidence of mobility impairment requiring residents to cross roads to access essential facilities).
High	High: Receptors of high sensitivity to traffic flows (e.g. schools, colleges, playgrounds, accident black spots, urban/residential roads without footways that are used by pedestrians).
Medium	Medium: Receptors of medium sensitivity to traffic flows (e.g. congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycle ways, community centres, parks, recreation facilities, retirement homes).
Low (or lower)	Low: Receptors with some sensitivity to traffic flows (e.g. places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision).
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.

7.9.2.3 Links that are defined as high or very high sensitivity are deemed as sensitive, in accordance with the IEMA thresholds, and have been assessed against the rule 2 threshold. Links that are defined as medium low or negligible sensitivity are deemed as not being sensitive, in accordance with the IEMA thresholds, and have been assessed against the rule 1 threshold.

7.9.2.4 The criteria for defining magnitude in this chapter are outlined in Table 7.14.

Table 7.14: Definition of terms relating to the magnitude of an impact.

Magnitude of impact	Definition used in this chapter
Major	Substantial or total loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Severe delays to travellers (adverse).
	Large scale improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (beneficial).
Moderate	Moderate loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Severe delays to travellers (adverse).
	Moderate improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (beneficial).
Minor	Some measurable loss of capability for movement along and across transport corridors, some measurable loss of access to key facilities and some measurable loss of highway safety. Some measurable increase in delays to travellers (adverse).
	Some measurable increase in the capability for movement along and across transport corridors, some measurable increase in access to key facilities and some measurable increase in highway safety. Some measurable increase in delays to travellers. Reduced risk of negative impacts occurring (beneficial).
Negligible	Very minor loss of capability for movement along and across transport corridors, very minor loss of access to key facilities and very minor loss of highway safety. Very minor increase in delays to travellers (adverse).
	Very minor increase in capability for movement along and across transport corridors, very minor increase in access to key facilities and very minor increase in highway safety. Very minor decreases in delays to travellers (beneficial).
No change	No loss of capability for movement along and across transport corridors, no change of access to key facilities and highway safety. No delays to travellers.

7.9.2.5 The significance of the effect upon traffic and transport is determined by correlating the magnitude of the impact and the sensitivity of the receptor, as shown in Table 7.15. Where a range of significance of effect is presented in Table 7.15, the final assessment for each effect is based upon expert judgement.

7.9.2.6 For the purposes of this assessment, any effects with a significance level of minor or less will be concluded to be not significant in terms of the EIA Regulations.

Table 7.15: Matrix used for the assessment of the significance of the effect.

		Magnitude of impact				
Sensitivity of receptor		***No change***	***Negligible***	***Minor***	***Moderate***	***Major***
	Negligible	Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
	Low	Negligible	Negligible or minor	Negligible or minor	Minor	Minor or moderate
	Medium	Negligible	Negligible or minor	Minor	Moderate	Moderate or major
	High	Negligible	Minor	Minor or moderate	Moderate or major	Major or substantial
	Very high	Negligible	Minor	Moderate or major	Major or substantial	Substantial

7.9.3 Sensitivity of receptor

7.9.3.1 Table 7.16 highlights the qualification of the sensitivity assessment for each of the road links for which traffic flows are available and are subject to the EIA screening tests, in conjunction with the descriptions set out at volume 6, annex 7.3: Description of Network Links and Sensitivity. The sensitivity for each road link has been defined using Table 7.13 above, using professional judgement and by incorporating all receptor groups identified and discussed above.

Table 7.16: Sensitivity of Receptor

Receptor	Sensitivity	Qualification
Link ID 35: A148, west of The Street and east of Green Lane	Medium	Frontages, pedestrian footfall, high street shops
Link ID 34: A148 west of Holt and east of Letheringsett	Negligible	No sensitive receptors
Link ID 36: A148, east of the B1149 roundabout and west of Station Road	Negligible	No sensitive receptors
Link ID 50: B1354 between the Swanton Road junction and B1110 junctions	Negligible	No sensitive receptors
Link ID 55: B1354 east of Melton Constable and west of Briston	Medium	Residential area with narrow footways, frontages, on street parking narrowing effective width. Shared footway / cycleway, school
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	Medium	Narrow footways near residential area, park
Link ID 37: A148 at High Kelling, south of Kelling Hospital	Negligible	No sensitive receptors

Receptor	Sensitivity	Qualification
Link ID 41: A148, east of Bodham and west of the Woodlands Leisure centre	Negligible	No sensitive receptors
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	Medium	Narrow footways outside residences
Link ID 190: B1436, east of Felbrigg	Negligible	No sensitive receptors
Link ID 49: A140, south of Roughton and north of the Topshill Road junction	Negligible	No sensitive receptors
Link ID 1: A149 west of Weybourne and east of The Pheasant Hotel	High	Urban areas with no footways, high hedgerows limiting vis, church, no footways linking campsite to village / store / pub to village
Link ID 2: A149 east of Weybourne, west of the North Norfolk Railway Line	Negligible	No sensitive receptors
Link ID 81: A1067, north of Bridge Road and east of Little Ryburgh	Negligible	No sensitive receptors
Link ID 84: B1145 at Bawdeswell, between The Street junction and Hall Road junction	Medium	Residential area, car park for garden centre on opposite side of road
Link ID 86: B1145, west of Reepham and east of the Old Lane junction	Negligible	No sensitive receptors
Link ID 90: B1145 east of Cawston, west of the B1149 crossroads	Negligible	No sensitive receptors
Link ID 77: B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	Negligible	No sensitive receptors
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	Low	Frontages
Link ID 111: A1067, between Attlebridge and the Fir Covert Road junction	Negligible	No sensitive receptors
Link ID 145: A140 between the A47 and B1113 junctions	Negligible	No sensitive receptors
Link ID 146: B1113, south of the A47 near Norwich Sports ground	Negligible	No sensitive receptors
Link ID 129: A47 at Honingham	Negligible	No sensitive receptors
Link ID 157: A47 at Bawburgh	Negligible	No sensitive receptors
Link ID 147: A47 at Intwood	Negligible	No sensitive receptors
Link ID 153: A11 at Hethersett	Negligible	No sensitive receptors
Link ID 144: A47, between A140 and A146 junctions	Negligible	No sensitive receptors
Link ID 197: A1065, North of Swaffham	Negligible	No sensitive receptors
Link ID 195: A1065, east of Weasenham	Negligible	No sensitive receptors
Link ID 195: A1082, South of Sheringham	Negligible	No sensitive receptors
Link ID 200: A1270 Northern Distributor Road between A1067 and B1149 junction	Negligible	No sensitive receptors
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	Low	Residential area, wide footway
Link ID 201: A1270 Northern Distributor Road between B1149 and A140 junctions	Negligible	No sensitive receptors
Link ID 204: A1270 Northern Distributor Road between A140 and A47 junctions	Negligible	No sensitive receptors
Link ID 118: A140 between A1270 and B1145	Low	Frontages
Link ID 204: A1270 between A140 and A47 (Near junction with A47)	Negligible	No sensitive receptors
Link ID 137: A47 East of A1270 junction	Negligible	No sensitive receptors

7.10 Measures adopted as part of Hornsea Three

7.10.1.1 As part of the design process, a number of designed-in measures are proposed to reduce the potential for impacts on traffic and transport (see Table 7.17). As there is a commitment to implementing these measures, they are considered inherently part of the design of Hornsea Three and have therefore been considered in the assessment presented in section 7.11 below (i.e. the determination of magnitude and therefore significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development and will be secured as a requirement of the DCO.

Table 7.17: Designed-in measures adopted as part of Hornsea Three.

Measures adopted as part of Hornsea Three	Justification
Suitable HGV routes have been identified.	To avoid adverse effects on communities and road users.
Video condition surveys will be undertaken before HGVs make use of a section of road and after the substantial completion of works on minor links used by HGVs to access the Hornsea Three onshore cable corridor. Damage to the highway caused by construction traffic will be repaired.	To ensure that construction traffic has no lasting adverse impact on the condition of highways.
A route for abnormal indivisible loads will be identified between the SRN and the relevant onshore infrastructure (i.e. onshore HVAC booster station and HVDC converter/HVAC substation). The route, timing and method of transport of abnormal indivisible loads will be discussed and agreed with HE, the police and relevant highways and bridge authorities.	To avoid damage to inappropriate highways, to minimise delays and risks to road users and to avoid adverse impacts on local communities.
Working hours are set out in the Outline CoCP (document reference A8.5). For the Hornsea Three onshore cable corridor and substation core working hours are 07.00 to 18.00 on weekdays and 07.00 to 13.00 on Saturdays. Up to one hour before and after for mobilisation ("mobilisation period") (i.e. 06:00 to 19:00 weekdays and 06:00 to 14:00 Saturdays); and Maintenance period 13:00 to 17:00 Saturdays. Mobilisation does not include heavy good vehicle (HGV) movements into and out of sites, but suppliers can make use of the wider highway network outside these hours to travel to site. In certain circumstances, specific works may have to be undertaken on a continuous working basis (00:00 to 00:00 Monday to Sunday). During this continuous working basis period, the contractor may also run support generators, emergency backup supplies, undertake remedial works (for example in the event of severe weather) and operate security of sites and protection of open assets. It may be beneficial to carry out several activities outside of the standard working hours to utilise periods such as abnormal indivisible loads/construction plant delivery, works within the highway, footpaths, works affecting operational railways. Activities outside of the standard working hours will be agreed with the relevant local authority EHO officer in consultation.	The use of core construction hours will minimise noise impacts (see volume 3, chapter 8; Noise and Vibration), however in some circumstances extended or continuous working hours could be requested to reduce the magnitude of environmental impacts of construction (e.g. to increase safety, reduce driver delays or reduce the duration of impacts etc.).
Restrictions on HGV operating hours, along those sections of the highway network that provide access to local schools.	To minimise adverse impacts on local communities and vulnerable highway users.
Where there is a risk of mud being deposited on the road, wheel wash facilities will be provided at each construction site. These include dry wheel 'wash' facilities (rumble grids).	To eliminate risks to highway users resulting from mud and debris on the highway.
The progression of Temporary Traffic Regulation Orders for a temporary 30 mph speed restriction at every site access which does not already have such a speed limit.	To reduce vehicle speeds, improve driver awareness of construction activity and to minimise any potential road safety issues arising.
Measures to minimise dust and dirt associated with the movement of construction vehicles are set out in the Outline CoCP (document reference A8.5).	To minimise adverse air quality effects (see volume 3, chapter 9: Air Quality).
The provision of appropriate parking facilities for construction workers.	To eliminate risks associated with inappropriate parking.
Traffic management measures at those points where cable trenches are cut across highways or where existing access rights are affected.	To minimise delays to existing highway users and to maintain highway safety.
The diversion of footways or any other rights of way that may be affected by the construction works with closures only when absolutely necessary (see volume 3, chapter 6: Land Use and Recreation).	Closure of rights of way to minimise risks to members of the public resulting from construction works. Diversions minimise delays and inconvenience to pedestrians, cyclists and equestrians.
Monitor load sizes and vehicle usage and, where possible, load consolidation and delivery to construction sites using alternative vehicles. Encouragement to re-use HGVs wherever possible, such as backloading. Where suitable, local suppliers will be used to minimise the distance travelled by HGVs.	To minimise the impact on sensitive receptors.
Where possible the appointed contractor should seek to minimise overall vehicle movement generation through measures to encourage and promote sustainable travel and transport, for example by using a minibus to shuttle staff between key pick up locations and the compounds (main compound and secondary compounds).	To minimise overall emissions and to minimise other traffic and transport impacts.
Local management of vehicle movements to minimise the risks of vehicles meeting each other on narrow sections.	To minimise highway risk and possible delays.
The design of HGV accesses, including visibility standards and, where necessary, temporary speed restrictions on the adjacent highway will be agreed with the relevant Highway Authorities.	To maintain highway safety.

Measures adopted as part of Hornsea Three	Justification
At all vehicle accesses where accommodation works are undertaken to allow the movement of vehicles between the Hornsea Three onshore cable corridor and the highway the original highway will be reinstated after construction work is completed.	To ensure the ongoing safe and efficient functioning of the highway.
It is expected that a number of abnormal indivisible loads comprising large components such as transformers will be transported to the onshore HVDC converter/HVAC substation site. The haulage contractor appointed to undertake this work will be required to comply with statutory regulations in terms of consulting with HE, police and Local Highway Authorities. The notification requirements differ depending on the weight, length and width of the abnormal indivisible load.	To minimise disruption and driver delay.
The timing of abnormal indivisible load deliveries will be discussed with the relevant highway authorities to minimise delay for other road users and to minimise risk to highway users. The timing of abnormal indivisible load deliveries to the HVDC converter/HVAC substation will be discussed to ensure that there is no adverse impact on the access road in terms of delays to vehicles using the site.	To minimise disruption and driver delay.
The routeing of abnormal indivisible load deliveries will be agreed with the relevant highway authorities. The delivery of abnormal indivisible loads would typically be undertaken in convoy and under escort. Where abnormal indivisible loads require the full width of the carriageway or for unusual manoeuvres at junctions, appropriate temporary road closures and traffic management will be put in place as appropriate to maintain the safety of other road users.	To minimise disruption and driver delay.
An Outline CTMP (document reference A8.2) and an Outline CoCP (document reference A8.5), which establish the principles that any subsequent CTMPs and CoCPs will follow, are submitted with this application. The draft DCO submitted with the application requires that no phase of any works landward of MLWS may commence, until for that phase, a CoCP (which must accord with the outline CoCP) has been submitted to, and approved by, the relevant planning authority, in consultation with the relevant highway authority (and if applicable the MMO).	This is to minimise the impacts of construction vehicle movements associated with Hornsea Three and to manage those movements in a manner that road safety is maintained.
Depending on the times of construction of individual Hornsea Three onshore cable corridor sections, HGVs will avoid tourist routes where possible during peak holiday season (or avoid tourist routes where possible during peak hours of the day). Management measures will be captured in CTMPs which will be developed in consultation with Norfolk County Council as the Local Highway Authority and HE, prior to submission to the Local Planning Authorities for approval.	To seek to minimise any disruption during these periods.

7.10.1.2 Further details of the mitigation measures are set out in the Outline CoCP (document reference A8.5) that is included as part of the DCO application.

7.11 Assessment of significance

7.11.1 Construction phase

7.11.1.1 The potential impacts arising from the construction of Hornsea Three are listed in Table 7.9 along with the maximum design scenario against which each construction phase impact will be assessed. The impacts of the onshore construction of Hornsea Three have been assessed on traffic and transport.

7.11.1.2 The identification of the traffic and transport environmental effects impacts requires an assessment of the amount of traffic associated with construction activities and the significance of this additional traffic. Volume 6, annex 7.7: Traffic Flows with Construction Traffic contains base traffic flows with construction traffic flows.

7.11.1.3 The traffic flows are expressed as AADT. Total vehicle flows and HGV flows are shown.

7.11.2 Screening for further assessment of transport environmental impacts

7.11.2.1 Table 7.18 sets out the road links for which baseline traffic information is available and calculates the percentage change in daily two-way traffic flows during construction based upon the numbers of total vehicles and HGVs predicted as a result of Hornsea Three.

7.11.2.2 Table 7.18 is calculated by dividing the Hornsea Three construction traffic flows by the baseline traffic flows for the year 2022 (see section 7.7.10).

7.11.2.3 The baseline traffic flows are set out at volume 6, annex 7.3: Baseline Traffic Flows, the Hornsea Three construction traffic flows are set out in Table 7.12 and the baseline flows growthed for the year 2022 plus Hornsea Three traffic flows are set out at volume 6, annex 7.7 Traffic Flows with Construction Traffic.

Table 7.18: Impact of Hornsea Three Construction Traffic Flows.

Link	Percentage Change due to Hornsea Three Construction Traffic (maximum daily change)	
	Total Vehicles (%)	HGV (%)
Link ID 35: A148, west of The Street and east of Green Lane	3.7	45
Link ID 34: A148 west of Holt and east of Letheringsett	4.5	55
Link ID 36: A148, east of the B1149 roundabout and west of Station Road	3.1	48
Link ID 50: B1354 between the Swanton Road junction and B1110 junctions	0.0	0
Link ID 55: B1354 east of Melton Constable and west of Briston	0.0	0
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	11.3	216
Link ID 37: A148 at High Kelling, south of Kelling Hospital	2.7	43
Link ID 41: A148, east of Bodham and west of the Woodlands Leisure centre	5.2	62
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	5.7	77
Link ID 190: B1436, east of Felbrigg	8.5	101
Link ID 49: A140, south of Roughton and north of the Topshill Road junction	6.8	83
Link ID 1: A149 west of Weybourne and east of The Pheasant Hotel	0.0	0
Link ID 2: A149 east of Weybourne, west of the North Norfolk Railway Line	7.4	675
Link ID 81: A1067, north of Bridge Road and east of Little Ryburgh	3.0	39
Link ID 84: B1145 at Bawdeswell, between The Street junction and Hall Road junction	0.0	0
Link ID 86: B1145, west of Reepham and east of the Old Lane junction	0.0	0
Link ID 90: B1145 east of Cawston, west of the B1149 crossroads	17.9	298
Link ID 77: B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	1.7	0
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	4.9	66
Link ID 111: A1067, between Attlebridge and the Fir Covert Road junction	7.0	57
Link ID 145: A140 between the A47 and B1113 junctions	3.4	40
Link ID 146: B1113, south of the A47 near Norwich Sports ground	9.6	175
Link ID 129: A47 at Honingham	1.9	14
Link ID 157: A47 at Bawburgh	1.2	12
Link ID 147: A47 at Intwood	1.7	12
Link ID 153: A11 at Hethersett	0.8	6
Link ID 144: A47, between A140 and A146 junctions	1.5	12

Link	Percentage Change due to Hornsea Three Construction Traffic (maximum daily change)	
	Total Vehicles (%)	HGV (%)
Link ID 197: A1065, north of Swaffham	4.2	49
Link ID 195: A1065, east of Weasenham	6.3	77
Link ID 195: A1082, south of Sheringham	4.0	185
Link ID 200: A1270 northern Distributor Road between A1067 and B1149 junction	3.1	26
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	8.6	95
Link ID 201: A1270 northern Distributor Road between B1149 and A140 junctions	4.3	39
Link ID 204: A1270 northern Distributor Road between A140 and A47 junctions	4.8	43
Link ID 118: A140 between A1270 and B1145	5.2	102
Link ID 204: A1270 between A140 and A47 (Near junction with A47)	3.1	28
Link ID 137: A47 east of A1270 junction	1.5	9

7.11.2.4 In terms of total vehicle flows, only the: B1149 at Edgefield (11.3%) and B1145 east of Cawston and west of the B1149 crossroads (17.9%) exceed 10%, however, neither of these links are deemed as sensitive in accordance with the IEMA guidance. Therefore, as the change in total vehicle movements does not exceed 30%, this means that there is no requirement for further assessment of transport environmental impacts.

7.11.2.5 In terms of HGV movements, it can be seen that 23 road links experience increases in daily two-way flows over 30% and thus require further assessment of transport environmental impacts.

7.11.2.6 Of these 23 road links, five have receptors of low or medium sensitivity along them. In accordance with Table 7.13, which is based on the IEMA guidance, the remaining 18 road links have receptors of negligible sensitivity.

7.11.2.7 Table 7.15 sets out the possible effects that could occur at receptors of negligible sensitivity. For negligible magnitudes of impact, a negligible effect would be predicted; for a minor or moderate magnitude of impact a negligible or minor effect would be predicted; and for a major magnitude of impact, a minor effect would be predicted.

7.11.2.8 Therefore, even if a major (the highest category) magnitude of impact was predicted on these 18 road links, a minor effect would be predicted. Such an effect would be not significant. Therefore, the highest magnitude of impact on these 18 road links would result in effects that are not significant.

7.11.2.9 The assessment therefore focusses on the five road links where a significant impact could occur. These are summarised in Table 7.19.

Table 7.19: Key Links for Transport Environmental Assessment

Link	Sensitivity of Receptor	Percentage Change due to Hornsea Three Construction Traffic (maximum daily change)	
		Total Vehicles (%)	HGV (%)
Link ID 35: A148, west of The Street and east of Green Lane	Medium. Frontages, pedestrian footfall, high street shops	3.7	45
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	Medium. Narrow footways near residential area, park	11.3	216
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	Medium. Narrow footways outside residences	5.7	77
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	Low. Frontages	4.9	66
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	Low. Residential area, wide footway	8.6	95

The temporary impact of the construction works may affect driver delay

7.11.2.10 Driver delay can result from the following:

- An increase in traffic flows, particularly during peak hours resulting in increased queues on links and at junctions;
- The passage of slow moving vehicles such as abnormal indivisible loads; and
- Reduction in link capacity resulting from changes in carriageway width or other highway characteristics.

Magnitude of Impact

7.11.2.11 Volume 6, annex 7.1: Transport Assessment (sections 1.65 to 1.68) considers highway capacity and concludes that the construction of Hornsea Three would not create any severe impacts upon the operation of junctions on these five road links. This means that there would be negligible changes arising in relation to driver delay as a result of the construction vehicle movements.

7.11.2.12 The magnitude of impact in terms of driver delay resulting from additional traffic flows associated with the construction of Hornsea Three is therefore considered to be negligible short-term duration, continuous and fully reversible once works end.

7.11.2.13 The transport of abnormal indivisible loads is not expected to occur along the five links being considered here. However, it is recognised that the port of entry is not confirmed and neither is the transport route.

7.11.2.14 The transport of abnormal indivisible loads from the chosen port of entry to the onshore HVDC converter/HVAC substation site would be timed to minimise delays to other road users and would be controlled by the police (using their escort powers) to manage the abnormal indivisible loads and other road users accordingly to minimise driver delay. The magnitude of impact in terms of driver delay resulting from the transport of abnormal indivisible loads associated with the construction of Hornsea Three is therefore considered to be negligible.

7.11.2.15 Since the transport of abnormal indivisible loads would involve slow moving vehicles there would be some limited delay to other road users, which would be of short term duration, intermittent.

7.11.2.16 Operations such as the establishment of accesses may require temporary shuttle working or traffic control and these are likely to require temporary traffic signals. This would introduce some driver delay. These five road links are lightly trafficked routes and so there is low conflict between oncoming vehicles that would have to give way to one-another via traffic control, therefore the magnitude of delay would be negligible.

7.11.2.17 It is predicted that the impact would affect receptors directly. Driver delay impacts would be fully reversible once construction works are completed.

7.11.2.18 The impact is predicted to be of local spatial extent, short term duration, intermittent and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be negligible.

Sensitivity of the Receptor

7.11.2.19 The road links being considered are lightly trafficked and on typical days do not suffer from congestion. There is therefore low vulnerability with regards to driver delay.

7.11.2.20 There are a range of similar parallel or alternative routes to the roads adjacent to the onshore cable corridor with good connectivity. Therefore, the sensitivity of links that are predicted to carry construction traffic, in terms of driver delay, is considered to be low and due to the availability of alternative routes, low value.

7.11.2.21 The sensitivity of links along which abnormal indivisible loads could travel is considered to be low to medium for these same reasons.

7.11.2.22 The sensitivity of road links affected by the introduction of temporary shuttle working or traffic control in terms of driver delay is likely to be low to medium for these same reasons.

7.11.2.23 It is predicted that these effects would affect receptors directly.

7.11.2.24 The road links are deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptor is therefore, considered to be low.

Significance of the Effect

7.11.2.25 Overall, it is predicted that the sensitivity of the receptor is considered to be low and the magnitude is deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect severance of routes

7.11.2.26 Severance is only likely to occur on highly trafficked roads and result from the perceived division the road and traffic creates between communities on either side.

7.11.2.27 The IEMA guidance set out above identifies that increases in total traffic volumes of between 30 % and 60 % could result in a slight impact (the lowest category) upon severance.

Magnitude of Impact

7.11.2.28 The change in traffic flow as a result of the construction traffic on the five road links are all significantly lower than the 30 % that the IEMA guidance sets out is required for a slight effect (the lowest category) to occur.

7.11.2.29 The impact is predicted to be of local spatial extent, short term duration, intermittent and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be negligible.

Sensitivity of the Receptor

7.11.2.30 The five road links being considered consist of some built up areas forming small communities and therefore the vulnerability and value of the receptor with regards to severance is medium but fully recoverable.

7.11.2.31 The communities along the road links are deemed to be of medium vulnerability, fully recoverable and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the Effect

7.11.2.32 Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect pedestrian delay

7.11.2.33 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. The IEMA guidance set out above notes that studies have shown that pedestrian delay is perceptible or considered significant beyond a delay threshold of 10 seconds, for a link with no crossing facilities. It goes on to say that a 10 second pedestrian delay in crossing a road broadly equates to a two-way link flow of approximately 1,400 vehicles per hour. This means that where two-way traffic flows on a road exceed 1,400 vehicle movements per hour, then a pedestrian seeking to cross that would perceive a delay.

Magnitude of Impact

7.11.2.34 To consider the potential for pedestrian delay to occur on the five road links, the base peak hour traffic flow for each has been set out below and summarised in Table 7.20 along with the with construction traffic flows and the resultant change in predicted pedestrian delay.

Table 7.20: Summary of Change in Pedestrian Delay.

Link	Baseline		Baseline plus Hornsea Three		Change in Pedestrian Delay (s)
	Traffic Flow (max hourly)	Pedestrian Delay (s)	Traffic Flow (max hourly)	Pedestrian Delay (S)	
Link ID 35: A148, west of The Street and east of Green Lane	1,409	10.1	1,443	10.3	0.2
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	441	3.2	475	3.4	0.2
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	1,586	11.3	1,631	11.6	0.3
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	1,410	10.1	1,455	10.4	0.3
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	1,140	8.1	1,191	8.5	0.4

7.11.2.35 Link ID 35: A148, west of The Street and east of Green Lane: Maximum of 1,409 increasing to 1,443 two-way vehicle movements per hour. Maximum pedestrian delay of 10.1 seconds increasing to 10.3 seconds. Change in maximum pedestrian delay of 0.2 seconds.

7.11.2.36 Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road: Maximum of 441 increasing to 475 two-way vehicle movements per hour. Maximum pedestrian delay of 3.2 seconds increasing to 3.4 seconds. Change in maximum pedestrian delay of 0.2 seconds.

7.11.2.37 Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction: Maximum of 1,586 increasing to 1,631 two-way vehicle movements per hour. Maximum pedestrian delay of 11.3 seconds increasing to 11.6 seconds. Change in maximum pedestrian delay of 0.3 seconds.

7.11.2.38 Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham: Maximum of 1,410 increasing to 1,455 two-way vehicle movements per hour. Maximum pedestrian delay of 10.1 seconds increasing to 10.4 seconds. Change in maximum pedestrian delay of 0.3 seconds.

7.11.2.39 Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions: Estimated maximum of 1,140 increasing to 1,191 two-way vehicle movements per hour. Maximum pedestrian delay of 8.1 seconds increasing to 8.5 seconds. Change in maximum pedestrian delay of 0.4 seconds.

7.11.2.40 The above shows that pedestrian delay along two of the road links (Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road and Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions) is lower than that which would be perceived and would remain as such. Therefore, the magnitude of change on these two road links would be negligible.

7.11.2.41 For the other three road links (Link ID 35: A148, west of The Street and east of Green Lane, Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction and Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham), the maximum change in pedestrian delay would be 0.3 seconds which would be difficult to perceive. Therefore, the magnitude of change on these three road links would also be negligible.

7.11.2.42 The impact is predicted to be of local spatial extent, short term duration, intermittent and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be negligible.

Sensitivity of the Receptor

7.11.2.43 The five road links being considered consist of some built up areas forming small communities where there is pedestrian activity and demand for crossing the roads. Therefore, the vulnerability and value of the receptor with regards to pedestrian delay is medium but fully recoverable.

7.11.2.44 The communities are deemed to be of medium vulnerability, fully recoverable and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the Effect

7.11.2.45 Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect pedestrian amenity

7.11.2.46 The term pedestrian amenity is broadly defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and footway width and separation from traffic.

7.11.2.47 The IEMA guidance refers to a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled.

Magnitude of Impact

7.11.2.48 In terms of total vehicle movements, the above sets out a maximum increase on the five links of 11.3%. Therefore, in accordance with the IEMA guidance, this on its own should not result in any significant changes in pedestrian amenity.

7.11.2.49 To consider the magnitude of change for pedestrian amenity on the five road links in relation to HGVs, the daily base HGV flow for each has been set out below along with the with construction traffic flows and the resultant change.

7.11.2.50 Link ID 35: A148, west of The Street and east of Green Lane: 838; increase of 377 to 1,215 two-way HGV movements per day; increase of 45%.

7.11.2.51 Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road: 173; increase of 373 to 546 two-way HGV movements per day; increase of 216%.

7.11.2.52 Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction: 645; increase of 495 to 1,140 two-way HGV movements per day; increase of 77%.

7.11.2.53 Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham: 750; increase of 495 to 1,245 two-way HGV movements per day; increase of 45%.

7.11.2.54 Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions: 594; increase of 562 to 1,156 two-way HGV movements per day; increase of 95%.

7.11.2.55 The above shows that three road links (Link ID 35: A148, west of The Street and east of Green Lane, Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction and Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham) are well beneath the doubling of HGV component that the IEMA guidance refers to and it is considered that the magnitude of change on these would be negligible.

7.11.2.56 For the remaining two road links (Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road and Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions), the IEMA guidance has been referred to where it sets out that one component of pedestrian amenity is fear and intimidation. It refers to a study which sets out that moderate (the lowest category of fear and intimidation which does not directly relate to the terminology of the magnitude of impact in Table 7.14) fear and intimidation[3] could be experienced when there are between 1,000 and 2,000 HGVs over an 18 hour day.

7.11.2.57 For link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road, there would be 173 two-way HGV movements per day, increasing to 546 two-way HGV movements per day. This is well within this range and it is considered that the magnitude of change on this road link would be negligible.

7.11.2.58 For link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions, there would be 594 two-way HGV movements per day increasing to 1,156 two-way HGV movements per day. The change suggests that the peak construction would take fear and intimidation of HGVs into the lowest category of moderate. It is considered that the magnitude of change on this road link would be minor (i.e. the lowest category of the magnitude of impact in Table 7.14).

7.11.2.59 The impact is predicted to be of local spatial extent, short term duration, continuous and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be negligible to minor.

Sensitivity of the Receptor

7.11.2.60 The five road links being considered consist of some built up areas forming small communities where there is pedestrian activity. Therefore, the vulnerability and value of the receptor with regards to pedestrian amenity is medium but fully recoverable.

7.11.2.61 The communities are deemed to be of medium vulnerability, fully recoverable and medium value. The sensitivity of the receptor is therefore, considered to be medium.

[3] The IEMA guidelines set out that when fear and intimidation occurs it is categorised as moderate (the lowest category), great (the median category) and extreme (the highest category). These categories do not directly relate to the magnitude of impacts set out in Table 7.14, however, professional judgement can be applied ben considering the impact to fear and intimidation.

Significance of the Effect

7.11.2.62 Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be negligible to minor. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect accidents and road safety

Magnitude of Impact

7.11.2.63 The impact of construction work in terms of road safety affects receptors directly and would be short-term, continuous and fully reversible once construction work is complete.

7.11.2.64 The magnitude of increase in total vehicle movements on the five road links is negligible/low (see Table 7.19).

7.11.2.65 An analysis of injury accident rates has been undertaken above and all five of these road links had a rate lower than the national average injury accident rate. It was therefore concluded that there is no injury accident problem on these road links, that they currently operate in a safe manner and thus there is no road safety concerns with the layout of the road network.

7.11.2.66 The construction works would generate vehicle classifications that are already generated on these road links.

7.11.2.67 There would be a temporary increase in the proportion of HGVs on these road links. Such HGV movements would be under contract and would be under the construction traffic management conditions and measures. There is no reason to suggest that the HGVs would travel in a manner that is unsafe or that the injury accident rate would change.

7.11.2.68 The impact is predicted to be of local spatial extent, short term duration, intermittent and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

7.11.2.69 An analysis of injury accident rates showed that these road links operate in a safe manner with an injury accident rate lower than the national average.

7.11.2.70 It is considered that the vulnerability and value of the receptor with regards to accidents and road safety is low but fully recoverable.

7.11.2.71 The road users are deemed to be of medium vulnerability, fully recoverable and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the Effect

7.11.2.72 Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect hazardous, dangerous and abnormal indivisible loads

7.11.2.73 It is expected that some abnormal indivisible loads would be transported to the onshore HVDC converter/HVAC substation and HVAC booster station areas. The abnormal indivisible loads are expected to be components that exceed standard load weight and possibly exceed standard width and height.

7.11.2.74 The Port of entry would be chosen based on it being capable of accepting abnormal indivisible loads, in which case, the roads leading to the port would receive abnormal indivisible loads regularly.

Magnitude of Impact

7.11.2.75 The passage of abnormal indivisible loads would be discussed with the relevant highway authorities and police authority prior to delivery and measures adopted to ensure that the movement is undertaken safely and with minimal delay for other highway users.

7.11.2.76 Depending on the width, length or weight of the vehicle, different notice periods have to be provided to HE, Bridge Authorities and the Police. These can vary between two and five days. The following activities would need to be undertaken in accordance with the Road Vehicles (Authorisation of Special Types) Order 2003 (STGO):

- Before the start of any journey, notify in accordance with Schedule 5 the chief office of Police for each area in which the vehicle or vehicle-combination is to be used;
- Ensure that the vehicle or vehicle-combination is used in accordance with the requirements of that Schedule; and
- Ensure that the vehicle or vehicle-combination is accompanied during the journey by one or more attendants employed in accordance with Schedule 6.

7.11.2.77 The impact in relation to the transport of abnormal indivisible loads would be short-term and intermittent and would affect receptors directly.

7.11.2.78 The magnitude of the impact of abnormal indivisible loads would be negligible since the number of abnormal indivisible load movements would be low, each load would be present on the network for a short period of time and standard measures applied in terms of route, timing and method of delivering to minimise delays to other highway users.

7.11.2.79 The impact is predicted to be of local spatial extent, short term duration, intermittent and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

7.11.2.80 The access used by the abnormal invisible load would necessarily be of good standard to accommodate the transport delivery vehicles.

7.11.2.81 Any restrictions would also necessarily be removed to accommodate the transport delivery vehicles and they would travel under controlled environments.

7.11.2.82 The passage of abnormal indivisible loads would, however, lead to some limited driver delay as the loads would move slowly. The sensitivity of the public roads to the passage of abnormal indivisible loads is therefore considered to be low.

7.11.2.83 It is considered that the vulnerability and value of the receptor with regards to abnormal indivisible loads is low but fully recoverable.

7.11.2.84 Given the controlled environment, the road users are deemed to be of negligible vulnerability, fully recoverable and negligible value. The sensitivity of the receptor is therefore, considered to be negligible.

Significance of the Effect

7.11.2.85 Overall, it is predicted that the sensitivity of the receptor is considered to be negligible and the magnitude is deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

Future monitoring

7.11.2.86 No traffic and transport monitoring, to test the predictions made within the construction phase, is considered necessary.

7.11.3 Operation and maintenance phase

7.11.3.1 For the reasons set out in section 7.8.2, an assessment of this phase has been scoped out.

7.11.4 Decommissioning phase

The temporary impact of the decommissioning works may affect driver delay, severance of routes, pedestrian amenity, accidents and road safety, and hazardous, dangerous and abnormal indivisible loads

7.11.4.1 Impacts during the decommissioning phase of the onshore HVAC booster station and onshore HVDC converter/HVAC substation would be of a very similar nature to those described under the construction phase (see paragraphs 7.11.2.11 to 7.11.2.85). Vehicle movements generated during the decommissioning phase will generally be lower than those during the construction phase. Therefore, the assessment of the decommissioning phase as follows has been undertaken on precautionary basis.

7.11.4.2 Overall, it is predicted that the sensitivities of the receptor are considered to be low and the magnitudes are deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms. For pedestrian amenity it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be negligible to minor. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

Future monitoring

7.11.4.3 No traffic and transport monitoring, to test the predictions made within the decommissioning phase, is considered necessary.

7.12 Cumulative Effect Assessment methodology

7.12.1 Screening of other projects and plans into the Cumulative Effect Assessment

7.12.1.1 The Cumulative Effect Assessment (CEA) takes into account the impact associated with Hornsea Three together with other projects and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise undertaken as part of the 'CEA long list' of projects (see volume 4, annex 5.2: Cumulative Effects Screening Matrix and volume 4, annex 5.3 Location of Cumulative Schemes). Each project on the CEA long list has been considered on a case by case basis for scoping in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

7.12.1.2 In undertaking the CEA for Hornsea Three, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside Hornsea Three. For example, relevant projects and plans that are already under construction are likely to contribute to cumulative impact with Hornsea Three (providing effect or spatial pathways exist), whereas projects and plans not yet approved or not yet submitted are less certain to contribute to such an impact, as some may not achieve approval or may not ultimately be built due to other factors. For this reason, all relevant projects and plans considered cumulatively alongside Hornsea Three have been allocated into 'Tiers', reflecting their current stage within the planning and development process. This allows the CEA to present several future development scenarios, each with a differing potential for being ultimately built out. Appropriate weight may therefore be given to each Tier in the decision-making process when considering the potential cumulative impact associated with Hornsea Three (e.g. it may be considered that greater weight can be placed on the Tier 1 assessment relative to Tier 2). An explanation of each tier is included below:

- Tier 1: Hornsea Three considered alongside:
  - Other project/plans[4] currently under construction and/or;
  - Those with consent, and, where applicable (i.e. for low carbon electricity generation projects), that have been awarded a Contract for Difference (CFD) but have not been implemented; and/or
  - Those currently operational that were not operational when baseline data was collected, and/or those that are operational but have an on-going impact.
- Tier 2: All projects/plans considered in Tier 1, as well as:
  - Those project/plans that have consent but, where relevant (i.e. for low carbon electricity generation projects) have no CFD; and/or
  - Submitted but not yet determined.
- Tier 3: All projects/plans considered in Tier 2, as well as those on relevant plans and programmes likely to come forward but have not yet submitted an application for consent (the Planning Inspectorate (PINS) programme of projects and the adopted development plan including supplementary planning documents are the most relevant sources of information from the relevant planning authorities regarding planned major works being consulted upon, but not yet the subject of a consent application). Specifically, this Tier includes all projects where the developer has advised PINS in writing that they intend to submit an application in the future, those projects where a Scoping Report is available and/or those projects which have published a PEIR.

7.12.1.3 It is noted that offshore wind farms seek consent for a maximum design scenario and the as built offshore wind farm will be selected from the range of consented scenarios. In addition, the maximum design scenario quoted in the application (and the associated Environmental Statement) are often refined during the determination period of the application. For example, it is noted that the Applicant for Hornsea Project One considered a maximum of 332 turbines within the Environmental Statement, but has gained consent for 240 turbines. Similarly, Hornsea Project Two has gained consent for an overall maximum number of turbines of 300, as opposed to 360 considered in the Environmental Statement and the as built number of turbines is likely to be less than this. A similar pattern of reduction in the project envelope from that assessed in the Environmental Statement, to the consented envelope and the 'as built' project is also seen across other offshore wind farms of relevance to this CEA. This process of refinement can result in a reduction to associated project parameters, for example, the number of cable trenches or the height of onshore substations. The CEA presented in this traffic and transport chapter has been undertaken on the basis of information presented in the Environmental Statements for the other projects, plans and activities. Given that this broadly represents a maximum design scenario, the level of impact on traffic and transport would likely be reduced from those presented here

7.12.1.4 The specific projects scoped into this CEA and the Tiers into which they have been allocated, are outlined in Table 7.21. The projects included as operational in this assessment have been commissioned since the baseline studies for Hornsea Three were undertaken and as such were excluded from the baseline assessment

7.12.1.5 No Tier 1 projects have been identified and therefore, only Tier 2 and 3 assessments have been undertaken.

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[4] 'Other projects/plans' are major developments as defined in the Town and Country Planning (Development Management Procedure) Order 2010, or as a Nationally Significant Infrastructure project under the Planning Act 2008.

Table 7.21: List of other projects and plans considered within the CEA.

Tier	Phase	Project/Plan	Distance from Hornsea Three	Details	Date of Construction (if applicable)	Overlap of construction phase with Hornsea Three construction phase	Overlap of operation phase with Hornsea Three operation and maintenance phase
2	Construction/Operation and Maintenance/Decommissioning	2014/2611	0 m	The erection of 890 dwellings; the creation of a village heart to feature an extended primary school, a new village hall, a retail store and areas of public open space; the relocation and increased capacity of the allotments; and associated infrastructure including public open space and highway works. Approved 1 November 2016	2018 to 2028	Yes	Yes
	Construction/Operation and Maintenance/Decommissioning.	2011/1804/O	0 m	Residential led mixed use development of 1196 dwellings and associated uses including Primary School, Local Services (up to 1,850 sq.mtrs (GIA) of A1, A2, A3, A4, A5, D1 & B1 uses) comprising shops, small business units, community facilities/ doctors' surgeries, sports pitches, recreational space, equipped areas of play and informal recreational spaces. Extension to Thickthorn Park and Ride including new dedicated slip road from A11. Approved 22 July 2013	2017 to 2026	Yes	Yes
	Construction/Operation and Maintenance/Decommissioning.	2012/1880	1.16 km	Proposed offices, laboratories and academic space for principally research and development activities, buildings for health and health related uses and buildings for further ancillary uses. Associated car parking, access infrastructure, internal accesses and strategic landscaping. Approved 09 April 2013	2017 to 2026	Yes	Yes
	Construction/Operation and Maintenance/Decommissioning	2013/1494	1.21 km	Outline planning application with all matters reserved (save access) for the creation of up to 650 residential dwellings (use class C3), up to 2,500 sq.mtrs of use class A1, A2, A3, A4, A5 and D1 floorspace, together with highways works, landscaping, public realm, car parking and other associated works. Appeal allowed 7 January 2016	2019 to 2024	Yes	Yes
	Construction/Operation and Maintenance/Decommissioning	2013/1793	1.64 km	Outline planning permission for a development for up to 650 dwellings together with a small local centre, primary school with early years facility, two new vehicular accesses off Colney Lane, associated on-site highways, pedestrian and cycle routes, public recreational open space, allotments, landscape planting and community woodland. Approved 20 July 2016	2019 to 2027	Yes	Yes

Tier	Phase	Project/Plan	Distance from Hornsea Three	Details	Date of Construction (if applicable)	Overlap of construction phase with Hornsea Three construction phase	Overlap of operation phase with Hornsea Three operation and maintenance phase
	Construction/Operation and Maintenance/Decommissioning.	2012/1477	1.84 km	Outline application for new offices and laboratories for research and development activities along with ancillary and complimentary uses with access from Colney Lane and Hethersett Lane and all other matters reserved. Demolition and re-provision of existing buildings. Associated car parking, infrastructure, internal accesses, landscaping and cycle parking. Approved 13 June 2013	2017 to 2026	Yes	Yes
	Construction/Operation and Maintenance/Decommissioning	20140883	1.93 km	Proposed Dual Carriageway between A1067 Fakenham Road Nr Attlebridge & A47 Trunk Road, Postwick (NDR) Approved 29 June 2015	Completion in 2018	No	Yes
	Construction/Operation and Maintenance/Decommissioning	PO/16/0253	2.08 km	Erection of up to 215 dwellings, employment land (A3, A4, B1, B2, B8, C1, C2, D1 and D2 class uses), public open space and provision of roundabout and vehicular link road from Cromer Road (A148) to Heath Drive with associated landscaping and infrastructure (Outline application) Approved 15 August 2016 (PM/16/1204) of appearance, landscaping, layout and scale; for erection of 214 dwellings, public open space, highway and other infrastructure, in respect of outline planning application PO/16/0253. Approved 16 March 2017	2019 to 2025	Yes	Yes
3	Construction/Operation and Maintenance/Decommissioning	EN010079	0 m	Norfolk Vanguard Offshore Wind Farm Pre-application stage PEIR October 2017	2020 to 2024	Yes	Yes

7.12.2 Maximum design scenario

7.12.2.1 The maximum design scenarios identified in Table 7.22 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative impact presented and assessed in this section have been selected from the details provided in the Hornsea Three project description (volume 1, chapter 3: Project Description), as well as the information available on other projects and plans, in order to inform a 'maximum design scenario'. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the project Design Envelope (e.g. different turbine layout), to that assessed here be taken forward in the final design scheme.

Table 7.22: Maximum design scenario considered for the assessment of potential cumulative impacts on traffic and transport.

Potential impact	Maximum design scenario	Justification
Construction phase		
Construction traffic generation	Inclusion of all cumulative schemes: • PO/16/0253; • 20140883; • 2012/1477; • 2013/1793; • 2013/1494; • 2012/1880; • 2011/1804/O • 2014/2611; and • EN010079.	Inclusion of all sites maximises the cumulative traffic generation and therefore maximises the CEA.

7.13 Cumulative Effect Assessment

7.13.1.1 The estimated traffic generation from the Tier 2 and Tier 3 developments have been taken from their respective transport document submissions. These have then been added to the Hornsea Three construction traffic flows and assessed against the baseline traffic flows set out in volume 6, annex 7.3: Baseline Traffic Flows. The resultant cumulative percentage impacts for Tier 2 and for Tier 3 (including Tier 2) developments are calculated in Table 7.23 and Table 7.25 respectively (the corresponding percentage impacts for Hornsea Three are set out in Table 7.18). The cumulative developments would not generate traffic on all of the links being assessed and so some of the percentage impacts in Table 7.23 and Table 7.25 are the same as Table 7.18.

7.13.1.2 There are no Tier 1 developments relevant to traffic and transport and so these are not considered any further.

Table 7.23: Cumulative Impact (Tier 2).

Link	Percentage Change due to Hornsea Three Construction Traffic (maximum daily change) Plus Tier 2 Developments	
	Total Vehicles (%)	HGV (%)
Link ID 35: A148, west of The Street and east of Green Lane	3.7	45
Link ID 34: A148 west of Holt and east of Letheringsett	4.5	55
Link ID 36: A148, east of the B1149 roundabout and west of Station Road	21.6	49
Link ID 50: B1354 between the Swanton Road junction and B1110 junctions	0.0	0
Link ID 55: B1354 east of Melton Constable and west of Briston	0.0	0
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	11.3	216
Link ID 37: A148 at High Kelling, south of Kelling Hospital	19.5	43
Link ID 41: A148, east of Bodham and west of the Woodlands Leisure centre	5.2	62
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	5.7	77
Link ID 190: B1436, east of Felbrigg	8.5	101
Link ID 49: A140, south of Roughton and north of the Topshill Road junction	6.8	83
Link ID 1: A149 west of Weybourne and east of The Pheasant Hotel	0.0	0
Link ID 2: A149 east of Weybourne, west of the North Norfolk Railway Line	7.4	675
Link ID 81: A1067, north of Bridge Road and east of Little Ryburgh	3.0	39
Link ID 84: B1145 at Bawdeswell, between The Street junction and Hall Road junction	0.0	0
Link ID 86: B1145, west of Reepham and east of the Old Lane junction	0.0	0
Link ID 90: B1145 east of Cawston, west of the B1149 crossroads	17.9	298

Link	Percentage Change due to Hornsea Three Construction Traffic (maximum daily change) Plus Tier 2 Developments	
	Total Vehicles (%)	HGV (%)
Link ID 77: B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	1.7	0
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	4.9	66
Link ID 111: A1067, between Attlebridge and the Fir Covert Road junction	7.0	57
Link ID 145: A140 between the A47 and B1113 junctions	3.4	40
Link ID 146: B1113, south of the A47 near Norwich Sports ground	9.6	175
Link ID 129: A47 at Honingham	7.7	14
Link ID 157: A47 at Bawburgh	12.4	12
Link ID 147: A47 at Intwood	7.1	12
Link ID 153: A11 at Hethersett	7.4	6
Link ID 144: A47, between A140 and A146 junctions	1.5	12
Link ID 197: A1065, North of Swaffham	4.2	49
Link ID 195: A1065, east of Weasenham	6.3	77
Link ID 195: A1082, South of Sheringham	4.0	185.1
Link ID 200: A1270 Northern Distributor Road between A1067 and B1149 junction	3.1	26
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	8.6	95
Link ID 201: A1270 Northern Distributor Road between B1149 and A140 junctions	4.3	39
Link ID 204: A1270 Northern Distributor Road between A140 and A47 junctions	4.8	43
Link ID 118: A140 between A1270 and B1145	5.2	102
Link ID 204: A1270 between A140 and A47 (Near junction with A47)	3.1	28
Link ID 137: A47 East of A1270 junction	1.5	9

Table 7.24: Cumulative Impact (Tier 3, including Tier 2).

Link	Percentage Change due to Hornsea Three Construction Traffic (maximum daily change) Plus Tier 3 (including Tier 2) Developments	
	Total Vehicles (%)	HGV (%)
Link ID 35: A148, west of The Street and east of Green Lane	8.8	121
Link ID 34: A148 west of Holt and east of Letheringsett	10.7	146
Link ID 36: A148, east of the B1149 roundabout and west of Station Road	25.7	103
Link ID 50: B1354 between the Swanton Road junction and B1110 junctions	0.0	0
Link ID 55: B1354 east of Melton Constable and west of Briston	0.0	0
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	14.4	277
Link ID 37: A148 at High Kelling, south of Kelling Hospital	22.9	104
Link ID 41: A148, east of Bodham and west of the Woodlands Leisure centre	8.8	121
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	9.0	142
Link ID 190: B1436, east of Felbrigg	11.7	156
Link ID 49: A140, south of Roughton and north of the Topshill Road junction	12.1	155
Link ID 1: A149 west of Weybourne and east of The Pheasant Hotel	0.0	0
Link ID 2: A149 east of Weybourne, west of the North Norfolk Railway Line	7.4	675
Link ID 81: A1067, north of Bridge Road and east of Little Ryburgh	5.0	63
Link ID 84: B1145 at Bawdeswell, between The Street junction and Hall Road junction	1.7	0
Link ID 86: B1145, west of Reepham and east of the Old Lane junction	1.9	0
Link ID 90: B1145 east of Cawston, west of the B1149 crossroads	25.3	416

Link	Percentage Change due to Hornsea Three Construction Traffic (maximum daily change) Plus Tier 3 (including Tier 2) Developments	
	Total Vehicles (%)	HGV (%)
Link ID 77: B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	2.9	0
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	7.5	90
Link ID 111: A1067, between Attlebridge and the Fir Covert Road junction	10.6	94
Link ID 145: A140 between the A47 and B1113 junctions	3.4	40
Link ID 146: B1113, south of the A47 near Norwich Sports ground	9.6	175
Link ID 129: A47 at Honingham	8.9	19
Link ID 157: A47 at Bawburgh	13.1	16
Link ID 147: A47 at Intwood	7.6	15
Link ID 153: A11 at Hethersett	7.4	6
Link ID 144: A47, between A140 and A146 junctions	2.0	17
Link ID 197: A1065, North of Swaffham	6.8	84
Link ID 195: A1065, east of Weasenham	7.7	94
Link ID 195: A1082, South of Sheringham	4.0	185
Link ID 200: A1270 Northern Distributor Road between A1067 and B1149 junction	4.4	43
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	10.0	112
Link ID 201: A1270 Northern Distributor Road between B1149 and A140 junctions	5.4	54
Link ID 204: A1270 Northern Distributor Road between A140 and A47 junctions	7.0	77
Link ID 118: A140 between A1270 and B1145	7.9	140
Link ID 204: A1270 between A140 and A47 (Near junction with A47)	4.5	50
Link ID 137: A47 East of A1270 junction	2.9	30

7.13.1.3 For Tier 2, these developments are all commercial, residential or residential led. Their respective transport submissions set out the traffic generation for each of them and estimated private car trips on a daily basis. There are no HGV generations.

7.13.1.4 As a result, a cumulative assessment with Hornsea Three results in the same HGV impacts, the same magnitude of impact, the same sensitivity of receptor and the same significance of effect as reported in 7.11.

7.13.1.5 In terms of total traffic flows, none of the impacts exceed the IEMA thresholds. Although some links exceed the IEMA 10 % threshold, these are not sensitive links and are therefore assessed against the IEMA 30% threshold, which is not exceeded. Therefore, a cumulative assessment with Hornsea Three results in the same total vehicle impacts as reported in section 7.11.

7.13.1.6 On the basis of the above, the cumulative assessment for Tier 2 sites, is the same as that assessed in 7.11. The Tier 2 cumulative assessment has therefore already been assessed, as reported in 7.11 and this is therefore not considered any further.

7.13.1.7 For Tier 3 (including Tier 12) developments, there are no exceedances of the IEMA thresholds in terms of total traffic flows. In accordance with the assessment of road links due to HGV increases as described in section 7.11, five road links are assessed. These are summarised in Table 7.25.

7.13.1.8 HE is developing proposals for improvement works on the A47 however they do not form part of the cumulative assessment. As set out in section 7.7.10, there are no construction traffic flows available for the potential A47 improvement works but any such traffic flows, in relation to the Hornsea Three traffic and transport study area, would be limited to the A47. Based on the increases in traffic flows in Table 7.25, it would require over 300 additional HGV movements to come close to the IEMA thresholds. The construction traffic flows generated by the A47 improvement works would be low and not anywhere near this level. For example, reference to the Norwich Northern Distributor Road application documents sets out that it, which is a new build road, would generate a maximum of up to only 75 HGV movements per day. On this basis, there are no additional road links that would require detailed assessment and the traffic flows on the five road links being assessed do not change. No further consideration of the traffic flows generated by the potential A47 improvement works is necessary.

Table 7.25: Key Links for Cumulative Transport Environmental Assessment (Tier 3).

Link	Sensitivity of Receptor	Percentage Change due to Hornsea Three Construction Traffic (maximum daily change) Plus Tier 3 (including Tier 1) Developments)	
		Total Vehicles	HGV
Link ID 35: A148, west of The Street and east of Green Lane	Medium. Frontages, pedestrian footfall, high street shops	8.8%	121%
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	Medium. Narrow footways near residential area, park	14.4%	277%
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	Medium. Narrow footways outside residences	9.0%	142%
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	Low. Frontages	7.5%	90%
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	Low. Residential area, wide footway	10%	112%

7.13.2 Construction phase

The temporary impact of the construction work may affect driver delay

7.13.2.1 Driver delay can result from the following:

- An increase in traffic flows, particularly during peak hours resulting in increased queues on links and at junctions;
- The passage of slow moving vehicles such as abnormal indivisible loads; and
- Reduction in link capacity resulting from changes in carriageway width or other highway characteristics.

Tier 3

Magnitude of Impact

7.13.2.2 Volume 6 annex 7.1: Transport Assessment (sections 1.65 to 1.68) considers highway capacity and concludes that the construction of Hornsea Three would not create any severe impacts upon the operation of junctions on these five road links. This means that there would be negligible changes arising in relation to driver delay as a result of the construction vehicle movements.

7.13.2.3 The additional traffic over and above that, generated by the Tier 3 developments, do not increase total traffic volumes by an amount that would change the magnitude of impact beyond negligible in terms of driver delay.

7.13.2.4 The magnitude of impact in terms of driver delay resulting from the cumulative developments is therefore considered to be negligible short and long-term duration, continuous and, in terms of driver delay in these locations, fully reversible once works end.

7.13.2.5 The transport of abnormal indivisible loads is not expected to occur along the five links being considered here. However, it is recognised that the ports of entry are not confirmed and neither are the transport routes.

7.13.2.6 The transport of abnormal indivisible loads from the chosen ports of entry to the onshore HVDC converter/HVAC substation and HVAC booster station sites would be timed to minimise delays to other road users and would be controlled by the police (using their escort powers) to manage the abnormal indivisible loads and other road users accordingly to minimise driver delay. The magnitude of impact in terms of driver delay resulting from the transport of abnormal indivisible loads is therefore considered to be negligible.

7.13.2.7 Operations such as the establishment of accesses may require temporary shuttle working or traffic control and these are likely to require temporary traffic signals. This would introduce some driver delay. These five road links are lightly trafficked routes and so there is low conflict between oncoming vehicles that would have to give way to one-another via traffic control, therefore the magnitude of delay would be negligible.

7.13.2.8 It is predicted that the impact would affect receptors directly. Driver delay impacts, in the context of Hornsea Three, would be fully reversible once construction works are completed.

7.13.2.9 The impact is predicted to be of local spatial extent, short term duration, intermittent and, in the context of Hornsea Three, fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be negligible.

Sensitivity of the Receptor

7.13.2.10 The road links being considered are lightly trafficked and on typical days do not suffer from congestion. There is therefore low vulnerability with regards to driver delay.

7.13.2.11 There are a range of similar parallel or alternative routes to the roads adjacent to the road links with good connectivity. Therefore, the sensitivity of links being considered, in terms of driver delay, is considered to be low and due to the availability of alternative routes, low value.

7.13.2.12 The sensitivity of links along which abnormal indivisible loads could travel is considered to be low to medium for these same reasons.

7.13.2.13 The sensitivity of road links affected by the introduction of temporary shuttle working or traffic control in terms of driver delay is likely to be low to medium for these same reasons.

7.13.2.14 It is predicted that these effects would affect receptors directly.

7.13.2.15 The road links are deemed to be of low vulnerability, fully recoverable, in the context of Hornsea Three, and low value. The sensitivity of the receptor is therefore, considered to be low.

Significance of the Effect

7.13.2.16 Overall, it is predicted that the sensitivity of the receptor is considered to be low and the magnitude is deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect severance of routes

7.13.2.17 Severance is only likely to occur on highly trafficked roads and result from the perceived division the road and traffic creates between either side.

7.13.2.18 The IEMA guidance set out above identifies that increases in total traffic volumes of between 30 % and 60 % could result in a slight impact (the lowest category) upon severance.

Tier 3

Magnitude of Impact

7.13.2.19 The change in traffic flow as a result of the Tier 3 developments on the five road links are all significantly lower than the 30 % that the IEMA guidance sets out is required for a slight impact (the lowest category) to occur.

7.13.2.20 The impact is predicted to be of local spatial extent, short term duration, intermittent and, in the context of Hornsea Three, fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be negligible.

Sensitivity of the Receptor

7.13.2.21 The five road links being considered consist of some built up areas forming small communities and therefore the vulnerability and value of the receptor with regards to severance is medium but fully recoverable.

7.13.2.22 The communities along the road links are deemed to be of medium vulnerability, fully recoverable, in the context of Hornsea Three, and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the Effect

7.13.2.23 Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be **negligible**. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect pedestrian delay

7.13.2.24 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. The IEMA guidance set out above notes that studies have shown that pedestrian delay is perceptible or considered significant beyond a delay threshold of 10 seconds, for a link with no crossing facilities. It goes on to say that a 10 second pedestrian delay in crossing a road broadly equates to a two-way link flow of approximately 1,400 vehicles per hour. This means that where two-way traffic flows on a road exceed 1,400 vehicle movements per hour, then a pedestrian seeking to cross that would perceive a delay.

Tier 3

Magnitude of Impact

7.13.2.25 To consider the potential for pedestrian delay to occur on the five road links, the base peak hour traffic flow for each has been set out below and summarised in Table 7.26 along with the with Tier 3 cumulative traffic flows and the resultant change in predicted pedestrian delay.

Table 7.26: Summary of Change in Pedestrian Delay (Cumulative Impact).

Link	Baseline		Baseline plus Hornsea Three		Change in Pedestrian Delay (s)
	Traffic Flow (max hourly)	Pedestrian Delay (s)	Traffic Flow (max hourly)	Pedestrian Delay (S)	
Link ID 35: A148, west of The Street and east of Green Lane	1,409	10.1	1,533	11.0	0.9
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	441	3.2	504	3.6	0.4
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	1,586	11.3	1,729	12.4	1.1
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	1,410	10.1	1,516	10.8	0.7

Link	Baseline		Baseline plus Hornsea Three		Change in Pedestrian Delay (s)
	Traffic Flow (max hourly)	Pedestrian Delay (s)	Traffic Flow (max hourly)	Pedestrian Delay (S)	
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	1,140	8.1	1,254	9.0	0.9

7.13.2.26 Link ID 35: A148, west of The Street and east of Green Lane: Maximum of 1,409 increasing to 1,533 two-way vehicle movements per hour. Maximum pedestrian delay of 10.1 seconds increasing to 11.0 seconds. Change in maximum pedestrian delay of 0.9 seconds.

7.13.2.27 Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road: Maximum of 441 increasing to 504 two-way vehicle movements per hour. Maximum pedestrian delay of 3.2 seconds increasing to 3.6 seconds. Change in maximum pedestrian delay of 0.4 seconds.

7.13.2.28 Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction: Maximum of 1,586 increasing to 1,729 two-way vehicle movements per hour. Maximum pedestrian delay of 11.3 seconds increasing to 12.4 seconds. Change in maximum pedestrian delay of 1.1 seconds.

7.13.2.29 Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham: Maximum of 1,410 increasing to 1,516 two-way vehicle movements per hour. Maximum pedestrian delay of 10.1 seconds increasing to 10.8 seconds. Change in maximum pedestrian delay of 0.7 seconds.

7.13.2.30 Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions: Estimated maximum of 1,140 increasing to 1,254 two-way vehicle movements per hour. Maximum pedestrian delay of 8.1 seconds increasing to 9.0 seconds. Change in maximum pedestrian delay of 0.9 seconds.

7.13.2.31 The above shows that pedestrian delay along two of the road links (Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road and Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions) is lower than that which would be perceived and would remain as such. Therefore, the magnitude of change on these two road links would be negligible.

7.13.2.32 For the other three road links (Link ID 35: A148, west of The Street and east of Green Lane, Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction and Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham), the maximum change in pedestrian delay would be 1.1 seconds, when delay would already be perceived. Therefore, the magnitude of change on these three road links would be minor.

7.13.2.33 The impact is predicted to be of local spatial extent, short term duration, intermittent and, in the context of Hornsea Three, fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be minor.

Sensitivity of the Receptor

7.13.2.34 The five road links being considered consist of some built up areas forming small communities where there is pedestrian activity and demand for crossing the roads. Therefore the vulnerability and value of the receptor with regards to pedestrian delay is medium but fully recoverable.

7.13.2.35 The communities are deemed to be of medium vulnerability, fully recoverable, in the context of Hornsea Three, and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the Effect

7.13.2.36 Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be minor. The effect will, therefore, be of **negligible** to **minor adverse** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect pedestrian amenity

7.13.2.37 The term pedestrian amenity is broadly defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and footway width and separation from traffic.

7.13.2.38 The IEMA guidance refers to a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled.

Tier 3

Magnitude of Impact

7.13.2.39 In terms of total vehicle movements, the above sets out a maximum increase on the five links of 14.4%. Therefore, in accordance with the IEMA guidance, this on its own should not result in any significant changes in pedestrian amenity.

7.13.2.40 To consider the magnitude of change for pedestrian amenity on the five road links in relation to HGVs, the daily base HGV flow for each has been set out below along with the with Tier 3 cumulative traffic flows and the resultant change.

7.13.2.41 Link ID 35: A148, west of The Street and east of Green Lane: 838; increase of 1,012 to 1,850 two-way HGV movements per day; increase of 121%.

7.13.2.42 Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road: 173; increase of 479 to 652 two-way HGV movements per day; increase of 277%.

7.13.2.43 Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction: 645; increase of 919 to 1,564 two-way HGV movements per day; increase of 142%.

7.13.2.44 Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham: 750; increase of 676 to 1,426 two-way HGV movements per day; increase of 90%.

7.13.2.45 Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions: 594; increase of 666 to 1,260 two-way HGV movements per day; increase of 112%.

7.13.2.46 The above shows that all five road links predict a doubling of their HGV component which the IEMA guidance refers to.

7.13.2.47 The IEMA guidance has therefore been referred to where it sets out that one component of pedestrian amenity is fear and intimidation. It refers to a study which sets out that moderate (the lowest category of fear and intimidation which does not directly relate to the terminology of the magnitude of impact in Table 7.14) fear and intimidation could be experienced when there are between 1,000 and 2,000 HGVs over an 18 hour day.

7.13.2.48 Four of the road links are beneath this range under base conditions and are predicted to be within this range with the Tier 3 cumulative developments.

7.13.2.49 In the context of Hornsea Three, the impact is predicted to be of local spatial extent, short term duration, continuous and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be minor.

Sensitivity of the Receptor

7.13.2.50 The five road links being considered consist of some built up areas forming small communities where there is pedestrian activity. Therefore, the vulnerability and value of the receptor with regards to pedestrian amenity is medium but fully recoverable.

7.13.2.51 The communities are deemed to be of medium vulnerability, fully recoverable and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the Effect

7.13.2.52 Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be minor. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect accidents and road safety

Tier 3

Magnitude of Impact

7.13.2.53 The magnitude of increase in total vehicle movements on the five road links is negligible / low (see Table 7.25).

7.13.2.54 An analysis of injury accident rates has been undertaken above and all five of these road links had a rate lower than the national average injury accident rate. It was therefore concluded that there is no injury accident problem on these road links, that they currently operate in a safe manner and thus there is no road safety concerns with the layout of the road network.

7.13.2.55 The Tier 3 cumulative developments would generate vehicle classifications that are already generated on these road links.

7.13.2.56 There would be a temporary increase in the proportion of HGVs on these road links. Such HGV movements would be under contract and would be under construction traffic management conditions and measures. There is no reason to suggest that the HGVs would travel in a manner that is unsafe or that the injury accident rate would change.

7.13.2.57 In the context of Hornsea Three, the impact is predicted to be of local spatial extent, short term duration, intermittent and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

7.13.2.58 An analysis of injury accident rates showed that these road links operate in a safe manner with an injury accident rate lower than the national average.

7.13.2.59 It is considered that the vulnerability and value of the receptor with regards to accidents and road safety is low but, in the context of Hornsea Three, fully recoverable.

7.13.2.60 The road users are deemed to be of medium vulnerability, fully recoverable and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the Effect

7.13.2.61 Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

The temporary impact of the construction work may affect hazardous, dangerous and abnormal indivisible loads

7.13.2.62 It is expected that some abnormal indivisible loads would be transported to the two onshore HVDC converter/HVAC substation and HVAC booster station sites. The abnormal indivisible loads are expected to be components that exceed standard load weight and possibly exceed standard width and height.

7.13.2.63 The Ports of entry would be chosen based on them being capable of accepting abnormal indivisible loads, in which case, the roads leading to the ports would receive abnormal indivisible loads regularly.

Tier 3

Magnitude of Impact

7.13.2.64 The passage of abnormal indivisible loads would be discussed with the relevant highway authorities and police authority prior to delivery and measures adopted to ensure that the movement is undertaken safely and with minimal delay for other highway users.

7.13.2.65 Depending on the width, length or weight of the vehicle, different notice periods have to be provided to HE, Bridge Authorities and the Police. These can vary between two and five days. The following activities would need to be undertaken in accordance with the Road Vehicles (Authorisation of Special Types) Order 2003 (STGO):

- Before the start of any journey, notify in accordance with Schedule 5 the chief office of Police for each area in which the vehicle or vehicle-combination is to be used;
- Ensure that the vehicle or vehicle-combination is used in accordance with the requirements of that Schedule; and
- Ensure that the vehicle or vehicle-combination is accompanied during the journey by one or more attendants employed in accordance with Schedule 6.

7.13.2.66 The impact in relation to the transport of abnormal indivisible loads would be short-term and intermittent and would affect receptors directly.

7.13.2.67 The magnitude of the impact of abnormal indivisible loads would be negligible since the number of abnormal indivisible load movements would be low, each load would be present on the network for a short period of time and standard measures applied in terms of route, timing and method of delivering to minimise delays to other highway users.

7.13.2.68 The impact is predicted to be of local spatial extent, short term duration, intermittent and fully reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

7.13.2.69 The accesses used by the abnormal invisible load would necessarily be of good standard to accommodate the transport delivery vehicles.

7.13.2.70 Any restrictions would also necessarily be removed to accommodate the transport delivery vehicles and they would travel under controlled environments.

7.13.2.71 The passage of abnormal indivisible loads would, however, lead to some limited driver delay as the loads would move slowly. The sensitivity of the public roads to the passage of abnormal loads is therefore considered to be low.

7.13.2.72 It is considered that the vulnerability and value of the receptor with regards to abnormal indivisible loads is low but fully recoverable.

7.13.2.73 Given the controlled environment, the road users are deemed to be of negligible vulnerability, fully recoverable and negligible value. The sensitivity of the receptor is therefore, considered to be negligible.

Significance of the Effect

7.13.2.74 Overall, it is predicted that the sensitivity of the receptor is considered to be negligible and the magnitude is deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms.

Future monitoring

7.13.2.75 No traffic and transport monitoring to test the predictions made within the construction phase cumulative impact assessment is considered necessary.

7.13.3 Operation and maintenance phase

7.13.3.1 For the reasons set out in section 7.8.2 an assessment of this phase has been scoped out.

7.13.4 Decommissioning phase

The temporary impact of the decommissioning works may affect driver delay, severance of routes, pedestrian amenity, accidents and road safety, and hazardous, dangerous and abnormal indivisible loads

Tier 3

7.13.4.1 Vehicle movements generated during the decommissioning phase will be lower than those during the construction phase. Therefore, the assessment of the decommissioning phase is as follows has been undertaken on precautionary basis. Overall, it is predicted that the sensitivities of the receptor are considered to be low and the magnitudes are deemed to be negligible. The effect will, therefore, be of **negligible** significance, which is not significant in EIA terms. For pedestrian amenity it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be negligible to minor. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

Future monitoring

7.13.4.2 No traffic and transport monitoring to test the predictions made within the decommissioning phase cumulative impact assessment is considered necessary.

7.14 Transboundary effects

7.14.1.1 A screening of transboundary impacts has been carried out and is presented in volume 4, annex 5.4: Transboundary Impacts Screening Note. This screening exercise identified that there was no potential for significant transboundary effects with regard to traffic and transport from Hornsea Three upon the interests of other EEA States.

7.15 Inter-related effects

7.15.1.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of Hornsea Three on the same receptor. These are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the project (construction, operation and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three key project stages (e.g. construction noise, operational noise and noise during decommissioning and dismantling of the onshore HVDC converter/HVAC substation).
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on a given receptor such as local residents – construction dust and noise, increased traffic and visual change etc. may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation.

7.15.1.2 A description and assessment of the likely inter-related effects arising from Hornsea Three is provided in volume 3, chapter 11: Inter-related Effects (Onshore).

7.16 Conclusion and summary

7.16.1.1 The construction of the Hornsea Three onshore cable corridor will generate the greatest number of vehicle movements, with operational traffic flows negligible in comparison. Decommissioning will generate fewer HGV movements than construction. This Environmental Statement chapter has set out the estimated construction HGV movements along the adjacent highway network.

7.16.1.2 Baseline traffic flows were identified using manual and automatic traffic counts and have been established within a study area that extends from the A148 at Fakenham to the A149 at Cromer, following the A1067 and A140 to the south to the Norwich ring road. Observations indicate that there are no existing highway capacity problems in this area under annual average conditions. Access to the onshore elements of Hornsea Three has been assumed to be via the A148 west, A1065, A11, A140, A146 and A47 west. and A140/B1145 four-arm roundabout at Aylsham. In addition, sustainable mode of travel which could be impacted by Hornsea Three have also been identified. Finally, PIA data obtained from Norfolk County Council has been used to consider the road safety record of the Traffic and Transport study area.

7.16.1.3 Environmental impact assessments determined that the effects of driver delay, severance, pedestrian delay, accidents and road safety and hazardous, dangerous and abnormal indivisible loads would be **negligible** and the effects of pedestrian amenity would be **minor adverse**. Therefore, the assessment has identified that there would be no significant effects as a result of the construction vehicle movements.

7.16.1.4 During operation and maintenance phase, the effect of the impact of Hornsea Three on traffic and transport has been scoped out as not only vehicle movements generated will be maintenance visits for the HVDC converter/HVAC substation and HVAC booster station, which will not result in any significant effects on traffic and transport.

7.16.1.5 During the decommissioning phase, it is considered that the impacts of Hornsea Three on traffic and transport will not result in any effects with a greater significance than those of the construction phase.

7.16.1.6 A summary of the findings of the EIA related to traffic and transport are presented in Table 7.27.

7.16.1.7 Screening of potential transboundary impacts (as presented in volume 4, annex 5.4: Transboundary Impacts Screening Note) has identified that there was no potential for significant transboundary effects with regard to traffic and transport.

Table 7.27: Summary of potential environment effects, mitigation and monitoring.

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Construction Phase							
Driver Delay	See Table 7.17	Negligible	Low	**Negligible** (not significant in EIA terms)	None	N/A	None
Severance	See Table 7.17	Negligible	Medium	**Negligible** (not significant in EIA terms)	None	N/A	None
Pedestrian Delay	See Table 7.17	Negligible	Medium	**Negligible** (not significant in EIA terms)	None	N/A	None
Pedestrian Amenity	See Table 7.17	Negligible to Minor	Medium	**Minor Adverse** (not significant in EIA terms)	None	N/A	None
Accidents and Road Safety	See Table 7.17	Negligible	Medium	**Negligible** (not significant in EIA terms)	None	N/A	None
Abnormal Indivisible Loads	See Table 7.17	Negligible	Negligible	**Negligible** (not significant in EIA terms)	None	N/A	None
Operation and Maintenance Phase							
N/A							
Decommissioning Phase							
Driver Delay	See Table 7.17	Negligible	Low	**Negligible** (not significant in EIA terms)	None	N/A	None
Severance	See Table 7.17	Negligible	Medium	**Negligible** (not significant in EIA terms)	None	N/A	None
Pedestrian Delay	See Table 7.17	Negligible	Medium	**Negligible** (not significant in EIA terms)	None	N/A	None
Pedestrian Amenity	See Table 7.17	Negligible to Minor	Medium	**Minor Adverse** (not significant in EIA terms)	None	N/A	None
Accidents and Road Safety	See Table 7.17	Negligible	Medium	**Negligible** (not significant in EIA terms)	None	N/A	None
Abnormal Indivisible Loads	See Table 7.17	Negligible	Negligible	**Negligible** (not significant in EIA terms)	None	N/A	None

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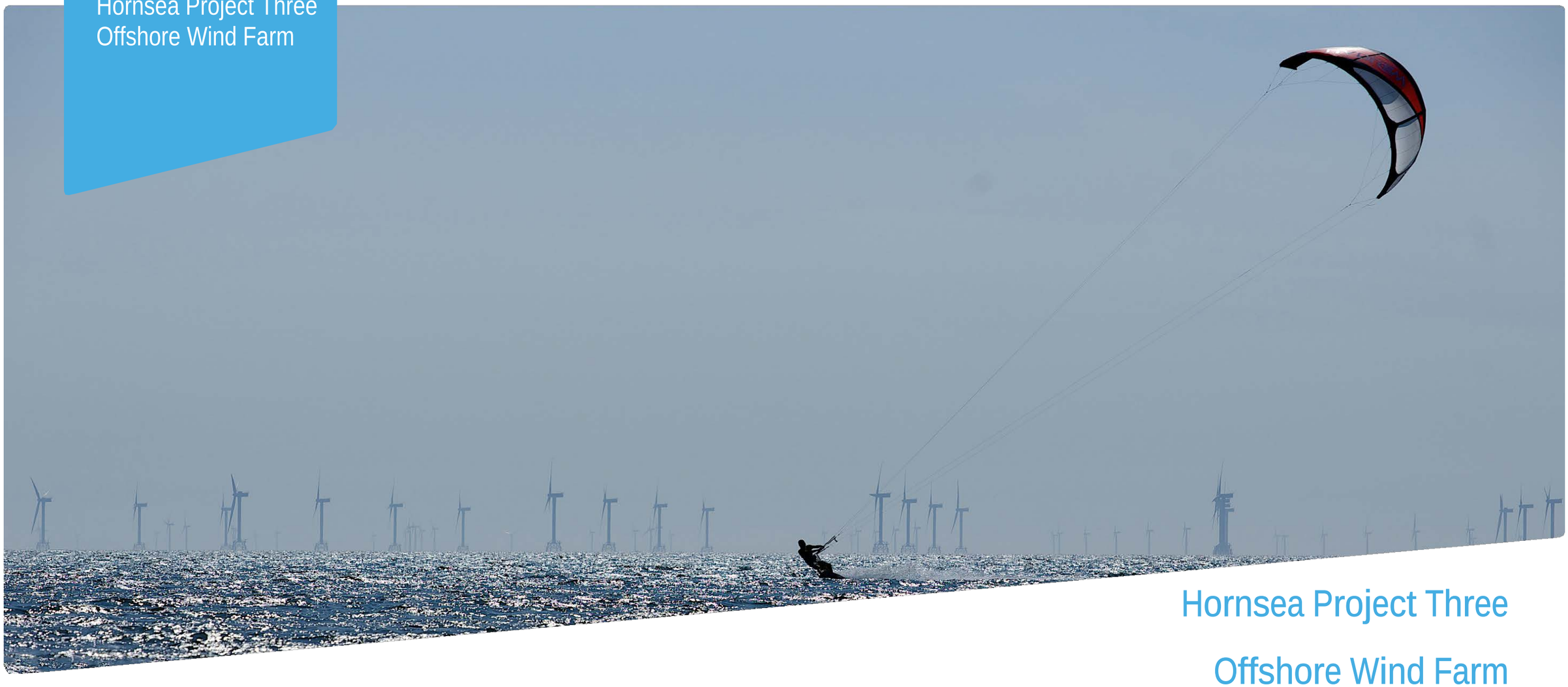
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Environmental Statement:
Volume 4, Annex 5.2 – Cumulative Effects Screening Matrix

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Hornsea 3
Offshore Wind Farm

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Environmental Impact Assessment

Environmental Statement

Volume 4

Annex 5.2 – Cumulative Effects Screening Matrix

Report Number: A6.4.5.2

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Front cover picture: Kite surfer near a UK offshore wind farm © Orsted Hornsea Project Three (UK) Ltd., 2018.

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Table of Contents

List of Tables

Acronyms

Acronym	Description
CEA	Cumulative Effect Assessment
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EMODnet	European Marine Observation and Data Network
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
NLOG	Netherlands Oil and Gas
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate

Units

Unit	Description
m	metre
km	kilometre

1. Introduction

1.1 Background

1.1.1.1 A fundamental requirement of undertaking the Cumulative Effects Assessment (CEA) is to identify those projects, plans and activities with which Hornsea Three may interact to produce a cumulative impact. These interactions may arise within the construction, operation and maintenance or decommissioning phases.

1.2 Cumulative Effects Assessment Long List

1.2.1.1 In order to undertake a comprehensive CEA, a long list of relevant projects, plans and activities occurring within a large study area encompassing the southern North Sea (offshore) and parts of Norfolk (onshore) was produced. The CEA long list collates the details of operational or proposed projects, plans and activities, and includes those within both the UK and adjoining international jurisdictions.

1.2.1.2 The CEA long list for Hornsea Three is included in section 2 below and all projects, plans and activities on the CEA long list are shown on the figures in annex 5.3: Location of Cumulative Projects, Plans and Activities.

1.2.2 Collating the offshore projects, plans and activities in the long list

1.2.2.1 The CEA long list, seaward of Mean High Water Springs (MHWS), was developed based on the scale of projects, plans and activities, and the potential for them to produce cumulative effects with Hornsea Three.

1.2.2.2 All projects, plans and activities were identified within search areas as defined in Table 1.1 and through a desktop interrogation of the following data sources:

- Planning Inspectorate National Infrastructure Planning website;
- The Crown Estate website;
- European Marine Observation and Data Network (EMODnet) data;
- Oil and Gas UK website;
- Marine Scotland website;
- The Crown Estate Scotland website;
- Netherlands Oil and Gas (NLOG) website;
- Danish Energy Agency website;
- Norwegian Petroleum Directive website;
- Dutch Ministry of Infrastructure and the Environment – Rijkswaterstatt website; and
- Developers and project proponent websites.

1.2.2.3 The CEA search area extents identified in Table 1.1 were derived based upon the likely extent over which cumulative impacts are likely to occur.

Table 1.1: CEA offshore (seaward of MHWS) search area extents.

Project, Plan and Activity Type	CEA search area extents
Aggregate and disposal	• Up to 200 km from the Hornsea Three array area and offshore cable corridor.
Offshore energy	• Up to 500 km from the Hornsea Three array area and offshore cable corridor.
Commercial fisheries	• Up to 200 km from the Hornsea Three array area and offshore cable corridor.
Oil and gas	• Up to 200 km from the Hornsea Three array area and offshore cable corridor.
Cables and pipelines	• Up to 100 km from the Hornsea Three array area and offshore cable corridor.
Shipping	• Up to 200 km from the Hornsea Three array area and offshore cable corridor.
Military, aviation and radar	• Up to 200 km from the Hornsea Three array area and offshore cable corridor.
Coastal	• Up to 200 km from the Hornsea Three array area and offshore cable corridor.

1.2.3 Collating the onshore projects, plans and activities in the long list

1.2.3.1 The long list, landward of Mean Low Water Springs (MLWS), was developed based on the scale of projects, plans and activities, and the potential for them to have cumulative effects with Hornsea Three. Therefore, only major development, as defined by the Town and Country Planning (Development Management Procedure) Order 2015 were included in the list. According to the order, 'major development' means development involving any one or more of the following:

- "*The winning and working of minerals or the use of land for mineral-working deposits;*
- *Waste development;*
- *The provision of dwellinghouses, where:*
  - *The number of dwellinghouses to be provided is ten or more; or*
  - *The development is to be carried out on a site having an area of 0.5 hectares or more and it is not known whether the development falls within sub-paragraph (c)(i) [the above bullet point];*
- *The provision of a building or buildings where the floor space to be created by the development is 1,000 m² or more; or*
- *Development carried out on a site having an area of 1 hectare or more*".

1.2.3.2 Utilisation of the definition of 'major development' under the above order was selected as the search criteria for the onshore CEA search area, to provide an effective *de minimis* threshold, as these types of project defined as 'major development' represent those that, by virtue of their nature and/or scale as defined by the above list, can reasonably be assumed to at least have the potential for a cumulative impact with a proposed project of a scale similar to Hornsea Three, and therefore are included in the CEA screening exercise.

1.2.3.3 In addition, all EIA Development was also identified. The definition of 'Project' within the EIA Directive 2011/92/EU is wider than applications for Development Consent (i.e. it considers all projects, which are likely to have significant effects on the environment). In its advice note on cumulative effects assessment, (PINS Advice Note 17) refers to "other development" which includes planning applications and relevant development plans. Therefore projects, plans and activities were also identified from adopted and emerging Development Plan documents within the Local Authority administrative areas.

1.2.3.4 Onshore projects, plans and activities were identified through a desktop interrogation of the Local Authority websites/planning portals as outlined in Table 1.2 below. The CEA search area extents identified in Table 1.2 were derived based upon the likely extent over which cumulative impacts are likely to occur.

Table 1.2: CEA onshore (landward of MLWS) search area extents.

Local Authority	CEA search area extents
Norfolk County Council	• Hornsea Three landfall area: Up to 2 km; • Hornsea Three onshore cable corridor, storage areas, compounds and accesses: Up to 1 km; • Hornsea Three onshore HVAC booster station: Up to 5 km; and • Hornsea Three onshore HVDC converter/HVAC substation: Up to 5 km.
North Norfolk District Council	• Hornsea Three landfall area: Up to 2 km; • Hornsea Three onshore cable corridor, storage areas, compounds and accesses: Up to 1 km; and • Hornsea Three onshore HVAC booster station: Up to 5 km.
Broadland District Council	• Hornsea Three onshore cable corridor, storage areas, compounds and accesses: Up to 1 km.
South Norfolk Council	• Hornsea Three onshore cable corridor, storage areas, compounds and accesses: Up to 1 km; and • Hornsea Three onshore HVDC converter/HVAC substation: Up to 5 km.
Norwich City Council	• Hornsea Three onshore cable corridor, storage areas, compounds and accesses: Up to 1 km; and • Hornsea Three onshore HVDC converter/HVAC substation: Up to 5 km.

1.2.3.5 Onshore projects which have the potential for cumulative traffic and/or transport impacts were drawn from a wider search area than outlined in Table 1.2. Other plans or projects that may significantly impact commuter roads, other key roads, rights of way, private accesses, and railways which have been identified as having the potential to be significantly impacted by changes generated by Hornsea Three, will be screened into the traffic and transport cumulative assessment.

1.2.3.6 Similarly, other plans and projects which may generate cumulative socioeconomic impacts are also drawn from a wider search area than those outlined in Table 1.2. The cumulative assessment for socio-economics will focus on larger, nationally significant schemes which are likely to give rise to significant cumulative effects and which might not necessarily be in the vicinity of Hornsea Three.

1.2.3.7 Projects, plans and activities were also identified from a desk based interrogation of the following:

- Planning Inspectorate for Development Consent Order (DCO) applications;
- Marine Management Organisation website for Marine License applications;
- Marine Scotland website for Marine License applications; and
- Country council websites/planning portals.

1.2.3.8 The CEA onshore search area extents used to identify projects, plans and activities are identified in Table 1.2 below. Professional judgement was used to determine whether to include any projects, plans or activities that did not meet these criteria, for example, tall projects in close proximity but outside of the onshore HVDC converter/HVAC substation CEA search area.

1.2.3.9 Finally, only those projects which received planning permission in the last five years have been included in the CEA long list. The majority of planning permissions will include a condition requiring their implementation within, at most, five years from the date they were issued. Therefore, it is possible that any scheme that has been granted planning permission in the last five years would remain capable of being implemented at the point the list was compiled. Schemes that have been granted planning permission and, given available information, been concluded to be in operation, are screened out and form part of the baseline.

1.2.4 Screening

1.2.4.1 Once the CEA long list was collated, all projects, plans and activities were then individually screened, based on the level of detail available, as well as the potential for interactions on a conceptual, physical and temporal basis, with specific reference to each topic of the Environmental Statement. Those that are 'screened in' were then carried forward into the CEA of the relevant topic chapters of the Environmental Statement.

1.2.4.2 Specifically, projects, plans and activities were screened on a topic basis as follows:

- Screened out of the assessment because:
  - Included as part of the topic baseline and therefore not considered within the CEA;
  - No conceptual effect-receptor pathway exists;
  - Low data confidence;
  - No physical effect-receptor overlap; or
  - No temporal overlap.
- Screened into the assessment because:
  - There is a potential for a cumulative impact to exist due to a conceptual overlap, and/or a physical overlap, and/or temporal overlap; or
  - The project, plan or activity was considered as part of the baseline but has an ongoing impact (for example, ongoing vessel traffic associated with operations and maintenance activities at existing neighbouring wind farms; or a consented marina extension with potential for increased vessel and road traffic once completed, etc.).

1.2.4.3 Further information on the screening undertaken for each project, plan and activity in the CEA long list is provided in volume 1, chapter 5: Environmental Impact Assessment Methodology.

2. Cumulative Effects Screening Matrix

2.1.1.1 Column of page left intentionally blank – please see next page.

Marine Aggregate and Disposal - Temporal

	Consenting/Pre-Construction
	Construction
	Operation and Maintenance
	Decommissioning

Note - where an end date is not given in the licence, then a duration of 15 years has been assumed based on previous licences.

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
Belgium																						
Gootebank (zone 1b)	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area	Open																		
Hinderbanken (zone 4)	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area	Open																		
Thornton bank (zone 1a)	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area	Open																		
UK - Production / Option / Extraction																						
Bacton Sand Engine (Bacton Gas Terminal Coastal Defence Scheme)	maritime-executive.com	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Sandscaping - 1.5 million cubic meters of sand along the coast to protect a 5 km stretch of the U.K.'s east coast. The volume of sand to be used will come from existing licensed dredging areas. https://www.north-norfolk.gov.uk/sandscaping	Concept																		
106 East - 480	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Licence Option Area operated by Hanson Aggregates Marine Ltd	Open																		
Cross Sands - 242/361	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		
East Coast	Emodnet data	High - Third party project details published in the public domain and confirmed as being 'accurate'.	Production Area	Open																		
Goodwin Sands - 521	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Exploration and Option Area operated by Dover Harbour Board	Open																		
Humber 1 - 514/1	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Humber 2 - 514/2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Humber 3 - 484	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by DEME Building Materials Ltd	Open																		
Humber 3 - 514/3	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Humber 4 - 514/4	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Humber 4 and 7 - 506	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by DEME Building Materials Ltd	Open																		
Humber Estuary - 106/1	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		
Humber Estuary - 106/2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		
Humber Estuary - 106/3	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		
Humber Estuary - 400	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		
Humber Overfalls - 493	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Inner Dowsing - 481	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Licence Option Area operated by Tarmac Marine Ltd	Open																		
Inner Dowsing - 481	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Licence Option Area operated by Van Oord Ltd	Open																		
Inner Dowsing - 481/1	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Van Oord Ltd	Open																		
Inner Dowsing - 481/2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Van Oord Ltd	Open																		
Inner Dowsing - 481/1	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Inner Dowsing - 481/2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Longsand - 508	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Britannia Aggregates Ltd	Open																		
Longsand - 509/1	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Longsand - 509/2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Longsand - 509/3	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Longsand - 510/1	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Longsand - 510/2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
New 495 - 525	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Exploration and Option Area operated by Hanson Aggregates Marine Ltd	Open																		
Norfolk - 212	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
North Cross Sands - 494	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Option Area operated by Tarmac Marine Ltd	Open																		
North Falls East	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Option Area operated by Westminster Gravels Ltd	Open																		
North Inner Gabbard - 498	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Britannia Aggregates Ltd	Open																		
North Inner Gabbard - 498	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Volker Dredging Ltd	Open																		
Off Great Yarmouth - 228	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Volker Dredging Ltd	Open																		
Off Great Yarmouth - 254	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Off Great Yarmouth Extension - 240	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		
Unknown - 511	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Unknown - 512	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Unknown - 513/1	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Unknown - 513/2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Off Saltfleet - 197	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Outer Dowsing - 515/1-2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Westminster Gravels Ltd	Open																		
Outer Dowsing - 515/1-2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Westminster Gravels Ltd	Open																		
Shipwash - 507/1	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Shipwash - 507/2	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Shipwash - 507/3	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Shipwash - 507/4	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Shipwash - 507/5	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Shipwash - 507/6	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Southwold East - 430	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by CEMEX UK Marine Ltd	Open																		
Southwold East - 430	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Tarmac Marine Ltd	Open																		
Thames D - 524	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Application Area operated by DEME Building Materials Ltd	Open																		
Yarmouth - 401/2A	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		
Yarmouth - 401/2B	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Production Area operated by Hanson Aggregates Marine Ltd	Open																		
United Kingdom - Disposal																						
Alresford Saltings	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Babbage	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
BBL Pipeline Temporary Pre-Sweep	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Boston 7	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Bridlington A	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Bull Sand Fort	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Bull Sand Fort Extension	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Burgh Castle Yacht Station	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Conoco Pipeline Trench	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Copperas	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Copperas Bay	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Copperas Bay 2	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Copperas East	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Copperas West	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Cross Sands 2	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		

					Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
Erwarton Bay	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Erwarton East	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Erwarton Track	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Goole Reach	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Great Yarmouth	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Hedon Haven	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Holbrook Bay	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Holbrook Bay 1	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Holme Channel Deep	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Humber	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Humber 1A	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Humber 2	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Humber 3A	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Humber 4	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Humber 4B/Hook	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Humber 4B/Hook Extension	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Inner Gabbard	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Inner Gabbard East	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Ipswich Fox	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Jacques Bay	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Lowestoft Circular North	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Maldon Saltings	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Maldon Saltings 2	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Nemo Disposal Site A	Emodnet data - disposal	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Disposal Site	Open																		
Nemo Disposal Site B	Emodnet data - disposal	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Disposal Site	Open																		
Nemo Disposal Site C	Emodnet data - disposal	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Disposal Site	Open																		
North Edinburgh Channel	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
North West Shipwash	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Orwell East	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Orwell East Track	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Orwell West	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Orwell West Track	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Pegwell Bay	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Pegwell Bay B	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Pyewipe Channel	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Ramsgate Harbour Site A	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Ramsgate Harbour Site B	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
River Orwell (ABP)	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
River Stour (Area 1 Subtidal S)	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Scarborough Rock	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Sherringham shoal drillings	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																	
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
South Falls	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Stone Creek	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Sunk dredge channel A	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Sunk Dredge Channel Window C	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Titchmarsh Saltings	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Tyne Burial Site	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Wash Bank	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Well Beneficial use site2	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Wells Outer Harbour B1	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Wells outer harbour site A	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Wells outer harbour site C	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
West Stones	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Whitby	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Whitgift Bight (River Ouse)	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Whitstable C	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Wivenhoe Overflow	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
Wrabness Beach	Emodnet data - disposal	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Disposal Site	Open																		
United Kingdom - Application																						
Humber 5 - 483	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Application Area operated by DEME Building Materials Ltd	Application Area																		
Inner Dowsing - 439	TCE data	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	Aggregate Application Area operated by Hanson Aggregates Marine Ltd	Application Area																		
Netherlands																						
L12C	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L12D	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L12D	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L12E	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L12H	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L12K	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L14B	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L14B1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L14B1	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L14C	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L14D	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L14D	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L15A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L15D	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L15E	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L17A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L17A	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L17B	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L17D	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L17E	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L17F	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		

					Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
L17G	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
L17G	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
L17H	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
M8A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
M8C	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
M8D	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
M8E	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
M9B	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
M9D'	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
M9G	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
M9H	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
M9H	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
M9J	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
onbekend	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Concept																		
onbekend	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Concept																		
OVN	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Shells	Open																		
P18A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18A	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
P18B'	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18C	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18G	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H-A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Exclusion Zone	Open																		
P18H-I-1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H-I-2	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H-II-1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H-II-2	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H-II-3	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H-II-4	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H-II-5	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18H-II-7	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18J	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18J-III	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P18P	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
P8A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Pilot Mining	Open																		
Q10B1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q10F	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q10F	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q10G	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q10R	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q11C	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																	
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
Q13C	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q13C1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Concept																		
Q13D	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q13E	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q13F	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q13G	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q13H	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q13J	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q13K	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q13K1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q13M	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16C-2	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16C-3	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16C-4	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16C-6	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16D	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q16E	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q16F1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16F2	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16G	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16H	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16H-oost	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16J	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q16K	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q2A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q2B	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q2C	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q2C	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q2D	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q2E	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q2G	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q2J	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q2L	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q2M	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q5A	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
Q5B'	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q5D	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q5H	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q5J	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q7A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q8A'	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		

					Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
Q8F	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q8G	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
Q8H	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Concept																		
Q8J	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S2A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S2B	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S3Z1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Pilot Mining	Open																		
S4C	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S4D	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S5A	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S5A	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
S5D	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S5J	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7AA	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7C	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7G	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7G	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
S7G1	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7I	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7K	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7L	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7O	Emodnet data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.		Open																		
S7R	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7S	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7U	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7W	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7X	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		
S7Z	RWS data	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Aggregate Production Area - Sand	Open																		

Marine Aggregate and Disposal - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* **Screened in to assessment.**
c	*Potential cumulative impact exists:* **Screened in to assessment.**
d	*No conceptual effect-receptor pathway:* **Screened out of assessment.**
e	*Low data confidence:* **Screened out of assessment.**
f	*No physical effect-receptor overlap:* **Screened out of assessment.**
g	*No temporal overlap:* **Screened out of assessment.**

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Belgium															
Gootebank (zone 1b)	252	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Hinderbanken (zone 4)	234	178	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Thornton bank (zone 1a)	242	194	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
UK - Production / Option / Extraction															
Bacton Sand Engine (Bacton Gas Terminal Coastal Defence Scheme)	124	23	Concept	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	c	c	d	d	g	f	f	f	g	c
106 East - 480	120	51	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	c
Cross Sands - 242/361	129	67	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
East Coast	138	70	Open	High - Third party project details published in the public domain and confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Goodwin Sands - 521	297	193	Open	High - Third party project details published in the public domain and confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Humber 1 - 514/1	129	82	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Humber 2 - 514/2	125	84	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Humber 3 - 484	43	0	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	c	b	b	b	d	a	d	f	c	b	a
Humber 3 - 514/3	123	81	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Humber 4 - 514/4	112	76	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Humber 4 and 7 - 506	13	8	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	c	c	c	b	d	a	a	f	c	b	a
Humber Estuary - 106/1	124	55	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Humber Estuary - 106/2	121	50	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Humber Estuary - 106/3	122	50	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Humber Estuary - 400	130	56	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Humber Overfalls - 493	132	60	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	a
Inner Dowsing - 481	125	38	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	b	b	b	d	a	f	f	f	f	c
Inner Dowsing - 481	125	38	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	b	b	b	d	a	f	f	f	f	c
Inner Dowsing - 481/1	126	41	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	b	b	b	d	a	f	f	f	f	f
Inner Dowsing - 481/2	127	38	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	b	b	b	d	a	f	f	f	f	f
Inner Dowsing - 481/1	126	41	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	b	b	b	d	a	f	f	f	f	f
Inner Dowsing - 481/2	127	38	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	b	b	b	d	a	f	f	f	f	f
Longsand - 508	229	137	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Longsand - 509/1	224	129	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Longsand - 509/2	225	129	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Longsand - 509/3	228	137	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Longsand - 510/1	228	137	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Longsand - 510/2	228	139	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
New 495 - 525	126	65	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Norfolk - 212	128	58	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
North Cross Sands - 494	126	55	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
North Falls East	223	158	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
North Inner Gabbard - 498	191	111	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
North Inner Gabbard - 498	191	111	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Off Great Yarmouth - 228	137	64	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Off Great Yarmouth - 254	133	56	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Off Great Yarmouth Extension - 240	134	60	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Unknown - 511	140	61	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Unknown - 512	140	67	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Unknown - 513/1	137	69	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Unknown - 513/2	137	69	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Off Saltfleet - 197	130	59	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Outer Dowsing - 515/1-2	102	41	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	b	b	b	d	a	f	f	f	f	f
Outer Dowsing - 515/1-2	88	38	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	b	b	b	d	a	f	f	f	f	f
Shipwash - 507/1	203	114	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Shipwash - 507/2	198	110	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Shipwash - 507/3	203	115	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Shipwash - 507/4	201	115	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Shipwash - 507/5	194	112	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Shipwash - 507/6	197	116	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Southwold East - 430	164	93	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Southwold East - 430	164	93	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Thames D - 524	218	130	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Yarmouth - 401/2A	131	71	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Yarmouth - 401/2B	144	78	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
United Kingdom - Disposal															
Alresford Saltings	239	123	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Babbage	69	59	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
BBL Pipeline Temporary Pre-Sweep	87	20	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Boston 7	180	65	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Bridlington A	152	145	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Bull Sand Fort	148	92	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Bull Sand Fort Extension	147	91	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Burgh Castle Yacht Station	145	51	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Conoco Pipeline Trench	146	88	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Copperas	220	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Copperas Bay	220	110	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Copperas Bay 2	219	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Copperas East	218	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Copperas West	221	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Cross Sands 2	137	74	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g

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Erwarton Bay	218	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Erwarton East	218	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Erwarton Track	218	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Goole Reach	202	149	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Great Yarmouth	138	53	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Hedon Haven	162	120	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Holbrook Bay	221	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Holbrook Bay 1	222	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Holme Channel Deep	160	110	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Humber	77	32	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	b	b	b	d	a	d	f	f	f	f
Humber 1A	150	99	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Humber 2	155	102	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Humber 3A	161	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Humber 4	166	123	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Humber 4B/Hook	165	122	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Humber 4B/Hook Extension	165	122	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Inner Gabbard	210	126	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Inner Gabbard East	210	126	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Ipswich Fox	214	102	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Jacques Bay	220	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Lowestoft Circular North	150	65	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Maldon Saltings	260	139	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Maldon Saltings 2	260	139	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Nemo Disposal Site A	268	188	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Nemo Disposal Site B	271	184	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
Nemo Disposal Site C	280	183	Open	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	f	f	a	d	a	f	f	f	f	f
North Edinburgh Channel	257	155	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
North West Shipwash	214	118	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Orwell East	216	108	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Orwell East Track	216	108	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Orwell West	216	108	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Orwell West Track	216	108	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Pegwell Bay	280	183	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Pegwell Bay B	279	181	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Pyewipe Channel	156	102	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Ramsgate Harbour Site A	279	181	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Ramsgate Harbour Site B	280	182	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
River Orwell (ABP)	214	105	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
River Stour (Area 1 Subtidal S)	219	112	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Scarborough Rock	170	169	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Sherringham shoal drillings	139	41	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	d	g	g	g	g

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South Falls	240	161	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Stone Creek	158	109	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Sunk dredge channel A	151	100	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Sunk Dredge Channel Window C	152	102	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Titchmarsh Saltings	226	121	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Tyne Burial Site	192	207	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Wash Bank	129	54	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Well Beneficial use site2	137	15	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	d	g	g	g	g
Wells Outer Harbour B1	138	15	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	d	g	g	g	g
Wells outer harbour site A	138	15	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	d	g	g	g	g
Wells outer harbour site C	139	15	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	d	g	g	g	g
West Stones	172	50	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	d	g	g	g	g
Whitby	190	196	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Whitgift Bight (River Ouse)	197	145	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	g	g	g	g	d	g	f	g	g	g	g
Whitstable C	280	174	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Wivenhoe Overflow	238	122	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Wrabness Beach	221	111	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
United Kingdom - Application															
Humber 5 - 483	14	2	Application Area	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	c	c	c	g	d	g	a	f	c	b	c
Inner Dowsing - 439	131	48	Application Area	High - Third party project details published in the public domain and confirmed as being 'accurate' by TCE.	f	c	c	g	d	g	d	f	f	f	c
Netherlands															
L12C	140	156	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L12D	145	162	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L12D	146	163	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L12E	146	162	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L12H	143	160	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L12K	146	163	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L14B	136	153	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L14B1	134	151	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L14B1	135	152	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L14C	135	152	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L14D	134	151	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L14D	134	151	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L15A	137	154	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L15D	138	155	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L15E	136	153	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L17A	134	151	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L17A	136	153	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L17B	136	153	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L17D	134	151	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L17E	134	151	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L17F	135	152	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
L17G	137	154	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L17G	138	155	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
L17H	132	149	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M8A	189	185	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M8C	183	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M8D	185	203	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M8E	176	192	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M9B	196	212	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M9D'	191	217	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M9G	195	209	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M9H	198	214	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M9H	199	214	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
M9J	195	211	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
onbekend	142	158	Concept	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	g	d	g	d	f	f	f	f
onbekend	148	165	Concept	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	g	d	g	d	f	f	f	f
OVN	96	113	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18A	196	190	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18A	197	194	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18B'	186	184	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18C	198	197	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18G	194	190	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H	198	193	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-A	201	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-I-1	204	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-I-2	204	200	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-II-1	199	197	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-II-2	200	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-II-3	200	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-II-4	203	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-II-5	201	200	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18H-II-7	199	197	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18J	195	195	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18J-III	197	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P18P	198	211	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
P8A	119	124	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q10B1	167	182	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q10F	169	185	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q10F	172	187	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q10G	174	189	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q10R	172	187	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q11C	178	194	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Q13C	187	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13C1	185	198	Concept	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	g	d	g	d	f	f	f	f
Q13D	181	194	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13E	180	195	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13F	190	205	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13G	185	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13H	185	194	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13J	182	196	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13K	190	205	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13K1	189	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q13M	190	205	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16C-2	198	213	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16C-3	200	213	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16C-4	199	213	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16C-6	200	214	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16D	194	208	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16E	197	210	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16F1	196	210	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16F2	197	210	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16G	194	210	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16H	195	210	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16H-oost	196	210	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16J	195	210	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q16K	196	200	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2A	140	157	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2B	143	160	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2C	146	163	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2C	149	165	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2D	143	160	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2E	150	167	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2G	144	161	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2J	141	158	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2L	138	155	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q2M	142	159	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q5A	159	175	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q5B'	159	175	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q5D	149	166	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q5H	146	163	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q5J	143	159	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q7A	158	173	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q8A'	160	176	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Q8F	165	181	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q8G	163	179	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
Q8H	161	177	Concept	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	g	d	g	d	f	f	f	f
Q8J	161	178	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S2A	204	186	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S2B	200	183	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S3Z1	206	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S4C	224	196	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S4D	222	194	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S5A	217	197	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S5A	218	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S5D	223	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S5J	220	200	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7AA	232	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7C	232	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7G	235	197	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7G	237	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7G1	235	197	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7I	227	196	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7K	228	197	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7L	227	196	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7O	231	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7R	227	196	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7S	227	196	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7U	227	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7W	227	196	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7X	227	198	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f
S7Z	231	199	Open	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	d	a	f	f	f	f	f

Energy Projects - Temporal

	Consenting/Pre-Construction
	Construction
	Operation and Maintenance
	Decommissioning

NOTE: An assumption has been made that offshore wind farms will be operational for 25 years and that the project will be decommissioned after this period. Decommissioning has been assumed to take 2 years.

Project	Data Confidence Assessment	Consented Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three) 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
Offshore Wind Farms																																		
United Kingdom																																		
European Offshore Wind Deployment Centre (EOWDC) - Previously Aberdeen Demo	High - Third party project details published in the public domain and confirmed by the consent.	Up to 100 MW (up to 11 turbines)	Consented																															
Barrow	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 108 MW	In Operation																															
Blyth	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 41.5 MW (up to 15 turbines)	In Operation																															
Blyth Demo (NAREC Offshore Wind Demonstration Project)	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 99 MW (up to 15 turbines)	Under construction																															
Burbo Bank	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Up to 258 MW	In Operation																															
Burbo Bank Extension	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 259 MW (up to 69 turbines)	In Operation																															
Dogger Bank Creyke Beck A	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,200 MW (up to 200 turbines)	Consented																															
Dogger Bank Creyke Beck B	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,200 MW (up to 200 turbines)	Consented																															
Dogger Bank Teesside A	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,200 MW (up to 200 turbines)	Consented																															
Dogger Bank Teesside B (now Sofia Offshore Wind Farm)	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,200 MW (up to 200 turbines)	Consented																															
Dudgeon	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 560 MW (up to 115 turbines)	In Operation																															
Norfolk Vanguard	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,800 MW (up to 257 turbines)	Pre-planning application																															
East Anglia One	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 714 MW (up to 102 7 MW)	Consented																															
East Anglia One North	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 800 MW (proposed)	Pre-planning application																															
Norfolk Boreas	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Up to 1,800 MW (proposed)	Pre-planning application																															
East Anglia Three	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,200MW (up to 172 turbines)	Consented																															
East Anglia Two	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 900 MW	Pre-planning application																															
Galloper	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 504 MW (up to 140 turbines)	Under construction																															
Greater Gabbard	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 500 MW (up to 140 turbines)	Operational																															
Gunfleet Sands III (Demo)	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Up to 20 MW (up to 2 turbines)	In Operation																															
Gunfleet Sands I	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 108 MW (up to 30 3.6 MW turbines)	In Operation																															
Gunfleet Sands II	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 108 MW (up to 30 3.6 MW turbines)	In Operation																															
Gwynt y Mor	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 750 MW (up to 250 turbines)	In Operation																															
Hornsea Project One	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,200 MW (up to 120 turbines)	Under construction																															
Hornsea Project Two	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,800 MW (up to 360 turbines)	Under construction																															
Hornsea Project Four	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,000 MW (proposed)	Pre-planning application																															
Humber Gateway	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 300 MW (up to 83 turbines)	In Operation																															
Hywind Scotland Pilot Park	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 30 MW (up to 6MW turbines)	In Operation																															
Inch Cape	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 784 MW (up to 72 turbines)	Consented																															
Kentish Flats	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 90 MW	Operational																															
Kentish Flats Extension	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 51 MW (up to 17 turbines)	Operational																															
Kincardine Offshore Wind Farm	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 50 MW (up to 8 turbines)	Pre-planning application																															
Lincs / LID6 1	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 250 MW (up to 83 turbines)	In Operation																															
London Array	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,000 MW (up to 175 turbines)	In Operation																															
Lynn and Inner Dowsing Wind Farms	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 490 MW (up to 143 turbines)	Operational																															

Project	Data Confidence Assessment	Consented Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)
Methil (Samsung) Demo (FIFE ENERGY PARK OFFSHORE DEMONSTRATION WIND TURBINE)	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 7 MW (up to 1 turbine)	In Operation	
Methil Demonstration Project - 2B Energy	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 18 MW (Up to 2 turbines)	Pre-planning application	
Neart na Gaoithe	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 450 MW A new application for consent will be submitted to Marine Scotland in the coming months.The updated design will comprise a maximum of 54 turbines, compared with the maximum of 125 turbines in the original application. Status of development therefore noted as pre-planning application.	consented and pre-application	
North Hoyle	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 90 MW (up to 30 turbines)	In Operation	
Ormonde	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 150 MW (up to 30 turbines)	In Operation	
Race Bank	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 580 MW	In Operation	
Rampion Wind Farm	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 700 MW (up to 175 turbines)	Under construction	
Rhyl Flats	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Up to 90 MW	In Operation	
Robin Rigg East	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 90 MW	In Operation	
Robin Rigg West	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 90 MW	In Operation	
Scroby Sands	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 60 MW	Operational	
SeaGreen Alpha	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 525 MW A new application for consent will be submitted to Marine Scotland in the coming months.The updated design will comprise a maximum of 120 turbines (for phase one - Seagree Alpha and SeaGreen Bravo), compared with the maximum of 150 turbines for phase 1 in the original application. Status of development therefore noted as pre-planning application.	Pre-planning application	
SeaGreen Bravo	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 525 MW A new application for consent will be submitted to Marine Scotland in the coming months.The updated design will comprise a maximum of 120 turbines (for phase one - Seagree Alpha and SeaGreen Bravo), compared with the maximum of 150 turbines for phase 1 in the original application. Status of development therefore noted as pre-planning application.	Pre-planning application	
SeaGreen Charlie, SeaGreen Delta, Seagreen Echo, SeaGreen Fottrot and SeaGreen Golf	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 2,600 MW	Pre-planning application	
Sheringham Shoal	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 315 MW	Operational	
Teesside	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 100 MW (up to 100 turbines)	Operational	
Thanet	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 300 MW (up to 100 turbines)	Operational	
Thanet Extension	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 340 MW	Concept / Early Planning	
Triton Knoll	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 1,200 MW (up to 288 turbines)	Consented	
Walney	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 450 MW	In Operation	
Walney Extension	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 750 MW (up to 207 turbines)	Consented	
West of Duddon Sands	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 500 MW (up to 139 turbines)	In Operation	
Westermost Rough	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Up to 245 MW (up to 80 turbines)	In Operation	

Project	Data Confidence Assessment	Consented Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)
				2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049
Belgium				
Belwind 1	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	165MW (55x33MW)	Operational	
Belwind Alstom Haliade Demonstration	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	6MW (1x6MW)	Operational	
Mermaid	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	288MW (48x6MW)	Operational	
Norther	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Up to 370MW (44x8MW)	Consented	
Northwester 2	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	210-296MW (22-70 3-10MW)	Pre-planning application	
Northwind	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	216MW (72x3MW)	Operational	
Rentel Area A	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	309MW (42x7.35MW)	Consented	
Seastar	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	252MW (42x6MW)	Consented	
Thornton Bank Phase I (Zone 1 C-Power)	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	30MW (6x5MW)	Operational	
Thornton Bank Phase II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	184.5MW (30x6.15MW)	Operational	
Thornton Bank Phase III (Zone 1 C-Power 2)	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	110MW (18x6.15MW)	Operational	
Germany				
Aiolos	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	197 turbines capacity 985 MW	Submitted	
Albatros	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	116.8MW	Consented	
Alpha Ventus (Formely Borkum West I)	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	60MW	Operational	
Amrumbank West	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	288MW (80x3.6MW)	Operational	
AreaC I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW (80x5MW)	Submitted	
AreaC II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	80 turbines, capacity 400MW	Submitted	
AreaC III	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	80 turbines , capacity 400MW	Submitted	
Austerngrund	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW	Submitted	
BARD Offshore 1	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW (80x5MW)	Operational	
Bight Power I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	80 turbines, Capacity 400MW	Submitted	
Bight Power II	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	80 turbines , capacity 400MW	Submitted	
Borkum Riffgrund 1	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	312MW (77x4MW)	Operational	
Borkum Riffgrund 2	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	450MW (56x8MW)	Consented	
Borkum Riffgrund West	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	270MW (45x6MW)	Consented	
Trianel Windpark Borkum (Borkum West II) Phase 1	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	200MW (40x5MW)	Operational	
Trianel Windpark Borkum (Borkum West II) Phase 2	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	203MW (32x6.15MW)	Consented	
Borkum-Riffgrund West II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	258MW (43x6MW)	Pre-planning application	
Butendiek	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	288MW (80x3.6MW)	Operational	
Concordia I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Up to 500MW (up to 80 6-7MW turbines)	Pre-planning application	
Concordia II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Up to 500MW (up to 80 6-7MW turbines)	Pre-planning application	
DanTysk	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	288MW (80x3.6MW)	Operational	
Demonstrationsprojekt Albatros 1	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	116.8MW (19x7MW)	Consented	
Deutsche BuchtOffshore Wind Farm	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	252MW (30x8MW)	Consented	
Diamant	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	800MW (160x5MW)	Pre-planning application	
Emden	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	4.5MW (1x4.5MW)	Operational	
He dreiht I	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	732MW (Up to 80 turbines)	Consented	
Hohe See	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	497MW (71x7MW)	Consented	
ENOVA Offshore NSWP 10	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	80 turbines	Pre-planning application	
ENOVA Offshore NSWP 11	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	80 turbines	Pre-planning application	

Project	Data Confidence Assessment	Consented Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																																		
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
ENOVA Offshore NSWP 12	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	410MW (82x5MW)	Pre-planning application																																			
ENOVA Offshore NSWP 13	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	420MW (84x5MW)	Pre-planning application																																			
ENOVA Offshore NSWP 14	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	330MW (66x5MW)	Pre-planning application																																			
ENOVA Offshore NSWP 15	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	375MW (75x5MW)	Pre-planning application																																			
ENOVA Offshore NSWP 8	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	410MW (82x5MW)	Pre-planning application																																			
ENOVA Offshore NSWP 9	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	400MW (80x5MW)	Pre-planning application																																			
Euklas	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	1040MW (160x6.5MW)	Pre-planning application																																			
GAIA I	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	310MW-434MW (62x5MW-7MW)	Submitted																																			
GAIA II	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	200MW-280MW (40x5MW-7MW)	Submitted																																			
GAIA III	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	400MW-560MW (80x5MW-7MW)	Submitted																																			
GAIA IV	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	340MW-476MW (68x5MW-7MW)	Submitted																																			
GAIA V	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	360MW-504MW (72x5MW-7MW)	Submitted																																			
Gannet	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	400MW (80x5MW)	Pre-planning application																																			
Global Tech I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW (80x5MW)	Under Construction																																			
Global Tech II	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	395MW-553MW (79x5MW-7MW)	Submitted																																			
Global Tech III	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	21 turbines, capacity 105 MW	Submitted																																			
Gode Wind I	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	332MW (55x6MW)	Under Construction																																			
Gode Wind IIII	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	252MW (42x6MW)	Consented																																			
Gode Wind II	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	252MW (42x6MW)	Under Construction																																			
Gode Wind III	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	90MW (15x6MW)	Submitted																																			
He dreiht II	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	195MW (39x5MW)	Pre-planning application																																			
Heron	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	400MW (80x5MW)	Pre-planning application																																			
Hooksiel	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	5MW (1x5MW)	Decommissioned																																			
Horizont I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	306MW (51x6MW)	Pre-planning application																																			
Horizont II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	450MW (75x6MW)+F137:F139	Pre-planning application																																			
Horizont III	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	444MW (74x6MW)	Pre-planning application																																			
Horizont IV	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	222MW (37x6MW)	Pre-planning application																																			
HTOD 1	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	486MW (81x6MW)	Pre-planning application																																			
HTOD 2	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	486MW pre-application	Pre-planning application																																			
HTOD 3	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	504MW pre-application	Pre-planning application																																			
HTOD 4	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	570MW pre-application	Pre-planning application																																			
HTOD 5	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	560MW	Pre-planning application																																			
HTOD 6	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	315MW	Pre-planning application																																			
Innogy Nordsee 2	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	48 turbines, capacity 295MW	Consented																																			
Innogy Nordsee 3	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	60 turbines, capacity 369 MW.	Consented																																			
INNOGY Nordsee I	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	54 turbines, capacity 332MW.	Under Construction																																			
Jules Verne	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	480 MW (80x6MW)	Pre-planning application																																			
Kaikas	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	581MW (83x7MW)	Consented																																			
Kaskasi II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	272MW	Submitted																																			
Meerwind Süd/Ost	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	288MW (80x3.6MW)	Operational																																			
Meerwind West	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	805MW (161x5MW)	Pre-planning application																																			

Project	Data Confidence Assessment	Consented Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																																		
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
MEG Offshore I (now Merkur Offshore Wind Farm)	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	400MW.	Under Construction																																			
Nautilus I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	480MW (80x6MW)	Pre-planning application																																			
Nemo	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	480MW (80x6MW)	Pre-planning application																																			
Neptune III	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	560MW (80x7MW)	Pre-planning application																																			
Noerdlicher Grund	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	320MW-384MW (64x5MW-6MW)	Consented																																			
Noerdlicher Grund Teil Sandbank	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	288MW (72x4MW)	Operational																																			
Nordergruende	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	110.7MW (18x6.15MW)	Under Construction																																			
Nord-Ost Passat I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	360MW (60x6MW)	Pre-planning application																																			
Nord-Ost Passat II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	360MW (60x6MW)	Pre-planning application																																			
Nord-Ost Passat III	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	480MW (80x6MW)	Pre-planning application																																			
Nordpassage	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	400 MW (80x5MW)	Pre-planning application																																			
Nordsee Ost	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	295.2MW (48x6.15MW)	Operational																																			
OWP Delta Nordsee 1	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	210MW (35x6MW)	Consented																																			
OWP Delta Nordsee 2	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	192MW (32x6MW)	Consented																																			
OWP West	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	205MW-328MW (41x5MW-8MW)	Consented																																			
Petrel	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW (80x5MW)	Consented																																			
PNE Atlantis I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	584MW (73x8MW)	Submitted																																			
PNE Atlantis II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW (80x5MW)	Pre-planning application																																			
PNE Atlantis III	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW (80x5MW)	Pre-planning application																																			
Prowind I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	389MW (63x6.15MW)	Pre-planning application																																			
Prowind II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	389MW	Pre-planning application																																			
Prowind III	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	389MW	Pre-planning application																																			
Riffgat	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	108MW (30x3.6MW)	Operational																																			
Sandbank 24	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	288MW (72x4MW)	Under Construction																																			
Sandbank Extension	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	160MW-240MW (40x4MW-6MW)	Submitted																																			
Seagull	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW (80x5MW)	Pre-planning application																																			
SeaStorm I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW-560MW (80x5MW-7MW)	Pre-planning application																																			
SeaStorm II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	406MW (58x5MW-7MW)	Pre-planning application																																			
SeaWind III	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	285MW-399MW (68 x minimum 5MW)	Pre-planning application																																			
SeaWind IV	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	390MW-546MW (78 x minimum 5MW)	Pre-planning application																																			
Skua	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	400MW (80x5MW)	Pre-planning application																																			
Trianel Windpark Borkum Phase 1	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	200MW (40x5MW)	Operational																																			
Veja Mate	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	402MW (67x6MW)	Under Construction																																			
Witte Bank	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	708MW (118x6MW)	Pre-planning application																																			
Netherlands																																						
2017 Tender I	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	350MW	Pre-planning application																																			
2017 Tender II	Low - There is a lack of robust data and information and/or data quality is out with DONG Energycontrol.	350MW	Pre-planning application																																			
2018 Tender I	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	350MW	Pre-planning application																																			
2018 Tender II	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	350MW	Pre-planning application																																			
2019 Tender I	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	350MW	Pre-planning application																																			

Project	Data Confidence Assessment	Consented Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																																		
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
Borssele 1 and 2	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	684MW-760MW (69-127 x 6MW-10MW)	Consented																																			
Borssele 3 and 4	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	664MW-740MW (123x6MW-10MW)	Consented																																			
Buitengaats	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	300MW (75x4MW)	Under Construction																																			
HKZ Kavel I	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.		Pre-planning application																																			
HKZ Kavel II	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.		Pre-planning application																																			
HKZ Kavel III	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.		Pre-planning application																																			
HKZ Kavel IV	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.		Pre-planning application																																			
Eneco Luchterduinen	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	129MW (43x3MW)	Operational																																			
Irene Vorrink I	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	11.4MW (19x0.6MW)	Operational																																			
Irene Vorrink II	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	5.4MW (9x0.6MW)	Operational																																			
Leeghwater - Turbine Demonstration Facility	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	20MW (2x12MW-20MW)	Consented																																			
Lely	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	2MW	Operational																																			
Offshore Windpark Egmond aan Zee	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	108MW (36x3MW)	Operational																																			
Prinses Amaliapark	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	120MW (60x2MW)	Operational																																			
Westermeerdijk buitendijks	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	144MW (48x3MW)	Operational																																			
Windpark Fryslan	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	320MW-356MW (89x3.6MW-4MW)	Submitted																																			
ZeeEnergie	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	300MW (75x4MW)	Under Construction																																			
Zeeuws Offshore Wind Project	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Unknown	Pre-planning application																																			
Denmark																																						
Horns Rev	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	160MW (80x2MW)	Operational																																			
Horns Rev 2	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	209.3MW (91x2.3MW)	Operational																																			
Horns Rev 3	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	406.7MW (49x8.3MW)	Consented																																			
Nissum Bredning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	28MW (4x7MW)	Pre-planning application																																			
Vesterhavet Nord	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	180MW (20-66x 3MW-10MW)	Consented																																			
Vesterhavet Syd	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	180MW (20-66x 3MW-10MW)	Consented																																			
France																																						
Fecamp Offshore (Eoliennes Offshore des Hautes Falaises Offshore)	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	498MW (83x6MW)	Consented																																			
Le Treport	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	496MW (62x8MW)	Pre-planning application																																			
Other - Cable, Carbon, CSS, UCG																																						
England																																						
Deborah Gas Storage Site - ENI	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	Working gas capacity of 4.6 Bcm	Operational																																			
Hundale Potash Mine - York Potash	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Initial production capacity of 10 million tonnes per annum (Mtpa) and full production of 20 Mtpa	Under Construction																																			
Hunterston Test Site	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	11 MW	Operational																																			
Rough Gas Storage Site - Centrica	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	Rough gas storage facility.	Operational																																			

Energy Projects - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* **Screened in to assessment.**
c	*Potential cumulative impact exists:* **Screened in to assessment.**
d	*No conceptual effect-receptor pathway:* **Screened out of assessment.**
e	*Low data confidence:* **Screened out of assessment.**
f	*No physical effect-receptor overlap:* **Screened out of assessment.**
g	*No temporal overlap:* **Screened out of assessment.**

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Offshore Wind Farms															
United Kingdom															
European Offshore Wind Deployment Centre (EOWDC) - Previously Aberdeen Demo	444	461	Consented	High - Third party project details published in the public domain and confirmed by the consent.	f	f	f	c	c	c	d	f	g	f	f
Barrow	358	309	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	d	a	f	f	g	f	f
Blyth	270	284	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	g	g	b	f	g	f	f
Blyth Demo (NAREC Offshore Wind Demonstration Project)	258	273	Under construction	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	d	f	g	f	f
Burbo Bank	357	287	In Operation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	f	d	f	f	f	g	f	f
Burbo Bank Extension	360	289	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	f	f	f	g	f	f
Dogger Bank Creyke Beck A	76	91	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	c	c	c	c	b	f	g	c	c
Dogger Bank Creyke Beck B	99	115	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	c	c	c	c	b	f	g	f	c
Dogger Bank Teesside A	107	123	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	f	g	f	c
Dogger Bank Teesside B (now Sofia Offshore Wind Farm)	95	108	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	c	c	c	c	b	f	g	f	c
Dudgeon	87	11	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	c	c	c	c	c	b	b	b	c	a
Norfolk Vanguard	73	51	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	c	c	c	c	b	c	g	c	c
East Anglia One	152	106	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	c	g	f	c
East Anglia One North	141	90	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	e	c	c	b	c	g	f	c
Norfolk Boreas	53	64	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	e	e	c	c	b	c	g	e	c
East Anglia Three	103	87	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	c	f	f	c
East Anglia Two	158	94	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	c	g	f	c
Galloper	195	79	Under construction	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	f	g	f	c
Greater Gabbard	198	119	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	f
Gunfleet Sands III (Demo)	245	137	In Operation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	a	c	a	b	f	g	f	f
Gunfleet Sands I	240	133	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	f
Gunfleet Sands II	239	134	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	f
Gwynt y Mor	378	307	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	a	f	f	g	f	f
Hornsea Project One	7	7	Under construction	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	c	c	c	c	c	b	c	c	c	c
Hornsea Project Two	7	18	Under construction	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	c	c	c	c	c	b	c	c	c	c
Hornsea Project Four	36	47	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	e	e	e	e	c	c	e	e	g	e	e
Humber Gateway	128	86	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	f	f	a	c	a	b	b	g	f	a
Hywind Scotland Pilot Park	438	455	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	f	f	f	f
Inch Cape	384	401	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	e	f	g	f	f
Kentish Flats	272	164	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	a
Kentish Flats Extension	273	165	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	f
Kincardine Offshore Wind Farm	422	438	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	f	g	f	f
Lincs / LID6 1	139	41	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	a	a	a	c	a	b	b	g	f	a
London Array	230	92	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	f
Lynn and Inner Dowsing Wind Farms	147	43	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	a	a	a	c	a	b	b	g	f	a

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Methil (Samsung) Demo (FIFE ENERGY PARK OFFSHORE DEMONSTRATION WIND TURBINE)	412	428	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	f
Methil Demonstration Project - 2B Energy	411	426	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	f	g	f	f
Neart na Gaoithe	372	388	consented and pre-application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	e	f	f	f	f
North Hoyle	376	304	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	a	f	f	g	f	f
Ormonde	367	321	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	a	f	f	g	f	f
Race Bank	114	28	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	c	c	c	c	c	b	c	g	c	c
Rampion Wind Farm	388	266	Under construction	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	c	c	b	f	g	f	f
Rhyl Flats	390	316	In Operation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	f	d	a	f	f	g	f	f
Robin Rigg East	391	369	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	a	b	f	g	f	f
Robin Rigg West	392	369	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	a	b	f	g	f	f
Scroby Sands	132	48	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	a	a	a	c	c	b	a	g	b	a
SeaGreen Alpha	383	399	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	e	f	g	f	f
SeaGreen Bravo	367	384	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	e	f	g	f	f
SeaGreen Charlie, SeaGreen Delta, Seagreen Echo, SeaGreen Fottrot and SeaGreen Golf	366	382	Pre-planning application	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	e	f	g	f	f
Sheringham Shoal	109	7	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	a	a	a	c	a	b	b	g	b	a
Teesside	224	229	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	f
Thanet	260	168	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	c	a	b	f	g	f	f
Thanet Extension	260	168	Concept / Early Planning	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	b	f	g	f	f
Triton Knoll	100	44	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	c	c	c	c	c	b	c	g	c	c
Walney	370	322	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	f	f	f	g	f	f
Walney Extension	376	329	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	f	d	f	g	f	f
West of Duddon Sands	366	315	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	f	d	a	f	f	g	f	f
Westermost Rough	132	106	In Operation	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	c	f	f	a	c	a	b	b	g	f	a

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Belgium															
Belwind 1	220	141	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	a	e	a	b	f	g	f	f
Belwind Alstom Haliade Demonstration	222	178	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	a	e	a	b	f	g	f	f
Mermaid	217	135	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	e	a	b	f	g	f	f
Norther	236	163	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	c	e	c	b	f	g	f	f
Northwester 2	222	175	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	c	e	c	b	f	g	f	f
Northwind	229	153	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	a	e	a	b	f	g	f	f
Rentel Area A	231	155	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	e	c	b	f	g	f	f
Seastar	225	149	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	e	c	b	f	g	f	f
Thornton Bank Phase I (Zone 1 C-Power)	237	158	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	a	e	a	b	f	g	f	f
Thornton Bank Phase II	237	158	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	a	e	a	b	f	g	f	f
Thornton Bank Phase III (Zone 1 C-Power 2)	235	160	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	a	e	a	b	f	g	f	f
Germany															
Aiolos	253	270	Submitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Albatros	235	251	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Alpha Ventus (Formely Borkum West I)	252	266	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Amrumbank West	328	342	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
AreaC I	254	268	Submitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
AreaC II	266	279	Submitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
AreaC III	277	291	Submitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Austerngrund	205	221	Submitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
BARD Offshore 1	215	229	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Bight Power I	231	245	Submitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Bight Power II	237	251	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Borkum Riffgrund 1	245	259	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	e	a	b	f	g	f	f
Borkum Riffgrund 2	241	255	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	e	c	g	f	g	f	f
Borkum Riffgrund West	226	240	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	g	f	g	f	f
Trianel Windpark Borkum (Borkum West II) Phase 1	241	255	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Trianel Windpark Borkum (Borkum West II) Phase 2	242	255	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	c	e	c	b	f	g	f	f
Borkum-Riffgrund West II	224	238	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	c	e	c	b	f	g	f	f
Butendiek	346	364	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Concordia I	253	276	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Concordia II	253	276	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
DanTysk	314	333	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Demonstrationsprojekt Albatros 1	244	260	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Deutsche BuchtOffshore Wind Farm	203	217	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	c	e	c	b	f	g	f	f
Diamant	181	200	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Emden	295	311	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
He dreiht I	228	242	Consented	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	b	f	g	f	f
Hohe See	239	254	Consented	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	b	f	g	f	f
ENOVA Offshore NSWP 10	225	248	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
ENOVA Offshore NSWP 11	237	260	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
ENOVA Offshore NSWP 12	227	249	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
ENOVA Offshore NSWP 13	238	260	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
ENOVA Offshore NSWP 14	229	251	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
ENOVA Offshore NSWP 15	239	261	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
ENOVA Offshore NSWP 8	221	245	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
ENOVA Offshore NSWP 9	234	258	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Euklas	172	192	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
GAIA I	261	280	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
GAIA II	245	264	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
GAIA III	240	259	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
GAIA IV	245	262	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
GAIA V	268	287	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Gannet	258	272	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Global Tech I	245	258	Under Construction	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Global Tech II	233	247	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Global Tech III	243	259	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Gode Wind I	275	289	Under Construction	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	a	e	a	b	f	g	f	f
Gode Wind IIII	281	294	Consented	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Gode Wind II	276	290	Under Construction	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	a	e	a	b	f	g	f	f
Gode Wind III	287	300	Submitted	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
He dreiht II	233	247	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Heron	264	278	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Hooksiel	351	366	Decommissioned	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	g	e	g	g	f	g	f	f
Horizont I	249	269	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Horizont II	256	275	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Horizont III	256	274	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Horizont IV	261	280	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
HTOD 1	207	232	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
HTOD 2	210	234	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
HTOD 3	211	235	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
HTOD 4	202	226	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
HTOD 5	212	234	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
HTOD 6	197	221	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Innogy Nordsee 2	269	282	Consented	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Innogy Nordsee 3	264	277	Consented	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
INNOGY Nordsee I	262	276	Under Construction	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	e	a	b	f	g	f	f
Jules Verne	218	240	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Kaikas	233	249	Consented	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Kaskasi II	332	345	Submitted	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Meerwind Süd/Ost	326	339	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Meerwind West	313	326	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f

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MEG Offshore I (now Merkur Offshore Wind Farm)	247	260	Under Construction	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	c	e	c	b	f	g	f	f
Nautilus I	214	235	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Nemo	209	232	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Neptune III	200	221	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Noerdlicher Grund	295	314	Consented	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	b	f	g	f	f
Noerdlicher Grund Teil Sandbank	297	316	Operational	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Nordergruende	353	368	Under Construction	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	c	e	c	b	f	g	f	f
Nord-Ost Passat I	185	212	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Nord-Ost Passat II	188	213	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Nord-Ost Passat III	193	219	Pre-planning application	Medium - Third party project details available but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Nordpassage	316	335	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Nordsee Ost	326	340	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
OWP Delta Nordsee 1	263	276	Consented	Medium - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	c	g	f	g	f	f
OWP Delta Nordsee 2	262	276	Consented	Medium - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	c	g	f	g	f	f
OWP West	221	235	Consented	Medium - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	c	g	f	g	f	f
Petrel	276	290	Consented	Medium - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	c	g	f	g	f	f
PNE Atlantis I	215	229	Submitted	Medium - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	c	g	f	g	f	f
PNE Atlantis II	214	230	Pre-planning application	Medium - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	c	g	f	g	f	f
PNE Atlantis III	217	234	Pre-planning application	Medium - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	c	g	f	g	f	f
Prowind I	181	201	Pre-planning application	Medium - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	c	g	f	g	f	f
Prowind II	181	201	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Prowind III	181	201	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
Riffgat	241	256	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Sandbank 24	298	317	Under Construction	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	c	e	c	b	f	g	f	f
Sandbank Extension	301	321	Submitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Seagull	269	283	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
SeaStorm I	223	240	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
SeaStorm II	226	243	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
SeaWind III	229	247	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
SeaWind IV	229	246	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Skua	259	274	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Trianel Windpark Borkum Phase 1	242	255	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Veja Mate	208	221	Under Construction	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Witte Bank	273	293	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Netherlands															
2017 Tender I	174	186	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
2017 Tender II	174	186	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energycontrol.	f	f	f	e	e	e	g	f	g	f	f
2018 Tender I	174	187	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
2018 Tender II	174	187	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f
2019 Tender I	150	166	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	g	f	g	f	f

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Borssele 1 and 2	216	181	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	c	e	c	b	f	g	f	f
Borssele 3 and 4	217	175	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	c	e	c	b	f	g	f	f
Buitengaats	214	228	Under Construction	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
HKZ Kavel I	164	178	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	f	e	e	g	f	g	f	f
HKZ Kavel II	170	184	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	f	e	e	g	f	g	f	f
HKZ Kavel III	178	192	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	f	e	e	g	f	g	f	f
HKZ Kavel IV	172	187	Pre-planning application	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	f	e	e	g	f	g	f	f
Eneco Luchterduinen	170	185	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Irene Vorrink I	223	240	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	c	b	f	g	f	f
Irene Vorrink II	223	240	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	c	b	f	g	f	f
Leeghwater - Turbine Demonstration Facility	222	188	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Lely	184	201	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	g	e	g	b	f	g	f	f
Offshore Windpark Egmond aan Zee	157	173	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Prinses Amaliapark	153	168	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Westermeerdijk buitendijks	215	232	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Windpark Fryslan	181	198	Submitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
ZeeEnergie	203	216	Under Construction	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	b	f	g	f	f
Zeeuws Offshore Wind Project	233	195	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Denmark															
Horns Rev	368	388	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	e	a	b	f	g	f	f
Horns Rev 2	358	379	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	a	e	a	b	f	g	f	f
Horns Rev 3	373	394	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	e	c	g	f	g	f	f
Nissum Bredning	461	485	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	c	e	c	g	f	g	f	f
Vesterhavet Nord	448	472	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
Vesterhavet Syd	410	432	Consented	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	g	f	g	f	f
France															
Fecamp Offshore (Eoliennes Offshore des Hautes Falaises Offshore)	458	346	Consented	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	e	e	e	d	f	g	f	f
Le Treport	410	311	Pre-planning application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	e	e	c	d	f	g	f	f
Other - Cable, Carbon, CSS, UCG															
England															
Deborah Gas Storage Site - ENI	84	10	Agreement for Lease	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	e	a	a	a	e	a	g	e	g	d	e
Hundale Potash Mine - York Potash	150	150	Exploration and Option	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	g	d	g	f	f
Hunterston Test Site	495	494	Operational	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	a	e	a	f	f	g	f	f
Rough Gas Storage Site - Centrica	101	92	Operational	Low - There is a lack of robust data and information and/or data quality is out with DONG Energy control.	f	f	f	a	e	a	f	e	g	f	e

Commercial Fisheries - Temporal

	Consenting/Pre-Construction
	Construction
	Operation and Maintenance
	Decommissioning

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
Fishing Rights	Industry information, CEFAS https://www.gov.uk/government/statistical-data-sets/uk-sea-fisheries-annual-statistics-report-2015	High - Third party project details published in the public domain and confirmed as being 'accurate' by CEFAS.	In 2015, the UK fishing industry had 6,187 fishing vessels compared with 6,716 in 2005, a reduction of 8 per cent. The fleet in 2015 comprised 4,863 10 metre and under vessels and 1,324 over 10 metre vessels.	Operational																	
Aquaculture	Industry information, CEFAS	High - Third party project details published in the public domain and confirmed as being 'accurate' by CEFAS.	The majority of UK food finfish aquaculture is located in Scotland, but it is increasing in Wales and England. Shellfish culture is spread more evenly throughout the UK.	Operational																	

Commercial Fisheries - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* ***Screened in to assessment.***
c	*Potential cumulative impact exists:* ***Screened in to assessment.***
d	*No conceptual effect-receptor pathway:* ***Screened out of assessment.***
e	*Low data confidence:* ***Screened out of assessment.***
f	*No physical effect-receptor overlap:* ***Screened out of assessment.***
g	*No temporal overlap:* ***Screened out of assessment.***

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Aviation, Military & Communications	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Fishing Rights	N/A	N/A	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by CEFAS.	f	a	a	a	d	a	a	f	b	a	a
Aquaculture	N/A	N/A	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by CEFAS.	f	d	d	d	d	a	a	d	d	a	a

Oil and Gas - Temporal

	Consenting/Pre-Construction
	Construction
	Operation and Maintenance
	Decommissioning
	Project has been withdrawn from development or operation

Notes - Where no specific lifespan or decommissioning plan is stated for a platform, we have assumed continual operation. Where an end date has been identified, we have assumed a 10 year decommissioning period.
- Where projects are pre-approval and have no known operation schedule, no construction window is indicated

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale				Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
								2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
United Kingdom (Platforms within 200km of HOW03)			Block			License Operator	Type																		
BLYTHE (NUI)	Independent Oil and Gas Ltd Early consultation document	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	48	23		Independent Oil and Gas Ltd (NUI)	Gas	PRECOMMISSION																	
VULCAN NW (NUI)	Independent Oil and Gas Ltd Early consultation document	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	48	25		Independent Oil and Gas Ltd (NUI)	Gas	PRECOMMISSION																	
VULCAN E (NUI)	Independent Oil and Gas Ltd Early consultation document	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	49	21		Independent Oil and Gas Ltd (NUI)	Gas	PRECOMMISSION																	
VULCAN S (NUI)	Independent Oil and Gas Ltd Early consultation document	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	49	21		Independent Oil and Gas Ltd (NUI)	Gas	PRECOMMISSION																	
MINERVA	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47	3	c	BP EXPLORATION OPERATING COMPANY LIMITED	Gas	ACTIVE																	
NEPTUNE	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47	4	b	PERENCO UK LIMITED	Gas	ACTIVE																	
WINGATE PLATFORM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	24	b	WINTERSHALL NOORDZEE B.V.	Gas	ACTIVE																	
VAMPIRE OD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
LOGGS COMPRESSION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
LOGGS PRODUCTION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
LOGGS RISER	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
LOGGS ACCOMMODATION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
NORTH VALIANT 1	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
NORTH VALIANT 2	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
KATY KT	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	19	b	CONOCOPHILLIPS (U.K.) LIMITED	Gas	PRECOMMISSION																	
PICKERILL B	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	11	a	PERENCO UK LIMITED	Gas	ACTIVE																	
48/29A-P	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	29	a	PERENCO GAS (UK) LIMITED	Gas	ACTIVE																	
48/29B	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	29	a	PERENCO GAS (UK) LIMITED	Gas	ACTIVE																	
48/29A-FTP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	29	a	PERENCO GAS (UK) LIMITED	Gas	ACTIVE																	
48/29A-Q	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	29	a	PERENCO GAS (UK) LIMITED	Gas	ACTIVE																	
48/29C	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	29	a	PERENCO GAS (UK) LIMITED	Gas	ACTIVE																	
AMETHYST A1D	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47	14	a	PERENCO UK LIMITED	Gas	ACTIVE																	
AMETHYST A2D	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47	14	a	PERENCO UK LIMITED	Gas	ACTIVE																	
AMETHYST C1D	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47	14	a	PERENCO UK LIMITED	Gas	ACTIVE																	

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale			Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
							2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
GROVE PLATFORM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	10	a	CENTRICA RESOURCES LIMITED	Gas	ACTIVE																	
KETCH	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	28	b	FAROE PETROLEUM (U.K.) LIMITED	Gas	ACTIVE																	
LUCY - SMALLFOOT	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	20	a	SHELL U.K. LIMITED	Gas	PROPOSED																	
SHAMROCK QS	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	20	a	SHELL U.K. LIMITED	Gas	ACTIVE																	
VIKING BRAVO DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	17	a	VERUS PETROLEUM (SNS) LIMITED	Gas	ACTIVE																	
VIKING BRAVO ACCOMMODATION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	17	a	VERUS PETROLEUM (SNS) LIMITED	Gas	ACTIVE																	
VIKING BRAVO COMPRESSION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	17	a	VERUS PETROLEUM (SNS) LIMITED	Gas	ACTIVE																	
VIKING CHARLIE DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	17	a	VERUS PETROLEUM (SNS) LIMITED	Gas	ACTIVE																	
VIKING DELTA DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	17	a	VERUS PETROLEUM (SNS) LIMITED	Gas	ACTIVE																	
VIKING BRAVO PRODUCTION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	17	a	VERUS PETROLEUM (SNS) LIMITED	Gas	ACTIVE																	
VANGUARD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
VISCOUNT VO	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	16	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
HOTON	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	7	b	PERENCO UK LIMITED	Gas	ACTIVE																	
52/5A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	52	5	a	ENI HEWETT LIMITED	Gas	ACTIVE																	
CHISWICK PLATFORM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	4	a	CENTRICA NORTH SEA LIMITED	Gas	ACTIVE																	
AUDREY A (WD)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	11	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
GARROW NUI	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	42	25	a	ATP OIL & GAS (UK) LIMITED	Gas	ACTIVE																	
AMETHYST B1D	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47	15	a	PERENCO UK LIMITED	Gas	ACTIVE																	
44/23A KELVIN TM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	18	b	CONOCOPHILLIPS (U.K.) LIMITED	Gas	PRECOMMISSION																	
BREAGH ALPHA	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	42	13	a	RWE DEA UK SNS LIMITED	Gas	ACTIVE																	
CARAVEL QR	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	20	b	SHELL U.K. LIMITED	Gas	ACTIVE																	
BABBAGE	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	2	a	E.ON E&P UK EU LIMITED	Gas	ACTIVE																	
48/9A MIMAS	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	9	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	PRECOMMISSION																	
MIMAS MN	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	9	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
WAVENEY	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	17	c	PERENCO NORTH SEA LIMITED	Gas	ACTIVE																	
MUNRO MH	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	17	b	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
PICKERILL A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	11	b	PERENCO UK LIMITED	Gas	ACTIVE																	
SCHOONER A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	26	a	FAROE PETROLEUM (U.K.) LIMITED	Gas	ACTIVE																	
BOULTON	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	21	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
MURDOCH ACCOMMODATION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	22	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
MURDOCH COMPRESSION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	22	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
MURDOCH DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	22	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																	
KILMAR NUI	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	43	22	a	ATP OIL & GAS (UK) LIMITED	Gas	ACTIVE																	

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale		Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																	
						2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
SATURN ND	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																		
TRENT	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	PERENCO UK LIMITED	Gas	ACTIVE																		
TYNE	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	PERENCO UK LIMITED	Gas	ACTIVE																		
ST-1 PLATFORM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	CENTRICA NORTH SEA LIMITED	Gas	ACTIVE																		
HYDE	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	BP EXPLORATION OPERATING COMPANY LIMITED	Gas	ACTIVE																		
LEMAN AD1	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN AD2	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN AK	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN AP (SHELL)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN BD (SHELL)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN BH	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN BP (SHELL)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN BT (SHELL)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN CP (SHELL)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN D	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN E	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN F	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN G (SHELL)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN CD (SHELL)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
LEMAN AC (SHELL)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
CLEETON WLTR	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	PERENCO UK LIMITED	Gas	ACTIVE																		
CLEETON PQ	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	PERENCO UK LIMITED	Gas	ACTIVE																		
CLEETON CC	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	PERENCO UK LIMITED	Gas	ACTIVE																		
CORVETTE	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
CLIPPER PR	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
CLIPPER PM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
CLIPPER PC	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
CLIPPER PT	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
CLIPPER PW	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
CLIPPER PH	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
CLIPPER SOUTH	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	INEOS UK SNS LIMITED	Gas	ACTIVE																		
BARQUE PB	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
BARQUE PL	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
GALLEON PG	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		
ENSIGN	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	CENTRICA NORTH SEA LIMITED	Gas	PROPOSED																		
ENSIGN PLATFORM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	CENTRICA NORTH SEA LIMITED	Gas	PRECOMMISSION																		
BRIGANTINE BG	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	SHELL U.K. LIMITED	Gas	ACTIVE																		

								Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale			Status of Development	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
BRIGANTINE BR	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	19	a	SHELL U.K. LIMITED	Gas	ACTIVE																		
CUTTER	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	9	a	SHELL U.K. LIMITED	Gas	ACTIVE																		
GALLEON PN	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	20	a	SHELL U.K. LIMITED	Gas	ACTIVE																		
FRIGATE EXTENSION	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	20	a	SHELL U.K. LIMITED	Gas	PROPOSED																		
SKIFF	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	20	a	SHELL U.K. LIMITED	Gas	ACTIVE																		
WEST SOLE C	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	6	a	PERENCO UK LIMITED	Gas	ACTIVE																		
WEST SOLE PP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	6	a	PERENCO UK LIMITED	Gas	ACTIVE																		
WEST SOLE A (8 LEG)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	6	a	PERENCO UK LIMITED	Gas	ACTIVE																		
WEST SOLE SP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	6	a	PERENCO UK LIMITED	Gas	ACTIVE																		
WEST SOLE B	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	6	a	PERENCO UK LIMITED	Gas	ACTIVE																		
WEST SOLE A (6 LEG)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	6	a	PERENCO UK LIMITED	Gas	ACTIVE																		
RAVENSPURN NORTH ST3	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	42	30	a	PERENCO UK LIMITED	Gas	ACTIVE																		
RAVENSPURN SOUTH A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	42	30	a	PERENCO UK LIMITED	Gas	ACTIVE																		
RAVENSPURN SOUTH B	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	42	30	a	PERENCO UK LIMITED	Gas	ACTIVE																		
RAVENSPURN SOUTH C	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	42	30	a	PERENCO UK LIMITED	Gas	ACTIVE																		
SEAN PD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	25	a	ORANJE-NASSAU ENERGIE UK LIMITED	Gas	ACTIVE																		
SEAN PP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	25	a	ORANJE-NASSAU ENERGIE UK LIMITED	Gas	ACTIVE																		
SEAN RD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	25	a	ORANJE-NASSAU ENERGIE UK LIMITED	Gas	ACTIVE																		
DAVY A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	30	d	PERENCO UK LIMITED	Gas	ACTIVE																		
GALAHAD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	12	a	PERENCO UK LIMITED	Gas	ACTIVE																		
MALORY	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	12	d	PERENCO UK LIMITED	Gas	ACTIVE																		
YORK PLATFORM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47	3	a	CENTRICA RESOURCES LIMITED	Gas	ACTIVE																		
INDE CD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	23	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE AC	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	23	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE AT	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	23	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE CP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	23	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE D	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	23	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE AQ	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	23	a	PERENCO UK LIMITED	Gas	ACTIVE																		
BESSEMER A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	23	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN AD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN CD (PERENCO)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN BT (PERENCO)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN J	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN AC	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN AP (PERENCO)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN AQ	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN AX	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		

								Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale				Status of Development	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
LEMAN H	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN BD (PERENCO)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN BP (PERENCO)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN CP (PERENCO)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN DD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN DP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN ED	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN EP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN FD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN FP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
LEMAN G (PERENCO)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	27	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE AD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	18	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE AP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	18	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE BD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	18	a	PERENCO UK LIMITED	Gas	ACTIVE																		
INDE BP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	18	a	PERENCO UK LIMITED	Gas	ACTIVE																		
RAVENSPURN NORTH ST2	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	43	26	a	BP EXPLORATION OPERATING COMPANY LIMITED	Gas	ACTIVE																		
RAVENSPURN NORTH CC	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	43	26	a	BP EXPLORATION OPERATING COMPANY LIMITED	Gas	ACTIVE																		
RAVENSPURN NORTH CCW	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	43	26	a	BP EXPLORATION OPERATING COMPANY LIMITED	Gas	ACTIVE																		
CAVENDISH	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	43	19	a	RWE DEA UK SNS LIMITED	Gas	ACTIVE																		
GUINEVERE A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48	17	b	PERENCO UK LIMITED	Gas	ACTIVE																		
CARRACK QA	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	14	b	SHELL U.K. LIMITED	Gas	ACTIVE																		
CYGNUS B (BWHP)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	11	a	ENGIE E&P UK LIMITED	Gas	ACTIVE																		
CYGNUS A (AUQ)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	12	a	ENGIE E&P UK LIMITED	Gas	ACTIVE																		
CYGNUS A (AWHP)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	12	a	ENGIE E&P UK LIMITED	Gas	ACTIVE																		
CYGNUS A (APU)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	44	12	a	ENGIE E&P UK LIMITED	Gas	ACTIVE																		
VIKING ALPHA RISER	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	12	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																		
VIKING KILO DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	12	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																		
WENLOCK NUI	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	12	a	ALPHA PETROLEUM RESOURCES LIMITED	Gas	ACTIVE																		
THAMES A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	28	a	PERENCO UK LIMITED	Gas	ACTIVE																		
THAMES AR	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	28	a	PERENCO UK LIMITED	Gas	ACTIVE																		
SOUTH VALIANT	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	21	b	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																		
VULCAN 1	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	21	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																		
VICTOR JULIET DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	22	a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																		
EUROPA	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49	22	c	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																		

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale		Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
						2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
EXCALIBER EA	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48 17 a	PERENCO UK LIMITED	Gas	ACTIVE																
LANCELOT A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48 17 a	PERENCO UK LIMITED	Gas	ACTIVE																
JUPITER GANYMEDE	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 22 a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																
GANYMEDE ZD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 22 a	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																
AUDREY B (XW)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48 15 c	CENTRICA NORTH SEA LIMITED	Gas	ACTIVE																
VULCAN 2 (UR)	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	48 25 b	CONOCOPHILLIPS (U.K.) LIMITED	Gas	ACTIVE																
49/11B TETHYS	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 11 b	CONOCOPHILLIPS (U.K.) LIMITED	Gas	PRECOMMISSION																
ROUGH AP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47 8 b	CENTRICA OFFSHORE UK LIMITED	Gas	ACTIVE																
ROUGH AD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47 8 b	CENTRICA OFFSHORE UK LIMITED	Gas	ACTIVE																
ROUGH BD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47 3 d	CENTRICA OFFSHORE UK LIMITED	Gas	ACTIVE																
ROUGH BP	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47 3 d	CENTRICA OFFSHORE UK LIMITED	Gas	ACTIVE																
ROUGH CD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47 3 d	CENTRICA OFFSHORE UK LIMITED	Gas	ACTIVE																
BOOSTER PLATFORM 36/22A NORPIPE A.S	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	36 22 a	CONOCOPHILLIPS	Gas	ACTIVE																
VIKING LIMA DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 17 a	CONOCOPHILLIPS	Gas	ACTIVE																
J6A / J6A-CT PLATFORMS	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	47 3 d	CENTRICA	Gas	ACTIVE																
D15-FA1	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.		ENGIE	Gas	ACTIVE																
ANGLIA YD	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 17 a	CONOCOPHILLIPS	Gas	ACTIVE																
ANGLIA A	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 17 a	ITHACA	Gas	ACTIVE																
CAISTER	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 17 a	CONOCOPHILLIPS	Gas	ACTIVE																
VIKING ECHO DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 17 a	CONOCOPHILLIPS	Gas	ACTIVE																
VIKING GOLF DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 17 a	CONOCOPHILLIPS	Gas	ACTIVE																
VIKING HOTEL DRILLING	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 17 a	CONOCOPHILLIPS	Gas	ACTIVE																
WINDERMERE PLATFORM	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.		INEOS	Gas	ACTIVE																
VIKING ED	UKOilandGasData	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	49 17 a	CONOCOPHILLIPS	Gas	ACTIVE																
Netherlands																						
PE-K4-BE	NLOG Data	High - Third party project details based on NLOG data.	K04a	TOTAL	Hydrocarbons	ACTIVE																
Q1-Halfweg	NLOG Data	High - Third party project details based on NLOG data.	Q01	CHEVRON	Hydrocarbons	ACTIVE																
K7-FA-1P	NLOG Data	High - Third party project details based on NLOG data.	K07	NAM	Hydrocarbons	ACTIVE																
K07-FB-1	NLOG Data	High - Third party project details based on NLOG data.	K07	NAM	Hydrocarbons	ACTIVE																
K07-FD-1	NLOG Data	High - Third party project details based on NLOG data.	K07	NAM	Hydrocarbons	ACTIVE																
K8-FA-1	NLOG Data	High - Third party project details based on NLOG data.	K08	NAM	Hydrocarbons	ACTIVE																
K08-FA-2	NLOG Data	High - Third party project details based on NLOG data.	K08	NAM	Hydrocarbons	ACTIVE																
K08-FA-3	NLOG Data	High - Third party project details based on NLOG data.	K08	NAM	Hydrocarbons	ACTIVE																
K14-FB-1	NLOG Data	High - Third party project details based on NLOG data.	K14a	NAM	Hydrocarbons	ACTIVE																
K15-FA-1	NLOG Data	High - Third party project details based on NLOG data.	K15	NAM	Hydrocarbons	ACTIVE																
K15-FB-1	NLOG Data	High - Third party project details based on NLOG data.	K15	NAM	Hydrocarbons	ACTIVE																
K15-FC-1	NLOG Data	High - Third party project details based on NLOG data.	K15	NAM	Hydrocarbons	ACTIVE																

							Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																	
Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale			Status of Development	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
K15-FG-1	NLOG Data	High - Third party project details based on NLOG data.	K15	NAM	Hydrocarbons	ACTIVE																		
K15-FK-1	NLOG Data	High - Third party project details based on NLOG data.	K15	NAM	Hydrocarbons	ACTIVE																		
L05-FA-1	NLOG Data	High - Third party project details based on NLOG data.	L05a	ENGIE	Hydrocarbons	ACTIVE																		
L9-FF-1W	NLOG Data	High - Third party project details based on NLOG data.	L09	NAM	Hydrocarbons	ACTIVE																		
L13-FD-1	NLOG Data	High - Third party project details based on NLOG data.	L13	NAM	Hydrocarbons	ACTIVE																		
L15-FA-1	NLOG Data	High - Third party project details based on NLOG data.	L15b	ENGIE	Hydrocarbons	ACTIVE																		
P15-D	NLOG Data	High - Third party project details based on NLOG data.	P15a	TAQA OFF	Hydrocarbons	ACTIVE																		
P15-E	NLOG Data	High - Third party project details based on NLOG data.	P15a	TAQA OFF	Hydrocarbons	ACTIVE																		
P15-F	NLOG Data	High - Third party project details based on NLOG data.	P15a	TAQA OFF	Hydrocarbons	ACTIVE																		
P15-G	NLOG Data	High - Third party project details based on NLOG data.	P15a	TAQA OFF	Hydrocarbons	ACTIVE																		
P18-A	NLOG Data	High - Third party project details based on NLOG data.	P18a	TAQA OFF	Hydrocarbons	ACTIVE																		
Bergermeer	NLOG Data	High - Third party project details based on NLOG data.	BERGERMEER	TAQA PG	Hydrocarbons	ACTIVE																		
Groet 1	NLOG Data	High - Third party project details based on NLOG data.	BERGEN II	TAQA ON	Hydrocarbons	ACTIVE																		
Bergen aan Zee	NLOG Data	High - Third party project details based on NLOG data.	BERGEN II	TAQA ON	Hydrocarbons	ACTIVE																		
Schermer-1	NLOG Data	High - Third party project details based on NLOG data.	BERGEN II	TAQA ON	Hydrocarbons	ACTIVE																		
J03-C (=well J06-A5)	NLOG Data	High - Third party project details based on NLOG data.	J06	TOTAL	Hydrocarbons	ACTIVE																		
K2b-A	NLOG Data	High - Third party project details based on NLOG data.	K02b	ENGIE	Hydrocarbons	ACTIVE																		
F15-FA-1	NLOG Data	High - Third party project details based on NLOG data.	F15a	NAM	Hydrocarbons	ACTIVE																		
P11b-De Ruyter	NLOG Data	High - Third party project details based on NLOG data.	P11b	DANA	Hydrocarbons	ACTIVE																		
K14-FA-1C	NLOG Data	High - Third party project details based on NLOG data.	K14a	NAM	Hydrocarbons	ACTIVE																		
Zuid-Schermer	NLOG Data	High - Third party project details based on NLOG data.	BERGEN II	TAQA ON	Hydrocarbons	ACTIVE																		
P15-A-DP	NLOG Data	High - Third party project details based on NLOG data.	P15a	TAQA OFF	Hydrocarbons	ACTIVE																		
D12-A	NLOG Data	High - Third party project details based on NLOG data.	D12a	WIN	Hydrocarbons	ACTIVE																		
F16-A	NLOG Data	High - Third party project details based on NLOG data.	F16	WIN	Hydrocarbons	ACTIVE																		
L10-D	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																		
PE-K4-PA	NLOG Data	High - Third party project details based on NLOG data.	K04a	TOTAL	Hydrocarbons	ACTIVE																		
PE-L4-PB	NLOG Data	High - Third party project details based on NLOG data.	L04a	TOTAL	Hydrocarbons	ACTIVE																		
Middelie 300	NLOG Data	High - Third party project details based on NLOG data.	MIDDELIE	NAM	Hydrocarbons	ACTIVE																		
L09-FA-1	NLOG Data	High - Third party project details based on NLOG data.	L09	NAM	Hydrocarbons	ACTIVE																		
L09-FB-1	NLOG Data	High - Third party project details based on NLOG data.	L09	NAM	Hydrocarbons	ACTIVE																		
K14-FA-1 (LoCal)	NLOG Data	High - Third party project details based on NLOG data.	K14a	NAM	Hydrocarbons	ACTIVE																		
K15-FA-1 High Pressure Train	NLOG Data	High - Third party project details based on NLOG data.	K15	NAM	Hydrocarbons	ACTIVE																		
G14-B	NLOG Data	High - Third party project details based on NLOG data.	G14	ENGIE	Hydrocarbons	ACTIVE																		
A12 Central Processing Platform	NLOG Data	High - Third party project details based on NLOG data.	A12a	CHEVRON	Hydrocarbons	ACTIVE																		
K12-K	NLOG Data	High - Third party project details based on NLOG data.	K12	ENGIE	Hydrocarbons	ACTIVE																		
Westbeemster	NLOG Data	High - Third party project details based on NLOG data.	MIDDELIE	NAM	Hydrocarbons	ACTIVE																		
F2-A-Hanze TMLS	NLOG Data	High - Third party project details based on NLOG data.	F02a	DANA	Hydrocarbons	ACTIVE																		
P11b-De Ruyter TMLS	NLOG Data	High - Third party project details based on NLOG data.	P11b	DANA	Hydrocarbons	ACTIVE																		
K14-FA-1P	NLOG Data	High - Third party project details based on NLOG data.	K14a	NAM	Hydrocarbons	ACTIVE																		

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale			Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
							2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
K09ab-A (GdF)	NLOG Data	High - Third party project details based on NLOG data.	K09b	ENGIE	Hydrocarbons	ACTIVE																			
L13-FE-1	NLOG Data	High - Third party project details based on NLOG data.	L13	NAM	Hydrocarbons	ACTIVE																			
UN-L/11B-PA	NLOG Data	High - Third party project details based on NLOG data.	L11b	ONE	Hydrocarbons	ACTIVE																			
L02-FA-1	NLOG Data	High - Third party project details based on NLOG data.	L02	NAM	Hydrocarbons	ACTIVE																			
L13-FC-1P	NLOG Data	High - Third party project details based on NLOG data.	L13	NAM	Hydrocarbons	ACTIVE																			
K17-FA-1	NLOG Data	High - Third party project details based on NLOG data.	K17	NAM	Hydrocarbons	ACTIVE																			
Groet 2	NLOG Data	High - Third party project details based on NLOG data.	BERGEN II	TAQA ON	Hydrocarbons	ACTIVE																			
Alkmaar	NLOG Data	High - Third party project details based on NLOG data.	ALKMAAR	TAQA PG	Hydrocarbons	ACTIVE																			
G14-A	NLOG Data	High - Third party project details based on NLOG data.	G14	ENGIE	Hydrocarbons	ACTIVE																			
G16a-A	NLOG Data	High - Third party project details based on NLOG data.	G16a	ENGIE	Hydrocarbons	ACTIVE																			
L05-C	NLOG Data	High - Third party project details based on NLOG data.	L05b	WIN	Hydrocarbons	ACTIVE																			
K08-FA-3A	NLOG Data	High - Third party project details based on NLOG data.	K08	NAM	Hydrocarbons	ACTIVE																			
PE-F15-PA	NLOG Data	High - Third party project details based on NLOG data.	F15a	TOTAL	Hydrocarbons	ACTIVE																			
Franeker 1 / Harlingen 7	NLOG Data	High - Third party project details based on NLOG data.	LEEUWARDEN	VERM	Hydrocarbons	ACTIVE																			
Harlingen 101	NLOG Data	High - Third party project details based on NLOG data.	LEEUWARDEN	VERM	Hydrocarbons	ACTIVE																			
Harlingen 2/8	NLOG Data	High - Third party project details based on NLOG data.	LEEUWARDEN	VERM	Hydrocarbons	ACTIVE																			
Harlingen 4	NLOG Data	High - Third party project details based on NLOG data.	LEEUWARDEN	VERM	Hydrocarbons	ACTIVE																			
Harlingen 5	NLOG Data	High - Third party project details based on NLOG data.	LEEUWARDEN	VERM	Hydrocarbons	ACTIVE																			
Harlingen 6	NLOG Data	High - Third party project details based on NLOG data.	LEEUWARDEN	VERM	Hydrocarbons	ACTIVE																			
J6-A-Markham	NLOG Data	High - Third party project details based on NLOG data.	J06	CENTRICA	Hydrocarbons	ACTIVE																			
PE-K1-PA	NLOG Data	High - Third party project details based on NLOG data.	K01a	TOTAL	Hydrocarbons	ACTIVE																			
PE-K5-PA	NLOG Data	High - Third party project details based on NLOG data.	K05a	TOTAL	Hydrocarbons	ACTIVE																			
PE-K5-PB	NLOG Data	High - Third party project details based on NLOG data.	K05a	TOTAL	Hydrocarbons	ACTIVE																			
K5-D	NLOG Data	High - Third party project details based on NLOG data.	K05a	TOTAL	Hydrocarbons	ACTIVE																			
PE-K5-EN/C	NLOG Data	High - Third party project details based on NLOG data.	K05a	TOTAL	Hydrocarbons	ACTIVE																			
PE-K6-PC	NLOG Data	High - Third party project details based on NLOG data.	K06	TOTAL	Hydrocarbons	ACTIVE																			
K06-D	NLOG Data	High - Third party project details based on NLOG data.	K06	TOTAL	Hydrocarbons	ACTIVE																			
K06-DN	NLOG Data	High - Third party project details based on NLOG data.	K06	TOTAL	Hydrocarbons	ACTIVE																			
K06-GT	NLOG Data	High - Third party project details based on NLOG data.	K06	TOTAL	Hydrocarbons	ACTIVE																			
K06-N	NLOG Data	High - Third party project details based on NLOG data.	K06	TOTAL	Hydrocarbons	ACTIVE																			
K09ab-A (Total)	NLOG Data	High - Third party project details based on NLOG data.	K09b	TOTAL	Hydrocarbons	ACTIVE																			
L04-A	NLOG Data	High - Third party project details based on NLOG data.	L04a	TOTAL	Hydrocarbons	ACTIVE																			
L04-PN	NLOG Data	High - Third party project details based on NLOG data.	L04a	TOTAL	Hydrocarbons	ACTIVE																			
L7-PB	NLOG Data	High - Third party project details based on NLOG data.	L07	TOTAL	Hydrocarbons	ACTIVE																			
PE-L7-PC	NLOG Data	High - Third party project details based on NLOG data.	L07	TOTAL	Hydrocarbons	ACTIVE																			
PE-L7-PH	NLOG Data	High - Third party project details based on NLOG data.	L07	TOTAL	Hydrocarbons	ACTIVE																			
L07-N	NLOG Data	High - Third party project details based on NLOG data.	L07	TOTAL	Hydrocarbons	ACTIVE																			
Middenmeer 1/2	NLOG Data	High - Third party project details based on NLOG data.	SLOOTDORP	VERM	Hydrocarbons	ACTIVE																			
Ried	NLOG Data	High - Third party project details based on NLOG data.	LEEUWARDEN	VERM	Hydrocarbons	ACTIVE																			

							Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale			Status of Development	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
Slootdorp 1/4/5	NLOG Data	High - Third party project details based on NLOG data.	SLOOTDORP	VERM	Hydrocarbons	ACTIVE																			
PE-ZW-PA	NLOG Data	High - Third party project details based on NLOG data.	ZUIDWAL	VERM	Hydrocarbons	ACTIVE																			
F2-A-Hanze	NLOG Data	High - Third party project details based on NLOG data.	F02a	DANA	Hydrocarbons	ACTIVE																			
L08-Alpha	NLOG Data	High - Third party project details based on NLOG data.	L08a	WIN	Hydrocarbons	ACTIVE																			
L08-Golf	NLOG Data	High - Third party project details based on NLOG data.	L08a	WIN	Hydrocarbons	ACTIVE																			
L08-Hotel	NLOG Data	High - Third party project details based on NLOG data.	L08a	WIN	Hydrocarbons	ACTIVE																			
L08-P	NLOG Data	High - Third party project details based on NLOG data.	L08b	WIN	Hydrocarbons	ACTIVE																			
L08-P4	NLOG Data	High - Third party project details based on NLOG data.	L08b	WIN	Hydrocarbons	ACTIVE																			
L16-Logger-P	NLOG Data	High - Third party project details based on NLOG data.	L16a	WIN	Hydrocarbons	ACTIVE																			
L05-B	NLOG Data	High - Third party project details based on NLOG data.	L05b	WIN	Hydrocarbons	ACTIVE																			
P06-A	NLOG Data	High - Third party project details based on NLOG data.	P06	WIN	Hydrocarbons	ACTIVE																			
P06-B	NLOG Data	High - Third party project details based on NLOG data.	P06	WIN	Hydrocarbons	ACTIVE																			
P06-D	NLOG Data	High - Third party project details based on NLOG data.	P06	WIN	Hydrocarbons	ACTIVE																			
P12-SW	NLOG Data	High - Third party project details based on NLOG data.	P12	WIN	Hydrocarbons	ACTIVE																			
Q04-A	NLOG Data	High - Third party project details based on NLOG data.	Q04	WIN	Hydrocarbons	ACTIVE																			
Q04-B	NLOG Data	High - Third party project details based on NLOG data.	Q04	WIN	Hydrocarbons	ACTIVE																			
Q04-C	NLOG Data	High - Third party project details based on NLOG data.	Q04	WIN	Hydrocarbons	ACTIVE																			
D15-FA-1	NLOG Data	High - Third party project details based on NLOG data.	D15	ENGIE	Hydrocarbons	ACTIVE																			
G17d-A	NLOG Data	High - Third party project details based on NLOG data.	G17d	ENGIE	Hydrocarbons	ACTIVE																			
K12-BD	NLOG Data	High - Third party project details based on NLOG data.	K12	ENGIE	Hydrocarbons	ACTIVE																			
K12-C	NLOG Data	High - Third party project details based on NLOG data.	K12	ENGIE	Hydrocarbons	ACTIVE																			
K12-D	NLOG Data	High - Third party project details based on NLOG data.	K12	ENGIE	Hydrocarbons	ACTIVE																			
K12-G	NLOG Data	High - Third party project details based on NLOG data.	K12	ENGIE	Hydrocarbons	ACTIVE																			
K09ab-B	NLOG Data	High - Third party project details based on NLOG data.	K09a	ENGIE	Hydrocarbons	ACTIVE																			
K09c-A	NLOG Data	High - Third party project details based on NLOG data.	K09c	ENGIE	Hydrocarbons	ACTIVE																			
L10-AD	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																			
L10-B	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																			
L10-C	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																			
L10-E	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																			
L10-F	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																			
L10-G	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																			
L10-L	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																			
L10-M	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																			
Q1-Haven-A	NLOG Data	High - Third party project details based on NLOG data.	Q01	CHEVRON	Hydrocarbons	ACTIVE																			
Q1-Helder-AP	NLOG Data	High - Third party project details based on NLOG data.	Q01	CHEVRON	Hydrocarbons	ACTIVE																			
Q01-Helm-AP	NLOG Data	High - Third party project details based on NLOG data.	Q01	CHEVRON	Hydrocarbons	ACTIVE																			
Q1-Hoorn-AP	NLOG Data	High - Third party project details based on NLOG data.	Q01	WIN	Hydrocarbons	ACTIVE																			
P9-Horizon-A	NLOG Data	High - Third party project details based on NLOG data.	P09c	CHEVRON	Hydrocarbons	ACTIVE																			
E18-A	NLOG Data	High - Third party project details based on NLOG data.	E18a	WIN	Hydrocarbons	ACTIVE																			

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale			Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																		
							2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
M7-A	NLOG Data	High - Third party project details based on NLOG data.	M07	ONE	Hydrocarbons	ACTIVE																		
A-18	NLOG Data	High - Third party project details based on NLOG data.	A18a	PETROGAS	Hydrocarbons	ACTIVE																		
E17a-A	NLOG Data	High - Third party project details based on NLOG data.	E17a	ENGIE	Hydrocarbons	ACTIVE																		
B13-A	NLOG Data	High - Third party project details based on NLOG data.	B13a	CHEVRON	Hydrocarbons	ACTIVE																		
G16a-B	NLOG Data	High - Third party project details based on NLOG data.	G16a	ENGIE	Hydrocarbons	ACTIVE																		
PE-K5-CU	NLOG Data	High - Third party project details based on NLOG data.	K05b	TOTAL	Hydrocarbons	ACTIVE																		
F3-FA	NLOG Data	High - Third party project details based on NLOG data.	F03a	CENTRICA	Hydrocarbons	ACTIVE																		
P15-C-PP	NLOG Data	High - Third party project details based on NLOG data.	P15a	TAQA OFF	Hydrocarbons	ACTIVE																		
PE-K6-PP	NLOG Data	High - Third party project details based on NLOG data.	K06	TOTAL	Hydrocarbons	ACTIVE																		
PE-K5-PP	NLOG Data	High - Third party project details based on NLOG data.	K05a	TOTAL	Hydrocarbons	ACTIVE																		
PE-K5-PK	NLOG Data	High - Third party project details based on NLOG data.	K05a	TOTAL	Hydrocarbons	ACTIVE																		
J6-C-Markham	NLOG Data	High - Third party project details based on NLOG data.	J06	VENTURE	Hydrocarbons	ACTIVE																		
D18a-A	NLOG Data	High - Third party project details based on NLOG data.	D18a	ENGIE	Hydrocarbons	ACTIVE																		
K15-FA-1R	NLOG Data	High - Third party project details based on NLOG data.	K15	NAM	Hydrocarbons	ACTIVE																		
K7-FA-1W	NLOG Data	High - Third party project details based on NLOG data.	K07	NAM	Hydrocarbons	ACTIVE																		
Q01-Helm-AW	NLOG Data	High - Third party project details based on NLOG data.	Q01	CHEVRON	Hydrocarbons	ACTIVE																		
Q1-Hoorn-AW	NLOG Data	High - Third party project details based on NLOG data.	Q01	WIN	Hydrocarbons	ACTIVE																		
K18-Kotter-W	NLOG Data	High - Third party project details based on NLOG data.	K18b	WIN	Hydrocarbons	ACTIVE																		
L16-Logger-W	NLOG Data	High - Third party project details based on NLOG data.	L16a	WIN	Hydrocarbons	ACTIVE																		
L13-FC-1W	NLOG Data	High - Third party project details based on NLOG data.	L13	NAM	Hydrocarbons	ACTIVE																		
K8-FA-1A	NLOG Data	High - Third party project details based on NLOG data.	K08	NAM	Hydrocarbons	ACTIVE																		
L10-AR	NLOG Data	High - Third party project details based on NLOG data.	L10	NGT	Hydrocarbons	ACTIVE																		
L10-AP	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																		
G17d-AP	NLOG Data	High - Third party project details based on NLOG data.	G17d	ENGIE	Hydrocarbons	ACTIVE																		
F3-FB-1A	NLOG Data	High - Third party project details based on NLOG data.	F03b	CHEVRON	Hydrocarbons	ACTIVE																		
Q1-Helder-AW	NLOG Data	High - Third party project details based on NLOG data.	Q01	CHEVRON	Hydrocarbons	ACTIVE																		
K12-BP	NLOG Data	High - Third party project details based on NLOG data.	K12	ENGIE	Hydrocarbons	ACTIVE																		
K12-CC	NLOG Data	High - Third party project details based on NLOG data.	K12	ENGIE	Hydrocarbons	ACTIVE																		
L10-AC	NLOG Data	High - Third party project details based on NLOG data.	L10	NGT	Hydrocarbons	ACTIVE																		
L10-BB	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																		
L10-EE	NLOG Data	High - Third party project details based on NLOG data.	L10	ENGIE	Hydrocarbons	ACTIVE																		
L7-BB	NLOG Data	High - Third party project details based on NLOG data.	L07	TOTAL	Hydrocarbons	ACTIVE																		
L7-Q	NLOG Data	High - Third party project details based on NLOG data.	L07	TOTAL	Hydrocarbons	ACTIVE																		
L7-PK	NLOG Data	High - Third party project details based on NLOG data.	L07	TOTAL	Hydrocarbons	ACTIVE																		
L7-P	NLOG Data	High - Third party project details based on NLOG data.	L07	TOTAL	Hydrocarbons	ACTIVE																		
L9-FF-1P	NLOG Data	High - Third party project details based on NLOG data.	L09	NAM	Hydrocarbons	ACTIVE																		
P9-Seafox-1	NLOG Data	High - Third party project details based on NLOG data.	P09c	CHEVRON	Hydrocarbons	ACTIVE																		
Q1-D	NLOG Data	High - Third party project details based on NLOG data.	Q01	WIN	Hydrocarbons	ACTIVE																		
Q13a-A	NLOG Data	High - Third party project details based on NLOG data.	Q13a	ENGIE	Hydrocarbons	ACTIVE																		

							Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																	
Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale			Status of Development	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
L5a-D	NLOG Data	High - Third party project details based on NLOG data.	L05a	ENGIE	Hydrocarbons	ACTIVE																		
L6-B	NLOG Data	High - Third party project details based on NLOG data.	L06a	WIN	Hydrocarbons	ACTIVE																		

Oil and Gas - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* **Screened in to assessment.**
c	*Potential cumulative impact exists:* **Screened in to assessment.**
d	*No conceptual effect-receptor pathway:* **Screened out of assessment.**
e	*Low data confidence:* **Screened out of assessment.**
f	*No physical effect-receptor overlap:* **Screened out of assessment.**
g	*No temporal overlap:* **Screened out of assessment.**

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
United Kingdom															
BLYTHE (NUI)	89	13	PRECOMMISSION	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	c	d	g	a	a	a	a	g
VULCAN NW (NUI)	65	8	PRECOMMISSION	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	c	d	g	a	a	a	a	g
VULCAN E (NUI)	65	20	PRECOMMISSION	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	c	d	g	a	a	a	a	g
VULCAN S (NUI)	71	23	PRECOMMISSION	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	c	d	g	a	a	a	a	g
MINERVA	105	97	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	f	a
NEPTUNE	92	89	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
WINGATE PLATFORM	35	53	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
VAMPIRE OD	45	4	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	a	a	a	a	g
LOGGS COMPRESSION	53	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
LOGGS PRODUCTION	53	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
LOGGS RISER	53	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
LOGGS ACCOMMODATION	53	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
NORTH VALIANT 1	53	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
NORTH VALIANT 2	55	15	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
KATY KT	45	64	PRECOMMISSION	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
PICKERILL B	86	44	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
48/29A-P	97	20	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
48/29B	96	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
48/29A-FTP	97	20	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
48/29A-Q	96	20	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
48/29C	89	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
AMETHYST A1D	106	72	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	f	a
AMETHYST A2D	101	70	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	f	a
AMETHYST C1D	112	79	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	f	a

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
GROVE PLATFORM	5	20	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
KETCH	8	23	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
LUCY - SMALLFOOT	26	40	PROPOSED	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
SHAMROCK QS	26	40	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
VIKING BRAVO DRILLING	38	18	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VIKING BRAVO ACCOMMODATION	38	18	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VIKING BRAVO COMPRESSION	38	18	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VIKING CHARLIE DRILLING	39	22	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	c	a	g	f	a	g
VIKING DELTA DRILLING	37	21	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	c	a	g	f	a	g
VIKING BRAVO PRODUCTION	38	18	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VANGUARD	51	15	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VISCOUNT VO	50	15	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
HOTON	68	55	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
52/5A	97	24	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
CHISWICK PLATFORM	3	23	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
AUDREY A (WD)	39	1	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	a	g	a	a	g
GARROW NUI	85	99	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	a
AMETHYST B1D	99	63	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
44/23A KELVIN TM	39	53	PRECOMMISSION	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
BREAGH ALPHA	133	148	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	f	f
CARAVEL QR	30	43	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
BABBAGE	64	68	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
48/9A MIMAS	41	33	PRECOMMISSION	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
MIMAS MN	41	33	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
WAVENEY	88	28	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
MUNRO MH	50	63	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
PICKERILL A	89	50	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
SCHOONER A	11	27	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	b	a	a	a	a
BOULTON	28	44	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
MURDOCH ACCOMMODATION	31	45	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
MURDOCH COMPRESSION	31	45	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
MURDOCH DRILLING	31	45	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
KILMAR NUI	66	81	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	a

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
SATURN ND	33	22	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
TRENT	49	65	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
TYNE	51	66	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	a	f	f	a	f
ST-1 PLATFORM	8	22	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
HYDE	80	64	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
LEMAN AD1	80	31	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AD2	79	31	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AK	79	31	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AP (SHELL)	80	31	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN BD (SHELL)	79	34	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN BH	79	34	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	c	a	f	f	a	f
LEMAN BP (SHELL)	79	34	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN BT (SHELL)	79	34	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN CP (SHELL)	78	32	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN D	86	39	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN E	82	36	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN F	80	26	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
LEMAN G (SHELL)	78	27	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
LEMAN CD (SHELL)	78	32	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AC (SHELL)	79	31	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
CLEETON WLTR	97	95	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
CLEETON PQ	97	95	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
CLEETON CC	96	95	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
CORVETTE	52	49	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
CLIPPER PR	59	5	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
CLIPPER PM	59	5	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
CLIPPER PC	59	5	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
CLIPPER PT	59	5	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
CLIPPER PW	59	5	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
CLIPPER PH	59	5	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
CLIPPER SOUTH	60	1	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
BARQUE PB	60	25	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
BARQUE PL	57	16	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
GALLEON PG	51	5	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	f	a	a	a	a
ENSIGN	48	13	PROPOSED	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
ENSIGN PLATFORM	48	13	PRECOMMISSION	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
BRIGANTINE BG	33	36	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a

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BRIGANTINE BR	28	36	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
CUTTER	5	8	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
GALLEON PN	50	2	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
FRIGATE EXTENSION	52	2	PROPOSED	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
SKIFF	52	3	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
WEST SOLE C	78	58	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
WEST SOLE PP	76	51	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
WEST SOLE A (8 LEG)	76	51	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
WEST SOLE SP	76	51	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
WEST SOLE B	77	54	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
WEST SOLE A (6 LEG)	76	51	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
RAVENSPURN NORTH ST3	85	90	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
RAVENSPURN SOUTH A	81	84	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
RAVENSPURN SOUTH B	85	89	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
RAVENSPURN SOUTH C	91	94	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
SEAN PD	56	62	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
SEAN PP	56	62	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
SEAN RD	52	58	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
DAVY A	77	80	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
GALAHAD	73	31	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
MALORY	80	39	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
YORK PLATFORM	116	102	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	f	a
INDE CD	45	40	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
INDE AC	43	38	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
INDE AT	43	38	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
INDE CP	45	40	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
INDE D	47	38	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
INDE AQ	43	38	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
BESSEMER A	58	46	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AD	80	38	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN CD (PERENCO)	82	42	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN BT (PERENCO)	79	42	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN J	83	39	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AC	80	39	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AP (PERENCO)	80	39	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AQ	80	39	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN AX	80	38	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f

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LEMAN H	85	41	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN BD (PERENCO)	79	42	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN BP (PERENCO)	79	42	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN CP (PERENCO)	82	42	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN DD	81	47	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN DP	81	47	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN ED	80	37	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN EP	80	37	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN FD	79	44	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN FP	79	44	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
LEMAN G (PERENCO)	78	48	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
INDE AD	39	35	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
INDE AP	39	35	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
INDE BD	38	30	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
INDE BP	38	30	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
RAVENSPURN NORTH ST2	77	83	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
RAVENSPURN NORTH CC	72	78	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
RAVENSPURN NORTH CCW	72	78	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
CAVENDISH	62	78	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
GUINEVERE A	86	34	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
CARRACK QA	12	25	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
CYGNUS B (BWHP)	68	82	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
CYGNUS A (AUQ)	65	78	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
CYGNUS A (AWHP)	65	78	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
CYGNUS A (APU)	65	78	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
VIKING ALPHA RISER	32	7	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VIKING KILO DRILLING	33	6	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
WENLOCK NUI	25	5	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
THAMES A	69	56	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	a	f
THAMES AR	69	56	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	c	d	c	f	f	f	a	f
SOUTH VALIANT	58	20	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VULCAN 1	67	17	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VICTOR JULIET DRILLING	49	30	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
EUROPA	59	34	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	f	a	f	a	a

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
EXCALIBER EA	79	31	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
LANCELOT A	81	28	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
JUPITER GANYMEDE	53	24	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
GANYMEDE ZD	53	24	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	f	a	a
AUDREY B (XW)	39	6	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	a	g	a	a	g
VULCAN 2 (UR)	67	13	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	a	g	a	a	g
49/11B TETHYS	28	9	PRECOMMISSION	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
ROUGH AP	115	97	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
ROUGH AD	115	97	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
ROUGH BD	117	99	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
ROUGH BP	117	99	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
ROUGH CD	117	99	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	a	f	a	a
BOOSTER PLATFORM 36/22A NORPIPE A.S	194	210	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	f	d	g	f	f	f	f	f
VIKING LIMA DRILLING	38	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
J6A / J6A-CT PLATFORMS	13	26	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
D15-FA1	39	64	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	f
ANGLIA YD	69	9	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
ANGLIA A	69	9	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
CAISTER	25	38	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	f	f	a	a
VIKING ECHO DRILLING	45	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	c	a	g	a	a	g
VIKING GOLF DRILLING	40	15	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	c	a	g	a	a	g
VIKING HOTEL DRILLING	33	13	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	c	a	g	a	a	g
WINDERMERE PLATFORM	2	16	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	f	d	g	a	a	a	a	a
VIKING ED	45	12	ACTIVE	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	c	a	g	a	a	g
Netherlands															
PE-K4-BE	28	42	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	a
Q1-Halfweg	136	152	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K7-FA-1P	36	53	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
K07-FB-1	19	36	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	a
K07-FD-1	35	52	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
K8-FA-1	44	61	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
K08-FA-2	46	63	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
K08-FA-3	45	62	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
K14-FB-1	76	92	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K15-FA-1	93	110	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K15-FB-1	85	102	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K15-FC-1	81	98	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
K15-FG-1	88	105	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K15-FK-1	91	108	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L05-FA-1	104	118	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L9-FF-1W	144	159	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L13-FD-1	108	125	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L15-FA-1	141	158	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P15-D	170	175	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P15-E	184	182	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P15-F	165	166	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P15-G	175	172	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P18-A	190	188	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Bergermeer	173	190	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Groet 1	164	181	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Bergen aan Zee	168	184	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Schermer-1	181	197	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
J03-C (=well J06-A5)	13	26	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	a	a	f	a	a
K2b-A	62	75	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
F15-FA-1	142	157	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P11b-De Ruyter	152	142	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K14-FA-1C	72	89	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
Zuid-Schermer	183	200	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P15-A-DP	170	175	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
D12-A	40	64	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
F16-A	88	103	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-D	99	116	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
PE-K4-PA	35	49	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
PE-L4-PB	80	95	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
Middelie 300	191	208	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L09-FA-1	129	145	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L09-FB-1	138	154	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K14-FA-1 (LoCal)	72	89	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K15-FA-1 High Pressure Train	93	110	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
G14-B	180	194	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
A12 Central Processing Platform	172	196	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K12-K	83	100	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
Westbeemster	187	204	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
F2-A-Hanze TMLS	162	186	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P11b-De Ruyter TMLS	151	143	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K14-FA-1P	72	89	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
K09ab-A (GdF)	82	98	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L13-FE-1	105	122	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
UN-L/11B-PA	115	131	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L02-FA-1	116	129	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L13-FC-1P	104	121	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K17-FA-1	85	101	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
Groet 2	164	181	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Alkmaar	178	194	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
G14-A	186	199	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
G16a-A	165	178	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L05-C	122	138	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K08-FA-3A	45	62	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
PE-F15-PA	142	157	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Franeker 1 / Harlingen 7	188	205	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Harlingen 101	187	203	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Harlingen 2/8	188	205	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Harlingen 4	190	206	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Harlingen 5	191	208	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Harlingen 6	187	204	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
J6-A-Markham	13	26	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	a	a	f	a	a
PE-K1-PA	22	35	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	a
PE-K5-PA	36	52	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
PE-K5-PB	42	57	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
K5-D	46	62	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	a	f	f	a	f
PE-K5-EN/C	48	63	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
PE-K6-PC	71	86	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K06-D	68	84	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K06-DN	67	82	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K06-GT	74	89	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K06-N	63	79	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K09ab-A (Total)	82	98	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L04-A	86	101	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L04-PN	84	98	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L7-PB	94	110	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
PE-L7-PC	95	111	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
PE-L7-PH	90	105	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L07-N	92	109	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
Middenmeer 1/2	177	194	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Ried	194	211	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Slootdorp 1/4/5	170	187	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
PE-ZW-PA	167	184	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
F2-A-Hanze	161	186	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L08-Alpha	112	128	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L08-Golf	120	136	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L08-Hotel	118	134	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L08-P	117	133	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L08-P4	115	131	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L16-Logger-P	121	138	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L05-B	120	135	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P06-A	122	137	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P06-B	126	141	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P06-D	126	141	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P12-SW	157	164	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q04-A	141	158	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q04-B	148	164	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q04-C	138	155	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
D15-FA-1	40	65	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	a	f	f	a	f
G17d-A	178	192	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K12-BD	83	100	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K12-C	78	95	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K12-D	78	95	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K12-G	87	104	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K09ab-B	67	84	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K09c-A	72	87	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-AD	99	115	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-B	99	115	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-C	99	116	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-E	100	117	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L10-F	103	120	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L10-G	95	112	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-L	97	114	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-M	87	104	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
Q1-Haven-A	118	135	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q1-Helder-AP	122	138	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q01-Helm-AP	128	144	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q1-Hoorn-AP	124	141	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P9-Horizon-A	141	154	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
E18-A	83	98	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
M7-A	156	171	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
A-18	144	169	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
E17a-A	46	65	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
B13-A	170	195	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
G16a-B	168	182	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
PE-K5-CU	45	59	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
F3-FA	181	204	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P15-C-PP	170	175	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
PE-K6-PP	71	86	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
PE-K5-PP	36	52	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
PE-K5-PK	36	52	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
J6-C-Markham	13	26	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	a	a	f	a	a
D18a-A	19	45	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	a	f	f	a	a
K15-FA-1R	93	110	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K7-FA-1W	36	53	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
Q01-Helm-AW	128	144	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q1-Hoorn-AW	124	141	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K18-Kotter-W	103	120	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L16-Logger-W	121	138	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L13-FC-1W	104	121	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K8-FA-1A	44	61	ACTIVE	High - Third party project details based on NLOG data.	f	a	a	f	d	g	f	f	f	a	f
L10-AR	99	115	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-AP	99	115	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
G17d-AP	178	192	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
F3-FB-1A	162	185	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q1-Helder-AW	122	138	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
K12-BP	83	100	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
K12-CC	78	95	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-AC	99	115	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-BB	99	115	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L10-EE	100	117	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L7-BB	94	110	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L7-Q	95	111	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L7-PK	95	111	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L7-P	95	111	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	a	f
L9-FF-1P	144	159	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
P9-Seafox-1	141	154	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q1-D	129	146	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
Q13a-A	189	199	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
L5a-D	114	129	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f
L6-B	134	149	ACTIVE	High - Third party project details based on NLOG data.	f	f	f	f	d	g	f	f	f	f	f

Cables and Pipelines - Temporal

	Consenting/Pre-Construction
	Construction / Recommission
	Operation and Maintenance
	Decommissioning
	Project has been withdrawn from development or operation

Note - Where no specific lifespan or decommissioning plan is stated for a cable, 15 years further life is assumed.
- Where projects are pre-approval and have no known operation schedule, no construction window is indicated

Project	Information in the Public Domain	Data Confidence Assessment	Capacity / scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
Pipelines																						
United Kingdom																						
PL370 - BACTON TO THAMES	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	24 inch Active GAS pipeline owned by Independent Oil & Gas	Recommission																	
PL2236 - MIMAS TO SATURN	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	10 inch Precommission GAS pipeline operated by CONOCOPHILLIPS	Precommission																	
PL2237 - SATURN TO MIMAS	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	3 inch Precommission CHEMICAL pipeline operated by CONOCOPHILLIPS	Precommission																	
PLU3122 - JULIET TO PICKERILL A UMBILICAL	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	138 mm Precommission MIXED HYDROCARBONS pipeline operated by ENGIE	Precommission																	
PL3088 - CYGNUS TO ETS GAS PIPELINE	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	24 inch Precommission GAS pipeline operated by ENGIE	Precommission																	
PL3086 - CYGNUS A TO CYGNUS B GAS PIPELINE	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	12 inch Precommission GAS pipeline operated by ENGIE	Precommission																	
PLU3087 - CYGNUS A TO CYGNUS B UMBILICAL	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	193.3 mm Proposed CHEMICAL pipeline operated by ENGIE	Proposed																	
PL2894 - KATY TO KELVIN GAS EXPORT PIPELINE	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	10 inch Precommission GAS pipeline operated by CONOCOPHILLIPS	Precommission																	
PL2895 - KELVIN TO KATY METHANOL PIPELINE	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	2 inch Precommission METHANOL pipeline operated by CONOCOPHILLIPS	Precommission																	
PL3121 - JULIET TO PICKERILL A GAS PIPELINE	UK oil and Gas Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	12 inch Precommission MIXED HYDROCARBONS pipeline operated by ENGIE	Precommission																	
PL0219_PR K4-Z to K5-A	NLD RWS Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	6-inch Under construction Gas pipeline operated by Total E&P Nederland B.V.	Under construction																	
PL0219_UM K4-Z to K5-A	NLD RWS Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	5-inch Under construction Control pipeline operated by Total E&P Nederland B.V.	Under construction																	
PL0221_HS D18-A to D15-FA-1	NLD RWS Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	2-inch Proposed Methanol pipeline operated by GDF SUEZ E&P Nederland B.V.	Proposed																	
PL0221_PR D18-A to D15-FA-1	NLD RWS Data	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	8-inch Proposed Gas pipeline operated by GDF SUEZ E&P Nederland B.V.	Proposed																	
PL463 - Vulcan RD to Vulcan UR	ConocoPhillips decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	3 inch Methanol - coated steel pipeline, trenched, operated by ConocoPhillips	Out of use																	
PL1962 - Viscount VO to Vampire OD	ConocoPhillips decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	12 inch GAS Steel with polyethylene wrap, trenched and buried, operated by ConocoPhillips	Out of use																	
PL1963 - Vampire OD to Viscount VO	ConocoPhillips decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	3 inch Methanol - coated steel pipeline, trenched, operated by ConocoPhillips	Out of use																	
PL1692 - Vampire OD to LOGGS PR	ConocoPhillips decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	12 inch GAS Steel with polyethylene wrap, trenched and buried, operated by ConocoPhillips	Out of use																	
PL1693 - LOGGS PR to Vampire OD	ConocoPhillips decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	3 inch Methanol - coated steel pipeline, trenched, operated by ConocoPhillips	Out of use																	
PL496	Centrica Audrey decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	20 inch GAS - coated steel pipeline, partially trenched, operated by Centrica	Active																	
PL497	Centrica Audrey decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	3 inch Methanol - coated steel pipeline, partially trenched, operated by Centrica	Active																	
PL723	Centrica Audrey decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	14 inch rigid steel pipeline, trenched and buried, operated by Centrica	Out of use																	
PL724	Centrica Audrey decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	3 inch Methanol - coated steel pipeline, trenched and buried, operated by Centrica	Active																	
PL575	Centrica Audrey decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	8 inch GAS - coated steel pipeline, trenched and buried, operated by Centrica	Out of use																	
PL576	Centrica Audrey decommissioning	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	4 inch unbilical pipeline (hydraulic hoses anf cables), trenched and buried, operated by Centrica	Out of use																	
Elgood (subsea) to Blythe (NUI)	Independent Oil and Gas Ltd Early consultation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	10 inch proposed GAS pipeline operated by Independent Oil and Gas Ltd	Proposed																	
Blythe (NUI) to PL370	Independent Oil and Gas Ltd Early consultation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	10 inch proposed GAS pipeline operated by Independent Oil and Gas Ltd	Proposed																	
Vulcan NW (NUI) to Vulcan S (NUI)	Independent Oil and Gas Ltd Early consultation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	10 inch proposed GAS pipeline operated by Independent Oil and Gas Ltd	Proposed																	
Vulcan E (subsea) to Vulcan S (NUI)	Independent Oil and Gas Ltd Early consultation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	10 inch proposed GAS pipeline operated by Independent Oil and Gas Ltd	Proposed																	
Vulcan S (NUI) to PL370 1	Independent Oil and Gas Ltd Early consultation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	10 inch proposed GAS pipeline operated by Independent Oil and Gas Ltd	Proposed																	

Project	Information in the Public Domain	Data Confidence Assessment	Capacity / scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
Vulcan S (NUI) to PL370 2	Independent Oil and Gas Ltd Early consultation	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	10 inch proposed GAS pipeline operated by Independent Oil and Gas Ltd	Proposed																	
PL89 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Out of use																	
PL90 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Out of use																	
PL91 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Operational																	
PL92 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Out of use																	
PL93 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Out of use																	
PL132 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Out of use																	
PL131 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Out of use																	
PL133 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Operational																	
PL66 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Out of use																	
PL130 – Gas Pipeline (Decommissioning)	ConocoPhillips decommissioning	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	Steel with polyethylene wrap Trenched and buried	Out of use																	
Cables																					
United Kingdom																					
Viking Link Interconnector	Viking Link publication	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	High voltage (up to 500 kV) Direct Current (DC) electricity interconnector	Proposed																	
Netherlands																					
COAM	RWS Data	High - Third party project details based on RWS data.	Kabel from Cork to Katwijk	As Planned																	

Cables and Pipelines - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* ***Screened in to assessment.***
c	*Potential cumulative impact exists:* ***Screened in to assessment.***
d	*No conceptual effect-receptor pathway:* ***Screened out of assessment.***
e	*Low data confidence:* ***Screened out of assessment.***
f	*No physical effect-receptor overlap:* ***Screened out of assessment.***
g	*No temporal overlap:* ***Screened out of assessment.***
h	*Project has been withdrawn from development or operation*

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Pipelines															
United Kingdom															
PL370 - BACTON TO THAMES	69	9	Recommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	e	e	f	d	c	a	f	c	f	g
PL2236 - MIMAS TO SATURN	33	22	Precommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	a	a	c	d	g	f	f	d	f	g
PL2237 - SATURN TO MIMAS	33	22	Precommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	d	f	g
PLU3122 - JULIET TO PICKERILL A UMBILICAL	89	50	Precommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	d	f	g
PL3088 - CYGNUS TO ETS GAS PIPELINE	48	64	Precommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	d	f	g
PL3086 - CYGNUS A TO CYGNUS B GAS PIPELINE	65	78	Precommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	c	d	g	f	f	d	f	f
PLU3087 - CYGNUS A TO CYGNUS B UMBILICAL	65	79	Proposed	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	f	f	c	d	g	f	f	d	f	f
PL2894 - KATY TO KELVIN GAS EXPORT PIPELINE	39	53	Precommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	d	f	f
PL2895 - KELVIN TO KATY METHANOL PIPELINE	39	53	Precommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	d	f	f
PL3121 - JULIET TO PICKERILL A GAS PIPELINE	89	50	Precommission	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	d	f	g
PL0219_PR K4-Z to K5-A	20	35	Under construction	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	c	f	g
PL0219_UM K4-Z to K5-A	20	35	Under construction	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	c	f	g
PL0221_HS D18-A to D15-FA-1	19	45	Proposed	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	c	f	g
PL0221_PR D18-A to D15-FA-1	19	45	Proposed	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	c	d	g	f	f	c	f	g
PL463 - Vulcan RD to Vulcan UR	67.4	12.9	Out of use	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	c	c	f	d	g	f	f	d	f	g
PL1962 - Viscount VO to Vampire OD	44.7	4.5	Out of use	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	c	c	f	d	g	f	f	d	f	g
PL1963 - Vampire OD to Viscount VO	44.7	4.5	Out of use	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	c	c	f	d	g	f	f	d	f	g
PL1692 - Vampire OD to LOGGS PR	44.7	4.4	Out of use	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	c	c	f	d	g	f	f	d	f	g
PL1693 - LOGGS PR to Vampire OD	44.7	4.4	Out of use	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	c	c	f	d	g	f	f	d	f	g
PL496	39.0	0 (Crosses route)	Active	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	e	c	c	f	d	c	a	f	d	c	c
PL497	39.0	0 (Crosses route)	Active	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	e	c	c	f	d	c	a	f	d	c	c
PL723	38.6	1.3	Out of use	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	e	c	c	f	d	c	a	f	d	c	c
PL724	38.6	1.3	Active	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	e	c	c	f	d	c	a	f	d	c	c
PL575	39.0	1.3	Out of use	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	e	c	c	f	d	c	a	f	d	c	c
PL576	39.0	1.3	Out of use	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	e	c	c	f	d	c	a	f	d	c	c
Elgood (subsea) to Blythe (NUI)	86	13	Proposed	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	f	d	g	a	f	e	f	g
Blythe (NUI) to PL370	89	0 (Crosses route)	Proposed	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	f	d	g	a	f	e	f	g
Vulcan NW (NUI) to Vulcan S (NUI)	65	8	Proposed	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	f	d	g	a	f	e	f	g
Vulcan E (subsea) to Vulcan S (NUI)	65	19	Proposed	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	f	d	g	a	f	e	f	g
Vulcan S (NUI) to PL370 1	71	23	Proposed	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	f	d	g	a	f	e	f	g

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Vulcan S (NUI) to PL370 2	71	23	Proposed	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	e	e	f	d	g	a	f	e	f	g
PL89 – Gas Pipeline (Decommissioning)	37.9	20.4	Out of use	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL90 – Gas Pipeline (Decommissioning)	36.7	20.4	Out of use	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL91 – Gas Pipeline (Decommissioning)	37.9	11.5	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL92 – Gas Pipeline (Decommissioning)	37.9	16.0	Out of use	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL93 – Gas Pipeline (Decommissioning)	33.3	17.7	Out of use	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL132 – Gas Pipeline (Decommissioning)	37.9	20.4	Out of use	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL131 – Gas Pipeline (Decommissioning)	36.7	20.4	Out of use	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL133 – Gas Pipeline (Decommissioning)	37.9	11.5	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL66 – Gas Pipeline (Decommissioning)	37.9	16.0	Out of use	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
PL130 – Gas Pipeline (Decommissioning)	33.3	17.7	Out of use	High - Third party project details published in the public domain and confirmed as being 'accurate' by UKOilandGasData.	f	c	c	f	d	g	f	f	d	f	g
Cables															
United Kingdom															
Viking Link Interconnector	13	18	Proposed	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	e	c	c	c	c	c	f	f	c	f	c
Netherlands															
COAM	156	163	As Planned	High - Third party project details based on RWS data.	f	f	f	f	d	g	f	f	d	f	f

Shipping and Navigation - Temporal

	Consenting/Pre-Construction
	Construction
	Operation and Maintenance
	Decommissioning

Project	Information in the Public Domain	Data Confidence Assessment	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
United Kingdom																					
Baltic Wharf	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Barking	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Barrow-On-Humber	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Barton On Humber	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Battlesbridge	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Beckingham	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Boston	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Brightlingsea	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Burnham-On-Crouch	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Burton-Upon-Stather	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Caldaire Terminal	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Cantley	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Canvey Island	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Chatham	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Cliffe	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Convoys Wharf	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Coryton	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Dagenham	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Dartford	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Deptford	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Dutch River Wharf	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Erith	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Faversham	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Felixstowe	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Fingringhoe	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Flixborough	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Gainsborough	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Gillingham	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Goole	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		
Gravesend	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																		

Project	Information in the Public Domain	Data Confidence Assessment	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
Great Yarmouth	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Greenhithe	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Greenwich	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Grimsby	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Grove Wharves	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Gunness	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Halling	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Harwich	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Harwich Navyard	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Hole Haven	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Howdendyke	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Hull	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Immingham	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Ipswich	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Isle Of Grain	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Keadby	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Killingholme	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Kings Ferry	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
King's Lynn	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Kingsnorth	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Kingston-Upon-Hull	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Leigh-On-Sea	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
London	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Lowestoft	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Medway	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Mistley	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Neap House	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Northfleet	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Norwich	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Oakhamness	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Otterham Quay	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Parkeston Quay	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Port Sutton Bridge	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Purfleet	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Queenborough	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Rainham	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Ramsgate	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	

Project	Information in the Public Domain	Data Confidence Assessment	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036-2050
Ridham Dock	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
River Hull & Humber	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
River Ouse	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Rochester	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Rochford	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Rotherham	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Rowhedge	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Salt End	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Sandwich	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Scarborough	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Sheerness	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Shell Haven	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Silvertown	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Southend	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Strood	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Tetney Terminal	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Thamesport	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Tilbury	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Trent River	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Wallasea	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Wells	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Whitstable	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Wisbech	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Wivenhoe	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Netherlands																				
Ameland	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Bergen	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Beverwijk	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Den Helder	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Franekeradeel	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Haarlem	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Harlingen	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Ijmuiden	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Texel	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Velsen	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Vlieland	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	
Zaanstad	Port/Harbour information - Port website	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Operational																	

Shipping and Navigation - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* **Screened in to assessment.**
c	*Potential cumulative impact exists:* **Screened in to assessment.**
d	*No conceptual effect-receptor pathway:* **Screened out of assessment.**
e	*Low data confidence:* **Screened out of assessment.**
f	*No physical effect-receptor overlap:* **Screened out of assessment.**
g	*No temporal overlap:* **Screened out of assessment.**

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
United Kingdom															
Baltic Wharf	0	148	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Barking	0	174	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Barrow-On-Humber	173	125	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Barton On Humber	176	127	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Battlesbridge	0	153	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Beckingham	0	135	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Boston	185	73	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Brightlingsea	0	127	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Burnham-On-Crouch	0	149	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Burton-Upon-Stather	193	138	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Caldaire Terminal	0	155	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Cantley	150	49	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Canvey Island	0	165	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Chatham	0	177	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Cliffe	0	171	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Convoys Wharf	0	181	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Coryton	0	165	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Dagenham	0	173	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Dartford	0	176	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Deptford	0	182	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Dutch River Wharf	0	154	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Erith	0	176	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Faversham	0	182	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Felixstowe	0	112	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Fingringhoe	0	125	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Flixborough	195	137	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Gainsborough	0	132	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Gillingham	0	177	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Goole	0	152	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Gravesend	0	175	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Great Yarmouth	143	55	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Greenhithe	0	177	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Greenwich	0	181	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Grimsby	157	101	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Grove Wharves	197	138	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Gunness	198	137	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Halling	0	182	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Harwich	0	112	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Harwich Navyard	0	112	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Hole Haven	0	164	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Howdendyke	0	154	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Hull	166	124	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Immingham	162	110	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Ipswich	0	100	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Isle Of Grain	0	169	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Keadby	199	138	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Killingholme	164	115	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Kings Ferry	194	139	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
King's Lynn	178	53	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Kingsnorth	0	174	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Kingston-Upon-Hull	164	123	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Leigh-On-Sea	0	159	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
London	0	181	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Lowestoft	152	65	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Medway	0	177	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Mistley	0	112	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Neap House	195	137	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Northfleet	0	177	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Norwich	149	36	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Oakhamness	0	173	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Otterham Quay	0	178	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Parkeston Quay	0	112	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Port Sutton Bridge	187	64	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Purfleet	0	174	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Queenborough	0	173	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Rainham	0	174	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Ramsgate	0	181	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a

Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Ridham Dock	0	176	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
River Hull & Humber	165	122	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
River Ouse	0	152	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Rochester	0	180	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Rochford	0	155	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Rotherham	0	170	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Rowhedge	0	122	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Salt End	163	121	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Sandwich	0	187	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Scarborough	172	171	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Sheerness	0	169	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Shell Haven	0	165	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Silvertown	0	178	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Southend	0	160	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Strood	0	178	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Tetney Terminal	160	102	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Thamesport	0	171	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Tilbury	0	174	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Trent River	194	139	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Wallasea	0	149	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Wells	140	15	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Whitstable	0	176	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Wisbech	197	72	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Wivenhoe	0	122	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	a	a
Netherlands															
Ameland	189	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Bergen	171	188	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Beverwijk	185	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Den Helder	155	172	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Franekeradeel	191	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Haarlem	191	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Harlingen	183	200	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Ijmuiden	183	199	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Texel	150	167	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Velsen	184	200	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Vlieland	158	175	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a
Zaanstad	196	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	a	a	a	d	a	a	a	d	f	a

Military, Aviation and Radar - Temporal

	Consenting/Pre-Construction
	Construction
	Operation and Maintenance
	Decommissioning

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
United Kingdom																						
UK military bases Royal Navy Submarine Exercise Area	Seazone - Updated from S57.GB301187	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Exercise area	Operational																		
UK military bases Royal Navy Submarine Exercise Area	Seazone - Updated from S57.NL21037P	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Exercise area	Operational																		
UK military bases Royal Navy Submarine Exercise Area	Seazone - Updated from S57.NL301505	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Exercise area	Operational																		
UK military bases Royal Air Force Anglia Area of Responsibility	AIP - ENG_ENR_1_6_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL65 to SFC	Operational																		
UK military bases Royal Air Force Anglia Offshore Safety Area	AIP - ENG_ENR_1_6_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL65 to SFC	Operational																		
UK military bases Royal Air Force LAKENHEATH ATA NORTH	AIP - EG_ENR_5_2_en_2016-05-26	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL245 to FL60	Operational																		
UK military bases Royal Air Force LAKENHEATH ATA SOUTH	AIP - EG_ENR_5_2_en_2016-05-26	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL195 to FL60	Operational																		
UK military bases Royal Air Force WASH ATA NORTH	AIP - EG_ENR_5_2_en_2016-05-26	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL65 to SFC	Operational																		
UK military bases Royal Air Force WASH ATA SOUTH	AIP - EG_ENR_5_2_en_2016-05-26	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL65 to SFC	Operational																		
UK military bases Royal Air Force D207 HOLBEACH	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	23000 to SFC	Operational																		
UK military bases Royal Air Force D208 STANFORD	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	OCNL 7500 to SFC	Operational																		
UK military bases Royal Air Force D307 DONNA NOOK	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	OCNL 23000 to SFC	Operational																		
UK military bases Royal Air Force D323A SOUTHERN MDA	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL660 to FL50	Operational																		
UK military bases Royal Air Force D323B SOUTHERN MDA	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL660 to FL50	Operational																		
UK military bases Royal Air Force D323C SOUTHERN MDA	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL660 to FL50	Operational																		
D323D SOUTHERN MDA	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL660 to FL50	Operational																		
UK military bases Royal Air Force D323E SOUTHERN MDA	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL660 to FL250	Operational																		
UK military bases Royal Air Force D323F SOUTHERN MDA	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL660 to FL250	Operational																		
UK military bases Royal Air Force D323G SOUTHERN MDA	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	FL660 to FL250	Operational																		
UK military bases Royal Air Force D412 STAXTON	AIP - EG_ENR_5_1_en_2016-08-18	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	10000 to SFC	Operational																		
Netherlands																						
Dutch Military Ten westen van Kaap Hoofd - shooting range	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Staatscour. Mining 22-02-2104	Operational																		
Dutch Military Benoorden Waddeneilanden - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Staatscour. Mining 22-02-2104	Operational																		

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)															
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
Dutch Military Vliehors - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	-	Operational																
Dutch Military Vliehors - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	-	Operational																
Dutch Military BREEZANDDIJK - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	D49A+D49B+D49C+D49D	Operational																
Dutch Military Vliehors - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	-	Operational																
Dutch Military NYMINDEGAB VEST - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	GUN FIRING	Operational																
Dutch Military NYMINDEGAB OST - Aerodromes	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	TARGET TOWING	Operational																
Dutch Military KALLESMAERSK VEST - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	GUN FIRING	Operational																
Dutch Military KALLESMAERSK OST - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	GUN FIRING	Operational																
Dutch Military ROMO VEST - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	GUN FIRING	Operational																
Dutch Military Nabij Petten - shooting range	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Staatscour. Mijnbouwregeling 22-02-2104	Operational																
Dutch Military GEEN GEGEVENS - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	GEEN GEGEVENS	Operational																
Dutch Military GEE GEGEVENS - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	GEEN GEGEVENS	Operational																
Dutch Military Vliehors - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Aerial area	Operational																
Dutch Military Navy Area Charlie - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Low-flying area - helicopter	Operational																
Dutch Military - - Ammunition	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	-	Operational																
Dutch Military Ten westen van Haakgronden - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Staatscour. Mining Scheme 22-02-2104	Operational																
Dutch Military Vliehors - shooting range	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Staatscour. Mining Scheme 22-02-2104	Operational																
Dutch Military Nabij Petten - shooting range	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Staatscour.Mining Scheme 22-02-2104	Operational																
Dutch Military Vliehors - Aerodrome	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Aerial area	Operational																
Dutch Military - - Ammunition	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	-	Operational																
Dutch Military - - Ammunition	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	-	Operational																
Dutch Military GOEREE - Training area	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Laying and sweeping of mines	Operational																
Dutch Military MOLENGAT - Training area	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Laying and sweeping of mines	Operational																
Dutch Military SCHOUWENBANK - Training area	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Laying and sweeping of mines	Operational																
Dutch Military WEST HINDER - Training area	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Laying and sweeping of mines	Operational																

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
Dutch Military CALLANTSOOG - Training area	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	-	Operational																	
CALLANTSOOG - oefengebieden	RWS Military Practice	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	-	Operational																	

Military, Aviation and Radar - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* **Screened in to assessment.**
c	*Potential cumulative impact exists:* **Screened in to assessment.**
d	*No conceptual effect-receptor pathway:* **Screened out of assessment.**
e	*Low data confidence:* **Screened out of assessment.**
f	*No physical effect-receptor overlap:* **Screened out of assessment.**
g	*No temporal overlap:* **Screened out of assessment.**

Project	Distance from Hornsea Three Array Area (km)	Distance from Hornsea Three Cable Route Search Area (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Netherlands															
UK military bases Royal Navy Submarine Exercise Area	0	15	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	a	d	d	a	a
UK military bases Royal Navy Submarine Exercise Area	15	42	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	a	d	d	a	a
UK military bases Royal Navy Submarine Exercise Area	12	29	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	a	d	d	a	a
UK military bases Royal Air Force Anglia Area of Responsibility	0	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	d
UK military bases Royal Air Force Anglia Offshore Safety Area	29	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	d
UK military bases Royal Air Force LAKENHEATH ATA NORTH	106	29	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	d
UK military bases Royal Air Force LAKENHEATH ATA SOUTH	135	61	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	d
UK military bases Royal Air Force WASH ATA NORTH	66	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	d
UK military bases Royal Air Force WASH ATA SOUTH	84	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	d
UK military bases Royal Air Force D207 HOLBEACH	167	46	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	a
UK military bases Royal Air Force D208 STANFORD	176	50	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	d
UK military bases Royal Air Force D307 DONNA NOOK	134	69	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	a
UK military bases Royal Air Force D323A SOUTHERN MDA	148	165	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	d
UK military bases Royal Air Force D323B SOUTHERN MDA	96	112	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	d
UK military bases Royal Air Force D323C SOUTHERN MDA	42	58	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	d
D323D SOUTHERN MDA	0	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	d
UK military bases Royal Air Force D323E SOUTHERN MDA	168	175	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	d
UK military bases Royal Air Force D323F SOUTHERN MDA	124	91	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	d
UK military bases Royal Air Force D323G SOUTHERN MDA	179	178	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	d
UK military bases Royal Air Force D412 STAXTON	120	136	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	d
Netherlands															
Dutch Military Ten westen van Kaap Hoofd - shooting range	134	152	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Benoorden Waddeneilanden - Aerodrome	130	145	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f

Project	Distance from Hornsea Three Array Area (km)	Distance from Hornsea Three Cable Route Search Area (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Dutch Military Vliehors - Aerodrome	130	147	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Vliehors - Aerodrome	156	173	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military BREEZANDDIJK - Aerodrome	173	190	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Vliehors - Aerodrome	175	192	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military NYMINDEGAB VEST - Aerodrome	0	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	f
Dutch Military NYMINDEGAB OST - Aerodromes	0	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	f
Dutch Military KALLESMAERSK VEST - Aerodrome	0	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	f
Dutch Military KALLESMAERSK OST - Aerodrome	0	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	f
Dutch Military ROMO VEST - Aerodrome	0	0	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	a	f
Dutch Military Nabij Petten - shooting range	144	161	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military GEEN GEGEVENS - Aerodrome	124	141	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military GEE GEGEVENS - Aerodrome	249	174	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Vliehors - Aerodrome	136	153	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Navy Area Charlie - Aerodrome	106	123	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military - - Ammunition	174	178	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Ten westen van Haakgronden - Aerodrome	82	99	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Vliehors - shooting range	142	159	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Nabij Petten - shooting range	134	151	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military Vliehors - Aerodrome	146	163	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military - - Ammunition	149	164	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military - - Ammunition	176	179	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military GOEREE - Training area	206	198	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military MOLENGAT - Training area	135	152	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military SCHOUWENBANK - Training area	209	181	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
Dutch Military WEST HINDER - Training area	244	189	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f

Project	Distance from Hornsea Three Array Area (km)	Distance from Hornsea Three Cable Route Search Area (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Dutch Military CALLANTSOOG - Training area	138	154	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f
CALLANTSOOG - oefengebieden	138	154	Operational	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	d	d	d	d	d	a	d	d	d	f	f

Coastal - Temporal

	Consenting/Pre-Construction
	Construction
	Operation and Maintenance
	Decommissioning

NOTE - Where projects are pre-approval and have no known operation schedule, no construction window is indicated

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
United Kingdom																					
Able Humber Ports Northern Area	Environmental Statement	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Port related logistics and business park. Planning permission granted 24/06/2011. Phase 1 2010-2012 and further phases to 2016.	Approved																	
Able Marine Energy Park	Environmental Statement	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	Port, Deep water heavy quays, Large available plots of land, Rail Access, Industrial area, Proximity to major highways, Close proximity to North Sea wind farm zones, Wide Estuary (2.9km at widest point)	Approved																	
All Weather Lifeboat Pontoon - Replace	Planning Application: https://idox.tendringdc.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MB7I6AQB0EL00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Replacement of the All Weather Lifeboat (AWB) pontoon. | R N L I The Quay Harwich Essex CO12 3HH	Approved																	
Proposed Yorkshire Harbour and Marina	Planning Application: https://newplanningaccess.eastriding.gov.uk/newplanningaccess/applicationDetails.do?activeTab=summary&keyVal=NXWJYUBJ0R500	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Bridlington Harbour Harbour Road Bridlington East Riding Of Yorkshire	Pre-Application																	
Jetty 1 clearance channel and approach to be dredged	Planning Application: https://publicaccess.castlepoint.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OG2SZUEI02R00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	South Of Oikos Storage Ltd Haven Road Canvey Island Essex SS8 0NR	Approved																	
Construction of a new deep water jetty facility consisting of the refurbishment of and extension to the existing OSL Jetty, refurbishment of an existing 12 tank storage compound and the undertaking of related operational and site infrastructure works.	Planning application: https://publicaccess.castlepoint.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=O2DL99EI00M00 Planning application: https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_141438	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Oikos Storage Ltd Hole Haven Wharf Haven Road Canvey Island Essex SS8 0NR	Approved																	
Cliffe Jetty upgrade by Brett Aggregates	Planning applucation: https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_141656	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	ALPHA JETTY SALT LANE CLIFFE ROCHESTER	Approved																	
Cliffe Pools, Redham Meade, Cliffe, Rochester, Kent.	Planning application: https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_135733	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Variation of condition 1 on planning permission TH/6/66/94 (the depositing of dredgings into disused clay pits and the siting of a further pipeline jetty and reclamations plant) to allow for the deposition of other suitable restoration material within the pools.	Approved																	
Chatham Maritime Marina - Extension to pontoon	Planning application: https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_137493	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Details pursuant to condition 3 on planning permission MC/15/0601 - construction of an extension to existing pontoon berthing to provide an additional 54 berths	Approved																	
Sun Pier	Planning application: https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_129176	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	Installation of two pontoons and access bridge	Approved																	
Chatham Maritime Marina - berthing modification.	Planning application: https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_128020	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	Application for non-material amendment to planning permission GL95/0291/93/0075 to modifiy the arrangement of the pontoon berthing as currently installed	Approval																	
Chatham Maritime Marina - berthing extension	Planning application: https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_128071	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Extension to existing pontoon berthing providing an additional 60 berths	Approved																	
Construction of new pontoons and piles	Planning application: https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_127912	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	STROOD YACHT CLUB TEMPLE MANOR MARSH KNIGHT ROAD STROOD KENT ME2 2AH	Approved																	
Convoys Wharf development: River bus jetty proposed as part of extensive redevelopment.	Planning application: http://planning.lewisham.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_LEWIS_DCAPR_83123	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Convoys Wharf, Prince Street, London, SE8 3JH	Approved																	
Demolition of the existing downstream jetty and demolition of the out-of-service part of the existing upstream jetty. Construction of a new replacement downstream jetty.	Planning application: http://regs.thurrock.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OH3A9VQGJQG00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	C.Ro Ports London Ltd Purfleet Thames Terminal London Road Purfleet Essex RM19 1SD	Awaiting decision																	
Tilbury 2 Power Station proposed redevelopment of land, including improvement of an extensions to existing jetty including creation of new Ro-Ro berth	Planning application: http://regs.thurrock.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OCRQI3QG0R000	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Tilbury 2 Power Station Fort Road Tilbury Essex RM18 7NR	Pre-Application																	
Creation of a bulk carbon dioxide storage and transfer facility together with associated works, including provision of two new pipelines measuring approximately 1.2km in length, extending from the jetty to the storage tanks together with associated supporting structures	Planning application: http://regs.thurrock.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=NRZI6AQGGN000	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Vopak Terminal London B V Ltd Oliver Road West Thurrock Essex RM20 3EE	Approved																	
Temporary Jetty at Goshams Farm, East Tilbury	Planning application: http://regs.thurrock.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MNVAQUQG0KH00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Goshems Farm Station Road East Tilbury Essex RM18 8QR	Pre-Application																	
London Gateway Port Harbour: Scheme for the sustainable handling and transport of construction materials and dredged materials in relation to the construction of new flood defences, a breach of the existing flood defences and lowering of ground levels to create new mudflats at a site located at Egypt Bay, Cooling, Kent).	Planning application: http://regs.thurrock.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=NODW99QG0OE00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Dummy Properties Outside Thurrock	Pre-Application																	

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
Restoration of a flight of steps leading from Crane Wharf, a part of Bridlington Harbour, down to the harbour bed and the opening up of an adjacent underground chamber	Planning application: https://newplanningaccess.eastriding.gov.uk/newplanningaccess/applicationDetails.do?activeTab=summary&keyVal=N86Q48BJ0KG00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Crane Wharf Harbour Road Bridlington East Riding Of Yorkshire	Approved																	
Change of use to allow the permanent mooring of two additional vessels to be used for canal and river trips and the continued mooring of an existing barge for use as a museum and meeting room	Planning application: https://newplanningaccess.eastriding.gov.uk/newplanningaccess/applicationDetails.do?activeTab=summary&keyVal=M353P3BJ0GJ00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Crane Wharf Beckside Beverley East Riding Of Yorkshire HU17 0PE	Approved																	
Works to reinstate dilapidated quay and form creek side footway.	Planning application: http://pa.midkent.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OAI83ITY0XN00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Former Oil Depot Abbey Wharf Standard Quay Faversham Kent ME13 7BS	Awaiting decision																	
Replacement of the Brents Swing Bridge and strengthening of its abutments, reinstatement of a derelict wharf and dredging of the Creek Basin.	Planning application: http://pa.midkent.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=NA6ZPETY0O700	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Faversham Creek Bridge Road Faversham Kent ME13 7DY	Pre-Application																	
Pontoon Installation at Lowestoft Docks	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OGHAS6QX06O00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Lowestoft Outer Harbour Battery Green Road Lowestoft Suffolk	Approved																	
Tide Mill Yacht Harbour, layout changes to the central section of the marina to accommodate modern lifting equipment and accommodate larger vessels visiting the marina.	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=NWKE54QX06O00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Tide Mill Yacht Harbour Tide Mill Way Woodbridge Suffolk IP12 1BY	Approved																	
Rebuilding of existing landing stage W14	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MZHQLQQX01F00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Landing Stage W14 Southwold Harbour Walberswick Side Ferry Road Southwold Suffolk	Approved																	
Rebuild of existing mooring	Planing application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MZFWCNQX06Z00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Landing Stage W18, Walberswick Bank Southwold Harbour Ferry Road Southwold Suffolk	Approved																	
Marine Licence Consultation - Removal of redundant ESSO loading jetty	Pllanning appication: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MTZMC1QX06Z00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Jetty At Oulton Broad Harbour Road Lowestoft Suffolk NR32 3LY	Approved																	
Replacement and extension of existing pontoon berth	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MGB057QX07S00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	The Harbour Masters Office Blackshore Southwold Suffolk IP18 6TA	Approved																	
Marine Licence Consultation - Maintenance Dredged Material Disposal	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MDL5ENQX00C00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Lowestoft Outer Harbour Battery Green Road Lowestoft Suffolk	Approved																	
Reinstatement of jetty	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N09OLJQX08100	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Sun Wharf Deben Road Woodbridge Suffolk IP12 1BD	Approved																	
Provision of repairs to and safety upgrade of existing mooring with additional floating pontoon	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OJMHHHQX07400	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Mooring E06 Blackshore Southwold Suffolk	Awaiting decision																	
Re-configuration of the pontoon layout within Hamilton Dock	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OI9XM0QX01F00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Hamilton Docks Hamilton Road Lowestoft Suffolk NR32 1XF	Approved																	
Pontoon Installation at Lowestoft Docks	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OGHAS6QX06O00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Lowestoft Outer Harbour Battery Green Road Lowestoft Suffolk	Approved																	
Construction of a Timber Pontoon	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=O9KOM5QXLQ500	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Pettistree Lodge The Street Pettistree Suffolk IP13 0HX	Approved																	
Refurbishment of existing concrete steps, replacement of existing marina piles and installation of 2no. new pontoons	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=O0ZOKWQX01F00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Norfolk And Suffolk Yacht Club Royal Plain Lowestoft Suffolk NR33 0AQ	Approved																	
Change a static stage to a floating pontoon	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=M8W9S3QX01F00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Landing Stage E07 Blackshore Southwold Suffolk	Approved																	
Ongoing maintenance dredging	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N71XLVQX01F00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Royal Norfolk And Suffolk Yacht Club Royal Plain Lowestoft Suffolk NR33 0AQ	Approved																	
Provision of anchored floating pontoon for small boat river access.	Planning application: http://www.planning.colchester.gov.uk/WAM/showCaseFile.do;jsessionid=41F26491684FBD2DF8F465CA6A881064?action=show&appType=Planning&appNumber=150141	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Floating Pontoon - River Colne, Walter Radcliffe Road, Wivenhoe	Approved																	
Removal of existing and installation of a new Jetty	Planning application: https://pa.brent.gov.uk/online-applications/simpleSearchResults.do?action=firstPage	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Welsh Harp Sailing Association, Birchen Grove, London, NW9 8SA	Approved																	
Application for construction of a floating pontoon in the Harbour inner basin with gangway access from the South Quay.	Planning application: https://publicaccess.canterbury.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_CANTE_DCAPR_104621	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Whitstable Harbour, Harbour Street, Whitstable, CT5 1AB	Approved																	
Alterations to the existing landing stage pontoon, installation of a new access bridge and ramps up to and over the embankment wall.	Planning application: http://www.planning2.cityoflondon.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=LO65H9FH0K900	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Landing Stage (Former HMS Chrysanthemum) Victoria Embankment London EC4	Approved																	
Details of a programme of archaeological work for Blackfriars Millennium Pier dredging pursuant to BLABF17 of the Thames Water Utilities Limited (Thames Tideway Tunnel) order 2014 as amended.	Planning application: http://www.planning2.cityoflondon.gov.uk/online-applications/simpleSearchResults.do?action=firstPage	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Blackfriars Millennium Pier Paul's Walk London EC4V 3QR	Approved																	
Removal of part of quay wall to facilitate the creation of a new navigation channel between Wellington Dock and the Harbour and installation of a new retaining structure to close existing access between the Tidal Basin and Wellington Dock.	Planning application: https://planning.dover.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=DCAPR_228833	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Part of Quay Wall, Wellington Dock, Union Street, Dover, CT17 9BY	Approved																	

Project	Information in the Public Domain	Data Confidence Assessment	Capacity/ scale	Status of Development	Offshore Construction window (BLUE line denotes the construction window for Hornsea Three)																
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
Siting of a pontoon fixed to the riverbank for mooring purposes.	Planning application: https://planning.dover.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=DCAPR_226358	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Site at Esso Wharf, River Stour, Strand Street, Sandwich, CT13 9HN	Approved																	
Application for aggregate dredging at Goodwin Sands - further information	Planning application: https://planning.dover.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=DCAPR_230523	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Goodwin Sands	Approved																	
Installation of bridge and pontoons for visiting leisure craft at berth 5	Planning application: http://online.west-norfolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MIXLOIIV07800	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Proposed River Pontoon Adj the Green Quay South Quay King's Lynn Norfolk	Approved																	
Provision of a pontoon situated on the side of the bank to provide a safe place to moor a small boat and also provide a safe spot for fishing	Planning application: http://online.west-norfolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=M6W90AIV06X00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Land Opposite 34 Well Creek Road Outwell Wisbech Cambs PE14 8SD	Approved																	
Retention of London Eye (the Millennium Wheel) with associated boarding platform, alterations to Thames embankment wall and minor alterations to boarding platform and restraint towers.	Planning applicatipon: https://planning.lambeth.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OD15L7BOHE200	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Site Of The London Eye Including Parts Of County Hall, Jubilee Gardens, The Queen's Walk And The River Thames London	Approved																	
Upstream extension of Westminster Pier measuring 32 metre (length) by 10 metre (width), including the modification of the existing V-berth end pontoon and the installation of one pile, and associated works	Planning application: https://planning.lambeth.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=NP9OBCBO0I800	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Adjoining Borough Observations Within Westminster	Approved																	
Erection of a pedestrian bridge with incorporated garden, extending for a length of 366m over the River Thames from land adjacent to The Queens Walk on South Bank (in the London Borough of Lambeth) to land above and in the vicinity of Temple London Underground Station on the north bank, the structure of the bridge having a maximum height of 14.3m above Mean High Water and a maximum width of 30m; the development also comprising the erection of 2 new piers in the River Thames;	Planning application: Land To The Front Of The London Television Centre, Queen's Walk And Potential Construction Access Routes From Upper Ground London SE1	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Land To The Front Of The London Television Centre, Queen's Walk And Potential Construction Access Routes From Upper Ground London SE1	Approved																	
2014/03250/FUL | Redevelopment of site following demolition of all existing buildings to provide a mixed use scheme consisting of the erection of one five storey building facing Townmead Road, one part five/part six storey building facing Wandsworth Bridge Road, one part eight and part nine storey building around a raised podium and one thirteen storey building providing a total of 237 dwellings (use class C3) and ancillary gymnasium; together with site wide energy centre; 9,875 sq/m Safeguarded Wharf including 8,069 sqm (GIA) of concrete batching plant with ancillary offices (use class B2); 579 sq/m (GIA) of retail/cafe/restaurant/bar floorspace (use classes A1/A2/A3/A4); new Thames Path with associated lift/stair access (to both east and west of the Site); new jetty within the River Thames to serve the wharf; associated hard and soft landscaping; private open space; vehicular access and servicing facilities; car parking and cycle parking; and other works incidental to the proposals.	planning application: http://public-access.lbhf.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N8E1USBI0IE00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Albert Wharf, Swedish Wharf And Comley's Wharf Wandsworth Bridge Road London SW6 2TY	Approved																	
The construction of new moorings at Imperial Wharf, pontoon will measure 270m long x 2m wide and located parallel to the existing marina. The extension will add another 540m of additional berthing length to the marina. The pontoon will be serviced by the existing walkway with a linkspan/pontoon between the existing and proposed pontoons.	Planning application: http://public-access.lbhf.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=O42THSBIJA800	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Imperial Wharf Marina Townmead Road London	Pending Consideration																	
Installation of a pontoon extension in the River Thames.	Planning application: http://public-access.lbhf.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N5TVKDBIGX000	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Linden House 60 Upper Mall London W6 9TA	Approved																	
Alterations to access to the pontoon by the addition of a floating ramp.	Planning application: http://public-access.lbhf.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=ND15QYBI0IE00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Hammersmith Embankment Site Known As 'Fulham Reach' Land Bounded By Chancellor's Road, Distillery Road And Winslow Road, Including Sections Of Thames Path, River Thames, Frank Banfield Park And Highway Land London W6	Approved																	
Amendments to the gravel off-loading and storage arrangements; a smaller scale concrete plant; conveyor for the jetty to the shore; a radial conveyor; the aggregate storage bay walls and the access route to the river wall for its repair and maintenance.	Planning application: https://pa.newham.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N0H5TLJY0AL00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Peruvian Wharf North Woolwich Road Silvertown London E16 2AB	Approved																	
Certificate of lawfulness for the proposed removal of the existing pontoon and cutting of existing piles and the installation of new docking pontoon, piles and associated works.	Planning applcation: https://pa.newham.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OI2V3GJYK8Z00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Woolwich Ferry Pier Pier Road North Woolwich London E16 2JJ	Approved																	
Mooring of SS Robin in the north western end of Royal Victoria Dock to be used as a heritage and cultural visitor attraction, including museum, exhibition space, education/skills centre, cafe and hireable venue space, and construction of a 25 metre pontoon walkway link from the SS Robin to the dock edge, and reconstruction of the connaught tunnel headhouse on the dock side to act as a welcome centre	Planning application: https://pa.newham.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MAJIUAJY09F00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	The Royal Victoria Dock Western Gateway Canning Town London E16 1XL	Approved																	
Methodology for Dredging attached to planning permission 10/02061/LTGVAR dated 2nd March 2011.	Planning application: https://pa.newham.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N79KI7JY0AL00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Beckton Sewage Treatment Works Jenkins Lane East Ham London IG11 0AD	Approved																	
Erection of a 20 berth residential mooring, including the installation of mooring pontoons and associated site infrastructure.	Planning application: https://development.towerhamlets.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=DCAPR_118448	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Millwall Outer Dock Moorings, Selsdon Way, London	Unknown																	
Construction of 4 new floating pontoon 'fingers' for leisure use (to replace existing visitor moorings), relocation of existing pump-out, change of use of existing commercial moorings to provide 9 visitor moorings and construction of new access bridge.	planning application: https://development.towerhamlets.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=DCAPR_112983	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Limehouse Marina Basin, The Highway, London, E14 8BT	Approved																	

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					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
Extension to the existing pontoon in front of International House, together with the installation of new ramps and new access steps to existing International House Quay Side entrance.	Planning application: https://development.towerhamlets.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=DCAPR_101934	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	International House, 1 St Katharines Way, London, E1W 1UY	Approved																	
Details submitted in compliance with Comprehensive redevelopment of Convoys Wharf to provide a mixed-use development of up to 419,100m² comprising: up to 321,000m² residential floorspace (up to 3,500 units) (Use Class C3) up to 15,500m² employment floorspace (Class B1/Live/Work units) including up to 2,200m² for 3 no. potential energy centres wharf with associated vessel moorings and up to 32,200m² of employment floorspace (Sui Generis & Class B2) up to 5,810m² of retail and financial and professional services floorspace (Classes A1 & A2) up to 4,520m² of restaurant/cafe and drinking establishment floorspace (Classes A3 & A4) up to 13,000m² of community/non residential institution floorspace (Class D1) and assembly and leisure (Class D2) up to 27,070m² of hotel floorspace (Class C1) river bus jetty and associated structures 1,840 car parking spaces together with vehicular access from New King Street and Grove Street retention and refurbishment of the Olympia Building and demolition of all remaining non-listed structures on site All matters reserved other than access and the siting and massing of three tall buildings.	planning application: http://planning.lewisham.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_LEWIS_DCAPR_84345	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	CONVOYS LTD, PRINCE STREET, LONDON, SE8 3JH	Approved																	
Formation of a small tidal basin, to be known as Royal Dock Harbour	planning application: http://planninganddevelopment.nelincs.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=ZZZZVHLJXB243	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Royal Dock Harbour Port Of Grimsby Grimsby N E Lincolnshire	Unknown																	
Request for Screening Opinion for an operation and maintenance facility to support the installation, operation and maintenance of the Westermost Rough Offshore Wind Farm	panning application: http://planninganddevelopment.nelincs.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=ZZZZVHLJXB425	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Royal Dock Port Of Grimsby N E Lincolnshire	Unknown																	
Installation of new pontoon berth in north-east corner of the Royal Dock adjoining quay side walls, including removal of steel section of C20 roll on / roll off ramp	Planning application: http://planninganddevelopment.nelincs.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N22NIDLJ00I00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Royal Dock West Entrance Westside Road Grimsby Docks Grimsby North East Lincolnshire	Approved																	
Installation of new pontoon berth in north-east corner of the Royal Dock adjoining quay side walls, including removal of steel section of C20 roll on / roll off ramp	Planning application: http://planninganddevelopment.nelincs.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=ZZZZVHLJXB381	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Royal Dock Grimsby Docks Grimsby North East Lincolnshire	Approved																	
External alteration, partial demolition and extension of riverside and Duke Street buildings to provide 29 dwellings. Demolition of central and warehouse buildings to provide redevelopment for 56 dwellings, extension of basement car park, creation of 464sqm of flexible commercial floorspace (Class A2/A3/B1(a)), associated highway and landscape works, pontoon and floating landscape platforms. (Amended description and plans/supporting documents).	Planing application https://planning.norwich.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N9IQZQLX0HQ00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Former Eastern Electricity Board Site Duke Street Norwich	Approved																	
Installation of boardwalk to facilitate erection of a floating pontoon with a wooden ticket office and access via a gangway.	Planning application: https://planning.norwich.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=M2KF5CLX0HZ00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	River Bank South East Of 38 & 38A Friars Quay Norwich	Approved																	
Redevelopment of the site comprising the provision of a new jetty in the River Thames to provide docking for cruise liners and the Thames Clipper, a Cruise Liner Terminal, a 251 room hotel with conference, restaurant ancillary facilities (Use Class C1); skills academy (Use Class D1); 770 residential units (Use Class C3); commercial (Use Class B1); a crèche (Use Class D1) a gymnasium (Use Class D2); conversion and extension of Enderby House to provide tourist, community and retail facilities (Use Classes A1, A3, A4, B1, D1 and D2); the provision of vehicular access with associated servicing facilities; car, motorcycle and bicycle parking, provision of landscaping and public realm (including improvements to the Thames Walk); improvements to the river wall and other works within the river, including dredging, the provision of tidal gardens, piling, the provision of a pontoon and brow, and associated works. (THIS IS A DEPARTURE FROM THE UNITARY DEVELOPMENT PLAN)	Plnning application: https://planning.royalgreenwich.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_GRNW_DCAPR_75913	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	ENDERBY WHARF (FORMER ALCATEL SITE), CHRISTCHURCH WAY, GREENWICH, SE10	Approved																	
Revised outline application for an aggregate processing plant with jetty and ship to shore conveyor.	Planning application: https://planning.royalgreenwich.gov.uk/online-applications/appl	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Orchard Wharf, Orchard Place, London, E14	Approved																	
Certificate of Lawfulness (Proposed) for the installation of new docking pontoon, piles and associated works.	Planning application: https://planning.royalgreenwich.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_GRNW_DCAPR_88207	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Woolwich Ferry South Terminal, New Ferry Approach, Woolwich, SE18	Approved																	
Redevelopment of the site comprising the provision of a new jetty in the River Thames to provide docking for cruise liners and the Thames Clipper, a Cruise Liner Terminal, a 251 room hotel with conference, restaurant ancillary facilities (Use Class C1); skills academy (Use Class D1); 770 residential units (Use Class C3); commercial (Use Class B1); a crèche (Use Class D1) a gymnasium (Use Class D2); conversion and extension of Enderby House to provide tourist, community and retail facilities (Use Classes A1, A3, A4, B1, D1 and D2); the provision of vehicular access with associated servicing facilities; car, motorcycle and bicycle parking, provision of landscaping and public realm (including improvements to the Thames Walk); improvements to the river wall and other works within the river, including dredging, the provision of tidal gardens, piling, the provision of a pontoon and brow, and associated works	Planning application: https://planning.royalgreenwich.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_GRNW_DCAPR_75913	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	ENDERBY WHARF (FORMER ALCATEL SITE), CHRISTCHURCH WAY, GREENWICH, SE10	Approved																	

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					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 - 2050
Dredging	Planning application: https://planning.royalgreenwich.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_GRNW_DCAPR_83668	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	LAND AT ENDERBY WHARF (FORMER ALCATEL SITE), CHRISTCHURCH WAY, GREENWICH,SE10	Approved																	
New boat hoist to include the slipway / dyke, the concrete hardstanding area and floating pontoon and connecting gangway. Note change of use from crane dock to travel hoist dock	Planning application: https://info.south-norfolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=NMWFJ7OQ00W00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	St Olaves Marina Beccles Road St Olaves Norfolk NR31 9HX	Approved																	
Proposed Mooring Pontoons along River Waveney frontage to St. Olaves Marina Ltd -	Planning application: https://info.south-norfolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=N8TCGJOQ00W00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	St Olaves Marina Beccles Road St Olaves Norfolk NR31 9HX	Approved																	
Pontoon moorings	Planning application: https://info.south-norfolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MYTPFTOQ00W00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Johnsons Yacht Station Beccles Road St Olaves Norfolk NR31 9HE	Approved																	
Temporary flood embankment trial shaping of engineered dredged sediment into a flood bank profile	Planning application: https://info.south-norfolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MWGGBFOQ00W00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Land At Pyres Mill Road Loddon Norfolk	Approved																	
Demolish existing slipway, extend existing jetty and erect new slipway and boundary fence	Planning application: https://publicaccess.southend.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=O35CKFPAHZ000	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Jetty At Alexandra Yacht Club Western Esplanade Westcliff-On-Sea Essex	Approved																	
An O&M building split into three main areas (warehouse space, space for office staff and space for offshore technicians). The building will be a two storey high portal frame structure. A helipad and hangar. A new floating berthing facility for Crew Transfer Vessels (CTV) in the north-west end of Bathside Bay. External storage and parking areas. An access road.	Planning application: https://idox.tendringdc.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OGZM79QB0KO00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Operations and Maintenance Facility Parkeston Quay Parkeston Essex CO12 4SR	Awaiting Decision																	
Dredging and clearing of harbour	Planning application: https://idoxpa.north-norfolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_NNORF_DCAPR_80105	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Old Harbour, Cley-next-the-Sea	Approved																	
Installation of fixed jetty to lower quay wall and associated works	Planning application: https://idoxpa.north-norfolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_NNORF_DCAPR_87348	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Tugboat Yard, Wells-next-the-Sea, Norfolk	Approved																	
Pontoon Installation at Lowestoft Docks	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OGHAS6QX06O00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Lowestoft Outer Harbour Battery Green Road Lowestoft Suffolk	Approved																	
Maintenance Dredged Material Disposal	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MDL5ENQX00C00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Lowestoft Outer Harbour Battery Green Road Lowestoft Suffolk	Approved																	
Aggregate Dredging in North Sea	Planning application: http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=MZFYLOQX06Z00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Areas 511, 512 And 513 North Sea Lowestoft Suffolk	Approved																	
Renewed consent to dispose of maintenance dredgings from the ports of Harwich and Felixstowe and associated navigation channels. | Harwich Haven Outer Channel The Quay Harwich Essex	https://idox.tendringdc.gov.uk/online-applications/advancedSearchResults.do?action=firstPage Marine Licence Application MLA/2017/00262: https://www.gov.uk/check-marine-licence-register	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Harwich Haven Outer Channel The Quay Harwich Essex Dredging would be undertaken by trailing suction hopper dredgers, concentrating on the areas of greatest sand shoaling. The area requiring dredging at present is a small portion of the outer channel. Although there is no reason to expect it to happen, it is possible that shoals could form in the outer channel, currently not covered by licence L/2013/00392/1. The area of the channel which we would expect to have to dredge in the short term is shown on the plan 001 attached. Material would be disposed of to beneficial sites if available or to sea disposal at the current Inner Gabbard East site.	Application																	
17/0246/NMA | Non-material amendment of permission 16/0106/FUL for alterations to bearing piles, re-alignment of jetty approach and re-arrangement and extension to jetty head platform | Oikos Storage Ltd Hole Haven Wharf Haven Road Canvey Island Essex SS8 0NR	https://publicaccess.castlepoint.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=ONGU7XEI02R00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Canvey Island Essex	Approval																	
MC/17/2565 | Redevelopment of existing Alpha jetty to include extension of the bridge deck area, upgrade of the existing berthing arrangement, construction of one mooring and one berthing dolphins, installation of a new aggregate conveyor and a new access for haulers; and a temporary stockpile extension for dredged material; to facilitate the berthing of one 1600t barge and one dredger at the same time; to enable an increase in marine aggregate capability; to receive aggregates from Thames Tideway Tunnels project excavation to be used to re-profile Alpha and Chalk Lakes over the next 10 years and to receive spoil material from other projects in the long term | ALPHA JETTY, SALT LANE, CLIFFE, ME3 7SU	https://publicaccess.medway.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=_MEDWA_DCAPR_147795	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	JETTY, SALT LANE, CLIFFE, ME3 7SU	Pending Consideration																	
Provision of repairs to and safety upgrade of existing mooring with additional floating pontoon | Mooring E06 Blackshore Southwold Suffolk	http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OJMHHHQX07400	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Southwold Suffolk	Application Permitted																	
Shingle Recycling from Sudbourne Beach to Slaughden Sea defences.	http://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OV2TV9QX06O00	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Sea Defences Slaughden Road Aldeburgh And Part Orfordness Beach Sudbourne Suffolk	Pending Consideration																	
Application for aggregate dredging at Goodwin Sands	https://planning.dover.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=DCAPR_233132 Marine Licence Application MLA/2016/00227.	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	Goodwin Sands	Application Permitted																	

Coastal - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* ***Screened in to assessment.***
c	*Potential cumulative impact exists:* ***Screened in to assessment.***
d	*No conceptual effect-receptor pathway:* ***Screened out of assessment.***
e	*Low data confidence:* ***Screened out of assessment.***
f	*No physical effect-receptor overlap:* ***Screened out of assessment.***
g	*No temporal overlap:* ***Screened out of assessment.***

Project	Distance from Hornsea Three Array Area (km)	Distance from Hornsea Three Cable Route Search Area (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
United Kingdom															
Able Humber Ports Northern Area	165	114	Approved	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	d	d	f	d	d	f	f	f
Able Marine Energy Park	165	114	Approved	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	d	d	f	d	d	f	f	f
All Weather Lifeboat Pontoon - Replace	219	112	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Proposed Yorkshire Harbour and Marina	157	148	Pre-Application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	c	d	g	d	d	f	f	f
Jetty 1 clearance channel and approach to be dredged	284	165	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	g	d	d	f	f	f
Construction of a new deep water jetty facility consisting of the refurbishment of and extension to the existing OSL Jetty, refurbishment of an existing 12 tank storage compound and the undertaking of related operational and site infrastructure works.	284	165	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Cliffe Jetty upgrade by Brett Aggregates	299	180	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	g	d	d	f	f	f
Cliffe Pools, Redham Meade, Cliffe, Rochester, Kent.	299	180	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	g	d	d	f	f	f
Chatham Maritime Marina - Extension to pontoon	296	177	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	c	d	g	d	d	f	f	f
Sun Pier	298	179	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	d	d	g	d	d	f	f	f
Chatham Maritime Marina - berthing modification.	296	177	Approval	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	f	f	f	d	d	g	d	d	f	f	f
Chatham Maritime Marina - berthing extension	296	177	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	c	d	g	d	d	f	f	f
Construction of new pontoons and piles	298	179	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	g	d	d	f	f	f
Convoys Wharf development: River bus jetty proposed as part of extensive redevelopment.	306	181	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Demolition of the existing downstream jetty and demolition of the out-of-service part of the existing upstream jetty. Construction of a new replacement downstream jetty.	297	175	Awaiting decision	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Tilbury 2 Power Station proposed redevelopment of land, including improvement of an extensions to existing jetty including creation of new Ro-Ro berth	296	175	Pre-Application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Creation of a bulk carbon dioxide storage and transfer facility together with associated works, including provision of two new pipelines measuring approximately 1.2km in length, extending from the jetty to the storage tanks together with associated supporting structures	297	175	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	g	d	d	f	f	f
Temporary Jetty at Goshams Farm, East Tilbury	292	172	Pre-Application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
London Gateway Port Harbour: Scheme for the sustainable handling and transport of construction materials and dredged materials in relation to the construction of new flood defences, a breach of the existing flood defences and lowering of ground levels to create new mudflats at a site located at Egypt Bay, Cooling, Kent).	295	173	Pre-Application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f

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Restoration of a flight of steps leading from Crane Wharf, a part of Bridlington Harbour, down to the harbour bed and the opening up of an adjacent underground chamber	157	148	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Change of use to allow the permanent mooring of two additional vessels to be used for canal and river trips and the continued mooring of an existing barge for use as a museum and meeting room	172	137	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Works to reinstate dilapidated quay and form creek side footway.	293	182	Awaiting decision	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Replacement of the Brents Swing Bridge and strengthening of its abutments, reinstatement of a derelict wharf and dredging of the Creek Basin.	294	182	Pre-Application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Pontoon Installation at Lowestoft Docks	151	64	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	g	d	d	f	f	f
Tide Mill Yacht Harbour, layout changes to the central section of the marina to accommodate modern lifting equipment and accommodate larger vessels visiting the marina.	203	96	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	g	d	d	f	f	f
Rebuilding of existing landing stage W14	169	77	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	g	d	d	f	f	f
Rebuild of existing mooring	169	77	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Marine Licence Consultation - Removal of redundant ESSO loading jetty	153	63	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Replacement and extension of existing pontoon berth	170	77	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Marine Licence Consultation - Maintenance Dredged Material Disposal	151	64	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Reinstatement of jetty	203	96	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Provision of repairs to and safety upgrade of existing mooring with additional floating pontoon	169	77	Awaiting decision	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Re-configuration of the pontoon layout within Hamilton Dock	152	64	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Pontoon Installation at Lowestoft Docks	151	64	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Construction of a Timber Pontoon	197	90	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Refurbishment of existing concrete steps, replacement of existing marina piles and installation of 2no. new pontoons	152	65	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Change a static stage to a floating pontoon	169	77	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Ongoing maintenance dredging	152	65	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Provision of anchored floating pontoon for small boat river access.	237	122	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Removal of existing and installation of a new Jetty	307	181	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Application for construction of a floating pontoon in the Harbour inner basin with gangway access from the South Quay.	285	177	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Alterations to the existing landing stage pontoon, installation of a new access bridge and ramps up to and over the embankment wall.	307	181	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Details of a programme of archaeological work for Blackfriars Millennium Pier dredging pursuant to BLABF17 of the Thames Water Utilities Limited (Thames Tideway Tunnel) order 2014 as amended.	306	181	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Removal of part of quay wall to facilitate the creation of a new navigation channel between Wellington Dock and the Harbour and installation of a new retaining structure to close existing access between the Tidal Basin and Wellington Dock.	303	204	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	g	d	d	f	f	f

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Siting of a pontoon fixed to the riverbank for mooring purposes.	286	186	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Application for aggregate dredging at Goodwin Sands - further information	287	194	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	c	d	d	f	f	f
Installation of bridge and pontoons for visiting leisure craft at berth 5	177	52	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Provision of a pontoon situated on the side of the bank to provide a safe place to moor a small boat and also provide a safe spot for fishing	196	70	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Retention of London Eye (the Millennium Wheel) with associated boarding platform, alterations to Thames embankment wall and minor alterations to boarding platform and restraint towers.	308	182	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Upstream extension of Westminster Pier measuring 32 metre (length) by 10 metre (width), including the modification of the existing V-berth end pontoon and the installation of one pile, and associated works	308	183	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Erection of a pedestrian bridge with incorporated garden, extending for a length of 366m over the River Thames from land adjacent to The Queens Walk on South Bank (in the London Borough of Lambeth) to land above and in the vicinity of Temple London Underground Station on the north bank, the structure of the bridge having a maximum height of 14.3m above Mean High Water and a maximum width of 30m; the development also comprising the erection of 2 new piers in the River Thames;	307	181	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
2014/03250/FUL | Redevelopment of site following demolition of all existing buildings to provide a mixed use scheme consisting of the erection of one five storey building facing Townmead Road, one part five/part six storey building facing Wandsworth Bridge Road, one part eight and part nine storey building around a raised podium and one thirteen storey building providing a total of 237 dwellings (use class C3) and ancillary gymnasium; together with site wide energy centre; 9,875 sq/m Safeguarded Wharf including 8,069 sqm (GIA) of concrete batching plant with ancillary offices (use class B2); 579 sq/m (GIA) of retail/cafe/restaurant/bar floorspace (use classes A1/A2/A3/A4); new Thames Path with associated lift/stair access (to both east and west of the Site); new jetty within the River Thames to serve the wharf; associated hard and soft landscaping; private open space; vehicular access and servicing facilities; car parking and cycle parking; and other works incidental to the proposals.	314	188	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
The construction of new moorings at Imperial Wharf, pontoon will measure 270m long x 2m wide and located parallel to the existing marina. The extension will add another 540m of additional berthing length to the marina. The pontoon will be serviced by the existing walkway with a linkspan/pontoon between the existing and proposed pontoons.	313	187	Pending Consideration	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	e	d	d	f	f	f
Installation of a pontoon extension in the River Thames.	313	187	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Alterations to access to the pontoon by the addition of a floating ramp.	313	186	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Amendments to the gravel off-loading and storage arrangements; a smaller scale concrete plant; conveyor for the jetty to the shore; a radial conveyor; the aggregate storage bay walls and the access route to the river wall for its repair and maintenance.	303	178	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Certificate of lawfulness for the proposed removal of the existing pontoon and cutting of existing piles and the installation of new docking pontoon, piles and associated works.	301	177	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Mooring of SS Robin in the north western end of Royal Victoria Dock to be used as a heritage and cultural visitor attraction, including museum, exhibition space, education/skills centre, cafe and hireable venue space, and construction of a 25 metre pontoon walkway link from the SS Robin to the dock edge, and reconstruction of the connaught tunnel headhouse on the dock side to act as a welcome centre	302	177	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Methodology for Dredging attached to planning permission 10/02061/LTGVAR dated 2nd March 2011.	298	174	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	a	d	d	f	f	f
Erection of a 20 berth residential mooring, including the installation of mooring pontoons and associated site infrastructure.	305	180	Unknown	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Construction of 4 new floating pontoon 'fingers' for leisure use (to replace existing visitor moorings), relocation of existing pump-out, change of use of existing commercial moorings to provide 9 visitor moorings and construction of new access bridge.	304	179	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f

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Extension to the existing pontoon in front of International House, together with the installation of new ramps and new access steps to existing International House Quay Side entrance.	306	180	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Details submitted in compliance with Comprehensive redevelopment of Convoys Wharf to provide a mixed-use development of up to 419,100m² comprising: up to 321,000m² residential floorspace (up to 3,500 units) (Use Class C3) up to 15,500m² employment floorspace (Class B1/Live/Work units) including up to 2,200m² for 3 no. potential energy centres wharf with associated vessel moorings and up to 32,200m² of employment floorspace (Sui Generis & Class B2) up to 5,810m² of retail and financial and professional services floorspace (Classes A1 & A2) up to 4,520m² of restaurant/cafe and drinking establishment floorspace (Classes A3 & A4) up to 13,000m² of community/non residential institution floorspace (Class D1) and assembly and leisure (Class D2) up to 27,070m² of hotel floorspace (Class C1) river bus jetty and associated structures 1,840 car parking spaces together with vehicular access from New King Street and Grove Street retention and refurbishment of the Olympia Building and demolition of all remaining non-listed structures on site All matters reserved other than access and the siting and massing of three tall buildings.	306	181	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	c	d	f	d	d	f	f	f
Formation of a small tidal basin, to be known as Royal Dock Harbour	157	100	Unknown	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Request for Screening Opinion for an operation and maintenance facility to support the installation, operation and maintenance of the Westermost Rough Offshore Wind Farm	157	100	Unknown	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Installation of new pontoon berth in north-east corner of the Royal Dock adjoining quay side walls, including removal of steel section of C20 roll on / roll off ramp	157	100	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Installation of new pontoon berth in north-east corner of the Royal Dock adjoining quay side walls, including removal of steel section of C20 roll on / roll off ramp	157	100	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
External alteration, partial demolition and extension of riverside and Duke Street buildings to provide 29 dwellings. Demolition of central and warehouse buildings to provide redevelopment for 56 dwellings, extension of basement car park, creation of 464sqm of flexible commercial floorspace (Class A2/A3/B1(a)), associated highway and landscape works, pontoon and floating landscape platforms. (Amended description and plans/supporting documents).	150	36	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Installation of boardwalk to facilitate erection of a floating pontoon with a wooden ticket office and access via a gangway.	150	36	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Redevelopment of the site comprising the provision of a new jetty in the River Thames to provide docking for cruise liners and the Thames Clipper, a Cruise Liner Terminal, a 251 room hotel with conference, restaurant ancillary facilities (Use Class C1); skills academy (Use Class D1); 770 residential units (Use Class C3); commercial (Use Class B1); a crèche (Use Class D1) a gymnasium (Use Class D2); conversion and extension of Enderby House to provide tourist, community and retail facilities (Use Classes A1, A3, A4, B1, D1 and D2); the provision of vehicular access with associated servicing facilities; car, motorcycle and bicycle parking, provision of landscaping and public realm (including improvements to the Thames Walk); improvements to the river wall and other works within the river, including dredging, the provision of tidal gardens, piling, the provision of a pontoon and brow, and associated works. (THIS IS A DEPARTURE FROM THE UNITARY DEVELOPMENT PLAN)	305	180	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Revised outline application for an aggregate processing plant with jetty and ship to shore conveyor.	304	179	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Certificate of Lawfulness (Proposed) for the installation of new docking pontoon, piles and associated works.	302	178	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	f	d	d	f	f	f
Redevelopment of the site comprising the provision of a new jetty in the River Thames to provide docking for cruise liners and the Thames Clipper, a Cruise Liner Terminal, a 251 room hotel with conference, restaurant ancillary facilities (Use Class C1); skills academy (Use Class D1); 770 residential units (Use Class C3); commercial (Use Class B1); a crèche (Use Class D1) a gymnasium (Use Class D2); conversion and extension of Enderby House to provide tourist, community and retail facilities (Use Classes A1, A3, A4, B1, D1 and D2); the provision of vehicular access with associated servicing facilities; car, motorcycle and bicycle parking, provision of landscaping and public realm (including improvements to the Thames Walk); improvements to the river wall and other works within the river, including dredging, the provision of tidal gardens, piling, the provision of a pontoon and brow, and associated works	305	180	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f

Project	Distance from Hornsea Three Array Area (km)	Distance from Hornsea Three Cable Route Search Area (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Dredging	305	180	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	a	d	d	f	f	f
New boat hoist to include the slipway / dyke, the concrete hardstanding area and floating pontoon and connecting gangway. Note change of use from crane dock to travel hoist dock	150	54	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Proposed Mooring Pontoons along River Waveney frontage to St. Olaves Marina Ltd -	150	54	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	g	d	d	f	f	f
Pontoon moorings	150	54	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	g	d	d	f	f	f
Temporary flood embankment trial shaping of engineered dredged sediment into a flood bank profile	154	51	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Demolish existing slipway, extend existing jetty and erect new slipway and boundary fence	278	160	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	g	d	d	f	f	f
An O&M building split into three main areas (warehouse space, space for office staff and space for offshore technicians). The building will be a two storey high portal frame structure. A helipad and hangar. A new floating berthing facility for Crew Transfer Vessels (CTV) in the north-west end of Bathside Bay. External storage and parking areas. An access road.	220	112	Awaiting Decision	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	f	d	d	f	f	f
Dredging and clearing of harbour	131	4	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	d	d	d	d	d	d	d	d	f	f
Installation of fixed jetty to lower quay wall and associated works	140	16	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	d	d	e	d	g	d	d	d	f	f
Pontoon Installation at Lowestoft Docks	151	64	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	e	d	g	d	d	f	f	f
Maintenance Dredged Material Disposal	151	64	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	c	d	d	f	f	f
Aggregate Dredging in North Sea	151	64	Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	d	d	c	d	d	f	f	f
Renewed consent to dispose of maintenance dredgings from the ports of Harwich and Felixstowe and associated navigation channels. | Harwich Haven Outer Channel The Quay Harwich Essex	230	113	Application	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	f	d	c	d	d	f	f	f
17/0246/NMA | Non-material amendment of permission 16/0106/FUL for alterations to bearing piles, re-alignment of jetty approach and re-arrangement and extension to jetty head platform | Oikos Storage Ltd Hole Haven Wharf Haven Road Canvey Island Essex SS8 0NR	282	162	Approval	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	f	d	f	d	d	f	f	f
MC/17/2565 | Redevelopment of existing Alpha jetty to include extension of the bridge deck area, upgrade of the existing berthing arrangement, construction of one mooring and one berthing dolphins, installation of a new aggregate conveyor and a new access for haulers; and a temporary stockpile extension for dredged material; to facilitate the berthing of one 1600t barge and one dredger at the same time; to enable an increase in marine aggregate capability; to receive aggregates from Thames Tideway Tunnels project excavation to be used to re-profile Alpha and Chalk Lakes over the next 10 years and to receive spoil material from other projects in the long term | ALPHA JETTY, SALT LANE, CLIFFE, ME3 7SU	293	172	Pending Consideration	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	f	d	f	d	d	f	f	f
Provision of repairs to and safety upgrade of existing mooring with additional floating pontoon | Mooring E06 Blackshore Southwold Suffolk	168	77	Application Permitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	f	d	g	d	d	f	f	f
Shingle Recycling from Sudbourne Beach to Slaughden Sea defences.	190	94	Pending Consideration	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	f	d	g	d	d	f	f	f
Application for aggregate dredging at Goodwin Sands	284	191	Application Permitted	Medium - Third party project details published in the public domain but not confirmed as being 'accurate' by the proponent.	f	f	f	f	d	g	d	d	f	f	f

Onshore - Temporal

	Consenting/Pre-Construction
	Construction
	Operation and Maintenance
	Decommissioning
	Not feasible to estimate construction duration based on information currently available

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
North Norfolk District Council						
PF/12/1263 Change of use of land from agriculture to 53 units tent-only campsite and formation of vehicular access	Land at Pitt Farm The Street Baconsthorpe Holt NR25 6LF	North Norfolk District Council	Baconsthorpe Parish	Project Details published on NNDC planning search website. 'Baconsthorpe Meadows Campsite' website indicates campsite is operational	Approved 24/01/2013 DA/12/1263 Discharge of conditions 9 & 15. Link: https://goo.gl/zkkJWG Condition Discharge Reply (Accepted other than condition relating to operation) 15/03/2016	
PF/12/0681 Erection of 24 dwellings (of which 50% affordable dwellings) and associated garages, carports, boundary wall and fences and creation of 2 accesses	Land west of Langham Road Blakeney	North Norfolk District Council	Blakeney Parish	Project timings confirmed in District Council's Housing Trajectory. 12 dwellings completed, 12 left to be built	Approved 12/12/2012	
PF/14/0859 Erection of sixteen dwellings	Land at Hall Close Bodham Holt NR25 6PW	North Norfolk District Council	Bodham Parish	Project timings confirmed in District Council's Housing Trajectory, which states completion by 2018	Approved 19/06/205 PF/16/1777 Variation of condition 2 to make minor amendments to layout, house designs and external finishes of the development. Link: https://goo.gl/WWMBzh Approved 22/03/2017 CDA/14/0859 Discharge of conditions 16 & 18. Link: https://goo.gl/Jo4G4A Condition Discharge Reply 22/03/2017 CDB/14/0859 Discharge of condition 8 and 13a. Link: https://goo.gl/sLRPts Condition Discharge Reply 14/08/2017	
PF/13/0960 Installation of 3.6mw solar development	Land at Pond Farm, Bodham	North Norfolk District Council	Bodham Parish	Project timings confirmed through project website which confirmed site has been operational since 2014. Project only has a 25-year site lease.	Approved 15/11/2013	
PF/15/1746 Erection of 12 shared ownership dwellings and garages	Holly House, The Lane, Briston, Melton Constable, NR24 2JX	North Norfolk District Council	Briston Parish	Project timings comfirmed in Draft tender document submitted with application. However timings dependant on agreement of S106	Approved at committee on 04/05/2016 subject to Section 106 yet to be confirmed CDA/15/1746 Discharge of conditions. Link: https://goo.gl/mgvcpE Registered as of 20/10/2017	
PO/08/0329 Erection of Thirty-Eight Dwellings	Land off Grove Road, Melton Constable	North Norfolk District Council	Briston Parish	Project details confirmed in housing trajectory however the application has not been included in Council's 5 year houisng land supply as there is no confimred developer.	Approved 08 Feb 2012	
PM/15/0170 Erection of 38 dwellings	Bowling Green, Grove Road, Melton Constable, NR24 2DE	North Norfolk District Council	Briston Parish	Project details confirmed in housing trajectory however the application has not been included in Council's 5 year houisng land supply as there is no confimred developer.	Approved 06/05/2015	See P/08/0329
PF/13/1529 Erection of seventeen dwellings	Land at Church Street, Briston	North Norfolk District Council	Briston Parish	Project details in District Council's 5 Year Housing Land Supply. Development commenced by Housing Associateion in 2015 with completion in 2016.	Approved 16/05/2014 CDA/13/1529 Discharge of conditions 3 & 9. Link: https://goo.gl/HWFb1k Condition 3 discharged (condition 9 requires post construction certificate) 05/01/2016	
PF/16/0781 Excavation of section of railway embankment and distribution of soil on adjacent arable field (part retrospective)	Railway Embankment - land east of B1149 Corpusty NR11 6QE	North Norfolk District Council	Corpusty and Saxthorpe Parish	Details published on NCC website. Although exact completion times are not provided within the submission documents, part of this work commenced in November 2015 (retrospectively) before being asked to submit prior notification application in May 2016.	Approved 15/08/2016 CDA/16/0781 Discharge of conditions 2 & 3. Link: https://goo.gl/MbH2F3 Accepted 30 Nov 2016	
PF/13/0772 Installation of a 10.15mw solar development	Land at Hall Farm East Beckham	North Norfolk District Council	East Beckham Parish	Project timings confirmed through project website which confirmed site has been operational since March 2014.	Approved 23/09/2013 PF/15/1486 Variation of conditions 2, 10 and 18 to permit additional lights, to remove the scrapes and amend site layout. Approved 22 Jan 2016	
PF/15/1223 Erection of twenty two residential units (Class C3) with associated highway and landscape works.	Land off Rectory Road and Holt Road Edgefield Norfolk	North Norfolk District Council	Edgefield Parish	Project Details published on NNDC planning search website.	Approved 18/04/2017 Application (PF/17/1286) for ammendments to design, external appearance, layout and landscaping. Link: https://goo.gl/yRErwK. Registered as of 20/10/2017	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
PF/15/1587 Erection of 10 dwellings and garages with access off Eagle Road	Land to the south of, Eagle Road, Erpingham, NR11 7AD	North Norfolk District Council	Erpingham Parish	Project Details published on NNDC planning search website.	Permission Approved 17-Nov-16	
PF/15/1461 Erection of twenty four residential units (Class C3) with associated highway and landscape works	Land off Eagle Road, Erpingham, Norfolk	North Norfolk District Council	Erpingham Parish	Project Details published on NNDC planning search website.	Approved 18/04/2017	
PF/14/0956 Erection of three duck rearing units to house 36,000 birds	Clipstone Farm House, Clipstone, Fulmodeston, Fakenham, NR21 0NR	North Norfolk District Council	Fulmodeston Parish	Project Details published on NNDC planning search website.	Permission Approved 20/03/2015	
PF/14/0328 Erection of extension to provide twelve supported residential units	Pineheath Care Home Cromer Road High Kelling HOLT NR25 6QD	North Norfolk District Council	High Kelling Parish	Project Details published on NNDC planning search website.	Approved 20/05/2014 Discharge condition 5 relating to materials. Link: https://goo.gl/62VwxR Approved 23 Sep 2015	
PM/16/1511 Reserved matters of appearance, scale, layout and landscaping for the erection of 17 dwellings, garages and associated works in respect of Outline Planning Permission PO/14/0284	Land South of Cromer Road and West of Grove Lane Holt	North Norfolk District Council	Holt Parish	Reserved matters application shows evidence that the project is progressing	Approved 16/08/2017	See PO/14/0284
PM/16/1204 Reserved matters submission of appearance, landscaping, layout and scale; for erection of 214 dwellings, public open space, highway and other infrastructure, in respect of outline planning application PO/16/0253	Land to the north of Hempstead Road, Heath Farm, Holt, NR25 6JU	North Norfolk District Council	Holt Parish	Reserved matters application shows evidence that the project is progressing	Approved 16/03/2017	See PO/16/0253
PO/11/0978 Development of up to 85 dwellings, access, public open space and associated infrastructure	Land off Cley Road and Woodfield Road, Holt	North Norfolk District Council	Holt Parish	Project timings confirmed in District Council's Housing Trajectory	Approved 26 Jun 2012	
PM/15/0804 Development of 83 dwellings, access, public open space and associated infrastructure	Land off Woodfield Road Cley Road and Peacock Lane Holt	North Norfolk District Council	Holt Parish	Project timings confirmed in District Council's Housing Trajectory	Approved 19/08/2016 Discharge of Condition 2 (Design amendments to plots 46-55 to accommodate specified finished floor levels). Link: https://goo.gl/Y565YW Registered as of 23/10/2017	PO/11/0978
PO/14/0283 Residential development for a maximum of 126 dwellings	Land South of Cromer Road and East of Grove Lane Holt	North Norfolk District Council	Holt Parish	Project timings confirmed in District Council's Housing Trajectory, which states 120 houses will be built between 2016 and 2021. The remainding dwellings after this period.	Approved 01/04/2015 CDA/14/0283 Discharge of Conditions:- 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18 and 20. Link: https://goo.gl/fGu9AD Registered as of 23/10/2017 Resevered Matters ref: PM/15/1578 Approved May 2016 CDA/15/1578 | Discharge of Condition 5 of Planning Permission PM/15/1578. Link: https://goo.gl/YLSNQS Approved 19 May 2017	
PO/14/0284 Residential development for a maximum of 19 dwellings	Land South of Cromer Road and West of Grove Lane Holt	North Norfolk District Council	Holt Parish	Project timings should be read in line with the the above application ref: PO/14/0283.	Approved 01/04/2015 PM/16/1511 Reserved matters of appearance, scale, layout and landscaping for the erection of 17 dwellings, garages and associated works. Link: https://goo.gl/P6JCF2 Approved 16 Aug 2017	
PF/15/1108 Erection of new sixth form and music building and associated external works following demolition of modular Chapel Field building and the subsequent demolition of the music building	Greshams School Cromer Road Holt NR25 6EA	North Norfolk District Council	Holt Parish	Project Details published on NNDC planning search website.	Approved 26/11/2015 CDA/15/1108 Discharge of conditions 3,4,5,6,8,12,18 & 19. Link: https://goo.gl/2rSYz7 Approved (if contructed to spec) 10 Mar 2016 CDB/15/1108 Discharge of conditions 14,15 & 16. Link: https://goo.gl/J1KYkW Approved 08 Sep 2016 CDC/15/1108 Discharge of conditions 10 & 11. Link: https://goo.gl/eKpnbf Approved: 04 Apr 2017	
PO/16/0253 Erection of up to 215 dwellings, employment land (A3, A4, B1, B2, B8, C1, C2, D1 and D2 class uses), public open space and provision of roundabout and vehicular link road from Cromer Road (A148) to Heath Drive with associated landscaping and infrastructure (Outline application)	Land to the north of Hempstead Road Heath Farm Holt NR25 6JU	North Norfolk District Council	Holt Parish	Project timings confirmed in District Council's Housing Trajectory, which states 95 houses will be built by 2020/21 and the remainder after this period. NB supersedes ref: PO/13/1306	Approved 15-Aug-16 PM/16/1204 Reserved matters submission of appearance, landscaping, layout and scale; for erection of 213 dwellings, public open space, highway and other infrastructure. Link: https://goo.gl/wcfVXU Approved 16 Mar 2017 CDA/16/0253 Discharge of conditions 6, 7, 8,10,11,14,16 (highways),19 (landscaping),20 (ecological surveys), 21 (CEMP), 22 (LEMP), 23 (surface water drainage), 24 (foul drainage), 26 (ground gas) & 27 (renewables). Link: https://goo.gl/gb4SHZ Registererd as of 23/10/2017	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
PF/13/1026 Creation of 20 hard standings (former rally field Area A) for the siting of 20 woodland lodges with associated access and infrastructure. Demolition of chicken sheds (Area B), change of use of land and creation of hard standings for the siting of 17 static caravans with associated access and infrastructure.	Kelling Heath Holiday Park Sandy Hill Lane Weybourne Holt NR25 7HW	North Norfolk District Council	Kelling Parish	Project Details published on NNDC planning search website.	Approved 01-Nov-13	
PF/12/0181 Conversion and extension of barns to provide hotel with swimming pool, restaurant and bar facilities, conversion of barn to four residential dwellings and erection of five holiday dwellings	Land at Glass Barn North Street Langham Holt NR25 7DG	North Norfolk District Council	Langham Parish	Project Details published on NNDC planning search website The Landham developers website indicates hotel due to open in 2016 & that 21 barns/cottages are now occupied Bijou website indicates hotel is opening early 2017	Approved 18/04/2013	
PF/14/0107 Revisions to hotel and spa including increasing bedrooms from 28 to 32, provision of service area, entrance canopy and covered walkway	The Langham Hotel The Langham North Street Langham HOLT NR25 7DH	North Norfolk District Council	Langham Parish	Project details from The Langham Hotel & SPA website confiming hotel opening in Spring 2016	Approved 25/07/2014	
PO/15/0665 Erection of 12 affordable dwellings, infrastructure and associated parking and turning	Land adjacent to Chapel Road, Roughton	North Norfolk District Council	Roughton Parish	Project details from District Counicl Housing Trajectory confirming completion 2017/19	Approved 29-Jan-16 PM/16/0140 Erection of 12 affordable dwellings, infrastructure, substation and associated parking and turning (Reserved Matters of access, appearance, layout, scale and landscaping persuant to outline permission PO/15/0665). Link: https://goo.gl/EX7Asj Approved 14 Jun 2016 CDA/15/0665 Discharge of conditions 3, 4, 5, 7 and 8. Link: https://goo.gl/MEcMmR Approved (3,7,8 fully discharged on completion with plans/standards) 07 Jun 2016 CDB/15/0665 | Discharge of condition 8 (Completion of sewage disposal system). Link: https://goo.gl/rp84CF Approved 06 Apr 2017 CDC/15/0665 | Discharge of condition 7 (surface water). Link: https://goo.gl/Pt4QAM Approved: 26 Jul 2017 CDD/15/0665 | Discharge of condition 3, part 4 (contamination) and condition 4 (contamination verification). Link: https://goo.gl/8cnA2z Approved 27 Jul 2017	
PO/14/0986 Erection of thirty dwellings with open space to provide sports pitch, wetland habitat, space for community facility, car park and footpath link to village	Land at Back Lane , Roughton	North Norfolk District Council	Roughton Parish	Project details from District Council's Housing Trajectory which confirms site has not been included in 5 Year Housing Land Supply due to insufficient certainty.	Awaiting Decision as on 24/01/2017	
PF/16/1200 Demolition of dwelling and hotel and erection of 30 retirement apartments with car parking and landscaping	11 South Street and Beaumaris Hotel 13-15 South Street Sheringham NR26 8LL	North Norfolk District Council	Sheringham Parish	Project Details published on NNDC planning search website.	Awaiting Decision as on 24/01/2017	
PF-15-0001 Demolition of existing buildings, erection of 32 no. dwellings, accesses, roads, open space and associated works	Hilbre Holway Road Sheringham NR26 8NP	North Norfolk District Council	Sheringham Parish	Project details confirmed in housing trajectory. Developer proposed immediate start upon granting of permission	Approved 17/08/2016	
PF-14-0644 Erection of eleven dwellings	Land at Seaview Crescent, Sheringham, NR26 8XT	North Norfolk District Council	Sheringham Parish	Project details from District Council's Housing Trajectory which confirms site has not been included in 5 Year Housing Land Supply due to lack of developer interest	Approved 03/09/2014	
PF/14/0947 Improvement works to sea wall including concrete facing and apron and steel sheet piles	West Promenade The Esplanade Sheringham NR26 8LG	North Norfolk District Council	Sheringham Parish	Project Details published on NNDC planning search website.	Approved 17-Sep-14	
PF/15/0114 Erection of 52 dwellings, access, roads, open space, parking areas and associated works	Land off Holway Road/Butts Lane Sheringham	North Norfolk District Council	Upper Sheringham Parish	Project timings comfirmed in District Council Housing Trajectory . However timings dependant on agreement of S106.	Approved at committee on 21/10/2016 subject to Section 106 yet to be agreed. PF/16/1766 Variation of condition 2 to amend layout, house designs and external finishes of the development. Link: https://goo.gl/QL8LKS Approved 04 Jul 2017	
PF/14/0177 Installation of landfall transition pit and buried electrical cable system (revisions to previously approved scheme) and changes to the construction configuration at the landfall	Agricultural Land at Weybourne Hope	North Norfolk District Council	Weybourne Parish	Project Details published on NNDC planning search website.	Approved 06/10/2014 COND/15/0671 Discharge of condition 13. Link: https://goo.gl/zcak5b Approved 13 Aug 2015	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
South Norfolk District Council						
2015/0707 Erection of 10 residential units (Class C3) and school car parking area (Class Sui Generis) with associated landscaping and highway works.	Land South Of Wheel Road Alpington Norfolk	South Norfolk District Council	Alpington Parish	Project Details published on SNC planning search website.	Approved 22-Jul-15 2015/1690 | Discharge of conditions 7 - Ecology, 14 - Contamination, 15 - Contamination Remediation and 18 - Archaeology. Link: https://goo.gl/iJFrGp Approved 21 Sep 2015 2015/2099 Non-material amendment to include minor alterations to the approved dimensions of plots 4 and 5, removal of some brick plinths, alteration to single rear window in plot 5 and amendments to some garage doors. Link: https://goo.gl/tVDLbG Approval with no Conditions 25 Sep 2015 2015/2193 Discharge of condition 5 - on site parking for construction workers. Link: https://goo.gl/gsNF5s Approved 04 Dec 2015 2015/2426 Discharge of condition 22 - materials. Link: https://goo.gl/id6fYL Approved 03 Dec 2015 2015/2534 Discharge of conditions 10 - hard and soft landscaping. Link: https://goo.gl/whL7xB Approved 19 Feb 2016 2015/2554 Discharge of condition 6 Part A of planning permission 2015/0707/F - Highways. Link: https://goo.gl/eayy5U Approved 03 Dec 2015 2015/2638 | Non-Material amendment - Door surround omitted from type A (plot 2 and 3) and replaced with pitched canopy to match plots 8-10. Front door amended. Raised cill to window front of type D1 (plot 6) and type D2 (plot 7) as consequence of movement of kitchen. Adjustment from window to sliding door (south elevation) of type D1 (plot 6) and type D2 (plot 7). Link: https://goo.gl/Pt15z3	
2013/0854 Development of land for 24 homes, including affordable housing.	Land South Of Mill View Bell Road Barnham Broom Norfolk	South Norfolk District Council	Barnham Broom Parish	Project Details published on SNC planning search website.	Approved 29-Apr-14 2017/0100 Reserved matters following 2013/0854/O - proposed 24 dwellings. Link: https://goo.gl/W46QNB Approval with Conditions 14 Jun 2017 2017/0743 | Variation of Condition 11) Traffic Regulation Order (to require the Traffic Regulation Order to be promoted prior to implementation of the permission rather than secured) and 23) Materials (to allow site clearance works, site investigation works, tree protection works and below ground works before details of materials are submitted). Link: https://goo.gl/sZpSpE Approval with Conditions 02 Jun 2017 2017/1432 Discharge of conditions 14 contamination details. Link: https://goo.gl/T4L8L6 Pending Consideration as of 24/10/2017 2017/1634 | Discharge of Conditions 20 - Arboricultural Impact Assessment and 24 - Ecological Assessment with Management Plan. Link: https://goo.gl/qbVHXt Approved: 27 Jul 2017	
2015/1678 Development of ground mounted solar photovoltaic panels and associated works including transformer substations, storage container, switchgear, DNO Cabin, access tracks, underground cabling, security measures and other ancillary equipment and landscaping	Land Adj A47 And North Of New Road Bawburgh Norfolk	South Norfolk District Council	Bawburgh Parish	Project Details published on SNC planning search website.	Approved 02-Nov-15 2015/2556 Discharge of condition 7 of planning permission - Geophysical Survey and Field Evaluation. Link: https://goo.gl/WvYK7J Approved 01 Dec 2015	
2015/2082 Outline application for the residential development 10 dwellings	Land South Of Village Hall Stocks Hill Bawburgh Norfolk	South Norfolk District Council	Bawburgh Parish	Project Details published on SNC planning search website.	Approved 22-Jun-16	
2015/2836 Erection of 11 dwellings plus associated roads, landscaping and drainage infrastructure	Land South Of Cookes Road Bergh Apton Norfolk	South Norfolk District Council	Bergh Apton Parish	Project Details published on SNC planning search website.	Approved 11-Mar-16 2016/1279 Discharge of conditions 3 - drainage, 4 - external works layout and 9 - Ecological Management Plan. Link: https://goo.gl/ixytKB Approved 27 Sep 2016 2017/0058 Discharge of Conditions - 8 - hard landscaping, 11 - external materials, - 12 external joinery. Link: https://goo.gl/gE9AAs Approved 11 Apr 2017 2017/1007 | Discharge of Condition 10 (Water Consumption) Link: https://goo.gl/4eBSWt Approved 31 May 2017 2017/1726 Non Material Amendment - Plot 4, remove small length of park rail fence and planting of new hedge to access drive. Link: https://goo.gl/Py5tci Approved: 27 Jul 2017	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2014/2380 Development of a ground mounted solar farm including associated infrastructure which includes inverters and transformers and a substation.	Land East Of White Horse Lane Trowse Norfolk	South Norfolk District Council	Bixley Parish	Project Details published on SNC planning search website.	Approved 11-Aug-15 2015/2392 Discharge of Conditions 4, 8, 9, 10, 11, 12, 13, 14, 17, 19 and 21 - Construction traffic management plan, private access road details, archaeology, ecology, surface water, noise and dust management, landscaping, tree protection and CCTV details. Link: https://goo.gl/WBNBRE Approved 05 Jan 2016 2016/2590 Non-material amendment - Various changes to approved application including fencing and gates, Inverter cabin and DNO station. Link: https://goo.gl/2QKVZF Approved 21 Nov 2016 2016/2893 Discharge of condition 17 - landscaping. Link: https://goo.gl/S6tWiX Approved 07 Mar 2017 2017/0004 Discharge of condition 21 - cctv details. Link: https://goo.gl/X1qrx1 Approved 25 Jan 2017 2017/2248 Non Material Amendment to allow changes to fencing, gate, DNO Substations and Inverter/Transformers. Link: https://goo.gl/VHeTF6 Approval with no Conditions 25 Oct 2017 2017/2234 Variation of Conditions 1 and 2 to allow extension of operational lifetime of the solar farm from 25 years to 30 years. Link: https://goo.gl/HCYFcg Pending Consideration as of 01/11/2017	
2012/0405/O Application for outline planning permission for mixed use development for community, residential and commercial uses and associated external works. A new electricity substation, new pumping station, SUDS (including pond) and open spaces are included in the proposal.	Land West Of Octagon Farm Bungay Road Bixley Norfolk	South Norfolk District Council	Bixley Parish Council	Project Details published on SNC planning search website.	Approved 10 Oct 2013	
2015/2326 Reserved matters for appearance, landscaping and layout for 60 dwellings and 2 commercial units with associated external works in relation to outline permission 2012/0405/O.	Land West Of Octagon Farm Bungay Road Bixley Norfolk	South Norfolk District Council	Bixley Parish Council	Project Details published on SNC planning search website.	Approved 01-Apr-16	See 2012/0405/O
2012/0405 Application for outline planning permission for mixed use development for community, residential and commercial uses and associated external works. A new electricity substation, new pumping station, SUDS (including pond) and open spaces are included in the proposal.	Land West Of Octagon Farm Bungay Road Bixley Norfolk	South Norfolk District Council	Bixley Parish Council	Project Details published on SNC planning search website.	Approved 10-Oct-13	
2016/0713 Erection of 52 dwellings, open space and associated works (Full application)	Land To East Of Norwich Road Bracon Ash Norfolk	South Norfolk District Council	Bracon Ash Parish	Project Details published on SNC planning search website.	Refusal 20/09/2017	
2013/1881 Proposed new residential development consisting of 10 no dwellings and 1 no office unit	Land North Of Church Farm The Street Bramerton Norfolk	South Norfolk District Council	Bramerton Parish	Project Details published on SNC planning search website.	Approved 09-Jan-14 2014/0705 Variation of condition 2 -To substitute drawings 4820/051E & 061 with 4320/051G & 061A Link: https://goo.gl/Ktgi83 Approval with Conditions 02 Jul 2014	See 2013/0087
2013/0087 Proposed new residential development consisting of 10 no dwellings and 1 no office unit	Land North Of Church Farm The Street Bramerton Norfolk	South Norfolk District Council	Bramerton Parish	Project Details published on SNC planning search website.	Approved 20-Sep-13 2015/1181 Variation of Conditions 3 and 11 and removal of condition 15. Link: https://goo.gl/9j1Jxt Approval with Conditions 25 Sep 2015	
2014/2041 Demolition of piggery buildings and erection of 13 dwellings, extension and alterations to 49 High Green, alterations to 49a High Green and replacement outbuilding serving 49 and 49a High Green.	49 High Green Brooke Norwich NR15 1JA	South Norfolk District Council	Brooke Parish	Project Details published on SNC planning search website.	Approved 16-Mar-16 2016/2840 Non Material Amendment - Changes to internal layouts, fenestration and a slight enlargement of the affordable dwellings (plots 1 and 2) to ensure compliance with national space standards. Provision of vehicle access for proposed pumping station subject of concurrent separate planning application. Link: https://goo.gl/oDzV2z Approval with no Conditions 25 Jan 2017 2017/0010 Discharge of Conditions 5 and 6- roads, footways, cycleways, foul and surface water drainage; 7 and 8 - street maintenance; 12 - construction period; 13 - construction workers site parking; 14 - wheel cleaning facilities; 16 - surface water drainage; 19 - Natural England licence for Ecology; 24 - predicted energy requirement; 32 and 33- planting and surface water drainage scheme. Link: https://goo.gl/76i2rN Pending Consideration as of 24/10/2017 2017/1128 Variation of condition 2 - rear extensions to plots 11 and 12. Link: https://goo.gl/DrokJc Approval with Conditions 20 Jun 2017 2017/1376 Discharge of conditions 3 - materials, 25 and 26 - hard and soft landscaping details, 30 and 31 - boundary treatment. Link: https://goo.gl/AVzBW8 Approved 29 Aug 2017	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2013/2201 Residential development of 12 dwellings and garages, plus associated services. Maintained field access, New speed limit and village entrance signs.	Land North Of 30 Norwich Road Brooke Norfolk	South Norfolk District Council	Brooke Parish	Project Details published on SNC planning search website.	Approved 24-Apr-14 2015/0980 Variation of Conditions 2, 3 and 15 of permission 2013/2201/F to allow the addition of a front porch to house types A and B with variation to house type D, and the occupation of plots 9-12 prior to the off-site improvement works being carried out. Link: https://goo.gl/ckoCp1 Approval with Conditions 27 Jul 2015 2014/2144 Dischage of conditions 3, 4, 5, 6, 8, 9, 10, 14 , 16,17, 19. Materials, levels, boundary treatment, hard and soft landscaping, drainage, contamination, site parking, off site highway improvements, traffic regulation order, plot 12 first floor bathroom glazing, tree protection plan. Link: https://goo.gl/8ns1Sn Approved 17 Dec 2014 2015/0205 Discharge of Condition 15A of planning permission 2013/2201 and 13A of planning permission 2015/0980 - Off-site Highway Improvement Works. Link: https://goo.gl/Lq5P8b Approved 06 Oct 2015 2015/0624 Non-Material Amendement to planning application 2013/2201 - reduction in floor area for House Type E, Plots 11 and 12. Link: https://goo.gl/BLV6r9 Approval with no Conditions 31 Mar 2015 2015/0701 Discharge of condition 19 of planning consent 2013/2201/F - landscaping. Link: https://goo.gl/XFCMZn Approved 07 May 2015 2015/2057 Part discharge of Condition 7 (for plots 9, 10, 11 and 12 only) of planning consent 2013/2201- Water Consumption. Link: https://goo.gl/5WA5rF Approved 18 Sep 2015
2012/1145 Erection of new building for research and development purposes with associated surface car park, cycle parking, landscaping and enclosed walkway	John Innes Institute Colney Lane Colney Norwich NR4 7UH	South Norfolk District Council	Colney Parish	Project Details published on SNC planning search website.	Approved 17-Aug-12 2012/1928 Details required by conditions 7 (foul water and sewage disposal) and 8 (surface water drainage) Link: https://goo.gl/DXya7G Approved 15 May 2013 2012/2079 Details required by condition 6 (landscape details), Condition 12 (roads,cycleways and drainage) and condition 18 (travel plan). Link: https://goo.gl/Dk5rhh Approved 15 Mar 2013 2012/2307 Details required by conditions 9 Archaeological written scheme of investigation, 16 construction worker parking and 17 wheel washing. Link: https://goo.gl/9w1gxf Approved 23 Aug 2013 2013/0097 Discharge of condition 5 - Ecological mitigation. Link: https://goo.gl/v8ERSE Approved 23 Aug 2013 2013/0159 Discharge of condition 4 - tree protection. Link: https://goo.gl/T8KkWf Approved 23 Aug 2013 2017/0348 Variation of Condition 19 - Use Class of B1(b) (Erection of new building for research and development purposes with associated surface car park, cycle parking, landscaping and enclosed walkway) to include ancillary and complementary uses. Link: https://goo.gl/shqNNz Approved 27 Mar 2017
2012/1269 Provision of a temporary 350 space car park for the Norfolk and Norwich Hospital	Car Parking At Norfolk And Norwich University Hospital Colney Lane Colney Norfolk NR4 7UY	South Norfolk District Council	Colney Parish	Project Details published on SNC planning search website.	Approved 19-Sep-12 2012/2055 Details required by conditions 5 landscape, 7 archaeological scheme, 10 travel plan, 13 wheel cleaning facilities, 14 zebra crossing link, 16 surface water drainage strategy. Link: https://goo.gl/Y2yTEr Approved 15 May 2013 2012/2023 Variation of condition 2 to amend the surface finish for the car parking bays by replacing drawing number 6838.A.500 I with drawing number 6828.A.500 K. Link: https://goo.gl/jbVWQD Approval with Conditions 31 May 2013

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2012/1477 Outline application for new offices and laboratories for research and development activities along with ancillary and complimentary uses with access from Colney Lane and Hethersett Lane and all other matters reserved. Demolition and reprovision of exisiting buildings. Associated car parking, infrastructure, internal access roads, landscaping and cycle parking.	Norwich Research Park Colney Lane Colney Norfolk	South Norfolk District Council	Colney Parish	Project Details published on SNC planning search website.	Approved 13-Jun-13 2013/1780 Discharge of Conditions 4,10,15,16,17,19,20,22,23,24 and 26 - Drainage Layout, kerb detailing, tree protection construction parking and general arrangement. Link: https://goo.gl/go5X8p Approved 26 Feb 2015 2013/2239 Discharge of Conditions 15,17,20 and 24 Tree protection, ecological management plan, archaeological scheme of investigation and construction worker parking details. Link: https://goo.gl/D6dJTB Approved 28 Jan 2014 2014/0030 Variation of Condition 3 - Amendment to wording of condition to read: f) Tree Removal Plan- (94) LP001- Rev C and to include i) Proposed Tree Planting Plan- (94) LP002. Approval with Conditions 11 Mar 2014 2014/0210 Discharge of conditions 18 & 19 - Floor space of demolished buildings & Joint phasing plan. Link: https://goo.gl/BdHJjV Approved 11 Apr 2014 2014/0442 Discharge of conditions 11, 16, 25 and 26 - External materials, construction environmental management plan, construction traffic management plan and access route and wheel cleaning. Link: https://goo.gl/hzom2v Approved 25 Apr 2014 2014/1564 Discharge of conditions 10, 11, 14, 15 & 17 - External lighting, materials, landscaping scheme, tree protection plan and ecology. Link: https://goo.gl/rhKJjT Approved 13 Nov 2014 2014/2099 Discharge of condition 13 - Landscaping & public realm details. Link:	
2012/1880 Proposed offices, laboratories and academic space for principally research and development activities, buildings for health and health related uses and buildings for further ancillary uses. Associated car parking, access, infrastructure, internal access roads and strategic landscaping	Land Adj Norfolk And Norwich University Hospital Colney Lane Colney Norfolk NR4 7UY	South Norfolk District Council	Colney Parish	Project Details published on SNC planning search website.	Approval with Conditions 09 Apr 2013 2013/1110 Discharge of conditions 4,5,8,9,10,17,21,22,23 and 24. Link: https://goo.gl/7drXQA Approved 23 Aug 2013 2013/1295 Discharge of Condition 14 - Phasing Plan. Link: https://goo.gl/sqxHHe Approved 23 Aug 2013 2013/1381 Discharge of Condition 19 - Landscaping, surface and foul water drainage, maintenance building. Link: https://goo.gl/Z1CSk6 Approved 23 Aug 2013 2014/0223 Discharge of conditions 16 & 19 - Brick material, soft and hard landscaping. Link: https://goo.gl/qKcF81 Approved 03 Apr 2014 2014/1902 Discharge of condition 18 - Landscaping details. Link: https://goo.gl/CCYCpU Approved 18 Nov 2014 2015/2261 Discharge of Conditions 4 and 7 - surface water drainage and footway/cycleway phasing. Link: https://goo.gl/1HpXfn Approved 03 Feb 2016 2017/1277 Discharge of Condition 14 - Joint Phasing Plan for NRP North and South. Link: https://goo.gl/RZKfV3 Pending Consideration as 08/02/2018 2018/0070 Discharge of Conditions 8, 9, 10 and 22 - (8) - site parking for construction workers, (9) - construction traffic management plan and access route, (10) - wheel cleaning facilities for construction vehicles, (22) - Construction Environmental	
2016/2382 Reserved matters following 2012/1880/O - Construction of a four storey car park, internal access roads, two roundabouts and associated road works on Hethersett Lane.	Land Adj Norfolk And Norwich University Hospital Colney Lane Colney Norfolk NR4 7UY	South Norfolk District Council	Colney Parish	Project Details published on SNC planning search website.	Approval with Conditions 21/03/2017	See 2012/1880
2016/0233 New sports pitches (including an artificial grass pitch with fencing and floodlighting), re-profiling of existing pitches, infilling/re-profiling of area used as existing grounds maintenance facility; new pavilion/club house (GIA: 1306 sqm), incorporating a café, changing rooms, club room, bar and members lounge; associated new car/coach/cycle parking areas (168 car parking spaces and overflow parking for up to 60 cars, including 8 parking spaces for the disabled, 100 cycle spaces and 2 coach parking spaces); new freestanding grounds/sports equipment storage facility (GIA: 144 sqm) and associated compound; access road (utilising the existing access junction onto Colney Lane), new footpath/cycleways; extension of the existing Colney Lane car park (from 37 to 87 spaces and overflow parking for up to 24 cars); associated infrastructure (including utility equipment) and the temporary siting of a storage unit for sports/grounds equipment (for the period up to the opening of the grounds/sports equipment storage facility) at the UEA Sports Pitches, Colney Lane, Norwich	UEA Sports Facility Colney Lane Colney Norfolk	South Norfolk District Council	Colney Parish	Project Details published on SNC planning search website.	Approval with Conditions 10/02/2017	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2013/0554 Proposed reserved matters application to approved 2012/1880/O - Proposed Norwich Medical Research building, associated car parking and internal access roads, site infrastructure and on-site landscaping	Norfolk And Norwich University Hospital Colney Lane Colney Norfolk NR4 7UY	South Norfolk District Council	Colney Parish	Project Details published on SNC planning search website. Google maps indicates that phase complete as of September 2015	Approved 23-May-13 2014/0092 Non material amendment - Amendments to building elevations. Link: https://goo.gl/aQxjLR Approval with no Conditions 07 Feb 2014 2015/0576 Non-material amendment to previous planning permission 2013/0554/D from outline consent 2012/1880/O to amend 1) landscaping and 2) external signage on building. Approval with no Conditions 08 May 2015	See 2012/1880
2013/0567 FULL application for 495 dwellings, associated infrastructure, open space and allotments and OUTLINE permission for reserve site for a single form entry school, small convenience store, sports pavilion including changing facilities, small meeting room, associated parking, demolition of 4 dwellings and associated farm buildings (Amended 27/01/14)	Lodge Farm Phase 2 Development Dereham Road Costessey Norfolk	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Approved 30-Apr-14 2014/1481 Discharge of Conditions 6 and 18 (Ecology) 7,8,13,14.15,16 (Highways) 17 (Materials) 21, 22 (Landscaping) 12, 23, 24, 25, 26 (Water, Drainage and Waste) 27, 28 and (Archaeological Works) from planning permission 2013/0567. Link: https://goo.gl/H59Vai Approved 22 Dec 2016 2014/2623 Non material amendment to planning permission - To revise the phasing plans listed under condition 3. Link: https://goo.gl/NtYGh8 Approved 05 Feb 2015 2015/0604 Non material amendment - removal of 1 x tree for purpose of constructing footway. Link: https://goo.gl/D7duR2 Approved 27 Mar 2015 2015/0920 Non material amendment - replace/amend approved house plans for types H1959,H2174 and H2235. Link: https://goo.gl/hhN9fa Approved 28 May 2015 2016/2833 Discharge of conditions 9 - Street Management & Maintenance, 10 - Roads, footways & cycleways layout & 11 - roads, footways & cycleways surface (Northern Parcel only). Link: https://goo.gl/PzWxqi Pending Consideration as of 27/10/2017	
2014/2511 The proposal consists of the construction of a new 1115 sqm (12,000sq ft) portal framed industrial/warehouse unit with associated vehicular parking and external works.	Citygate Developments Ltd Alex Moorhouse Way Costessey Norfolk	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Approved 16-Feb-15 2015/0883 Discharge of conditions 4, 5, 6, 8, 9, 11, 13, 14 and 15. Link: https://goo.gl/xac6cu Approved 24 Jul 2015	
2016/2430 Outline application with access and Landscaping (all other matters reserved) for 83 dwellings (including 27 affordable dwellings) with areas of public open space, sustainable drainage systems and associated infrastructure.	Land North Of Farmland Road Costessey Norfolk	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Refusal 13 Dec 2017	
2015/0570 Full application for the erection of 26 dwellings	Phase 3 South West Quarter Queen's Hills Land Between Fairway And Kestrel Avenue Costessey Norfolk	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Approved 25-Aug-15 2016/2859 Non material amendment - Alteration of proposed brick, roof tiles and boarding colour as identified in material plan. Link: https://goo.gl/jqUyhv Approved 26 Jan 2017 2017/0709 Discharge of condition 4 - hard and soft landscaping, 5 - landscape management plan and 8 - surface water drainage of permission. Link: https://goo.gl/tvivtm	
2009/1996 Proposed outline application for a residential development of 70 dwellings and associated works including a new access to the south	Land At Townhouse Road Costessey	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Refusal 15 Aug 2011 Appeal allowed 31 Aug 2012	
2014/1440 Application seeks Reserved Matters approval for appearance, landscaping, layout and scale for 62 dwellings and associated works.	Land At Townhouse Road Costessey Norfolk	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Approved 06-Feb15 (outline apporved 2012/0269) 2015/1442 Discharge of condition 9 - Revised garage plots. Link: https://goo.gl/p9tYH8 Approved 02 Sep 2015 2015/1897 Discharge of conditions 2 - pumping station details, 3 - landscaping, 4 - boundary treatments, 6 car parking and 8 - Deed of Variation fo existing S106 Agreement. Link: https://goo.gl/Rs4A18 Approved 06 Nov 2015	See 2009/1996

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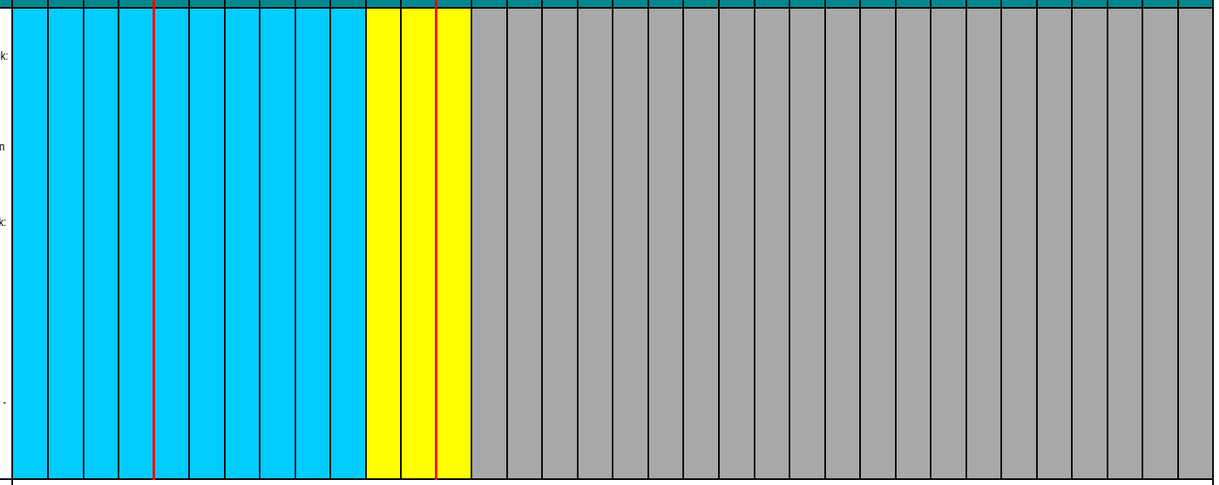
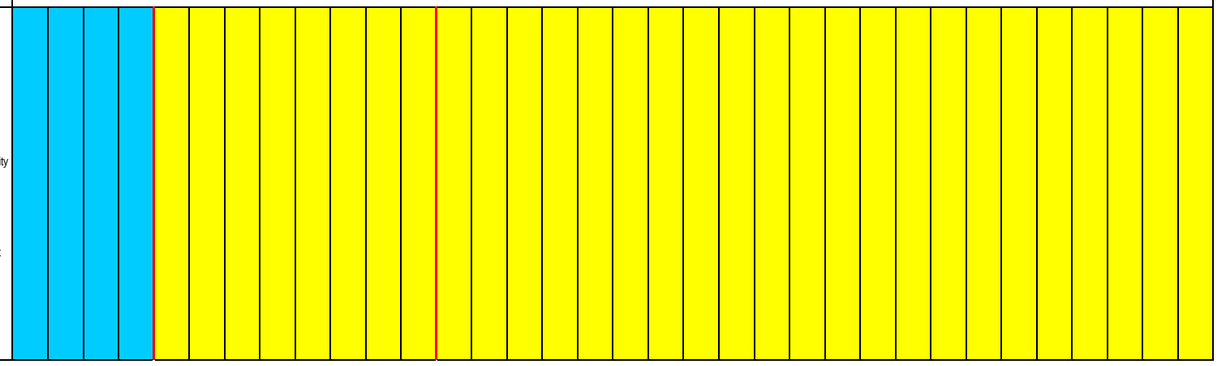
2016/0402 Partial Re-plan on the northern parcel of previously approved planning consent ref 2013/0567/F. The replanned area covers the previously consented plots 1-5, 20-32, 79 & 84-86 and includes 36no. new build dwellings (including 5no. affordable dwellings) with associated landscaping and parking.	Lodge Farm Phase 2 Development Dereham Road Costessey Norfolk	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Approved 02-Nov-16 2017/0329 Discharge of condition 3 - Predicted energy requirement. Link: https://goo.gl/qUdTbE Approved 10 Mar 2017 2017/0396 Discharge of conditions 8 & 9 - Approval of highway elements and foul and surface water drainage. Link: https://goo.gl/KtJw1n Approved 04 Apr 2017 2017/0400 Discharge of Condition 4 - Water Consumption Rate. Link: https://goo.gl/JXJkvH Approved 06 Apr 2017 2017/0406 Discharge of Condition 11 - Mineral Safeguarding and Management Plan. Link: https://goo.gl/rR2Vp6 Approved 06 Apr 2017	See 2013/0567
2013/1723 Change of use of 18.8 acres of unmanaged land adjacent to Costessey Park Golf Club from agricultural to leisure. The course will be extended over this land, with the addition of 3 golf holes.	Costessey Park Golf Centre Ltd, Costessey Park Parklands Costessey Norwich NR8 5AL	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Approved 13-Mar-14 2014/1442 Discharge of Conditions 3 Landscaping and 5 Ecology. Link: https://goo.gl/enYUHa Approved 19 Sep 2014	
2012/0648 Demolition of existing main school building and the construction of a new three storey Academy, separate sports hall building and associated works.	Ormiston Victory Academy Middleton Crescent Costessey Norfolk NR5 0PX	South Norfolk District Council	Costessey Parish	Project Details published on SNC planning search website.	Approved 22-Jun-12 (Completed) 2012/1301 Submission of details required by conditions 4,5,10,13,18 and 22. Link: https://goo.gl/kDFyEi Approved 29 Nov 2012	
2013/0881 Erection of 80 bedroom care home together with associated landscaping and parking provision.	Land At Round House Way Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 06-Aug-13 (Assummed Completed) 2013/2294 Discharge of conditions 3, 5, 10, 11, 13 & 14 - External materials, roads & footways, construction parking, archaeological works, surface water drainage & foul water drainage. Link: https://goo.gl/7Xg1vi Approved 22 Jul 2014 2014/1752 Discharge of conditions 3 - external finishes, 13 - surface water drainage, 14 - foul water drainage. Link: https://goo.gl/zh2w9m Approved 09 Dec 2014 2014/2196 Discharge of Conditions 6 and 7 - Roads, Footways Cycleways. Link: https://goo.gl/588aAf Approved 09 Dec 2014	
2012/0199 Community facilities, including Community Centre, playing fields and associated parking.	Land For Cringleford Community Centre Dragonfly Lane (Phase 2 Round House Park Round House Way) Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 28-Mar-12 (Development Completed) 2012/1352 Non material amendment - Omision of 1 double door and re-location of 2 double doors on south elevation. Amendment to fuel/bin store. Link: https://goo.gl/abTGBF Approved 22 Aug 2012 2012/2321 Details required by conditions 5 landscaping & 7 tree protection. Link: https://goo.gl/P7eDLw Approved 22 Feb 2013 2013/0074 Non material amendment - Amendments to roof finishes and layout and to eaves detail. Link: https://goo.gl/Gu9EbX Approved 04 Feb 2013 2013/1712 Discharge of Conditions 4, 6, 8, 9, 10, 11 & 12 - landscape, external lighting, condensing units. Link: https://goo.gl/mVNZ7M Approved: 04 Dec 2014	
2008/2347 Outline application for residential development (626 units) and associated infrastructure including open space and recreational woodland, site for Primary School, Community facilities and up to 1486sqm mixed use (A1, A2, A3, A4, A5) Neighbourhood Centre (revised Phase 2 - Round House Park)	Phase 2 Round House Park Round House Way Cringleford	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 26 Jul 2010	
2015/1376 Proposal to build 106 new dwellings and associated garages, parking spaces, estate roads and open space	Phase 2 Round House Park Round House Way Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 15-Dec-15 2017/1024 Discharge of Condition 4 (External Lighting). Link: https://goo.gl/ydUsSR Approved 21 Jun 2017	See 2008/2347/O
2014/1605 Construction of 15 flats and associated access and car parking.	Phase 2 Round House Park Area R2B (part) Round House Way Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 21-Nov-14 2015/0962 Discharge of conditions 2, 3, 6 and 9 - Landscaping, cycle store, materials and water calculator assessment. Link: https://goo.gl/A6jXGe Approved 04 Nov 2015 2015/2848 Discharge of condition 5 - External lighting. Link: https://goo.gl/WYXJ8r Approved 06 Jan 2016	See 2008/2347/O
2014/1116 Proposed Neighbourhood Centre Retail Units (reserved matters for outline permission 2008/2347).	Neighbourhood Centre Retail Units Dragonfly Lane Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 18-Nov-14 2014/2584 Discharge of conditions 3 and 8 - External lighting and mini recycling area/refuse store/hard boundary treatments. Link: https://goo.gl/4b49MK Approved 24 Feb 2015	See 2008/2347/O

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2014/1019 Construction of 58 new build dwellings, ancillary accomodation, infrastructure and landscape	Phase 2 Round House Park Round House Way Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 17-Nov-14	See 2008/2347/O
2013/1793 Outline planning permission for a development for up to 650 dwellings together with a small local centre, primary school with early years facility, two new vehicular accesses off Colney Lane, associated on-site highways, pedestrian and cycle routes, public recreational open space, allotments, landscape planting and community woodland.	Land South-west Of Newfound Farm Colney Lane Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 20-Jul-16 2016/2695 Discharge of condition 32 - phase 2 Geo- Environmental Assessment Report, Condition 33 - Verification report of remediation strategy, Condition 34 - Contamination monitoring and maintenance plan. Link: https://goo.gl/hdaZUs Approved 30 Nov 2016 2016/2942 Discharge of condition 6 - design code report. Link: https://goo.gl/Y1w4ZQ Approved 02 Mar 2017	
2013/1523 Construction of 45 Dwellings, Associated Estate Road, Garaging and Car Parking	Development Parcel R2A & R2B Round House Park Round House Way Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 01-Nov-13 2014/1251 Discharge of condition 4 - full details of information to be provided to prospective purchasers and legal mechanisms used to protect the structural landscape tree belt. Link: https://goo.gl/KvfgMg Approved 08 Aug 2014	
2013/0400 Development of parcel R4C, 27 dwellings, garaging and parking. Details of external appearance, access, landscaping, boundary treatment provided. The outline application/permission did require an EIA, which was submitted.	Area R4C Round House Way Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 07-May-13 2013/1850 Discharge of Conditions 3 and 6 - Materials and Boundary Treatment. Link: https://goo.gl/bdUK43 Approved 27 Jan 2014 2013/1956 Non Material Amendment - Substitution of house type of plot 2 to improve internal arrangement. Link: https://goo.gl/zmkqch Approval 15 Nov 2013 2014/1051 Variation of condition 2 - Change to layout of plot 44 amending the design of the housetype H141 Osbourne to a H137 Debden. Link: https://goo.gl/RJ2626 Approval with Conditions 25 Jul 2014	
2012/1766 Outline application for residential development (626 units) and associated infrastructure including open space and recreational woodland, site for Primary School, Community facilities and up to 1486sqm mixed use (A1, A2, A3, A4, A5) Neighbourhood Centre (revised Phase 2 - Round House Park) - discharge of conditions 5 (structural landscaping), 8 (play equipment) and 11 (tree protection).	Phase 2 Round House Park Round House Way Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 13-Feb-13 2013/1809 Non Material Amendment - Detailed layout plan and planting plan. Link: https://goo.gl/ahTGSt Approval with no Conditions 11 Feb 2014	See 2008/2347/O
2012/1644 Outline Planning application for residential development and associated works including new access	Land West Of School Cantley Lane Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 01-May-13	
2012/1713 FULL Planning Permission and conservation area consent for 2 no dwellings along with OUTLINE permission for 12 no dwellings	Land At School Cantley Lane Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 02-Jul-13	
2012/1456 Construction of 132 dwellings, associated estate roads, garaging, parking.	Phase 3 Area R7 Round House Park Round House Way Cringleford	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 11-Mar-13 2013/1764 Discharge of Conditions 3 & 5 - Materials and fence plan. Link: https://goo.gl/nsVRfD Approved 26 Nov 2013	
2012/0475 Proposed 37 new dwellings including link road	Phase 1 Area R7 Round House Way Cringleford Norfolk	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 16-May-12 2012/1135 Discharge of conditions 3 and 5. Link:https://goo.gl/a7PHwp Approved 19 Dec 2012	
2011/2058 Construction of 82 dwellings, associated estate roads, garaging, parking and landscaping.	Areas R3A And R3B Round House Park Roundhouse Way Cringleford Norfolk NR4 6UF	South Norfolk District Council	Cringleford Parish	Project Details published on SNC planning search website.	Approved 30-Apr-12 013/0510 Non material amendment - to change plots 59 to 61 from 3 bed units to 2 bed units with garages. Link: https://goo.gl/g6trP5 Approval with no Conditions 23 May 2013	
2013/0051 Proposal to create 92 houses and 13 residential apartments with 216 car parking spaces All buildings and ancillary structures on the North side of Alma Beck to be demolished with the original silk mill building to be retained and converted - THIS APPLICATION WILL BE DETERMINED BY THE BROADS AUTHORITY BA/2012/0005/FUL	The Maltings Pirnhow Street Ditchingham Norfolk NR35 2RT	South Norfolk District Council	Ditchingham Parish	Project Details published on SNC planning search website.	Approved 26-Jul-12 (Development Completed)	
2015/2867 Erection of 20 dwellings, mainly consisting of detached and semi-detached houses.	Land To The West Of School Road Earsham Norfolk	South Norfolk District Council	Earsham Parish	Project Details published on SNC planning search website.	Pending Consideration when checked on 28-Feb-18	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2014/2611 The erection of 890 dwellings; the creation of a village heart to feature an extended primary school, a new village hall, a retail store and areas of public open space; the relocation and increased capacity of the allotments; and associated infrastructure including public open space and highway works.	Land North And South Of Dereham Road Easton Norfolk	South Norfolk District Council	Easton Parish	Project Details published on SNC planning search website.	Approved 01-Nov-16	
2014/0290 Reserved Matters approval for 17 dwellings and associated external works (following planning permission 2011/0016/O)	(C P S Fuels Ltd) Old Sale Yard Forncett Station Forncett St. Peter Norwich NR16 1JB	South Norfolk District Council	Forncett Parish	Project Details published on SNC planning search website.	Approved 29-May-14 2014/2215 Discharge of conditions 3, 4 and 5 - Surface water, landscaping management plan and landscaping scheme details. Link: Approved 05 Feb 2015 2016/0269 Variation of condition 2 to change the boundary treatment on the east side of the site to a 1.8m timber fence (originally a 1.2m post and wire fence). Link: https://goo.gl/FnFQRM Approval with Conditions 05 Apr 2016	
2014/0432 Erection of new hospice for East Anglia's Children's Hospices (EACH). Proposed development of double and single storey accommodation for the children, therapy areas and staff areas. Entrance road to the site and car parking facilities. Grounds Compound.	Land East Of 8 Pine Cottages Pigot Lane Framingham Earl Norfolk	South Norfolk District Council	Framingham Earl Parish	Project Details published on SNC planning search website.	Approved 24-Jun-14 2015/0536 Discharge of conditions 7A, 8A, 9, 10, 11, 13, 14, 15, 16, 17A - Construction Management Plan and Access Route, Wheel Cleaning Facilities, works to be carried out as per tree survey & arboricultural impact assessment, new access constructed prior to commencement, proposed new planting, ecological management plan, proposed finish levels, materials, archaeological written scheme. Link: https://goo.gl/ogtKf3 Approved 05 May 2015 2016/0310 Variation of condition 9 - additional arboricultural works relating to footpath details. Link: https://goo.gl/Pmjrrq Approval with Conditions 31 Mar 2016 2017/2258 Non Material Amendment - Amendments to materials, landscape layouts, external elevations, main entrance canopy, roofing, and grounds compound building.	
2011/1284 Outline application for residential development of 100 dwellings and associated works including new access onto Pigot Lane.	Land North-West Of Pigot Lane Framingham Earl	South Norfolk District Council	Framingham Earl Parish	Project Details published on SNC planning search website.	Approved 03 Sep 2012	
2014/1342 Submission of Reserved Matters for the construction of 100 dwellings including access, roads, open space, landscaping and associated works following outline planning permission 2011/1284/O	Land North-west Of Pigot Lane Framingham Earl Norfolk	South Norfolk District Council	Framingham Earl Parish	Project Details published on SNC planning search website.	Approved 12-Dec-14 2015/0762 Discharge of Condition 4, 5 and 7 - Surface Water Conveyance, Surface Water Drainage and Maintenance of Vegetation. Link: https://goo.gl/3QfM2b Pending Consideration as of 30/10/2017 2015/0760 Amendments to drawings/elevations under approved reserved matters planning application 2014/1342/D for the construction of 100 dwellings including access roads, open space landscaping and associated works following outline planning permission 2011/1284/O. Link: https://goo.gl/v3zXPd Approval with Conditions 07 May 2015	See 2011/1284
2015/2536 Erection of 10 new dwellings and garages	Land North Of High Green Great Moulton Norfolk	South Norfolk District Council	Great Moulton Parish	Project Details published on SNC planning search website.	Approved 14-Jun-16 2016/1710 Variation of conditions to allow for phased implementation of scheme. Link: https://goo.gl/EY71tV Approval with Conditions: 21 Oct 2016	
2013/0105 Erection of 3 wind turbines with a maximum height of 126.5m and associated development for a period of 25 years, including control building, electricity transformers, underground cabling, access tracks, crane hard standing, new vehicular access, culvert and off-site highway works	Land Surrounding Busseys Loke North Of Bungay Road, Hempnall And Including Land Adjacent To The B1527 And At The Junction Of The B1527 And B1332, Woodton, Norfolk	South Norfolk District Council	Hempnall Parish	Project Details published on SNC planning search website.	Appeal for Non Determination Appeal Dismissed 27-Oct-14	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2011/1804/O Residential led mixed use development of 1196 dwellings and associated uses including Primary School, Local Services (up to 1,850 sq. mtrs (GIA) of A1, A2, A3, A4, A5, D1 & B1 uses) comprising shops, small business units, community facilities/doctors' surgeries, sports pitches, recreational space, equipped areas of play and informal recreation spaces. Extension to Thickthorn Park and Ride including new dedicated slip road from A11.	Land North Of Hethersett Village Centre Little Melton Road Hethersett Norfolk	South Norfolk District Council	Hethersett Parish	Project Details published on SNC planning search website. Information on project architect's website http://www.jtp.co.uk/projects/hethersett-north Greater Norwich Joint Core Strategy 2014	Approval with Conditions 22 Jul 2013 2014/0863 Non Material Amendment - Deletion of condition 32b footway/cycleway. Link: https://goo.gl/kHXUHc Approval with no Conditions 16 Sep 2014 2014/0860 Non Material Amendment - Alterations to condition 32 and 33. To delete condition 32 and substitute with 32a in regard to commencement of Phase 2 and 32b commencement of Phase 5, deletion of condition 33 and substitute 33a and 33b, 33a in regard to first occupation of Phase 2 and 33b first occupation of Phase 5. Link: https://goo.gl/RvM8PB Approval with no Conditions 16 Sep 2014 2015/1058 Discharge of condition 4 - design code for each phase of development. Link: https://goo.gl/9QUGpH Approved 12 Nov 2015 2015/1587 Discharge of condition 12 - Ecological Management Plan - Phase 1 only. Link: https://goo.gl/boEQSA Approved 15 Jan 2016 2015/1589 Discharge of Condition 27 - Street Lighting - Area A1-A only. Link: https://goo.gl/wcNW59 Approved 15 Jan 2016 2015/1577 Discharge of condition 20 - Reserved matters phased landscaping scheme - Area A1-A only. Link: https://goo.gl/W9AMS4 Approved 18 Feb 2016 2015/1918 Discharge of conditions 12 - Ecological Management Plan, 26 - Floor levels/boundary treatments & 27 - Lighting details, and part discharge of condition 20 -	
2015/1681 Reserved matters for appearance, layout, scale and landscaping of the first phase of development for 126 dwellings in relation to outline permission 2011/1804	Land North Of Hethersett Village Centre Little Melton Road Hethersett Norfolk	South Norfolk District Council	Hethersett Parish	Project Details published on SNC planning search website. Greater Norwich Joint Core Strategy 2014	Approved 18-Feb-16 2017/2089 Structural landscaping for areas surrounding phases A1-B and B1-B within Phase 1. Link: https://goo.gl/cTHWBA Pending Consideration as of 01/11/2017	See 2011/1804/O
2017/0151 Reserved matters following outline planning permission 2011/1804/O - proposed residential development (phase A1-B) comprising 91 dwellings including 20% affordable housing and associated open space and infrastructure.	Land North Of Hethersett Village Centre Little Melton Road Including Extension To Thickthorn Park & Ride Hethersett (phase 1)	South Norfolk District Council	Hethersett Parish	Project Details published on SNC planning search website. Greater Norwich Joint Core Strategy 2014	Approval with Conditions Wed 17 May 2017	See 2011/1804/O
2015/1594 Residential development of 95no dwellings with associated open space and infrastructure.	Phase A1-A Land North Of Hethersett Village Centre Little Melton Road Hethersett Norfolk	South Norfolk District Council	Hethersett Parish	Project Details published on SNC planning search website. Greater Norwich Joint Core Strategy 2014	Approved 18-Dec-15 2016/0140 Discharge of conditions - 5 - water usage restrictions and 6 - arboricultural impact assessment. Link: https://goo.gl/GjWC1R Approved 16 Mar 2016 2016/0426 Discharge of condition 6 - materials and condition 22 - tree protection plan/arboricultural plan for Phase A1-A. Link: https://goo.gl/h3ZV3Y Approved 06 May 2016 2016/0974 Discharge of conditions 2 and 3 - Road, Footway, cycleway, foul and SW drainage details and Compliance with LPA and Highway Authority Specifications	See 2011/1804/O
2012/1814 Proposed residential development of 158 dwellings and associated access, car parking and open space provision	Land North Of Great Melton Road Hethersett Norfolk	South Norfolk District Council	Hethersett Parish	Project Details published on SNC planning search website.	Approved 13-Jan-14 2014/0276 Discharge of conditions 4, 5, 8, 9, 10, 11, 15, 20 and 21 - foul drainage, highways details, construction operatives parking, wheel cleaning facilities, off-site highway improvement, tree protection, archaeology, construction management and materials. Link:https://goo.gl/x7QHXt Approved 04 Jul 2014 2014/1430 Discharge of conditions 3, 12, 13, 14, 17, 22, 23 & 24 - Surface water drainage, landscaping scheme, landscaping management plan, maintenance of amenity areas, fire hydrants, foot path details and construction traffic management plan. Link: https://goo.gl/XaiXpk Approved 4 Oct 2014 2014/1470 Variation of condition 2 - to replace approved site layout plan to permit the replan of approved plots 1-7 with 5 houses reducing the overall number of dwellings at the site to 156. Link: https://goo.gl/MCwHf4 Approval with Conditions 29 Oct 2014 2014/1471 Variation of condition 2 - amendment to the approved affordable housing layout plan and the re-plan of approved plots 1-7 with 5 houses reducing the overall number of dwellings at the site to 156. Link: https://goo.gl/CwGwMS Approval with Conditions 19 Dec 2014	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2012/1429 Residential development (Use Class C3) of 9 dwellings including 2 affordable homes, landscaping, associated access onto Low Road, and associated carriageway works to Low Road; and provision of a village green space adjacent to the Keswick Parish Room	Land At Low Road Keswick Norfolk	South Norfolk District Council	Keswick and Intwood Parish	Project Details published on SNC planning search website.	Approved 21-Mar-13 2014/0318 Discharge of conditions 3,4,8,16 and 19 - Materials, Boundary treatment, proposed levels, off site highway works and archaeological monitoring. Link: https://goo.gl/29UpZw Approved 14 Apr 2014 2015/0023 Non material amendment - Amendments to rear ground floor elevations to vary positions of patio doors/windows and insert of roof windows. Link: https://goo.gl/zvdvFW Approval with no Conditions 13 Mar 2015 2015/0092 Discharge of conditions 11, 12 and 21 - Surface Water Drainage, Highways & Drainage and Affordable Housing Agreement. Link: https://goo.gl/yiSVk4 Approved 17 Jul 2015	
2013/0101 Resubmission of planning permission 2012/1929/F- Construction of new sixth form building consisting offices, teaching space, foyer, multi use hall and associated spaces. Construction of external landscaping and associated external lighting	Langley School Langley Park Langley Norfolk NR14 6BJ	South Norfolk District Council	Langley with Hardley Parish	Project Details published on SNC planning search website.	Approved 05-Apr-13 2013/0145 Construction of new sixth form building (subject to separate application in connection with 2013/0101/F) which involves utilisation of existing kitchen garden wall on two sides and formation of new fire escapes in existing wall. Link: https://goo.gl/jYnNT7 Approval with Conditions 05 Apr 2013	
2015/2630 Residential Development for 8no. dwellings, car parking and amenity space including 2no. affordable dwellings which form part of planning reference 2015/0253	Land South East Of The Gardens Mill Road Little Melton Norfolk	South Norfolk District Council	Little Melton Parish	Project Details published on SNC planning search website.	Approved 30-Aug-16 016/2617 Discharge of Conditions 3, 4, 5, 8, 9 and 13 - Slab level and materials, boundary treatments, surface water drainage, tree protection plan, highway works and construction traffic management plan. Link: https://goo.gl/T7dYXf Approved 21 Mar 2017	See 2013/0086
2015/1697 Erection of 27 dwellings, access, roads, open space, parking areas and associated works	Land North Of Gibbs Close Little Melton Norfolk	South Norfolk District Council	Little Melton Parish	Project Details published on SNC planning search website.	Approved 27-Jun-16 2017/0977 Variation of Condition 2 (Drawings) - Phased development proposed. Link: https://goo.gl/JBRmkN Approval with Conditions 07 Jun 2017	
2013/0092 Outline application for up to 20 residential units and associated highways works with all matters reserved	Land South Of Ringwood Close Little Melton Norfolk	South Norfolk District Council	Little Melton Parish	Project Details published on SNC planning search website.	Approved 20-Mar-14 2015/1504 Discharge of condition 11 - Further site investigation report. Link: https://goo.gl/T8PQmh Approved 18 Aug 2015	
2013/0086 Outline application including means of access for residential development and ancillary works	Land South East Of The Gardens Mill Road Little Melton Norfolk	South Norfolk District Council	Little Melton Parish	Project Details published on SNC planning search website.	Approved 30-Apr-14 2015/1233 Variation of conditions 3 - Off-site works & revised surface water drainage, 5 - revised drainage strategy & 11 - Highway Authority agreed adopted roadway. Link; https://goo.gl/YK3eME Approval with Conditions 26 Aug 2015	
2012/1836 Outline application for residential development (20 Dwellings) and associated infrastructure works, including highway improvement works at the Mill Road/School Lane/Burnthouse Lane junction	Land North Of Gibbs Close Little Melton Norfolk	South Norfolk District Council	Little Melton Parish	Project Details published on SNC planning search website.	Approved 29-Apr-14 2015/2510 Modification of S106 Agreement - Removal of Affordable Housing provision of 7 dwellings. Link: https://goo.gl/hW4jKq Approval with no Conditions 01 Dec 2015	
2016/0853 Submission of Reserved Matters from outline planning permission ref 2013/1647/O for a residential development up to 200 dwellings - including appearance, scale, landscaping and layout.	Land North Of George Lane Loddon Norfolk	South Norfolk District Council	Loddon Parish	Project Details published on SNC planning search website.	Approved 18-Jul-16 2016/2465 Discharge of conditions 3 - landscaping, 5 - energy statement, 7 - footpaths and 8 - details of roads. Link: https://goo.gl/H4XsBD Approved 13 Jul 2017 2017/2136 Non material amendment - Revisions to plots 1, 14-17, 21-22, 23-28,35-78, 88, 90, 93, 131, 162-163, 170 -177 and additional Broadband Fibre Cabinet added near to substation. Link: https://goo.gl/hjuNZb Approval with no Conditions 09 Oct 2017	See 2013/1647
2013/1647 Outline planning permission is sought with all matters reserved except access to the site for: Residential development up to 200 dwellings, with access from George Lane and associated infrastructure and open space, including new roundabout junction at A146/George Lane.	Land North Of George Lane Loddon Norfolk	South Norfolk District Council	Loddon Parish	Included above in 2016/0853	Approved 17-Apr-14 2016/2466 Discharge of conditions 2, 4, 6, 10, 11, 12, 13, 15(A and B), 16, 19, 20, 23, 24, 25, 29, 30, 32 and 33. Link: https://goo.gl/Y2C7o8 Approved 10 Aug 2017 2017/0516 Discharge of conditions 7 - Standard Estate Road, 14 - Consruction Traffic Management Plan, 21 - Materials Management Plan, 22 - Ecological Report and 26 - External Lighting. Link: https://goo.gl/2ZJiQk Approved 25 May 2017	
2013/0265 Outline application for the demolition of Cygnet House and development of up to 50 residential units (class C3) and up to 800 square metres (class B1) floor space, together with associated highway works	Cygnet House Swan Lane Long Stratton Norfolk NR15 2UY	South Norfolk District Council	Long Stratton Parish	Project Details published on SNC planning search website.	Approved 29-Apr-14 2014/2278 Variation of conditions 2, 3, 7, 8, 10, 11, 12, 14, 15, 16, 17, 20, 22, 23, 28, 30, 31 to enable demolition prior to commencement of development and variation of condition 29 to vary red line for alterations to access. Link: https://goo.gl/bENKRN Approval with Conditions 26 Jan 2015	
2016/1302 Erection of dual fuel Bio-mass energy and woodchip drying building (revised proposals following 2015/2240)	Wild Rose Farm Ipswich Road Long Stratton Norfolk NR15 2XA	South Norfolk District Council	Long Stratton Parish	Project Details published on SNC planning search website.	Approved 05-Sep-16 2016/2319 Variation of condition 2 - amended boiler arrangement and fuel storage, changes to external building. Link: https://goo.gl/aeDuPP Approval with Conditions 16 Dec 2016	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2015/2240 Erection of energy building (dual fuel bio-mass) to provide heating and energy to poultry units.	Wild Rose Farm Ipswich Road Long Stratton Norfolk NR15 2XA	South Norfolk District Council	Long Stratton Parish	Supersedes the above application 2016/1302	Approved 15-Dec-15	See 2016/1302
2015/1221 Installation and operation of a solar farm and associated infrastructure, including photovoltaic panels, mounting frames, inverters, transformers, substations, communications building, fence and pole mounted security cameras, for the life of the solar farm.	Land South Of Brick Kiln Lane Mulbarton Norfolk	South Norfolk District Council	Mulbarton Parish	Project Details published on SNC planning search website.	Approved 03-Sep-15 2015/2252 Discharge of conditions 4 (Part A), 5, 6 (Part A), 8, 9, 10, 13, 18, 19 and 20 (Part A). Link: https://goo.gl/RRrGYG Approved 09 Dec 2015 2016/0357 Variation of condition 1 - The development hereby permitted shall cease within 30 years of the development first beginning to generate energy, and all buildings, materials and equipment brought on to the land in connection with the development shall be removed within the timeframe agreed as part of condition 2. Link: https://goo.gl/F12Toh Approval with Conditions 21 Mar 2016 2016/0354 Discharge of condition 7 - Ecological mitigation details. Link: https://goo.gl/tXbe2t Approved 22 Mar 2016 2016/1473 Non Material amendment - amendments to built infrastructure. Link: https://goo.gl/JGfNoU Approval with no Conditions 17 Aug 2016	
2011/2093 Development of 180 dwellings (Use Class C3), access, allotments, public open space and associated infrastructure.	Land East Of Long Lane Mulbarton Norfolk	South Norfolk District Council	Mulbarton Parish	Project Details published on SNC planning search website.	Approved 03-Oct-13 2014/0487 Submission of Appearance, Scale, Landscaping and Layout. Link: https://goo.gl/P2pGfG Approval with Conditions 11 Jul 2014 2015/0063 Discharge of conditions 4, 5, 6, 7, 8, 10, 11, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24 and 25 - access, allotments, public open space and associated infrastructure. Link: https://goo.gl/2K8j58 Approved 25 Jun 2015 2015/2591 Discharge of Conditions 4, 5, 6, 7, 8, 11, 14, 15 and 19-25 - Roads/footways, on-site construction parking, construction traffic management plan, wheel cleaning facilities, off-site highway works. travel plan, surface water drainage, foul drainage, tree rpotection plan, landscape works, fire hydrants, levels, ecological mitigations, boundary treatments and phasing plan. Link: https://goo.gl/sj8TtL Pending Consideration as of 30/10/2017	
2016/2388 Full planning application for up to 120 dwellings (Phase 2), senior recreation space, children's plays space and associated infrastructure.	Land North Of Stoke Road Poringland Norfolk	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website.	Approval with Conditions 12/05/2017 2017/1258 Discharge of conditions 3, 5, 7, 8, 9, 10, 11, 13, 15, 16 and 17. Link: https://goo.gl/vqRTH9 Approved 02/08/2017 2017/1811 Discharge of Condition 14. Link: https://goo.gl/zR4ZCu Approved 03/10/2017 2017/2187 Non Material Amendement application for change to roof materials. Link: https://goo.gl/Gp1dfi Approval with no Conditions 13 Nov 2017	See 2013/0505
2016/1627 Erection of 19 dwellings with access and all other matters reserved	Land To The North Of Heath Loke Poringland Norfolk	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website.	Pending Decision (when checked on 28-Feb-18)	
2013/1393 Proposed Residential Development of 31 dwellings	Land North Of Heath Loke Poringland Norfolk	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website.	Approved 23-Oct-13	
2013/0505 Outline application for up to 100 dwellings with all matters reserved except for access on land to the west of Norwich Road and north of Stoke Road, Poringland, otherwise known as Heath farm, Poringland	Land To The West Of Norwich Road And North Of Stoke Road Poringland Norfolk	South Norfolk District Council	Poringland Parish	Included above in 2016/2388	Approved 10-Apr-14	
2014/0732 Reserved Matters application for 150 dwellings and associated appearance. Approval is sought for appearance, landscaping, layout and scale.	Land West Of Norwich Road And South Of Caistor Lane Poringland Norfolk	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website.	Approved 28-Jul-14 2014/2528 Discharge of condition 7 and 8 - tree protection plan and soft lanscaping. Link: https://goo.gl/2dPnTL Approved 20 Feb 2015 2015/0106 Discharge of conditions 2, 3, 4 & 5 - Drainage management plan, renewable energy supply details, proposed pumping station and boundary treatment/surface treatment of public footpaths. Link: https://goo.gl/JLxMmJ Approved 28 Feb 2017 2015/0371 Non material amendment. Approval is sought for appearance, landscaping, layout and scale. Link: https://goo.gl/oZDMM9 Approval with no Conditions 23 Mar 2015 2017/1906 Non Material Amendment - Amendments to Plots 35 and 36, gable elevations and side elevations changed to render. Link: https://goo.gl/Q5xfkp Approval with no Conditions 14 Sep 2017	See 2013/1986/O

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2011/0476 Residential & Commercial (office) Development	Land North Of Shotesham Road Poringland	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website.	Approved 25 Jan 2013	
2014/0393 Reserved Matters application for 57 dwellings and 3539m2 (GIA) office accommodation, associated parking and green spaces	Land North Of Shotesham Road Poringland Norfolk	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website.	Approved 27-Jun-14	See 2011/0476
2014/0319 Residential layout including all house details and landscaping for next phase following planning permission 2011/0476/O	Land North Of Shotesham Road (Area D) Poringland Norfolk	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website.	Approved 25-Jul-14	See 2011/0476
2013/1986 Outline application with all matters reserved except for access for the construction of up to 150 dwellings and associated infrastructure	Land To The West Of Norwich Road And South Of Caistor Lane Poringland Norfolk	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website. Google maps indicates phase 1 of the development has started as of November 2017	Approved 10-Apr-14	
2012/1888 Retrospective application to planning permission 2010/1332/F - Change of house type on plots 4, 5, 6, 7, 12, 29, 30, 39, 62, 63, 67, 120 & 121. Re-plan of plots 15-19 and associated garages	Land South Of The Ridings Stoke Road Poringland Norfolk	South Norfolk District Council	Poringland Parish	Project Details published on SNC planning search website.	Approved 07-Jan-13 (Development Completed)	
2015/2491 Demolition of existing buildings re-positioning of existing access, erection of 10 new dwellings and garages	Land At Sycamore Farm Tattlepot Road Pulham Market Norfolk	South Norfolk District Council	Pulham Market Parish	Project Details published on SNC planning search website.	Approved 22-Apr-16	
2014/0184 Redevelopment of former employment land for residential development (up to 35 dwellings), access and associated works	(Phase 3) Land South Of Mendham Lane Harleston Norfolk	South Norfolk District Council	Redenhall with Harleston Parish	Project Details published on SNC planning search website.	Approved 28-Jan-15	
2012/0530 Residential development of 120 dwellings with associated open space, attenuation lagoon, roundabout access and off site highways works	Land North-West Of Briar Farm Mendham Lane Harleston Norfolk	South Norfolk District Council	Redenhall with Harleston Parish	Project Details published on SNC planning search website.	Approved 17-May-13	
2016/2153 (i) Construction of 53 dwellings (including 17 affordable units), access road, parking, garaging, footpaths and cycle paths walling and fencing, landscaping, public open space and associated infrastructure (ii) change of use of former agricultural land to provide extended primary school grounds and construction of 1.8 m high perimeter fence, pedestrian access, and associated hard and soft landscaping	Land Off Broomfield Road Broomfield Road Stoke Holy Cross NR14 8FF	South Norfolk District Council	Stoke Holy Cross Parish	Project Details published on SNC planning search website.	Approval with Conditions 16/06/2017 2017/2162 Discharge of Conditions 5, 6, 7, 8, 9, 10, 12, 14 and 15. Link: https://goo.gl/39nNRE Pending Consideration as of 28/02/2018	
2015/2406 Outline application for 12 dwellings with new associated accesses.	Land West Of Chandler Road Stoke Holy Cross Norfolk	South Norfolk District Council	Stoke Holy Cross Parish	Project Details published on SNC planning search website.	Approved 21-Jul-16	
2017/0616 Reserved matters application following 2015/2406/O - 12 dwellings.	Land West Of Chandler Road Stoke Holy Cross Norfolk	South Norfolk District Council	Stoke Holy Cross Parish	Project Details published on SNC planning search website.	Approval with Conditions 12 Jun 2017	
2015/1422 Reserved Matters for application 2014/2409/RVC - appearance and scale of houses, site layout and soft and hard landscaping	Land North Of Long Lane Stoke Holy Cross Norfolk	South Norfolk District Council	Stoke Holy Cross Parish	Project Details published on SNC planning search website.	Approved 29-Oct-15 2016/1349 Removal of condition 8 from planning application 2014/2409/RVC (Minimum garage size) - Superseded by reserved matters approval 2015/1422. Link: https://goo.gl/mYXSo3 Approval with Conditions 22 Jul 2016 2016/2792 Non material amendment - Plot 6 - garage length increased by 1.2m. Plot 1 - garage lowered by 400mm to reflect site levels. Plots 23/24 - changed from linked dwellings to fully detached dwellings and roof lights added to plots 1-6 and 19-24. Link: https://goo.gl/iZazoZ Approved 29 Dec 2016 2016/2949 Discharge of condition 3 - dormer window details. Link: https://goo.gl/5uwRhX Approved 09 Jan 2017 2017/0186 Variation of condition 1 - Amendments to Plots 7, 8, 9 & 10, rear single storey extension to Plots 8 & 9 and Plots 7 & 10 changed from two storey to single storey dwellings. Link: https://goo.gl/cjhfQN Approval with Conditions 14 Mar 2017 2017/1742 Variation of Condition 1 - Reserved Matters for application 2014/2409/RVC - appearance and scale of houses, site layout and soft and hard landscaping - to allow garages at Plots 2, 3, 19 and 22. Link: https://goo.gl/9yy5xN Approval with Conditions 20 Sep 2017	See 2013/0828

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2013/0828 An outline application erection of 24 dwellings and associated vehicular access, allotments, public amenity land and community car parking.	Land North Of Long Lane Stoke Holy Cross Norfolk	South Norfolk District Council	Stoke Holy Cross Parish	Project details published on SNC planning search website Google maps indicates that construction had started as of November 2017.	Approved 04-Apr-14 2014/2409 Variation of conditions 2 and 9 - To amend red line for access. Link: https://goo.gl/GhrHJW Approval with Conditions 02 Feb 2015 2016/2754 Discharge of conditions 4 - Road details, 9a - Highway improvement details, 10 - Traffic regulation order, 11 - Maintenance of streets, 12 - water surface and 13 - foul water disposal of permission 2014/2409. Link: https://goo.gl/aoCDfS Pending Consideration as of 17/11/2017	
2012/2034 New access to land adjacent to Long Lane, provision of 50 houses, road and car park	Land East Of Hillcrest Long Lane Stoke Holy Cross Norfolk	South Norfolk District Council	Stoke Holy Cross Parish	Project details published on SNC planning search website	Approved 03-Sep-13 2013/2209 Variation of condition 2 - Amended house type design and layout. Link: https://goo.gl/UzPVvr Approval with Conditions 01 Apr 2014	
2014/0562 Installation of a solar PV array plus ancillary development	Land South Of Hall Farm Bungay Road Tasburgh Norfolk	South Norfolk District Council	Tasburgh parish	Project Details published on SNC planning search website.	Approved 24-Oct-14	
2014/1274 The proposed development is for a Warehouse facility and carparking	The Maltings Moulton Road Tivetshall St. Margaret Norwich NR15 2AJ	South Norfolk District Council	Tivetshall St margaret Parish	Project Details published on SNC planning search website.	Approved 25-Sep-14	
2014/0981 Outline planning permission for residential development, associated external works and amenity areas (with an area of land set aside for future primary school use).	Land South Of Devon Way And Hudson Avenue Trowse Norfolk	South Norfolk District Council	Trowse with Newton Parish	Project Details published on SNC planning search website.	Approved 01-Dec-14 2017/2383 Discharge of Condition 8 (Design Code). Link: https://goo.gl/jN6tSN Approved 15 Nov 2017	
2015/1041 Essential maintenance and refurbishment of sports hall and ancillary offices. Demolition of existing multi-use games area and construction of new multi-use games area, new access arrangements and external works.	Sports Hall And Facilities Crown Point Green The Street Trowse Norfolk NR14 8SP	South Norfolk District Council	Trowse with Newton Parish	Project Details published on SNC planning search website.	Approved 27-Jul-16	
2016/0805 Erection of 13 affordable houses and associated works	Land North Of A146 And East Of White Horse Lane Trowse Norfolk	South Norfolk District Council	Trowse with Newton Parish	Project Details published on SNC planning search website.	Approved 16-Sep-16 2017/0289 Discharge of Conditions 4 - water consumption, 9 - landscape management plan, 10 - materials, 11 - materials management plan. Link: https://goo.gl/BGjVKV Approved 09 Mar 2017 2017/0964 Discharge of Condition 8 - surface water drainage. Link: https://goo.gl/ae8MmG Pending Decision as of 17/11/2017 2017/1995 Discharge of Conditions 12 and 13 - deed of variation to the existing S106 legal agreement and sample area of flint work. Link: https://goo.gl/Xjpht9 Approved 08 Sep 2017 2017/2000 Variation of condition 8 - to amend trigger for condition 8 relating to surface water. Link: https://goo.gl/DqiNMj Approval with Conditions 10 Nov 2017	See 2013/0463
2016/0803 Submission of Reserved Matters pursuant to outline planning permission ref 2013/0463/O - appearance, scale, landscaping and layout: 85 no. dwellings and associated works	Land North Of A146 And East Of White Horse Lane Trowse Norfolk	South Norfolk District Council	Trowse with Newton Parish	Project Details published on SNC planning search website.	Approved 16-Sep-16 2017/0288 Discharge of conditions 2 - ecological mitigation, 3 - water consumption rate, 4 - landscape management plan, 10 - materials management plan. Link: https://goo.gl/Y3Rb3S Approved 07 Apr 2017 2017/0963 Discharge of conditions 6 - external flintwork. Link: https://goo.gl/L5H6Qk Approved 29 Aug 2017 2017/1168 Removal of Condition 9 (requiring Traffic Regulation Order for school clearway). Link: https://goo.gl/RcNz1R Approval with Conditions 16 Aug 2017	See 2013/0463

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2013/0463 Proposed development of up to 99 dwellings including a 1 ha site for new Primary School (revised application)	Land Off White Horse Lane Trowse Norfolk	South Norfolk District Council	Trowse with Newton Parish	Project Details published on SNC planning search website.	Approved 29-Apr-14 2017/0287 Discharge of conditions 3 - materials, 4 - ecology, 10 - construction parking details, 11 - construction management plan and access route, 12 - wheel cleaning, 15 - archaeological scheme, 16 - landscape management plan, 17 - fire hydrant scheme. Link: https://goo.gl/gqvSEo Approved 21 Apr 2017 2017/0962 Discharge of conditions 5 - foul water and sewage disposal, 6 - surface water drainage details and 7 - roads, footways, cycleways, foul and water drainage. Link: https://goo.gl/gfLGWG Approved 03 Nov 2017 2017/1173 Discharge of Condition 13A (off-site highway improvements) - 30mph option. Link: https://goo.gl/RmJRBV Approved 25 Aug 2017 2017/1169 Removal of Condition 14 (requiring Traffic Regulation Order for White Horse Lane). Link: https://goo.gl/3xnNh5 Approval with Conditions 16 Aug 2017 2017/2627 Discharge of Conditions 4 (Foul Water and Sewage Disposal), 5 (Surface Water Drainage), 6 (Highway Engineering) and 7 (Binder Course Surface Details) of Permission 2017/1169 - Removal of condition 14 (requiring Traffic Regulation Order for White Horse Lane). Link: https://goo.gl/M49Qjp Pending Consideration as of 17/11/2017
2014/2337 Reserved matters (following outline planning permission 2013/1070/O) for the erection of 14 dwellings, seeking approval of access, appearance, scale, landscaping and layout.	Land North Of 69 High Street Wicklewood Norfolk	South Norfolk District Council	Wicklewood Parish	Project Details published on SNC planning search website.	Approved 21-Sep-16	See 2013/1070
2013/1070 Outline application for the erection of 14 residential units and car parking area on land adjacent to High Street, Wicklewood	Land North Of 69 High Street Wicklewood Norfolk	South Norfolk District Council	Wicklewood Parish	Included within 2014/2337	Approved 20-Mar-14	
2015/0804 Construction of a Digestate and Dirty Water Storage Reservoir of 13,640m3 capacity. Change of use from Agricultural field to reservoir.	Whitehall Farm Crownthorpe Road Crownthorpe Norfolk NR18 9EP	South Norfolk District Council	Wicklewood Parish	Project Details published on SNC planning search website.	Approved 09-Jul-15	
2014/1142 Full application - Proposed crop-only biomass (anaerobic digestion) renewable energy facility (amended scheme to that approved under ref. 2012/2249).	Whitehall Farm Crownthorpe Road Crownthorpe Norfolk NR18 9EP	South Norfolk District Council	Wicklewood Parish	Project Details published on SNC planning search website.	Approved 26-Sep-14	See 2012/2249
2012/2249 Proposed crop only biomass (anaerobic digestion) renewable energy facility	Whitehall Farm Crownthorpe Road Crownthorpe Norfolk NR18 9EP	South Norfolk District Council	Wicklewood Parish	Project Details published on SNC planning search website.	Approved 28-Mar-13	
2016/0466 Outline planning application with some matters reserved for 21 new residential units (with secondary access from Suckling Place for emergency use and for pedestrian / cycle access)	Land North West Of The Street Woodton Norfolk	South Norfolk District Council	Woodton Parish	Project Details published on SNC planning search website.	Approval with Conditions 18/08/2017	
2015/2449 Erection of 10 residential units (Class C3) with associated landscaping, drainage and highway works.	Land Off Church Road Wreningham Norfolk	South Norfolk District Council	Wreningham Parish	Project Details published on SNC planning search website.	Approved 12-Feb-16	
2014/1824 Proposed extension to Business Park for B1, B2, B8 and D1 uses	Elm Farm Norwich Common Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 06-Feb-15	
2012/1201 swilkinsonFULL planning permission for B1, B2, B8 category office industrial units on Wymondham Business Park with OUTLINE approvals sought for residential development of approx. 20 dwellings on land adjacent to London Road and additional B1,B2,B8 category industrial use for land adjacent to Chestnut Drive to further extend Wymondham Business Park	Land South Of London Road Chestnut Drive Suton Norfolk NR18 9SB	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 21-Nov-13	
2015/1215 Proposed development of ground mounted solar photovoltaic panels and associated works including transformer substations, storage container, switchgear, DNO Cabin, access tracks, underground cabling, security measures and other ancillary equipment and landscaping	Land East Of Rookery Farm Silver Street Besthorpe Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 03-Sep-15	
2015/2913 Installation of anaerobic digestion plant to produce biogas with two digesters, holding clamps, use of existing fuel tanks for digestate storage, gas compressor and cleaner and underground pipeline to gas grid	Oil Storage Depot Stanfield Road Wymondham Norfolk NR18 9QY	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 28-Apr-16	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2011/0505 Proposed development to include up to 500 dwellings, Community facilities, site infrastructure including new access roads, public rights of way and drainage, green infrastructure including public open spaces and structural landscape planting.	Land North Of The A11 At Park Farm Silfield Road Wymondham	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approval with Conditions 06 Feb 2014 2015/1115 Discharge of condition 5 - Design code. Link: https://goo.gl/C4Z5E8 Approved 17 Sep 2015 2015/1725 Discharge of conditions 4 - Phasing Scheme, 7 - Green Infrastructure Management Plan, 10 - Foul Water Strategy and 11 - Surface Water Strategy. Link: https://goo.gl/ADT13u Approved 12 May 2016 2015/2480 Discharge of Condition 15 - Construction Environmental Management Plan. Link: https://goo.gl/jN45wx Approved 30 Dec 2015 2016/1026 | Discharge of Conditions 8, 9, 14 and 17 - Hard & Soft Landscaping, Archaeological Investigation, Water Usage and Roads, Footways, Cycleways etc. Link: https://goo.gl/23WRzV Pending Consideration as of 08/02/2018	
2015/1280 Phase 1 development for 10 dwellings including site Infrastructure, drainage and green infrastructure following outline planning permission 2011/0505.	Land North Of The A11 Phase 1 Silfield Road Wymondham Norfolk NR18 9AX	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website. Google maps indicates that phase complete as of November 2017	Approved 21-Dec-15	See 2011/0505/O
2016/2586 Reserved Matters following Outline permission 2011/0505 - Appearance, Landscaping, Layout and Scale for 121 Dwellings	Land North Of The A11 Silfield Road Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approval with Conditions 07/07/2017	See 2011/0505/O
2016/2557 Reserved Matters following planning permission 2011/0505 - Public open spaces, green infrastrucutre and structural Landscaping	Land North Of The A11 Silfield Road Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approval with Conditions 05/07/2017	See 2011/0505/O
2015/2168 Reserved Matters for Phase 1 of development following planning consent 2012/0371 - Development of 153 Residential Dwellings, Access, Public Open Space and associated Infrastructure.	Land West Of Rightup Lane Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 06-May-16	See 2012/0371
2014/1969 Reserved matters application (following outline planning permission 2012/0839/O) for residential development of 217 dwellings, including details of appearance, landscaping, layout and scale.	Land North-west Of Carpenters Farm Norwich Common Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 13-May-15	See 2012/0839/O
2012/0839 Proposed residential development (Class C3) up to 350 dwellings with associated access on Land at Carpenters Barn, Norwich Common, Wymondham. To include the infrastructure associated with the residential development, public open space and new vehicular and pedestrian access routes.	Land North-West Of Carpenters Farm Norwich Common Wymondham	South Norfolk District Council	Wymondham Parish	Included within 2014/1969	Approved 25-Jun-12	
2012/0371 Mixed use development of up to 730 dwellings, up to 128 bed care home / homes (in one or two buildings), up to 250 square metres of retail / commercial floor space, a new primary school together with all other associated temporary and permanent infrastructure and green infrastructure, including new access arrangements, sports pitches, allotments and community orchard.	Land To The East And West Of Rightup Lane Wymondham NR18 9NB	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 06-Feb-14	
2016/2668 Outline planning permission for up to 61 homes. All matters other than means of access are reserved.	Old Sale Yard Cemetery Lane Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approval with Conditions 18/08/2017	
2016/2424 30 residential dwellings (17 dwellings at Bunwell Road and 13 dwellings at Chapel Road), with associated open space, highways and landscaping works	Land At Chapel Road And Bunwell Road Spooner Row Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approval with Conditions 16/06/2017 2017/2262 Discharge of conditions. Link: https://goo.gl/18Wq2q Pending Consideration as of 28/02/2018	
2016/2309 Proposed erection of 30 Bungalows of 'Retirement Living' (Category II Sheltered Housing) and associated parking, access and landscaping.	Milestone Farm 238 Norwich Road Wymondham NR18 0SX	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approval with Conditions 21/04/2017 Application (2017/1447) for ammendment to condition 8 of planning permission 2016/2309 - boundary treatment. Link: https://goo.gl/eixAy8 Approval with Conditions 21/09/2017 2017/1300 Non Material Amendment to allow plots 12, 13 and 16-19 to be fully detached. Link: https://goo.gl/7Y4ZPf Approved 22/06/2017 2017/1606 Discharge of conditions. Link: https://goo.gl/driN6w Pending Consideration as of 28/02/2018	
2016/2286 Reserved Matters relating to planning permission 2012/1716 (14 dwellings) - Access, appearance, scale, landscaping, layout and material details.	Barkers Mill Rightup Lane Wymondham NR18 9NB	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approval with Conditions 18/01/2017	See 2012/1716/O

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2015/2380 Proposed development for 150 new dwellings including parking, garages, road infrastructure and green infrastructure.	Land North Of The A11 Silfield Road Wymondham Norfolk NR18 9AX	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 07-Apr-16	See 2011/0505/O
2015/1760 Proposed development for 90 new dwellings including parking, garages, road infrastructure, drainage and green infrastructure.	Land North Of The A11 Silfield Road Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 13-Jan-16	See 2011/0505/O
2015/1649 Residential development of 129 dwellings with details for Appearance, Landscape, Layout and Scale.	Land North Of The A11 Silfield Road Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 21-Dec-15	See 2011/0505/O
2014/2472 Reserved matters approval for 13 dwellings at Chapel Road and 8 dwellings at Bunwell Road, following outline planning permission 2012/2016/O	Land At Chapel Road And Bunwell Road Spooner Row Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 26-Jun-15	See 2012/2016/O
2014/2042 Reserved matters application (following outline planning permission 2012/1385/O) for residential development - Access, appearance, landscaping, layout and scale.	Land Between The A11 Spinks Lane And Norwich Road Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 05-Jun-15	See 2012/1385/O
2014/0618 Reserved matters application for 31 dwellings - appearance, landscaping, layout and scale (following planning permission 2012/1702/O)	Land Between Burdock Close And Blackthorn Road Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 15-Aug-14	See 2012/1702/O
2013/1533 Proposed residential development of 11 new dwellings- Site layout; design of dwellings including internal layout and elevations; indicative materials; indicative landscape treatment. (Assume materials and landscaping to be conditioned)	Land West Of 49 Norwich Common Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 01-Nov-13	See 2012/2202/O
2012/2202 Proposed residential development of 11 new dwellings	Land West Of 49 Norwich Common Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website. Google maps indicates that the project is now complete.	Approved 15-Jul-13	
2012/2016 Outline planning application for the development of land to the east of Chapel Road - 13 dwellings and land to the east of Bunwell Road - 20 dwellings	Land At Chapel Road And Bunwell Road Spooner Row Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website. Google maps indicates that work has begun as of November 2017	Approved 11-Feb-14	
2012/1716 Outline application for construction of 14 dwellings	Barkers Mill Rightup Lane Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website. Google maps, as of November 2017, shows that the site has been cleared but work has not comenced.	Approved 02-Oct-13	
2012/1702 Outline planning application for residential development (37 dwellings) and associated works including new access	Land Between Burdock Close And Blackthorn Road Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website. Project is shown to be alomost complete on google maps as of November 2017	Approved 23-Apr-13	
2012/1385 Outline application for residential development with all matters reserved	Land Between The A11 Spinks Lane And Norwich Road Wymondham Norfolk	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	Approved 30-Oct-13	
2012/1250 Request for Screening Opinion in respect of demolition of mill buildings and erection of 14 dwellings	Barkers Mill Bocm Pauls Ltd Right Up Lane Silfield Wymondham	South Norfolk District Council	Wymondham Parish	Project Details published on SNC planning search website.	EIA 26-Jul-12	
2014/0411 Installation and operation of a solar farm and associated infrastructure, including photovoltaic panels, mounting frames, inverters, transformers, substations, communications building, fence and pole mounted security cameras, for the life of the solar farm (revised proposal).	Land North East Of Avenue Farm Back Road Yelverton Norfolk	South Norfolk District Council	Yelverton Parish	Project Details published on SNC planning search website.	Approved 31-Aug-14	
2017/1835 Outline Application for 32 no. dwellings with all matters reserved bar access.	Land West Of The Ridings Poringland Norfolk	South Norfolk District Council	Poringland	Project Details published on SNC planning search website.	Refused 09 Nov 2017	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
2014/1642 Outline application with all matters reserved except for access for demolition of existing buildings, residential redevelopment and ancillary works	Land Off Bobbins Way Swardeston Norwich NR14 8DT	South Norfolk District Council	Swardeston	Project Details published on SNC planning search website.	Refusal 12 Dec 2014 Appeal Allowed 29 January 2016	
2017/2247 Reserved matters application for demolition of existing buildings, residential development of 38 dwellings and ancillary works following outline permission 2014/1642 for access, appearance, landscaping, layout and scale.	Land Off Bobbins Way Swardeston Norfolk NR14 8DT	South Norfolk District Council	Swardeston	Project Details published on SNC planning search website.	Pending Consideration as of 28/02/2018	See 2014/1642
2017/0662 Erection of 6 Insulated polytunnels	Land North East Of Lodge Farm Brick Kiln Lane Swainsthorpe Norfolk	South Norfolk District Council	Swainsthorpe	Project Details published on SNC planning search website.	Approval with Conditions 02 Jun 2017	
2017/1197 Reserved Matters for multi-storey car park, internal access roads, landscaping and associated infrastructure on Hethersett Lane for access, appearance, landscaping, layout and scale, together with the discharge of conditions 4, 5, 19 and 21 relating to outline consent from 2012/1880	Norfolk And Norwich University Hospital Colney Lane Colney Norfolk NR4 7UY	South Norfolk District Council	Colney	Project Details published on SNC planning search website. Articles availiable in the local press.	Pending Consideration as of 28/02/2018	See 2012/1880
2017/2131 Phased outline proposal for 15 Self/Custom Build Dwellings and Access	Land West Of Long Lane Bracon Ash Norfolk	South Norfolk District Council	Bracon Ash And Hethel	Project Details published on SNC planning search website.	Approval with Conditions 21 Feb 2018	
2013/1494 Outline planning application with all matters reserved (save access) for the creation of up to 650 residential dwellings (use class C3), up to 2,500 sq mtrs of use class A1, A2, A3, A4, A5 and D1 floorspace, together with highways works, landscaping, public realm, car parking and other associated works.	Land East Of A47, West Round House Way And North Of A11; And Land To The South Of A11 To The East Of A47 And West Of Cringleford, Norfolk	South Norfolk District Council	Cringleford	Project Details published on SNC planning search website.	Refusal 23 Jul 2014 Appeal Allowed 7 January 2016 2017/0196 Variation of conditions 5, 6, 11, 28, 35, 36, 37 and 38 of permission 2013/1494 - to facilitate greater flexibility in the delivery of the scheme. Link: https://goo.gl/8BoqH2 Approval with Conditions 28 Apr 2017 2017/2120 | Variation of conditions 1, 3, 7, 10, 13, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 33, 36, 38, and 39 following application 2017/0196 - to facilitate the development coming forward on a phased basis. Link: Pending Consideration as of 01/11/2017	
2016/1303 Construction of a new field trials building with associated services yard and on-site parking and alterations to existing agricultural building	Land North Of Bawburgh Road Bawburgh Norfolk	South Norfolk District Council	Bawburgh	Project Details published on SNC planning search website.	Approval with Conditions 05 Sep 2016 2016/2215 Discharge of condition 9 - Written scheme of archaeological works. Link: https://goo.gl/qtsM7f Approved 01 Nov 2016 2016/2837 Variation of Condition 6 - Working Hours - 0700 - 2100 November to June, 0800 - 1800 Sat and Sundays, 0600 - 2300 July to October including weekends, Bank holidays as required within the above limits and Condition 8: revised Lighting Plan. Link: https://goo.gl/HwCTAu Approval with Conditions 09 Mar 2017 2016/2838 Discharge of Conditions 3 - materials, 4 - soft landscaping, 9 - archaeology, 10 - foul water drainage, 11 - surface water drainage, 12 - SBEM Energy Report. Link: https://goo.gl/i8qboi Approved 22 Feb 2017	
Broadland District Council						
20151644 Demolition of 4 Existing Units and Development of 10 Residential Units, Together with Associated Access (Outline)	1-4 Station Road,Swannington,NR9 5SY	Broadland District Council	Attlebridge Parish	Project Details published on BDC planning search website	Approved 10/06/2016	
20140883 Proposed Dual Carriageway between A1067 Fakenham Road Nr Attlebridge & A47 Trunk Road, Postwick (NDR)	Proposed NDR	Broadland District Council	Felthorpe Parish	Project details published on BDC planning search website and informed further by Local Newspaper article, noting work will be completed February 2018.	Approved by SOS on 29/06/2015 Observation (ref: 20151419) made on the discharge of condition 24/09/2015	
20120697 Erection of 27 dwellings and a new village hall with associated new vehicular accesses, car parking and landscaping	Land off Hubbards Loke,Great Witchingham,NR9 5AZ	Broadland District Council	Great Witchingham (Lenwade) Parish	Project Details published on BDC planning search website and timings confirmed in District Council's AMR.	Approved 30/04/2013	

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20131702 Installation of Ground Mounted Photovoltaic (PV) Solar Arrays to Provide 5MW Generation Capacity Together with Transformer Stations; Landscaping; Security Fencing; Access Gate; and Ancillary Infrastructure	The Old Airfield,Weston Longville,NR9 5JF	Broadland District Council	Weston Longville Parish	Project timings confirmed through project website which confirmed site has been operational since March 2015.	Approved 04/03/2014	
20121337 Development of a 9MW Solar Farm	Woodforde Farm,Weston Green Road,Weston Longville,NR9 5LG	Broadland District Council	Weston Longville Parish	Project details published on BDC planning search website and timings confirmed through project website which confirmed site has been operational since February 2014.	Approved 06/11/2012	
20121604 Hybrid Planning Application for (1) Outline Planning Permission for the redevelopment of village hall site for residential development (39 dwellings) and erection of new replacement village hall on adjacent playing field site and (2) Full Planning Permission for the change of use of agricultural land to recreational land/playing field	Land at Norwich Road/Station Road,Lingwood	Broadland District Council	Lingwood and Burlingham Parish	Project Details published on BDC planning search website and project timings confirmed in District Council's AMR.	Approved 14/06/2013	
20151659 Hybrid Application for 1) Residential Development comprising of 10 Detached Dwellings (Outline) and 2) New Community Hall, Allotments, Associated Parking & New Access (Full)	Land at Lane connecting Norwich Road & Buckenham Road,Strumpshaw	Broadland District Council	Strumpshaw (Buckenham, Hassingham) Parish	Project Details published on BDC planning search website	Approved 31/03/2017	
20110128 1. Proposed Football Club and Community Facilities comprising Clubhouse, Sports Field, Vehicle Access, Car Parking, Pedestrian and Cycle Access, Flood Lighting and Soft Landscaping (Full Application) 2. Residential Development Including Landscaping and Water Treatment Plant and Vehicular/Pedestrian/Cyclist Access (Outline)	Adj to Woodgate Farm,Woodgate,Aylsham,NR11 6UJ	Broadland District Council	Aylsham Parish	Project Details published on BDC planning search website	Approved 19-06-2012	
20150659 Amendment to Reserved Matters Approval 20130680 - Alterations to Layout & Design of 47 Dwellings	Land Adj. Woodgate Farm,Woodgate,Aylsham,NR11 6UJ	Broadland District Council	Aylsham Parish	Project timings confirmed in District Council's 5 Year Housing Land Supply.	Approved 28/04/2015	See 20110128
20140630 Erection of Anaerobic Digestion Plant Including Alterations to Banningham Road / A140 Junction, Landscaping & Other Associated Infrastructure	Land at Banningham Road,Aylsham,NR11 6FD	Broadland District Council	Aylsham Parish	Project Details published on BDC planning search website	Allowed at Appeal 20/10/2015	
20111453 Development of up to 300 Dwellings, Access, public open space, allotments and associated infrastructure and provision of a car park and enclosure of land for education and recreational purposes as part of the transfer of land to Aylsham High School (Revised Proposal)	Land North of Sir Williams Lane,Aylsham,NR11 6AN	Broadland District Council	Aylsham Parish	Project Details published on BDC planning search website	Approval 18-02-2013	
20140298 Development of up to 300 Dwellings, Access, Public Open Space, Allotments & Associated Infrastructure & Provision of a Car Park & Enclosure of Land for Education & Recreational Purposes as Part of the Transfer of Land to Aylsham High School (Reserved Matters)	Land North of Sir Williams Lane,Aylsham	Broadland District Council	Aylsham Parish	Project timings confirmed in District Council's AMR.	Approved 20/05/2014 Subsequent NMA applications ref: 20151805 and 20151262, approved 2015	See 20111453

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20130715 Demolition of Former Care Home and Erection of 22 No. Residential Dwellings (Outline)	Aegel House,Burgh Road,Aylsham,NR11 6AS	Broadland District Council	Aylsham Parish	Project timings confirmed in District Council's AMR.	Approved 18/11/2013	
20162071 Screening Opinion - Up to 170 Dwellings including means of access and formal and informal open space	Land East of Memorial Hall,Brundall	Broadland District Council	Brundall Parish	Project Details published on BDC planning search website	EIA Screening 13/01/2017	
20161483 Proposed Development of a retail supermarket of no more than 2500 sq. m, up to 192 dwellings, open space and vehicular access (Outline)	Land at Yarmouth Road,Postwick/Brundall	Broadland District Council	Brundall Parish	Project Details published on BDC planning search website	Undecided Awaiting Decision as at 19/10//2017	
20121638 Erection of 150 Dwellings, Vehicular Access, Open Space and Associated Works	Land to west of Cucumber Lane, Brundall, NR13 5QR	Broadland District Council	Brundall Parish	Project Details published on BDC planning search website and timings confirmed in District Council's AMR.	Approved 28/06/2013	
20121737 Erection of 150 Dwellings, Vehicular Access, Open Space & Associated Works - Screening Opinion	Land West of Cucumber Lane,Brundall,NR13 5QR	Broadland District Council	Brundall Parish	Project Details published on BDC planning search website	EIA 21/12/2012	See 20121638
20170052 Greater Norwich Food Enterprise Zone	Land off Church Lane Honingham	Broadland District Council	Honingham Parish	The Draft LDO notes that the LDO will be implemented for 15 years from date of adoption. This date is to be reviewed to see if it should lapse/extended	Full Approval 31-10-2017	
20170789 Erection of Grain Store (Revised Proposal)	Land North of Church Farm,Church Road,Booton,NR10 4NZ	Broadland District Council	Booton Parish	Project Details published on BDC planning search website	Full Approval 19-07-2017	
Norwich City Council						
12/01943/F Demolition of existing site buildings and redevelopment of former garage site and shop with 13 new flats and a replacement shop.	Garages Rear Of 67 Wilberforce Road Norwich	Norwich City Council	Bowthorpe Parish	Project Details published on NCC planning search website, and Google Maps aerial view confirms flats constructed. https://www.google.co.uk/maps/place/Wilberforce+Rd,+Norwich+NR5+8NQ/@52.6336162,1.23216856,131m/data=!3m1!1e3!4m5!3m4!1s0x47d9e0dfb6102e43:0x1504914f6e31b6b1!8m2!3d52.6337283!4d1.2308536	Approved 07-Feb-13	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
15/00663/F 20 No. student dwellings comprising 70 bedrooms.	Site Of Former Public House Earlham West Centre Norwich	Norwich City Council	Bowthorpe Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016 Google Maps Street View Sep 2016 and Orchard Homes website shows construction has started on Shoemakers Court.	Approved 21-Dec-15	
12/00703/O Redevelopment of site with up to 1000 homes, including affordable housing, care home, a new village centre including at least one local shop, public open space and associated roads and infrastructure.	Three Score Site Land South Of Clover Hill Road Norwich	Norwich City Council	Bowthorpe Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016	Outline Approved 08-Jul-13 15/00298/RM approved 09-Jun15 14/00874/RM approved 10-Sep-14 13/02031/RM approved 14-Mar-14	
15/01646/F Erection of 62 age restricted retirement (including affordable) apartments (class C3), assisted living extra care accommodation (class C2), access, car parking, landscaping and ancillary development (revised proposals: Revisions include omission of vehicle access point, reduction in height of some buildings, new footpath links).	Bartram Mowers Ltd Bluebell Road Norwich NR4 7LG	Norwich City Council	Eaton Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016	Aproved 13-Dec-16 17/00074/D Details of Condition 3: Materials, Condition 5: Landscaping, Condition 7: External lighting, Condition 10: Tree protection and Condition 16: Written scheme of investigation. Link: https://goo.gl/9k7JLF Approved 23 Jun 2017 17/00552/NMA Amendments to planning permission 15/01646/F including changes to windows, balconies and additional living unit in place of well-being room. Link: https://goo.gl/suHJh2 Approved 04 May 2017 17/00796/D Details of Condition 14: fire hydrants. Link: https://goo.gl/14St21 Approved 21 Jul 2017 17/01807/D Details of Condition 4: vehicular, pedestrian and cyclist access; Condition 6: drainage and Condition 8: visitor bicycle parking. Link: https://goo.gl/LTcB8C Awaiting decision as of 17/11/2017	
16/00689/F Special Educational Needs (SEN) School with associated landscaping and car parking.	Open Space Between Parts Of Hewett School And Goals 5 A Side Facility Hall Road Norwich	Norwich City Council	Lakenham Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016. Policy RS of the adopted Norwich Site Allocations & Site Specific Local Plan identifies the majority of the application site for development of a community facility.	Approved 04-Aug-16 16/01238/D Approved 27/03/2017 16/01444/D Approved 23/08/2017 16/01441/D Approved 05/07/2017	
13/00870/F Change of use of industrial premises (Class B1/B2/B8) to 600 pupil University Technical College (Class D1); proposed tower and window extensions, alterations to building exterior; changes to external site layout; erection of bus and cycle facilities and 2.4m security fencing and pedestrian gate to parts of site boundaries.	Unit A Yarefield Park Oldhall Road Norwich NR4 6FF	Norwich City Council	Lakenham Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016. Google Maps shows University Technical College constructed https://www.google.co.uk/maps/place/Norwich+NR4+6FF/@52.601109,1.2768584,321a,20y,146.08h,44.95t/data=!3m1!1e3!4m5!3m4!1s0x47d9e6a615189255:0x417355a047e1059e!8m2!3d52.5991309!4d1.2795536	Approved 23-Aug-13 13/01963/VC Variation of proposed highways works required by conditions 6 (a), 6 (c), 6 (d), 6 (e), and 7 (b). Link: https://goo.gl/qnVDVQ Approved 14 Feb 2014 14/00951/VC Variation of condition 9 of previous planning permissions 13/00870/F and 13/01963/VC to reduce the extent of photovoltaic panels required and instead provide both photovoltaic panels and air source heat pumps to meet the required target of on-site renewable energy. Link: https://goo.gl/QxTTDJ Approved 23 Sep 2014	
15/00695/F Demolition of existing single storey bungalows and erection two storey building containing 15 assisted living flats.	Corton House City Road Norwich NR1 3AP	Norwich City Council	Lakenham Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016. Corton House project website stated on 06-May-16 that the building project has started http://www.cortonhouse.co.uk/news.php	Approved 25-Aug-15 16/00337/VC Variation of Condition 2 and 8 to omit solar thermal and photovoltaic cells from the development . Link: https://goo.gl/mHrzj1 Approved 22 Jun 2016	
12/01885/O Outline application to redevelop site to provide 75 No. dwellings (50 No. market, 25 No. Housing Association including mobility accessible dwellings) along with new public allotments, children's playground and five-a-side football pitch.	Lakenham Sports And Leisure Centre Carshalton Road Norwich NR1 3BD	Norwich City Council	Lakenham Parish	Project Details published on NCC planning search website	Refused 01 Mar 2013 Appeal allowed 21 October 2013	
14/01496/RM Reserved matters of appearance, landscaping, layout and scale of planning permission 12/01885/O 'Outline application to redevelop site to provide 75 No. dwellings (50 No. market, 25 No. Housing Association including mobility accessible dwellings) along with new public allotments, children's playground and five-a-side football pitch' (allowed at appeal ref: APP/G2625/A/13/2195084) (Revised proposal).	Lakenham Sports And Leisure Centre Carshalton Road Norwich NR1 3BD	Norwich City Council	Lakenham Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016	12/01885/O approved 21-Oct-13 (Appeal Allowed) 14/01496/RM approved 08-May-15 14/01698/D approved 04-Feb-15 15/01471/D approved 29-Sep-15	See 12/01885/O

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
15/01314/F Redevelopment of part of existing retail car park to provide a retail foodstore, reconfigured car parking and associated landscaping works.	Land To The West Of Unit 1 Hall Road Retail Park Hall Road Norwich	Norwich City Council	Lakenham Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016, and Google Maps Street View Sep 2016 shows site is under construction https://www.google.co.uk/maps/@52.6093917,1.291503,3a,75y,285.99h,86.71t/data=!3m6!1e1!3m4!1sgm2z8KJzLCt9hQcl0oOksA!2e0!7i13312!8i6656	Approved 23-Dec-15 16/00459/D Details of Condition 3 (a): materials; Condition 3 (b): lighting scheme (excluding cycle link area); Condition 4 (d to i): hard landscaping; Condition 6 (a): surfacing for car and motorcycle parking areas; Condition 6 (b): cycle storage and parking; Condition 21: dock leveller shroud and buffer; Condition 24 (a): surface water drainage scheme; and Condition 25: brief for contamination. Link: https://goo.gl/fthwCX Approved 12 Aug 2016 16/00661/D Details of Condition 4: (a), (b), (c), (j), (k) and (l) existing landscape features and proposed soft landscaping. Link: https://goo.gl/ck5hb8 Approved 01 Jul 2016 16/01064/D Details of Condition 9: Construction Method Statement and Condition 10: Interim Travel Plan. Link: https://goo.gl/2pMiK3 Approved 16 Sep 2016 16/01094/NMA Amendment to allow alterations to internal and external plans. Link: https://goo.gl/s717cM Approved 12 Aug 2016 16/01135/D Details of Condition 6: Waste and recycling storage, Condition 12: Extraction equipment, Condition 13: Plant and machinery, Condition 14: Energy generation scheme, Condition 15: Water conservation measures, and Condition 24 (b-d): Surface water drainage. Link: https://goo.gl/oPZCZ8 Part approved / Part refused 02 Feb 2017 16/01743/D Details of Condition 3 (b) external lighting (cycle link area), Condition 7 highway works, Condition 8 cycle link, and Condition 24 (a - b) sustainable urban drainage system (cycle link area). Link: https://goo.gl/3sMKBC Approved 02 Feb 2017
12/02003/F Demolition of existing buildings and redevelopment of site to provide a new district centre to include a food store, customer cafe, retail units (Class A1, A2, A3 or A5), community use, restaurant/public house unit, business units (Classes B1 and B8), gym, car parking, public realm and associated access and servicing.	Former Bally Shoe Factory Ltd Hall Road Norwich NR4 6DP	Norwich City Council	Lakenham Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016, and Google Maps shows site is under construction Google search indicates food store is operational	Approved 03-Jul-13 14/00723/D Details of Condition 4) timescale for delivery of the family pub/restaurant. Link: https://goo.gl/HGxBtc Approved 04 Jul 2014 14/00818/VC Variation of conditions to allow for minor material amendments to the design and layout of the food store (including the service area to the rear) and retail units, revisions to the layout of the car park and service access, revisions to landscaping, a new electrical sub-station. Variations to conditions to allow for a revised comparison and convenience floorspace ratio in the food store and to revise the energy efficiency scheme. Variations to the S106 agreement to remove community use provisions for the use of the Gym. Link: https://goo.gl/SdP2ch Approved 17 Sep 2014 14/01145/D Details of Condition 28) construction management plan, Condition 29) wheel cleaning facilities, Condition 34) measures to control emission of dirt/dust during construction, Condition 37) scheme to deal with risks associated with contamination, Condition 40) surface water pollution control and Condition 41) surface water drainage scheme. Link: https://goo.gl/NJrjBK Approved 26 Nov 2014 14/01691/VC | Variation of conditions to previous planning permissions 12/02003/F and 14/00818/VC to allow for minor material alterations to the format of the gym and location of home shopping pod along with revisions to the layout of the car park, service area and landscaping. Link: https://goo.gl/YHxy2A Approved 02 Feb 2015
14/01103/F External alteration, partial demolition and extension of riverside and Duke Street buildings to provide 29 dwellings. Demolition of central and warehouse buildings to provide redevelopment for 56 dwellings, extension of basement car park, creation of 464sqm of flexible commercial floorspace (Class A2/A3/B1(a)), associated highway and landscape works, pontoon and floating landscape platforms. (Amended description and plans/supporting documents).	Former Eastern Electricity Board Site Duke Street Norwich	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and timings confirmed in AMR 2015-2016.	Approved 12-Jan-15 15/00255/D approved 12-Mar-15 15/00262/D approved 24-Mar-15 15/00292/D approved 23-Apr-15 15/01866/NMA approved 08-Jan-16
13/00334/F Change of use from B1 and B8 uses in separate parts of building to allow a range of uses within B1 (light industry and offices), B2 (manufacturing and general industry, vehicle servicing, repair and MOT testing), B8 (warehousing and distribution), vehicle sales and display (Sui Generis) and the distribution, sale and/or fitting of general vehicle parts and accessories (Sui Generis), and including trade counters and associated ancillary sales. Refurbishment of front of buildings and rearrangement of front forecourt area to provide a total of 76 car parking spaces and landscaping. (Revised description).	113 - 123 Barker Street Norwich NR2 4TQ	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and Google Earth historical imagery shows site is constructed	Approved 23-Aug-13
16/00790/F Construction of a 244 student bedroom development with management facilities and amenities; flexible office/business space with independent access, and associated landscaped courtyard (revised).	30 All Saints Green Norwich NR1 3NA	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and All Saints Green site referred to in AMR 2015-2016 (228 bedroom student accommodation completed in Sept 2015 and pre-app discussions referred to in AMR for 244 student accommodation)	Approved 28-Oct-16 16/01949/D awaiting Decision

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
15/01527/F Demolition of remaining industrial units and erection of a terrace of 7 No. dwellings to the south, a block of 12 No. flats to the west and either a terrace of 8 No. dwellings or 18 No. flats associated with the Norfolk & Norwich Association for the Blind.	Beckham Place Edward Street Norwich	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and site included in the AMR 2015-2016	Approved 25/05/2017 17/01001/D Details of Conditions. Link: https://goo.gl/LtQ6tT Approved 08/08/2017 17/01174/D Details of Conditions. Link: https://goo.gl/oJiRrd Approved 22/09/2017	
15/00916/F Change of use of ground, first, second and third floors of Riverside building, first, second and third floors of No. 8 Duke Street, and first and second floors of No. 6 Duke Street to provide 69 residential units.	Former Eastern Electricity Board Site Duke Street Norwich	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and site included in the AMR 2015-2016	Approved 03-Dec-15	
15/00272/F Redevelopment of site to provide 105 dwellings with associated access, landscaping and amenity spaces.	Land At Goldsmith Street Greyhound Opening And Haslips Close Norwich	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and site included in the AMR 2015-2016	Approved 11-Feb-16	
14/00911/F Demolition of the building known as The Chapel, and erection of four storey (1,080sqm) 80-114 seat auditorium and performance venue with education and skills training centre for the theatre (sui generis mixed use), with ancillary workshop, storage and office space.	Former Chapel To The Rear Of The Theatre Royal Chantry Road Norwich	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and Google Maps Street View Sep 2016 shows site is under construction	Approved 07-Oct-14 15/00895/NMA Non-Material Amendment - adjustment of the ownership boundary and red line. Link: https://goo.gl/xRFtrc Approved 24 Jul 2015 15/01412/VC Material amendment consisting of alterations to internal layout, change of materials and reduction in extent of photovoltaic panels. Link: https://goo.gl/cHuvPt Approved 04 Feb 2016	
14/00184/F Demolition of former Infant School and redevelopment of site to provide a 60 bed care home for the elderly and dementia care (Class C2).	Former St Johns Catholic Infant School Heigham Road Norwich NR2 3AT	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and site included in the AMR 2015-2016	Approved 19-May-14	
13/00970/F Demolition of 52 and 54 All Saints Green. Redevelopment of site and erection of 228 bedroom student accommodation with associated management facilities and amenities. Conversion of 50 All Saints Green to allow a range of commercial uses (A1, A2, A3, B1, D1 and D2 Use Classes). Associated landscaping, public courtyard and car parking.	Site At All Saints Green, Winnalls Yard And Queens Road Norwich	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and site included in the AMR 2015-2016	Approved 20-Sep-13 13/01921/D Details of condition 17 - design of substation. Link: https://goo.gl/TaeF1g Approved 14 Feb 2014 14/00097/D Details of Condition 12: Archaeological Written Scheme of Investigation (a) site investigation and recording; (b) post investigation assessment; (c) analysis of site investigation and recording; (d) publication of analysis; (e) archive of analysis and records; (f) nomination of person(s) to undertake work. Link: https://goo.gl/tMSQMR Approved 06 Jul 2015 14/00136/D Details of Condition 4: Travel management plan relating to D1 or D2 Use Class activities within 50 All Saints Green. Link: https://goo.gl/ceg9QJ Approved 14 Aug 2014 14/00146/D Details of Condition 15: Fire hydrant provision. Link: https://goo.gl/Z2dWrB Approved 30 Jan 2014 14/00919/NMA Non-Material Amendment to windows, string course, siting of building and ventilation grilles and louvers. Link: https://goo.gl/Hczhqp Approved 25 Jul 2014 14/01014/D Details of: Condition 16 - materials (a) bricks; (b) mortar; (c) fenestration and window styles and profiles; (d) roofing; (e) rainwater goods, eaves and verges and (f) opaque glazing / screening; Condition 18: acoustic protection; and, Condition 27: external lighting. Link: https://goo.gl/TTCF2V Approved 03 Mar 2015 14/01075/D Details of Condition 7: Demolition of 52-54 All Saints Green linked to refurbishment of 50 All Saints Green and creation of pocket park. Link:	
13/00113/F Change of use of Fire Station (Class Sui Generis) to 2,900 sq.m. GIA Sixth Form Free School (Class D1) with conversion works including external alterations and including new vertical external extension to provide new staircase and lift core and elevated corridors within proposed atrium and a new glazed infill extension beneath existing canopy. New landscaping to inner courtyard and building frontage on Bethel Street to include reinstating public footpath and providing street trees.	Fire Station Bethel Street Norwich NR2 1NW	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and Google Maps Street View Aug 2016 shows development is constructed Sir Issac Newton Sixth Form School is located and operating on this site.	Approved 12-Jul-13	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
12/00276/F Westlegate House, 14 - 18 Westlegate: Demolition of part of existing A3 restaurant use (128sqm) and new extension (75sqm) at ground and first floor level. Demolition of existing club building and internal car park to the rear of Westlegate House and redevelopment with new car park structure containing 20 No. car parking spaces with access from Lion & Castle Yard and erection of 1 No. 2 storey, 3 bedroom C3 residential dwelling above. Change of use of B1 offices over floors 2 to 10 inclusive (1551sqm) of Westlegate House tower to 11 C3 residential flatted dwellings (8 No. 3 bedroom, 3 No. 2 bedroom). Addition of 2.5 storeys to tower building to form 2 No. 3 bed C3 residential flatted dwellings. 20 Westlegate: Demolition of rear extension and erection of new extension to existing A3 restaurant/café at ground and first floor level to form an additional 85sqm of restaurant/café floorspace. Change of use of 37sqm of first floor A1 retail floorspace (hairdressers) to A3 restaurant/café use to be used on conjunction with the ground floor use. Replacement of 2 No. timber shopfronts. Timberhill: Erection of building fronting onto Timberhill to reinstate frontage at numbers 27 - 29 to include A1 retail unit at ground and part first floor (233sqm) and 3 No. 2 bedroom C3 flatted dwellings at part first and second floor level. Land to rear of numbers 27 - 29 Timberhill:	Westlegate House 14 - 18 Westlegate, 20 Westlegate, Car Park Rear Of 14 - 18 Westlegate And Lion And Castle Yard, Timberhill Norwich	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website, and Google earth imagery indicates develoment is completed.	Approved 24-Jul-12 13/00046/D approved 04-Dec-13 14/00341/MA approved 18-Jul-14 14/01058/D approved 16-Oct-14	
16/00699/F Demolition of existing showroom and construction of 37 No. apartments.	36 - 42 Duke Street Norwich NR3 3AR	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website,	Approved 22/02/2017 17/00436/D Details of Condition 11(a). Link: https://goo.gl/MjRM9M Approved 24/04/2017 17/00901/MA Amendment to planning permission to demolish and replace existing boundary walls. Link: https://goo.gl/wjFPY3 Approved 29/09/2017 17/00919/D Details of Condition 7. Link: https://goo.gl/Jh2ajj Awaiting decision as of 20/10/2017 17/00923/D Details of Condition 4. Link: https://goo.gl/1VrSq3 Awaiting decision as of 28/02/2018	
16/00456/F Demolition of former Norwich Telephone Repeater Station and redevelopment of site to provide 42 dwellings with associated amenity areas, car and cycle parking and pedestrian and vehicular access (Revised).	BT Telephone Exchange Westwick House 70 Westwick Street Norwich NR2 4SY	Norwich City Council	Mancroft Parish	Project Details published on NCC planning search website. Committee Report on file recommends approval for proposal subject to a legal agreement	Approved 26/03/2017	
16/00281/F Redevelopment of Castle House to create 25 No. dwellings including refurbishment of facades, infill section facing Arcade street, alterations to fourth floor and creation of 2 No. dwellings. Retail (Class A1) units at lower and ground floor to remain unchanged.	23 - 25 Castle Street Norwich NR2 1PN	Norwich City Council	Mancroft Parish	Signed Section106 Agreement (dated 16 August 2016) states development period will be for a period of 12 months from the commencement date.	Approved 17-Aug-16	
15/00245/O Outline application for demolition of existing buildings and erection of 27 flats and houses including means of access only.	161 Oak Street Norwich NR3 3AY	Norwich City Council	Mancroft Parish	Construction period as per AMR 2015-2016	Approved 28-Jul-15	
12/00143/ET Extension of time period for the commencement of development for previous planning permission 08/00866/F 'Redevelopment of site to provide 47 No. apartments and 10 No. houses with associated works including enhancement of external areas and provision of formal parking areas. (Amended Design)'.	Depository Building Part Lion House And Part Seymour House Muspole Street Norwich	Norwich City Council	Mancroft Parish	Construction period as per AMR 2015-2016	Approved 21-Dec-12	
15/01928/F Demolition of modern extensions and conversion to provide 20 residential units (class C3).	St Peters Methodist Church Park Lane Norwich NR2 3EQ	Norwich City Council	Nelson	AMR refers to residentail converstion application being submitted but does not appear in housing trajectory Committee Report on file recommends approval of proposal.	Refused 21//07/2017	
15/01337/F Change of use to residential (Class C3), with alterations and additions to the building to provide 84 flats.	Grosvenor House 112 - 114 Prince Of Wales Road Norwich	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016	Approved 31-Mar-16	
14/01521/F Demolition of buildings on site and erection of 595 space multi-storey car park with 320sqm floorspace for financial and professional services (Class A2)/restaurant and cafe (Class A3)/business (Class B1) uses.	69 - 75 Mountergate And Fishmarket Norwich NR1 1PY	Norwich City Council	Thorpe Hamlet Parish	AMR confrims construction commenced on the new Rose Lane Multi Storey Car Park at Mountergate during 2015-2016 monitoring period and opened in May 2016	Approved 16-Jan-15	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
15/01927/O Outline application with all matters reserved for the erection of up to 200 dwellings, together with public open space and up to 127 car parking spaces for B1 office use and 150 residential parking spaces.	Barrack Street Development Site Barrack Street Norwich	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016 Design and Access Statement notes that "Outline planning permission 11/02223/O for "residential development of 200 units and associated works, including access on Zones A and E" was granted on 14 February 2013. In the intervening period Jarrold (St James) Ltd has been appraising detailed schemes for the site, however, at this time detailed proposals are not at a stage suitable for submission. For investment and funding purposes it is necessary to submit an outline planning application now to continue to secure the principle of 200 new homes on Zones A and E. Since 2013 the residential development market has improved and approval of the new outline planning application will provide Jarrold (St James) Ltd with time to ensure an appropriate scheme for this brownfield site is submitted in detail at a later stage. To allow the 11/02223/O planning permission to lapse would undermine investor confidence at a critical time in the evolution of Zones A and E."	Approved 12-Aug-16	
15/01092/F Redevelopment of site to provide one office (Class B1/A2) unit at ground floor, 26 apartments on upper floors with associated infrastructure and access (revised scheme).	26 - 36 Rose Lane Norwich NR1 1PN	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016 AMR notes that this scheme was still awaiting completion of a S106 Agreement at the end of the monitoring period but will be more fully recorded in the 2016-2017 report. Signed S106 Agreement on planning register (dated 17 August 2016) notes development period to be a total of 30 months from commencement date.	Approved 17-Aug-16	
13/01639/MA Amendments to the massing, designs and increased floorspace to 7th storey within Blocks 3 and 4, and changes to ground floor layouts of all Blocks 1 - 6, of the NR1 development, as alterations to existing planning permission 10/01107/RM 'Reserved Matters for the access, appearance, landscaping, layout and scale of the second phase of the residential development (174 residential units) for outline planning permission 4/2002/1281/O 'Replacement of South Stand (8000 seats), new corner stand (1500 seats), hotel, decked car park and residential development with associated highway works.'	Norwich City Football Club Carrow Road Norwich NR1 1JE	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016 Note: AMR shows no delivery of housing to come forward in housing housing trajectory from 2016/2017 onwards. Application form notes development has already begun but is not completed Design and Access Statement notes development is underway. Development comprises of 6 blocks. It states that blocks 5 & 6 are complete, block 1 is under construction and due for handover in early 2014 and block 2 is under construction and due for completion in mid 2014. Blocks 3 & 4 to start construction in 2014.	Approved 07-Mar-14 10/01107/RM approved 05-Oct-12	
11/02104/O Outline application with full details of access for residential-led development of between 200 and 250 No. residential flats (Use Class C3) and 140 car parking spaces with commercial office space (Class B1a), groundsman's facilities (Class B8), community uses (Class D1/D2) and associated works including Riverside Walk and access road.	Land North Of Carrow Quay Kerrison Road Norwich	Norwich City Council	Thorpe Hamlet Parish	Project Details published on NCC planning search website	Approved 28 Jun 2013	
13/01270/RM Reserved Matters with full details of external appearance, landscape, layout and scale of development, to provide 250 No. residential flats (Class C3), 113sqm offices (Class B1a), 279sqm groundsman's facilities (Class B8), and 401sqm of flexible office space (Class B1a) and community uses (Class D1/D2) with 126 No. parking spaces, associated highways works and provision of a Riverside Walk, consequent to previous outline planning permission 11/02104/O 'Outline application with full details of access for residential-led development of between 200 and 250 No. residential flats (Class C3) and 140 No. car parking spaces with commercial office space (Class B1a), groundsman's facilities (Class B8), community uses (Class D1/D2) and associated works including Riverside Walk and access road'. The proposals include details for approval of Conditions 1(a), 1(b), 2(b), 3, 4(a), 4(b), 4(c), 5, 6, 7, 8(a), 8(b), 12, 20, 22(a), 22(b), 22(c), 22(e), 25, 26, and 30(a) of outline planning permission 11/02104/O applicable to the form of development as proposed in these Reserved Matters.	Land North Of Carrow Quay Kerrison Road Norwich	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016 Application for approval of RM to be made not later than 3 years beginning date of outline permission (11/02104/O) being 28-Jun-13. Development shall be begun not later than expiration of 2 years from final approval of RM. Signed S106 Agreement (dated 04-Mar-16)	Approved 05-Nov-13 11/02104/O approved 28-Jun-13 14/00543/D approved 21-Oct-14 15/01038/D approved 23-Oct-15 15/01403/D approved 23-Nov-15	See 11/02104/O

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
12/00875/O Outline planning application (full details of access) for a mixed development consisting of a maximum of 670 dwellings; a local centre comprising commercial uses (A1/A2/A3); a restaurant/dining quarter and public house (A3/A4); demolition of buildings on the May Gurney site (excluding the former public house); an access bridge over the River Yare; new access road; car parking; flood risk management measures; landscape measures inc earthworks to form new swales and other biodiversity enhancements including the re-use of the Grade II Listed brick Kiln for use by bats.	Deal Ground Bracondale Norwich	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016 Access/main Spine road must be begun before the expiration of ten years of this permission. Anticipated supply of dwellings to be delivered beyond 2026 is 450. Based on average delivery of 50 dwellings per year we estiamte construction period up to 2035	Approved 12-Jul-13 14/01219/D Details of Condition 23: Consents and access rights. Link: https://goo.gl/ho5GZU. Approved 11 Nov 2014	
16/01889/O Outline application including matters of access, layout and scale for the erection of 24 No. dwellings contained within a 3 and 5 storey building, 5 car parking spaces and amenity areas.	Land West Of Eastgate House 122 Thorpe Road Norwich	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016	Awaiting decision (when checked on 28/02/2018)	
15/01810/F Redevelopment of site to provide 41 dwellings including partial demolition of buildings with associated works.	191 King Street Norwich NR1 2DF	Norwich City Council	Thorpe Hamlet Parish	This develoment is referred to in AMR but not in the housing trajectory. The AMR notes that the scheme was still awaiting completed of a S106 Agreement at end of monitoring period and will be recorded more fully in 2016-2017 report. Signed S106 Agreement on planning register notes development period to be a total of 24 months from commencement date.	Approved 12-Oct-16 17/00549/D Details of Condition 6: Archaeological written scheme of investigation; Condition 7: Site investigation report; Condition 19: Written statement confirming 10% of dwellings will be designed to and meet M4(2) of 2015 Building Regulations; Condition 27: Written statement confirming 10% of dwellings will be designed to and meet M4(2) of 2015 Building Regulations. Link: https://goo.gl/59WyMP Approved 12 May 2017	
15/00485/F Conversion to 10 flats [amended proposals and additional info received].	Baptist Chapel Silver Road Norwich NR3 4TE	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016	Approved 17-Mar-16	
13/00639/NMA Addition of condition requiring development to be built in accordance with approved plans of planning permission (09/00406/F) 'Demolition of existing industrial buildings and redevelopment of site to provide 22 No. one and two bedroomed flats, a single A1 retail unit and conversion of existing outbuilding into 1 No. residential unit with associated parking and external works'.	126 - 140 King Street Norwich	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016 Note: AMR shows no delivery of housing to come forward in housing housing trajectory from 2016/2017 onwards. Development to be begun not later than three years beginning date of outline permission (09/00406/F) being 12-Aug-09. Application form for 17/00087/D states that development has already started and that it is completed.	Approved 05-Aug-13 09/00406/F approved 12-Aug-09 12/01174/D approved 07-Aug-12 12/01475/NMA approved 06-Aug-12 12/02186/NMA approved 05-Dec-12 13/00638/MA approved 27-Aug-14 17/00087/D awaiting Decision	
12/01155/F Redevelopment of the site to provide 28 dwellings (24 No. four bed dwellings and 4 No. three bed affordable homes) with ancillary residents' and visitor car parking, courtyard, open space and new vehicle and pedestrian access from Rosary Road.	Chalk Hill Works 21 Rosary Road Norwich NR1 1TD	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016 Note: AMR shows housing trajectory for 2016/2017 for this site is 1 and no further delivery of housing to come forward after this Google Earth historical imagery shows development as largely completed	Approved 07-May-13	
11/02236/F Erection of residential development to provide 66 No. apartments, with associated amenity areas, car and cycle parking and pedestrian and vehicular access.	Land Adjacent To Novi Sad Bridge Wherry Road Norwich	Norwich City Council	Thorpe Hamlet Parish	Construction period as per AMR 2015-2016	Approved 27-Feb-13 14/00863/D Details of condition 3: materials samples; condition 4: landscaping scheme; condition 8: cycle racks; condition 10: flood warning and evacuation plans; condition 11: surface water strategy; condition 12: fire hydrants, and condition 13: vehicle crossover. Link: https://goo.gl/WZFB8s Approved 10 Nov 2014 5/00464/VC Amendments to approved plans by variation of condition 2. Link: https://goo.gl/CGrku6 Approved 10 Sep 2015 15/01104/VC Variation of Condition 5 from PV panels as the carbon saving method to CHP. Link: https://goo.gl/SS2aHr Approved 09 Nov 2015 16/01681/NMA Amendments to approved plans by variation of condition 2 of permission (no. 15/00464/VC) and previous application (no. 11/02236/F). Link: https://goo.gl/mmvsEh Approved 01 Dec 2016	
12/00549/F Conversion of offices (class B1) to 47 unit apart-hotel (class C1), including the erection of bin store.	60 St Faiths Lane Norwich	Norwich City Council	Thorpe Hamlet Parish	Project Details published on NCC planning search website. Google search confiemds site is operational/serviced apartments are avaiable.	Approved 28-Jun-12 12/02063/D approved 21-Dec-12 13/00246/D approved 31-May-13	
12/00215/ET Extension of time period for the commencement of development for previous planning permission 07/00412/F 'Demolition and redevelopment of site with three to six storey building to provide 25, two and three-bedroom apartments; 1, retail unit (Class A1); 1, bar/restaurant (Class A3) and associated parking and landscaping'.	131 - 133 King Street Norwich NR1 1QE	Norwich City Council	Thorpe Hamlet Parish	Project Details published on NCC planning search website, and site included in AMR 2015-2016 Note: AMR shows housing trajectory for 2025/2026 for this site is 20 and no further delivery of housing to come forward for other years.	Approved 29-May-13	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
12/00621/RM Details of access, appearance, landscaping, layout and scale of a proposed Creative Arts Building development at the site of the former West Lodge building, accessed internally from the retained Waveney Drive, as Phase 1 of the Reserved Matters of outline planning permission 08/00255/O as varied by planning permission 12/00487/VC: 'Redevelopment of College Campus for Education Use with associated administrative and ancillary facilities (Class D1) plus additional atria space together with car parking and landscaping.'.	Norwich City College 5 Ipswich Road Norwich NR2 2LJ	Norwich City Council	Town Close	Project Details published on NCC planning search website, and Google Maps shows Creative Arts Building is constructued Applicaiton for approval of RM for each Phase must be begun not later than expiration of 7 years beginning from date of this permission and development shall be begun not later than expiration of 2 years from final approval of RM.	Approved 29-Jun-12 08/00255/O approved 16-Dec-08 13/01065/RM approved 03-Oct-13	
15/00305/F Demolition of 11 No. flats and associated garages. Erection of 13 No. flats and basement car parking.	117 - 127 Trinity Street Norwich NR2 2BJ	Norwich City Council	Town Close	Project Details published on NCC planning search website,	Approved 06-May-15 16/01733/D Details of Condition 3: evidence of contract for site redevelopment of previous permission 15/00305/F. Link: https://goo.gl/LLH4UB Approved 11 Jan 2017 17/00296/D Discharge of Condition 5: Details and samples; Condition 6: Predicted energy requirement; Condition 7: Noise assessment and acoustic attenuation and Condition 8: Refuse store. Link: https://goo.gl/L581by Part approved / Part refused 03 Apr 2017 17/01764/D Details of Condition 4: surface water drainage and Condition 14: boundary wall treatments. Link: https://goo.gl/cjbJxv Awaiting decision as of 20/11/2017	
13/00610/F Erection of 86 No. dwellings (mixture of townhouses and apartments), associated car parking and the erection of a new electricity substation and pumping station.	Land At Brazen Gate Southwell Road Brazen Gate Norwich	Norwich City Council	Town Close	Project Details published on NCC planning search website, Construction period as per AMR 2015-2016 Development referred to in AMR. AMR notes that development is awaiting approval of landscaping and play area detail prior to implementation	Approved 12-Jul-13 13/01898/D approved 17-Dec-14 16/00373/D approved 16-Sep-16 16/00651/D approved 21-Oct-16	
12/02266/F Application for Full Planning Permission for Phase 1 and Outline Planning Permission for Phase 2 for proposed redevelopment of Earlham Hall environs including: Fully detailed application for phase 1 including NRP Enterprise centre for business, research and educational uses (Class B1(a), B1(b) and D1) with a total of 3703 sqm, testing centre, energy centre, permanent courtyard spaces between University Drive and Earlham Hall, temporary pedestrian route between University Drive and Earlham Hall, infrastructure service route, surface works to University Drive, landscaping, parking and service areas and dual use of the Earlham Park car park to serve the development in addition to Earlham Park; and Outline application for phase 2 comprising future buildings for business, research and educational uses (Class B1(a), B1(b) and D1) on the site of the nursery garden site, courtyard spaces between University Drive and Earlham Hall, pedestrian route between University Drive and Earlham Hall and associated landscaping.	Earlham Hall And Environs Including The Walled Garden, Car Park And Former Nursery And Depot Sites, University Drive Off Earlham Road Norwich NR4 7TJ	Norwich City Council	University	Project Details published on NCC planning search website. University of East Anglia development referred to in AMR 2015-2016 Phase 1 constructed as Google Maps Street View Sep 16 shows Enterprise Centre constructed Uncertain if Phase 2 for outline permission has commenceced and no RM applications on planning register. Applicaiton for approval of RM for Phase 2 must be begun not later than expiration of 5 years beginning from date of this permission and development shall be begun not later than expiration of 2 years from final approval of RM.	Approved 01-Jul-13 13/01276/D Details of Condition 29) archaeological scheme of investigation and Condition 34) fire hydrant positions. Link: https://goo.gl/qJWjEx Approved 09 Jan 2014 14/00344/D Details of Condition 9) construction method statement, Condition 11e) energy centre building and plant and machinery equipment, Condition 15) arboricultural meetings, timetable and method statement, Condition 19) contamination remediation methods, Condition 26) (in first part only) foul water drainage strategy, Condition 32) plant and machinery and Condition 33) fume and flue extracts. Link: https://goo.gl/m5ePT7 Approved 05 Aug 2014 14/00460/D Details of Condition 4a) sample materials to be used for the external surfaces (subject to informative note) and Condition 4b) external rainwater goods, Condition 4h) repositioned street light on University Drive, Condition 11a) bin stores and collection points, Condition 11c) service access areas, Condition 11d) new boundary treatments, Condition 11g) bus stops on University Drive, Condition 18a - d) hard/soft landscaping, landscape management plan and Condition 28) water efficiency measures. Link: https://goo.gl/CTMEJh Approved 22 Dec 2014 14/00551/D Details of Condition 4c) external joinery for windows, curtain walls, external louvers, solar shading, external doors and cap to thatch walls, Condition 27) renewable energy measures. Link: https://goo.gl/45LLqj Approved 22 Dec 2014 14/00631/D Details of Condition 4d: building construction information and panels; Condition 7a: car park management; and Condition 7c: car park ticket machines. Link: https://goo.gl/9urXFu	
13/00157/F Erection of new student residences building including temporary construction access (revised transport information).	University Of East Anglia Earlham Road Norwich Norfolk NR4 7TJ	Norwich City Council	University	Project Details published on NCC planning search website, and UEA project referred to in AMR Google Maps Street View Sep 2015 shows development is constructed	Approved 16-May-13 13/00916/D Details of conditions 5) (a) construction area layout; 5) (b) management of construction traffic; 5) (c) site contact details; 5) (d) temporary replacement resident parking; conditions 6) (a) design and surfacing materials; 6 (b) junction design with Bluebell Road and crossovers to footpaths; condition 7) a pre-construction arboricultural site meeting; condition 8) supplementary Arboricultural Method Statement; condition 13) surface water attenuation; condition 15) water conservation measures; condition 16) contamination remediation; and condition 21) provision of a fire hydrant. Link: https://goo.gl/1x8apv Approved 19 Sep 2013 13/01256/D Details of conditions condition 3) a) materials; 3) b) joinery; 3) c) louvers and shading; 3) d) entrance colour; condition 4) a) enclosures; 4) d) bin stores; 4) e) bicycle parking; condition 11) landscaping; condition 12) green wall; condition 19) plant and machinery; condition 20) fume and flue. Link: https://goo.gl/BCjzXM Approved 04 Feb 2014 14/00495/D Details of Condition 4b) external lighting, Condition 4c) CCTV, Condition 14) energy technologies, Condition 17) contamination verification plan and Condition 18) imported top soil. Link: https://goo.gl/BffN1a Approved 19 Jun 2014	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
15/00121/F Student accommodation to provide 915 bedrooms, kitchen, dining and lounge facilities with community building comprising cafe, launderette, office space and associated works.	The Blackdale Building Bluebell Road Norwich NR4 7LN	Norwich City Council	University	Project Details published on NCC planning search website, and AMR 2015-2016 confirms development commenced during the 2015-2016 monitoring period and was completed in September 2016	Approved 22-May-15 15/00820/D Details of condition 11: pre-construction site meeting; condition 12: supplementary AMS and condition 20: surface water drainage scheme. Link: https://goo.gl/vj4UkA Approved 14 Sep 2015 15/01439/D Details of Condition 4 a) capping materials to parapets; Condition 4 b) external louvres; Condition 9: Highway works to Bluebell Road junction; Condition 15a), 15b), 15c), 15e), 15h), 15j), 15k), 15l): Landscaping; Condition 18: LZC connections; and Condition 19: water conservation measures for construction of phase 1. Link: https://goo.gl/ADvYbg Approved 19 May 2016 16/00099/MA Amendment to approved plans and variation of conditions to reflect agreed details, submission of further details and works for phase 1 development. Link: https://goo.gl/kY9g8A Approved 11 Aug 2016	
12/01218/F Erection of new lecture theatre building on land north of Chancellors Drive.	University Of East Anglia Norwich Research Park Earlham Road Norwich NR4 7TJ	Norwich City Council	University	Project Details published on NCC planning search website, and UEA project referred to in AMR Google Maps Street View Aug 2016 shows development is constructed	Approved 15-Aug-12 13/00415/D Details of Condition 4 (a): external materials/features; Condition 4 (b): walls, fences, bollards and other means of enclosure; Condition 4 (c): external lighting; Condition 4 (d): bin stores; Condition 4 (e): bicycle parking/storage; Condition 6: Tree protection meeting; Condition 8: mitigation measures to protect identified species during construction phase and monitoring; and Condition 12: water conservation measures. Link: https://goo.gl/GtZNYc Approved 18 Oct 2013 13/01424/D Details of condition 10 - landscaping, condition 11 - renewable energy, condition 13 - plant and machinery and condition 14 - fume extraction system. Link: https://goo.gl/NBqh4M Approved 29 Nov 2013	
16/00835/F Demolition of existing dwelling and outbuildings. Erection of 36 residential dwellings with associated works.	120 - 130 Northumberland Street Norwich NR2 4EH	Norwich City Council	Wensum Parish	Project Details published on NCC planning search website, and site included in AMR 2015-2016 Committee Report on file notes to approve application	Approved 09/05/2017	
15/01091/F Demolition of former clubhouse and installation of solar photovoltaic panels and associated works including inverter housings and security cameras.	Briar Chemicals Ltd Sweet Briar Road Norwich NR6 5AP	Norwich City Council	Wensum Parish	Project Details published on NCC planning search website, note no Decision Notice on planning register Committee report recommended approval subject to completion of a legal or unilateral agreement but no agreement on planning register Temporary consent for 30 years and land then restored to its former condition	Approved 16-Jun-16	
12/01594/F Erection of two storey building to provide a 70 bedroom care home (Class C2) with associated access, parking and landscaping.	Site Of Proposed Residential Care Home Ivy Road Norwich Norfolk	Norwich City Council	Wensum Parish	Project Details published on NCC planning search website, and AMR 2015-2016 confirms development was completed in May 2015.	Approved 20-Dec-12	
12/02148/F Demolition of existing public house and erection of 10 No. houses and 4 No. flats.	The Grove Cadge Road Norwich NR5 8DF	Norwich City Council	Wensum Parish	Project Details published on NCC planning search website, and Google Maps satellite view and Street View August 2016 shows development is constructed.	Approved 08-Mar-13	
17/01295/F Redevelopment of site to provide 285 student bedroom development with associated access and landscaping.	Car Park Adjacent To Sentinel House 37 - 43 Surrey Street Norwich	Norwich City Council	n/a	Project Details published on NCC planning search website.	Refused 15 Dec 2017	
17/00357/F Redevelopment of St Stephens Tower for student accommodation with vertical extensions, demolition of ancillary structures to facilitate a new link building and landscaping.	St Stephens Tower St Stephens Street Norwich	Norwich City Council	n/a	Project Details published on NCC planning search website.	Approved 08 Sep 2017	
17/01173/EIA1 EIA Screening opinion for the proposed integrated Teaching & Laboratory Building.	Julian Study Centre Chancellors Drive University Of East Anglia Norwich NR4 7TJ	Norwich City Council	n/a	Project Details published on NCC planning search website.	EIA Not Required 03 Oct 2017	
Norfolk County Council - North Norfolk District Council						
C/1/2010/1005 Erection of plant to accommodate an anaerobic digestion facility, provision of ancillary office and weighbridge, retention of existing landfill gas engines, construction of access road and provision of landscaping	Land adjacent to Edgefield Landfill Site, Edgefield, Melton Constable, NR24 2RS	North Norfolk District Council	Edgefield Parish	Details published on NCC website. Some pre-commenceemnt condotions have been discharged.	Approved 28-Apr-14 C/1/2014/1012 Discharge of condition 14 (landscaping scheme). Link: https://goo.gl/UXd8sF Conditions Not Dischaged 03/09/2014	
C/1/2016/1020 Retrospective application for the Installation of a revised sand & gravel processing plant, additional site office, and extended screening mound in southern extraction area	Land at Breck Farm, Stody, Norfolk. NR24 2ER	North Norfolk District Council	Stody Parish	Details published on NCC website - note retrospective application confirms activities already taking place	Approved 12 May 2017	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)																																			
						2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029-2050	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
C/1/2010/1004 Processing and removal of surplus sand and gravel and soils arising from the construction of two linked agricultural reservoirs (re-submission of planning application C/1/2008/1014) to include reduced lorry movements and traffic routeing restrictions westwards.	Land at Breck Farm, Stody	North Norfolk District Council	Stody Parish	Details published on NCC website. Retrospective application indicates development is already operational	Approved 25 Oct 2010 C/1/2012/1002 Variation of condition 2 of planning permission reference C/1/2010/1004 for the importation of hardcore for construction of the access track and for the retrospective removal or coppice of an additional 146 trees. Link: https://goo.gl/iKdrXx Approved 13 Aug 2012 C/1/2014/1006 Variation of condition 2 of planning permission reference C/1/2012/1002 to enable the relocation and change in specification of the processing plant. Link: https://goo.gl/TzNSJA Approved 2 Sep 2014 C/1/2016/1022 Variation of Conditions 1 and 4 of planning permission ref C/1/2014/1006 to permit temporary silt storage above original ground levels in northern extraction area (retrospective), and extend the start time/hours for operations Link: https://goo.gl/jvVwAv Approved 27 Apr 2017																																							

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
Norfolk County Council - South Norfolk District Council						
C/7/2012/7009 Retention of existing Household Waste Recycling Centre (previous planning permision C/7/1999/7003) on a permanent basis. Construction of 2 infiltration basins and associated pipework and access chambers to improve surface water drainage system. Erection of post mounted CCTV cameras. Small scale sale of compost	Bergh Apton Household Waste Recycling Centre, Wellbeck Road, Bergh Apton, Norfolk, NR15 1AU	South Norfolk District Council	Bergh Apton Parish	Details published on NCC website, and NCC website indicates site is now operational: https://www.norfolk.gov.uk/rubbish-recycling-and-planning/rubbish-and-recycling/find-your-local-recycling-centre/bergh-apton-part-time-recycling-centre	Approved 31-Jul-12	
Y/7/2012/7012 Two storey extension to existing engineering facility to provide 16 incubator units, biomass plant including fuel storage and flue to rear, carparking, extended service yard, attenuation swale, landscaping and associated works.	Hethel Engineering Centre, Wymondham Road, Hethel, Norfolk, NR14 8FP	South Norfolk District Council	Wreningham Parish	Details published on NCC website and Google Maps Street View Sep 2016 confirms development has been constructed https://www.google.co.uk/maps/place/Hethel+Engineering+Centre+of+Excellence/@52.5540181,1.1798945,3a,60y,90t/data=!3m7!1e1!3m5!1sOYyZkrvoY833W2RPsUJvUQ!2e0!5s20120501T000000!7i13312!8i6656!4m5!3m4!1s0x0:0x43e31d600894e62e!8m2!3d52.555063!4d1.178154	Approved 11-Mar-13	
C/7/2014/7030 (I) For a southern extension to Mangreen Quarry and ancillary works with progressive restoration to agriculture and nature conservation by the importation of inert restoration materials; (II) Retention of existing consented facilities at Mangreen Quarry; (III) Establishment of crossing point over Mangreen Lane; and (IV) Proposed variation to approved restoration scheme at Mangreen Quarry	Mangreen Quarry, Swardeston, Norwich, Norfolk	South Norfolk District Council	Swardeston Parish	Details published on NCC website. Unclear if construction has started on proposed site but detailed work sequence in S3 of ES Operations to cease by 6 years from date of commencement and restoration completed by 8 years from date of commencement, in line with planning permission.	Approved 02-Oct-15 C/7/2016/7013 Revised application to vary Conditions 2, 18 and 23 to vary the approved schemes of restoration, landscape and aftercare scheme, and vary the approved measures to prevent deposition of mud on the highway. Link: https://goo.gl/dSqNxH Application Approved	
Y/7/2014/7011 New extension comprising of 10 no. classbases, new main school entrance, administrative and ancillary accommodation, new car park, external teaching spaces and play areas.	Queens Hill Primary School, Fieldfare Way, Costessey, Norwich, NR8 5AZ	South Norfolk District Council	Costessey Parish	Details published on NCC website and project website: http://www.queenshill.norfolk.sch.uk/2016/02/building-starts-now/	Approved 14-Jan-15	
C/7/2016/7006 Temporary change of use of land from scrap metal recycling to overnight HGV parking for the onward transfer of Refuse Derived Fuel (RDF) bales (until 30 Sept 2018).	EMR Yard, Ernest Gage Avenue, Longwater Industrial Estate, Costessey NR5 0TL	South Norfolk District Council	Costessey Parish	Details published on NCC website.	Approved 13-Jul-16	
C/7/2016/7004 Change of use of site to include vehicle operating base including storage of containers, self-contained driver welfare facilities , bunded fuel tank, fuel additive tank, crash barriers and new set of gates.	Former Norcast Site, Ernest Gage Avenue, Costessey, Norwich NR5 0TL	South Norfolk District Council	Costessey Parish	Details published on NCC website, and Application Form confirms development had already started when application was submitted Uncertain when construction will be completed	Approved 15-Jun-16	
C/7/2013/7015 Extension to Material Recovery Recycling Facility to process non-hazardous, co-mingled, dry recyclable waste consisting of a new process building; service yard; green waste and road sweeping bays; relocated smoking shelters and storage containers; foul drainage main; and retrofitting of ventilation flues.	Costessey Materials Recycling Facility (MRF), Longwater Estate, Costessey, Norwich. NR5 0TL	South Norfolk District Council	Costessey Parish	Details published on NCC website.	Approved 05-Nov-13	
C/7/2010/7016 Continued recycling of former building materials and use of concrete batching plant until 31 May 2029: Site entrance improvements including hardening of site access road: Hardening of remainder of concrete batching compound: Highway improvements: Construction of car park and footpath: Erection of estate fencing around ice house: Restoration of the site in accordance with an improved restoration scheme by 31 May 2030 with public access to former quarry and adjoining land and woodland for informal recreational purposes	Former Ketteringham Quarry, Hethersett Road, East Carleton	South Norfolk District Council	East Carleton	Details published on NCC website. NOted development shall cease on or before 31-May-29 and site restored by 31-May-30 Uncertain if development has already ceased or is still operating (Majority of documents not available on planning register) Newspaper article indicates work may have ceased in May 2013 http://www.wymondhamandattleboroughmercury.co.uk/news/restoration_plans_for_former_quarry_near_wymondham_1_828081	Approved 05-Mar-12 C/7/2012/7014 Discharge of Conditions 4, 5, 6, 7, 8, 9 and 10. Link: https://goo.gl/2fdFtu Conditions Partly Discharged 9/12/2012 C/7/2012/7030 Variation of conditions 11, 12, 13, 14 & 15 of Planning Permission C/7/2010/7016 to extend timescales for completion of highway and site access improvement works, pathway and car park. Link: https://goo.gl/XkP22M Application Approved 09/12/2013 C/7/2012/7035 Discharge of Condition 4. Link: https://goo.gl/BWMXtn Conditions Discharged 22/01/2013	
Y/7/2016/7009 Creation of Nurture Centre Building .	Framingham Earl High School, Norwich Road, Framingham Earl NR14 7QP	South Norfolk District Council	Thurlton Parish	Details published on NCC website. Only just approved and no timescales in planning application documents or on school website (when checked on 24-Jan-17). http://www.framinghamearl.net/parent-info/nurture/	Approved 19-Jan-17	
H/7/2014/7001 New Primary School	White Horse Lane, Trowse	South Norfolk	Trowse with Newton	Details published on NCC website.	General Observations 14-Jan-14	

Project	Address	District	Parish Council	Information in the Public Domain	Status of Development	Onshore Construction Window (RED outline denotes the construction window for Hornsea Three)
C/7/2013/7014 Mineral extraction, processing and associated activities with importation of inert material and restoration to agriculture and two small ponds.	Land at Hall Farm, Stanfield Road, Wymondham, Norfolk	South Norfolk District Council	Wymondham Parish	Details published on NCC website. Application form states expected commencement date of operations is March 2014 and expected duration is 10-12 years. Google Maps Street View Sept 16 illustrates development has commenced Wreningham Parish Council website confirms development has started Development shall cease and site be restored by 30 March 2026 http://www.wreningham.org.uk/wreningham-parish-council/consultations/gravel-extraction-on-land-at-hall-farm-stanfield-road/	Approved 10-Jan-14	
Norfolk County Council - Broadland District Council						
C/5/2015/5007 Resubmission of application for change of use from B8: Warehousing to a Sui Generis use for waste processing and the production of refuse derived fuel (RDF) with an annual throughput of 150,000 tonnes; installation of office, 2 x weighbridges and photovoltaic panels	SPC Atlas Works, Norwich Road, Weston Longville, Norwich, Norfolk, NR9 5SL	Broadland District Council	Morton on the Hill	Details published on NCC website.	Refused 03//05/2017 C/5/2017/5006 screening request concluded not EIA 03/11/2017	
Nationally Significant Infrastructure Projects						
EN010079 Norfolk Vanguard is a proposed offshore windfarm with an approximate capacity of 1800MW off the coast of Norfolk.	The centre of Norfolk Vanguard West is 67km from the Bacton coast and 63km from the Gorleston coast at their nearest point. The centre of Norfolk Vanguard East is 98km from the Bacton coast and 86km from the Gorleston coast at their nearest point. Norfolk Vanguard West is approximately 295km2, Norfolk Vanguard East being 297km2.			High 5 pre-application documents on the NIP website including: Scoping Report; Late Scoping Consultation; Responses Scoping Opinion; & Meeting Notes	Currently at Pre-Application Stage Application expected to be submitted to the Planning Inspectorate in Q2 2018	
TR010015 The Norwich Northern Distributor Road (NDR) is a 20km dual carriageway road under construction to run from the A47 at Postwick, east of Norwich, to the A1067 Fakenham Road north of Taverham.	A47 at Postwick, east of Norwich, to the A1067 Fakenham Road north of Taverham.			Information available on Planning Inspectorate and Norfolk County Council website. https://www.norfolk.gov.uk/roads-and-transport/major-projects-and-improvement-plans/norwich/northern-distributor-road/your-ndr-questions-answered/about-the-ndr-construction	Contract completed date is March 2018 (Balfour Beatty and NCC construction team have set a challenging target of traffic using the road by Christmas 2017) Y/5/2017/5022 Discharge of requirement 27 (Weston Longville and Hockering traffic) of the NDR Development Consent Order (Statutory Instrument 2015 No. 1347). This relates to Weston Longville traffic management measures. Link: https://goo.gl/WzAEfY Approved 10 Oct 2017	

Onshore - Spatial and Screening

b	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
c	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment: Screened in to assessment.*
d	*Potential cumulative impact exists: Screened in to assessment.*
e	*No conceptual effect-receptor pathway: Screened out of assessment.*
f	*Low data confidence: Screened out of assessment.*
g	*No physical effect-receptor overlap: Screened out of assessment.*
h	*No temporal overlap: Screened out of assessment.*

Project	Shortest distance from Hornsea Three	Status of Development	Data Confidence	Geology and Ground Conditions	Hydrology and Flood Risk	Ecology and Nature Conservation	Landscape and Visual Resources	Historic Environment	Land Use and Recreation	Traffic and Transport	Noise and Vibration	Air Quality and Health	Socio-Economics
North Norfolk District Council													
PF/12/1263 Change of use of land from agriculture to 53 units tent-only campsite and formation of vehicular access	83m	Approved 24/01/2013 DA/12/1263 Discharge of conditions 9 & 15. Link: https://goo.gl/zkkJWG Condition Discharge Reply (Accepted other than condition relating to operation) 15/03/2016	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
PF/12/0681 Erection of 24 dwellings (of which 50% affordable dwellings) and associated garages, carports, boundary wall and fences and creation of 2 accesses	6.96km	Approved 12/12/2012	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/14/0859 Erection of sixteen dwellings	1.01km	Approved 19/06/205 PF/16/1777 Variation of condition 2 to make minor amendments to layout, house designs and external finishes of the development. Link: https://goo.gl/WWMBzh Approved 22/03/2017 CDA/14/0859 Discharge of conditions 16 & 18. Link: https://goo.gl/Jo4G4A Condition Discharge Reply 22/03/2017 CDB/14/0859 Discharge of condition 8 and 13a. Link: https://goo.gl/sLRPts Condition Discharge Reply 14/08/2017	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
PF/13/0960 Installation of 3.6mw solar development	1.67km	Approved 15/11/2013	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
PF/15/1746 Erection of 12 shared ownership dwellings and garages	5.07km	Approved at committee on 04/05/2016 subject to Section 106 yet to be confirmed CDA/15/1746 Discharge of conditions. Link: https://goo.gl/mgvcpE Registered as of 20/10/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PO/08/0329 Erection of Thirty-Eight Dwellings	6.19km	Approved 08 Feb 2012	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PM/15/0170 Erection of 38 dwellings	6.19km	Approved 06/05/2015	High - Third party project details published in the public domain/planning portal.	See P/08/0329									
PF/13/1529 Erection of seventeen dwellings	4.81km	Approved 16/05/2014 CDA/13/1529 Discharge of conditions 3 & 9. Link: https://goo.gl/HWFb1k Condition 3 discharged (condition 9 requires post construction certificate) 05/01/2016	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
PF/16/0781 Excavation of section of railway embankment and distribution of soil on adjacent arable field (part retrospective)	1.11km	Approved 15/08/2016 CDA/16/0781 Discharge of conditions 2 & 3. Link: https://goo.gl/MbH2F3 Accepted 30 Nov 2016	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
PF/13/0772 Installation of a 10.15mw solar development	2.95km	Approved 23/09/2013 PF/15/1486 Variation of conditions 2, 10 and 18 to permit additional lights, to remove the scrapes and amend site layout. Approved 22 Jan 2016	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
PF/15/1223 Erection of twenty two residential units (Class C3) with associated highway and landscape works.	1.41km	Approved 18/04/2017 Application (PF/17/1286) for ammendments to design, external appearance, layout and landscaping. Link: https://goo.gl/yRErwK. Registered as of 20/10/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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PF/15/1587 Erection of 10 dwellings and garages with access off Eagle Road	6.26km	Permission Approved 17-Nov-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/15/1461 Erection of twenty four residential units (Class C3) with associated highway and landscape works	6.53km	Approved 18/04/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/14/0956 Erection of three duck rearing units to house 36,000 birds	12.5km	Permission Approved 20/03/2015	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/14/0328 Erection of extension to provide twelve supported residential units	482m	Approved 20/05/2014 Discharge condition 5 relating to materials. Link: https://goo.gl/62VwxR Approved 23 Sep 2015	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
PM/16/1511 Reserved matters of appearance, scale, layout and landscaping for the erection of 17 dwellings, garages and associated works in respect of Outline Planning Permission PO/14/0284	1.79km	Approved 16/08/2017	High - Third party project details published in the public domain/planning portal.	See PO/14/0284									
PM/16/1204 Reserved matters submission of appearance, landscaping, layout and scale; for erection of 214 dwellings, public open space, highway and other infrastructure, in respect of outline planning application PO/16/0253	2.08km	Approved 16/03/2017	High - Third party project details published in the public domain/planning portal.	See PO/16/0253									
PO/11/0978 Development of up to 85 dwellings, access, public open space and associated infrastructure	2.7km	Approved 26 Jun 2012	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PM/15/0804 Development of 83 dwellings, access, public open space and associated infrastructure	2.7km	Approved 19/08/2016 Discharge of Condition 2 (Design amendments to plots 46-55 to accommodate specified finished floor levels). Link: https://goo.gl/Y56SYW Registered as of 23/10/2017	High - Third party project details published in the public domain/planning portal.	PO/11/0978									
PO/14/0283 Residential development for a maximum of 126 dwellings	1.42km	Approved 01/04/2015 CDA/14/0283 Discharge of Conditions:- 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18 and 20. Link: https://goo.gl/fGu9AD Registered as of 23/10/2017 Resevered Matters ref: PM/15/1578 Approved May 2016 CDA/15/1578 | Discharge of Condition 5 of Planning Permission PM/15/1578. Link: https://goo.gl/YLSNQS Approved 19 May 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PO/14/0284 Residential development for a maximum of 19 dwellings	1.79km	Approved 01/04/2015 PM/16/1511 Reserved matters of appearance, scale, layout and landscaping for the erection of 17 dwellings, garages and associated works. Link: https://goo.gl/P6JCF2 Approved 16 Aug 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/15/1108 Erection of new sixth form and music building and associated external works following demolition of modular Chapel Field building and the subsequent demolition of the music building	1.78km	Approved 26/11/2015 CDA/15/1108 Discharge of conditions 3,4,5,6,8,12,18 & 19. Link: https://goo.gl/2rSYz7 Approved (if contructed to spec) 10 Mar 2016 CDB/15/1108 Discharge of conditions 14,15 & 16. Link: https://goo.gl/J1KYkW Approved 08 Sep 2016 CDC/15/1108 Discharge of conditions 10 & 11. Link: https://goo.gl/eKpnbf Approved: 04 Apr 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PO/16/0253 Erection of up to 215 dwellings, employment land (A3, A4, B1, B2, B8, C1, C2, D1 and D2 class uses), public open space and provision of roundabout and vehicular link road from Cromer Road (A148) to Heath Drive with associated landscaping and infrastructure (Outline application)	2.08km	Approved 15-Aug-16 PM/16/1204 Reserved matters submission of appearance, landscaping, layout and scale; for erection of 213 dwellings, public open space, highway and other infrastructure. Link: https://goo.gl/wcfVXU Approved 16 Mar 2017 CDA/16/0253 Discharge of conditions 6, 7, 8,10,11,14,16 (highways),19 (landscaping),20 (ecological surveys), 21 (CEMP), 22 (LEMP), 23 (surface water drainage), 24 (foul drainage), 26 (ground gas) & 27 (renewables). Link: https://goo.gl/gb4SHZ Registererd as of 23/10/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	d	d	d	g

Project	Shortest distance from Hornsea Three	Status of Development	Data Confidence	Geology and Ground Conditions	Hydrology and Flood Risk	Ecology and Nature Conservation	Landscape and Visual Resources	Historic Environment	Land Use and Recreation	Traffic and Transport	Noise and Vibration	Air Quality and Health	Socio-Economics
PF/13/1026 Creation of 20 hard standings (former rally field Area A) for the siting of 20 woodland lodges with associated access and infrastructure. Demolition of chicken sheds (Area B), change of use of land and creation of hard standings for the siting of 17 static caravans with associated access and infrastructure.	60m	Approved 01-Nov-13	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
PF/12/0181 Conversion and extension of barns to provide hotel with swimming pool, restaurant and bar facilities, conversion of barn to four residential dwellings and erection of five holiday dwellings	8.45km	Approved 18/04/2013	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
PF/14/0107 Revisions to hotel and spa including increasing bedrooms from 28 to 32, provision of service area, entrance canopy and covered walkway	8.45km	Approved 25/07/2014	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
PO/15/0665 Erection of 12 affordable dwellings, infrastructure and associated parking and turning	10.1km	Approved 29-Jan-16 PM/16/0140 Erection of 12 affordable dwellings, infrastructure, substation and associated parking and turning (Reserved Matters of access, appearance, layout, scale and landscaping persuant to outline permission PO/15/0665). Link: https://goo.gl/EX7Asj Approved 14 Jun 2016 CDA/15/0665 Discharge of conditions 3, 4, 5, 7 and 8. Link: https://goo.gl/MEcMmR Approved (3,7,8 fully discharged on completion with plans/standards) 07 Jun 2016 CDB/15/0665 | Discharge of condition 8 (Completion of sewage disposal system). Link: https://goo.gl/rp84CF Approved 06 Apr 2017 CDC/15/0665 | Discharge of condition 7 (surface water). Link: https://goo.gl/Pt4QAM Approved: 26 Jul 2017 CDD/15/0665 | Discharge of condition 3, part 4 (contamination) and condition 4 (contamination verification). Link: https://goo.gl/8cnA2z Approved 27 Jul 2017	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
PO/14/0986 Erection of thirty dwellings with open space to provide sports pitch, wetland habitat, space for community facility, car park and footpath link to village	9.93km	Awaiting Decision as on 24/01/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/16/1200 Demolition of dwelling and hotel and erection of 30 retirement apartments with car parking and landscaping	4.81km	Awaiting Decision as on 24/01/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF-15-0001 Demolition of existing buildings, erection of 32 no. dwellings, accesses, roads, open space and associated works	4.93km	Approved 17/08/2016	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF-14-0644 Erection of eleven dwellings	4.88km	Approved 03/09/2014	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/14/0947 Improvement works to sea wall including concrete facing and apron and steel sheet piles	4.6km	Approved 17-Sep-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/15/0114 Erection of 52 dwellings, access, roads, open space, parking areas and associated works	4.56km	Approved at committee on 21/10/2016 subject to Section 106 yet to be agreed. PF/16/1766 Variation of condition 2 to amend layout, house designs and external finishes of the development. Link: https://goo.gl/QL8LKS Approved 04 Jul 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
PF/14/0177 Installation of landfall transition pit and buried electrical cable system (revisions to previously approved scheme) and changes to the construction configuration at the landfall	20m	Approved 06/10/2014 COND/15/0671 Discharge of condition 13. Link: https://goo.gl/zcak5b Approved 13 Aug 2015	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h

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South Norfolk District Council													
2015/0707 Erection of 10 residential units (Class C3) and school car parking area (Class Sui Generis) with associated landscaping and highway works.	7.05km	Approved 22-Jul-15 2015/1690 | Discharge of conditions 7 - Ecology, 14 - Contamination, 15 - Contamination Remediation and 18 - Archaeology. Link: https://goo.gl/iJFrGp Approved 21 Sep 2015 2015/2099 Non-material amendment to include minor alterations to the approved dimensions of plots 4 and 5, removal of some brick plinths, alteration to single rear window in plot 5 and amendments to some garage doors. Link: https://goo.gl/tVDLbG Approval with no Conditions 25 Sep 2015 2015/2193 Discharge of condition 5 - on site parking for construction workers. Link: https://goo.gl/gsNF5s Approved 04 Dec 2015 2015/2426 Discharge of condition 22 - materials. Link: https://goo.gl/id6fYL Approved 03 Dec 2015 2015/2534 Discharge of conditions 10 - hard and soft landscaping. Link: https://goo.gl/whL7xB Approved 19 Feb 2016 2015/2554 Discharge of condition 6 Part A of planning permission 2015/0707/F - Highways. Link: https://goo.gl/eayy5U Approved 03 Dec 2015 2015/2638 | Non-Material amendment - Door surround omitted from type A (plot 2 and 3) and replaced with pitched canopy to match plots 8-10. Front door amended. Raised cill to window front of type D1 (plot 6) and type D2 (plot 7) as consequence of movement of kitchen. Adjustment from window to sliding door (south elevation) of type D1 (plot 6) and type D2 (plot 7). Link: https://goo.gl/9tJ5za Approval with no Conditions 03 Dec 2015 2016/0355 Discharge of condition 22 - materials. Link: https://goo.gl/DBkh1L Approved 22 Feb 2016 2016/0561 Variation of conditions 2, 4, 6, 7, 8 and 24 - To allow for occupation of plots 8, 9 & 10 prior to plots 1-7. Link:	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2013/0854 Development of land for 24 homes, including affordable housing.	5.65km	Approved 29-Apr-14 2017/0100 Reserved matters following 2013/0854/O - proposed 24 dwellings. Link: https://goo.gl/W46QNB Approval with Conditions 14 Jun 2017 2017/0743 | Variation of Condition 11) Traffic Regulation Order (to require the Traffic Regulation Order to be promoted prior to implementation of the permission rather than secured) and 23) Materials (to allow site clearance works, site investigation works, tree protection works and below ground works before details of materials are submitted). Link: https://goo.gl/sZpSpE Approval with Conditions 02 Jun 2017 2017/1432 Discharge of conditions 14 contamination details. Link: https://goo.gl/T4L8L6 Pending Consideration as of 24/10/2017 2017/1634 | Discharge of Conditions 20 - Arboricultural Impact Assessment and 24 - Ecological Assessment with Management Plan. Link: https://goo.gl/qbVHXt Approved: 27 Jul 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/1678 Development of ground mounted solar photovoltaic panels and associated works including transformer substations, storage container, switchgear, DNO Cabin, access tracks, underground cabling, security measures and other ancillary equipment and landscaping	2.0km	Approved 02-Nov-15 2015/2556 Discharge of condition 7 of planning permission - Geophysical Survey and Field Evaluation. Link: https://goo.gl/WvYK7J Approved 01 Dec 2015	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/2082 Outline application for the residential development 10 dwellings	922m	Approved 22-Jun-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	d	g	d	d	g
2015/2836 Erection of 11 dwellings plus associated roads, landscaping and drainage infrastructure	8.6km	Approved 11-Mar-16 2016/1279 Discharge of conditions 3 - drainage, 4 - external works layout and 9 - Ecological Management Plan. Link: https://goo.gl/ixytKB Approved 27 Sep 2016 2017/0058 Discharge of Conditions - 8 - hard landscaping, 11 - external materials, - 12 external joinery. Link: https://goo.gl/gE9AAs Approved 11 Apr 2017 2017/1007 | Discharge of Condition 10 (Water Consumption) Link: https://goo.gl/4eBSWt Approved 31 May 2017 2017/1726 Non Material Amendment - Plot 4, remove small length of park rail fence and planting of new hedge to access drive. Link: https://goo.gl/Py5tci Approved: 27 Jul 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2014/2380 Development of a ground mounted solar farm including associated infrastructure which includes inverters and transformers and a substation.	3.05km	Approved 11-Aug-15 2015/2392 Discharge of Conditions 4, 8, 9, 10, 11, 12, 13, 14, 17, 19 and 21 - Construction traffic management plan, private access road details, archaeology, ecology, surface water, noise and dust management, landscaping, tree protection and CCTV details. Link: https://goo.gl/WBNBRE Approved 05 Jan 2016 2016/2590 Non-material amendment - Various changes to approved application including fencing and gates, Inverter cabin and DNO station. Link: https://goo.gl/2QKVZF Approved 21 Nov 2016 2016/2893 Discharge of condition 17 - landscaping. Link: https://goo.gl/S6tWiX Approved 07 Mar 2017 2017/0004 Discharge of condition 21 - cctv details. Link: https://goo.gl/X1qrx1 Approved 25 Jan 2017 2017/2248 Non Material Amendment to allow changes to fencing, gate, DNO Substations and Inverter/Transformers. Link: https://goo.gl/VHeTF6 Approval with no Conditions 25 Oct 2017 2017/2234 Variation of Conditions 1 and 2 to allow extension of operational lifetime of the solar farm from 25 years to 30 years. Link: https://goo.gl/HCYFcg Pending Consideration as of 01/11/2017	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2012/0405/O Application for outline planning permission for mixed use development for community, residential and commercial uses and associated external works. A new electricty substation, new pumping station, SUDS (including pond) and open spaces are included in the proposal.	3.74km	Approved 10 Oct 2013	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/2326 Reserved matters for appearance, landscaping and layout for 60 dwellings and 2 commercial units with associated external works in relation to outline permission 2012/0405/O.	3.74km	Approved 01-Apr-16	High - Third party project details published in the public domain/planning portal.	See 2012/0405/O									
2012/0405 Application for outline planning permission for mixed use development for community, residential and commercial uses and associated external works. A new electricty substation, new pumping station, SUDS (including pond) and open spaces are included in the proposal.	3.74km	Approved 10-Oct-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/0713 Erection of 52 dwellings, open space and associated works (Full application)	3.5km	Refusal 20/09/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2013/1881 Proposed new residential development consisting of 10 no dwellings and 1 no office unit	7.72km	Approved 09-Jan-14 2014/0705 Variation of condition 2 -To substitute drawings 4820/051E & 061 with 4320/051G & 061A Link: https://goo.gl/Ktgi83 Approval with Conditions 02 Jul 2014	High - Third party project details published in the public domain/planning portal.	See 2013/0087									
2013/0087 Proposed new residential development consisting of 10 no dwellings and 1 no office unit	7.72km	Approved 20-Sep-13 2015/1181 Variation of Conditions 3 and 11 and removal of condition 15. Link: https://goo.gl/9j1Jxt Approval with Conditions 25 Sep 2015	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2014/2041 Demolition of piggery buildings and erection of 13 dwellings, extension and alterations to 49 High Green, alterations to 49a High Green and replacement outbuilding serving 49 and 49a High Green.	6.95km	Approved 16-Mar-16 2016/2840 Non Material Amendment - Changes to internal layouts, fenestration and a slight enlargement of the affordable dwellings (plots 1 and 2) to ensure compliance with national space standards. Provision of vehicle access for proposed pumping station subject of concurrent separate planning application. Link: https://goo.gl/oDzV2z Approval with no Conditions 25 Jan 2017 2017/0010 Discharge of Conditions 5 and 6- roads, footways, cycleways, foul and surface water drainage; 7 and 8 - street maintenance; 12 - construction period; 13 - construction workers site parking; 14 - wheel cleaning facilities; 16 - surface water drainage; 19 - Natural England licence for Ecology; 24 - predicted energy requirement; 32 and 33- planting and surface water drainage scheme. Link: https://goo.gl/76i2rN Pending Consideration as of 24/10/2017 2017/1128 Variation of condition 2 - rear extensions to plots 11 and 12. Link: https://goo.gl/DrokJc Approval with Conditions 20 Jun 2017 2017/1376 Discharge of conditions 3 - materials, 25 and 26 - hard and soft landscaping details, 30 and 31 - boundary treatment. Link: https://goo.gl/AVzBW8 Approved 29 Aug 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2013/2201 Residential development of 12 dwellings and garages, plus associated services. Maintained field access, New speed limit and village entrance signs.	6.83km	Approved 24-Apr-14 2015/0980 Variation of Conditions 2, 3 and 15 of permission 2013/2201/F to allow the addition of a front porch to house types A and B with variation to house type D, and the occupation of plots 9-12 prior to the off-site improvement works being carried out. Link: https://goo.gl/ckoCp1 Approval with Conditions 27 Jul 2015 2014/2144 Dischage of conditions 3, 4, 5, 6, 8, 9, 10, 14, 16,17, 19. Materials, levels, boundary treatment, hard and soft landscaping, drainage, contamination, site parking, off site highway improvements, traffic regulation order, plot 12 first floor bathroom glazing, tree protection plan. Link: https://goo.gl/8ns1Sn Approved 17 Dec 2014 2015/0205 Discharge of Condition 15A of planning permission 2013/2201 and 13A of planning permission 2015/0980 - Off-site Highway Improvement Works. Link: https://goo.gl/Lq5P8b Approved 06 Oct 2015 2015/0624 Non-Material Amendement to planning application 2013/2201 - reduction in floor area for House Type E, Plots 11 and 12. Link: https://goo.gl/BLV6r9 Approval with no Conditions 31 Mar 2015 2015/0701 Discharge of condition 19 of planning consent 2013/2201/F - landscaping. Link: https://goo.gl/XFCMZn Approved 07 May 2015 2015/2057 Part discharge of Condition 7 (for plots 9, 10, 11 and 12 only) of planning consent 2013/2201- Water Consumption. Link: https://goo.gl/5WA5rF Approved 18 Sep 2015 2015/2761 Discharge of condition 7 (for plots 1, 2, 3, 4, 5, 6, 7 & 8 only) of planning consent 2013/2201 - Water Consumption. Link: https://goo.gl/oyYy2h Approved 11 Dec 2015	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/1145 Erection of new building for research and development purposes with associated surface car park, cycle parking, landscaping and enclosed walkway	2.02km	Approved 17-Aug-12 2012/1928 Details required by conditions 7 (foul water and sewage disposal) and 8 (surface water drainage) Link: https://goo.gl/DXya7G Approved 15 May 2013 2012/2079 Details required by condition 6 (landscape details), Condition 12 (roads,cycleways and drainage) and condition 18 (travel plan). Link: https://goo.gl/Dk5rhh Approved 15 Mar 2013 2012/2307 Details required by conditions 9 Archaeological written scheme of investigation, 16 construction worker parking and 17 wheel washing. Link: https://goo.gl/9w1gxf Approved 23 Aug 2013 2013/0097 Discharge of condition 5 - Ecological mitigation. Link: https://goo.gl/v8ERSE Approved 23 Aug 2013 2013/0159 Discharge of condition 4 - tree protection. Link: https://goo.gl/T8KkWf Approved 23 Aug 2013 2017/0348 Variation of Condition 19 - Use Class of B1(b) (Erection of new building for research and development purposes with associated surface car park, cycle parking, landscaping and enclosed walkway) to include ancillary and complementary uses. Link: https://goo.gl/shqNNz Approved 27 Mar 2017	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2012/1269 Provision of a temporary 350 space car park for the Norfolk and Norwich Hospital	1.54km	Approved 19-Sep-12 2012/2055 Details required by conditions 5 landscape, 7 archaeological scheme, 10 travel plan, 13 wheel cleaning facilities, 14 zebra crossing link, 16 surface water drainage strategy. Link: https://goo.gl/Y2yTEr Approved 15 May 2013 2012/2023 Variation of condition 2 to amend the surface finish for the car parking bays by replacing drawing number 6838.A.500 I with drawing number 6828.A.500 K. Link: https://goo.gl/jbVWQD Approval with Conditions 31 May 2013	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2012/1477 Outline application for new offices and laboratories for research and development activities along with ancillary and complimentary uses with access from Colney Lane and Hethersett Lane and all other matters reserved. Demolition and reprovision of exisiting buildings. Associated car parking, infrastructure, internal access roads, landscaping and cycle parking.	1.84km	Approved 13-Jun-13 2013/1780 Discharge of Conditions 4,10,15,16,17,19,20,22,23,24 and 26 - Drainage Layout, kerb detailing, tree protection construction parking and general arrangement. Link: https://goo.gl/go5X8p Approved 26 Feb 2015 2013/2239 Discharge of Conditions 15,17,20 and 24 Tree protection, ecological management plan, archaeological scheme of investigation and construction worker parking details. Link: https://goo.gl/D6dJTB Approved 28 Jan 2014 2014/0030 Variation of Condition 3 - Amendment to wording of condition to read: f) Tree Removal Plan- (94) LP001- Rev C and to include i) Proposed Tree Planting Plan- (94) LP002. Approval with Conditions 11 Mar 2014 2014/0210 Discharge of conditions 18 & 19 - Floor space of demolished buildings & Joint phasing plan. Link: https://goo.gl/BdHJjV Approved 11 Apr 2014 2014/0442 Discharge of conditions 11, 16, 25 and 26 - External materials, construction environmental management plan, construction traffic management plan and access route and wheel cleaning. Link: https://goo.gl/hzom2v Approved 25 Apr 2014 2014/1564 Discharge of conditions 10, 11, 14, 15 & 17 - External lighting, materials, landscaping scheme, tree protection plan and ecology. Link: https://goo.gl/rhKJjT Approved 13 Nov 2014 2014/2098 Discharge of condition 13 - Landscaping & public realm details. Link: https://goo.gl/D4TFeJ Approved 13 Nov 2014	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	d	d	d	g
2012/1880 Proposed offices, laboratories and academic space for principally research and development activities, buildings for health and health related uses and buildings for further ancillary uses. Associated car parking, access, infrastructure, internal access roads and strategic landscaping	1.16km	Approval with Conditions 09 Apr 2013 2013/1110 Discharge of conditions 4,5,8,9,10,17,21,22,23 and 24. Link: https://goo.gl/7drXQA Approved 23 Aug 2013 2013/1295 Discharge of Condition 14 - Phasing Plan. Link: https://goo.gl/sqxHHe Approved 23 Aug 2013 2013/1381 Discharge of Condition 19 - Landscaping, surface and foul water drainage, maintenance building. Link: https://goo.gl/Z1CSk6 Approved 23 Aug 2013 2014/0223 Discharge of conditions 16 & 19 - Brick material, soft and hard landscaping. Link: https://goo.gl/qKcF81 Approved 03 Apr 2014 2014/1902 Discharge of condition 18 - Landscaping details. Link: https://goo.gl/CCYCpU Approved 18 Nov 2014 2015/2261 Discharge of Conditions 4 and 7 - surface water drainage and footway/cycleway phasing. Link: https://goo.gl/1HpXfn Approved 03 Feb 2016 2017/1277 Discharge of Condition 14 - Joint Phasing Plan for NRP North and South. Link: https://goo.gl/RZKfV3 Pending Consideration as 08/02/2018 2018/0070 Discharge of Conditions 8, 9, 10 and 22 - (8) - site parking for construction workers, (9) - construction traffic management plan and access route, (10) - wheel cleaning facilities for construction vehicles, (22) - Construction Environmental Management Plan. Link: https://goo.gl/o93SsY Pending Consideration as 08/02/2018	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	d	d	d	g
2016/2382 Reserved matters following 2012/1880/O - Construction of a four storey car park, internal access roads, two roundabouts and associated road works on Hethersett Lane.	1.41km	Approval with Conditions 21/03/2017	High - Third party project details published in the public domain/planning portal.	See 2012/1880									
2016/0233 New sports pitches (including an artificial grass pitch with fencing and floodlighting), re-profiling of existing pitches, infilling/re-profiling of area used as existing grounds maintenance facility; new pavilion/club house (GIA: 1306 sqm), incorporating a café, changing rooms, club room, bar and members lounge; associated new car/coach/cycle parking areas (168 car parking spaces and overflow parking for up to 60 cars, including 8 parking spaces for the disabled, 100 cycle spaces and 2 coach parking spaces); new freestanding grounds/sports equipment storage facility (GIA: 144 sqm) and associated compound; access road (utilising the existing access junction onto Colney Lane), new footpath/cycleways; extension of the existing Colney Lane car park (from 37 to 87 spaces and overflow parking for up to 24 cars); associated infrastructure (including utility equipment) and the temporary siting of a storage unit for sports/grounds equipment (for the period up to the opening of the grounds/sports equipment storage facility) at the UEA Sports Pitches, Colney Lane, Norwich	2.02km	Approval with Conditions 10/02/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2013/0554 Proposed reserved matters application to approved 2012/1880/O - Proposed Norwich Medical Research building, associated car parking and internal access roads, site infrastructure and on-site landscaping	1.7km	Approved 23-May-13 2014/0092 Non material amendment - Amendments to building elevations. Link: https://goo.gl/aQxjLR Approval with no Conditions 07 Feb 2014 2015/0576 Non-material amendment to previous planning permission 2013/0554/D from outline consent 2012/1880/O to amend 1) landscaping and 2) external signage on building. Approval with no Conditions 08 May 2015	High - Third party project details published in the public domain/planning portal.	See 2012/1880									
2013/0567 FULL application for 495 dwellings, associated infrastructure, open space and allotments and OUTLINE permission for reserve site for a single form entry school, small convenience store, sports pavilion including changing facilities, small meeting room, associated parking, demolition of 4 dwellings and associated farm buildings (Amended 27/01/14)	1.97km	Approved 30-Apr-14 2014/1481 Discharge of Conditions 6 and 18 (Ecology) 7,8,13,14.15,16 (Highways) 17 (Materials) 21, 22 (Landscaping) 12, 23, 24, 25, 26 (Water, Drainage and Waste) 27, 28 and (Archaeological Works) from planning permission 2013/0567. Link: https://goo.gl/H59Vai Approved 22 Dec 2016 2014/2623 Non material amendment to planning permission - To revise the phasing plans listed under condition 3. Link: https://goo.gl/NtYGh8 Approved 05 Feb 2015 2015/0604 Non material amendment - removal of 1 x tree for purpose of constructing footway. Link: https://goo.gl/D7duR2 Approved 27 Mar 2015 2015/0920 Non material amendment - replace/amend approved house plans for types H1959,H2174 and H2235. Link: https://goo.gl/hhN9fa Approved 28 May 2015 2016/2833 Discharge of conditions 9 - Street Management & Maintenance, 10 - Roads, footways & cycleways layout & 11 - roads, footways & cycleways surface (Northern Parcel only). Link: https://goo.gl/PzWxqi Pending Consideration as of 27/10/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/2511 The proposal consists of the construction of a new 1115 sqm (12,000sq ft) portal framed industrial/warehouse unit with associated vehicular parking and external works.	2.2km	Approved 16-Feb-15 2015/0883 Discharge of conditions 4, 5, 6, 8, 9, 11, 13, 14 and 15. Link: https://goo.gl/xac6cu Approved 24 Jul 2015	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2016/2430 Outline application with access and Landscaping (all other matters reserved) for 83 dwellings (including 27 affordable dwellings) with areas of public open space, sustainable drainage systems and associated infrastructure.	4.06km	Refusal 13 Dec 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/0570 Full application for the erection of 26 dwellings	2.05km	Approved 25-Aug-15 2016/2859 Non material amendment - Alteration of proposed brick, roof tiles and boarding colour as identified in material plan. Link: https://goo.gl/jqUyhv Approved 26 Jan 2017 2017/0709 Discharge of condition 4 - hard and soft landscaping, 5 - landscape management plan and 8 - surface water drainage of permission. Link: https://goo.gl/tyjvtm	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2009/1996 Proposed outline application for a residential development of 70 dwellings and associated works including a new access to the south	4.78km	Refusal 15 Aug 2011 Appeal allowed 31 Aug 2012	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/1440 Application seeks Reserved Matters approval for appearance, landscaping, layout and scale for 62 dwellings and associated works.	4.78km	Approved 06-Feb15 (outline apporved 2012/0269) 2015/1442 Discharge of condition 9 - Revised garage plots. Link: https://goo.gl/p9tYH8 Approved 02 Sep 2015 2015/1897 Discharge of conditions 2 - pumping station details, 3 - landscaping, 4 - boundary treatments, 6 car parking and 8 - Deed of Variation fo existing S106 Agreement. Link: https://goo.gl/Rs4A18 Approved 06 Nov 2015	High - Third party project details published in the public domain/planning portal.	See 2009/1996									

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2016/0402 Partial Re-plan on the northern parcel of previously approved planning consent ref 2013/0567/F. The replanned area covers the previously consented plots 1-5, 20-32, 79 & 84-86 and includes 36no. new build dwellings (including 5no. affordable dwellings) with associated landscaping and parking.	2.46km	Approved 02-Nov-16 2017/0329 Discharge of condition 3 - Predicted energy requirement. Link: https://goo.gl/qUdTbE Approved 10 Mar 2017 2017/0396 Discharge of conditions 8 & 9 - Approval of highway elements and foul and surface water drainage. Link: https://goo.gl/KtJw1n Approved 04 Apr 2017 2017/0400 Discharge of Condition 4 - Water Consumption Rate. Link: https://goo.gl/JXJkvH Approved 06 Apr 2017 2017/0406 Discharge of Condition 11 - Mineral Safeguarding and Management Plan. Link: https://goo.gl/rR2Vp6 Approved 06 Apr 2017	High - Third party project details published in the public domain/planning portal.	See 2013/0567								
2013/1723 Change of use of 18.8 acres of unmanaged land adjacent to Costessey Park Golf Club from agricultural to leisure. The course will be extended over this land, with the addition of 3 golf holes.	2.26km	Approved 13-Mar-14 2014/1442 Discharge of Conditions 3 Landscaping and 5 Ecology. Link: https://goo.gl/enYUHa Approved 19 Sep 2014	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/0648 Demolition of existing main school building and the construction of a new three storey Academy, separate sports hall building and associated works.	3.38km	Approved 22-Jun-12 (Completed) 2012/1301 Submission of details required by conditions 4,5,10,13,18 and 22. Link: https://goo.gl/kDFyEi Approved 29 Nov 2012	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2013/0881 Erection of 80 bedroom care home together with associated landscaping and parking provision.	2.05km	Approved 06-Aug-13 (Assummed Completed) 2013/2294 Discharge of conditions 3, 5, 10, 11, 13 & 14 - External materials, roads & footways, construction parking, archaeological works, surface water drainage & foul water drainage. Link: https://goo.gl/7Xg1vi Approved 22 Jul 2014 2014/1752 Discharge of conditions 3 - external finishes, 13 - surface water drainage, 14 - foul water drainage. Link: https://goo.gl/zh2w9m Approved 09 Dec 2014 2014/2196 Discharge of Conditions 6 and 7 - Roads, Footways Cycleways. Link: https://goo.gl/588aAf Approved 09 Dec 2014	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2012/0199 Community facilities, including Community Centre, playing fields and associated parking.	2.1km	Approved 28-Mar-12 (Development Completed) 2012/1352 Non material amendment - Omision of 1 double door and re-location of 2 double doors on south elevation. Amendment to fuel/bin store. Link: https://goo.gl/abTGBF Approved 22 Aug 2012 2012/2321 Details required by conditions 5 landscaping & 7 tree protection. Link: https://goo.gl/P7eDLw Approved 22 Feb 2013 2013/0074 Non material amendment - Amendments to roof finishes and layout and to eaves detail. Link: https://goo.gl/Gu9EbX Approved 04 Feb 2013 2013/1712 Discharge of Conditions 4, 6, 8, 9, 10, 11 & 12 - landscape, external lighting, condensing units. Link: https://goo.gl/mVNZ7M Approved: 04 Dec 2014	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2008/2347 Outline application for residential development (626 units) and associated infrastructure including open space and recreational woodland, site for Primary School, Community facilities and up to 1486sqm mixed use (A1, A2, A3, A4, A5) Neighbourhood Centre (revised Phase 2 - Round House Park)	1.89km	Approved 26 Jul 2010	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/1376 Proposal to build 106 new dwellings and associated garages, parking spaces, estate roads and open space	2.13km	Approved 15-Dec-15 2017/1024 Discharge of Condition 4 (External Lighting). Link: https://goo.gl/ydUsSR Approved 21 Jun 2017	High - Third party project details published in the public domain/planning portal.	See 2008/2347/O									
2014/1605 Construction of 15 flats and associated access and car parking.	2.11km	Approved 21-Nov-14 2015/0962 Discharge of conditions 2, 3, 6 and 9 - Landscaping, cycle store, materials and water calculator assessment. Link: https://goo.gl/A6jXGe Approved 04 Nov 2015 2015/2848 Discharge of condition 5 - External lighting. Link: https://goo.gl/WYXJ8r Approved 06 Jan 2016	High - Third party project details published in the public domain/planning portal.	See 2008/2347/O									
2014/1116 Proposed Neighbourhood Centre Retail Units (reserved matters for outline permission 2008/2347).	2.02km	Approved 18-Nov-14 2014/2584 Discharge of conditions 3 and 8 - External lighting and mini recycling area/refuse store/hard boundary treatments. Link: https://goo.gl/4b49MK Approved 24 Feb 2015	High - Third party project details published in the public domain/planning portal.	See 2008/2347/O									

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2014/1019 Construction of 58 new build dwellings, ancillary accomodation, infrastructure and landscape	1.89km	Approved 17-Nov-14	High - Third party project details published in the public domain/planning portal.	See 2008/2347/O									
2013/1793 Outline planning permission for a development for up to 650 dwellings together with a small local centre, primary school with early years facility, two new vehicular accesses off Colney Lane, associated on-site highways, pedestrian and cycle routes, public recreational open space, allotments, landscape planting and community woodland.	1.64km	Approved 20-Jul-16 2016/2695 Discharge of condition 32 - phase 2 Geo- Environmental Assessment Report, Condition 33 - Verification report of remediation strategy, Condition 34 - Contamination monitoring and maintenance plan. Link: https://goo.gl/hdaZUs Approved 30 Nov 2016 2016/2942 Discharge of condition 6 - design code report. Link: https://goo.gl/Y1w4ZQ Approved 02 Mar 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	d	d	d	g
2013/1523 Construction of 45 Dwellings, Associated Estate Road, Garaging and Car Parking	2.13km	Approved 01-Nov-13 2014/1251 Discharge of condition 4 - full details of information to be provided to prospective purchasers and legal mechanisms used to protect the structural landscape tree belt. Link: https://goo.gl/KvfgMg Approved 08 Aug 2014	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2013/0400 Development of parcel R4C, 27 dwellings, garaging and parking. Details of external appearance, access, landscaping, boundary treatment provided. The outline application/permission did require an EIA, which was submitted.	2.29km	Approved 07-May-13 2013/1850 Discharge of Conditions 3 and 6 - Materials and Boundary Treatment. Link: https://goo.gl/bdUK43 Approved 27 Jan 2014 2013/1956 Non Material Amendment - Substitution of house type of plot 2 to improve internal arrangement. Link: https://goo.gl/zmkqch Approval 15 Nov 2013 2014/1051 Variation of condition 2 - Change to layout of plot 44 amending the design of the housetype H141 Osbourne to a H137 Debden. Link: https://goo.gl/RJ2626 Approval with Conditions 25 Jul 2014	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2012/1766 Outline application for residential development (626 units) and associated infrastructure including open space and recreational woodland, site for Primary School, Community facilities and up to 1486sqm mixed use (A1, A2, A3, A4, A5) Neighbourhood Centre (revised Phase 2 - Round House Park) - discharge of conditions 5 (structural landscaping), 8 (play equipment) and 11 (tree protection).	2.0km	Approved 13-Feb-13 2013/1809 Non Material Amendment - Detailed layout plan and planting plan. Link: https://goo.gl/ahTGSt Approval with no Conditions 11 Feb 2014	High - Third party project details published in the public domain/planning portal.	See 2008/2347/O									
2012/1644 Outline Planning application for residential development and associated works including new access	1.79km	Approved 01-May-13	High - Third party project details published in the public domain/planning portal.	g	g	g	d	g	g	g	g	g	g
2012/1713 FULL Planning Permission and conservation area consent for 2 no dwellings along with OUTLINE permission for 12 no dwellings	1.84km	Approved 02-Jul-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/1456 Construction of 132 dwellings, associated estate roads, garaging, parking.	1.97km	Approved 11-Mar-13 2013/1764 Discharge of Conditions 3 & 5 - Materials and fence plan. Link: https://goo.gl/nsVRfD Approved 26 Nov 2013	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2012/0475 Proposed 37 new dwellings including link road	1.97km	Approved 16-May-12 2012/1135 Discharge of conditions 3 and 5. Link:https://goo.gl/a7PHwp Approved 19 Dec 2012	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2011/2058 Construction of 82 dwellings, associated estate roads, garaging, parking and landscaping.	1.95km	Approved 30-Apr-12 013/0510 Non material amendment - to change plots 59 to 61 from 3 bed units to 2 bed units with garages. Link: https://goo.gl/g6trP5 Approval with no Conditions 23 May 2013	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2013/0051 Proposal to create 92 houses and 13 residential apartments with 216 car parking spaces All buildings and ancillary structures on the North side of Alma Beck to be demolished with the original silk mill building to be retained and converted - THIS APPLICATION WILL BE DETERMINED BY THE BROADS AUTHORITY BA/2012/0005/FUL	16.5km	Approved 26-Jul-12 (Development Completed)	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2015/2867 Erection of 20 dwellings, mainly consisting of detached and semi-detached houses.	16.7km	Pending Consideration when checked on 28-Feb-18	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2014/2611 The erection of 890 dwellings; the creation of a village heart to feature an extended primary school, a new village hall, a retail store and areas of public open space; the relocation and increased capacity of the allotments; and associated infrastructure including public open space and highway works.	21m	Approved 01-Nov-16	High - Third party project details published in the public domain/planning portal.	d	d	d	d	d	d	d	d	d	g
2014/0290 Reserved Matters approval for 17 dwellings and associated external works (following planning permission 2011/0016/O)	9.6km	Approved 29-May-14 2014/2215 Discharge of conditions 3, 4 and 5 - Surface water, landscaping management plan and landscaping scheme details. Link: Approved 05 Feb 2015 2016/0269 Variation of condition 2 to change the boundary treatment on the east side of the site to a 1.8m timber fence (originally a 1.2m post and wire fence). Link: https://goo.gl/FnFQRM Approval with Conditions 05 Apr 2016	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/0432 Erection of new hospice for East Anglia's Children's Hospices (EACH). Proposed development of double and single storey accommodation for the children, therapy areas and staff areas. Entrance road to the site and car parking facilities. Grounds Compound.	4.44km	Approved 24-Jun-14 2015/0536 Discharge of conditions 7A, 8A, 9, 10, 11, 13, 14, 15, 16, 17A - Construction Management Plan and Access Route, Wheel Cleaning Facilities, works to be carried out as per tree survey & arboricultural impact assessment, new access constructed prior to commencement, proposed new planting, ecological management plan, proposed finish levels, materials, archaeological written scheme. Link: https://goo.gl/ogtKf3 Approved 05 May 2015 2016/0310 Variation of condition 9 - additional arboricultural works relating to footpath details. Link: https://goo.gl/Pmjrrq Approval with Conditions 31 Mar 2016 2017/2258 Non Material Amendment - Amendments to materials, landscape layouts, external elevations, main entrance canopy, roofing, and grounds compound building.	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2011/1284 Outline application for residential development of 100 dwellings and associated works including new access onto Pigot Lane.	4.3km	Approved 03 Sep 2012	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/1342 Submission of Reserved Matters for the construction of 100 dwellings including access, roads, open space, landscaping and associated works following outline planning permission 2011/1284/O	4.3km	Approved 12-Dec-14 2015/0762 Discharge of Condition 4, 5 and 7 - Surface Water Conveyance, Surface Water Drainage and Maintenance of Vegetation. Link: https://goo.gl/3QfM2b Pending Consideration as of 30/10/2017 2015/0760 Amendments to drawings/elevations under approved reserved matters planning application 2014/1342/D for the construction of 100 dwellings including access roads, open space landscaping and associated works following outline planning permission 2011/1284/O. Link: https://goo.gl/v3zXPd Approval with Conditions 07 May 2015	High - Third party project details published in the public domain/planning portal.	See 2011/1284								
2015/2536 Erection of 10 new dwellings and garages	13.3km	Approved 14-Jun-16 2016/1710 Variation of conditions to allow for phased implementation of scheme. Link: https://goo.gl/EY71tV Approval with Conditions: 21 Oct 2016	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2013/0105 Erection of 3 wind turbines with a maximum height of 126.5m and associated development for a period of 25 years, including control building, electricity transformers, underground cabling, access tracks, crane hard standing, new vehicular access, culvert and off-site highway works	7.36km	Appeal for Non Determination Appeal Dismissed 27-Oct-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2011/1804/O Residential led mixed use development of 1196 dwellings and associated uses including Primary School, Local Services (up to 1,850 sq. mtrs (GIA) of A1, A2, A3, A4, A5, D1 & B1 uses) comprising shops, small business units, community facilities/doctors' surgeries, sports pitches, recreational space, equipped areas of play and informal recreation spaces. Extension to Thickthorn Park and Ride including new dedicated slip road from A11.	0m	Approval with Conditions 22 Jul 2013 2014/0863 Non Material Amendment - Deletion of condition 32b footway/cycleway. Link: https://goo.gl/kHXUHc Approval with no Conditions 16 Sep 2014 2014/0860 Non Material Amendment - Alterations to condition 32 and 33. To delete condition 32 and substitute with 32a in regard to commencement of Phase 2 and 32b commencement of Phase 5, deletion of condition 33 and substitute 33a and 33b, 33a in regard to first occupation of Phase 2 and 33b first occupation of Phase 5. Link: https://goo.gl/RvM8PB Approval with no Conditions 16 Sep 2014 2015/1058 Discharge of condition 4 - design code for each phase of development. Link: https://goo.gl/9QUGpH Approved 12 Nov 2015 2015/1587 Discharge of condition 12 - Ecological Management Plan - Phase 1 only. Link: https://goo.gl/boEQSA Approved 15 Jan 2016 2015/1589 Discharge of Condition 27 - Street Lighting - Area A1-A only. Link: https://goo.gl/wcNW59 Approved 15 Jan 2016 2015/1577 Discharge of condition 20 - Reserved matters phased landscaping scheme - Area A1-A only. Link: https://goo.gl/W9AMS4 Approved 18 Feb 2016 2015/1918 Discharge of conditions 12 - Ecological Management Plan, 26 - Floor levels/boundary treatments & 27 - Lighting details, and part discharge of condition 20 - Hard/soft landscaping works for Phase One Persimmon Only. Link: https://goo.gl/vGfsWu Pending Consideration as of 08/02/2018 2016/0315 Discharge of conditions 5 - Open Space Phasing Plan, 7 - Surface Water Drainage Scheme, 9 - Foul Water Strategy, 13 - Road & Drainage Details, 21 - Tree/Hedge retention 22 - Tree Protection Plan and 23 - Contamination Investigation & Risk Assessment and 32a - Norwich Road/Colney Lane/Station Road crossroads (signals). Link: https://goo.gl/fTo6M7 Pending Consideration as of 08/02/2018	High - Third party project details published in the public domain/planning portal.	d	d	d	d	d	d	d	d	d	g
2015/1681 Reserved matters for appearance, layout, scale and landscaping of the first phase of development for 126 dwellings in relation to outline permission 2011/1804	386m	Approved 18-Feb-16 2017/2089 Structural landscaping for areas surrounding phases A1-B and B1-B within Phase 1. Link: https://goo.gl/cTHWBA Pending Consideration as of 01/11/2017	High - Third party project details published in the public domain/planning portal.	See 2011/1804/O									
2017/0151 Reserved matters following outline planning permission 2011/1804/O - proposed residential development (phase A1-B) comprising 91 dwellings including 20% affordable housing and associated open space and infrastructure.	117m	Approval with Conditions Wed 17 May 2017	High - Third party project details published in the public domain/planning portal.	See 2011/1804/O									
2015/1594 Residential development of 95no dwellings with associated open space and infrastructure.	267m	Approved 18-Dec-15 2016/0140 Discharge of conditions - 5 - water usage restrictions and 6 - arboricultural impact assessment. Link: https://goo.gl/GjWC1R Approved 16 Mar 2016 2016/0426 Discharge of condition 6 - materials and condition 22 - tree protection plan/arboricultural plan for Phase A1-A. Link: https://goo.gl/h3ZV3Y Approved 06 May 2016 2016/0974 Discharge of conditions 2 and 3 - Road, Footway, cycleway, foul and SW drainage details and Compliance with LPA and Highway Authority Specifications	High - Third party project details published in the public domain/planning portal.	See 2011/1804/O									
2012/1814 Proposed residential development of 158 dwellings and associated access, car parking and open space provision	1.24km	Approved 13-Jan-14 2014/0276 Discharge of conditions 4, 5, 8, 9, 10, 11, 15, 20 and 21 - foul drainage, highways details, construction operatives parking, wheel cleaning facilities, off-site highway improvement, tree protection, archaeology, construction management and materials. Link:https://goo.gl/x7QHXt Approved 04 Jul 2014 2014/1430 Discharge of conditions 3, 12, 13, 14, 17, 22, 23 & 24 - Surface water drainage, landscaping scheme, landscaping management plan, maintenance of amenity areas, fire hydrants, foot path details and construction traffic management plan. Link: https://goo.gl/XaiXpk Approved 4 Oct 2014 2014/1470 Variation of condition 2 - to replace approved site layout plan to permit the replan of approved plots 1-7 with 5 houses reducing the overall number of dwellings at the site to 156. Link: https://goo.gl/MCwHf4 Approval with Conditions 29 Oct 2014 2014/1471 Variation of condition 2 - amendment to the approved affordable housing layout plan and the re-plan of approved plots 1-7 with 5 houses reducing the overall number of dwellings at the site to 156. Link: https://goo.gl/CwGwMS Approval with Conditions 19 Dec 2014	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

Project	Shortest distance from Hornsea Three	Status of Development	Data Confidence	Geology and Ground Conditions	Hydrology and Flood Risk	Ecology and Nature Conservation	Landscape and Visual Resources	Historic Environment	Land Use and Recreation	Traffic and Transport	Noise and Vibration	Air Quality and Health	Socio-Economics
2012/1429 Residential development (Use Class C3) of 9 dwellings including 2 affordable homes, landscaping, associated access onto Low Road, and associated carriageway works to Low Road; and provision of a village green space adjacent to the Keswick Parish Room	1.1km	Approved 21-Mar-13 2014/0318 Discharge of conditions 3,4,8,16 and 19 - Materials, Boundary treatment, proposed levels, off site highway works and archaeological monitoring. Link: https://goo.gl/29UpZw Approved 14 Apr 2014 2015/0023 Non material amendment - Amendments to rear ground floor elevations to vary positions of patio doors/windows and insert of roof windows. Link: https://goo.gl/zvdvFW Approval with no Conditions 13 Mar 2015 2015/0092 Discharge of conditions 11, 12 and 21 - Surface Water Drainage, Highways & Drainage and Affordable Housing Agreement. Link: https://goo.gl/yiSVk4 Approved 17 Jul 2015	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2013/0101 Resubmission of planning permission 2012/1929/F- Construction of new sixth form building consisting offices, teaching space, foyer, multi use hall and associated spaces. Construction of external landscaping and associated external lighting	13.3km	Approved 05-Apr-13 2013/0145 Construction of new sixth form building (subject to separate application in connection with 2013/0101/F) which involves utilisation of existing kitchen garden wall on two sides and formation of new fire escapes in existing wall. Link: https://goo.gl/jYnNT7 Approval with Conditions 05 Apr 2013	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/2630 Residential Development for 8no. dwellings, car parking and amenity space including 2no. affordable dwellings which form part of planning reference 2015/0253	72m	Approved 30-Aug-16 016/2617 Discharge of Conditions 3, 4, 5, 8, 9 and 13 - Slab level and materials, boundary treatments, surface water drainage, tree protection plan, highway works and construction traffic management plan. Link: https://goo.gl/T7dYXf Approved 21 Mar 2017	High - Third party project details published in the public domain/planning portal.	See 2013/0086									
2015/1697 Erection of 27 dwellings, access, roads, open space, parking areas and associated works	312m	Approved 27-Jun-16 2017/0977 Variation of Condition 2 (Drawings) - Phased development proposed. Link: https://goo.gl/JBRmkN Approval with Conditions 07 Jun 2017	High - Third party project details published in the public domain/planning portal.	d	g	d	d	g	d	g	d	d	g
2013/0092 Outline application for up to 20 residential units and associated highways works with all matters reserved	7m	Approved 20-Mar-14 2015/1504 Discharge of condition 11 - Further site investigation report. Link: https://goo.gl/T8PQmh Approved 18 Aug 2015	High - Third party project details published in the public domain/planning portal.	d	d	d	d	g	d	g	d	d	g
2013/0086 Outline application including means of access for residential development and ancillary works	72m	Approved 30-Apr-14 2015/1233 Variation of conditions 3 - Off-site works & revised surface water drainage, 5 - revised drainage strategy & 11 - Highway Authority agreed adopted roadway. Link; https://goo.gl/YK3eME Approval with Conditions 26 Aug 2015	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2012/1836 Outline application for residential development (20 Dwellings) and associated infrastructure works, including highway improvement works at the Mill Road/School Lane/Burnthouse Lane junction	338m	Approved 29-Apr-14 2015/2510 Modification of S106 Agreement - Removal of Affordable Housing provision of 7 dwellings. Link: https://goo.gl/hW4jKq Approval with no Conditions 01 Dec 2015	High - Third party project details published in the public domain/planning portal.	d	g	d	d	g	d	g	d	d	g
2016/0853 Submission of Reserved Matters from outline planning permission ref 2013/1647/O for a residential development up to 200 dwellings - including appearance, scale, landscaping and layout.	13.6km	Approved 18-Jul-16 2016/2465 Discharge of conditions 3 - landscaping, 5 - energy statement, 7 - footpaths and 8 - details of roads. Link: https://goo.gl/H4XsBD Approved 13 Jul 2017 2017/2136 Non material amendment - Revisions to plots 1, 14-17, 21-22, 23-28,35-78, 88, 90, 93, 131, 162-163, 170 -177 and additional Broadband Fibre Cabinet added near to substation. Link: https://goo.gl/hjuNZb Approval with no Conditions 09 Oct 2017	High - Third party project details published in the public domain/planning portal.	See 2013/1647									
2013/1647 Outline planning permission is sought with all matters reserved except access to the site for: Residential development up to 200 dwellings, with access from George Lane and associated infrastructure and open space, including new roundabout junction at A146/George Lane.	13.6km	Approved 17-Apr-14 2016/2466 Discharge of conditions 2, 4, 6, 10, 11, 12, 13, 15(A and B), 16, 19, 20, 23, 24, 25, 29, 30, 32 and 33. Link: https://goo.gl/Y2C7o8 Approved 10 Aug 2017 2017/0516 Discharge of conditions 7 - Standard Estate Road, 14 - Consruction Traffic Management Plan, 21 - Materials Management Plan, 22 - Ecological Report and 26 - External Lighting. Link: https://goo.gl/2ZJiQk Approved 25 May 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2013/0265 Outline application for the demolition of Cygnet House and development of up to 50 residential units (class C3) and up to 800 square metres (class B1) floor space, together with associated highway works	9.21km	Approved 29-Apr-14 2014/2278 Variation of conditions 2, 3, 7, 8, 10, 11, 12, 14, 15, 16, 17, 20, 22, 23, 28, 30, 31 to enable demolition prior to commencement of development and variation of condition 29 to vary red line for alterations to access. Link: https://goo.gl/bENKRN Approval with Conditions 26 Jan 2015	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/1302 Erection of dual fuel Bio-mass energy and woodchip drying building (revised proposals following 2015/2240)	11.7km	Approved 05-Sep-16 2016/2319 Variation of condition 2 - amended boiler arrangement and fuel storage, changes to external building. Link: https://goo.gl/aeDuPP Approval with Conditions 16 Dec 2016	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2015/2240 Erection of energy building (dual fuel bio-mass) to provide heating and energy to poultry units.	11.7km	Approved 15-Dec-15	High - Third party project details published in the public domain/planning portal.	See 2016/1302									
2015/1221 Installation and operation of a solar farm and associated infrastructure, including photovoltaic panels, mounting frames, inverters, transformers, substations, communications building, fence and pole mounted security cameras, for the life of the solar farm.	2.41km	Approved 03-Sep-15 2015/2252 Discharge of conditions 4 (Part A), 5, 6 (Part A), 8, 9, 10, 13, 18, 19 and 20 (Part A). Link: https://goo.gl/RRrGYG Approved 09 Dec 2015 2016/0357 Variation of condition 1 - The development hereby permitted shall cease within 30 years of the development first beginning to generate energy, and all buildings, materials and equipment brought on to the land in connection with the development shall be removed within the timeframe agreed as part of condition 2. Link: https://goo.gl/F12Toh Approval with Conditions 21 Mar 2016 2016/0354 Discharge of condition 7 - Ecological mitigation details. Link: https://goo.gl/tXbe2t Approved 22 Mar 2016 2016/1473 Non Material amendment - amendments to built infrastructure. Link: https://goo.gl/JGfNoU Approval with no Conditions 17 Aug 2016	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2011/2093 Development of 180 dwellings (Use Class C3), access, allotments, public open space and associated infrastructure.	2.67km	Approved 03-Oct-13 2014/0487 Submission of Appearance, Scale, Landscaping and Layout. Link: https://goo.gl/P2pGfG Approval with Conditions 11 Jul 2014 2015/0063 Discharge of conditions 4, 5, 6, 7, 8, 10, 11, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24 and 25 - access, allotments, public open space and associated infrastructure. Link: https://goo.gl/2K8j58 Approved 25 Jun 2015 2015/2591 Discharge of Conditions 4, 5, 6, 7, 8, 11, 14, 15 and 19-25 - Roads/footways, on-site construction parking, construction traffic management plan, wheel cleaning facilities, off-site highway works. travel plan, surface water drainage, foul drainage, tree rpotection plan, landscape works, fire hydrants, levels, ecological mitigations, boundary treatments and phasing plan. Link: https://goo.gl/sj8TtL Pending Consideration as of 30/10/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/2388 Full planning application for up to 120 dwellings (Phase 2), senior recreation space, children's plays space and associated infrastructure.	3.81km	Approval with Conditions 12/05/2017 2017/1258 Discharge of conditions 3, 5, 7, 8, 9, 10, 11, 13, 15, 16 and 17. Link: https://goo.gl/vqRTH9 Approved 02/08/2017 2017/1811 Discharge of Condition 14. Link: https://goo.gl/zR4ZCu Approved 03/10/2017 2017/2187 Non Material Amendement application for change to roof materials. Link: https://goo.gl/Gp1dfi Approval with no Conditions 13 Nov 2017	High - Third party project details published in the public domain/planning portal.	See 2013/0505									
2016/1627 Erection of 19 dwellings with access and all other matters reserved	4.08km	Pending Decision (when checked on 28-Feb-18)	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2013/1393 Proposed Residential Development of 31 dwellings	4.19km	Approved 23-Oct-13	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2013/0505 Outline application for up to 100 dwellings with all matters reserved except for access on land to the west of Norwich Road and north of Stoke Road, Poringland, otherwise known as Heath farm, Poringland	3.81km	Approved 10-Apr-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/0732 Reserved Matters application for 150 dwellings and associated appearance. Approval is sought for appearance, landscaping, layout and scale.	3.76km	Approved 28-Jul-14 2014/2528 Discharge of condition 7 and 8 - tree protection plan and soft lanscaping. Link: https://goo.gl/2dPnTL Approved 20 Feb 2015 2015/0106 Discharge of conditions 2, 3, 4 & 5 - Drainage management plan, renewable energy supply details, proposed pumping station and boundary treatment/surface treatment of public footpaths. Link: https://goo.gl/JLxMmJ Approved 28 Feb 2017 2015/0371 Non material amendment. Approval is sought for appearance, landscaping, layout and scale. Link: https://goo.gl/oZDMM9 Approval with no Conditions 23 Mar 2015 2017/1906 Non Material Amendment - Amendments to Plots 35 and 36, gable elevations and side elevations changed to render. Link: https://goo.gl/Q5xfkp Approval with no Conditions 14 Sep 2017	High - Third party project details published in the public domain/planning portal.	See 2013/1986/O									

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2011/0476 Residential & Commercial (office) Development	4.56km	Approved 25 Jan 2013	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/0393 Reserved Matters application for 57 dwellings and 3539m2 (GIA) office accommodation, associated parking and green spaces	4.56km	Approved 27-Jun-14	High - Third party project details published in the public domain/planning portal.	See 2011/0476									
2014/0319 Residential layout including all house details and landscaping for next phase following planning permission 2011/0476/O	4.47km	Approved 25-Jul-14	High - Third party project details published in the public domain/planning portal.	See 2011/0476									
2013/1986 Outline application with all matters reserved except for access for the construction of up to 150 dwellings and associated infrastructure	3.76km	Approved 10-Apr-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/1888 Retrospective application to planning permission 2010/1332/F - Change of house type on plots 4, 5, 6, 7, 12, 29, 30, 39, 62, 63, 67, 120 & 121. Re-plan of plots 15-19 and associated garages	3.95km	Approved 07-Jan-13 (Development Completed)	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2015/2491 Demolition of existing buildings re-positioning of existing access, erection of 10 new dwellings and garages	15.9km	Approved 22-Apr-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/0184 Redevelopment of former employment land for residential development (up to 35 dwellings), access and associated works	19.3km	Approved 28-Jan-15	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/0530 Residential development of 120 dwellings with associated open space, attenuation lagoon, roundabout access and off site highways works	19.0km	Approved 17-May-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/2153 (i) Construction of 53 dwellings (including 17 affordable units), access road, parking, garaging, footpaths and cycle paths walling and fencing, landscaping, public open space and associated infrastructure (ii) change of use of former agricultural land to provide extended primary school grounds and construction of 1.8 m high perimeter fence, pedestrian access, and associated hard and soft landscaping	1.82km	Approval with Conditions 16/06/2017 2017/2162 Discharge of Conditions 5, 6, 7, 8, 9, 10, 12, 14 and 15. Link: https://goo.gl/39nNRE Pending Consideration as of 28/02/2018	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/2406 Outline application for 12 dwellings with new associated accesses.	3.14km	Approved 21-Jul-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2017/0616 Reserved matters application following 2015/2406/O - 12 dwellings.	3.14km	Approval with Conditions 12 Jun 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/1422 Reserved Matters for application 2014/2409/RVC - appearance and scale of houses, site layout and soft and hard landscaping	1.66km	Approved 29-Oct-15 2016/1349 Removal of condition 8 from planning application 2014/2409/RVC (Minimum garage size) - Superseded by reserved matters approval 2015/1422. Link: https://goo.gl/mYXSo3 Approval with Conditions 22 Jul 2016 2016/2792 Non material amendment - Plot 6 - garage length increased by 1.2m. Plot 1 - garage lowered by 400mm to reflect site levels. Plots 23/24 - changed from linked dwellings to fully detached dwellings and roof lights added to plots 1-6 and 19-24. Link: https://goo.gl/iZazoZ Approved 29 Dec 2016 2016/2949 Discharge of condition 3 - dormer window details. Link: https://goo.gl/5uwRhX Approved 09 Jan 2017 2017/0186 Variation of condition 1 - Amendments to Plots 7, 8, 9 & 10, rear single storey extension to Plots 8 & 9 and Plots 7 & 10 changed from two storey to single storey dwellings. Link: https://goo.gl/cjhfQN Approval with Conditions 14 Mar 2017 2017/1742 Variation of Condition 1 - Reserved Matters for application 2014/2409/RVC - appearance and scale of houses, site layout and soft and hard landscaping - to allow garages at Plots 2, 3, 19 and 22. Link: https://goo.gl/9yy5xN Approval with Conditions 20 Sep 2017	High - Third party project details published in the public domain/planning portal.	See 2013/0828								

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2013/0828 An outline application erection of 24 dwellings and associated vehicular access, allotments, public amenity land and community car parking.	1.66km	Approved 04-Apr-14 2014/2409 Variation of conditions 2 and 9 - To amend red line for access. Link: https://goo.gl/GhrHJW Approval with Conditions 02 Feb 2015 2016/2754 Discharge of conditions 4 - Road details, 9a - Highway improvement details, 10 - Traffic regulation order, 11 - Maintenance of streets, 12 - water surface and 13 - foul water disposal of permission 2014/2409. Link: https://goo.gl/aoCDfS Pending Consideration as of 17/11/2017	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2012/2034 New access to land adjacent to Long Lane, provision of 50 houses, road and car park	1.94km	Approved 03-Sep-13 2013/2209 Variation of condition 2 - Amended house type design and layout. Link: https://goo.gl/UzPVvr Approval with Conditions 01 Apr 2014	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
2014/0562 Installation of a solar PV array plus ancillary development	6.81km	Approved 24-Oct-14	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2014/1274 The proposed development is for a Warehouse facility and carparking	15.0km	Approved 25-Sep-14	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2014/0981 Outline planning permission for residential development, associated external works and amenity areas (with an area of land set aside for future primary school use).	4.22km	Approved 01-Dec-14 2017/2383 Discharge of Condition 8 (Design Code). Link: https://goo.gl/jN6tSN Approved 15 Nov 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/1041 Essential maintenance and refurbishment of sports hall and ancillary offices. Demolition of existing multi-use games area and construction of new multi-use games area, new access arrangements and external works.	4.22km	Approved 27-Jul-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/0805 Erection of 13 affordable houses and associated works	4.05km	Approved 16-Sep-16 2017/0289 Discharge of Conditions 4 - water consumption, 9 - landscape management plan, 10 - materials, 11 - materials management plan. Link: https://goo.gl/BGjVKV Approved 09 Mar 2017 2017/0964 Discharge of Condition 8 - surface water drainage. Link: https://goo.gl/ae8MmG Pending Decision as of 17/11/2017 2017/1995 Discharge of Conditions 12 and 13 - deed of variation to the existing S106 legal agreement and sample area of flint work. Link: https://goo.gl/Xjpht9 Approved 08 Sep 2017 2017/2000 Variation of condition 8 - to amend trigger for condition 8 relating to surface water. Link: https://goo.gl/DqiNMj Approval with Conditions 10 Nov 2017	High - Third party project details published in the public domain/planning portal.	See 2013/0463								
2016/0803 Submission of Reserved Matters pursuant to outline planning permission ref 2013/0463/O - appearance, scale, landscaping and layout: 85 no. dwellings and associated works	4.09km	Approved 16-Sep-16 2017/0288 Discharge of conditions 2 - ecological mitigation, 3 - water consumption rate, 4 - landscape management plan, 10 - materials management plan. Link: https://goo.gl/Y3Rb3S Approved 07 Apr 2017 2017/0963 Discharge of conditions 6 - external flintwork. Link: https://goo.gl/L5H6Qk Approved 29 Aug 2017 2017/1168 Removal of Condition 9 (requiring Traffic Regulation Order for school clearway). Link: https://goo.gl/RcNz1R Approval with Conditions 16 Aug 2017	High - Third party project details published in the public domain/planning portal.	See 2013/0463								

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2013/0463 Proposed development of up to 99 dwellings including a 1 ha site for new Primary School (revised application)	4.09km	Approved 29-Apr-14 2017/0287 Discharge of conditions 3 - materials, 4 - ecology, 10 - construction parking details, 11 - construction management plan and access route, 12 - wheel cleaning, 15 - archaeological scheme, 16 - landscape management plan, 17 - fire hydrant scheme. Link: https://goo.gl/gqvSEo Approved 21 Apr 2017 2017/0962 Discharge of conditions 5 - foul water and sewage disposal, 6 - surface water drainage details and 7 - roads, footways, cycleways, foul and water drainage. Link: https://goo.gl/gfLGWG Approved 03 Nov 2017 2017/1173 Discharge of Condition 13A (off-site highway improvements) - 30mph option. Link: https://goo.gl/RmJRBV Approved 25 Aug 2017 2017/1169 Removal of Condition 14 (requiring Traffic Regulation Order for White Horse Lane). Link: https://goo.gl/3xnNh5 Approval with Conditions 16 Aug 2017 2017/2627 Discharge of Conditions 4 (Foul Water and Sewage Disposal), 5 (Surface Water Drainage), 6 (Highway Engineering) and 7 (Binder Course Surface Details) of Permission 2017/1169 - Removal of condition 14 (requiring Traffic Regulation Order for White Horse Lane). Link: https://goo.gl/M49Qjp Pending Consideration as of 17/11/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/2337 Reserved matters (following outline planning permission 2013/1070/O) for the erection of 14 dwellings, seeking approval of access, appearance, scale, landscaping and layout.	8.16km	Approved 21-Sep-16	High - Third party project details published in the public domain/planning portal.	See 2013/1070									
2013/1070 Outline application for the erection of 14 residential units and car parking area on land adjacent to High Street, Wicklewood	8.16km	Approved 20-Mar-14	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2015/0804 Construction of a Digestate and Dirty Water Storage Reservoir of 13,640m3 capacity. Change of use from Agricultural field to reservoir.	6.66km	Approved 09-Jul-15	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/1142 Full application - Proposed crop-only biomass (anaerobic digestion) renewable energy facility (amended scheme to that approved under ref. 2012/2249).	6.64km	Approved 26-Sep-14	High - Third party project details published in the public domain/planning portal.	See 2012/2249									
2012/2249 Proposed crop only biomass (anaerobic digestion) renewable energy facility	6.5km	Approved 28-Mar-13	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2016/0466 Outline planning application with some matters reserved for 21 new residential units (with secondary access from Suckling Place for emergency use and for pedestrian / cycle access)	10.6km	Approval with Conditions 18/08/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/2449 Erection of 10 residential units (Class C3) with associated landscaping, drainage and highway works.	4.95km	Approved 12-Feb-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/1824 Proposed extension to Business Park for B1, B2, B8 and D1 uses	10.6km	Approved 06-Feb-15	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/1201 swilkinsonFULL planning permission for B1, B2, B8 category office industrial units on Wymondham Business Park with OUTLINE approvals sought for residential development of approx. 20 dwellings on land adjacent to London Road and additional B1,B2,B8 category industrial use for land adjacent to Chestnut Drive to further extend Wymondham Business Park	7.18km	Approved 21-Nov-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/1215 Proposed development of ground mounted solar photovoltaic panels and associated works including transformer substations, storage container, switchgear, DNO Cabin, access tracks, underground cabling, security measures and other ancillary equipment and landscaping	11.2km	Approved 03-Sep-15	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/2913 Installation of anaerobic digestion plant to produce biogas with two digesters, holding clamps, use of existing fuel tanks for digestate storage, gas compressor and cleaner and underground pipeline to gas grid	5.06km	Approved 28-Apr-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2011/0505 Proposed development to include up to 500 dwellings, Community facilities, site infrastructure including new access roads, public rights of way and drainage, green infrastructure including public open spaces and structural landscape planting.	6.32km	Approval with Conditions 06 Feb 2014 2015/1115 Discharge of condition 5 - Design code. Link: https://goo.gl/C4Z5E8 Approved 17 Sep 2015 2015/1725 Discharge of conditions 4 - Phasing Scheme, 7 - Green Infrastructure Management Plan, 10 - Foul Water Strategy and 11 - Surface Water Strategy. Link: https://goo.gl/ADT13u Approved 12 May 2016 2015/2480 Discharge of Condition 15 - Construction Environmental Management Plan. Link: https://goo.gl/jN45wx Approved 30 Dec 2015 2016/1026 | Discharge of Conditions 8, 9, 14 and 17 - Hard & Soft Landscaping, Archaeological Investigation, Water Usage and Roads, Footways, Cycleways etc. Link: https://goo.gl/23WRzV Pending Consideration as of 08/02/2018	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2015/1280 Phase 1 development for 10 dwellings including site Infrastructure, drainage and green infrastructure following outline planning permission 2011/0505.	6.78km	Approved 21-Dec-15	High - Third party project details published in the public domain/planning portal.	See 2011/0505/O									
2016/2586 Reserved Matters following Outline permission 2011/0505 - Appearance, Landscaping, Layout and Scale for 121 Dwellings	6.95km	Approval with Conditions 07/07/2017	High - Third party project details published in the public domain/planning portal.	See 2011/0505/O									
2016/2557 Reserved Matters following planning permission 2011/0505 - Public open spaces, green infrastrucutre and structural Landscaping	6.32km	Approval with Conditions 05/07/2017	High - Third party project details published in the public domain/planning portal.	See 2011/0505/O									
2015/2168 Reserved Matters for Phase 1 of development following planning consent 2012/0371 - Development of 153 Residential Dwellings, Access, Public Open Space and associated Infrastructure.	6.34km	Approved 06-May-16	High - Third party project details published in the public domain/planning portal.	See 2012/0371									
2014/1969 Reserved matters application (following outline planning permission 2012/0839/O) for residential development of 217 dwellings, including details of appearance, landscaping, layout and scale.	3.46km	Approved 13-May-15	High - Third party project details published in the public domain/planning portal.	See 2012/0839/O									
2012/0839 Proposed residential development (Class C3) up to 350 dwellings with associated access on Land at Carpenters Barn, Norwich Common, Wymondham. To include the infrastructure associated with the residential development, public open space and new vehicular and pedestrian access routes.	3.46km	Approved 25-Jun-12	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/0371 Mixed use development of up to 730 dwellings, up to 128 bed care home / homes (in one or two buildings), up to 250 square metres of retail / commercial floor space, a new primary school together with all other associated temporary and permanent infrastructure and green infrastructure, including new access arrangements, sports pitches, allotments and community orchard.	5.89km	Approved 06-Feb-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/2668 Outline planning permission for up to 61 homes. All matters other than means of access are reserved.	6.46km	Approval with Conditions 18/08/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/2424 30 residential dwellings (17 dwellings at Bunwell Road and 13 dwellings at Chapel Road), with associated open space, highways and landscaping works	10.5km	Approval with Conditions 16/06/2017 2017/2262 Discharge of conditions. Link: https://goo.gl/18Wq2q Pending Consideration as of 28/02/2018	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/2309 Proposed erection of 30 Bungalows of 'Retirement Living' (Category II Sheltered Housing) and associated parking, access and landscaping.	4.66km	Approval with Conditions 21/04/2017 Application (2017/1447) for ammendment to condition 8 of planning permission 2016/2309 - boundary treatment. Link: https://goo.gl/eixAy8 Approval with Conditions 21/09/2017 2017/1300 Non Material Amendment to allow plots 12, 13 and 16-19 to be fully detached. Link: https://goo.gl/7Y4ZPf Approved 22/06/2017 2017/1606 Discharge of conditions. Link: https://goo.gl/driN6w Pending Consideration as of 28/02/2018	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2016/2286 Reserved Matters relating to planning permission 2012/1716 (14 dwellings) - Access, appearance, scale, landscaping, layout and material details.	6.27km	Approval with Conditions 18/01/2017	High - Third party project details published in the public domain/planning portal.	See 2012/1716/O									

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2015/2380 Proposed development for 150 new dwellings including parking, garages, road infrastructure and green infrastructure.	6.45km	Approved 07-Apr-16	High - Third party project details published in the public domain/planning portal.	See 2011/0505/O									
2015/1760 Proposed development for 90 new dwellings including parking, garages, road infrastructure, drainage and green infrastructure.	6.55km	Approved 13-Jan-16	High - Third party project details published in the public domain/planning portal.	See 2011/0505/O									
2015/1649 Residential development of 129 dwellings with details for Appearance, Landscape, Layout and Scale.	6.59km	Approved 21-Dec-15	High - Third party project details published in the public domain/planning portal.	See 2011/0505/O									
2014/2472 Reserved matters approval for 13 dwellings at Chapel Road and 8 dwellings at Bunwell Road, following outline planning permission 2012/2016/O	9.77km	Approved 26-Jun-15	High - Third party project details published in the public domain/planning portal.	See 2012/2016/O									
2014/2042 Reserved matters application (following outline planning permission 2012/1385/O) for residential development - Access, appearance, landscaping, layout and scale.	4.19km	Approved 05-Jun-15	High - Third party project details published in the public domain/planning portal.	See 2012/1385/O									
2014/0618 Reserved matters application for 31 dwellings - appearance, landscaping, layout and scale (following planning permission 2012/1702/O)	5.42km	Approved 15-Aug-14	High - Third party project details published in the public domain/planning portal.	See 2012/1702/O									
2013/1533 Proposed residential development of 11 new dwellings- Site layout; design of dwellings including internal layout and elevations; indicative materials; indicative landscape treatment. (Assume materials and landscaping to be conditioned)	3.73km	Approved 01-Nov-13	High - Third party project details published in the public domain/planning portal.	See 2012/2202/O									
2012/2202 Proposed residential development of 11 new dwellings	3.73km	Approved 15-Jul-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/2016 Outline planning application for the development of land to the east of Chapel Road - 13 dwellings and land to the east of Bunwell Road - 20 dwellings	10.4km	Approved 11-Feb-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/1716 Outline application for construction of 14 dwellings	6.27km	Approved 02-Oct-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/1702 Outline planning application for residential development (37 dwellings) and associated works including new access	5.42km	Approved 23-Apr-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/1385 Outline application for residential development with all matters reserved	4.19km	Approved 30-Oct-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2012/1250 Request for Screening Opinion in respect of demolition of mill buildings and erection of 14 dwellings	6.27km	EIA 26-Jul-12	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2014/0411 Installation and operation of a solar farm and associated infrastructure, including photovoltaic panels, mounting frames, inverters, transformers, substations, communications building, fence and pole mounted security cameras, for the life of the solar farm (revised proposal).	7.22km	Approved 31-Aug-14	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
2017/1835 Outline Application for 32 no. dwellings with all matters reserved bar access.	3.81km	Refused 09 Nov 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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2014/1642 Outline application with all matters reserved except for access for demolition of existing buildings, residential redevelopment and ancillary works	976m	Refusal 12 Dec 2014 Appeal Allowed 29 January 2016	High - Third party project details published in the public domain/planning portal.	g	g	g	d	g	g	g	g	g	g
2017/2247 Reserved matters application for demolition of existing buildings, residential development of 38 dwellings and ancillary works following outline permission 2014/1642 for access, appearance, landscaping, layout and scale.	976m	Pending Consideration as of 28/02/2018	High - Third party project details published in the public domain/planning portal.	See 2014/1642									
2017/0662 Erection of 6 Insulated polytunnels	2.04km	Approval with Conditions 02 Jun 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2017/1197 Reserved Matters for multi-storey car park, internal access roads, landscaping and associated infrastructure on Hethersett Lane for access, appearance, landscaping, layout and scale, together with the discharge of conditions 4, 5, 19 and 21 relating to outline consent from 2012/1880	1.41km	Pending Consideration as of 28/02/2018	High - Third party project details published in the public domain/planning portal.	See 2012/1880									
2017/2131 Phased outline proposal for 15 Self/Custom Build Dwellings and Access	3.14km	Approval with Conditions 21 Feb 2018	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
2013/1494 Outline planning application with all matters reserved (save access) for the creation of up to 650 residential dwellings (use class C3), up to 2,500 sq mtrs of use class A1, A2, A3, A4, A5 and D1 floorspace, together with highways works, landscaping, public realm, car parking and other associated works.	1.21km	Refusal 23 Jul 2014 Appeal Allowed 7 January 2016 2017/0196 Variation of conditions 5, 6, 11, 28, 35, 36, 37 and 38 of permission 2013/1494 - to facilitate greater flexibility in the delivery of the scheme. Link: https://goo.gl/8BoqH2 Approval with Conditions 28 Apr 2017 2017/2120 | Variation of conditions 1, 3, 7, 10, 13, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 33, 36, 38, and 39 following application 2017/0196 - to facilitate the development coming forward on a phased basis. Link: Pending Consideration as of 01/11/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	d	d	d	g
2016/1303 Construction of a new field trials building with associated services yard and on-site parking and alterations to existing agricultural building	699m	Approval with Conditions 05 Sep 2016 2016/2215 Discharge of condition 9 - Written scheme of archaeological works. Link: https://goo.gl/qtsM7f Approved 01 Nov 2016 2016/2837 Variation of Condition 6 - Working Hours - 0700 - 2100 November to June, 0800 - 1800 Sat and Sundays, 0600 - 2300 July to October including weekends, Bank holidays as required within the above limits and Condition 8: revised Lighting Plan. Link: https://goo.gl/HwCTAu Approval with Conditions 09 Mar 2017 2016/2838 Discharge of Conditions 3 - materials, 4 - soft landscaping, 9 - archaeology, 10 - foul water drainage, 11 - surface water drainage, 12 - SBEM Energy Report. Link: https://goo.gl/i8qboi Approved 22 Feb 2017	High - Third party project details published in the public domain/planning portal.	g	g	d	g	g	d	g	g	g	g
Broadland District Council													
20151644 Demolition of 4 Existing Units and Development of 10 Residential Units, Together with Associated Access (Outline)	310m	Approved 10/06/2016	High - Third party project details published in the public domain/planning portal.	g	g	d	d	g	g	g	d	d	g
20140883 Proposed Dual Carriageway between A1067 Fakenham Road Nr Attlebridge & A47 Trunk Road, Postwick (NDR)	1.93km	Approved by SOS on 29/06/2015 Observation (ref: 20151419) made on the discharge of condition 24/09/2015	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	d	d	d	h
20120697 Erection of 27 dwellings and a new village hall with associated new vehicular accesses, car parking and landscaping	2.05km	Approved 30/04/2013	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b

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20131702 Installation of Ground Mounted Photovoltaic (PV) Solar Arrays to Provide 5MW Generation Capacity Together with Transformer Stations; Landscaping; Security Fencing; Access Gate; and Ancillary Infrastructure	1.25km	Approved 04/03/2014	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
20121337 Development of a 9MW Solar Farm	2.61km	Approved 06/11/2012	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
20121604 Hybrid Planning Application for (1) Outline Planning Permission for the redevelopment of village hall site for residential development (39 dwellings) and erection of new replacement village hall on adjacent playing field site and (2) Full Planning Permission for the change of use of agricultural land to recreational land/playing field	15.4km	Approved 14/06/2013	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
20151659 Hybrid Application for 1) Residential Development comprising of 10 Detached Dwellings (Outline) and 2) New Community Hall, Allotments, Associated Parking & New Access (Full)	13.9km	Approved 31/03/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
20110128 1. Proposed Football Club and Community Facilities comprising Clubhouse, Sports Field, Vehicle Access, Car Parking, Pedestrian and Cycle Access, Flood Lighting and Soft Landscaping (Full Application) 2. Residential Development Including Landscaping and Water Treatment Plant and Vehicular/Pedestrian/Cyclist Access (Outline)	3.54km	Approved 19-06-2012	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
20150659 Amendment to Reserved Matters Approval 20130680 - Alterations to Layout & Design of 47 Dwellings	3.54km	Approved 28/04/2015	High - Third party project details published in the public domain/planning portal.	See 20110128									
20140630 Erection of Anaerobic Digestion Plant Including Alterations to Banningham Road / A140 Junction, Landscaping & Other Associated Infrastructure	5.94km	Allowed at Appeal 20/10/2015	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
20111453 Development of up to 300 Dwellings, Access, public open space, allotments and associated infrastructure and provision of a car park and enclosure of land for education and recreational purposes as part of the transfer of land to Aylsham High School (Revised Proposal)	5.33km	Approval 18-02-2013	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
20140298 Development of up to 300 Dwellings, Access, Public Open Space, Allotments & Associated Infrastructure & Provision of a Car Park & Enclosure of Land for Education & Recreational Purposes as Part of the Transfer of Land to Aylsham High School (Reserved Matters)	5.33km	Approved 20/05/2014 Subsequent NMA applications ref: 20151805 and 20151262, approved 2015	High - Third party project details published in the public domain/planning portal.	See 20111453									

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20130715 Demolition of Former Care Home and Erection of 22 No. Residential Dwellings (Outline)	5.38km	Approved 18/11/2013	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
20162071 Screening Opinion - Up to 170 Dwellings including means of access and formal and informal open space	11.9km	EIA Screening 13/01/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
20161483 Proposed Development of a retail supermarket of no more than 2500 sq. m, up to 192 dwellings, open space and vehicular access (Outline)	11.7km	Undecided Awaiting Decision as at 19/10//2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
20121638 Erection of 150 Dwellings, Vehicular Access, Open Space and Associated Works	11.3km	Approved 28/06/2013	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
20121737 Erection of 150 Dwellings, Vehicular Access, Open Space & Associated Works - Screening Opinion	11.3km	EIA 21/12/2012	High - Third party project details published in the public domain/planning portal.	See 20121638									
20170052 Greater Norwich Food Enterprise Zone	303m	Full Approval 31-10-2017	High - Third party project details published in the public domain/planning portal.	d	g	d	d	g	g	g	d	d	g
20170789 Erection of Grain Store (Revised Proposal)	55m	Full Approval 19-07-2017	High - Third party project details published in the public domain/planning portal.	d	d	d	d	d	d	g	d	d	g
Norwich City Council													
12/01943/F Demolition of existing site buildings and redevelopment of former garage site and shop with 13 new flats and a replacement shop.	3.5km	Approved 07-Feb-13	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b

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15/00663/F 20 No. student dwellings comprising 70 bedrooms.	3.84km	Approved 21-Dec-15	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
12/00703/O Redevelopment of site with up to 1000 homes, including affordable housing, care home, a new village centre including at least one local shop, public open space and associated roads and infrastructure.	2.93km	Outline Approved 08-Jul-13 15/00298/RM approved 09-Jun15 14/00874/RM approved 10-Sep-14 13/02031/RM approved 14-Mar-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/01646/F Erection of 62 age restricted retirement (including affordable) apartments (class C3), assisted living extra care accommodation (class C2), access, car parking, landscaping and ancillary development (revised proposals: Revisions include omission of vehicle access point, reduction in height of some buildings, new footpath links).	2.52km	Aproved 13-Dec-16 17/00074/D Details of Condition 3: Materials, Condition 5: Landscaping, Condition 7: External lighting, Condition 10: Tree protection and Condition 16: Written scheme of investigation. Link: https://goo.gl/9k7JLF Approved 23 Jun 2017 17/00552/NMA Amendments to planning permission 15/01646/F including changes to windows, balconies and additional living unit in place of well-being room. Link: https://goo.gl/suHJh2 Approved 04 May 2017 17/00796/D Details of Condition 14: fire hydrants. Link: https://goo.gl/14St21 Approved 21 Jul 2017 17/01807/D Details of Condition 4: vehicular, pedestrian and cyclist access; Condition 6: drainage and Condition 8: visitor bicycle parking. Link: https://goo.gl/LTcB8C Awaiting decision as of 17/11/2017	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
16/00689/F Special Educational Needs (SEN) School with associated landscaping and car parking.	3.18km	Approved 04-Aug-16 16/01238/D Approved 27/03/2017 16/01444/D Approved 23/08/2017 16/01441/D Approved 05/07/2017	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
13/00870/F Change of use of industrial premises (Class B1/B2/B8) to 600 pupil University Technical College (Class D1); proposed tower and window extensions, alterations to building exterior; changes to external site layout; erection of bus and cycle facilities and 2.4m security fencing and pedestrian gate to parts of site boundaries.	1.6km	Approved 23-Aug-13 13/01963/VC Variation of proposed highways works required by conditions 6 (a), 6 (c), 6 (d), 6 (e), and 7 (b). Link: https://goo.gl/qnVDVQ Approved 14 Feb 2014 14/00951/VC Variation of condition 9 of previous planning permissions 13/00870/F and 13/01963/VC to reduce the extent of photovoltaic panels required and instead provide both photovoltaic panels and air source heat pumps to meet the required target of on-site renewable energy. Link: https://goo.gl/QxTTDJ Approved 23 Sep 2014	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
15/00695/F Demolition of existing single storey bungalows and erection two storey building containing 15 assisted living flats.	4.3km	Approved 25-Aug-15 16/00337/VC Variation of Condition 2 and 8 to omit solar thermal and photovoltaic cells from the development . Link: https://goo.gl/mHrzj1 Approved 22 Jun 2016	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
12/01885/O Outline application to redevelop site to provide 75 No. dwellings (50 No. market, 25 No. Housing Association including mobility accessible dwellings) along with new public allotments, children's playground and five-a-side football pitch.	4.01km	Refused 01 Mar 2013 Appeal allowed 21 October 2013	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
14/01496/RM Reserved matters of appearance, landscaping, layout and scale of planning permission 12/01885/O 'Outline application to redevelop site to provide 75 No. dwellings (50 No. market, 25 No. Housing Association including mobility accessible dwellings) along with new public allotments, children's playground and five-a-side football pitch' (allowed at appeal ref: APP/G2625/A/13/2195084) (Revised proposal).	4.01km	12/01885/O approved 21-Oct-13 (Appeal Allowed) 14/01496/RM approved 08-May-15 14/01698/D approved 04-Feb-15 15/01471/D approved 29-Sep-15	High - Third party project details published in the public domain/planning portal.	See 12/01885/O									

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15/01314/F Redevelopment of part of existing retail car park to provide a retail foodstore, reconfigured car parking and associated landscaping works.	3.12km	Approved 23-Dec-15 16/00459/D Details of Condition 3 (a): materials; Condition 3 (b): lighting scheme (excluding cycle link area); Condition 4 (d to i): hard landscaping; Condition 6 (a): surfacing for car and motorcycle parking areas; Condition 6 (b): cycle storage and parking; Condition 21: dock leveller shroud and buffer; Condition 24 (a): surface water drainage scheme; and Condition 25: brief for contamination. Link: https://goo.gl/fthwCX Approved 12 Aug 2016 16/00661/D Details of Condition 4: (a), (b), (c), (j), (k) and (l) existing landscape features and proposed soft landscaping. Link: https://goo.gl/ck5hb8 Approved 01 Jul 2016 16/01064/D Details of Condition 9: Construction Method Statement and Condition 10: Interim Travel Plan. Link: https://goo.gl/2pMiK3 Approved 16 Sep 2016 16/01094/NMA Amendment to allow alterations to internal and external plans. Link: https://goo.gl/s717cM Approved 12 Aug 2016 16/01135/D Details of Condition 6: Waste and recycling storage, Condition 12: Extraction equipment, Condition 13: Plant and machinery, Condition 14: Energy generation scheme, Condition 15: Water conservation measures, and Condition 24 (b-d): Surface water drainage. Link: https://goo.gl/oPZCZ8 Part approved / Part refused 02 Feb 2017 16/01743/D Details of Condition 3 (b) external lighting (cycle link area), Condition 7 highway works, Condition 8 cycle link, and Condition 24 (a - b) sustainable urban drainage system (cycle link area). Link: https://goo.gl/3sMKBC Approved 02 Feb 2017 17/00256/D Details of Condition 4(m): implementation programme for completion of landscaping works; Condition 4(n): landscape management plan; Condition 12: extract ventilation / fume extraction system; Condition 13: plant / machinery; and Condition 14: renewable energy sources using mechanical ventilation heat recovery units. Link: https://goo.gl/CZWxmW Approved: 02 May 2017	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
12/02003/F Demolition of existing buildings and redevelopment of site to provide a new district centre to include a food store, customer cafe, retail units (Class A1, A2, A3 or A5), community use, restaurant/public house unit, business units (Classes B1 and B8), gym, car parking, public realm and associated access and servicing.	2.59km	Approved 03-Jul-13 14/00723/D Details of Condition 4) timescale for delivery of the family pub/restaurant. Link: https://goo.gl/HGxBtc Approved 04 Jul 2014 14/00818/VC Variation of conditions to allow for minor material amendments to the design and layout of the food store (including the service area to the rear) and retail units, revisions to the layout of the car park and service access, revisions to landscaping, a new electrical sub-station. Variations to conditions to allow for a revised comparison and convenience floorspace ratio in the food store and to revise the energy efficiency scheme. Variations to the S106 agreement to remove community use provisions for the use of the Gym. Link: https://goo.gl/SdP2ch Approved 17 Sep 2014 14/01145/D Details of Condition 28) construction management plan, Condition 29) wheel cleaning facilities, Condition 34) measures to control emission of dirt/dust during construction, Condition 37) scheme to deal with risks associated with contamination, Condition 40) surface water pollution control and Condition 41) surface water drainage scheme. Link: https://goo.gl/NJrjBK Approved 26 Nov 2014 14/01691/VC | Variation of conditions to previous planning permissions 12/02003/F and 14/00818/VC to allow for minor material alterations to the format of the gym and location of home shopping pod along with revisions to the layout of the car park, service area and landscaping. Link: https://goo.gl/YHxy2A Approved 02 Feb 2015	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	a	a	b
14/01103/F External alteration, partial demolition and extension of riverside and Duke Street buildings to provide 29 dwellings. Demolition of central and warehouse buildings to provide redevelopment for 56 dwellings, extension of basement car park, creation of 464sqm of flexible commercial floorspace (Class A2/A3/B1(a)), associated highway and landscape works, pontoon and floating landscape platforms. (Amended description and plans/supporting documents).	5.29km	Approved 12-Jan-15 15/00255/D approved 12-Mar-15 15/00262/D approved 24-Mar-15 15/00292/D approved 23-Apr-15 15/01866/NMA approved 08-Jan-16	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	g	a	a	h
13/00334/F Change of use from B1 and B8 uses in separate parts of building to allow a range of uses within B1 (light industry and offices), B2 (manufacturing and general industry, vehicle servicing, repair and MOT testing), B8 (warehousing and distribution), vehicle sales and display (Sui Generis) and the distribution, sale and/or fitting of general vehicle parts and accessories (Sui Generis), and including trade counters and associated ancillary sales. Refurbishment of front of buildings and rearrangement of front forecourt area to provide a total of 76 car parking spaces and landscaping. (Revised description).	5.83km	Approved 23-Aug-13	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	g	b	b	b
16/00790/F Construction of a 244 student bedroom development with management facilities and amenities; flexible office/business space with independent access, and associated landscaped courtyard (revised).	4.7km	Approved 28-Oct-16 16/01949/D awaiting Decision	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	a	a	g

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15/01527/F Demolition of remaining industrial units and erection of a terrace of 7 No. dwellings to the south, a block of 12 No. flats to the west and either a terrace of 8 No. dwellings or 18 No. flats associated with the Norfolk & Norwich Association for the Blind.	6.06km	Approved 25/05/2017 17/01001/D Details of Conditions. Link: https://goo.gl/LtQ6tT Approved 08/08/2017 17/01174/D Details of Conditions. Link: https://goo.gl/oJiRrd Approved 22/09/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/00916/F Change of use of ground, first, second and third floors of Riverside building, first, second and third floors of No. 8 Duke Street, and first and second floors of No. 6 Duke Street to provide 69 residential units.	5.29km	Approved 03-Dec-15	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/00272/F Redevelopment of site to provide 105 dwellings with associated access, landscaping and amenity spaces.	5.36km	Approved 11-Feb-16	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
14/00911/F Demolition of the building known as The Chapel, and erection of four storey (1,080sqm) 80-114 seat auditorium and performance venue with education and skills training centre for the theatre (sui generis mixed use), with ancillary workshop, storage and office space.	4.81km	Approved 07-Oct-14 15/00895/NMA Non-Material Amendment - adjustment of the ownership boundary and red line. Link: https://goo.gl/xRFtrc Approved 24 Jul 2015 15/01412/VC Material amendment consisting of alterations to internal layout, change of materials and reduction in extent of photovoltaic panels. Link: https://goo.gl/cHuvPt Approved 04 Feb 2016	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
14/00184/F Demolition of former Infant School and redevelopment of site to provide a 60 bed care home for the elderly and dementia care (Class C2).	5.16km	Approved 19-May-14	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
13/00970/F Demolition of 52 and 54 All Saints Green. Redevelopment of site and erection of 228 bedroom student accommodation with associated management facilities and amenities. Conversion of 50 All Saints Green to allow a range of commercial uses (A1, A2, A3, B1, D1 and D2 Use Classes). Associated landscaping, public courtyard and car parking.	4.54km	Approved 20-Sep-13 13/01921/D Details of condition 17 - design of substation. Link: https://goo.gl/TaeF1g Approved 14 Feb 2014 14/00097/D Details of Condition 12: Archaeological Written Scheme of Investigation (a) site investigation and recording; (b) post investigation assessment; (c) analysis of site investigation and recording; (d) publication of analysis; (e) archive of analysis and records; (f) nomination of person(s) to undertake work. Link: https://goo.gl/tMSQMR Approved 06 Jul 2015 14/00136/D Details of Condition 4: Travel management plan relating to D1 or D2 Use Class activities within 50 All Saints Green. Link: https://goo.gl/ceg9QJ Approved 14 Aug 2014 14/00146/D Details of Condition 15: Fire hydrant provision. Link: https://goo.gl/Z2dWrB Approved 30 Jan 2014 14/00919/NMA Non-Material Amendment to windows, string course, siting of building and ventilation grilles and louvers. Link: https://goo.gl/Hczhqp Approved 25 Jul 2014 14/01014/D Details of: Condition 16 - materials (a) bricks; (b) mortar; (c) fenestration and window styles and profiles; (d) roofing; (e) rainwater goods, eaves and verges and (f) opaque glazing / screening; Condition 18: acoustic protection; and, Condition 27: external lighting. Link: https://goo.gl/TTCF2V Approved 03 Mar 2015 14/01075/D Details of Condition 7: Demolition of 52-54 All Saints Green linked to refurbishment of 50 All Saints Green and creation of pocket park. Link: https://goo.gl/h7H368 Approved 16 Sep 2014	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
13/00113/F Change of use of Fire Station (Class Sui Generis) to 2,900 sq.m. GIA Sixth Form Free School (Class D1) with conversion works including external alterations and including new vertical external extension to provide new staircase and lift core and elevated corridors within proposed atrium and a new glazed infill extension beneath existing canopy. New landscaping to inner courtyard and building frontage on Bethel Street to include reinstating public footpath and providing street trees.	4.98km	Approved 12-Jul-13	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b

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12/00276/F Westlegate House, 14 - 18 Westlegate: Demolition of part of existing A3 restaurant use (128sqm) and new extension (75sqm) at ground and first floor level. Demolition of existing club building and internal car park to the rear of Westlegate House and redevelopment with new car park structure containing 20 No. car parking spaces with access from Lion & Castle Yard and erection of 1 No. 2 storey, 3 bedroom C3 residential dwelling above. Change of use of B1 offices over floors 2 to 10 inclusive (1551sqm) of Westlegate House tower to 11 C3 residential flatted dwellings (8 No. 3 bedroom, 3 No. 2 bedroom). Addition of 2.5 storeys to tower building to form 2 No. 3 bed C3 residential flatted dwellings. 20 Westlegate: Demolition of rear extension and erection of new extension to existing A3 restaurant/café at ground and first floor level to form an additional 85sqm of restaurant/café floorspace. Change of use of 37sqm of first floor A1 retail floorspace (hairdressers) to A3 restaurant/café use to be used on conjunction with the ground floor use. Replacement of 2 No. timber shopfronts. Timberhill: Erection of building fronting onto Timberhill to reinstate frontage at numbers 27 - 29 to include A1 retail unit at ground and part first floor (233sqm) and 3 No. 2 bedroom C3 flatted dwellings at part first and second floor level. Land to rear of numbers 27 - 29 Timberhill: Erection of 2 No. 3 storey, 3 bedroom C3 residential townhouses at Lion & Castle Yard. Public Realm Improvements: New pedestrian link to be formed between Westlegate and Timberhill via Lion and Castle Yard with new surface treatment, stepped and ramped accesses and landscaping.	4.85km	Approved 24-Jul-12 13/00046/D approved 04-Dec-13 14/00341/MA approved 18-Jul-14 14/01058/D approved 16-Oct-14	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
16/00699/F Demolition of existing showroom and construction of 37 No. apartments.	5.52km	Approved 22/02/2017 17/00436/D Details of Condition 11(a). Link: https://goo.gl/MjRM9M Approved 24/04/2017 17/00901/MA Amendment to planning permission to demolish and replace existing boundary walls. Link: https://goo.gl/wjFPY3 Approved 29/09/2017 17/00919/D Details of Condition 7. Link: https://goo.gl/Jh2ajj Awaiting decision as of 20/10/2017 17/00923/D Details of Condition 4. Link: https://goo.gl/1VrSq3 Awaiting decision as of 28/02/2018	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
16/00456/F Demolition of former Norwich Telephone Repeater Station and redevelopment of site to provide 42 dwellings with associated amenity areas, car and cycle parking and pedestrian and vehicular access (Revised).	5.38km	Approved 26/03/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
16/00281/F Redevelopment of Castle House to create 25 No. dwellings including refurbishment of facades, infill section facing Arcade street, alterations to fourth floor and creation of 2 No. dwellings. Retail (Class A1) units at lower and ground floor to remain unchanged.	5.07km	Approved 17-Aug-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/00245/O Outline application for demolition of existing buildings and erection of 27 flats and houses including means of access only.	5.88km	Approved 28-Jul-15	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
12/00143/ET Extension of time period for the commencement of development for previous planning permission 08/00866/F 'Redevelopment of site to provide 47 No. apartments and 10 No. houses with associated works including enhancement of external areas and provision of formal parking areas. (Amended Design)'.	5.57km	Approved 21-Dec-12	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/01928/F Demolition of modern extensions and conversion to provide 20 residential units (class C3).	4.55km	Refused 21//07/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/01337/F Change of use to residential (Class C3), with alterations and additions to the building to provide 84 flats.	5.37km	Approved 31-Mar-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
14/01521/F Demolition of buildings on site and erection of 595 space multi-storey car park with 320sqm floorspace for financial and professional services (Class A2)/restaurant and cafe (Class A3)/business (Class B1) uses.	5.23km	Approved 16-Jan-15	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b

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15/01927/O Outline application with all matters reserved for the erection of up to 200 dwellings, together with public open space and up to 127 car parking spaces for B1 office use and 150 residential parking spaces.	6.05km	Approved 12-Aug-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/01092/F Redevelopment of site to provide one office (Class B1/A2) unit at ground floor, 26 apartments on upper floors with associated infrastructure and access (revised scheme).	5.24km	Approved 17-Aug-16	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
13/01639/MA Amendments to the massing, designs and increased floorspace to 7th storey within Blocks 3 and 4, and changes to ground floor layouts of all Blocks 1 - 6, of the NR1 development, as alterations to existing planning permission 10/01107/RM 'Reserved Matters for the access, appearance, landscaping, layout and scale of the second phase of the residential development (174 residential units) for outline planning permission 4/2002/1281/O 'Replacement of South Stand (8000 seats), new corner stand (1500 seats), hotel, decked car park and residential development with associated highway works.'	4.78km	Approved 07-Mar-14 10/01107/RM approved 05-Oct-12	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
11/02104/O Outline application with full details of access for residential-led development of between 200 and 250 No. residential flats (Use Class C3) and 140 car parking spaces with commercial office space (Class B1a), groundsman's facilities (Class B8), community uses (Class D1/D2) and associated works including Riverside Walk and access road.	4.84km	Approved 28 Jun 2013	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
13/01270/RM Reserved Matters with full details of external appearance, landscape, layout and scale of development, to provide 250 No. residential flats (Class C3), 113sqm offices (Class B1a), 279sqm groundsman's facilities (Class B8), and 401sqm of flexible office space (Class B1a) and community uses (Class D1/D2) with 126 No. parking spaces, associated highways works and provision of a Riverside Walk, consequent to previous outline planning permission 11/02104/O 'Outline application with full details of access for residential-led development of between 200 and 250 No. residential flats (Class C3) and 140 No. car parking spaces with commercial office space (Class B1a), groundsman's facilities (Class B8), community uses (Class D1/D2) and associated works including Riverside Walk and access road'. The proposals include details for approval of Conditions 1(a), 1(b), 2(b), 3, 4(a), 4(b), 4(c), 5, 6, 7, 8(a), 8(b), 12, 20, 22(a), 22(b), 22(c), 22(e), 25, 26, and 30(a) of outline planning permission 11/02104/O applicable to the form of development as proposed in these Reserved Matters.	4.84km	Approved 05-Nov-13 11/02104/O approved 28-Jun-13 14/00543/D approved 21-Oct-14 15/01038/D approved 23-Oct-15 15/01403/D approved 23-Nov-15	High - Third party project details published in the public domain/planning portal.	See 11/02104/O								

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12/00875/O Outline planning application (full details of access) for a mixed development consisting of a maximum of 670 dwellings; a local centre comprising commercial uses (A1/A2/A3): a restaurant/dining quarter and public house (A3/A4); demolition of buildings on the May Gurney site (excluding the former public house); an access bridge over the River Yare; new access road; car parking; flood risk management measures; landscape measures inc earthworks to form new swales and other biodiversity enhancements including the re-use of the Grade II Listed brick Kiln for use by bats.	4.45km	Approved 12-Jul-13 14/01219/D Details of Condition 23: Consents and access rights. Link: https://goo.gl/ho5GZU. Approved 11 Nov 2014	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
16/01889/O Outline application including matters of access, layout and scale for the erection of 24 No. dwellings contained within a 3 and 5 storey building, 5 car parking spaces and amenity areas.	5.42km	Awaiting decision (when checked on 28/02/2018)	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/01810/F Redevelopment of site to provide 41 dwellings including partial demolition of buildings with associated works.	4.75km	Approved 12-Oct-16 17/00549/D Details of Condition 6: Archaeological written scheme of investigation; Condition 7: Site investigation report; Condition 19: Written statement confirming 10% of dwellings will be designed to and meet M4(2) of 2015 Building Regulations; Condition 27: Written statement confirming 10% of dwellings will be designed to and meet M4(2) of 2015 Building Regulations. Link: https://goo.gl/59WyMP Approved 12 May 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/00485/F Conversion to 10 flats [amended proposals and additional info received].	6.44km	Approved 17-Mar-16	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
13/00639/NMA Addition of condition requiring development to be built in accordance with approved plans of planning permission (09/00406/F) 'Demolition of existing industrial buildings and redevelopment of site to provide 22 No. one and two bedroomed flats, a single A1 retail unit and conversion of existing outbuilding into 1 No. residential unit with associated parking and external works'.	4.89km	Approved 05-Aug-13 09/00406/F approved 12-Aug-09 12/01174/D approved 07-Aug-12 12/01475/NMA approved 06-Aug-12 12/02186/NMA approved 05-Dec-12 13/00638/MA approved 27-Aug-14 17/00087/D awaiting Decision	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
12/01155/F Redevelopment of the site to provide 28 dwellings (24 No. four bed dwellings and 4 No. three bed affordable homes) with ancillary residents' and visitor car parking, courtyard, open space and new vehicle and pedestrian access from Rosary Road.	5.72km	Approved 07-May-13	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
11/02236/F Erection of residential development to provide 66 No. apartments, with associated amenity areas, car and cycle parking and pedestrian and vehicular access.	4.8km	Approved 27-Feb-13 14/00863/D Details of condition 3: materials samples; condition 4: landscaping scheme; condition 8: cycle racks; condition 10: flood warning and evacuation plans; condition 11: surface water strategy; condition 12: fire hydrants, and condition 13: vehicle crossover. Link: https://goo.gl/WZFB8s Approved 10 Nov 2014 5/00464/VC Amendments to approved plans by variation of condition 2. Link: https://goo.gl/CGrku6 Approved 10 Sep 2015 15/01104/VC Variation of Condition 5 from PV panels as the carbon saving method to CHP. Link: https://goo.gl/SS2aHr Approved 09 Nov 2015 16/01681/NMA Amendments to approved plans by variation of condition 2 of permission (no. 15/00464/VC) and previous application (no. 11/02236/F). Link: https://goo.gl/mmvsEh Approved 01 Dec 2016	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
12/00549/F Conversion of offices (class B1) to 47 unit apart-hotel (class C1), including the erection of bin store.	5.41km	Approved 28-Jun-12 12/02063/D approved 21-Dec-12 13/00246/D approved 31-May-13	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
12/00215/ET Extension of time period for the commencement of development for previous planning permission 07/00412/F 'Demolition and redevelopment of site with three to six storey building to provide 25, two and three-bedroom apartments; 1, retail unit (Class A1); 1, bar/restaurant (Class A3) and associated parking and landscaping'.	4.94km	Approved 29-May-13	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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12/00621/RM Details of access, appearance, landscaping, layout and scale of a proposed Creative Arts Building development at the site of the former West Lodge building, accessed internally from the retained Waveney Drive, as Phase 1 of the Reserved Matters of outline planning permission 08/00255/O as varied by planning permission 12/00487/VC: 'Redevelopment of College Campus for Education Use with associated administrative and ancillary facilities (Class D1) plus additional atria space together with car parking and landscaping.'.	3.61km	Approved 29-Jun-12 08/00255/O approved 16-Dec-08 13/01065/RM approved 03-Oct-13	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
15/00305/F Demolition of 11 No. flats and associated garages. Erection of 13 No. flats and basement car parking.	4.44km	Approved 06-May-15 16/01733/D Details of Condition 3: evidence of contract for site redevelopment of previous permission 15/00305/F. Link: https://goo.gl/LLH4UB Approved 11 Jan 2017 17/00296/D Discharge of Condition 5: Details and samples; Condition 6: Predicted energy requirement; Condition 7: Noise assessment and acoustic attenuation and Condition 8: Refuse store. Link: https://goo.gl/L581by Part approved / Part refused 03 Apr 2017 17/01764/D Details of Condition 4: surface water drainage and Condition 14: boundary wall treatments. Link: https://goo.gl/cjbJxv Awaiting decision as of 20/11/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
13/00610/F Erection of 86 No. dwellings (mixture of townhouses and apartments), associated car parking and the erection of a new electricity substation and pumping station.	4.09km	Approved 12-Jul-13 13/01898/D approved 17-Dec-14 16/00373/D approved 16-Sep-16 16/00651/D approved 21-Oct-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
12/02266/F Application for Full Planning Permission for Phase 1 and Outline Planning Permission for Phase 2 for proposed redevelopment of Earlham Hall environs including: Fully detailed application for phase 1 including NRP Enterprise centre for business, research and educational uses (Class B1(a), B1(b) and D1) with a total of 3703 sqm, testing centre, energy centre, permanent courtyard spaces between University Drive and Earlham Hall, temporary pedestrian route between University Drive and Earlham Hall, infrastructure service route, surface works to University Drive, landscaping, parking and service areas and dual use of the Earlham Park car park to serve the development in addition to Earlham Park; and Outline application for phase 2 comprising future buildings for business, research and educational uses (Class B1(a), B1(b) and D1) on the site of the nursery garden site, courtyard spaces between University Drive and Earlham Hall, pedestrian route between University Drive and Earlham Hall and associated landscaping.	3.15km	Approved 01-Jul-13 13/01276/D Details of Condition 29) archaeological scheme of investigation and Condition 34) fire hydrant positions. Link: https://goo.gl/qJWjEx Approved 09 Jan 2014 14/00344/D Details of Condition 9) construction method statement, Condition 11e) energy centre building and plant and machinery equipment, Condition 15) arboricultural meetings, timetable and method statement, Condition 19) contamination remediation methods, Condition 26) (in first part only) foul water drainage strategy, Condition 32) plant and machinery and Condition 33) fume and flue extracts. Link: https://goo.gl/m5ePT7 Approved 05 Aug 2014 14/00460/D Details of Condition 4a) sample materials to be used for the external surfaces (subject to informative note) and Condition 4b) external rainwater goods, Condition 4h) repositioned street light on University Drive, Condition 11a) bin stores and collection points, Condition 11c) service access areas, Condition 11d) new boundary treatments, Condition 11g) bus stops on University Drive, Condition 18a - d) hard/soft landscaping, landscape management plan and Condition 28) water efficiency measures. Link: https://goo.gl/CTMEJh Approved 22 Dec 2014 14/00551/D Details of Condition 4c) external joinery for windows, curtain walls, external louvers, solar shading, external doors and cap to thatch walls, Condition 27) renewable energy measures. Link: https://goo.gl/45LLqj Approved 22 Dec 2014 14/00631/D Details of Condition 4d: building construction information and panels; Condition 7a: car park management; and Condition 7c: car park ticket machines. Link: https://goo.gl/9urXFu Approved 24 Dec 2014 15/00332/D Details of Condition 24: Surface water drainage scheme/strategy and Condition 25: Surface water infiltration system. Link: https://goo.gl/eFVQys Approved 16 Apr 2015 15/00501/D Details of condition 4e: external lighting, condition 4f: CCTV equipment; condition 6: travel plan; condition 7b: car park	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
13/00157/F Erection of new student residences building including temporary construction access (revised transport information).	3.47km	Approved 16-May-13 13/00916/D Details of conditions 5) (a) construction area layout; 5) (b) management of construction traffic; 5) (c) site contact details; 5) (d) temporary replacement resident parking; conditions 6) (a) design and surfacing materials; 6 (b) junction design with Bluebell Road and crossovers to footpaths; condition 7) a pre-construction arboricultural site meeting; condition 8) supplementary Arboricultural Method Statement; condition 13) surface water attenuation; condition 15) water conservation measures; condition 16) contamination remediation; and condition 21) provision of a fire hydrant. Link: https://goo.gl/1x8apv Approved 19 Sep 2013 13/01256/D Details of conditions condition 3) a) materials; 3) b) joinery; 3) c) louvers and shading; 3) d) entrance colour; condition 4) a) enclosures; 4) d) bin stores; 4) e) bicycle parking; condition 11) landscaping; condition 12) green wall; condition 19) plant and machinery; condition 20) fume and flue. Link: https://goo.gl/BCjzXM Approved 04 Feb 2014 14/00495/D Details of Condition 4b) external lighting, Condition 4c) CCTV, Condition 14) energy technologies, Condition 17) contamination verification plan and Condition 18) imported top soil. Link: https://goo.gl/BffN1a Approved 19 Jun 2014	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b

Project	Shortest distance from Hornsea Three	Status of Development	Data Confidence	Geology and Ground Conditions	Hydrology and Flood Risk	Ecology and Nature Conservation	Landscape and Visual Resources	Historic Environment	Land Use and Recreation	Traffic and Transport	Noise and Vibration	Air Quality and Health	Socio-Economics
15/00121/F Student accommodation to provide 915 bedrooms, kitchen, dining and lounge facilities with community building comprising cafe, launderette, office space and associated works.	3.5km	Approved 22-May-15 15/00820/D Details of condition 11: pre-construction site meeting; condition 12: supplementary AMS and condition 20: surface water drainage scheme. Link: https://goo.gl/vj4UkA Approved 14 Sep 2015 15/01439/D Details of Condition 4 a) capping materials to parapets; Condition 4 b) external louvres; Condition 9: Highway works to Bluebell Road junction; Condition 15a), 15b), 15c), 15e), 15h), 15j), 15k), 15l): Landscaping; Condition 18: LZC connections; and Condition 19: water conservation measures for construction of phase 1. Link: https://goo.gl/ADvYbg Approved 19 May 2016 16/00099/MA Amendment to approved plans and variation of conditions to reflect agreed details, submission of further details and works for phase 1 development. Link: https://goo.gl/kY9g8A Approved 11 Aug 2016	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
12/01218/F Erection of new lecture theatre building on land north of Chancellors Drive.	2.74km	Approved 15-Aug-12 13/00415/D Details of Condition 4 (a): external materials/features; Condition 4 (b): walls, fences, bollards and other means of enclosure; Condition 4 (c): external lighting; Condition 4 (d): bin stores; Condition 4 (e): bicycle parking/storage; Condition 6: Tree protection meeting; Condition 8: mitigation measures to protect identified species during construction phase and monitoring; and Condition 12: water conservation measures. Link: https://goo.gl/GtZNYc Approved 18 Oct 2013 13/01424/D Details of condition 10 - landscaping, condition 11 - renewable energy, condition 13 - plant and machinery and condition 14 - fume extraction system. Link: https://goo.gl/NBqh4M Approved 29 Nov 2013	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
16/00835/F Demolition of existing dwelling and outbuildings. Erection of 36 residential dwellings with associated works.	5.77km	Approved 09/05/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
15/01091/F Demolition of former clubhouse and installation of solar photovoltaic panels and associated works including inverter housings and security cameras.	5.41km	Approved 16-Jun-16	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
12/01594/F Erection of two storey building to provide a 70 bedroom care home (Class C2) with associated access, parking and landscaping.	4.63km	Approved 20-Dec-12	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
12/02148/F Demolition of existing public house and erection of 10 No. houses and 4 No. flats.	4.33km	Approved 08-Mar-13	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
17/01295/F Redevelopment of site to provide 285 student bedroom development with associated access and landscaping.	4.51km	Refused 15 Dec 2017	High - Third party project details published in the public domain/planning portal.	h	h	h	h	h	h	h	h	h	h
17/00357/F Redevelopment of St Stephens Tower for student accommodation with vertical extensions, demolition of ancillary structures to facilitate a new link building and landscaping.	4.62km	Approved 08 Sep 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
17/01173/EIA1 EIA Screening opinion for the proposed integrated Teaching & Laboratory Building.	2.64km	EIA Not Required 03 Oct 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
North Norfolk District Council													
C/1/2010/1005 Erection of plant to accommodate an anaerobic digestion facility, provision of ancillary office and weighbridge, retention of existing landfill gas engines, construction of access road and provision of landscaping	2.47km	Approved 28-Apr-14 C/1/2014/1012 Discharge of condition 14 (landscaping scheme). Link: https://goo.gl/UXd8sF Conditions Not Dischaged 03/09/2014	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
C/1/2016/1020 Retrospective application for the Installation of a revised sand & gravel processing plant, additional site office, and extended screening mound in southern extraction area	3.45km	Approved 12 May 2017	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b

Project	Shortest distance from Hornsea Three	Status of Development	Data Confidence	Geology and Ground Conditions	Hydrology and Flood Risk	Ecology and Nature Conservation	Landscape and Visual Resources	Historic Environment	Land Use and Recreation	Traffic and Transport	Noise and Vibration	Air Quality and Health	Socio-Economics
C/1/2010/1004 Processing and removal of surplus sand and gravel and soils arising from the construction of two linked agricultural reservoirs (re-submission of planning application C/1/2008/1014) to include reduced lorry movements and traffic routeing restrictions westwards.	3.35km	Approved 25 Oct 2010 C/1/2012/1002 Variation of condition 2 of planning permission reference C/1/2010/1004 for the importation of hardcore for construction of the access track and for the retrospective removal or coppice of an additional 146 trees. Link: https://goo.gl/iKdrXx Approved 13 Aug 2012 C/1/2014/1006 Variation of condition 2 of planning permission reference C/1/2012/1002 to enable the relocation and change in specification of the processing plant. Link: https://goo.gl/TzNSJA Approved 2 Sep 2014 C/1/2016/1022 Variation of Conditions 1 and 4 of planning permission ref C/1/2014/1006 to permit temporary silt storage above original ground levels in northern extraction area (retrospective), and extend the start time/hours for operations Link: https://goo.gl/jvVwAv Approved 27 Apr 2017	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b

Project	Shortest distance from Hornsea Three	Status of Development	Data Confidence	Geology and Ground Conditions	Hydrology and Flood Risk	Ecology and Nature Conservation	Landscape and Visual Resources	Historic Environment	Land Use and Recreation	Traffic and Transport	Noise and Vibration	Air Quality and Health	Socio-Economics
South Norfolk District Council													
C/7/2012/7009 Retention of existing Household Waste Recycling Centre (previous planning permision C/7/1999/7003) on a permanent basis. Construction of 2 infiltration basins and associated pipework and access chambers to improve surface water drainage system. Erection of post mounted CCTV cameras. Small scale sale of compost	9.02km	Approved 31-Jul-12	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
Y/7/2012/7012 Two storey extension to existing engineering facility to provide 16 incubator units, biomass plant including fuel storage and flue to rear, carparking, extended service yard, attenuation swale, landscaping and associated works.	4.11km	Approved 11-Mar-13	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
C/7/2014/7030 (I) For a southern extension to Mangreen Quarry and ancillary works with progressive restoration to agriculture and nature conservation by the importation of inert restoration materials; (II) Retention of existing consented facilities at Mangreen Quarry; (III) Establishment of crossing point over Mangreen Lane; and (IV) Proposed variation to approved restoration scheme at Mangreen Quarry	0m	Approved 02-Oct-15 C/7/2016/7013 Revised application to vary Conditions 2, 18 and 23 to vary the approved schemes of restoration, landscape and aftercare scheme, and vary the approved measures to prevent deposition of mud on the highway. Link: https://goo.gl/dSqNxH Application Approved	Medium - Third party project details published in the public domain but not confirmed as being 'accurate'.	d	d	d	d	d	d	g	d	d	g
Y/7/2014/7011 New extension comprising of 10 no. classbases, new main school entrance, administrative and ancillary accommodation, new car park, external teaching spaces and play areas.	2.2km	Approved 14-Jan-15	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
C/7/2016/7006 Temporary change of use of land from scrap metal recycling to overnight HGV parking for the onward transfer of Refuse Derived Fuel (RDF) bales (until 30 Sept 2018).	2.5km	Approved 13-Jul-16	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
C/7/2016/7004 Change of use of site to include vehicle operating base including storage of containers, self-contained driver welfare facilities , bunded fuel tank, fuel additive tank, crash barriers and new set of gates.	2.4km	Approved 15-Jun-16	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
C/7/2013/7015 Extension to Material Recovery Recycling Facility to process non-hazardous, co-mingled, dry recyclable waste consisting of a new process building; service yard; green waste and road sweeping bays; relocated smoking shelters and storage containers; foul drainage main; and retrofitting of ventilation flues.	2.35km	Approved 05-Nov-13	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
C/7/2010/7016 Continued recycling of former building materials and use of concrete batching plant until 31 May 2029: Site entrance improvements including hardening of site access road: Hardening of remainder of concrete batching compound: Highway improvements: Construction of car park and footpath: Erection of estate fencing around ice house: Restoration of the site in accordance with an improved restoration scheme by 31 May 2030 with public access to former quarry and adjoining land and woodland for informal recreational purposes	956m	Approved 05-Mar-12 C/7/2012/7014 Discharge of Conditions 4, 5, 6, 7, 8, 9 and 10. Link: https://goo.gl/2fdFtu Conditions Partly Discharged 9/12/2012 C/7/2012/7030 Variation of conditions 11, 12, 13, 14 & 15 of Planning Permission C/7/2010/7016 to extend timescales for completion of highway and site access improvement works, pathway and car park. Link: https://goo.gl/XkP22M Application Approved 09/12/2013 C/7/2012/7035 Discharge of Condition 4. Link: https://goo.gl/BWMXtn Conditions Discharged 22/01/2013	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
Y/7/2016/7009 Creation of Nurture Centre Building .	4.06km	Approved 19-Jan-17	High - Third party project details published in the public domain/planning portal.	b	b	b	b	b	b	b	b	b	b
H/7/2014/7001 New Primary School	4.22km	General Observations 14-Jan-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g

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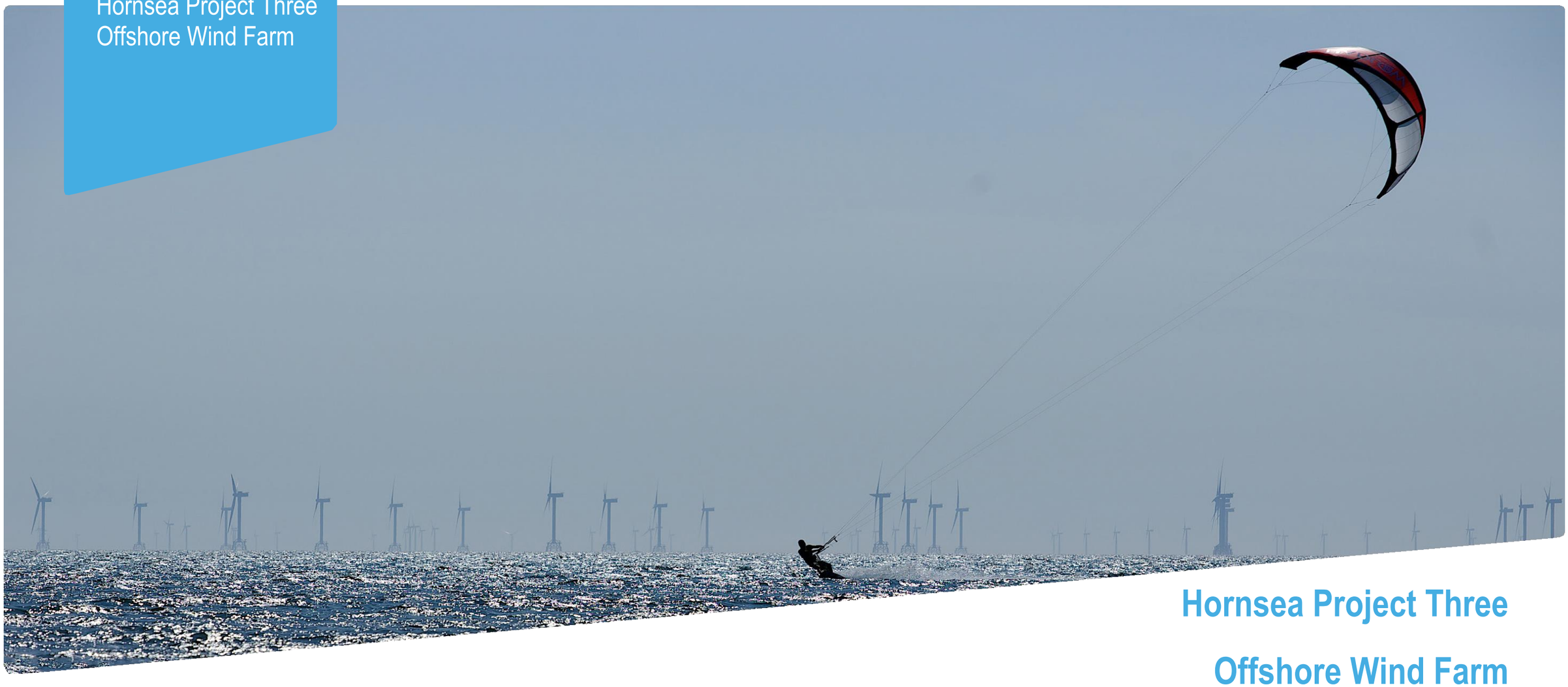
C/7/2013/7014 Mineral extraction, processing and associated activities with importation of inert material and restoration to agriculture and two small ponds.	5.13km	Approved 10-Jan-14	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	g	g	g	g
Norfolk County Council - Broadland District Council													
C/5/2015/5007 Resubmission of application for change of use from B8: Warehousing to a Sui Generis use for waste processing and the production of refuse derived fuel (RDF) with an annual throughput of 150,000 tonnes; installation of office, 2 x weighbridges and photovoltaic panels	990m	Refused 03//05/2017 C/5/2017/5006 screening request concluded not EIA 03/11/2017	High - Third party project details published in the public domain/planning portal.	g	g	g	d	g	g	g	g	g	g
Nationally Significant Infrastructure Projects													
EN010079 Norfolk Vanguard is a proposed offshore windfarm with an approximate capacity of 1800MW off the coast of Norfolk.	0m	Currently at Pre-Application Stage Application expected to be submitted to the Planning Inspectorate in Q2 2018	High - Third party project details published in the public domain/planning portal.	d	d	d	d	d	d	d	d	d	d
TR010015 The Norwich Northern Distributor Road (NDR) is a 20km dual carriageway road under construction to run from the A47 at Postwick, east of Norwich, to the A1067 Fakenham Road north of Taverham.	1.93km	Contract completed date is March 2018 (Balfour Beatty and NCC construction team have set a challenging target of traffic using the road by Christmas 2017) Y/5/2017/5022 Discharge of requirement 27 (Weston Longville and Hockering traffic) of the NDR Development Consent Order (Statutory Instrument 2015 No. 1347). This relates to Weston Longville traffic management measures. Link: https://goo.gl/WzAEfY Approved 10 Oct 2017	High - Third party project details published in the public domain/planning portal.	g	g	g	g	g	g	d	d	d	g

Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Environmental Statement:
Volume 6, Annex 7.1 – Transport Assessment

PINS Document Reference: A6.6.7.1
APFP Regulation 5(2)(a)

Date: May 2018

Hornsea 3
Offshore Wind Farm

Ørsted

Environmental Impact Assessment

Environmental Statement

Volume 6

Annex 7.1 – Transport Assessment

Liability

This report has been prepared by RPS, with all reasonable skill, care and diligence within the terms of their contracts with Orsted Power (UK) Ltd.

Report Number: A6.6.7.1

Version: Final

Date: May 2018

This report is also downloadable from the Hornsea Project Three offshore wind farm website at:
www.hornseaproject3.co.uk

Ørsted,

5 Howick Place,

London, SW1P 1WG

Front cover picture: Kite surfer near a UK offshore wind farm © Orsted Hornsea Project Three (UK) Ltd., 2018

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Approved by: Sophie Banham

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Glossary

Term	Definition
Abnormal Indivisible Loads	Loads or vehicles that exceed maximum vehicle weight, axle weight or dimensions as set out in the Road Vehicles (Construction and Use) Regulations 1986 (as amended).
Degree of Saturation	A measurement of the amount of capacity being used for movements through a signalised junction.
Geotextile	Textile matting laid under aggregate to provide coherence and stability to a temporary road surface.
Growthed	The application of traffic growth rates to traffic flows.
Highway Link	Length of highway of similar geometrical standards between two points.
Mean Max Queue	An indication of the typical extent of queuing for a movement through a signalised junction.
Measures adopted as part of the project	Enhancement, mitigation or monitoring commitment (which may include process or design measures) intended to avoid, reduce and where possible, remedy significant adverse impacts of a development.
NATA/WebTAG Methodology	A standard national approach to undertaking assessments of major transport infrastructure projects.
Onshore elements of Hornsea Three	Hornsea Three landfall area, onshore cable corridor, the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid substation.
Operational assessment	The assessment of the degree to which a junction is operating within its theoretical capacity.
Pedestrian Amenity	The convenience or comfort of movement on foot.
Practical Reserve Capacity	A measure of a signalised junction's total performance, where a positive number represents reserve capacity.
Ratio of flow to capacity	A measure of the operational performance of one arm of a junction calculated as the number of vehicles using an arm of a junction divided by the theoretical maximum number of vehicles that are able to use the arm during a specified period.
Serious personal injury accident	An accident leading to serious injuries requiring hospital treatment.
Severance	Real or perceived difficulties moving between one part of a community to another.
Shuttle working	The use of either manual control or traffic signals to allow alternate traffic streams to pass through a length of highway where the width is reduced and insufficient to allow two vehicles to pass each other.
Slight accident	An accident leading to slight injuries which are defined as cuts, bruises or sprains requiring roadside attention but not normally requiring admission to hospital.
TRACK Analysis	Computer modelling of area taken up by a moving vehicle.
Traffic growth rate	An estimate of the rate of change in traffic flows from one year to another year.
Transport Assessment	A transport assessment is a comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies what measures will be taken to deal with the anticipated transport impacts of the scheme and to improve accessibility and safety for all modes of travel, particularly for alternatives to the car such as walking, cycling and public transport.
Trip Generation	The number of vehicle movements into and out of a development.
Trip Assignment	The routes that vehicles take between a site and other areas.
Trip Distribution	The proportion of vehicle trips between a site and other areas.
Trunk Road	A trunk road is a road maintained by a national government body, as distinct from the great majority of roads, which are maintained by local Highway Authorities.

Acronyms

Unit	Description
AADT	Annual average daily traffic
ATC	Automatic Traffic Counter
CoCP	Code of Construction Practice
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
ES	Environmental Statement
HE	Highways England
HGV	Heavy Goods Vehicle
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IHT	Institution of Highways and Transportation
IPC	Infrastructure Planning Commission
LTP	Local Transport Plan
MCCs	Manual Classified Count
MD	Main Distributor
MHWS	Mean High Water Spring
NCC	Norfolk County Council
NCN	National Cycle Network
NPPF	National Planning Policy Framework
NPS	National Policy Statement

Unit	Description
NSIP	Nationally Significant Infrastructure Project
PINS	Planning Inspectorate
PEIR	Preliminary Environmental Information Report
PIA	Personal Injury Accident
SRN	Strategic Road Network
TT	Trenchless Technology
TEMPRO	Trip End Model Presentation Programme
WebTAG	Web Transport Analysis Guidance

Units

Unit	Description
km	Kilometre (distance)
m	Metre (distance)
mph	Miles per hour (speed)
PCU	Passenger Car Unit (traffic flow)
PCU/Hr	Passenger Car Unit per hour (traffic flow)
t	Tonnes (weight)

1. Transport Assessment

1.1 Introduction

1.1.1.1 This Transport Assessment (TA) assesses the transport impact of the construction phase of Hornsea Project Three off-shore wind farm (hereafter referred to as Hornsea Three). The report has been prepared as an annex to the Traffic and Transport Chapter of the Environmental Statement.

1.1.1.2 During the operational phase, the only vehicle movements generated will be maintenance visits, which will be typically one vehicle on an approximate weekly basis. These visits are likely to be made by light vehicles only and would use the existing road network and the permanent onshore HVAC booster station and HVDC converter/HVAC substation accesses constructed as part of Hornsea Three. One vehicle arrival per week is very low and infrequent and will not result in any highway capacity issues and an assessment of this is scoped out.

1.1.1.3 Vehicle movements generated during the decommissioning phase will be lower than those during the construction phase since the removal of materials does not need to be delicately transported and can be bulk loaded whilst some infrastructure will be retained in-situ. Given that some infrastructure will be left in-situ, this results in less transport requirement which results in fewer vehicle movements in comparison to the construction phase. All mitigation measures that are identified for the construction phase will also be adopted during the decommissioning phase, thus, for a maximum design scenario, it can be determined that the identification of impacts resulting from traffic generated during the construction phase, would also apply to the decommissioning phase. An assessment of the decommissioning phase specifically is therefore scoped out of this TA.

1.1.2 The traffic and transport study area

1.1.2.1 The Hornsea Three traffic and transport study area includes the onshore elements of Hornsea Three (i.e. the Hornsea Three landfall area, the onshore cable corridor, HVAC booster station, HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid Substation), together with the compounds (including main construction compound), storage areas, construction accesses and all highways, Public Rights of Way (PRoW), private accesses and railways in the vicinity that are anticipated to be used by, or affected by, the construction, operational and decommissioning traffic. The study area also includes parts of the wider transport network that provide links between the onshore cable corridor and onshore HVDC converter/HVAC substation site and the local and strategic transport networks. Road links within the study area are shown on Figures 7.1 and 7.2 in volume 3, chapter 7: Traffic and Transport.

1.1.2.2 The Hornsea Three traffic and transport study area includes all areas identified by Highways England (HE) and Norfolk County Council (NCC) Highway Authority in the course of consultation for Hornsea Three.

1.1.3 Project summary

1.1.3.1 The transport impact of the construction of the onshore elements of Hornsea Three, together with the compounds (including main construction compound) and storage areas is expected to be related to the movement of materials, equipment and staff and to temporary changes in the highway network where trenches are dug across highways. The temporary closures and diversions of PRoW required as part of the construction works are considered in volume 3, chapter 6: Land Use and Recreation.

1.1.3.2 The areas affected by the Hornsea Three onshore cable corridor, the onshore HVAC booster station and HVDC converter/HVAC substation are the responsibility of Norfolk County Council (NCC) and Highways England (HE). Discussions have been undertaken with the Highway Authorities (Highways England and Norfolk County Council) with regards to the sensitivity of the network, assessment requirements and mitigation. Since a significant proportion of the Heavy Good Vehicle (HGV) traffic associated with the construction is expected to use the A11 and A47, HE has also been consulted on the project. Details of scoping discussions and consultation are provided in section 7.6 of volume 3, chapter 7: Traffic and Transport.

1.1.3.3 The operation of the Hornsea Three onshore cable corridor will generate a negligible overall level of traffic compared with the baseline; however, there will be a noticeable increase in HGV movements on some links during the busiest periods of the construction phase of the project. The operation of the onshore HVAC booster station and HVDC converter/HVAC substation will generate a small number of staff trips with occasional maintenance vehicle movements. The decommissioning of the onshore elements of Hornsea Three will generate significantly less traffic than the construction phase as the onshore cable corridor will remain in-situ, therefore the TA is focused on the construction phase.

1.1.3.4 It is intended that the main consents and licenses associated with the implementation of the construction works for Hornsea Three will be obtained through the DCO process. The implications of this are discussed within this report.

1.1.3.5 The report concludes that works associated with the construction of the onshore elements of Hornsea Three, together with the compounds (including main construction compound), storage areas, construction accesses, would not lead to any significant transport impacts resulting from construction traffic. This includes the implementation of a number of mitigation measures relating to the timing of HGV movements, the routeing of HGVs and the management of site access points. Some delays are expected to existing highway users, where for example accesses are being formed, and details of the traffic management measures proposed at each of these points have been identified. Suitable access arrangements for Hornsea Three landfall area, the onshore cable corridor (including secondary compounds), main compound, the onshore HVAC booster station and HVDC converter/HVAC substation construction sites have been identified. Details of the consultations with the relevant Highway Authorities and other consultees are set out in volume 3, chapter 7: Traffic and Transport Chapter.

1.1.3.6 The general scope of assessment and methodologies contained within this TA have been agreed in advance with NCC and HE. Due to their nature, some of the detailed elements, for example the configuration of trenches to result in a maximum design scenario, have not been discussed with NCC or HE in advance. However, for those detailed elements that have not been discussed in advance, industry standard practices have been adopted to ensure a maximum design scenario is created and relevant guidance documents have been followed such that a reasonable maximum impact is assessed appropriately and in accordance with those documents.

1.2 Policy and guidance

1.2.1.1 This TA has been prepared in accordance with the Overarching National Policy Statement (NPS) for Energy (EN-1) (DECC, 2011a) which states that if a project is likely to have significant transport implications, the applicant's ES should include a TA, using the NATA/WebTAG methodology stipulated in Department for Transport (DfT) guidance (DfT, 2007), or any successor to such methodology.

1.2.1.2 Accordingly, the TA has been prepared in accordance with the National Planning Policy Framework (NPPF) which states that *"all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment"* and the National Planning Practice Guidance relating to Travel plans, TAs and statements in decision-taking.

1.2.1.3 Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development was released in September 2013. The Circular sets out the way in which the Highways Agency will engage with communities and the development industry to deliver sustainable development and economic growth whilst safeguarding the primary function and purpose of the Strategic Road Network (SRN). Circular 02/2013 states that *"the Highways Agency supports the economy through the provision of a safe and reliable strategic road network, which allows for the efficient movement of people and goods"*. Similarly, to the NPPF, Circular 02/2013 states that "*development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe"*.

1.2.1.4 Details of other relevant policies at national, regional and local level and relevant guidance documents are set out in volume 3, chapter 7: Traffic and Transport.

1.3 Consultation

1.3.1.1 HE and NCC as Highway Authority were consulted on the scope of the TA and this TA takes into account the responses received.

1.3.1.2 A summary of consultation responses, including those made by other consultees on the scope of the EIA is set out in Table 7.4 of volume 3, chapter 7: Traffic and Transport.

1.4 Baseline environment

1.4.1 Highway network

1.4.1.1 Details of the highway network are set out in annex 7.2: Description of Network Links and Sensitivity. The following paragraphs provide an overview of the strategic highway network and the highway network providing access to the onshore elements of Hornsea Three, the compounds (including main construction compound), and storage areas.

Strategic / Principal Road Network

1.4.1.2 The main routes into the Hornsea Three traffic and transport study area from the wider SRN are via the A47 that runs east-west between Kings Lynn and Great Yarmouth, and the A11 which routes from junction 9A of the M11 to Norwich City Centre. The A47 is primarily a wide single carriageway road, becoming a dual carriageway from its junction with the Dereham Road/Church Lane roundabout to Blofield, east of Norwich, where it returns to a wide single carriageway. The A11 is a dual carriageway road from its junction with the A47 to its junction with the M11, and is accessed from the A47 via a grade-separated junction.

1.4.1.3 The A1270 Northern Distributor Road is a dual carriageway strategic distributor road which routes from the A47 east of Norwich via a grade-separated junction, routeing to the north of Norwich where it joins the A1067 via junctions for the A140 and B1149. The A140 and A1067 are key commuter roads between Norwich and North Norfolk within a highway network that has few trunk roads and A roads.

1.4.1.4 The A1270 Northern Distributor Road objectives are to reduce traffic levels and congestion on the existing road network, both within the urban area and beyond to the north. The A1270 opened in late 2017/early 2018 and allows traffic to route north of Norwich, bypassing the A1042 and A140 which route towards and around the city centre.

1.4.1.5 The NCC Route Hierarchy map, produced by NCC Highway Network Management sets out a hierarchy of road types with higher classifications of road being at the top and illustrates trunk roads and principal roads in addition to Main Distributor (MD), HGV, Tourist and Access roads throughout Norfolk. The classification of links which comprise the roads shown on the NCC Route Hierarchy map is shown at annex 7.8: Traffic and Transport Figures.

Access to Hornsea Three onshore cable corridor

1.4.1.6 The Hornsea Three onshore cable corridor will be accessed using roads listed on the NCC Route Hierarchy map wherever possible, although some use of narrow single carriageway and single-track roads will be necessary to reach some access points.

1.4.1.7 Up to two temporary haul roads (typically one per phase – see Table 7.9 and volume 1, chapter 3: Project Description) will be constructed along the majority of the Hornsea Three onshore cable corridor to provide for HGV access to undertake trenching works and install the cables, with gaps only at some HDD locations and road crossings. The haul road will enable vehicles to move along the Hornsea Three onshore cable corridor and relieve the need for construction traffic to rely on longer sections of the local road network during construction.

1.4.1.8 Access from the highway network will be necessary for the transportation of materials for the construction of the haul road. Construction access points from the road network to the Hornsea Three onshore cable corridor have sought to utilise existing field access points or where the onshore cable corridor crosses the public highway and are shown on Figure 1.2 at annex 7.8: Traffic and Transport Figures.

1.4.1.9 The Hornsea Three onshore cable corridor crosses a number of roads, disused railway lines and active railways. Major transport infrastructure including railways and all public roads would be crossed using HDD. HDD will also be used to cross features such as main rivers and ordinary watercourses, major drains and ecologically designated sites as shown on Figure 1.2 at annex 7.8: Traffic and Transport Figures. At HDD locations, temporary construction site accesses are located to ensure that access can continue to be provided to the whole route where an obstacle might prevent the installation of a haul road.

1.4.1.10 Access to the Hornsea Three onshore cable corridor and key transport links are described in 21 individual cable sections, each generally defined by a primary access route from the road network of A and/or B road classification to the onshore cable corridor. In most cases a cable section will have multiple accesses. These 21 cable sections are specific to Traffic and Transport and have only been defined to assist with access routeing and traffic generation.

1.4.1.11 The Hornsea Three onshore cable corridor with HDD and access locations, along with cable sections is shown on Figure 1.2 at annex 7.8: Traffic and Transport Figures.

1.4.1.12 The key roads are identified in the following paragraphs in order to provide an overview of some of the larger roads which will provide access to multiple sections of the Hornsea Three onshore cable corridor.

1.4.1.13 Sensitive receptors such as schools, care homes, hospitals and residential areas with poor footway provision have been identified within the vicinity of the Hornsea Three onshore cable corridor, at annex 7.8: Traffic and Transport Figures and highlighted in the following paragraphs.

A149

1.4.1.14 The A149 runs parallel to the coastline, routing from Kings Lynn to Cromer via Hunstanton, then south east to Caister-on-Sea, and is a key commuter road between the coastal towns. It is identified on the Norfolk Route Hierarchy Map as a '3B3 – Special Access' road between Cromer and Hunstanton. The A149 provides a potential access route through Sheringham via the A1082, with good forward visibility and few sensitive receptors with the exception of Weybourne, which has some residential frontages and sensitive receptors with no footways. The A149 Sheringham Road runs underneath the former North Norfolk Railway Line; therefore, a railway bridge crossing over the A149 prevents vehicles over 4.3 m in height from accessing Weybourne from Sheringham via this route.

1.4.1.15 While the A149 is a principal road with good forward visibility and a wide carriageway, it routes through Cromer, an urban centre with a residential area, town centre, shops and schools. Residential frontages and a church access are located directly onto the main road, and a one-way system operates in the centre of Cromer. Eastbound vehicles route along the A149 Church Street, and westbound vehicles route along Louden Road. There are several signal controlled crossing points on both of these routes enabling pedestrians to safely cross from residential areas to shops and schools. Car parking bays are present along the route; the carriageway which is unsuitable for parking due to width or activities, is controlled by double yellow lines.

1.4.1.16 The remainder of the A149 has few sensitive receptors and is subject to variable speed limits (40 mph, 50 mph and national speed limit).

A148

1.4.1.17 The A148 routes northeast from Kings Lynn to Cromer via Fakenham. The A148 is one of the primary routes through North Norfolk and is a key commuter road for the rural communities and coastal towns.

1.4.1.18 The A148 will provide HGV access to narrow single carriageway and single track roads adjacent to the Hornsea Three onshore cable corridor between the A148 and Baconsthorpe. South of Baconsthorpe, HGVs can access the Hornsea Three onshore cable corridor via the B1149.

A140

1.4.1.19 The A140 routes between the A149 junction located approximately 3.5 km south of Cromer to the B1145 junction south of Aylsham; from Aylsham the A140 routes south to Norwich. As a principal road with wide carriageways and good forward visibility, the A140 is a key commuter road into Norwich from North Norfolk. The speed limit of the A140 between Cromer and Norwich varies between 30 mph, 40 mph and the national speed limit.

1.4.1.20 The A140 routes through Roughton, a small village centre with shops and crossings, pub and church. The speed limit is reduced to 30 mph through this section, increasing to the national speed limit to the south of Roughton. Road width and forward visibility are retained through Roughton.

B1436

1.4.1.21 The B1436 routes from the A148 via a three-arm roundabout, routeing south to the A140 at Roughton via a three-arm mini roundabout. The B1436 routes through Felbrigg and is primarily a national speed limit carriageway road; however, the speed limit reduces to 30 mph near Roughton within the vicinity of some sensitive receptors such as residential frontages and primary school.

1.4.1.22 The B1436 allows construction vehicles to route onto the A148 from the A140, bypassing Cromer which has many sensitive receptors and may be sensitive to changes in vehicle movements during peak tourist season.

A1067

1.4.1.23 The A1067 routes from the A148 east of Fakenham, southeast to the A140 and A1402 junctions in Norwich. The A1067 between Fakenham and Bawdeswell is a principal road with good forward visibility. The A1067 from Bawdeswell to the A140 is suitable for HGVs; it has good forward visibility, a suitable carriageway width and is used as an existing bus route. The speed limit varies between 30 mph, 40 mph, 50 mph and the national speed limit.

1.4.1.24 There are some sensitive receptors on this route as it routes into Norwich; however, the footways are wide within the vicinity of these sensitive receptors. The A1270 Northern Distributor Road is accessed from the A1067 via a three-arm roundabout; therefore, construction vehicles can route via the A148 and A1067 south and onto the lower section of the B1149 for some sections of the Hornsea Three onshore cable corridor.

B1149

1.4.1.25 The A148 provides access to the B1149 via four-arm roundabout in Holt. The B1149 routes between Holt and the A1270 Northern Distributor Road; however, it previously joined the A140 via a large three-arm roundabout west of Norwich International Airport. The construction of the A1270 Northern Distributor Road has resulted in the previous junction of the B1149 and A140 being blocked off, instead having the B1149 route onto the A1270 Northern Distributor Road and a separate grade-separated junction between the A1270 Northern Distributor Road and the A140 has been constructed.

1.4.1.26 The B1149 is a '3A2- Main Distributor' road and runs broadly parallel to the Hornsea Three onshore cable corridor as it routes from landfall to the A1067. There are some sensitive receptors on the B1149 as it passes through villages such as Edgefield, Saxthorpe and Horsford. The speed limit varies between 30 mph, 40 mph, 50 mph, and the national speed limit.

A47

1.4.1.27 The A47 is one of the few trunk roads within Norfolk, and routes from Kings Lynn to Great Yarmouth. The A47, routes to the south of Norwich within the vicinity of the Hornsea Three onshore cable corridor.

1.4.1.28 The A47 has typical characteristics of a trunk road, namely the national speed limit with a wide carriageway and few sensitive receptors. The A47 proves a key route for HGVs routing north and south along the onshore cable corridor as HGVs can route around Norwich via the A47 without travelling through the city centre or on minor roads.

1.4.1.29 The B1108, B1172, A11 and A140 have junctions with the A47 to the south west of Norwich and are included within the Hornsea Three traffic and transport study area.

A11

1.4.1.30 To the southwest of Norwich, the A11 routes southwest from the A147 junction and forms bypasses around Hethersett and Wymondham.

1.4.1.31 The B1172 routes from the A11 junction with the A47 along the south of Hethersett with a foot and cycle path north of the carriageway.

1.4.1.32 In general, the A11 has wide carriageways and few sensitive receptors, though some residential frontages are present. A good footway provision is present in the vicinity of dwellings.

B1145 from Aylsham to Bawdeswell

1.4.1.33 The B1145 is classified by NCC as a '3A2 – Main Distributor' road and is a key link to the A140 from Bawdeswell, Reepham and Cawston. A four-arm roundabout connects the B1145 to the A140 and Norwich Road. Routing west from Aylsham, the B1145 has a crossroad junction with the B1149 and a priority junction where it meets the A1067. The B1145 has generally good visibility with the exception of some bends on which visibility is reduced by high hedgerows and buildings. The speed limit varies between 20 mph, 30 mph, 40 mph, 50 mph and the national speed limit.

1.4.1.34 The B1145 provides an access route for HGVs between the Hornsea Three onshore cable corridor and the A140, with wide carriageways and street lighting within the vicinity of Aylsham.

1.4.1.35 The B1145 routes through the village of Cawston and Reepham town centre which have a number of sensitive receptors including shops, narrow footways and residential frontages. The speed limit is reduced to 20 mph as it routes through Reepham.

B1108 Earlham Road/Watton Road

1.4.1.36 The B1108 Earlham Road/Watton Road routes from the A47, west of Norwich, to Barford approximately 11.5 km from Norwich. The B1108 continues to route through Barford and to the southwest where it joins the A1065 at Bodney. Between the A47 and Barford, the B1108 has good forward visibility and width, with suitable footways either side of the carriageway in residential areas. The B1108 is a key commuter road from the west of Norwich into the city centre and its junction with the A147 via a four-arm roundabout enables access from the B1108 to the city centre.

1.4.1.37 The B1108 is classified as a '3A2 - Main Distributor' road within the NCC Route Hierarchy. On this section of road there is on-street parking, with footways and lighting, and numerous sensitive receptors including a hospital, church and direct access to residential dwellings.

Tourist Routes

1.4.1.38 The NCC Route Hierarchy map outlines several roads which are listed as tourist routes. These sections of the highway network will differ greatly in volumes and profiles of traffic between a typical working day, and during the summer season, particularly the peak summer holiday period between mid-July and September. It is considered that the seasonal variation will be greater on the highway network closer to the coast due to the limited number of alternative routes and specific tourist attractions.

Access to onshore cable corridor

1.4.1.39 To assist with the calculation of construction vehicle movements and the movement of these to the Hornsea Three onshore cable corridor, the onshore cable corridor has been separated into several sections, as shown in, annex 7.2: Description of Network Links.

1.4.1.40 The access points into the Hornsea Three traffic and transport study area are the A148 west, A1065, A47 west, A11, A140, A146 and A47 west. An additional access point is the A140/B1145 four-arm roundabout at Aylsham, which enables construction staff travelling from the A140 corridor between Norwich and Cromer to be incorporated into the traffic flow model. It is assumed that all construction traffic will route to the Hornsea Three onshore cable corridor via these external points on the network. This maximises the number of links within the study area that have HGV movements generated along them. This is because it forces all HGVs to arrive from outside the study area which maximises the number of road links they travel on within the study area. If HGVs were to originate from within the study area then those HGVs would not travel on road links between their origin and the outer edge of the study area.

1.4.1.41 The access routes in each section are summarised in the following paragraphs to clarify the extent of the local highway network being utilised. Access from the wider network will be taken via the strategic roads listed above.

1.4.1.42 Access to the Hornsea Three onshore cable corridor (including secondary compounds) and key transport links are described in 21 cable sections, with landfall, the onshore HVAC booster and HVDC converter/HVAC substations also discussed.

Hornsea Three landfall area

1.4.1.43 The Hornsea Three onshore cable corridor makes landfall at Weybourne, with access from the highway network taken via The Muckleburgh Museum, west of Weybourne. The museum has an existing 5 m wide access road, and an additional road will be constructed parallel to the existing road to allow for two-way HGV movements with minimal impact on the Museum. The military museum access is taken from the A148.

1.4.1.44 The primary route option for HGVs routeing from the A148 to the A149 is via the A1082 at Sheringham, where a four-arm roundabout enables construction vehicles to route onto the A149 and route west to Weybourne. The remainder of the local highway network consists of single track and narrow single carriageway roads which are less suitable for high numbers of HGV movements: The Church Street T-junction with the A149 at Weybourne has limited visibility to the left due to residential dwellings adjacent to the carriageway. Church Street routes to Holt Road and Holgate Hill which has residential frontages with a lack of pedestrian facilities. The remainder of Holt Road and Holgate Hill are narrow single carriageways with no frontage access or sensitive receptors. Therefore, to access the lower half of Cable Section 1 HDD locations, a haul road above will be utilised, or a construction access corridor which is not within the Hornsea Three onshore cable corridor will route around HDD points.

1.4.1.45 The A149 routes from the Foxhills camping access through the centre of Weybourne to the point at which the A149 becomes subject to the national speed limit. There are no pedestrian facilities between the camping site and Weybourne, and high hedgerows limit forward visibility on bends. There are many sensitive receptors and a lack of footways to village facilities such as shops, pubs and a church. There is on-street parking and houses which front straight onto the road in the village, with poor visibility for several houses with driveways; the speed limit varies between 20 mph and 30 mph.

Landfall to Holgate Hill (Cable Section 1)

1.4.1.46 From landfall to Holgate Hill, the local highway network utilised by the construction of this section of the Hornsea Three onshore cable corridor will utilise the A148 from the wider highway network. Access is taken from the A149 and from Holgate Hill.

1.4.1.47 The primary route option for HGVs from the A148 to the A149 will be taken via the four-arm roundabout at Sheringham; however, a railway bridge which crosses the A148 prevents vehicles over 4.3 m in height from accessing landfall and Cable Section 1. This will not be an issue for daily construction vehicles; however, the cable drums will have to be transported such that their transport height is less than 4.3 m.

Holgate Hill to woodland north east of High Kelling (Cable Section 2)

1.4.1.48 Access to Section 2 of the Hornsea Three onshore cable corridor will be taken via an existing agricultural access corridor from Bridge Street, northeast of Holt and west of High Kelling. The existing access, north of Holt Rugby Club, routes to Warren Road which provides access to residential dwellings, Warren Close and agricultural land. Warren Road routes from Bridge Street; however, utilising the farm track north of Holt rugby club results in HGVs avoiding residential dwellings, minimising the risk of conflict.

Woodland north east of High Kelling to woodland south of Church Road (Cable Section 3)

1.4.1.49 Access to Section 3 of the Hornsea Three onshore cable corridor will be taken from the A148 and from Manor House Road. The A148 is a principal road with wide carriageways, good forward visibility and few sensitive receptors within the vicinity of the onshore cable corridor. As the A148 routes south of Holt, some frontage access is taken directly from the principal road. The section of road necessary to access the Hornsea Three onshore cable corridor is subject to the national speed limit, with good visibility and few sensitive receptors.

Woodland South of Church Road to Woodland south and east of School Lane (Cable Section 4)

1.4.1.50 Access to Section 4 will be taken via Hempstead Road, accessed from the A148 at Holt. Hempstead Road is a '3B2 – Local Access' road as identified on the NCC Route Hierarchy map between the A148 and the Hornsea Three onshore cable corridor.

1.4.1.51 The north section of Hempstead Road routes from the A148 to the Hempstead Industrial Estate and has a 30 mph speed limit. To the south and east of the industrial estate, Hempstead Road becomes the national speed limit.

Woodland (east of School Lane) to Plumstead Road (Cable Section 5)

1.4.1.52 There are few points at which the highway network crosses the Hornsea Three onshore cable corridor on Cable Section 5; the roads which do are primarily narrow single carriageway or single-track roads. The landscape becomes increasingly rural and commuter or distributor roads are infrequent on sections of the cable corridor where there are few towns or villages.

1.4.1.53 Hempstead Road/Hole Farm Road and Plumstead Road route from the B1149 eastwards and provide access to the Hornsea Three onshore cable corridor.

Plumstead Road to the B1149 (Cable Section 6)

1.4.1.54 Cable section 6 routes from Plumstead Road to the B1149, and Access to this section of the Hornsea Three onshore cable corridor will be obtained from the existing access to the Organic Waste Processing Site, taken from the B1149 north of Saxthorpe and Corpusty. The B1149 is classified as a '3A2 – Main Distributor' road and is subject to the national speed limit in the vicinity of the site entrance.

1.4.1.55 Sweetbriar Lane routes from the B1149 eastwards towards the Hornsea Three onshore cable corridor; however, it is single track with few passing places. Accesses are located on Sweetbriar Lane and background traffic flows are not likely to be significant. Access is also taken from the B1149 and from the Organic Waste Processing Site access road.

1.4.1.56 Cable Section 6 has a temporary secondary compound associated with the onshore HVAC booster station. The vehicle movements associated with the temporary secondary compound have been included within the Cable section 6 calculations and will be discussed further in Section 5.

Onshore HVAC booster station

1.4.1.57 The onshore HVAC booster station is located north of the B1149 at Saxthorpe, situated within Cable Section 6. The access corridor from the B1149 to the onshore HVAC booster station utilises part of an existing access for an organic waste processing plant which has daily HGV movements associated with its operation.

B1149 to land south of Town Close Lane (HDD) (Cable Section 7)

1.4.1.58 Access to Section 7 will be taken primarily from the B1149 and B1354, both classified as '3A2 – Main Distributor' roads and subject to the national speed within the vicinity of the cable corridor. The B1149 and B1354 reduce to 30 mph at Saxthorpe.

1.4.1.59 The B1149 allows for two-way vehicle movements, but has no footways. The B1149 will provide access to several accesses of the Hornsea Three onshore cable corridor via single track and narrow single carriageway roads. Access from the B1149 is the only access point for this section of the route as shown in annex 7.2: Description of Network Links.

1.4.1.60 In general, the B1354 has wide carriageways and few sensitive receptors in the vicinity of the transport scoping area and is subject to the national speed limit. There are some sensitive receptors as the road routes through Melton Constable and Briston in the form of a school with narrow footways adjacent to the carriageway, and on-street parking which narrows the carriageway width; however, conditions in the vicinity of the onshore cable corridor are reasonable, with some frontage access, good visibility and negligible sensitive receptors.

Land south of Town Close Lane to woodland north of Reepham Road (Cable Section 8)

1.4.1.61 Much of the road network located on Section 8 varies between narrow single carriageway and single track roads; therefore, the use of the haul road as the primary means of access to the remainder of the Hornsea Three onshore cable corridor, rather than the use of the local highway network, is likely to be of increased importance on this section of the Hornsea Three onshore cable corridor.

1.4.1.62 Heydon Road is the primary access point to Cable Section 8, with single track roads routeing from Heydon Road also crossing the cable corridor. Heydon Road is classified as a '3B2- Local Access' road between the B1149 and onshore cable corridor.

Land north of Reepham Road to woodland north of Reepham (Cable Section 9)

1.4.1.63 Cable Section 9 will be accessed from Wood Dalling Road which routes from the B1145 via a priority junction, and has a small industrial estate approximately 100 m north of the B1145 junction. There are a small number of dwellings which take access from Wood Dalling Road. To the south, within 200 m of the B1145 junction, there are a small number of dwellings with frontage access taken from Wood Dalling Road; however, north of this the road is primarily for agricultural access.

Woodland north of Reepham to woodland at Booton Common (Cable Section 10)

1.4.1.64 The B1145 crosses the cable corridor and provides access to Section 10 of the onshore cable corridor. The B1145 is classified by NCC as a '3A2 - Main Distributor' road and routes from the B1149 via Cawston, with some sensitive receptors between the cable corridor and B1149. Cawston has some sensitive receptors including frontage access and a small village centre with narrow footways. The B1145 is a signed HGV route between the B1149 and a small industrial estate to the north of Cawston, accessed via Chapel Street.

1.4.1.65 All access points for Cable Section 10 will be taken from the B1145 Cawston Road. Two access points where the onshore cable corridor crosses the B1145 allows construction vehicles to access the cable section north of Marriott's Way. An additional access utilises an existing farm track taken from the B1145, northeast of Reepham, which routes southeast to Marriott's Way. The access is located adjacent to where the B1145 becomes the national speed limit from a 30 mph zone to the west at Reepham. The access avoids any sensitive receptors in Reepham, and is located on the outskirts of the town where there are few dwellings.

Woodland east of Reepham to The Grove (Cable Section 11)

1.4.1.66 Cable Section 11 is located to the southeast of Reepham. Access will be taken from the B1149 via Buxton Road, which turns to Church Road.

1.4.1.67 To the east, Buxton Road is identified as a '3B2 – Access' road as identified on the NCC Route Hierarchy map. The speed reduces from the national speed limit to 30 mph at Eastgate, within the vicinity of dwellings with frontage access and no footways.

The Grove to woodland south of Church Farm Lane (Cable Section 12)

1.4.1.68 Cable Section 12 can be accessed from Reepham Road, north of Lenwade and Alderford. Reepham Road routes from the A1067 via Station Road, which has some residential accesses and footway provision within the vicinity of dwellings, on the eastern side of the carriageway.

1.4.1.69 Section 12 of the Hornsea Three onshore cable corridor is relatively rural in nature; there are no principal, MD or HGV routes across this section; therefore, Reepham Road is the only access route available from the A1067 to Cable Section 12.

Woodland south of Church Farm Lane to River Wensum (Cable Section 13)

1.4.1.70 Cable Section 13 can be accessed from the A1067 via Porter's Lane from the west, and Old Fakenham Road leading to Station Road and Reepham Road from the east. Old Fakenham Road and Porter's Lane both route from the A1067, and are typical rural roads with no lane markings and hedgerows either side of the carriageway.

1.4.1.71 Station Road passes through the small village of Attlebridge, which features dwellings that are accessed directly from the road via driveways. The Marriott's Way cycle route, National Cycle Route 1, crosses Station Road north of Attlebridge and south of Alderford.

River Wensum to woodland south west of Ringland (Cable Section 14)

1.4.1.72 The A1067 crosses the Hornsea Three onshore cable corridor and provides access to Section 14 of the onshore cable corridor. It forms a junction with The Street at Attlebridge and construction vehicles can route onto The Street via its western junction with the A1067, which will avoid the residential area at the eastern junction between The Street and the A1067.

1.4.1.73 Marl Hill Road forms a junction with the A1067 west of Attlebridge. Marl Hill Road is a rural road with no road markings; little vegetation on the verges provides good forward visibility. Morton Lane and Ringland Lane are narrow rural roads with passing places. It gives access via Morton Lane and Ringland Lane.

Woodland south west of Ringland to A47 (Cable Section 15)

1.4.1.74 The A47 is a Trunk Road and gives access to Section 15 northwest of Easton, via Church Lane and Ringland Road. Church Lane is subject to the national speed limit and features two-way traffic with centre lines and leads to Ringland Road which gives access to Weston Road and Accesses A80 and A81. There are a small number of dwellings on this section of narrow rural road, with no footway provision.

1.4.1.75 Intwood Lane routes between the B1113 and a stream to the west. The cable will route through farmland from the stream to the B1113, with Intwood Lane being the only road which crosses the onshore cable corridor on this section.

A47 to Bawburgh Road (Cable Section 16)

1.4.1.76 Cable Section 16 is accessed from the A47 via Dereham Road, Church Lane and Marlingford Road. Church Lane is an unmarked rural road which is subject to the national speed limit, with some street lighting and a footway between Dereham Road and Saint Peter's church.

Bawburgh Road to woodland west of Little Melton (Cable Section 17)

1.4.1.77 Bawburgh Road forms a priority junction with a private track which travels southbound towards the B1108. The B1108 is a two-way rural road with centre lines, and is subject to the national speed limit. It is accessed via the A47, and with the exception of a small number of sparsely distributed dwellings, the B1108 does not pass through any sensitive receptors between the A47 junction and the onshore cable corridor. Access to Cable Section 17 will be taken directly from the B1108, or via Bawburgh Road which routes north from the B1108, crossing the onshore cable corridor.

Woodland west of Little Melton to A11 (Cable Section 18)

1.4.1.78 Cable Section 18 of the onshore cable corridor runs nearby to the western residential areas of Little Melton, and so to lessen the impacts on sensitive receptors, the majority of this section's construction vehicle movements will occur on the haul road.

1.4.1.79 The B1172 is accessible from the A47 and A11 at the Thickthorn Interchange, and gives direct access to the cable corridor. The road is subject to the national speed limit, features two-way traffic with centre lines, and a footway on its northern side. The B1172 contains a small number of dwellings from the Thickthorn Interchange to Station Lane, which are all set back from the carriageway.

1.4.1.80 As the B1172 routes into Hethersett it becomes subject to a 40 mph speed limit, and forms a junction with Station Lane. Station Lane leads to the cable corridor, and is a narrow rural road with high hedgerows. Access is achieved via an existing track, which passes a small number of dwellings.

A11 to woodland north west of Swardeston (Cable Section 19)

1.4.1.81 Cable Section 19 is accessed from Station Lane, which itself is accessed from the southern side of the A11 with deceleration and acceleration lanes. The A11 is a trunk road, and the section that passes through Section 19 is dual carriageway and subject to the national speed limit.

1.4.1.82 Station Lane routes broadly north-south and features two-way traffic with a centre line from its junction with the A11 and its junction with the Ketteringham Recycling Centre access road. From this junction, Station Lane continues as a wide rural road, with good forward visibility. The cable corridor is accessed from Cantley Lane which forms a bifurcated junction with Station Lane. Cantley Lane is a rural road with no markings and good forward visibility.

Woodland north west of Swardeston to B1113 (Cable Section 20)

1.4.1.83 Cable Section 20 is accessed from the B1113. Construction vehicles will route from the A47 via the northbound exit to the A140. This section of the A47 is dual carriageway and is subject to the national speed limit. The A47 forms a priority roundabout with the A140 following a deceleration lane, and then routes northbound to from a signalised junction with the B1113. The routes to the Hornsea Three onshore cable corridor and features a two-way carriageway with centre lines.

1.4.1.84 Approximately 150 m north of the cable corridor, there is a bridge where the A47 passes over the B1113. This bridge will not impact on the HGV movements towards the Hornsea Three onshore cable corridor. Access will be achieved from the B1113 via Short Lane, The Common and Intwood Lane. All three roads are typical narrow rural roads with high vegetation on the verges.

B1113 to end of Hornsea Three onshore cable corridor (Cable Section 21)

1.4.1.85 Access will be taken from the previously discussed B1113, a national speed limit '3A2 - Main Distributor' road with good visibility. The access point for the onshore HVDC converter/HVAC substation will be the access point for Cable Section 21. Access points located on Mangreen Lane are not suitable for large HGV movements, therefore these access points will not be used by HGVs.

1.4.1.86 The A140 will be utilised to route to the Hornsea Three onshore cable corridor, and is subject to the national speed limit. It forms a junction with Mangreen Lane, which after approximately 60 m from the A140 forms an access. This utilises the existing Norwich Main Substation access road.

Onshore HVDC converter/HVAC substation

1.4.1.87 Access to the permanent onshore HVDC converter/HVAC substation, Access A118, will be taken from the previously discussed B1113, a national speed limit '3A2 - Main Distributor' road with good visibility. A permanent access will be designed as vehicle movements associated with the operation of the onshore HVDC converter/HVAC substation will occur daily. The design access will incorporate a temporary wide access which will allow abnormal indivisible loads such as the transformers to enter the site, and the operational access will be instated once construction of the onshore HVAC converter/HVAC substation has been completed.

Main Compound at Oulton Street

1.4.1.88 The main compound at Oulton Street is currently accessed from The Street and Oulton Street, which routes broadly north to south between Blickling Road and the B1149. Traffic management measures will be developed as part of the subsequent Construction Traffic Management Plans (CTMPs) secured prior to the commencement of works and activities at the main compound, when the scope of the use of the main construction compound by the principal contractor is known. These traffic management measures may involve diversion routes.

1.4.2 Personal injury accidents

1.4.2.1 Personal Injury Accident (PIA) data has been used to consider the road safety record of the study area.

1.4.2.2 The area of analysis is over a significantly large area and therefore a two-stage process is undertaken as follows. After breaking the network into links, the injury accident rate was calculated and compared to the national average injury accident rate set out in Table RAS1002 of the Department for Transport (DfT) document 'Reported Road Casualties Great Britain 2016'.

1.4.2.3 This initial analysis was undertaken using PIA's from the Crashmap website for 2013, 2014 and 2015 and the injury accident rates are contained in Table 1.1.

Table 1.1: Summary of accident rates.

Link	AADT [a]	Link Length (km)	PIAs over 3 years [b]	PIAs per million vehicle-km (observed)	PIAs per million vehicle km (national average)
A148, west of The Street and east of Green Lane	12797	2.3	3	93	152
A148 west of Holt and east of Letheringsett	10550	10.2	11	94	152

Link	AADT [a]	Link Length (km)	PIAs over 3 years [b]	PIAs per million vehicle-km (observed)	PIAs per million vehicle km (national average)
A148, east of the B1149 roundabout and west of Station Road	11264	0.35	0	0	152
B1354 between the Swanton Road junction and B1110 junctions	3714	2.4	3	308	274
B1354 east of Melton Constable and west of Briston	5151	0.6	1	296	274
B1149 at Edgefield, north of the village hall and south of Hempstead Road	4174	0.5	2	878[c]	274
A148 at High Kelling, south of Kelling Hospital	12783	0.6	1	119	152
A148, east of Bodham and west of the Woodlands Leisure centre	12179	0.5	1	150	152
A148, west of the B1436 junction and east of the Lion's Mouth junction	13200	1.1	2	126	152
B1436, east of Felbrigg	8893	2.2	1	47	274
A140, south of Roughton and north of the Topshill Road junction	11079	2.7	3	92	152
A149 west of Weybourne and east of The Pheasant hotel	3282	1.1	0	0	152
A149 east of Weybourne, west of the North Norfolk Railway line	4390	3.5	3	179	152
A1067, north of Bridge Road and east of Little Ryburgh	8696	2	2	105	152
B1145 at Bawdeswell, between The Street junction and Hall Road junction	3119	0.45	0	0	274
B1145, west of Reepham and east of the Old Lane junction	2742	2.7	2	247	274
B1145 east of Cawston, west of the B1149 crossroads	3199	1.5	3	573[c]	274
B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	4448	4	7	360 [c]	274
A140, south of Aylsham's B1145/A140 roundabout, and north of Marsham	14475	1.4	2	90	152
A1067, between Attlebridge and the Fir Covert Road junction	8276	2.9	3	114	152
A140 between the A47 and B1113 junctions	22881	0.6	0	0	473
B1113, south of the A47 near Norwich Sports ground	8141	1.8	2	125	448
A47 at Honingham	27245	1.6	5	105	473
A47 at Bawburgh	43804	2.2	2	19	473
A47 at Intwood	52775	3.4	17	87	473
A11 at Hethersett	48817	1.9	5	49	473
A1065 south of A148 and north of Pond Road	7854	1.3	0	0	473
A140 north of Hevingham	12500	1.5	4	195	473
A1067 at Lenwade	11778	2.5	5	156	473
A1065 at Weasenham, between B1145 and Massingham Road	5050	3.5	4	207	473

[a] Annual average daily traffic (AADT) derived from traffic surveys/DfT flows

[b] Information obtained from Crashmap website

[c] Links with accident rates more than 25% above the national average

1.4.2.4 Where observed accident rates are in excess of national averages this does not necessarily indicate a poor safety record. Indeed, because they are an average, this means than 50% of all roads will have an injury accident rate that exceeds the average.

1.4.2.5 For robustness, injury accident rates that were 25% higher than the national average rates have been assessed further as a second stage of the analysis.

1.4.2.6 Therefore, four links have been identified as having an injury accident rate of 25% higher than the national average and these links have been analysed in further detail, along with injury accidents occurring on the A47 trunk road.

1.4.2.7 To undertake this analysis, PIA data has been obtained from NCC and analysed for the five-year period 01 December 2012 to 30 November 2017. Annex 7.4: Personal Injury Accident Locations shows a summary of the PIA records with details as follows. The roundabout, junctions or roads discussed below have a corresponding figure in volume 6, annex 7.8: Traffic and Transport Figures. The numbered PIA below (e.g. PIA 28) correspond to the PIA shown on these figures.

A11/A47 Roundabout

1.4.2.8 The injury accident data supplied covers the entirety of the A11/A47 Thickthorn Interchange. This includes Thickthorn Interchange junctions with; Newmarket Road, the A11, the A47, Cantley Lane South, and the B1172. This data also covers the B1172 roundabout with Thickthorn Park and Ride, Thickthorn Bus Station, Travelodge Norwich Cringleford, and the service station.

1.4.2.9 Annex 7.8: Traffic and Transport Figures indicates the location, severity and vehicles involved in each PIA. There were 31 PIAs in the search over the 5-year period. Of these PIAs, two were serious and there were no fatalities.

1.4.2.10 The first serious accident, shown as PIA 28, occurred on the Thickthorn Interchange exit to the A47 southbound, and was the result of a motorcycle heading for the A11 westbound failing to give way to a car heading towards the A47 southbound. The other serious accident, PIA 11, was the result of a car failing to stop and shunting the rear of a stationary car on the A11 junction to the Thickthorn Interchange. The shunt pushed the stationary vehicle into the path of oncoming vehicles on the roundabout, causing a collision with a third car. Both these serious accidents were the result of driver error.

1.4.2.11 Of the 29 slight accidents, four involved goods vehicles. Two of these accidents were the result of drivers failing to give way, and two were due to drivers failing to judge speed. These accidents were the result of driver error.

1.4.2.12 At the B1172 roundabout with Thickthorn Park and Ride, there were two slight accidents which were the result of drivers not driving to suit the road conditions, and another failing to give way or judge another vehicle's speed. There is one slight accident that occurred at the Park and Ride/Thickthorn Services roundabout, which was the result of a motorcyclist losing control.

1.4.2.13 The analysis shows a cluster of accidents at the western slip-road from the A11 to the Thickthorn Interchange. Four of these accidents are attributed to rear end shunts, and two are the result of drivers failing to give way.

1.4.2.14 Four slight accidents occurred on the A47 flyover. One accident was the result of a driver not driving to suit the road conditions, two were the result of drivers failing to judge other persons speed or to give way, and one was due to an electrical fault reducing visibility of a stationary car.

1.4.2.15 From the analysis undertaken at this junction, it appears that driver error is the common factor in the PIA data obtained. There is nothing in relation to the existing highway layout or geometries that raise a road safety concern.

A47 between Sandy Lane and the B1535 junctions (inclusive of junctions)

1.4.2.16 The injury accident data supplied covers the A47 between Sandy Lane and the B1535, inclusive of the junctions. Annex 7.8: Traffic and Transport Figures indicates the location, severity and vehicles involved in each PIA. There were 21 PIAs in the search over the 5-year period. Of these PIAs, one was fatal and four were serious.

1.4.2.17 The fatal incident occurred on the A47 junction with Wood Lane, and is shown as PIA 18. This was the result of a car turning right into Wood Lane from the A47 colliding with a motorcycle travelling southbound on the A47.

1.4.2.18 Over the period, there were four serious accidents. Two serious accidents occurred near the A47/Sandy Lane junction, PIA 2 and 3. These were the result of careless driving and failure to judge speed. Serious accidents PIA 6 and 10 occurred on the A47 between the Sandy Lane and the B1535 junctions. One was due to loss of control, and the other was the result of a driver failing to judge another vehicle's speed.

1.4.2.19 There were nine accidents involving goods vehicles. Two of these accidents involved good vehicles over 7.5 t and were both the result of the driver's failure to judge speed. Three involved goods vehicles of unknown weight and were also due to the driver's failure to look and judge speed.

1.4.2.20 There is a cluster of accidents near the A47/Church Lane junction, which all occurred on the A47 carriageway, and were all the result of the driver's failure to look and/or judge speed.

1.4.2.21 Two slight accidents occurred at the A47/Berry's Lane junction, and both contributing factors were drivers failing to judge speed.

1.4.2.22 Four slight accidents are recorded at the A47/Wood Lane junction in which the contributing factors were driver's failure to look or judge speed of other vehicles.

1.4.2.23 From the analysis undertaken at this section of the road network, it appears that driver error is the common factor. There is nothing in relation to the existing highway layout or geometries that raise a road safety concern.

A47/A146 Junction

1.4.2.24 The PIA data covers the junction between the A146/Loddon Road and the A47/Norwich Southern Bypass. at annex 7.8: Traffic and Transport Figures indicates the location, severity and vehicles involved in each PIA. There were 24 PIAs within the 5-year period; three were serious and there were no fatalities.

1.4.2.25 The serious injury accident which occurred on the A47 travelling south-east to north-east was the result of a bus or coach driver failing to slow in time, causing a collision with the back of a stationary car. East of this collision, another serious accident occurred after a driver lost control over a flooded section of road resulting from a blocked storm drain. The serious accident that occurred on the A47 eastbound slip road to the A146 was the result of a driver failing to give way at the signalised junction, and subsequently colliding with a car travelling south east to northwest on the A146.

1.4.2.26 There are four slight accidents involving goods vehicles, all of which were under 3.5 t. Accidents numbered 10 and 18 were the result of driver's failure to stop at a red light, and snowy conditions were a contributing factor in drivers failing to stop in accidents 13 and 23.

1.4.2.27 There are two distinct clusters within the area. The first cluster is the A47 northbound exit slip road signalised junction with the A146; These PIAs are the result of driver error, as all these accidents are attributed to drivers failing to stop at a red-light signal.

1.4.2.28 Another cluster is at the A47 southbound exit slip road signalised junction with the A146/Loddon Road. These accidents are all shown to be the result of drivers failing to stop at a red light.

1.4.2.29 From the analysis undertaken at this section of the road network, it appears that driver error is the common factor in the PIA data obtained. There is nothing in relation to the existing highway layout or geometries that raise a road safety concern.

A148/B1454 junction

1.4.2.30 This data covers the junctions between the A148 and the B1454, and the A148 and Elm Lane. Annex 7.8: Traffic and Transport Figures indicates the location, severity and vehicles involved for each PIA. There were 6 injury accidents within the most recent 5-year period. Of these PIAs, three were serious and there were no fatalities.

1.4.2.31 The serious PIA shown as 2 was the result of a driver failing to give way to a car turning around on the B1454, causing a collision. The serious PIA denoted as 3, was the consequence of a driver failing to give way turning right from the A148 to the B1454. PIA 6 was due to ice on the A148 causing the goods vehicle to slide into the path of an oncoming car.

1.4.2.32 The main contributing factor of the remaining slight PIAs is shown to be drivers failing to stop and/or judge another vehicle's speed.

1.4.2.33 From the analysis undertaken at this section of the road network, it appears that driver error is the common factor in the PIA data obtained. There is nothing in relation to the existing highway layout or geometries that raise a road safety concern.

B1145 - Reepham to B1149

1.4.2.34 The data covers the B1149 between Aylsham Road and Buxton Road, and B1145 between the B1149 and Orchard Lane. Annex 7.8: Traffic and Transport Figures indicates the location, severity and vehicles involved for each PIA. There were 15 PIAs over the 5-year period; one was serious and there were no fatalities.

1.4.2.35 The only serious injury accident, denoted as PIA 6, occurred after a driver lost control on a wet road, and subsequently collided with an oncoming car. The only PIA involving a goods vehicle was under 3.5 t and is denoted as PIA 4 and was the result of the goods vehicle failing to judge a car's speed, resulting in a rear end shunt.

1.4.2.36 Annex 7.8: Traffic and Transport Figures does not demonstrate any clusters of injury accidents.

Aylsham B1145 and A140

1.4.2.37 This data covers the B1145 between Holt Road and the A140, and the A140 between the B1145 and Banningham Road. Annex 7.8: Traffic and Transport Figures indicates the location, severity and vehicles involved in each PIA; there were 32 PIAs over the 5-year period; of these PIAs, eight were serious and there were no fatalities.

1.4.2.38 The first serious, denoted as 1 on the B1145, was the result of a driver losing control of their car after making contact with the verge. East of this accident, a serious accident was the result of a motorcyclist losing control at the right-hand bend travelling eastbound. The two remaining serious accidents on the B1145 were both due to a loss of traction pertaining to the road surface; PIA 9 involved a motorcyclist losing control after coming into contact with mud on the road, and PIA 11 occurred after a driver lost control on a bend in icy conditions. These serious accidents on the B1145 are all shown to be the result of drivers not driving to suit the conditions, or driving carelessly.

1.4.2.39 There were four serious accidents on the A140. Serious PIA 23 was the result of a car driver turning right from Buxton Road to the A140 across the path of a motorcyclist travelling southbound on the A140. PIA 25 occurred at the roundabout between the A140 and Burgh Road, and involved one car losing control at the roundabout. Two further serious accidents on the A140, PIA 24 and 31, both occurred previous to the construction of the current roundabout at the junction between the A140 and Burgh Road. These accidents occurred at the previous crossroad design, and were both the result of careless driving.

1.4.2.40 There was a cluster of slight accidents alongside these serious accidents. However, PIA 25 is the only accident to have occurred since the roundabout has been built and, except for PIA 28 which occurred during construction, the remaining accidents occurred at the previous crossroads.

1.4.2.41 There are four serious and nine slight accidents on the B1145 between the junction with the B1149 and the roundabout with Woodgate Way/Hobart Lane. With the exception of PIA 13 which involved a pedestrian, the accidents along this link mostly involved only one vehicle, and were due to drivers losing control by not driving to suit the conditions or speeding. The contributing factor of the PIA which involved a pedestrian was a driver not seeing the pedestrian, who was not wearing illuminated/reflective clothing, walking in the road in the dark.

B1149 Holt to Oulton

1.4.2.42 The data covers the B1149 between the A148/B110 roundabout and Heydon Road, inclusive of junctions. The search area also includes the B1354 between its junction with the B1149 and Tithe Barn Lane as shown at annex 7.8: Traffic and Transport Figures. indicates the location, severity and vehicles involved in each PIA. There were 27 PIAs in the search over the 5-year period. Of these PIAs, two were fatal and seven were serious.

1.4.2.43 A fatal accident occurred south of Saxthorpe on the B1149, shown as PIA 7. This was the result of a car losing control travelling southbound in wet conditions, and colliding head on with a car going northbound. A fatal accident occurred south of the B1149 junction with Hunworth Road, shown as PIA 25. This was the result of a driver losing control and colliding with a tree whilst exiting a right-hand bend travelling southbound.

1.4.2.44 There are three serious accidents within a cluster to the south of Saxthorpe, denoted as PIA 2, 3 and 5. The contributing factor to these three accidents is shown as being a deer or an unspecified animal in the carriageway.

1.4.2.45 Serious PIA 13 was the result of a driver losing control by failing to drive to suit the wet conditions. Serious PIA 15 was also due to a driver not driving to suit the conditions, as the car lost control on the icy road surface. Serious PIA 16 was the result of a motorcycle travelling at excessive speeds for a bend in the road.

1.4.2.46 The serious PIA 27 close to the B1149 junction with Hunworth Road occurred after a driver travelling around the bend at excessive speed lost control and collided head on with an oncoming car.

1.4.2.47 There were 14 slight accidents on the B1149 section of the surveyed area. Ten of these incidents were due to drivers losing control, with three of these being in wet conditions and another occurring in snowy conditions. Three accidents were the result of drivers failing to look, and another was a HGV failing to give way to a tractor.

1.4.2.48 On the studied section of the B1354, there were three slight accidents. Two were a result of drivers failing to drive to suit the conditions (wet and snowy), and the other occurred after a driver failed to see a broken-down car in the road.

1.4.3 Existing traffic flows

1.4.3.1 In order to establish baseline traffic flow models, traffic surveys were undertaken at various points across the transport study area. 12 Manual Classified Counts undertaken between 07:00 and 19:00 on Tuesday 13 June 2017 to establish a baseline scenario from which the impact of construction traffic on highway capacity could be assessed. The junctions surveyed are as follows:

- A148/A1067/Thorpland Road four-arm roundabout;
- A148/B1354 priority junction;
- A148/B1110/B1149 four-arm roundabout at Holt;
- B1354/B1110 staggered crossroads west of Melton Constable;
- A1067/B1110 bifurcated junction at Guist;
- A148/B1436 three-arm roundabout southwest of Cromer;
- A140/B1436 mini-roundabout at Roughton;
- A1067/B1145 T-junction, south of Bawdeswell;
- B1149/B1145 roundabout four-arm roundabout east of Cawston;
- A140/B1145/Norwich Road roundabout, south of Aylsham; and
- A140/B1113 signalised junction, north of the Tesco superstore.

1.4.3.2 These traffic surveys have been agreed with NCC and annex 7.3: Base Traffic Flows summarises the traffic flow information collected as part of the TA. Daily traffic flows for 22 sites were obtained through the use of Automatic Traffic Counters as various points across the transport study area, primarily on principal and MD roads to the north of Norwich. Daily traffic flows at 4 sites have been obtained from the DfT website. Daily traffic flows at four sites were obtained by HE and the remaining data was extracted from the NCC Northern Distributor Road TA.

1.4.3.3 Table 1.2 summarises the 2017 daily traffic flow information collected as part of the assessment process.

Table 1.2: Existing Daily Traffic Flows.

Link Description	Source	2017 Traffic Flows		
		Total	HGV	HGV % of Total
Link ID 35: A148, west of The Street and east of Green Lane	Automatic Traffic Counter	12797	771	6.0%
Link ID 34: A148 west of Holt and east of Letheringsett	Automatic Traffic Counter	10550	636	6.0%
Link ID 36: A148, east of the B1149 roundabout and west of Station Road	Automatic Traffic Counter	11264	563	5.0%
Link ID 50: B1354 between the Swanton Road junction and B1110 junctions	Automatic Traffic Counter	3714	268	7.2%
Link ID 55: B1354 east of Melton Constable and west of Briston	Automatic Traffic Counter	5151	372	7.2%
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	Automatic Traffic Counter	4174	159	3.8%
Link ID 37: A148 at High Kelling, south of Kelling Hospital	Automatic Traffic Counter	12783	638	5.0%
Link ID 41: A148, east of Bodham and west of the Woodlands Leisure centre	Automatic Traffic Counter	12179	655	5.4%
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	Automatic Traffic Counter	13200	594	4.5%
Link ID 190: B1436, east of Felbrigg	Automatic Traffic Counter	8893	449	5.0%
Link ID 49: A140, south of Roughton and north of the Topshill Road junction	Automatic Traffic Counter	11079	546	4.9%

Link Description	Source	2017 Traffic Flows		
		Total	HGV	HGV % of Total
Link ID 1: A149 west of Weybourne and east of The Pheasant Hotel	Automatic Traffic Counter	3282	23	0.7%
Link ID 2: A149 east of Weybourne, west of the North Norfolk Railway Line	Automatic Traffic Counter	4390	30	0.7%
Link ID 81: A1067, north of Bridge Road and east of Little Ryburgh	Automatic Traffic Counter	8696	499	5.7%
Link ID 84: B1145 at Bawdeswell, between The Street junction and Hall Road junction	Automatic Traffic Counter	3119	118	3.8%
Link ID 86: B1145, west of Reepham and east of the Old Lane junction	Automatic Traffic Counter	2742	104	3.8%
Link ID 90: B1145 east of Cawston, west of the B1149 crossroads	Automatic Traffic Counter	3199	117	3.7%
Link ID 77: B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	Automatic Traffic Counter	4448	150	3.4%
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	Automatic Traffic Counter	14475	690	4.8%
Link ID 111: A1067, between Attlebridge and the Fir Covert Road junction	Automatic Traffic Counter	8276	576	7.0%
Link ID 145: A140 between the A47 and B1113 junctions	Automatic Traffic Counter	22881	1209	5.3%
Link ID 146: B1113, south of the A47 near Norwich Sports ground	Automatic Traffic Counter	8141	277	3.4%
Link ID 129: A47 at Honingham	Highways England	27245	2664	9.8%
Link ID 157: A47 at Bawburgh	Highways England	43804	3126	7.1%
Link ID 147: A47 at Intwood	Highways England	52775	4112	7.8%
Link ID 153: A11 at Hethersett	Highways England	48817	4114	8.4%
Link ID 144: A47, between A140 and A146 junctions	Department for Transport	50123	2873	5.7%
Link ID 197: A1065, North of Swaffham	Department for Transport	7669	488	6.4%
Link ID 195: A1065, east of Weasenham	Department for Transport	5134	446	8.7%
Link ID 5: A1082, South of Sheringham	Department for Transport	8085	110	1.4%

1.4.3.4 NCC advise that there are seasonal variations in traffic flows on the A149 and A148. The A140 runs north to south between the coastal town of Cromer and Norwich. The A148 runs from Cromer roughly on a southwest route to Kings Lynn, whilst the A149 again runs from Cromer, due west following the coastline, before turning to Kings Lynn. All three routes pass through the Norfolk Coast Area of Outstanding Natural beauty and converge on the popular seaside town of Cromer.

1.4.3.5 NCC do not hold any traffic data along the A149 or A148 on which to determine the extent of any seasonal variation along the key coastal areas.

1.4.3.6 There are some DfT permanent traffic counters on each of the above roads, but these only provide year on year Annual Average Daily Flow figures rather than information relating to seasonal flow variation. HE provide network journey time and traffic flow data via their web site WebTRIS. However, on interrogating the WebTRIS database (March 2018) at the time of writing there are no count sites on any of the above routes.

1.4.3.7 An analysis of the traffic survey data shows that annual average traffic flows are very low in the areas to the north of Norwich and they do not identify any distinct AM or PM peak hours. Although there are peaks, they are not as defined as on other parts of the network. Observations indicate that there are no existing highway capacity problems in this area under annual average conditions.

1.4.3.8 It is understood from NCC that traffic flows are higher during the peak summer season, (mid-July to September) however, there is no data available on which to quantify the full extent of this. On the basis that traffic surveys have been undertaken outside of the peak summer season, the change in traffic flows as a result of the Hornsea Three construction vehicles relative to the baseline traffic flows are at a maximum and therefore represent the biggest impact in comparison to comparable traffic flows during the tourist season. As set out in the EIA methodology (volume 3, chapter 7: Traffic and Transport, section 7.9), this will therefore be a robust assessment in terms of the rule 1 and rule 2 thresholds and thus identify the key road links for detailed assessment robustly. The peak tourist season increases the number of cars along these sections and although this results in higher total vehicle flows, the number of HGV movements remain similar since there is no such increase in freight movement. Because the majority of traffic generated by Hornsea Three are HGVs, the conclusions of the EIA drawn from the detailed assessments undertaken in volume 3, chapter 7: Traffic and Transport, sections 7.11 and 7.13 are subsequently weighted towards HGV movements and thus the conclusions of the EIA (volume 3, chapter 7: Traffic and Transport) do not change as a result of peak seasonal traffic flows.

1.4.3.9 From a highway capacity perspective, the requirement for detailed assessment considers the change in traffic flow as a result of the construction traffic flows and thus is dependent upon these volumes. The construction traffic flow volumes do not alter due to the peak seasonal traffic flows and thus the conclusions drawn in this regard similarly do not change.

1.4.4 Public transport services

1.4.4.1 Annex 7.8: Traffic and Transport Figures summarises bus routes in the vicinity of the Hornsea Three onshore cable corridor and the closest bus stop on each route if it lies within 800 m of the onshore cable corridor.

1.4.4.2 800 m is a distance adopted based upon a mix of guidance and professional judgement. 400 m is a target walking distance (Institution of Highways and Transportation (IHT), 1999. *Guidelines for Planning for Public Transport in Developments*) to achieve for new developments and that is generally accepted as a reasonable walking distance in urban areas. Some people will walk longer that this distance and especially in rural areas, walking distances can be expected to be slightly longer for such areas. A distance of 800 m is therefore considered reasonable for the purposes of accessibility in this location.

1.4.4.3 Details of the bus services within 800 m of the Hornsea Three onshore cable corridor are summarised in Table 1.3. There are no other bus services within 800m of the Hornsea Three onshore cable corridor that are not listed in Table 1.3.

Table 1.3: Summary of bus services within 800 m of Hornsea Three onshore cable corridor.

Stop (if within 800 m of onshore cable corridor)	Service	Route	Frequency (Monday to Friday)	Frequency (Saturday)	First service	Last service
Church, Weybourne	Coasthopper	Kings Lynn - Hunstanton - Wells-next-to-Sea - Weybourne - Sheringham - Cromer	Hourly	Hourly	09:42	18:42
		Cromer - Sheringham - Weybourne - Wells-next-to-Sea - Hunstanton - Kings Lynn	Hourly	Hourly	09:26	17:26
High, Kelling, A148	5	North Walsham - Mundesley - Cromer - Holt	30 minutes	30 minutes	08:20	18:56
		Holt - Cromer - Mundesley - North Walsham	30 minutes	30 minutes	06:55	17:49
	19	Cromer - Weybourne - Holt	10:44 Monday, Wednesday and 10:27 Friday (Return 12:25 Monday, Wednesday and 12:43 Friday)			
	44	Holt - High Kelling - Sheringham	30 minutes	30 minutes	05:42	17:25
		Sheringham - High Kelling - Holt	30 minutes	30 minutes	10:18	00:03
The Street, Hempstead	16	Cromer - Baconsthorpe - Holt	Tuesday 10:38 (Return 12:25)			
	17	Holt - Baconsthorpe - Sheringham - West Runton	Tuesday 10:43 (Return 12:30)			
Green, Edgefield	43	Norwich - Reepham - Edgefield - Holt	Mon - Fri 06:48 (Return 18:38 and 19:05)			
Croft Lane, Saxthorpe	43	Norwich - Reepham - Edgefield - Holt	Mon - Fri 06:52 (Return 18:32 and 18:59)			
	45	Holt - Corpusty - Norwich	2 per day	2 per day	07:07	10:02
		Norwich - Corpusty - Holt	2 per day	2 per day	13:49	18:09
	45A	Norwich - Felthorpe - Reepham - Holt	Monday to Friday 17:26			
	45B	Norwich - Feltthorpe -Corpusty - Holt	Saturday 13:49 and 18:19			
Heydon Road Heydon Road	24	Fakenham - Reepham - Norwich	Tuesday 09:49 (Return 14:00)			
	43	Reepham - Aylsham - Norwich	6 per day	5 per day	10:12	18:36
		Norwich - Aylsham - Reepham	6 per day	6 per day	07:21	15:51
	45A	Norwich - Felthorpe - Holt	Monday to Friday 17:14			
	80	Aylsham - Reepham - Dereham	Friday 09:47 (Return 14:17)			
	98	Cawston - Reepham - Fulmodeston - Fakenham	Thursday 09:17 (Return 13:48)			
Hall Road, Alderford	24	Fakenham - Reepham - Norwich	Tuesday 10:04 (Return 13:46)			
Fakenham Road, Morton on the Hill	X29	Norwich - Foulsham - Fakenham	Hourly	Hourly	08:06	19:27
		Fakenham - Foulsham - Norwich	Hourly	Hourly	06:56	17:12
Des Amis, Easton	4	Swanton Morley - Dereham - Easton - Norwich	Hourly	Hourly	06:39	17:38
		Norwich - Easton - Dereham - Swanton Morley	Hourly	Hourly	07:44	18:46
Kings Head, Bawburgh	15	Shipdham - Hardingham - Norwich	Wednesday 09:10 (Return 13:05)			
	806	Bawburgh - Wymondham	Friday 09:20 (Return 12:10)			

Stop (if within 800 m of onshore cable corridor)	Service	Route	Frequency (Monday to Friday)	Frequency (Saturday)	First service	Last service
Colney Lane, Hethersett	6	Norwich - Hethersett - Wymondham - Watton	Hourly	Hourly	08:29	19:22
		Watton - Wymondham - Hethersett - Norwich	Hourly	Hourly	07:12	17:49
	6A	Attleborough - Hethersett - Norwich	One Service (07:12)		-	-
		Norwich - Hethersett - Attleborough	Two Services Daily (16:57 and 19:22)			
	9A	Norwich - Cringleford - Hethersett	Monday to Friday 08:05 (Return 15:00/16:00)			
	14/15/15A	Thorpe St Andrew - Norwich - Hethersett - Wymondham	Every 15 minutes	Every 15 minutes	07:10	19:08
		Wymondham - Hethersett - Norwich - Thorpe St Andrew	Every 15 minutes	Every 15 minutes	06:34	19:14
	13A/13B/13C	Norwich - Hethersett - Attleborough	One morning and 4 evening services daily (07:41, 19:55, 20:55, 22:20, 23:08)			
		Attleborough - Hethersett - Norwich	6 services daily	5 services daily	16:42	22:46
Short Lane, Main Road	10A	East Harling - Swardeston - Norwich	2 services Monday to Friday 07:53 and 10:20			
		Norwich - Swardeston - East Harling	3 services Monday to Friday 13:31, 16:23 and 17:58			
	37/38	Long Stratton - Mulbarton - Norwich	Half Hourly	Half Hourly	07:41	18:11
		Norwich - Mulbarton - Long Stratton	Half Hourly	Half Hourly	07:33	18:21
Hall, Dunston	1	Diss - Aslacton - Norwich	4 services per day (08:07, 10:01, 12:57 and 14:26)			
		Norwich - Aslacton - Diss	4 services per day (08:06, 10:01, 12:59 and 17:56)			
	2	Long Stratton - Norwich	Hourly	5 per day	07:28	21:10
		Norwich - Long Stratton	Hourly	6 per day	10:13	22:44
	38	Norwich - Long Stratton	Half Hourly	Half Hourly	06:59	18:44
		Long Stratton - Norwich	Half Hourly	Half Hourly	06:56	19:19
	40	Diss - Harleston - Norwich	Saturday 08:30 (Return 15:05)			
	83	Norwich - Pulham - Harleston	4 per day		10:51	18:01
		Harleston - Pulham - Norwich	5 per day	4 per day	07:40	17:44

1.4.4.4 It can be seen from annex 7.8: Traffic and Transport Figures and Table 1.3 that there are some sections of the Hornsea Three onshore cable corridor where there are bus stops within 800 m, with services that may be convenient for construction workers. However, there are large lengths of the onshore cable corridor that would not be able to be accessible by public transport by construction workers.

1.4.5 Pedestrian routes

1.4.5.1 It is generally accepted that a reasonable distance that people would be prepared to walk to work is 2 km (IHT, Guidelines for Providing for Journeys on Foot, 2000). There are residential areas within 2 km of the Hornsea Three onshore cable corridor from which, if footpath provision is available, there is potential for construction workers to undertake their journey on foot.

1.4.6 Cycle routes

1.4.6.1 Cycle routes that cross or in the vicinity of the site are:

- Holt Explorer Loop: Routes from Regional Route 30 northeast crossing the Hornsea Three onshore cable corridor on the edge of Kelling Heath to Weybourne where it then routes south east through Bodham am West Becham and continues south and then west through Baconsthorpe. It then crosses the Hornsea Three onshore cable corridor as it routes west to Hempstead where it continues south west to Edgefield;
- Regional Route 30, located approximately 1 km west of the Hornsea Three onshore cable corridor routes, parallel to the onshore cable corridor from just south of Kelling Hall, through High Kelling and crosses the onshore cable corridor in the vicinity of the property 'Quietways' from where it routes east and connects with the Holt Explorer Loop;
- National Cycle Route 1, which is a long-distance cycle route connecting Dover and the Shetland Islands via the east coast of England and Scotland, routes to the west of the Hornsea Three onshore cable corridor. It routes through Reepham, approximately 1 km west of the onshore cable corridor, through Whitwell and Lenwade. After which it crosses the onshore cable corridor to the north of Attlebridge and continues southeast to Drayton.

1.4.6.2 It is generally accepted that a reasonable distance that people are willing to cycle to work is 5 km. There are a number of residential areas within 5 km of the Hornsea Three onshore cable corridor which have access to these cycle routes, enabling construction workers to cycle to work.

1.5 Description of construction work

1.5.1 Description of works and key parameters

1.5.1.1 The Hornsea Three onshore cable corridor comprises a corridor approximately 55 km in length between the cable landfall at Weybourne, onshore HVAC booster station at Little Barningham and the onshore HVDC converter/HVAC substation site near Swardeston to the south west of Norwich. Details of the project and construction methods are set out in volume 1, chapter 3: Project Description.

1.5.1.2 The Hornsea Three onshore cable corridor construction operations will include a main compound at Oulton Airfield, near Oulton Street and several secondary compounds for the storage of materials and equipment and to accommodate staff welfare facilities. This is described in section 1.6.2. At a number of locations specialist equipment will be required to undertake HDD operations. Details of the compound locations are provided in the Crossing Schedule (volume 4, annex 3.5: Crossing Schedule (Onshore)) which accompanies the DCO application.

1.5.1.3 Table 1.4 summarises the key parameters of the construction works.

Table 1.4: Maximum design scenario considered for the assessment of potential impacts on traffic and transport.

Potential impact	Maximum design scenario	Justification
Construction phase		
The temporary impact of the construction work may affect driver delay. The temporary impact of the construction work may affect severance of routes. The temporary impact of the construction work may affect pedestrian delay. The temporary impact of the construction work may affect pedestrian amenity. The temporary impact of the construction work may affect highway capacity. The temporary impact of the construction work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal indivisible loads during construction works.	<u>Hornsea Three landfall area</u> The temporary construction compound has dimensions of 300 m by 200 m at the Hornsea Three landfall area. Thrust bore crossing method at Hornsea Three landfall area with pits measuring 5 m x 25 m x 6 m. A reasonable assumption is that 75% of staff assumed to drive themselves to work and no access by public transport (Additional 25% of staff assumed to car share). The worst case would involve the import and export of all material. The shortest practical duration of works would maximise daily HGV movements. A reasonable duration of 32 months has been assumed.	A well-known occurrence at construction sites is staff organising travel amongst themselves to car share, especially in rural locations. Furthermore, contractors regularly provide transport for their staff via minibus. The actual mode share of construction staff is not reported for any similar site, however, a calculation that 75% of construction staff drive is considered a reasonable assumption for assessment purposes The use of Thrust Bore, rather than an alternative TT, represents the highest number of vehicle movements due to the requirement to transport steel shuttering and additional craneage compared with other techniques such as HDD. Larger areas result in larger amounts of material and thus larger numbers of HGV movements. Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements.
The temporary impact of the construction work may affect driver delay The temporary impact of the construction work may affect severance of routes. The temporary impact of the construction work may affect pedestrian delay. The temporary impact of the construction work may affect pedestrian amenity. The temporary impact of the construction work may affect highway capacity. The temporary impact of the construction work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal indivisible loads during construction works	<u>Onshore cable corridor</u> The route length is approximately 55 km. Duration of construction programme for the secondary compounds is 30 months (2.5 years) (secondary compounds, nor the storage areas, will not be in use for the full 30 month period). A reasonable assumption is that 75% of staff assumed to drive themselves to work and no access by public transport. (Additional 25% of staff assumed to car share). • Widest cable trench option - six cable trenches up to 5 m width at surface (1.5 m at base) and 2 m depth Up to 1,650,000 m^2 (5 m x 55,000 m x 6) from installation of up to six cable trenches; • On average 0.6 m stabilised backfill in each 2 m deep trench; • Up to 99,000 m^2 from jointing bays (based on 440 jointing bays (each jointing bay is 9 m x 25 m)); • Up to 3,960 m^2 from link boxes (based on 440 link boxes (each link box: is 3 m x 3 m)). Link boxes are permanent sub surface structures; • Up to 396,000 m^2 from installation of temporary haul road/access tracks (6 m x 66,000 m per phase); • Up to 120 HDD locations per phase (up to 105 minor HDDs and 15 major HDDs per phase), including 15 HDD compounds; • Up to five secondary compounds (maximum area of construction compounds is 33,000 m^2. (average area 17,000 m^2); and • Up to 55 storage areas. • 50% of the area of each compound would be surfaced with crushed aggregate. The aggregate would be removed when construction is complete. • The haul road would be surfaced with aggregate on geotextile and would be removed at the end of each construction phase.	A well-known occurrence at construction sites is staff organising travel amongst themselves to car share, especially in rural locations. Furthermore, contractors regularly provide transport for their staff via minibus. The actual mode share of construction staff is not reported for any similar site, however, a calculation that 75% of construction staff drive is considered a reasonable assumption for assessment purposes Maximising the depth and width of stabilised backfill/trenches would maximise HGV movements. Maximising the number of parallel trenches (minimum number of circuits per trench) would maximise HGV movements. The maximum design scenario in terms of traffic would be based on the minimum estimate of construction length. Larger areas/volumes result in larger amounts of material and thus larger numbers of HGV movements. Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements. The maximum intensity of construction for the Hornsea Three onshore cable corridor would occur if it was built in a single phase within a 30 month (approximately 2.5 years) duration.

Potential impact	Maximum design scenario	Justification
The temporary impact of the construction work may affect driver delay. The temporary impact of the construction work may affect severance of routes. The temporary impact of the construction work may affect pedestrian delay. The temporary impact of the construction work may affect pedestrian amenity. The temporary impact of the construction work may affect highway capacity. The temporary impact of the construction work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal loads during construction works.	<u>Onshore HVDC converter/HVAC substation</u> Up to 149,302 m^2 for permanent area of site (including an area which may be used for landscaping) plus a temporary works area of 91,000 m^2. Maximum building dimensions: up to 220 m length, 75 m width and 25 m height for main buildings. The maximum intensity of construction for the onshore HVDC converter/HVAC substation would occur if it was built in a single phase with a three-year duration	A maximum area/volume of site cleared for works would maximise HGV movements. Larger areas/volumes result in larger amounts of material and thus larger numbers of HGV movements. The maximum design scenario in terms of traffic would be based on the minimum estimate of construction duration. Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements.
The temporary impact of the construction work may affect driver delay. The temporary impact of the construction work may affect severance of routes. The temporary impact of the construction work may affect pedestrian delay. The temporary impact of the construction work may affect pedestrian amenity. The temporary impact of the construction work may affect highway capacity. The temporary impact of the construction work may affect accidents and road safety. The temporary impact of hazardous, dangerous and abnormal indivisible loads during construction works.	<u>Onshore HVAC booster station</u> Up to 30,407 m^2 for permanent area of site plus a temporary works area up to 25,000 m^2. Maximum building footprint of 9,000 m^2 (based on single building scenario (120 m length and 75 m width) and height up to 12.5 m). Up to 30,000 m^3 excavated for basement (based on 5m deep and area of 6,000 m^2). The maximum intensity of construction for the onshore HVAC booster station would occur if it was built in a single phase with a two-year duration All topsoil and subsoil generated from levelling and earthworks would be removed from the site.	A maximum area/volume of site cleared for works would maximise HGV movements. Larger areas/volumes result in larger amounts of material and thus larger numbers of HGV movements. The maximum design scenario in terms of traffic would be based on the minimum estimate of construction duration. Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements.

1.5.2 HGV routes

1.5.2.1 The Hornsea Three onshore cable corridor, proposed HGV access routes, access points, the locations of HDD sites and other features are shown at annex 7.8: Traffic and Transport Figures.

1.5.2.2 The Hornsea Three onshore cable corridor is divided into 21 sections, each with one or more construction access points. The HGV routes to the access points have been determined taking into account the suitability of the surrounding highway network including the existing accesses, the opportunities to provide access to sections of the onshore cable corridor along the haul road and the stated preferences of consultees, and in particular the Highway Authority.

1.5.2.3 Cable sections also relate to the physical features that act as barriers to movements of vehicles along the Hornsea Three onshore cable corridor. In general, such barriers are defined by the HDD crossing locations although in some cases, where a HDD crossing is required it is still possible to achieve vehicle movement along the cable crossing. For example, where a HDD crossing is required to place cables below a gas pipeline it may be possible for HGVs to pass over the gas pipeline with suitable load spreading ground reinforcement.

1.5.3 Access points

1.5.3.1 Figure 1.2 at annex 7.8: Traffic and Transport Figures identifies the locations of proposed HGV access points and routes used by HGVs.

1.5.3.2 Temporary Traffic Regulation Orders for a temporary 30 mph speed restriction will be progressed at every access where the speed limit is not already 30 mph so as to reduce vehicle speeds, which reduces the visibility requirement to 2.4 m x 43 m (Manual for Streets, Department for Transport and Communities and Local Government, 2007) which often rely upon roadside vegetation clearance. Details of such restrictions are established in the Outline CTMP (see document A8.2) and will form part of the CTMPs which will be agreed with the highway authority. The extent of each restriction will vary at each access based upon the existing speed limit, road alignment, road geometries and forward visibility.

1.5.3.3 The land required to provide the proposed access works is either highway or land available for temporary construction works within the DCO boundary. Using professional judgement, it is not expected that the use of any of the Hornsea Three onshore cable corridor access points will lead to any capacity constraints at these accesses owing to the low number of HGV movements at each access point during the peak network periods and therefore, capacity assessments have not been undertaken.

1.5.3.4 The access to the onshore HVDC converter/HVAC substation will be a permanent access from the B1113 and has been designed to accommodate HGVs and car movements on a daily basis (albeit such movements would not be daily when it is operational) and to accommodate Abnormal Indivisible Loads. Visibility splays of 2.4 m x 215 m are provided in lieu of the 60 mph speed limit.

1.5.3.5 The onshore HVAC booster station will be accessed using an existing industrial access with the B1149. In view of the rural location, and as discussed with NCC, traffic management measures will be adopted at this junction rather than undertake widening of the junction. The exact extent of these and all other traffic management measures at each access will be agreed with NCC at the time of preparing the subsequent CTMPs secured prior to the commencement of works and activities at the booster station.

1.5.3.6 The main compound at Oulton Street will be accessed from The Street, east of the B1149. Traffic management will be designed post submission as part of the subsequent CTMPs secured prior to the commencement of works and activities at the main compound, which might involve a diversion route.

1.5.3.7 In a number of cases the proposed access arrangements require HGVs to travel through or past sensitive areas. Measures to eliminate or minimise the adverse impact of these movements are described in section 1.7.

1.5.3.8 It is proposed to manage HGV movements so as to minimise impacts; for example, to avoid school start and finish times where the route passes close to a school and to avoid HGVs meeting on narrow sections of the road. Details are provided in Section 7.

1.5.3.9 Table 1.5 identifies the 21 cable sections, their lengths, accesses and the proposed HGV access routes.

Table 1.5: Cable Sections, Access Points and HGV Routes.

Cable Section	Description	Length (km)	Accesses	Local Access Route
1	Landfall to Holgate Hill	2.96	47 (B)	A148 - A1082 - A149
			45 (B)	A148 - A1082 - A149
			44 (B)	A148 - A1082 - A149
			ACC_P_75	A148 - Bridge Road- Holgate Hill
2	Holgate Hill to woodland north east of High Kelling	1.61	42C - Monitoring Access Only	A148 - Bridge Road- Holgate Hill
			41 (B)	A148 - Bridge Road
3	Woodland northeast of High Kelling to woodland south of Church Road	2.53	ACC_P_74	A148
			ACC_P_73	A148
			ACC_P_72	A148 - Selbrigg Road
			ACC_P_71	A148 - Selbrigg Road
			ACC_P_70	A148 - Selbrigg Road
			ACC_P_69	A148 - Selbrigg Road

Cable Section	Description	Length (km)	Accesses	Local Access Route
4	Woodland south of Church Road to woodland south and east of School Lane	2.47	ACC_P_68	A148 - Hempstead Road
			ACC_P_67	A148 - Hempstead Road
			39a(B)	B1149 - Hempstead Road - Hole Farm Road - School Lane
5	Woodland east of School Lane to Plumstead Road	1.92	ACC_P_66	B1149 - Hempstead Road - Hole Farm Road
			ACC_P_65	B1149 - Hempstead Road - Hole Farm Road
			ACC_P_64	B1149 - Plumstead Road
			ACC_P_63	B1149 - Plumstead Road
			ACC_P_62	B1149 - Sweetbriar Lane
			ACC_P_61	B1149 - Sweetbriar Lane
6	Plumstead Road to the B1149	2.3	37(E)	B1149 - Organic Waste Processing Site Access
			ACC_P_60	B1149
7	B1149 to land South of Town Close Lane	1.9	ACC_P_59	B1149
			ACC_P_58	B1149 - B1354
			ACC_P_57	B1149 - B1354
			36(C) - Monitoring Access Only	B1149 - B1354 - Croft Lane
			ACC_P_56	B1149 - B1354 - Town Close Lane
			35(C) - Monitoring Access Only	B1149 - B1354 - Town Close Lane
8	Land south of Town Close Lane to woodland north of Reepham Road	4.37	ACC_P_55	B1149 - Valley Road - Wood Dalling Road
			ACC_P_54	B1149 - Valley Road - Wood Dalling Road
			ACC_P_53	B1149 - Heydon Road - Heydon Road - Blackwater Lane
			ACC_P_52	B1149 - Heydon Road - Heydon Road - Blackwater Lane
			ACC_P_51	B1149 - Heydon Road - Heydon Road - Heydon Lane
			ACC_P_50	B1149 - Heydon Road - Heydon Road - Heydon Lane
			ACC_P_49	B1149 - Heydon Road
			ACC_P_48	B1149 - Heydon Road
9	Land north of Reepham Road to woodland north of Reepham	1.95	ACC_P_47	B1149 - B1145 - Wood Dalling Road - Reepham Road
			ACC_P_46	B1149 - B1145 - Wood Dalling Road - Reepham Road
			34(A)	B1149 - B1145 - Wood Dalling Road - Reepham Road
			33(A)	B1149 - B1145 - Wood Dalling Road - Reepham Road
			ACC_P_45	B1149 - B1145 - Wood Dalling Road - Reepham Road
			ACC_P_44	B1149 - B1145 - Wood Dalling Road
			ACC_P_43	B1149 - B1145 - Wood Dalling Road
10	Woodland north of Reepham to woodland at Booton Common	1.74	ACC_P_42	B1149 - B1145
			32 (B)	B1149 - B1145
			ACC_P_41	B1149 - B1145
11	Woodland east of Reepham to The Grove	2.19	ACC_P_40	B1149 - Buxton Road - Church Road
			ACC_P_39	B1149 - Buxton Road - Church Road
			ACC_P_38	B1149 - Buxton Road - Church Road - Norwich Road - The Grove
			ACC_P_37	B1149 - Buxton Road - Church Road - Norwich Road - The Grove
12	The Grove to woodland south of Church Farm Lane	2.16	ACC_P_36	B1149 - Buxton Road - Church Road - Norwich Road
			ACC_P_35	B1149 - Buxton Road - Church Road - Norwich Road
			ACC_P_34	B1149 - Buxton Road - Church Road - Norwich Road - Church Road
			30(B)	B1149 - Buxton Road - Church Road - Norwich Road - Church Road
			29(B)	A1065 - A148 - B1149 - Buxton Road - Church Road - Norwich Road - Church Farm Lane

Cable Section	Description	Length (km)	Accesses	Local Access Route
13	Woodland south of Church Farm Lane to River Wensum	2.34	ACC_P_33	A1067 - Station Road - Reepham Road - Church Farm Lane
			ACC_P_32	A1067 - Station Road - Reepham Road - Hall Road
			28(C) - Monitoring Access Only	A1067 - Station Road - Reepham Road - Hall Road
			27(C) - Monitoring Access Only	A1067 - Station Road - Reepham Road
			26(B)	A1067 - Station Road - Reepham Road
			25 (B)	A1067 - Station Road
			ACC_P_31	A1067 - Station Road
14	River Wensum to woodland south west of Ringland	5.24	ACC_P_30 - Monitoring Access Only	A1067 - The Street
			24(A)	A1067 - The Street
			ACC_P_29	A1067 - Marl Hill
			ACC_P_28	A1067 - Marl Hill - Morton Lane
			ACC_P_27	A1067 - Marl Hill - Morton Lane
			ACC_P_26	A1067 - Marl Hill - Morton Lane - Ringland Lane
			23(A)	A1067 - Marl Hill - Morton Lane - Ringland Lane
			ACC_P_25	A1067 - Marl Hill - Morton Lane - Ringland Lane
			ACC_P_24	A1067 - Marl Hill - Morton Lane - Ringland Lane
			22(B)	A1067 - Marl Hill - Morton Lane - Ringland Lane
			ACC_P_23	A1067 - Marl Hill - Morton Lane - Ringland Lane – Weston Road
			ACC_P_22	A1067 - Marl Hill - Morton Lane - Ringland Lane – Weston Road
			21(B)	A1067 - Marl Hill - Morton Lane - Ringland Lane – Weston Road
			20(B)	A1067 - Marl Hill - Morton Lane - Ringland Lane – Honingham Lane
			18(B)	A1067 - Marl Hill - Morton Lane - Ringland Lane – Honingham Lane
15	Woodland south west of Ringland to A47	2.1	17(B)	A47 - Taverham Road - Weston Road
			16(B)	A47 - Taverham Road - Weston Road
			ACC_P_21	A47 - Church Lane
16	A47 to Bawburgh Road	2.38	ACC_P_20	A47 - Dereham Road - Church Lane
			15(A)	A47 - Dereham Road - Church Lane
			ACC_P_19	A47 - Dereham Road - Church Lane - Broom Lane
			14(A)	A47 - Dereham Road - Marlingford Road
			ACC_P_18	A47 - Dereham Road - Marlingford Road
17	Bawburgh Road to woodland west of Little Melton	3.1	13(C)	A47 - B1108 - Stocks Hill - Marlingford Road - Bawburgh Road
			ACC_P_17	A47 - B1108 - Stocks Hill - Marlingford Road - Bawburgh Road
			ACC_P_16	A47 - B1108 - Stocks Hill - Marlingford Road - Bawburgh Road
			ACC_P_15	A47 - B1108 - Bawburgh Road
			ACC_P_14	A47 - B1108 - Bawburgh Road
			11(A)	A47 - B1108
			ACC_P_13	A47 - B1108

Cable Section	Description	Length (km)	Accesses	Local Access Route
18	Woodland west of Little Melton to A11	4.1	10(A)	B1172 - Colney Lane - Burnthouse Lane – Haul Road
			9(A)	B1172 - Colney Lane - Burnthouse Lane – Haul Road
			ACC_P_12	B1172 - Colney Lane - Burnthouse Lane – Haul Road
			ACC_P_11	B1172 - Colney Lane - Burnthouse Lane – Haul Road
			ACC_P_10	B1172 - Colney Lane - Burnthouse Lane - Little Melton Road
			ACC_P_9	B1172 - Colney Lane - Burnthouse Lane - Little Melton Road
			8(A)	B1172 - Colney Lane - Burnthouse Lane
			7(A)	B1172 - Colney Lane - Burnthouse Lane
			ACC_P_8	B1172 - Colney Lane - Burnthouse Lane
			6(B)	B1172 - Colney Lane - Burnthouse Lane
			50(B)	B1172 - Colney Lane
			5(A)	B1172
			4(C)	B1172
			4(B)	B1172 - Station Lane
			3(B)	B1172 - Station Lane
19	A11 to woodland north west of Swardeston	2.49	2(B)	A11 - Station Lane
			ACC_P_7	A11 - Station Lane - Cantley Lane
			ACC_P_6	A11 - Station Lane - Cantley Lane
			ACC_P_5	A11 - Station Lane - Cantley Lane – Haul Road
			ACC_P_4	A11 - Station Lane - Cantley Lane – Haul Road
20	Woodland north west of Swardeston to B1113	1.68	ACC_P_3	A47 - B1113 - Haul Road
			ACC_P_2	A47 - B1113 - Haul Road
			1(B)	A47 - B1113
21	B1113 to end of Hornsea Three onshore cable corridor	1.89	ACC_P_1	A47 - B1113
			ACC_P_A	B1113 - Mangreen Lane
			ACC_P_B	B1113 - Mangreen Lane
			ACC_P_C	A140 - Mangreen
			ACC_P_D	A140 - Mangreen
			A(B)	A140 - Mangreen

1.5.4 Timescale for project

1.5.4.1 Full details of the construction programme are set out in volume 1, chapter 3: Project Description. In summary, onshore work is planned to commence in 2021 but could start as early as 2020. Hornsea Three could be built using a two-phase or a single-phase construction programme.

1.5.4.2 The single phase construction programme represents the maximum intensity of construction for Hornsea Three and would occur if all components (onshore HVAC booster station, onshore HVDC converter/HVAC substation, Hornsea Three onshore cable corridor and landfall works) were built simultaneously, or overlapping across multiple components. Onshore, this could result in a minimum duration of three years for all construction activities, although activities may be spatially distinct and would be preceded by pre-construction activities such as borehole investigations at HDD crossing points.

1.5.4.3 Under a two-phase programme scenario, there would be a three year gap between phases and the total duration of the onshore cable corridor construction, including this three year gap, would be eight years. This is as a result of staggered construction of the components (onshore HVAC booster station, onshore HVDC converter/HVAC substation and Hornsea Three onshore cable corridor) and each phase would be preceded by pre-construction activities such as borehole investigations at HDD crossing points.

1.5.4.4 The shorter timescale would give rise to the highest daily traffic flows. The level of construction vehicle trip generation over this period will vary with intermittent periods of higher activity associated particularly with the installation of the Hornsea Three onshore cable corridor haul road.

1.5.4.5 The construction of the onshore HVDC converter/HVAC substation is expected to be over a period of 3 years. The construction of the onshore HVAC booster station is expected to be over a period of 2 years. The Hornsea Three onshore cable corridor and the onshore HVDC converter/HVAC substation and HVAC booster station are expected to be constructed simultaneously.

1.5.4.6 The cable will be laid in sections with up to five teams working at any one time on separate work fronts. On the basis that this assessment has separated the cable corridor into 21 cable sections this means that, for assessment purposes, approximately one quarter of the Hornsea Three onshore cable corridor will be under construction at any one time. This is considered an over estimate; however, it represents a robust analysis.

1.5.4.7 It is also expected that work on HDD crossings will occur before the work on the main trenches on each cable section. However, in order to undertake a robust assessment, the calculation of the vehicle trip generation assumes that work on the Hornsea Three onshore cable corridor and work on the HDD crossings occur at the same time (but still only on five sections at any one time).

1.6 Transport impact of construction

1.6.1 Assumptions for deriving vehicle movements

1.6.1.1 This TA assesses the transport impact of the construction phase of Hornsea Three.

1.6.1.2 During the operational phase, the only vehicle movements generated will be maintenance visits, which will be typically one vehicle on an approximate weekly basis. These visits are likely to be made by light vehicles only and would use the existing road network and the permanent onshore HVAC booster station and HVDC converter/HVAC substation accesses constructed as part of Hornsea Three. One vehicle arrival per week is very low and infrequent and will not result in any highway capacity issues and an assessment of this is scoped out.

1.6.1.3 Vehicle movements generated during the decommissioning phase will be lower than those during the construction phase since the removal of materials does not need to be delicately transported and can be bulk loaded whilst some infrastructure will be retained in-situ. Given that some infrastructure will be left in-situ, this results in less transport requirement which results in fewer vehicle movements in comparison to the construction phase. All mitigation measures that are identified for the construction phase will also be adopted during the decommissioning phase, thus, for a maximum design scenario, it can be determined that the identification of impacts resulting from traffic generated during the construction phase, would also apply to the decommissioning phase. An assessment of the decommissioning phase specifically is therefore scoped out.

1.6.1.4 A number of assumptions relating to the construction methodology to enable a maximum design scenario to be established have been adopted through discussion with the engineers responsible for the project to derive the number of vehicle movements associated with the construction works. These are set out at annex 7.6: Construction Vehicle Trip Generation Assumptions.

1.6.2 Vehicle trip generation, distribution and assignment (construction)

1.6.2.1 Detailed assessments of vehicle generation have been carried out for the construction phase of development. The level of vehicle generation during the operational and decommissioning phases would be significantly lower than during the construction phase.

1.6.2.2 During the operational phase, the only vehicle movements generated will be maintenance visits, which will be typically one vehicle on an approximate weekly basis. These visits are likely to be made by light vehicles only and would use the existing road network and the permanent HVAC booster station and HVDC converter/HVAC substation accesses constructed as part of Hornsea Three. One vehicle arrival per week is very low and infrequent and will not result in any highway capacity issues and an assessment of this is scoped out.

1.6.2.3 Vehicle movements generated during the decommissioning phase will be lower than those during the construction phase since the removal of materials does not need to be delicately transported and can be bulk loaded whilst some infrastructure will be retained in-situ. Given that some infrastructure will be left in-situ, this results in less transport requirement which results in fewer vehicle movements in comparison to the construction phase. All mitigation measures that are identified for the construction phase will also be adopted during the decommissioning phase, thus, for a maximum design scenario, it can be determined that the identification of impacts resulting from traffic generated during the construction phase, would also apply to the decommissioning phase. An assessment of the decommissioning phase specifically is therefore scoped out.

1.6.2.4 The level of vehicular trip generation associated with the construction phase of Hornsea Three is based on the assumptions set out in Table 1.4. Details of the technical parameters used for the construction stage trip generation calculations are presented in annex 7.6: Construction Vehicle Trip Generation Assumptions.

1.6.2.5 For the purposes of estimating the construction traffic generation, the Hornsea Three onshore cable corridor is divided into 21 sections using professional judgement based upon groupings of access routes that share key sections of the highway network, as shown at annex 7.8: Traffic and Transport Figures. There will be up to five work fronts (i.e. up to five construction activities – see volume 1, chapter 3: Project Description) being undertaken at any one time. It is assumed that there would be one work front on each cable section. This means that up to five cable sections could be under construction at any one time.

1.6.2.6 A worst case scenario would be created when five adjacent cable sections (or near to one-another) are constructed at the same time because this would concentrate the construction vehicle movements onto the same road links, especially those near to the cable sections under construction. If five cable sections that were spread apart from each other were constructed at the same time, then this would spread the construction vehicles across all of the road links within the study area and thus result in fewer construction vehicle movements on each road link in comparison to the above.

1.6.2.7 Based on this, if five adjacent or nearby cable sections in the northern part of the Hornsea Three onshore cable corridor were assessed, then the construction traffic flows would be concentrated in the northern part of the study area. If five adjacent or nearby cable sections in the southern part of the Hornsea Three onshore cable corridor were assessed, then the construction traffic flows would be concentrated in the southern part of the study area.

1.6.2.8 Therefore, a range of scenarios have been created that concentrates the construction traffic flows at differing parts of the study area, as follows:

- Northern part of corridor: cable sections 1, 2, 3, 4 and 5 all under construction simultaneously;
- Middle (northern) part of corridor: cable sections 6, 8, 9, 10 and 11 all under construction simultaneously;
- Middle (southern) part of corridor: cable sections 12, 13, 14, 15 and 16 all under construction simultaneously; and

- Southern part of corridor: cable sections 17, 18, 19, 20 and 21 all under construction simultaneously.

1.6.2.9 The exact groupings of cable sections do not make any noticeable difference to the assessment. The important factor is that cable sections that are adjacent or near to one-another are grouped together.

1.6.2.10 Each of these four scenarios creates different traffic flows on each road link and junction within the study area.

1.6.2.11 Each of these four scenarios creates different traffic flows on each road link and junction within the study area. Therefore, to ensure a robust analysis, the maximum construction traffic flow for the four scenarios on each link and junction has been assumed as the peak construction traffic flows and has been assessed.

1.6.2.12 In terms of a network, this overestimates the total number of construction vehicles, however, in terms of individual links and junctions, it represents the peak construction traffic flow that could be generated along or through them and is thus a robust methodology.

1.6.2.13 Each of the 21 Hornsea Three onshore cable corridor sections has one or more construction access points. Based on the daily HGV movements generated by each cable section and the number of access points on each location, it is assumed for assessment purposes that the number of HGV movements across each cable section will be averaged across the number of access points for each onshore cable corridor. This is detailed at Appendix A.

1.6.2.14 The HGV routes to the access points have been determined taking into account the suitability of the surrounding highway network including the existing accesses, the opportunities to provide access to sections of the Hornsea Three onshore cable corridor along the haul road and the stated preferences of consultees, and in particular the Highway Authority.

1.6.2.15 Cable sections also relate to the physical features that act as barriers to movements of vehicles along the Hornsea Three onshore cable corridor. In general, such barriers are defined by the HDD crossing locations although in some cases, where a HDD crossing is required it is still possible to achieve vehicle movement along the cable crossing. For example, where a HDD crossing is required to place cables below a gas pipeline it may be possible for HGVs to pass over the gas pipeline with suitable load spreading ground reinforcement.

1.6.2.16 Table 1.5 identifies the 21 Hornsea Three onshore cable corridor sections, their lengths and the proposed HGV access routes.

1.6.2.17 In terms of the wider distribution of HGVs, this is wholly dependent upon the procurement of materials at the time of construction. Therefore, assumptions have been made which seek to make reasonable estimates, but which also seek to incorporate a level of robustness.

1.6.2.18 From a high level perspective, the A11 and the A47 (west) offer the key strategic routes to/from the largest catchment areas and it is likely that the majority of HGV movements would be via these two roads. Other key roads from outside the study area are the A148 (west), the A47 (east), the A146 and the A140.

1.6.2.19 An estimated distribution of HGVs has concentrated movement along the A11 and the A47 (west) as follows:

- A11 – 35%;
- A47 (west) – 35%;
- A148 (west) – 10%;
- A47 (east) – 5%;
- A146 – 5%; and
- A140 – 10%.

1.6.2.20 There is potential for materials to originate from very localised areas within the study area. The above assumes all material originates from outside the study area. Such an assumption means that all HGVs travel through the maximum number of links within the study area and thus represents the maximum design scenario.

1.6.2.21 If local trips were assumed, then HGVs would not all be assigned onto the wider parts of the network and thus may underestimate the number of HGV movements on both the trunk road network and parts of the local road network within the study area.

1.6.2.22 If local trips were assumed then there may also be some different turning movements at some junctions, however, these would balance out against different turning movements at other junctions.

1.6.2.23 It is recognised that the above is estimated using professional judgement based upon a high level review of the highway network and the study area in advance of any procurement of materials etc. It is also recognised that there will likely be day-to-day variances in the movement of material throughout the programme based on the procurements in place and the resultant origins of materials. For example, an amount of material is sourced from one location, but when this amount is reached, material is then sourced from another location. This will change the movement of HGVs as the construction phase progresses and result in day-to-day variances.

1.6.2.24 To ensure this assessment accounts for these day-to-day variances, a methodology has been adopted that increases the proportion of trips from each origin.

1.6.2.25 For assessment purposes only, it has been assumed that approximately double the proportion of HGVs would originate from the above six links and thus allows for day-to-day variances along them. This effectively doubles the total number of HGVs generated by the proposals when all road links are considered together as it effectively approximately doubles the number of HGVs on each link and through each junction. Although this would not happen in practice (because an increase from one origin would be offset by a decrease from another origin), it allows for a robust assessment that allows for day-to-day variances when individual links and junctions are considered.

1.6.2.26 The assessments do consider each road link and each junction separately and therefore the assessment methodology adopted allows for day-to-day variances to be considered and the upper of that variance to be assessed.

1.6.2.27 The assessment distribution of HGVs is therefore as follows:

- A11 – 50%;
- A47 (west) – 50%;
- A148 (west) – 25%;
- A47 (east) – 25%;
- A146 – 25%;
- A140 – 25%; and
- Total – 200%.

1.6.2.28 As above, a distribution of 200 % would not occur in practice, however, they allow for day-to-day variances and a robust assessment of the impact of construction vehicles and therefore form the basis of all assessments.

1.6.2.29 Data from the 2011 Census has been utilised to estimate the potential origin of construction staff using location of usual residence and place of work for the Broadland, North Norfolk and South Norfolk areas.

1.6.2.30 The onshore cable corridor extends through the Broadland, North Norfolk and South Norfolk datasets. Resident locations for the cumulative daytime populations of these datasets have been identified and aggregated to establish potential origins of construction staff.

1.6.2.31 In a similar manner to the HGV distribution, resident locations from within Norwich were excluded from this analysis. This distributes staff origins from outside of the study area and thus maximises the number of links within the study area that have staff movements generated along them. This is because it forces all staff to arrive from outside the study area which maximises the number of road links they travel on within the study area. If staff were to originate from within the study area then those staff would not travel on road links between their origin and the outer edge of the study area.

1.6.2.32 This has resulted in the following construction staff distribution:

- A11 – 50%;
- A148 (west) – 8%;
- A47 (east) – 28%;
- A146 – 11%;
- A47 (west) – 7%;
- A1065 – 6%;
- A11 – 16%;
- A140 – 13%; and
- A140 corridor between Comer and Norwich – 12%.

1.6.2.33 The above construction staff distribution results in a relatively equal spread of movement and appears to be representative of the local tourism accommodation in the surrounding areas and also the built-up areas in the surrounding area, which provides confidence that the assumptions are suitable for assessment purposes. This view has been identified by identifying the surrounding built up areas and large tourist accommodation areas on maps and forming a judgement.

1.6.2.34 Details of the assignment of the construction traffic onto the highway network are provided at Appendix A.

1.6.2.35 The above assumes that all material and construction staff travel directly to/from the cable accesses. In reality some vehicles would do so, but some would instead travel to/from one of the secondary construction compounds, which are also from the same accesses to the compounds and storage areas located along the onshore cable corridor.

1.6.2.36 However, this assumption does not incorporate an estimate for vehicle movements to/from the main compound at Oulton Street.

1.6.2.37 Following the experiences at Hornsea Project One, it has been identified that a main compound is needed as part of the construction process to manage the construction activities and to act as a central base for the construction operations to ensure they progress efficiently. The main compound will be used for storage of some materials, for example cable drums, and will be the key base for management to co-ordinate the operations. The location for a main compound at Oulton Street has been identified.

1.6.2.38 To estimate a number of construction vehicle movements, the results of the above trip generation, distribution and assignment exercise has been utilised. The above results in daily construction vehicle movements being assigned onto each link.

1.6.2.39 These were then reviewed and those on the B1149 near Oulton were disaggregated to remove all traffic associated with landfall, the onshore HVDC converter/HVAC substation and the HVAC booster station, since these all have their own separate compounds. HGVs associated with concrete pouring at link boxes and aggregate for the haul road and secondary compounds will all deliver direct to their respective locations and so these were also removed. The remaining construction vehicle movements are those that could travel to and from the main compound at Oulton Street.

1.6.2.40 This is of course theoretical and it is recognised that not all staff and not all HGVs would travel to the main compound. However, this is considered a reasonable methodology to estimate the number of movements based on the peak movement at any one time.

1.6.3 Vehicle trip movements (construction)

1.6.3.1 The daily construction vehicle movements by cable section have been assigned onto the network in accordance with the above and are set out in Table 1.6.[1]

1.6.3.2 Using the assumptions above to estimate the potential number of vehicle movements at the main compound at Oulton Street, this equates to a peak of 130 daily staff vehicle movements) and a peak of 118 daily HGV movements).

Table 1.6: Daily construction vehicle movements.

Link	Construction Staff	HGVs	Total Vehicle Movements
Link ID 35: A148, west of The Street and east of Green Lane	139	377	517
Link ID 34: A148 west of Holt and east of Letheringsett	139	377	517
Link ID 36: A148, east of the B1149 roundabout and west of Station Road	84	297	380
Link ID 50: B1354 between the Swanton Road junction and B1110 junctions	0	0	0
Link ID 55: B1354 east of Melton Constable and west of Briston	0	0	0
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	137	373	511
Link ID 37: A148 at High Kelling, south of Kelling Hospital	84	297	380
Link ID 41: A148, east of Bodham and west of the Woodlands Leisure centre	244	439	684
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	322	495	817
Link ID 190: B1436, east of Felbrigg	322	495	817
Link ID 49: A140, south of Roughton and north of the Topshill Road junction	322	495	817
Link ID 1: A149 west of Weybourne and east of The Pheasant Hotel	0	0	0
Link ID 2: A149 east of Weybourne, west of the North Norfolk Railway Line	133	221	354
Link ID 81: A1067, north of Bridge Road and east of Little Ryburgh	71	214	285
Link ID 84: B1145 at Bawdeswell, between The Street junction and Hall Road junction	0	0	0
Link ID 86: B1145, west of Reepham and east of the Old Lane junction	0	0	0
Link ID 90: B1145 east of Cawston, west of the B1149 crossroads	243	379	622
Link ID 77: B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	81	0	81
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	283	495	777
Link ID 111: A1067, between Attlebridge and the Fir Covert Road junction	275	356	631
Link ID 145: A140 between the A47 and B1113 junctions	317	528	845
Link ID 146: B1113, south of the A47 near Norwich Sports ground	317	528	845
Link ID 129: A47 at Honingham	161	412	573
Link ID 157: A47 at Bawburgh	175	412	587
Link ID 147: A47 at Intwood	418	552	970
Link ID 153: A11 at Hethersett	128	283	411

1.6.3.3 An assessment of the percentage impact of vehicle movements on specific links is provided in the following section.

1.6.4 Percentage impact of construction traffic on highway links

1.6.4.1 The predicted level of construction traffic is expressed as a percentage change in daily flows on the links in Table 1.7. Observed flows have been factored using local growth predictions to 2022.

[1] Table shows all links for which traffic data is available within the initial study area. Some of these links do not have any construction traffic flows generated along them and these links are retained within the table to illustrate this

Table 1.7: Percentage impact of construction traffic – sensitivity testing.

Highway Link	Daily Vehicle Movements					
	2022 Base		Maximum Construction		Percentage Increase	
	Total	HGVs	Total	HGVs	Total	HGVs
Link ID 35: A148, west of The Street and east of Green Lane	13908	838	517	377	3.7%	45%
Link ID 34: A148 west of Holt and east of Letheringsett	11466	691	517	377	4.5%	55%
Link ID 36: A148, east of the B1149 roundabout and west of Station Road	12242	612	380	297	3.1%	48%
Link ID 50: B1354 between the Swanton Road junction and B1110 junctions	4037	292	0	0	0.0%	0%
Link ID 55: B1354 east of Melton Constable and west of Briston	5598	405	0	0	0.0%	0%
Link ID 59: B1149 at Edgefield, north of the village hall and south of Hempstead Road	4537	173	511	373	11.3%	216%
Link ID 37: A148 at High Kelling, south of Kelling Hospital	13893	694	380	297	2.7%	43%
Link ID 41: A148, east of Bodham and west of the Woodlands Leisure centre	13237	712	684	439	5.2%	62%
Link ID 43: A148, west of the B1436 junction and east of the Lion's Mouth junction	14346	645	817	495	5.7%	77%
Link ID 190: B1436, east of Felbrigg	9665	488	817	495	8.5%	101%
Link ID 49: A140, south of Roughton and north of the Topshill Road junction	12041	593	817	495	6.8%	83%
Link ID 1: A149 west of Weybourne and east of The Pheasant Hotel	3567	24	0	0	0.0%	0%
Link ID 2: A149 east of Weybourne, west of the North Norfolk Railway Line	4771	33	354	221	7.4%	675%
Link ID 81: A1067, north of Bridge Road and east of Little Ryburgh	9451	543	285	214	3.0%	39%
Link ID 84: B1145 at Bawdeswell, between The Street junction and Hall Road junction	3390	128	0	0	0.0%	0%
Link ID 86: B1145, west of Reepham and east of the Old Lane junction	2980	113	0	0	0.0%	0%
Link ID 90: B1145 east of Cawston, west of the B1149 crossroads	3477	127	622	379	17.9%	298%
Link ID 77: B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	4834	163	81	0	1.7%	0%
Link ID 118: A140, south of Aylsham's B1145 / A140 roundabout, and north of Marsham	15732	750	777	495	4.9%	66%
Link ID 111: A1067, between Attlebridge and the Fir Covert Road junction	8995	626	631	356	7.0%	57%
Link ID 145: A140 between the A47 and B1113 junctions	24868	1314	845	528	3.4%	40%
Link ID 146: B1113, south of the A47 near Norwich Sports ground	8848	301	845	528	9.6%	175%
Link ID 129: A47 at Honingham	29944	2928	573	412	1.9%	14%
Link ID 157: A47 at Bawburgh	48143	3435	587	412	1.2%	12%
Link ID 147: A47 at Intwood	58002	4520	970	552	1.7%	12%
Link ID 153: A11 at Hethersett	53652	4522	411	283	0.8%	6%
Link ID 144: A47, between A140 and A146 junctions	55089	3157	803	392	1.5%	12%

Highway Link	Daily Vehicle Movements					
	2022 Base		Maximum Construction		Percentage Increase	
	Total	HGVs	Total	HGVs	Total	HGVs
Link ID 197: A1065, North of Swaffham	8336	530	353	259	4.2%	49%
Link ID 195: A1065, east of Weasenham	5580	485	353	259	6.3%	77%
Link ID 5: A1082, South of Sheringham	8788	119	354	221	4.0%	185%
Link ID 200: A1270 Northern Distributor Road between A1067 and B1149 junction	21467	1368	671	356	3.1%	26%
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	11400	594	978	562	8.6%	95%
Link ID 201: A1270 Northern Distributor Road between B1149 and A140 junctions	25000	1593	1070	622	4.3%	39%
Link ID 204: A1270 Northern Distributor Road between A140 and A47 junctions	22933	1461	1093	629	4.8%	43%
Link ID 118: A140 between A1270 and B1145	14967	484	777	495	5.2%	102%
Link ID 204: A1270 between A140 and A47 (Near junction with A47)	35367	2254	1093	629	3.1%	28%
Link ID 137: A47 East of A1270 junction	45233	2882	664	263	1.5%	9%
Note: Worst case during all phases of construction shown						

1.6.4.2 In relation to changes in traffic flows, an assessment has been undertaken based on current relevant guidance for assessing the environmental effects of traffic. This is set out within The Institute of Environmental Assessment (now the Institute of Environmental Management and Assessment (IEMA)) publication 'Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic', 1993.

1.6.4.3 The IEMA guidance notes in paragraph 3.16 that "*daily variation of traffic on a road is frequently at least some + or -10%*" and in paragraph 3.20 that "*normally it would not be appropriate to consider links where the traffic flows have changed by less than 10% unless there are significant changes in the composition of traffic*".

1.6.4.4 It is concluded that, in terms of total traffic flows, the impact vehicles generated as a result of the construction of the Hornsea Three onshore cable corridor would not lead to a significant increase in traffic flows, as the increase is typically less than 10%, and therefore less than typical daily variation.

1.6.4.5 The exceptions to this are the following:

- B1149 at Edgefield, north of the village hall and south of Hempstead Road (11.3%); and
- B1145 east of Cawston, west of the B1149 crossroads (17.9%).

1.6.4.6 The base 2022 daily traffic flow on these two roads are 4,537 and 3,477 two-way vehicle movements respectively, increasing to 5,048 and 4,099 two-way vehicle movements respectively following the addition of the peak construction traffic flows.

1.6.4.7 Guidance on the capacity of single carriageway roads is set out in TA46/96 Traffic Flow Ranges for the Use in New Rural Road, contained at Volume 5, Section 1, Part 3 of the Design Manual for Roads and Bridges, published by HE (then the Highways Agency) *et al*.

1.6.4.8 Although this document relates to new roads on the Trunk Road Network, it does give a useful guide at its Table 2.1, where it sets out the opening year economic Annual Average Daily Traffic (AADT) flow range of a single carriageway road as being up to 13,000.

1.6.4.9 Even taking account of these allowances, this range is more than double the flow that is predicted on these two links following the addition of the peak construction traffic flows. On this basis, it is considered that, despite the percentage changes in traffic flows on these two links, the peak construction traffic flows would not result in any link flow capacity issues.

1.6.4.10 These ranges cannot be applied to every road, however, given the difference in flow between the range and the predicted flows on these two links, robust conclusions can be drawn in relation to these two links.

1.6.4.11 In relation to the Trunk Road Network, the maximum increase is predicted to be only 1.9%, on the A47 at Honington. The increase on the A11 is predicted to be only 0.8%. Such increases are negligible and well within generally accepted day-to-day variances in traffic flows.

1.6.4.12 It should also be noted that the levels of increase identified above would occur over relatively short periods, with the main works on each section of the Hornsea Three onshore cable corridor been estimated based on the shortest time possible to maximise vehicle movements and lasting a matter of months.

1.6.4.13 Table 1.8 sets out the impact of construction traffic flows on the peak hourly basis against the base flows of the 2022 assessment year. This occurs between 07:00 and 08:00 (the AM construction peak) when staff arrive and between 18:00 and 19:00 (the PM construction peak) when staff depart.

Table 1.8: AM and PM construction peak impacts.

Highway Link	2022 Base		Construction Staff		Percentage Increase	
	AM Construction Peak	PM Construction Peak	AM Construction Peak	PM Construction Peak	AM Construction Peak	PM Construction Peak
A148, west of The Street and east of Green Lane	738	715	70	70	9.44%	9.75%
A148 west of Holt and east of Letheringsett	573	566	70	70	12.17%	12.31%
A148, east of the B1149 roundabout and west of Station Road	698	594	42	42	5.98%	7.04%
B1354 between the Swanton Road junction and B1110 junctions	282	231	0	0	0.00%	0.00%
B1354 east of Melton Constable and west of Briston	423	347	0	0	0.00%	0.00%
B1149 at Edgefield, north of the village hall and south of Hempstead Road	311	251	69	69	22.10%	27.40%
A148 at High Kelling, south of Kelling Hospital	723	722	42	42	5.78%	5.79%
A148, east of Bodham and west of the Woodlands Leisure centre	688	699	122	122	17.74%	17.46%
A148, west of the B1436 junction and east of the Lion's Mouth junction	767	733	161	161	21.01%	21.99%
Link ID 190: B1436, east of Felbrigg	550	502	161	161	29.30%	32.10%
A140, south of Roughton and north of the Topshill Road junction	742	729	161	161	21.72%	22.13%
A149 west of Weybourne and east of The Pheasant Hotel	92	145	0	0	0.00%	0.00%
A149 east of Weybourne, west of the North Norfolk Railway Line	129	216	67	67	51.68%	30.81%
A1067, north of Bridge Road and east of Little Ryburgh	705	560	36	36	5.06%	6.37%
B1145 at Bawdeswell, between The Street junction and Hall Road junction	225	227	0	0	0.00%	0.00%
B1145, west of Reepham and east of the Old Lane junction	219	187	0	0	0.00%	0.00%
B1145 east of Cawston, west of the B1149 crossroads	299	283	122	122	40.59%	42.98%
B1145 east of the B1149 crossroads junction, west of Cawston Park Hospital	389	304	41	41	10.47%	13.39%
A140, south of Aylsham's B1145/A140 roundabout, and north of Marsham	1132	1001	141	141	12.49%	14.13%

Highway Link	2022 Base		Construction Staff		Percentage Increase	
	AM Construction Peak	PM Construction Peak	AM Construction Peak	PM Construction Peak	AM Construction Peak	PM Construction Peak
A1067, between Attlebridge and the Fir Covert Road junction	906	670	138	138	15.19%	20.52%
A140 between the A47 and B1113 junctions	1867	1701	159	159	8.50%	9.33%
B1113, south of the A47 near Norwich Sports ground	797	670	159	159	19.91%	23.70%
A47 at Honingham (HE)	2511	1905	80	80	3.20%	4.22%
A47 at Bawburgh (HE)	4457	3257	88	88	1.97%	2.69%
A47 at Intwood (HE)	5022	4066	209	209	4.16%	5.13%
A11 at Hethersett (HE)	4797	3458	64	64	1.33%	1.85%
A47, between A140 and A146 junctions	4770	3862	206	206	4.32%	5.33%
Link ID 197: A1065, North of Swaffham	442	428	47	47	10.64%	10.98%
Link ID 195: A1065, east of Weasenham	296	287	47	47	15.89%	16.41%
Link ID 5: A1082, South of Sheringham	500	457	67	67	13.29%	14.57%
Link ID 200: A1270 Northern Distributor Road between A1067 and B1149 junction	1859	1505	108	108	5.81%	7.17%
Link ID 114: B1149 between A1270 Northern Distributor Road and Buxton Road junctions	780	630	208	208	26.64%	33.02%
Link ID 201: A1270 Northern Distributor Road between B1149 and A140 junctions	2164	1753	224	224	10.35%	12.78%
Link ID 204: A1270 Northern Distributor Road between A140 and A47 junctions	1986	1608	232	232	11.70%	14.45%
Link ID 118: A140 between A1270 and B1145	1296	1049	141	141	10.91%	13.48%
Link ID 204: A1270 between A140 and A47 (Near junction with A47)	3062	2480	232	232	7.59%	9.37%
Link ID 137: A47 East of A1270 junction	3916	3171	201	201	5.12%	6.33%
Note: Worst case during all phases of construction shown						

1.6.4.14 It is concluded from the above that the absolute level of increase in vehicle numbers resulting from construction activities will not lead to any significant increase in total link flows within the Hornsea Three traffic and transport study area. The levels of increase identified are within typical daily variations in traffic flows. Where there are large percentage increases, this is due to low baseline traffic flows which do not result in highway capacity issues and would not with the addition of Hornsea Three.

1.6.5 Turning movements through junctions

1.6.5.1 Previous consultation with HE and NCC identified the following junction where there are current capacity concerns:

- B1172/A140 signalised junction south of Norwich.

1.6.5.2 Operational assessments have therefore been undertaken to assess the capacity of this junction and the impact of construction vehicles upon its operation. These assessments have been undertaken using the LINSIG computer modelling software, which is the industry standard DfT approved modelling package for assessing the operation of signalised junctions.

1.6.5.3 The requirement to assess any other junction is based upon an analysis of the change in traffic flow through it. When construction traffic flows are added to the AM and PM construction peak hours, if the subsequent traffic flows through the junction exceed the network AM and PM peak hour flows, then an operational assessment will be undertaken was part of the Transport Assessment and as set out at Appendix C.

1.6.5.4 For the Trunk Road Network, if there are increases of more than 30 vehicle movements per hour during the network AM and PM peak hours, then an operational assessment would be undertaken.

1.6.5.5 An analysis of turning movements through junctions is attached at Appendix C.

1.6.5.6 This analysis has identified two additional junctions within the traffic flow model which have several arms of which the addition of construction traffic between 07:00 – 08:00 and 18:00 – 19:00 results in traffic flows increasing above the network peaks (07:45 to 08:45 and 16:30 to 17:30). These comprise the following:

- A148/B1149/B1110 four-arm roundabout at Holt; and
- B1149/B1145 four-arm roundabout east of Cawston.

1.6.5.7 These assessments have been undertaken using the Junctions9 computer modelling software, which is the industry standard DfT approved modelling package for assessing the operation of priority controlled junctions.

1.6.6 Operational assessment of A140/B1113 signalised junction

1.6.6.1 At the request of NCC, an operational assessment has been undertaken of the A140/B1113 signalised junction using the LINSIG computer modelling software during the observed network AM and PM peak hours. The signal timing specification has been obtained to calibrate the model against and is attached at Appendix D, which also contains the base survey data and queue length surveys used for calibration. Table 1.9 summarises the results for 2017 observed traffic flows, 2022 without and with construction traffic and full output files are attached at Appendix E.

Table 1.9: Results of operational assessment of A140/B1113 signalised junction.

Results of operational assessment of A140/B1113 signalised junction						
AM Peak Hour						
	2017 Observed		*2022 Baseline*		*2022 Baseline plus Construction*	
	DoS	***MMQ***	***DoS***	***MMQ***	***DoS***	***MMQ***
A140 Ipswich Road (North) – Southbound nearside lane – Ahead only	92.4%	13.8	100.3%	24.9	100.3%	24.9
A140 Ipswich Road (North) – Southbound offside lane – Right turn only	90.4%	5.7	98.0%	8.2	114.5%	64.2
A140 Ipswich Road (South) – Northbound nearside lane – Ahead and left turn	101.8%	26.7	110.4%	50.8	114.6%	62.6
A140 Ipswich Road (South) – Northbound offside lane – Ahead only	101.2%	24.7	110.2%	48.8	102.57%	25.0
B1113 – Left turn only	94.4%	13.8	102.5%	25.0	142.8%	19.7
B1113 – Right turn only	98.2%	3.9	106.8%	6.1	98.08%	8.2

Results of operational assessment of A140/B1113 signalised junction						
Junction Practical Reserve Capacity (PRC)	-13.1%		-22.7%		-58.6%	
Total Delay (PCU/Hr)	63.13		138.00		192.01	
Cycle Time (Seconds)	56		56		56	
PM Peak Hour						
	2017 Observed		***2022 Baseline***		***2022 Baseline plus Construction***	
	DoS	***MMQ***	***DoS***	***MMQ***	***DoS***	***MMQ***
A140 Ipswich Road (North) – Southbound nearside lane – Ahead only	77.0%	12.5	83.7%	15.5	83.7%	15.5
A140 Ipswich Road (North) – Southbound offside lane – Right turn only	94.6%	11.4	102.7%	19.6	143.9%	46.5
A140 Ipswich Road (South) – Northbound nearside lane – Ahead and left turn	104.6%	12.3	113.4%	19.0	75.1%	11.7
A140 Ipswich Road (South) – Northbound offside lane – Ahead only	69.1%	10.1	75.1%	11.7	103.5%	15.4
B1113 – Left turn only	95.2%	9.2	103.5%	15.4	145.4%	19.5
B1113 – Right turn only	98.6%	3.8	107.0%	5.9	102.7%	19.6
Junction Practical Reserve Capacity (PRC)	-16.2%		-26.0%		-61.6%	
Total Delay (PCU/Hr)	38.56		65.15		119.57	
Cycle Time (Seconds)	56		56		56	

DoS: Degree of Saturation

MMQ: Mean Max Queue

1.6.6.2 Table 1.9 shows that the junction currently operates in excess of capacity during the network AM and PM peak hours with Degree of Saturations (DoS) in excess of 100%. In 2022, with no construction traffic, the A140/B1113 signalised junction is predicted to remain operating in excess of capacity, with the highest DoS of 113.4% on the A140 Ipswich Road (South) Northbound ahead and left turn with a mean maximum queue length of 19 PCUs during the PM peak hour. With the additional traffic associated with construction a maximum DoS of 145.4% is predicted on the B1113 left turn movement during the PM peak hour with a mean maximum queue of 20 PCUs.

1.6.6.3 The performance of this junction, and any appropriate traffic management measures required to be adopted by the project will be discussed further with NCC.

1.6.7 Operational assessment of A148/B1149/B1110 four-arm roundabout

1.6.7.1 Operational assessments have been undertaken of the A148/B1149/B1110 four-arm roundabout using the ARCADY model contained within the Junctions9 computer modelling software. Details of the operational assessments are provided in Appendix F whilst Table 1.10 summarises the results for the base year of 2017 and a baseline year of 2022 with and without construction traffic.

Table 1.10: Results of operational assessment of A148/B1149/B1110 junction.

Arm	2017 Baseline				2022 Base				2022 + Construction			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
A148 (E)	0.28	0.4	0.45	0.8	0.31	0.4	0.49	1	0.32	0.5	0.52	1.1
B1149	0.33	0.5	0.19	0.2	0.36	0.6	0.21	0.3	0.38	0.6	0.24	0.3
B1110	0.18	0.2	0.1	0.1	0.21	0.3	0.11	0.1	0.21	0.3	0.12	0.1
A148 (N)	0.26	0.4	0.4	0.7	0.29	0.4	0.44	0.8	0.31	0.5	0.48	0.9

1.6.7.2 As can be seen from Table 1.10, the analysis indicates that the junction is predicted to operate well within capacity with a Ratio of Flow to Capacity (RFC) significantly below 1.0 along all approaches during the 2022 and 2032 'With Construction' peak hours.

1.6.7.3 Forecast levels of queuing along the approaches would be minimal, demonstrating that the access junction layout can accommodate the future year construction traffic flows generated by the proposed development in a satisfactory manner.

1.6.8 Operational assessment of B1149/B1145 four-arm roundabout

1.6.8.1 An operational assessment of the B1149/B1145 four-arm roundabout east of Cawston has been undertaken using the ARCADY model contained within the Junctions 9 computer modelling software. Details of the operational assessments are provided in Appendix F. Table 1.11 summarises the results for the base year of 2017 and a baseline year of 2022 with and without construction traffic.

Table 1.11: Results of operational assessment of B1149/B1145 four-arm roundabout.

Arm	2017 Baseline				2022 Base				2022 + Construction			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
B1145 (E)	0.19	0.2	0.21	0.3	0.21	0.3	0.23	0.3	0.22	0.3	0.24	0.3
B1149 (S)	0.27	0.4	0.26	0.4	0.29	0.4	0.29	0.4	0.32	0.5	0.31	0.4
B1145 (W)	0.18	0.2	0.14	0.2	0.2	0.2	0.16	0.2	0.22	0.3	0.2	0.3
B1149 (N)	0.19	0.2	0.23	0.3	0.21	0.3	0.25	0.3	0.24	0.3	0.29	0.4

1.6.8.2 As can be seen from Table 1.11, the analysis indicates that the junction is predicted to operate well within capacity with a RFC significantly below 1.0 along all approaches during the 2022 and 2032 'With Construction' peak hours.

1.6.8.3 Forecast levels of queuing along the approaches would be minimal, demonstrating that the access junction layout can accommodate the future year construction traffic flows generated by the proposed development in a satisfactorily manner.

1.6.9 Road crossings

1.6.9.1 Another possible impact of construction will be delays for existing highway users at those points where cables are laid directly across highways thus requiring temporary, partial or total closure of the highway. This is not proposed by Hornsea Three and HDD operations will be undertaken underneath all public roads.

1.6.9.2 Section 1.5.3 details the access points, including those which take access directly from the highway. Traffic management may be required at some of these. The choice of traffic management is based on the turning of construction vehicles in and out of the access, a consideration of the level of traffic using each link, the availability of alternative routes and the space available on each link to allow the introduction of temporary shuttle working (either priority or signal controlled).

1.6.9.3 On lightly trafficked links shuttle working can operate on a priority basis or be managed manually without the need for traffic signals. On busier links it is expected that temporary signals will be used. Illustrative layouts of priority and signal controlled shuttle working sites are shown on Figure 1.1 that is taken from Chapter 8 of the Traffic Signs Manual (DfT/Highways Agency, 2009).

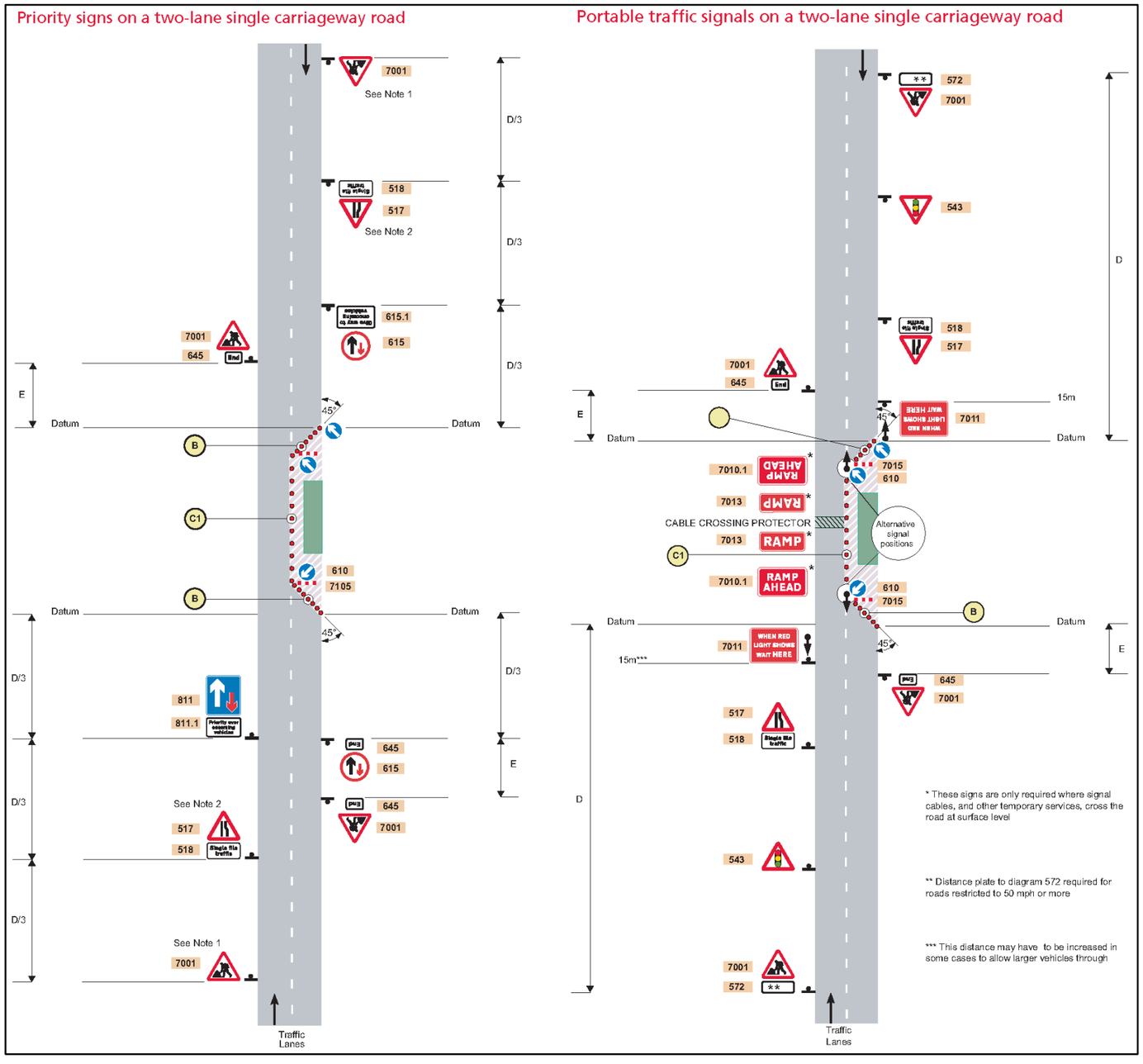


Figure 1.1: Indicative Shuttle Working Arrangements[2].

[2] Ref: Chapter 8 of the Traffic Signs Manual (DfT / Highways Agency, 2009

1.6.9.4 The time over which it will be necessary to implement either shuttle working or temporary road closures will be determined by the length of time that access is in use, which is dictated by the length of Hornsea Three onshore cable corridor that it serves. The saving in the overall period of traffic disruption associated with total road closure will therefore need to be weighed against the benefits of maintaining access along a link with shuttle working in those instances when both temporary closure or shuttle working are feasible.

1.6.9.5 During periods when construction vehicles travel along the Hornsea Three onshore cable corridor across a road, suitable controls will be put in place to ensure no risk to highways users. These will be specific to each access and will be set out in the subsequent CTMPs secured prior to the commencement of works and activities. At these points the configuration and management of the crossing will prevent non-construction vehicles accessing the onshore cable corridor, prevent construction HGVs from being able to access the onshore cable corridor from the public highway and manage the potential conflict between users of the highway and vehicles passing along the cable corridor. It is expected that all highway crossings will be manned. An indicative crossing arrangement is shown in Figure 1.2 that is taken from Chapter 8 of the Traffic Signs Manual (DfT/Highways Agency, 2009).

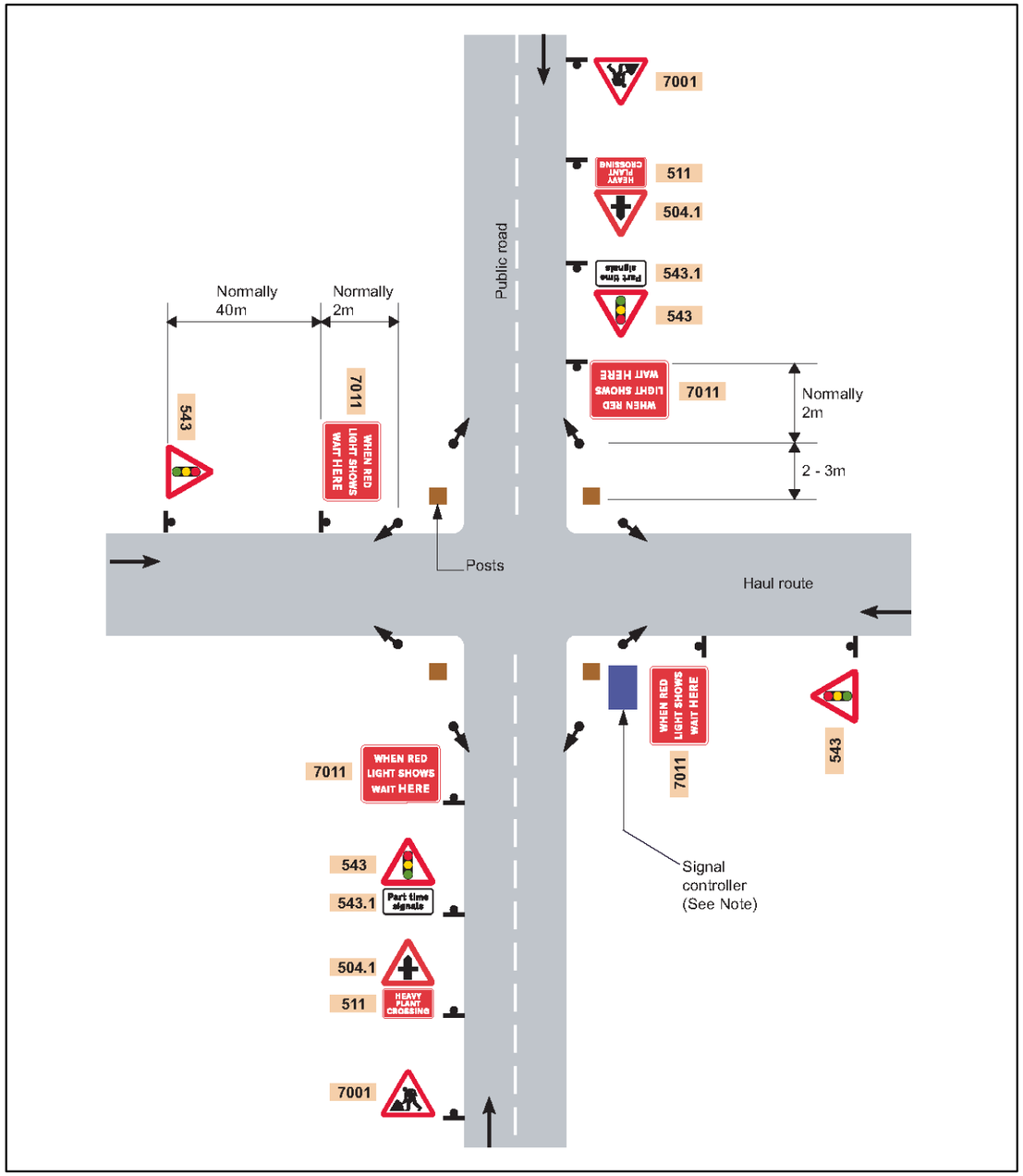


Figure 1.2: Indicative haul crossing route crossing[3].

[3] Ref: Chapter 8 of the Traffic Signs Manual (DfT / Highways Agency, 2009

1.6.10 Cumulative developments

1.6.10.1 A number of cumulative developments have been identified in the study area; details of these and the cumulative impact on the local and SRNs are provided in volume 3, chapter 7: Traffic and Transport.

1.6.11 Abnormal indivisible loads

1.6.11.1 The movement of Abnormal Indivisible Loads are low in number (less than 20), will be spread over a period of time and expected to result in no more than one movement in any one day, potentially during the night. The port of entry and the routes the Abnormal Indivisible Loads will take will be influenced from Highways England and Norfolk County Council and will be based upon each port's capabilities to accommodate the large loads and the available routes from these in terms of their geometries and layout being able to accommodate the large vehicles. Highways England and Norfolk County Council can only agree the port of entry and the route once the detailed dimensions and weight of the load, the heavy haulage contractor and the resultant transport vehicle has been defined and the requisite permission is sought to enable such movement.

1.6.11.2 The permission to transport the abnormal indivisible loads will be granted in accordance with the Road Vehicles (Construction and Use) Regulations 1986 and the Motor Vehicles (Authorisation of Special Use) General Order 2003.

1.6.11.3 The ability of the existing Norwich Main Substation access junction to accommodate abnormal indivisible loads has been assessed in relation to typical abnormal indivisible load vehicles. This indicates that a vehicle suitable for the transport of components with a weight of up to 387 tonnes is able to negotiate the Norwich Main Substation access within the existing available carriageway. Should there be a need to transport heavier components there is sufficient verge available to accommodate the vehicle's swept path with suitable temporary ground reinforcement.

1.7 Mitigation of transport impact

1.7.1 Minimisation of traffic generation

1.7.1.1 It is expected that the implementation of measures to encourage staff to travel by alternative modes and thus reduce staff car movements will be difficult on much of the Hornsea Three onshore cable corridor since work sites will move along the onshore cable corridor and much of the area has limited public transport service provision. However, opportunities to encourage staff travel by sustainable modes to the onshore cable corridor will be considered and it is expected that measures to minimise the use of private cars will be implemented at the onshore HVDC converter/HVAC substation site. Details of such measures are established in the Outline CoCP (see document A8.5) and Outline CTMP (see document A8.2) and will form part of the CTMPs which will be agreed with the highway authority.

1.7.1.2 As part of the Outline CoCP (see document A8.5) and in accordance with good construction practice opportunities will be sought to reduce the overall number of HGV movements by combining loads and using the largest feasible vehicles taking into account any other environmental constraints that may affect HGV routes.

1.7.2 Construction site management

1.7.2.1 Wheel washing will be implemented at all construction site access points where there is a risk of mud and debris being carried onto the highway. Details of such measures are established in the Outline CoCP (see document A8.5) and Outline CTMP (see document A8.2) and will form part of the CTMPs which will be agreed with the highway authority.

1.7.2.2 All loads of fine or loose material that could lead to dust will be sheeted. This measure form part of the Outline CoCP (see document A8.5) and Outline CTMP (see document A8.2).

1.7.3 Working hours

1.7.3.1 Working hours are set out in the Outline CoCP (see document A8.5). For the Hornsea Three onshore cable corridor and substation core working hours are to be 07.00 to 18.00 on weekdays and 07.00 to 13.00 on Saturdays. Up to one hour before and after for mobilisation ("mobilisation period") (i.e. 06:00 to 19:00 weekdays and 06:00 to 14:00 Saturdays); and Maintenance period 13:00 to 17:00 Saturdays. Mobilisation does not include HGV movements into and out of sites, but suppliers can make use of the wider highway network outside these hours to travel to site. In certain circumstances, specific works may have to be undertaken on a continuous working basis (00:00 to 00:00 Monday to Sunday).

1.7.3.2 During this continuous working basis period, the contractor may also run support generators, emergency backup supplies, undertake remedial works (for example in the event of severe weather) and operate security of sites and protection of open assets.

1.7.3.3 It may be beneficial to carry out several activities outside of the standard working hours to utilise periods such as abnormal indivisible loads/construction plant delivery, works within the highway, footpaths, works affecting operational railways. Activities outside of the standard working hours will be agreed with the relevant local authority EHO officer in consultation.

1.7.4 HGV routes

1.7.4.1 HGV routes have been carefully selected to minimise the potential for adverse environmental impacts. In some cases, there is no alternative than to use an environmentally sensitive route (sensitive areas are defined in Table 7.13 of volume 3, chapter 7: Traffic and Transport) to access part of the works site (or the only alternatives would have greater environmental sensitivity). In these cases, measures such as controls on the timing of HGV deliveries (see below) will be implemented to minimise the environmental impact.

1.7.5 HGV timing

1.7.5.1 There are schools in some areas of the network where HGVs may have to route nearby. It is therefore proposed to restrict HGV operating times in these locations to avoid school opening and closing times. Details of these measures, specifically taking into account the opening and closing times of local schools are set out in the Outline CoCP (see document A8.5).

1.7.6 Video Surveys

1.7.6.1 Video condition surveys will be undertaken before the start of the works and after the substantial completion of works on minor links used by HGVs to access the Hornsea Three onshore cable corridor. Damage to the highway caused by construction traffic will be repaired by the developer or a financial contribution made to the relevant NCCs to cover the cost of remedial works.

1.7.7 Traffic management

1.7.7.1 Traffic management will be implemented at some accesses to maintain highway safety and to ensure minimal delays to existing road users. An indicative design of shuttle working at a road crossing is provided in Figure 1.1. The detailed design of shuttle workings at road crossings will be undertaken prior to construction and agreed with the relevant highway authority.

1.7.7.2 Where temporary road closures are required, for example, when accesses are being formed discussions will be held with the relevant highway authority to agree the timing and duration of closures and measures such as advance warnings and the signing of diversions to minimise delays to highway users.

1.7.7.3 On some highway links it may be necessary to implement vehicle management measures to minimise the risk of large vehicles meeting on narrow sections of highway where passing opportunities are limited. The vehicle management may involve scheduling movements or controlling the times when vehicles enter and leave sites.

1.7.7.4 Where the Hornsea Three onshore cable corridor crosses highway links and it is necessary for vehicles to pass along the onshore cable corridor across the road, the crossing will be constructed and managed in accordance with the indicative layout shown in Figure 1.2. This will maintain site security, eliminate the risk of members of the public turning onto the onshore cable corridor and prohibit the use of the crossing for HGV access. Each crossing will be manned so that the potential conflict between highway users and construction vehicles can be managed.

1.7.8 Parking

1.7.8.1 Appropriate parking will be provided for construction vehicles to avoid the need for parking on the highway.

1.7.9 A47 improvement schemes

1.7.9.1 The A47 improvement works at the A47/A11 Thickthorn interchange, the A47 at Easton and A47 at Swardeston may coincide with Hornsea Three construction phase. The plans for these improvements are still evolving and are not yet fixed, however, Orsted and NCC have had initial discussions regarding the two projects and their potential interaction and further discussions will take place post submission.

1.7.10 Abnormal indivisible loads

1.7.10.1 The port of entry and the routes the Abnormal Indivisible Loads will take will be influenced from HE and NCC and will be based upon each port's capabilities to accommodate the large loads and the available routes from these in terms of their geometries and layout being able to accommodate the large vehicles. The management of the movement itself will be agreed with HE, NCC and the police and will be subject to the normal procedures for transporting abnormal indivisible loads not just for their own safe passage but also for the safety of all other road users.

1.7.11 Measures adopted as part of Hornsea Three

1.7.11.1 A summary of the measures adopted as part of Hornsea Three is set out in Table 1.12.

Table 1.12: Measures adopted as part of Hornsea Three.

Measures adopted as part of Hornsea Three	Justification
Suitable HGV routes have been identified.	To avoid adverse effects on communities and road users.
Video condition surveys will be undertaken before HGVs make use of a section of road and after the substantial completion of works on minor links used by HGVs to access the Hornsea Three onshore cable corridor. Damage to the highway caused by construction traffic will be repaired.	To ensure that construction traffic has no lasting adverse impact on the condition of highways.
A route for abnormal indivisible loads will be identified between the SRN and the relevant onshore infrastructure (i.e. onshore HVAC booster station and HVDC converter/HVAC substation). The route, timing and method of transport of abnormal indivisible loads will be discussed and agreed with HE, the police and relevant highways and bridge authorities.	To avoid damage to inappropriate highways, to minimise delays and risks to road users and to avoid adverse impacts on local communities.
Working hours are set out in the Outline CoCP (see document A8.5). For the Hornsea Three onshore cable corridor and substation core working hours are 07.00 to 18.00 on weekdays and 07.00 to 13.00 on Saturdays. Up to one hour before and after for mobilisation ("mobilisation period") (i.e. 06:00 to 19:00 weekdays and 06:00 to 14:00 Saturdays); and Maintenance period 13:00 to 17:00 Saturdays. Mobilisation does not include heavy good vehicle (HGV) movements into and out of sites, but suppliers can make use of the wider highway network outside these hours to travel to site. In certain circumstances, specific works may have to be undertaken on a continuous working basis (00:00 to 00:00 Monday to Sunday). During this continuous working basis period, the contractor may also run support generators, emergency backup supplies, undertake remedial works (for example in the event of severe weather) and operate security of sites and protection of open assets. It may be beneficial to carry out several activities outside of the standard working hours to utilise periods such as abnormal loads/construction plant delivery, works within the highway, footpaths, works affecting operational railways. Activities outside of the standard working hours will be agreed with the relevant local authority EHO officer in consultation.	The use of core construction hours will minimise noise impacts (see volume 3, chapter 8; Noise and Vibration), however in some circumstances extended or continuous working hours could requested to reduce the magnitude of environmental impacts of construction (e.g. to increase safety, reduce driver delays or reduce the duration of impacts etc.).
Restrictions on HGV operating hours, along those sections of the highway network that provide access to local schools.	To minimise adverse impacts on local communities and vulnerable highway users.
Where there is a risk of mud being deposited on the road, wheel wash facilities will be provided at each construction site. These include dry wheel 'wash' facility (rumble grids).	To eliminate risks to highway users resulting from mud and debris on the highway.
The progression of Temporary Traffic Regulation Orders for a temporary 30 mph speed restriction at every site access which does not already have such a speed limit.	To reduce vehicle speeds, improve driver awareness of construction activity and to minimise any potential road safety issues arising.
Measures to minimise dust and dirt associated with the movement of construction vehicles are set out in the Outline CoCP (see document A8.5).	To minimise adverse air quality effects (see volume 3, chapter 9: Air Quality).
The provision of appropriate parking facilities for construction workers.	To eliminate risks associated with inappropriate parking.
Traffic management measures at those points where cable trenches are cut across highways or where existing access rights are affected.	To minimise delays to existing highway users and to maintain highway safety.
The diversion of footways or any other rights of way that may be affected by the construction works with closures only when absolutely necessary (see volume 3, chapter 6: Land Use and Recreation).	Closure of rights of way minimise risks to members of the public resulting from construction works. Diversions minimise delays and inconvenience to pedestrians, cyclists and equestrians.
Monitor load sizes and vehicle usage and, where possible, load consolidation and delivery to construction sites using alternative vehicles. Encouragement to re-use HGVs wherever possible, such as backloading. Where suitable, local suppliers will be used to minimise the distance travelled by HGVs.	To minimise the impact on sensitive receptors.
Where possible the appointed contractor should seek to minimise overall vehicle movement generation through measures to encourage and promote sustainable travel and transport, for example by using a minibus to shuttle staff between key pick up locations and the compounds (main compound and secondary compounds).	To minimise overall emissions and to minimise other traffic and transport impacts.
Local management of vehicle movements to minimise the risks of vehicles meeting each other on narrow sections.	To minimise highway risk and possible delays.
The design of HGV access points, including visibility standards and, where necessary, temporary speed restrictions on the adjacent highway will be agreed with the relevant Highway Authorities.	To maintain highway safety.

Measures adopted as part of Hornsea Three	Justification
At all vehicle accesses where accommodation works are undertaken to allow the movement of vehicles between the Hornsea Three onshore cable corridor and the highway the original highway will be reinstated after construction work is completed.	To ensure the ongoing safe and efficient functioning of the highway.
It is expected that a number of abnormal indivisible loads comprising large components such as transformers will be transported to the onshore HVDC converter/HVAC substation site. The haulage contractor appointed to undertake this work will be required to comply with statutory regulations in terms of consulting with HE, police and Local Highway Authorities. The notification requirements differ depending on the weight, length and width of the abnormal indivisible load.	To minimise disruption and driver delay.
The timing of abnormal indivisible load deliveries will be discussed with the relevant highway authorities to minimise delay for other road users and to minimise risk to highway users. The timing of abnormal indivisible load deliveries to the onshore HVDC converter/HVAC substation will be discussed to ensure that there is no adverse impact on the access road in terms of delays to vehicles using the site.	To minimise disruption and driver delay.
The routeing of abnormal indivisible load deliveries will be agreed with the relevant highway authorities. The delivery of abnormal indivisible loads would typically be undertaken in convoy and under escort. Where abnormal indivisible loads require the full width of the carriageway or for unusual manoeuvres at junctions, appropriate temporary road closures and traffic management will be put in place as appropriate to maintain the safety of other road users.	To minimise disruption and driver delay.
An Outline CTMP (see document A8.2) and an Outline CoCP (see document A8.5), which establish the principles that any subsequent CTMPs and CoCPs will follow, are submitted with this application. The CTMPs form part of the CoCPs. The draft DCO submitted with the application requires that no phase of any works landward of MLWS may commence until, for that phase, a CoCP (which must accord with the Outline CoCP) has been submitted to, and approved by, the relevant planning authority, in consultation with the relevant highway authority (and if applicable the MMO).	This is to minimise the impacts of construction vehicle movements associated with Hornsea Three and to manage those movements in a manner that road safety is maintained. .
Depending on the times of construction of individual Hornsea Three onshore cable corridor sections, HGVs will avoid tourist routes where possible during peak holiday season (or avoid tourist routes where possible during peak hours of the day). Management measures will be captured in CTMPs which will be developed in consultation with Norfolk County Council (NCC) as the Local Highway Authority (LHA) and Highways England (HE), prior to submission to the Local Planning Authorities for approval.	To seek to minimise any disruption during these periods.

1.8 Development consent order

1.8.1.1 It is intended that the main consents and licenses associated with the implementation of the construction works will be obtained through the DCO process.

1.8.1.2 The specific aspects of the works that are expected to be secured through the DCO process comprise the following:

- Works on the highway at temporary HGV access points;
- Temporary road closures and stopping up of highways at road crossings; and
- The requirement for a CoCP based upon the Outline CoCP (see document A8.5) submitted with the DCO application.

1.9 Summary and conclusion

1.9.1.1 This TA assesses the transport impact of the construction phase of the onshore elements of Hornsea Three, together with the compounds (including main construction compound) and storage areas associated with the Hornsea Three offshore wind farm. The report has been prepared as an annex to the volume 3, chapter 7: Traffic and Transport required under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (EIA Regulations).

1.9.1.2 The transport impact of the construction of the onshore elements of Hornsea Three, together with the compounds (including main construction compound) and storage areas is expected to be related to the movement of materials, equipment and staff and to temporary changes in the highway network where trenches are dug across highways.

1.9.1.3 Onshore work is planned to commence in 2021, however it could commence as early as 2020. Hornsea Three could be built using two-phase or a single-phase construction programme. Under a two-phase programme scenario, the sum of the durations of each phase of Hornsea Three onshore cable corridor construction would not exceed eight years assuming gaps between the phases of up to 3 years. Under a single-phase construction programme, the total duration of the onshore cable corridor construction would not exceed six years.

1.9.1.4 The level of traffic associated with the construction of the project has been informed by the engineering requirements associated with the various works. Where there is some uncertainty about elements of the construction, worst case assumptions have been adopted to ensure that all potential impacts are identified. In particular, it has been assumed, as a worst case, that the whole of the Hornsea Three onshore cable corridor haul road will be surfaced with aggregate and that all of the road will be removed at the end of the construction period.

1.9.1.5 It is estimated that over the whole construction period the project will generate around 273,000 construction worker vehicle movements (cars). This equates to around 2,600 light vehicle movements per day on average spread over the various work sites for the duration of the construction programme.

1.9.1.6 A sensitivity assessment of the percentage increase in daily link flows resulting from construction activity indicates that the maximum daily increase in daily link flows on the basis of worst case assumptions is 17.9% on the B1145 east of Cawston.

1.9.1.7 It is concluded that the construction vehicle movements associated with the project will not have any significant impact on the operation of links or junctions within the study area which cannot be mitigated through measures outlined in volume 3, chapter 7: Traffic and Transport.

1.9.1.8 An assessment has been made of the potential impact of road crossings. A number of roads are crossed using HDD and are therefore not affected by the crossing. Where it is necessary to lay cables across links it is proposed to either introduce a temporary closure or introduce temporary shuttle working as cable ducts are laid across one and then the other side of the road while allowing shuttle working on the side of the road that is kept open. Shuttle working is proposed in all cases where no alternative routes are available.

1.9.1.9 Orsted will continue to engage with NCC in relation to the planned improvement works on the A47.

1.9.1.10 The port of entry and the routes the Abnormal Indivisible Loads will take will be influenced from HE and NCC and will be based upon each port's capabilities to accommodate the large loads and the available routes from these in terms of their geometries and layout being able to accommodate the large vehicles.

1.9.1.11 The main consents and licenses associated with the implementation of the construction works will be obtained through the DCO process.

Appendix A HGV Vehicle Movements per Access Point

HGV Movements per Access Point

Cable Route Section	Description	Total Two-Way Light Vehicle Movements	Total Two-Way HGV Movements	Duration / Days	Daily Two-Way HGV Movements	Accesses																Number of Construction Accesses	*Daily HGVs per access
Landfall	Landfall	9,600	4,800	550	5	47 (B)																1	5
1	Landfall to Holgate Hill	5,528	18,737	180	104	47 (B)	45(B)	44(B)	ACC_P_75													4	26
2	Holgate Hill to woodland north east of High Kelling	3,139	9,854	102	96	42(C)	41(B)															1	96
3	Woodland northeast of High Kelling to woodland south of Church Road	4,612	14,586	150	97	ACC_P_74	ACC_P_73	ACC_P_72	ACC_P_71	ACC_P_70	ACC_P_69											6	16
4	Woodland south of Church Road to woodland south and east of School Lane	5,163	15,727	170	94	ACC_P_68	ACC_P_67	39a(B)														3	31
5	Woodland east of School Lane to Plumstead Road	3,782	11,494	124	94	ACC_P_66	ACC_P_65	ACC_P_64	ACC_P_63	ACC_P_62	ACC_P_61											6	16
6	Plumstead Road to the B1149	4,871	16,733	158	106	37(E)	ACC_P_60															2	53
7	B1149 to land South of Town Close Lane	3,315	10,391	108	96	ACC_P_59	ACC_P_58	ACC_P_57	36(C)	ACC_P_56	35(C)											3	32
8	Land south of Town Close Lane to woodland north of Reepham Road	9,180	28,030	300	94	ACC_P_55	ACC_P_54	ACC_P_53	ACC_P_52	ACC_P_51	ACC_P_50	ACC_P_49	ACC_P_48									8	12
9	Land north of Reepham Road to woodland north of Reepham	4,118	12,530	133	94	ACC_P_47	ACC_P_46	34 (A)	33(A)	ACC_P_45	ACC_P_44											6	16
10	Woodland north of Reepham to woodland at Booton Common	3,539	11,081	114	96	ACC_P_43	ACC_P_42	32(B) / 31(B)														3	32
11	Woodland east of Reepham to The Grove	4,211	13,321	137	97	ACC_P_41	ACC_P_40															2	49
12	The Grove to woodland south of Church Farm Lane	4,524	13,767	149	94	ACC_P_39	ACC_P_38	ACC_P_37	ACC_P_36	ACC_P_35	ACC_P_34											6	16
13	Woodland south of Church Farm Lane to River Wensum	4,262	13,296	139	96	29(B)	29(B)	ACC_P_33	ACC_P_32	28(C)	27(C)	26(B)	25(B)									6	16
14	River Wensum to woodland south west of Ringland	10,094	31,155	330	94	ACC_P_31	ACC_P_30	24(A)	ACC_P_29	ACC_P_28	ACC_P_27	ACC_P_26	23(A)	ACC_P_25	ACC_P_24	22(B)	ACC_P_23	ACC_P_22	21(B)	20(B)		14	7
15	Woodland south west of Ringland to A47	3,250	10,518	106	99	18(B)	17(B)	16(A)														3	33
16	A47 to Bawburgh Road	4,882	15,363	158	97	ACC_P_21	ACC_P_20	15(A)	ACC_P_19	14(A)												4	24
17	Bawburgh Road to woodland west of Little Melton	6,415	19,891	209	95	ACC_P_18	13(C)	ACC_P_17	ACC_P_16	ACC_P_15	ACC_P_14											5	19
18	Woodland west of Little Melton to A11	7,152	22,152	231	95	11(A)	ACC_P_13	10(A)	9(A)	ACC_P_12	ACC_P_11	ACC_P_10	ACC_P_9	8(A)	7(A)	ACC_P_8	6(B)	50(B)	5(A)	4(C) / 4(B)	3(B)	16	6
19	A11 to woodland north west of Swardeston	5,006	15,246	163	94	2(B)	ACC_P_7	ACC_P_6	ACC_P_5	ACC_P_4												5	19
20	Woodland north west of Swardeston to B1113	3,398	10,465	110	95	ACC_P_3	ACC_P_2	1(B)														3	32
21	B1113 to end of cable route	3,923	17,786	127	140	ACC_P_1	ACC_P_A	ACC_P_B	ACC_P_C	ACC_P_D	A(B)											2	70
HVAC Booster Station	Booster Station	24,012	6,597	275	12	37(E)																1	12
HVAC Substation	Converter / Sub Station	135,000	24,012	825	29	ACC_P_1																1	29
																						111	**665**

Monitoring Access only
Crossing Point Only

*Excluding Monitoring Accesses and Crossing Points

Appendix B Traffic Flows

Traffic Flow Diagrams

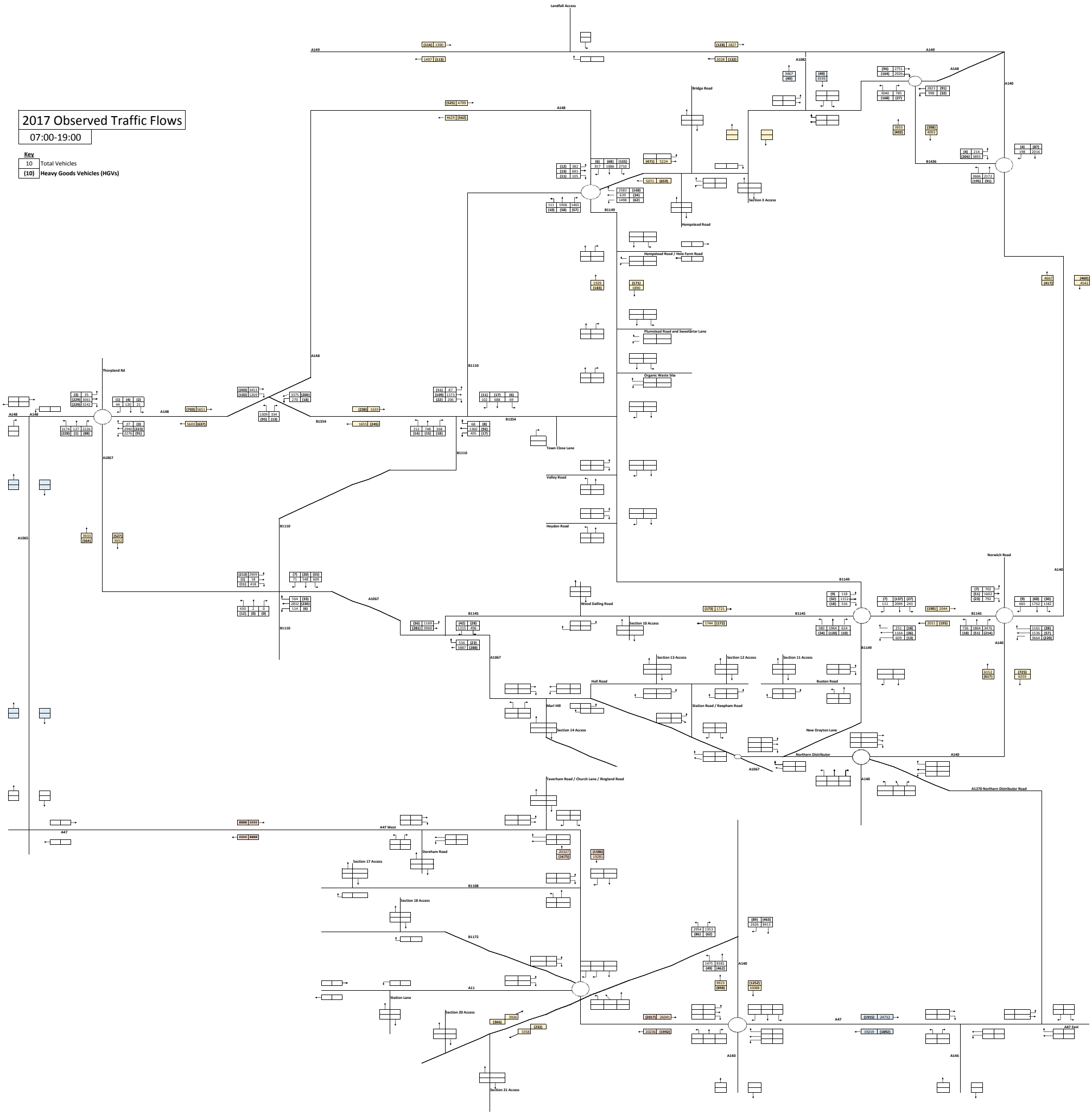
12hr Total Construction Traffic

2017 Observed Traffic Flows

07:00-19:00

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



TEMPRO

Average Weekday

Trunk
1.10 growth 2017-2022

Principal
1.09 growth 2017-2022

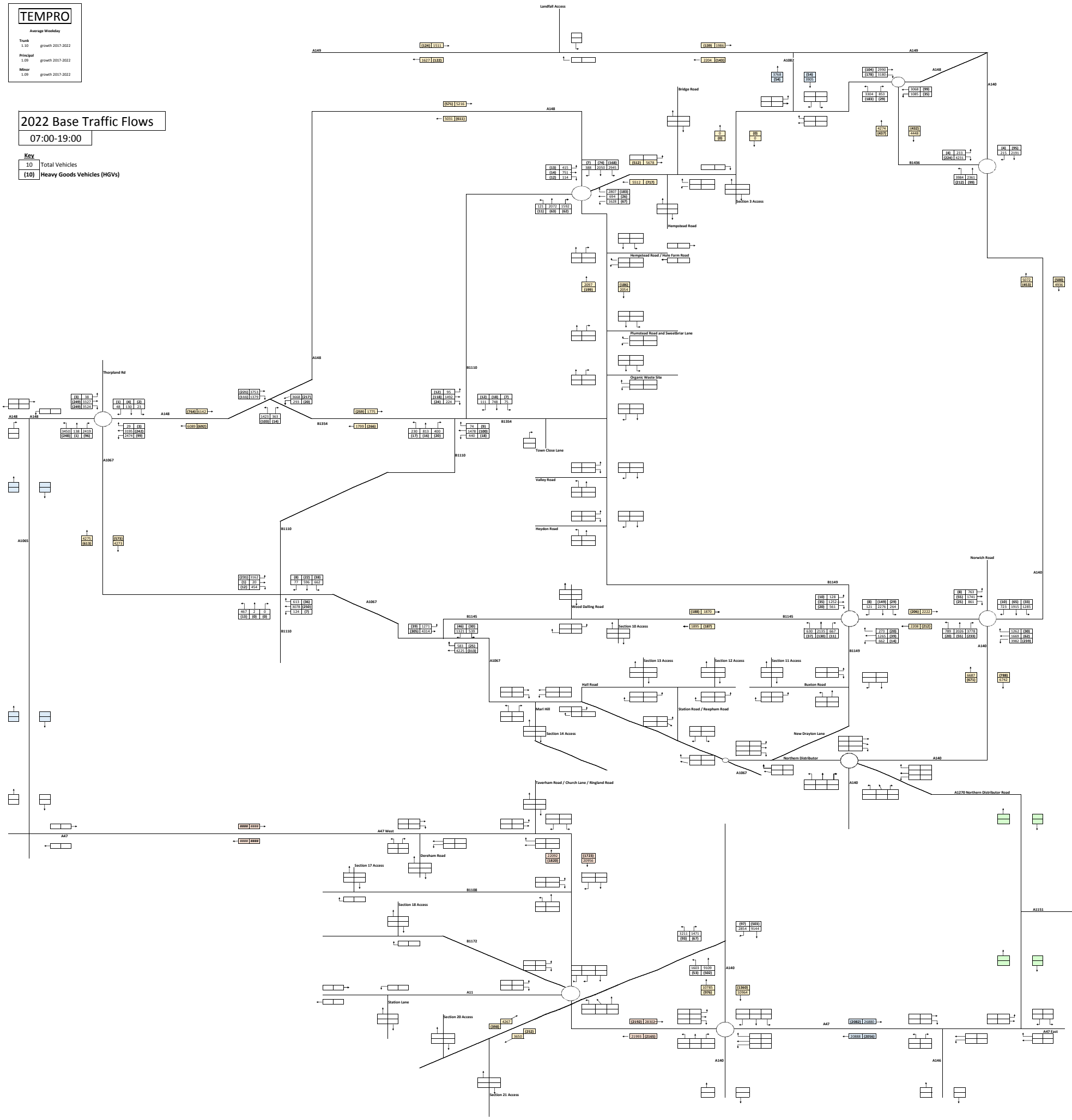
Minor
1.09 growth 2017-2022

2022 Base Traffic Flows

07:00-19:00

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Tables Linked to Construction Vehicle Movements Spreadsheet

Route Section	Description	12hr Vehicle Flows			
		Total	HGV	Lights	Phase
1	Landfall to Holgate Hill	228	105	123	1
2	Holgate Hill to woodland north east of High Kelling	173	96	77	1
3	Woodland northeast of High Kelling to woodland south of Church Road	223	95	128	1
4	Woodland south of Church Road to woodland south and east of School Lane	163	94	69	1
5	Woodland east of School Lane to Plumstead Road	163	94	69	1
6	Plumstead Road to the B1149	233	106	128	2
7	B1149 to land South of Town Close Lane	173	96	77	-
8	Land south of Town Close Lane to woodland north of Reepham Road	260	94	167	2
9	Land north of Reepham Road to woodland north of Reepham	221	94	128	2
10	Woodland north of Reepham to woodland at Booton Common	212	96	116	2
11	Woodland east of Reepham to The Grove	193	97	96	2
12	The Grove to woodland south of Church Farm Lane	163	94	69	3
13	Woodland south of Church Farm Lane to River Wensum	192	96	96	3
14	River Wensum to woodland south west of Ringland	277	95	182	3
15	Woodland south west of Ringland to A47	173	101	72	3
16	A47 to Bawburgh Road	224	97	128	3
17	Bawburgh Road to woodland west of Little Melton	241	94	147	4
18	Woodland west of Little Melton to A11	316	96	221	4
19	A11 to woodland north west of Swardeston	191	95	96	4
20	Woodland north west of Swardeston to B1113	203	95	108	4
21	B1113 to end of cable route	267	140	128	4
Landfall	Landfall	15	5	10	
Booster Station	Booster Station	46	12	34	
Converter / Sub Station	Converter / Sub Station	111	29	82	
	Total:	**4,661**	**2,116**	**2,545**	**4,661**

HGVs

Assume		
	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

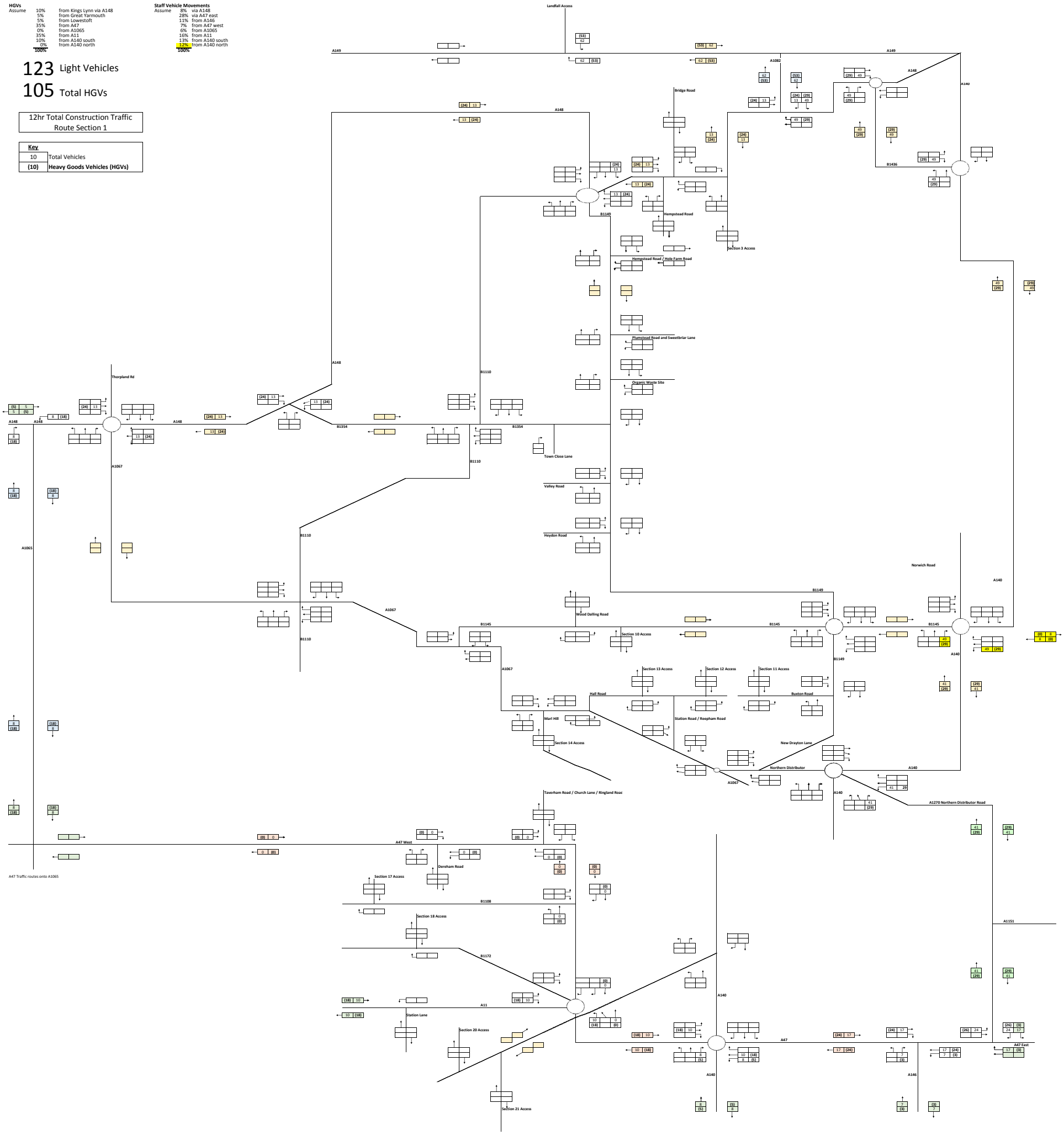
Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

123 Light Vehicles

105 Total HGVs

12hr Total Construction Traffic Route Section 1

Key	
10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

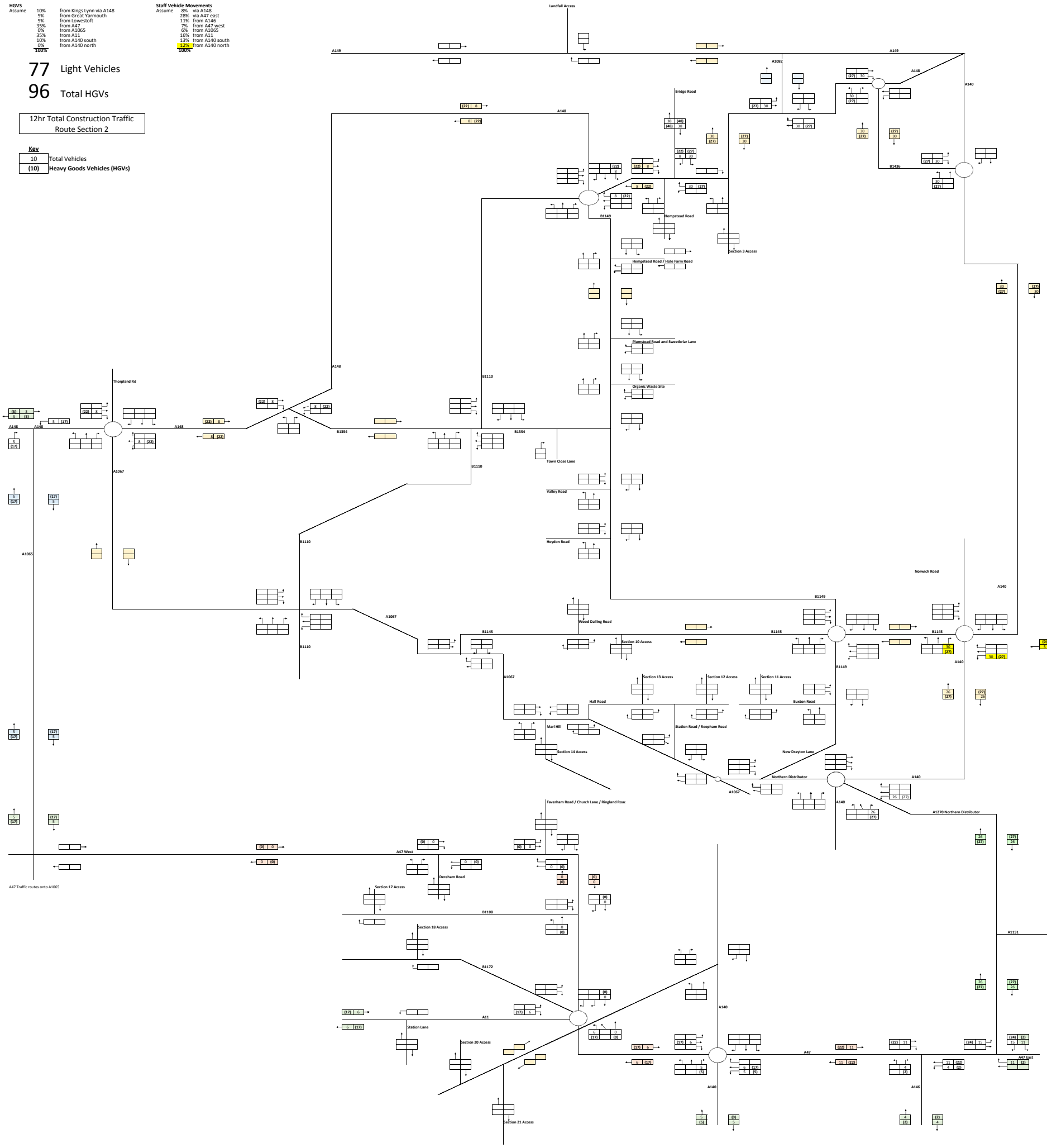
77 Light Vehicles

96 Total HGVs

12hr Total Construction Traffic Route Section 2

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

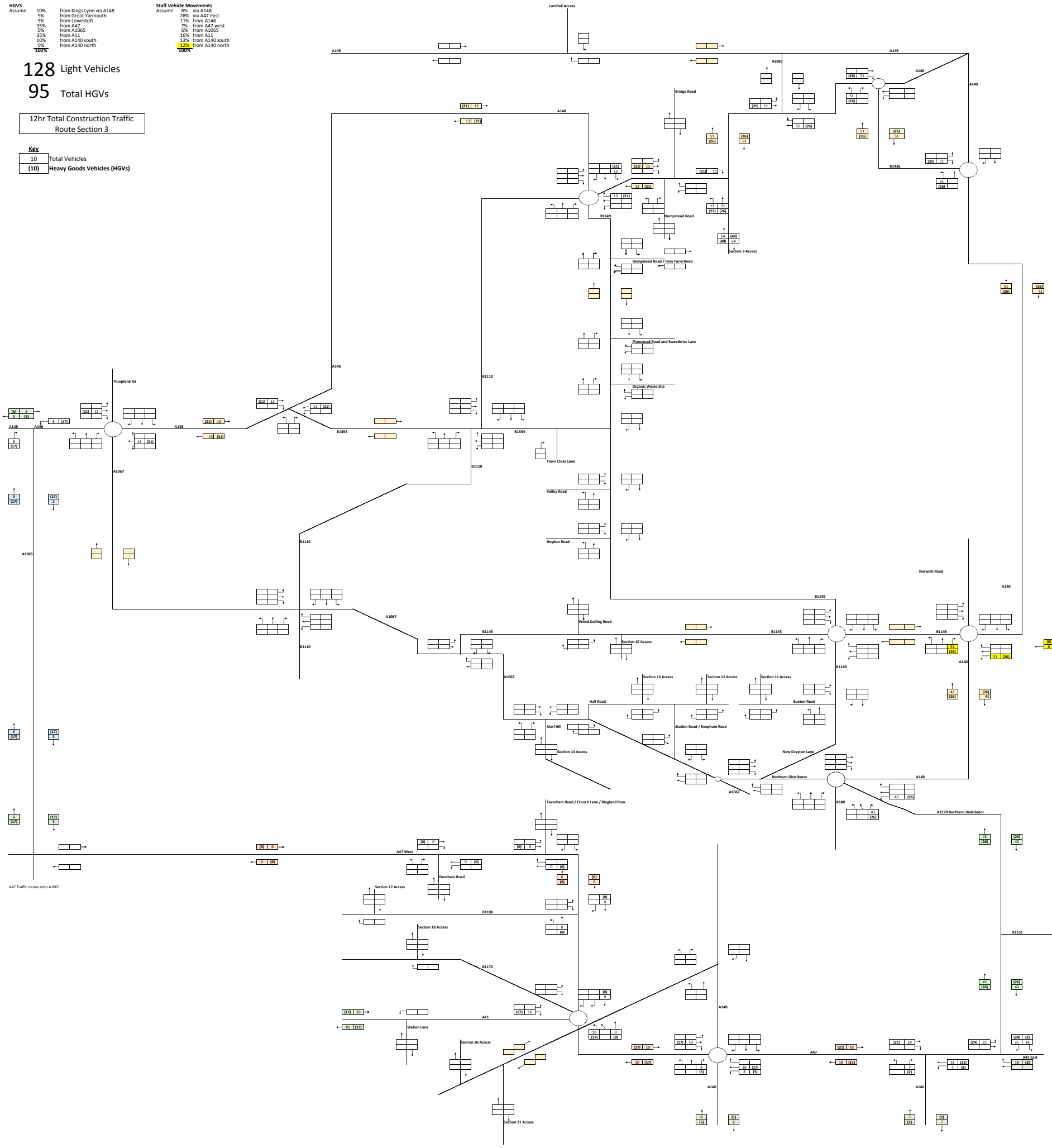
128 Light Vehicles

95 Total HGVs

12hr Total Construction Traffic Route Section 3

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

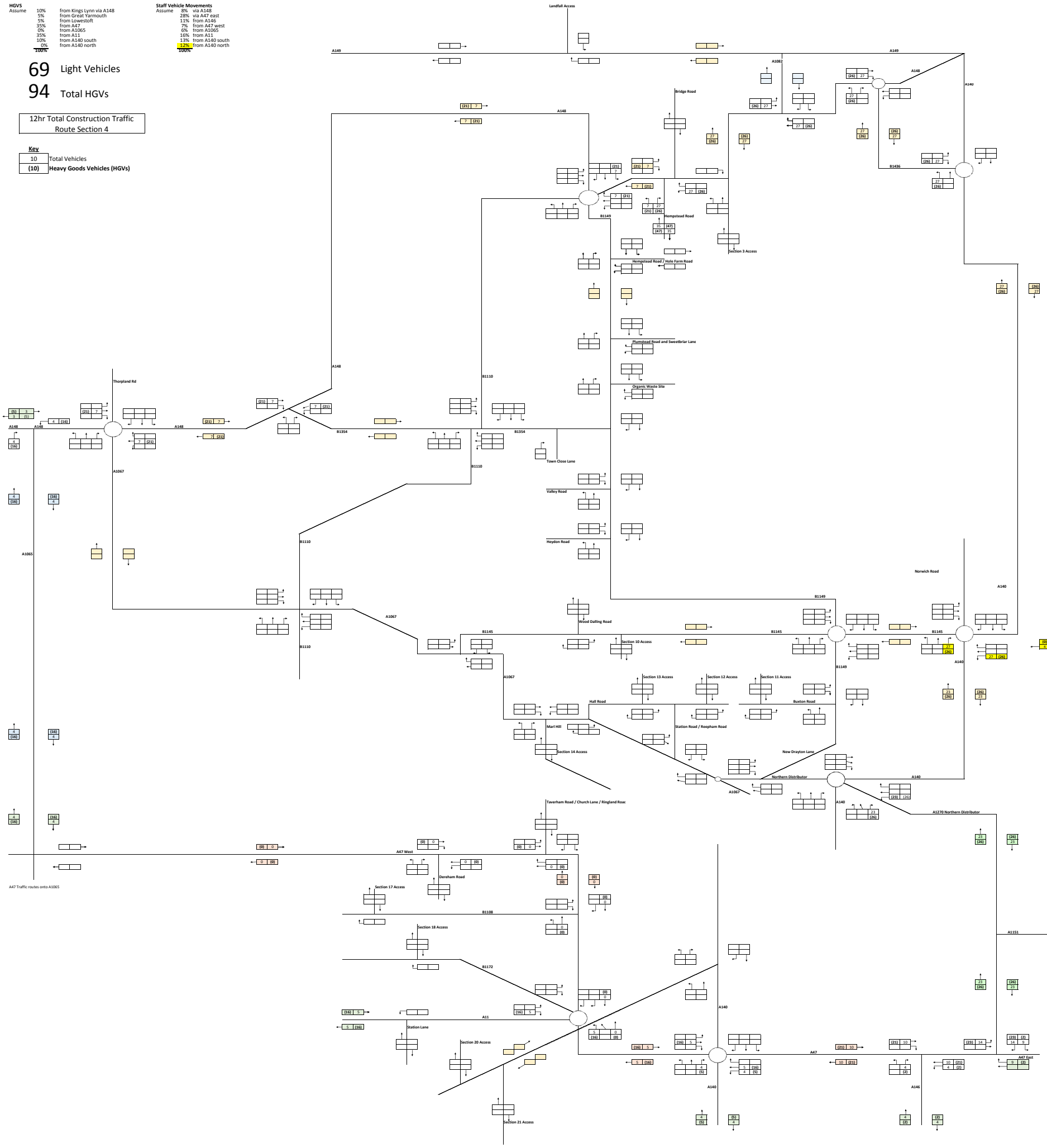
69 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic Route Section 4

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

69 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic Route Section 5

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1067
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
A47 Traffic routes onto A1065
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146

12hr Total Construction Traffic
Phase 1 Total

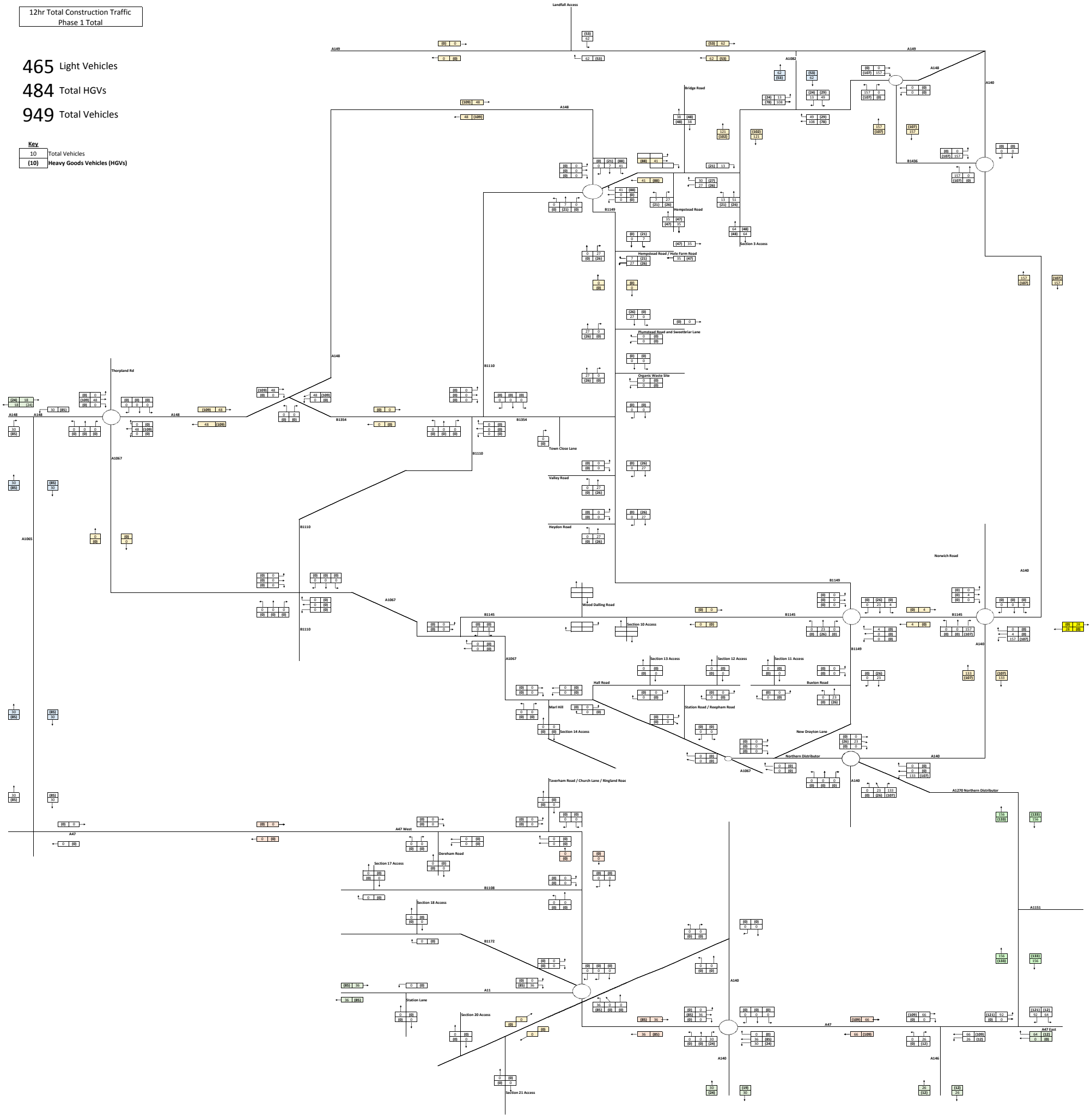
465 Light Vehicles

484 Total HGVs

949 Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

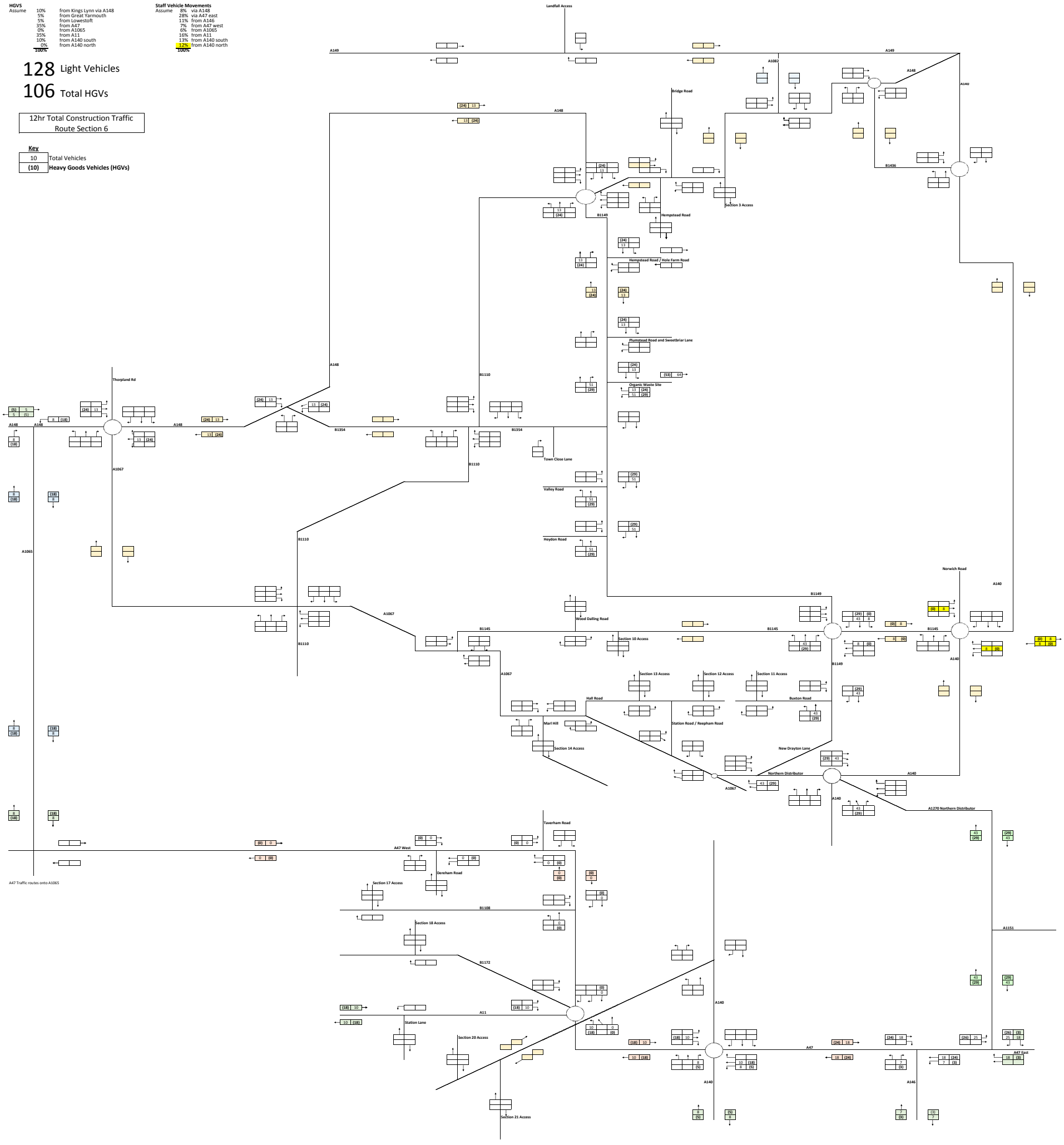
128 Light Vehicles

106 Total HGVs

12hr Total Construction Traffic Route Section 6

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

167 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic
Route Section 8

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1065
A1067
Wood Dalling Road
B1145
Section 10 Access
Norwich Road
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146
A47 Traffic routes onto A1065

HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

128 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic Route Section 9

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Thorpland Rd
A1067
Town Close Lane
Valley Road
Heydon Road
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
Dereham Road
Section 17 Access
Section 18 Access
B1108
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146

HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

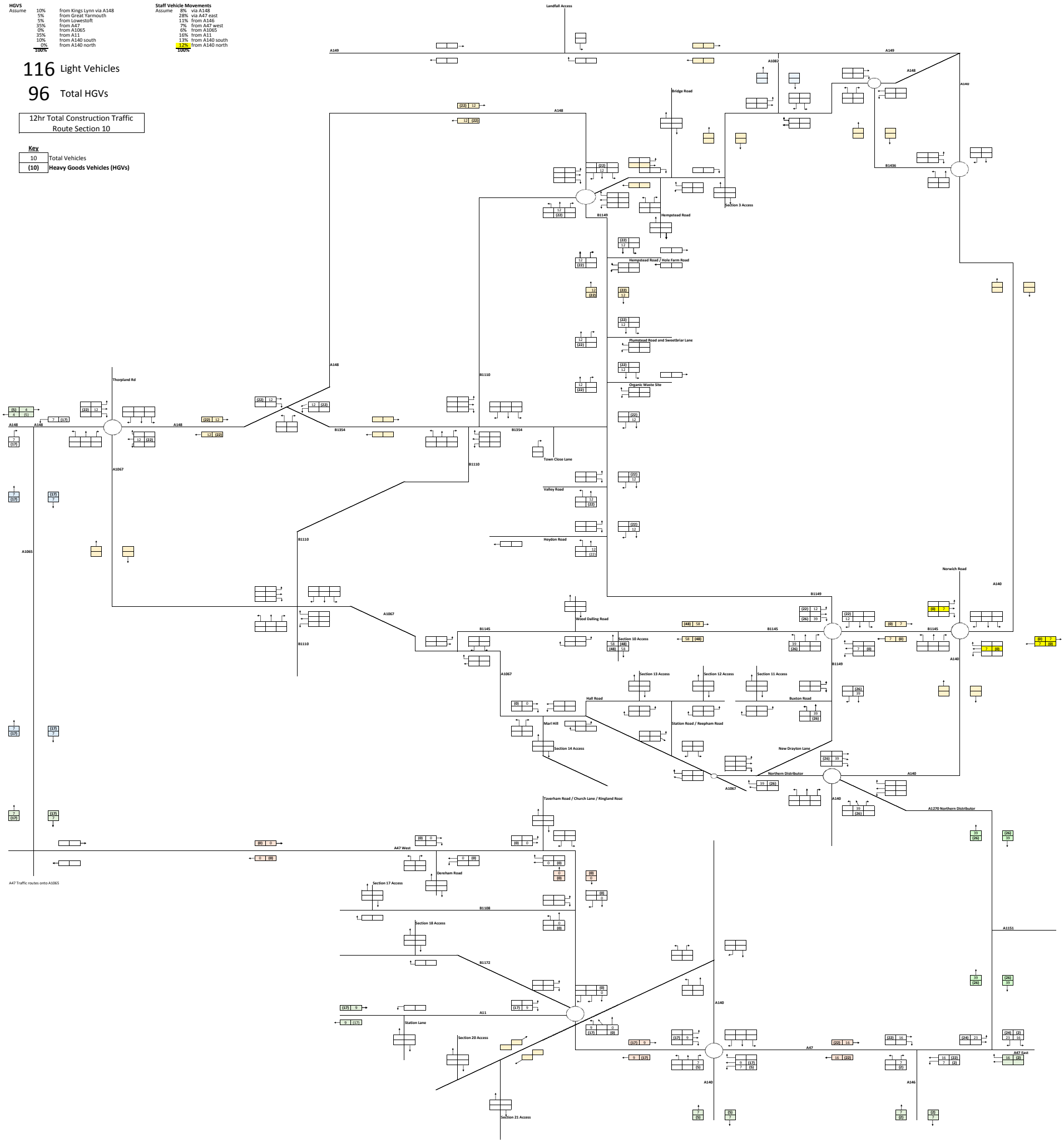
116 Light Vehicles

96 Total HGVs

12hr Total Construction Traffic
Route Section 10

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

96 Light Vehicles

97 Total HGVs

12hr Total Construction Traffic
Route Section 11

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
A1065
A1067
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146
Thorpland Rd

12hr Total Construction Traffic
Phase 2 Total

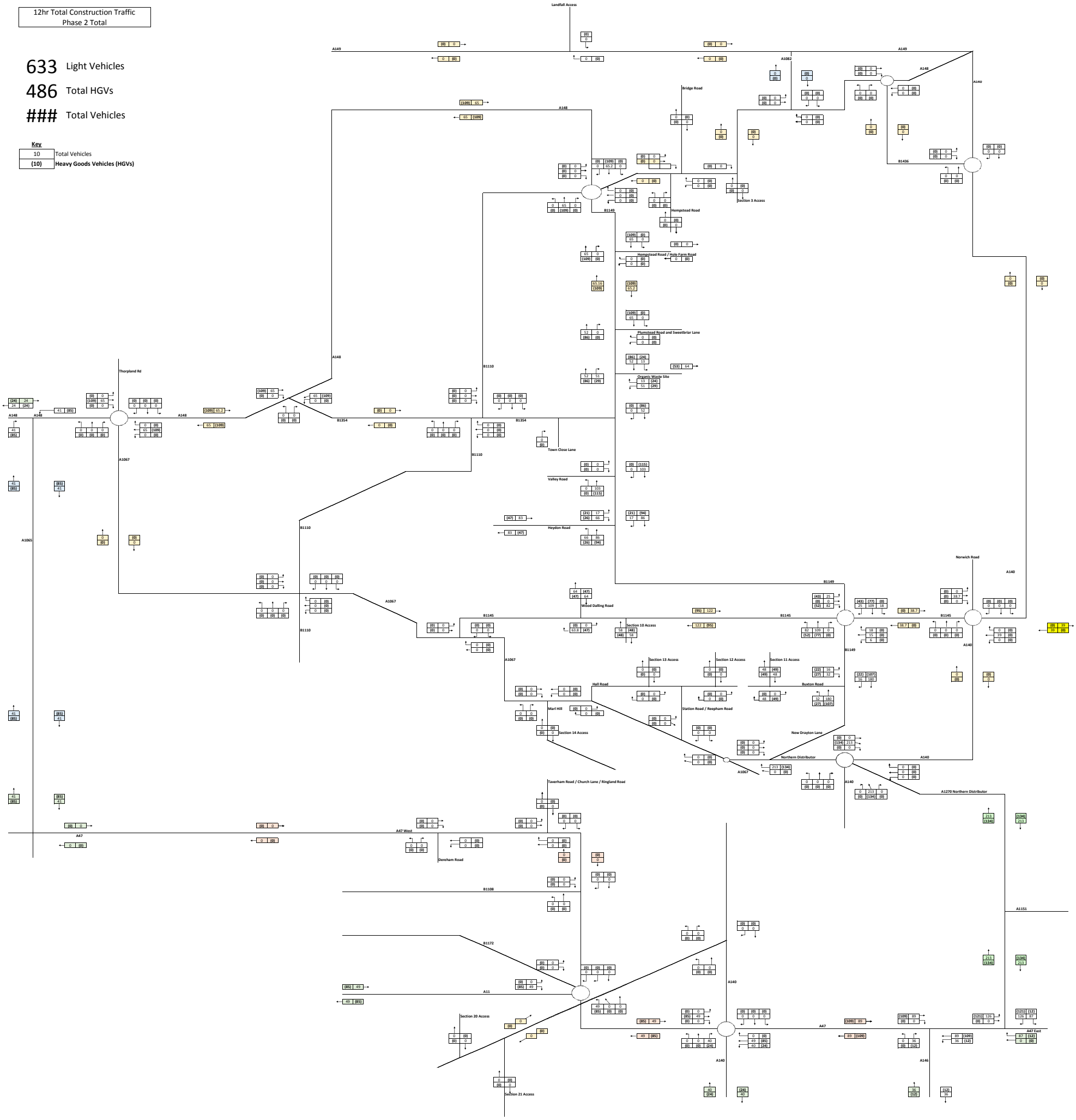
633 Light Vehicles

486 Total HGVs

Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

69 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic
Route Section 12

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Thorpland Rd
A1065
A1067
Town Close Lane
Valley Road
Heydon Road
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
A47 Traffic routes onto A1065
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146

HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

96 Light Vehicles

96 Total HGVs

12hr Total Construction Traffic
Route Section 13

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

Landfall Access
A149
A1082
Bridge Road
A148
B1436
A140
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1065
A1067
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A140
A47
A47 East
A1151
A146

HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

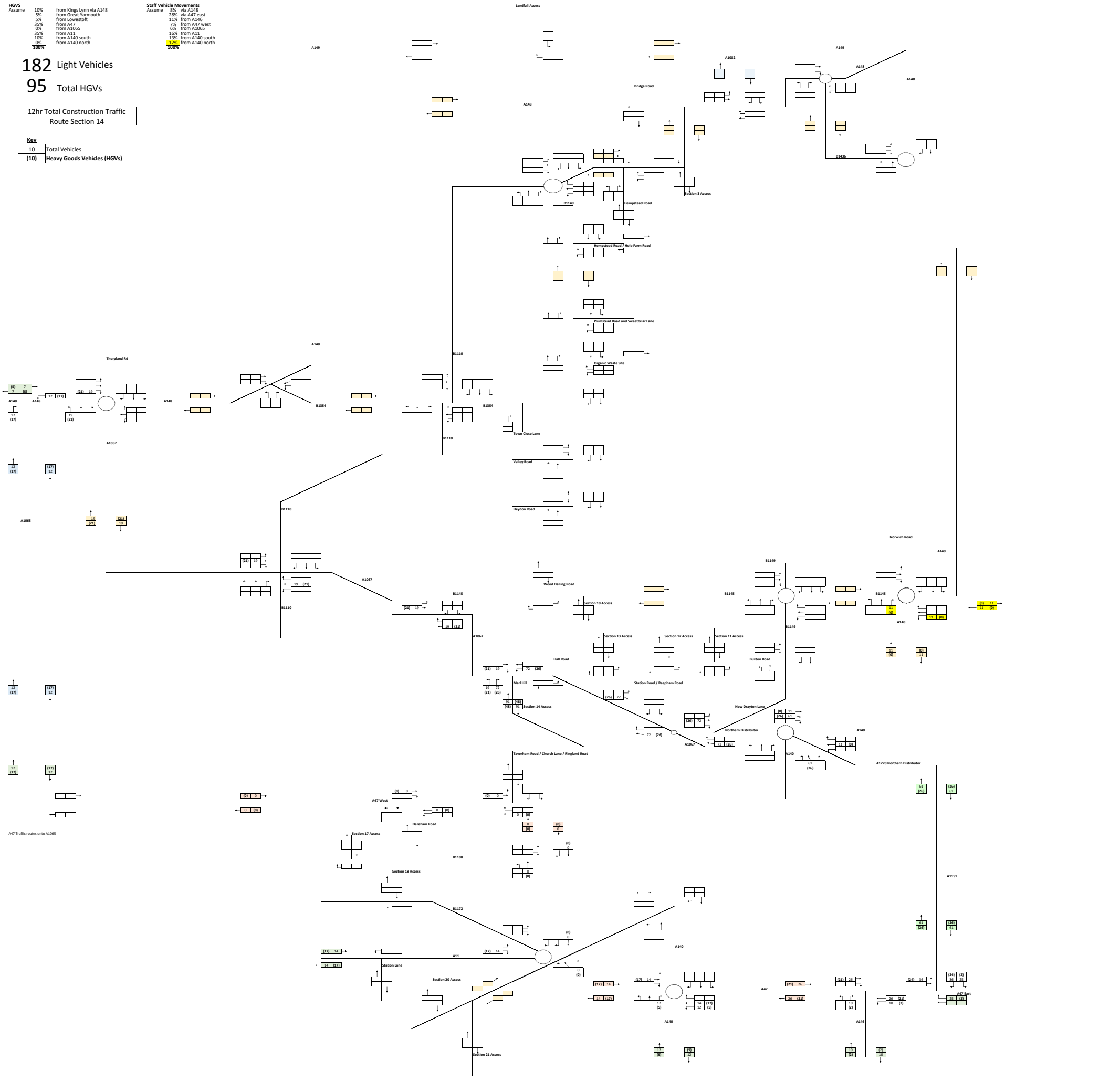
182 Light Vehicles

95 Total HGVs

12hr Total Construction Traffic Route Section 14

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

72 Light Vehicles

101 Total HGVs

12hr Total Construction Traffic Route Section 15

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

128 Light Vehicles

97 Total HGVs

12hr Total Construction Traffic Route Section 16

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

12hr Total Construction Traffic
Phase 3 Total

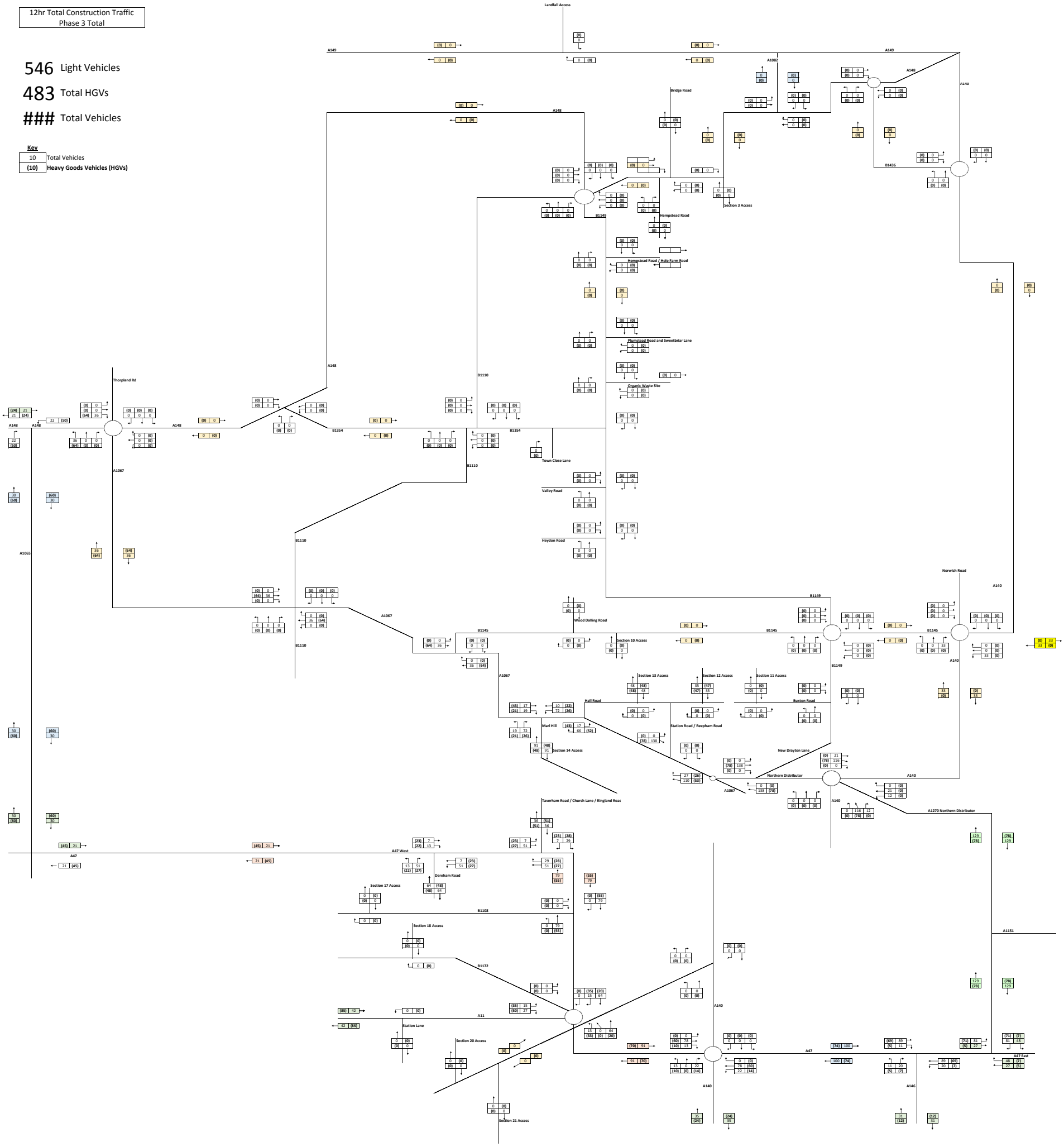
546 Light Vehicles

483 Total HGVs

Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

147 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic
Route Section 17

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

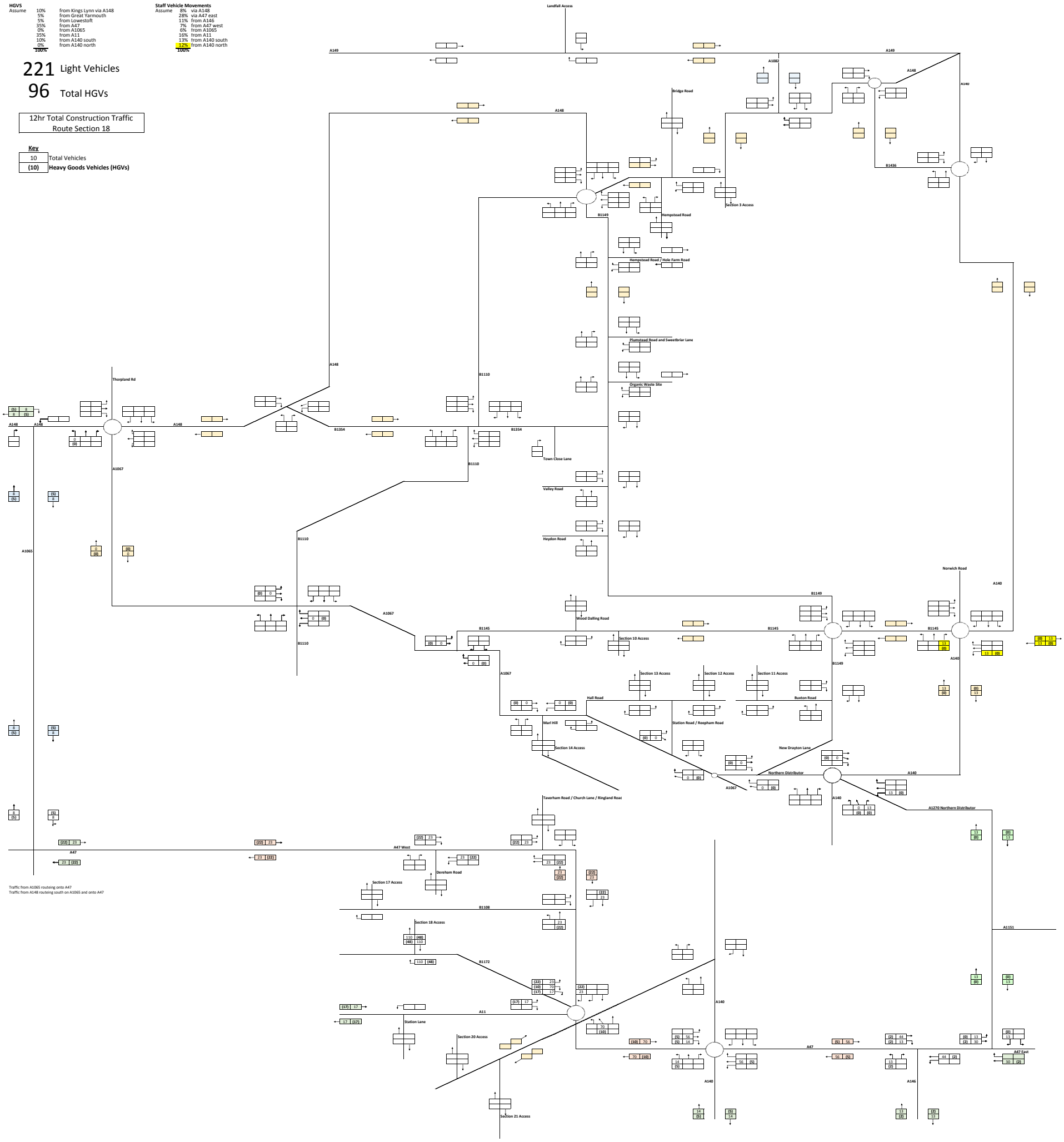
221 Light Vehicles

96 Total HGVs

12hr Total Construction Traffic Route Section 18

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

96 Light Vehicles

95 Total HGVs

12hr Total Construction Traffic Route Section 19

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

108 Light Vehicles

95 Total HGVs

12hr Total Construction Traffic
Route Section 20

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

128 Light Vehicles

140 Total HGVs

12hr Total Construction Traffic Route Section 21

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

12hr Total Construction Traffic
Phase 4 Total

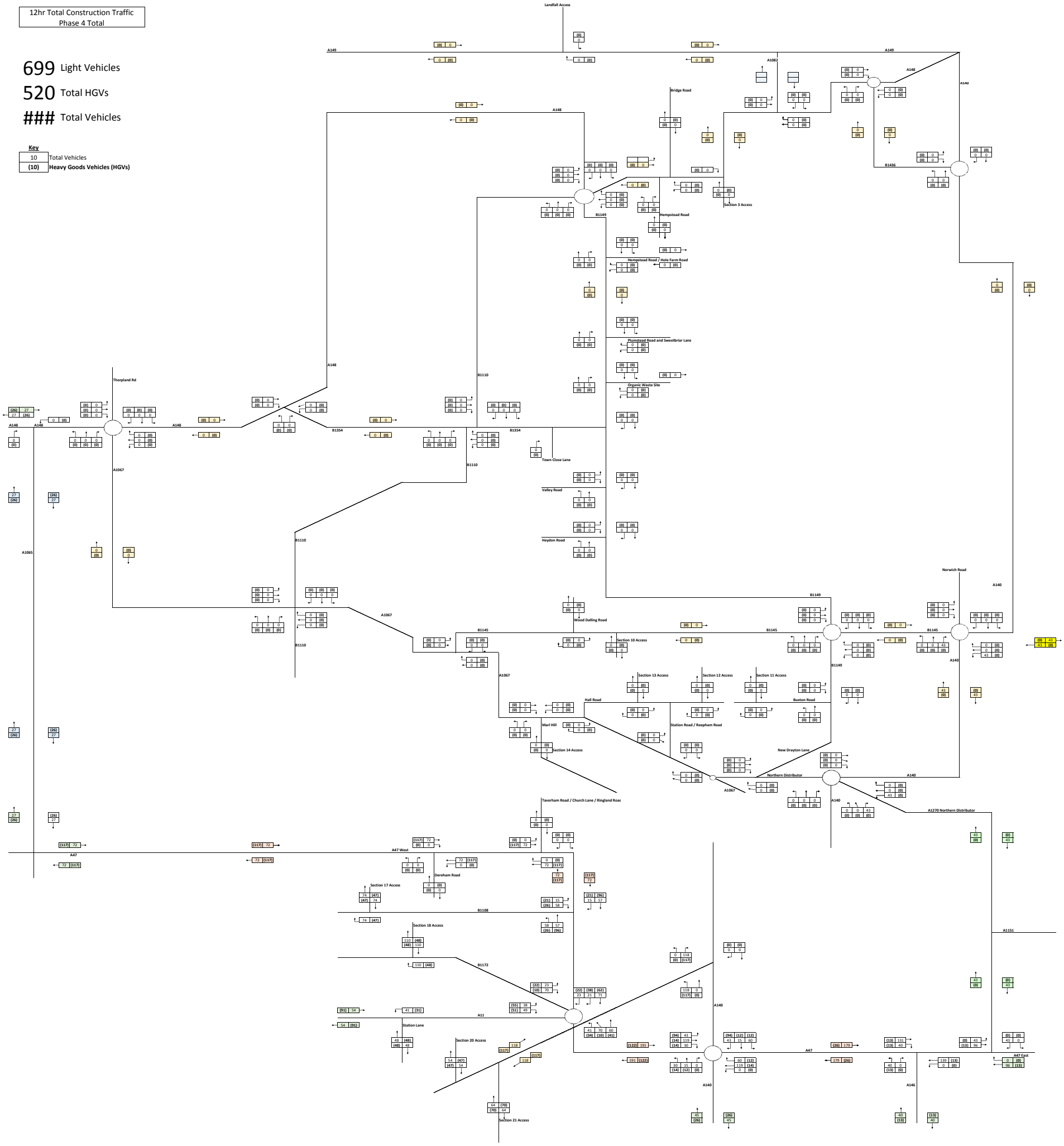
699 Light Vehicles

520 Total HGVs

Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

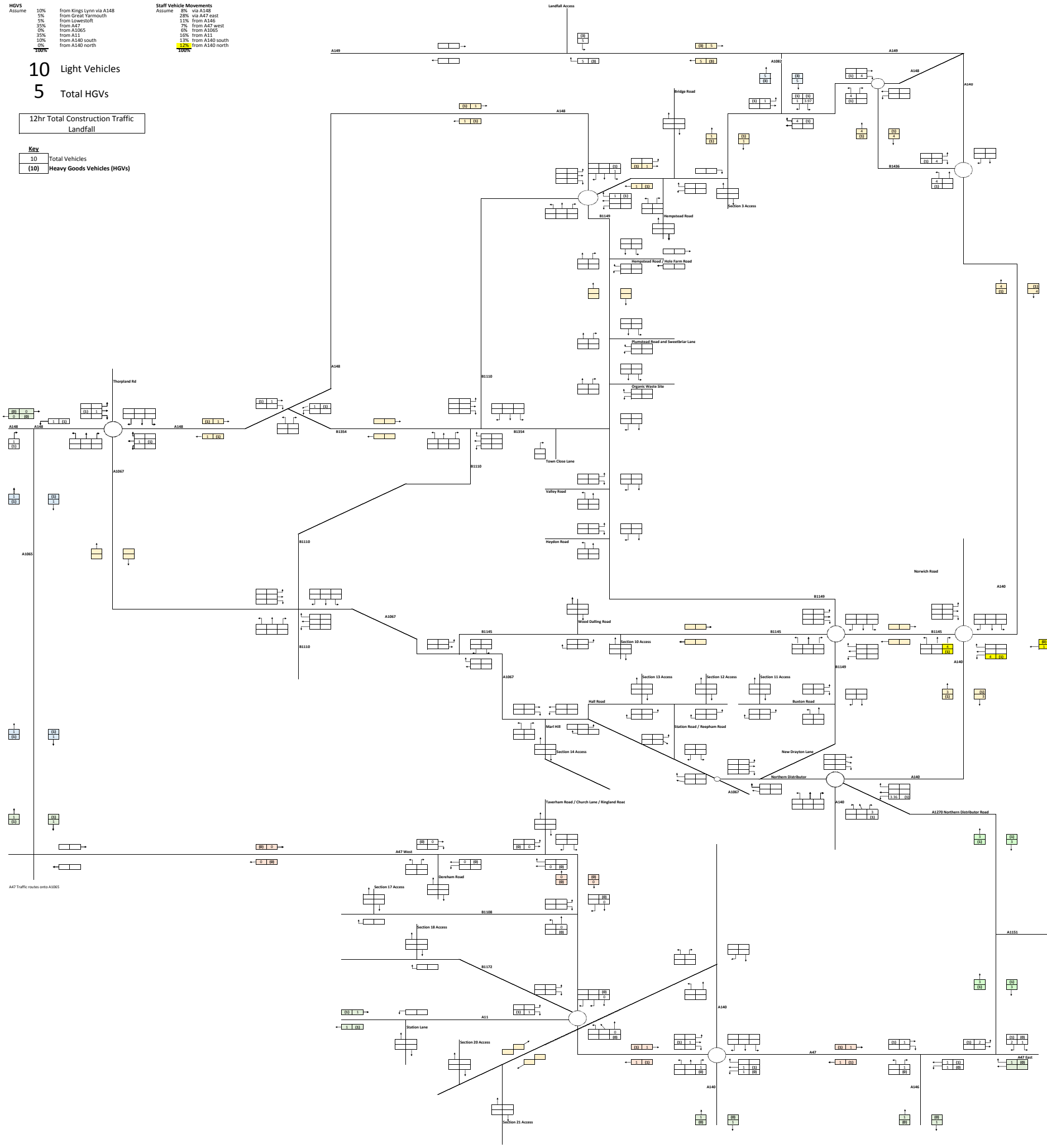
10 Light Vehicles

5 Total HGVs

12hr Total Construction Traffic Landfall

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

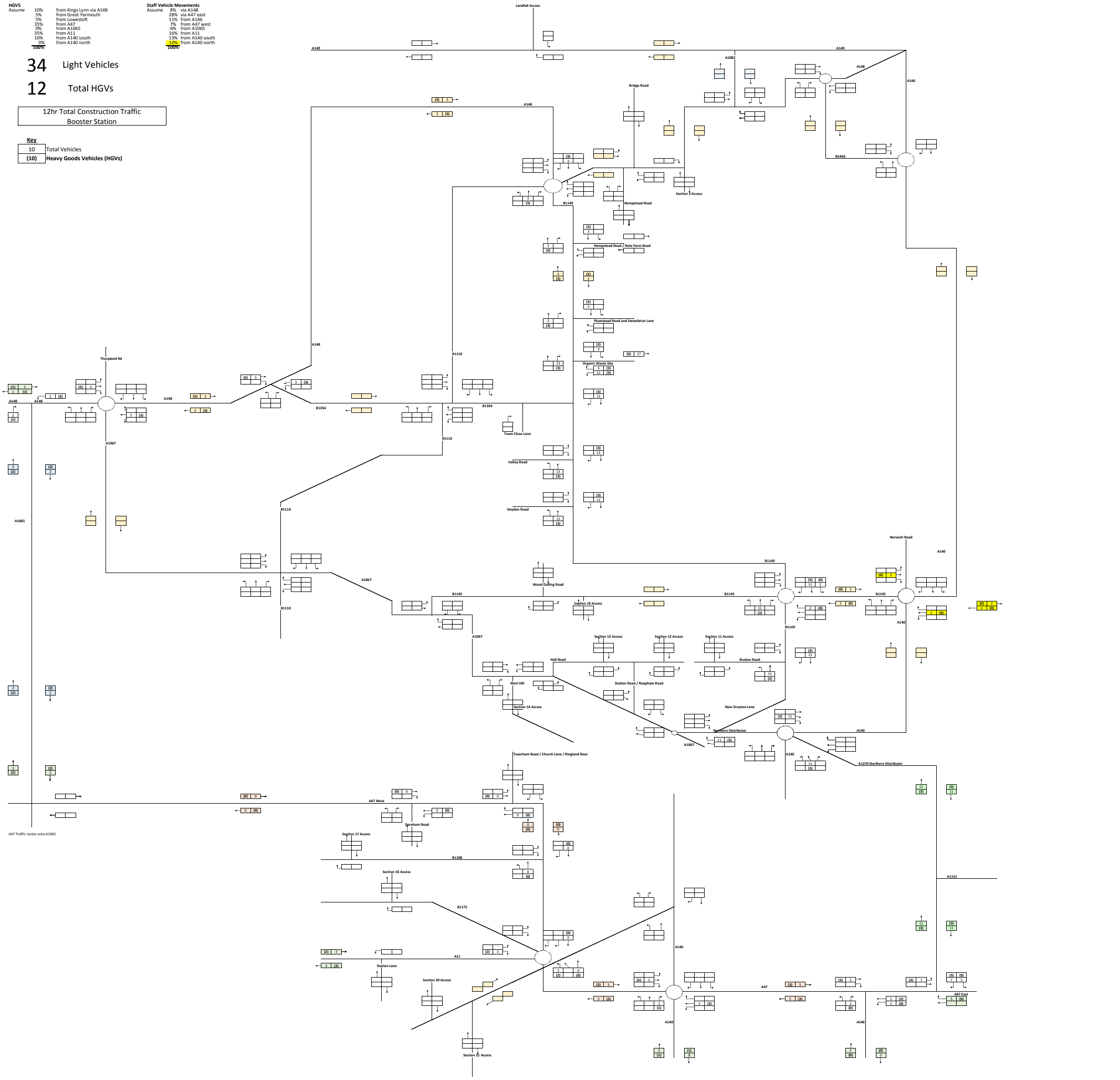
34 Light Vehicles

12 Total HGVs

12hr Total Construction Traffic
Booster Station

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	10%	from Kings Lynn via A148
	5%	from Great Yarmouth
	5%	from Lowestoft
	35%	from A47
	0%	from A1065
	35%	from A11
	10%	from A140 south
	0%	from A140 north
	100%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

82 Light Vehicles

29 Total HGVs

12hr Total Construction Traffic
HVAC Substation

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

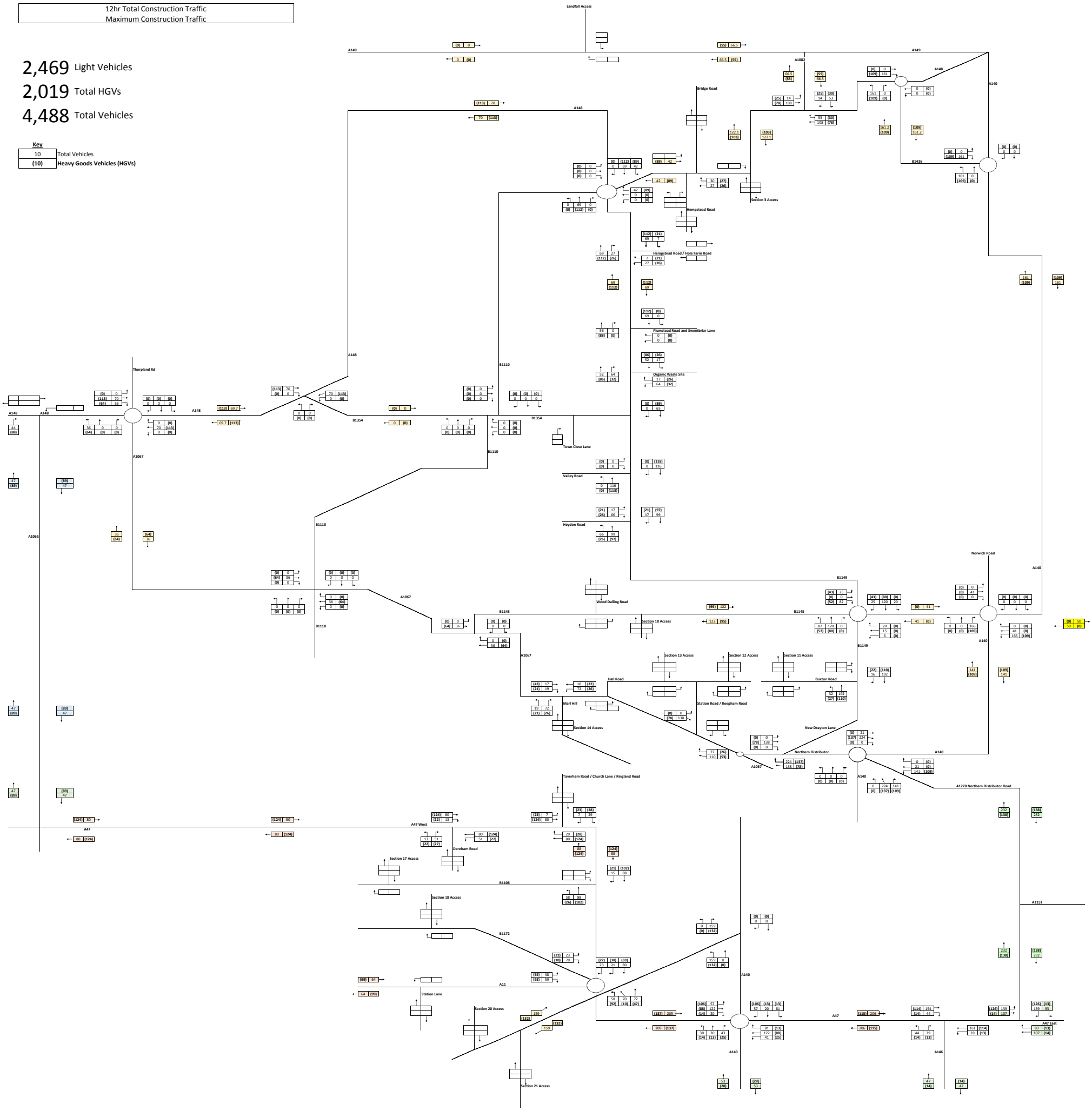
12hr Total Construction Traffic
Maximum Construction Traffic

2,469 Light Vehicles

2,019 Total HGVs

4,488 Total Vehicles

Key	
10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



12hr Total Construction Traffic
Total Construction Traffic (excluding Section 7)

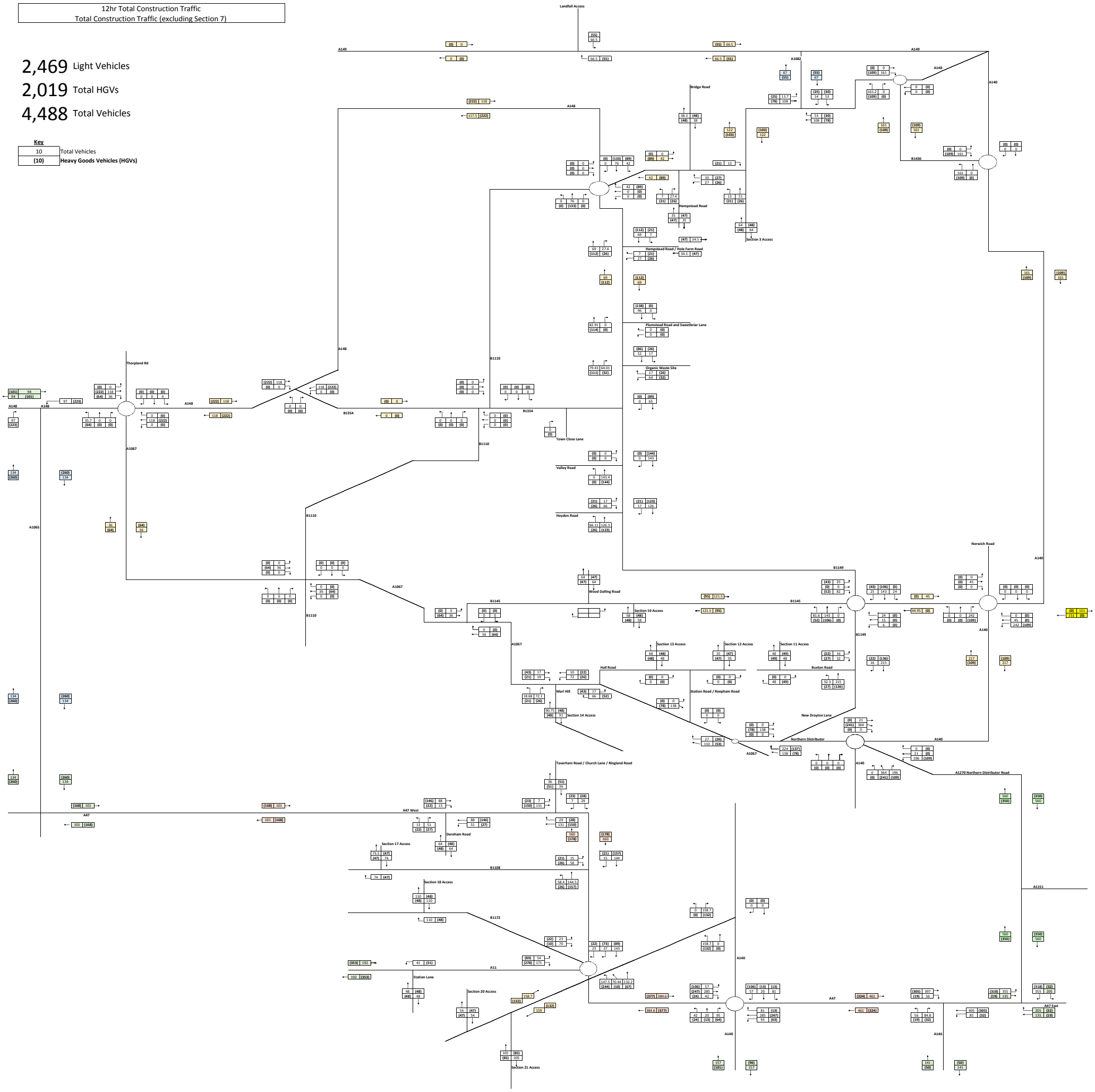
2,469 Light Vehicles

2,019 Total HGVs

4,488 Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Traffic Flow Diagrams

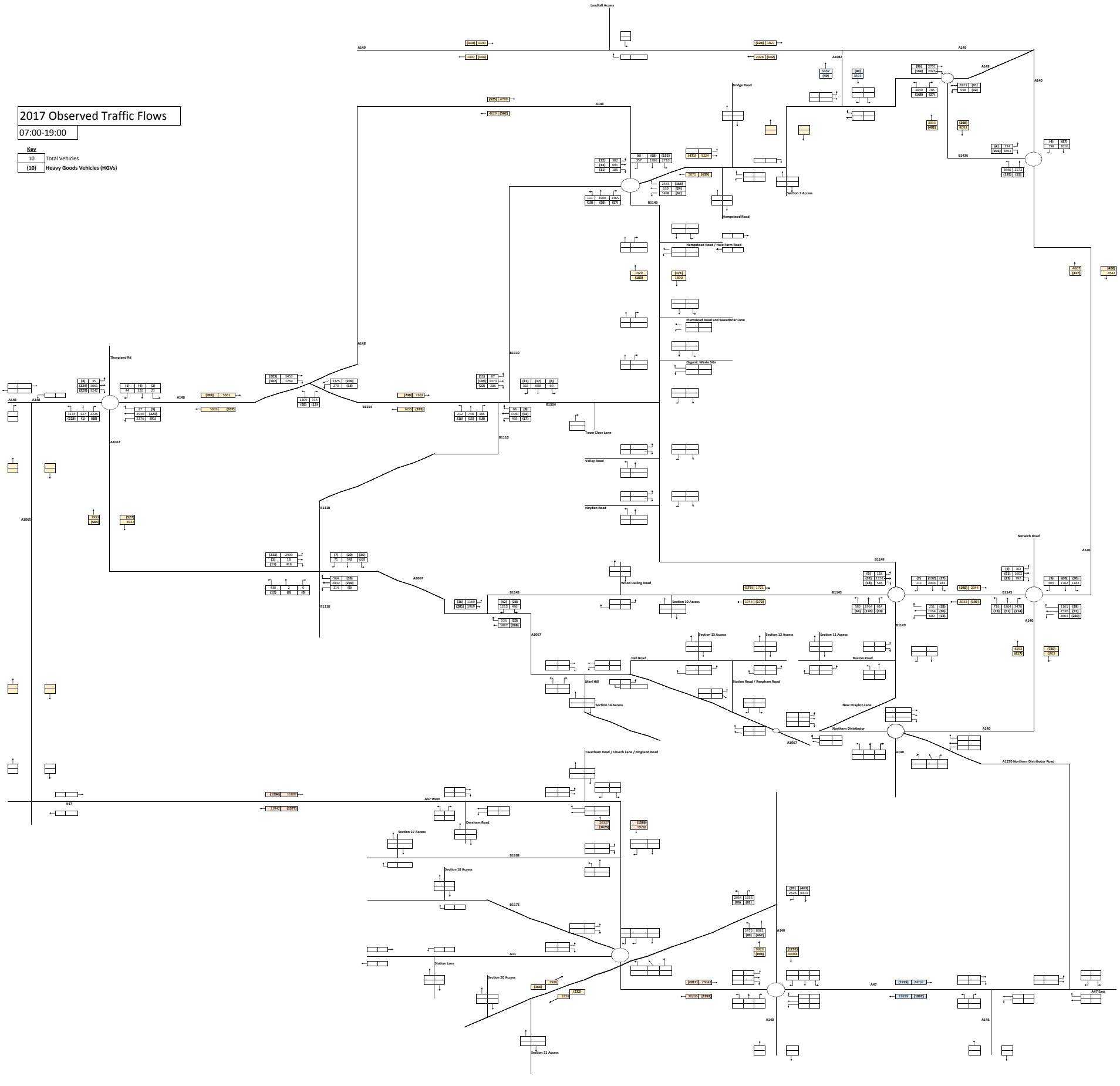
12hr Total Construction Traffic
Sensitivity Scenario

2017 Observed Traffic Flows

07:00-19:00

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



TEMPRO

Average Weekday

Trunk
1.10 growth 2017-2022

Principal
1.09 growth 2017-2022

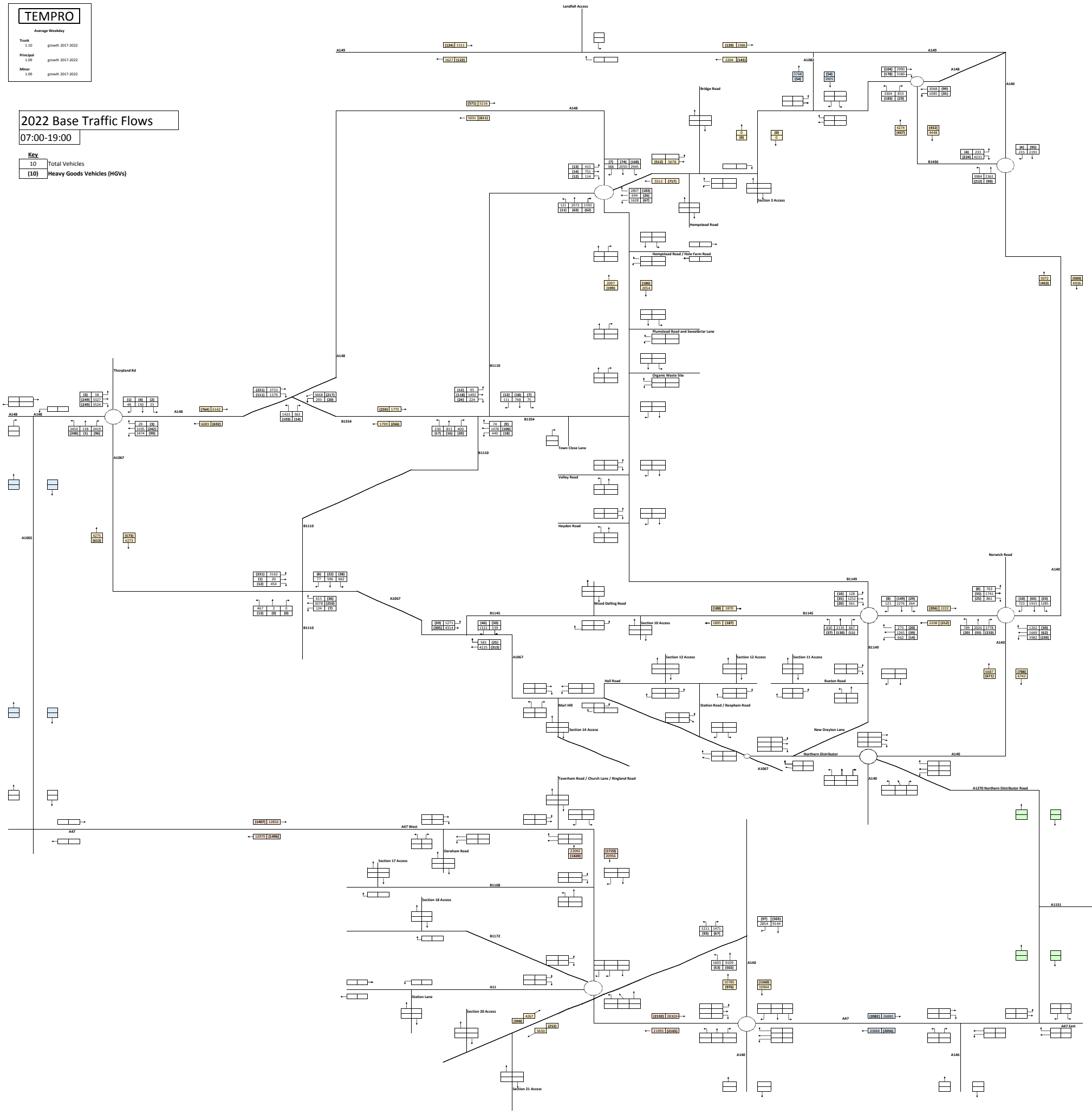
Minor
1.09 growth 2017-2022

2022 Base Traffic Flows

07:00-19:00

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Tables Linked to Construction Vehicle Movements Spreadsheet

Route Section	Description	12hr Vehicle Flows			
		Total	HGV	Lights	Phase
1	Landfall to Holgate Hill	228	105	123	1
2	Holgate Hill to woodland north east of High Kelling	173	96	77	1
3	Woodland northeast of High Kelling to woodland south of Church Road	223	95	128	1
4	Woodland south of Church Road to woodland south and east of School Lane	163	94	69	1
5	Woodland east of School Lane to Plumstead Road	163	94	69	1
6	Plumstead Road to the B1149	233	106	128	2
7	B1149 to land South of Town Close Lane	173	96	77	-
8	Land south of Town Close Lane to woodland north of Reepham Road	260	94	167	2
9	Land north of Reepham Road to woodland north of Reepham	221	94	128	2
10	Woodland north of Reepham to woodland at Booton Common	212	96	116	2
11	Woodland east of Reepham to The Grove	193	97	96	2
12	The Grove to woodland south of Church Farm Lane	163	94	69	3
13	Woodland south of Church Farm Lane to River Wensum	192	96	96	3
14	River Wensum to woodland south west of Ringland	277	95	182	3
15	Woodland south west of Ringland to A47	173	101	72	3
16	A47 to Bawburgh Road	224	97	128	3
17	Bawburgh Road to woodland west of Little Melton	241	94	147	4
18	Woodland west of Little Melton to A11	316	96	221	4
19	A11 to woodland north west of Swardeston	191	95	96	4
20	Woodland north west of Swardeston to B1113	203	95	108	4
21	B1113 to end of cable route	267	140	128	4
Landfall	Landfall	15	5	10	
Booster Station	Booster Station	46	12	34	
Converter / Sub Station	Converter / Sub Station	111	29	82	
	Total:	**4,661**	**2,116**	**2,545**	**4,661**

HGVS

Assume		
	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

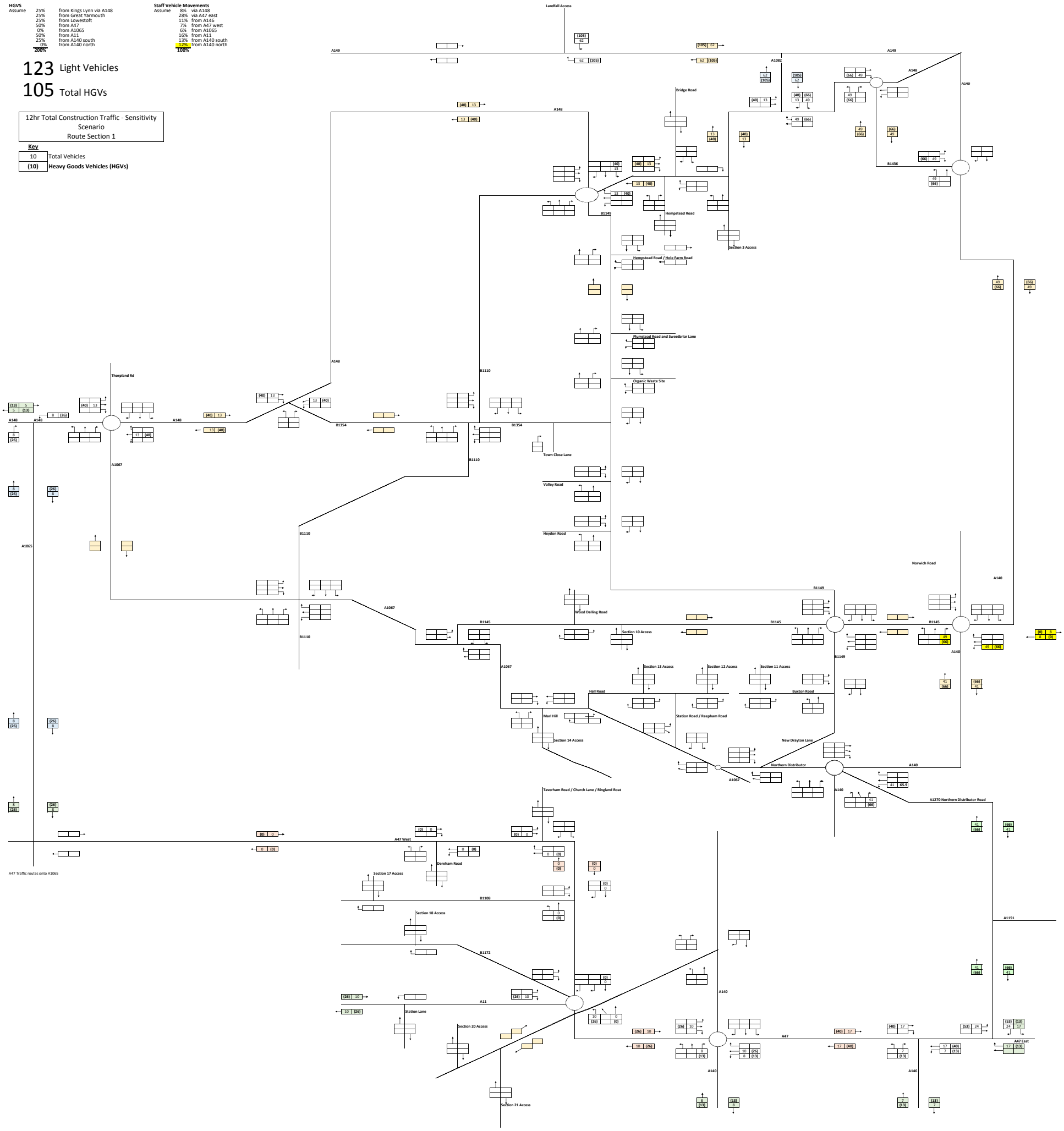
123 Light Vehicles

105 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 1

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

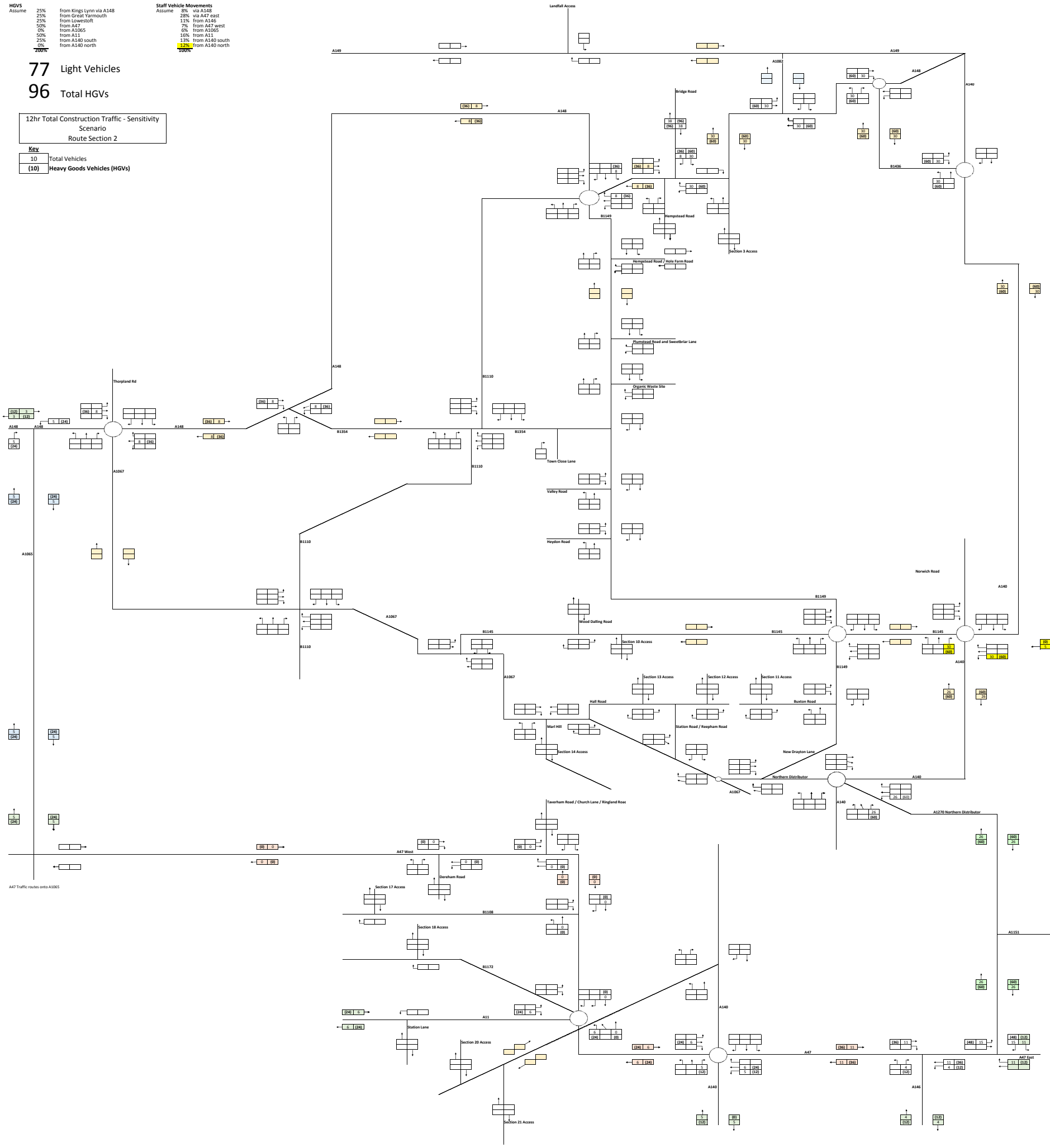
77 Light Vehicles

96 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 2

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

128 Light Vehicles

95 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 3

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1067
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146

A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

69 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 4

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1065
A1067
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A146
A1151

A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

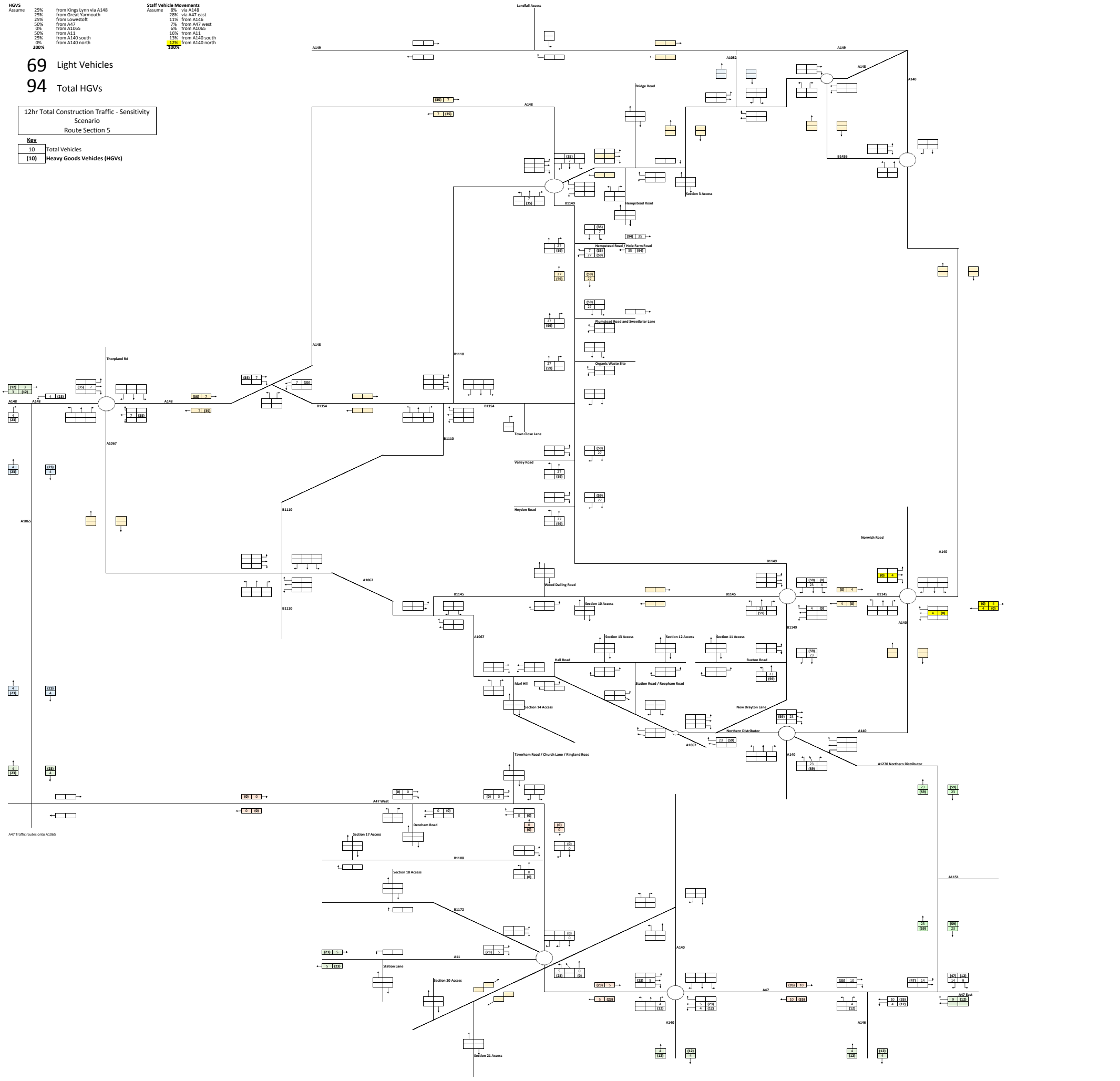
69 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 5

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



12hr Total Construction Traffic - Sensitivity Scenario
Phase 1 Total

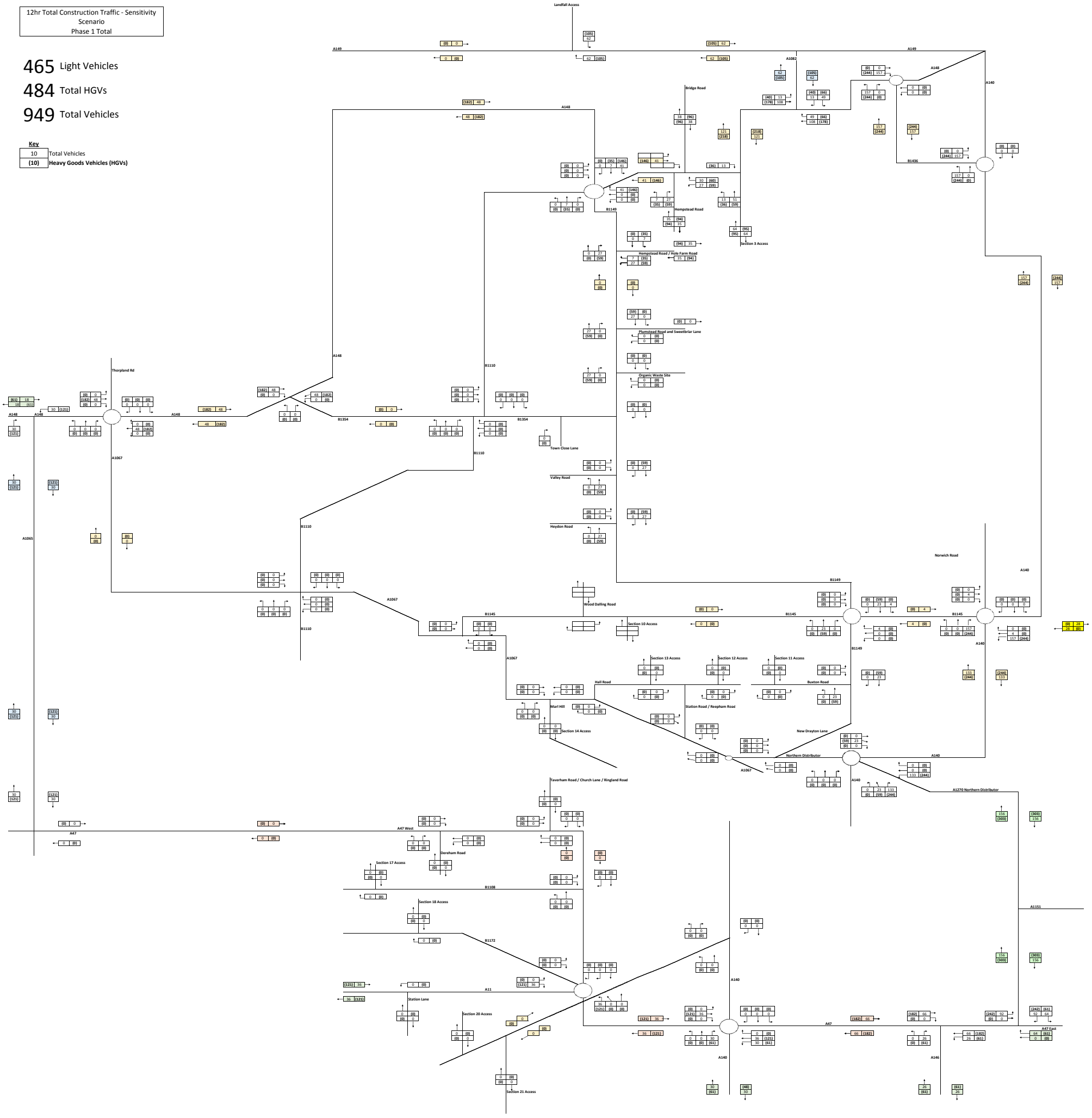
465 Light Vehicles

484 Total HGVs

949 Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

128 Light Vehicles

106 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 6

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1065
A1067
Wood Dalling Road
B1145
Section 10 Access
Norwich Road
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
A47 Traffic routes onto A1065
A47 West
Taverham Road
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A1151
A47
A47 East
A146

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

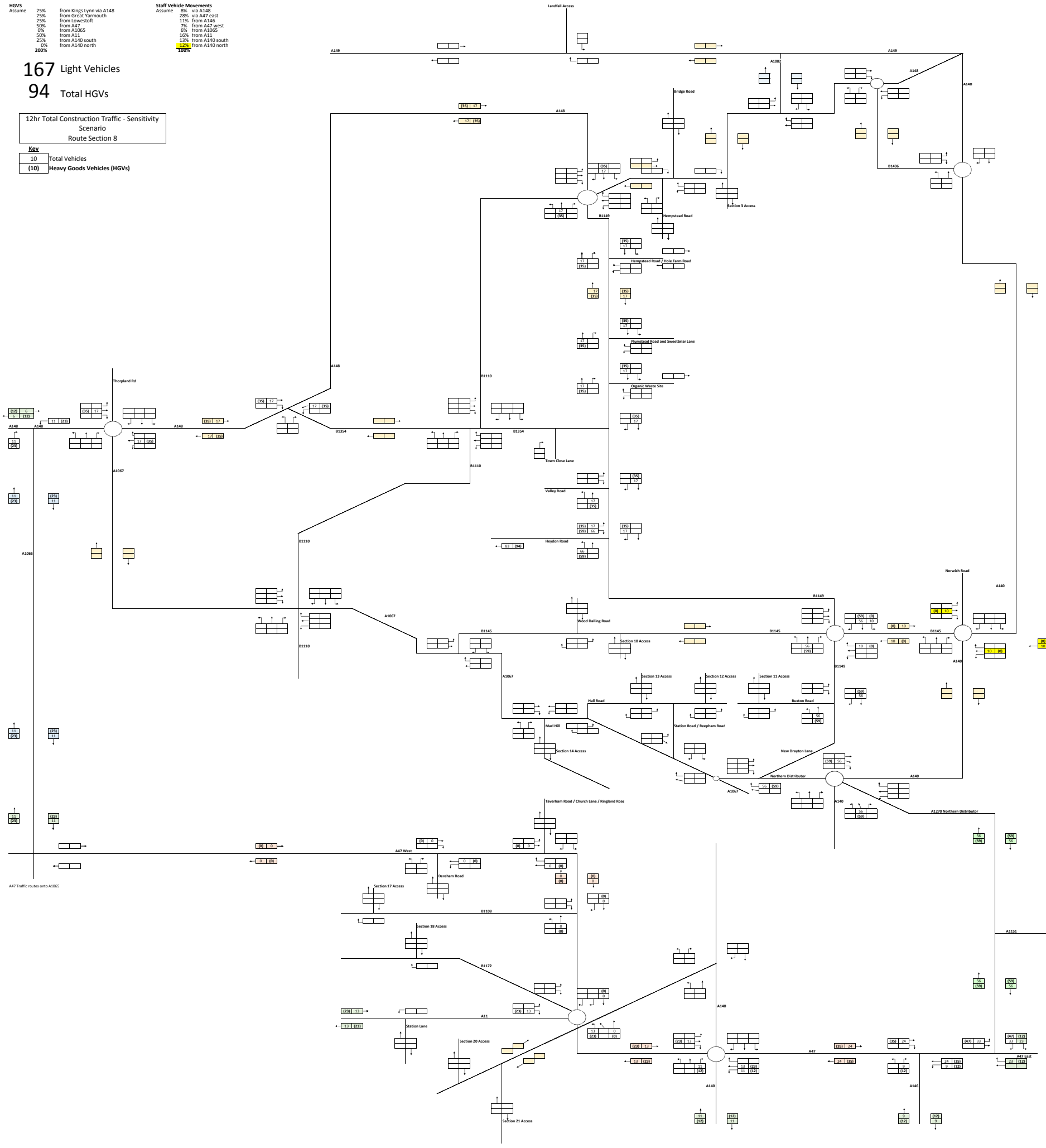
167 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 8

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

128 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 9

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Section 3 Access
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Thorpland Rd
A1067
Town Close Lane
Valley Road
Heydon Road
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

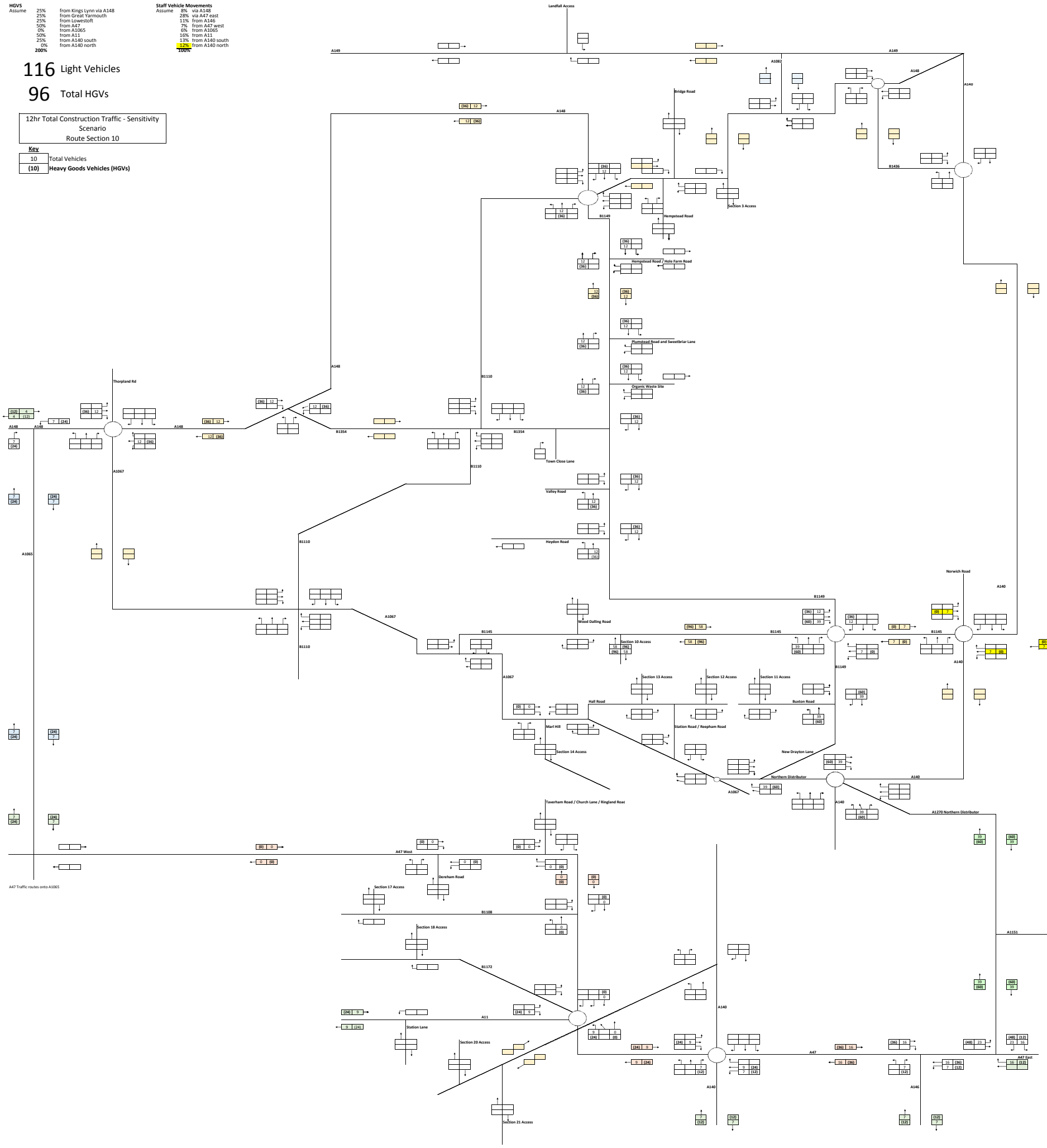
116 Light Vehicles

96 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 10

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

96 Light Vehicles

97 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 11

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
A1065
A1067
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146
Thorpland Rd

12hr Total Construction Traffic - Sensitivity Scenario
Phase 2 Total

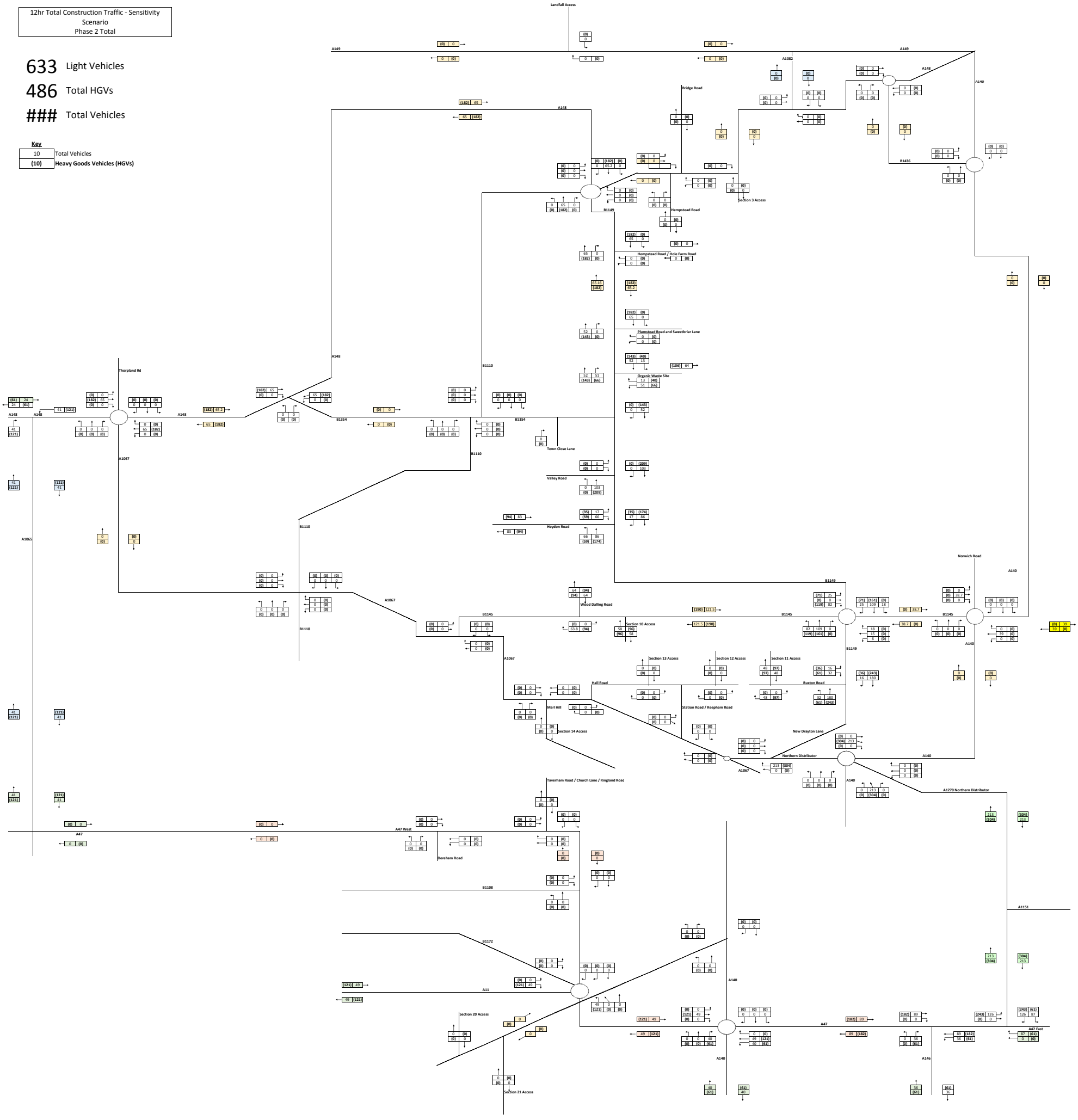
633 Light Vehicles

486 Total HGVs

Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

69 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 12

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

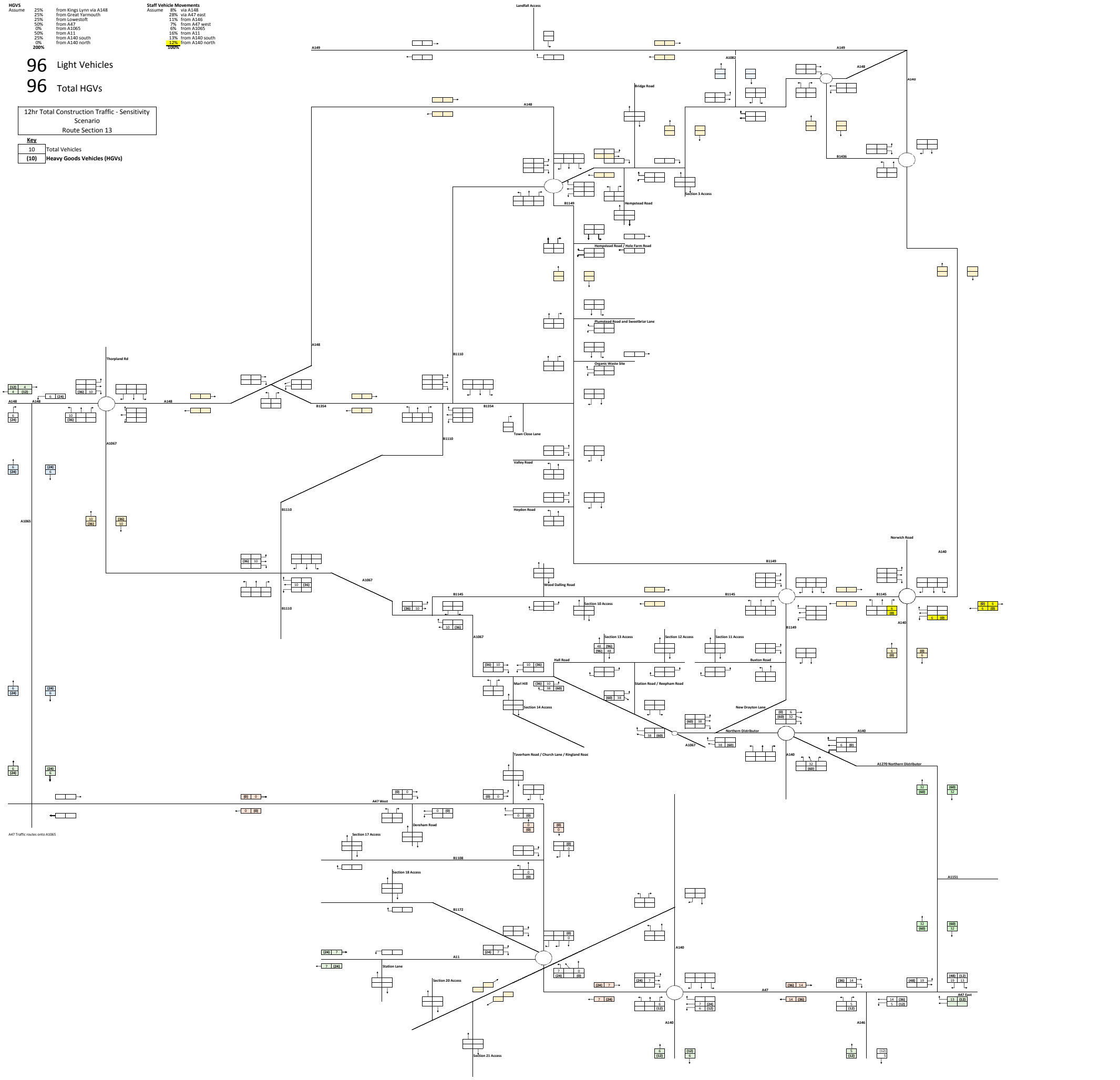
96 Light Vehicles

96 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 13

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

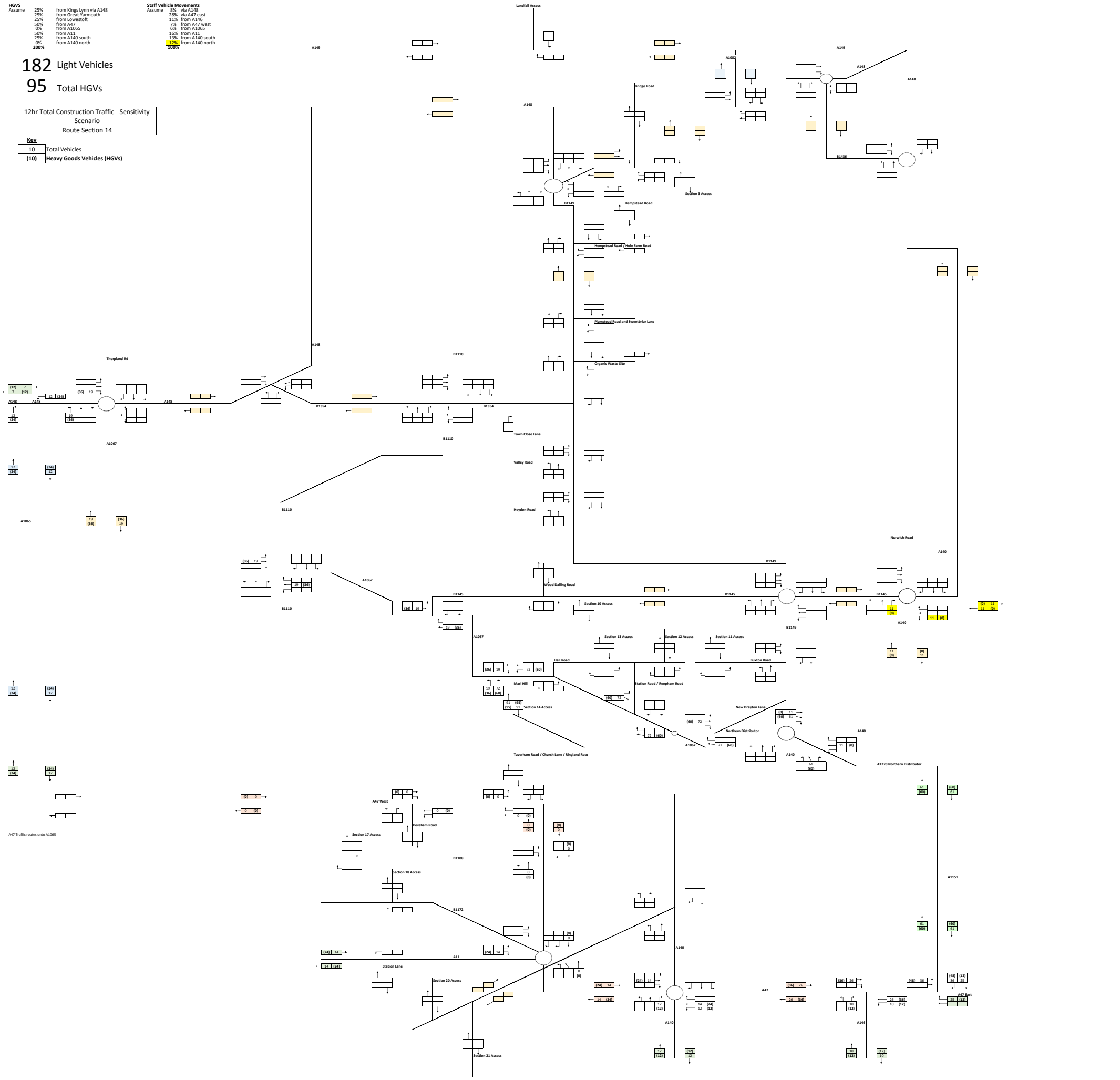
182 Light Vehicles

95 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 14

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

72 Light Vehicles

101 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 15

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

128 Light Vehicles

97 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 16

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

12hr Total Construction Traffic - Sensitivity Scenario
Phase 3 Total

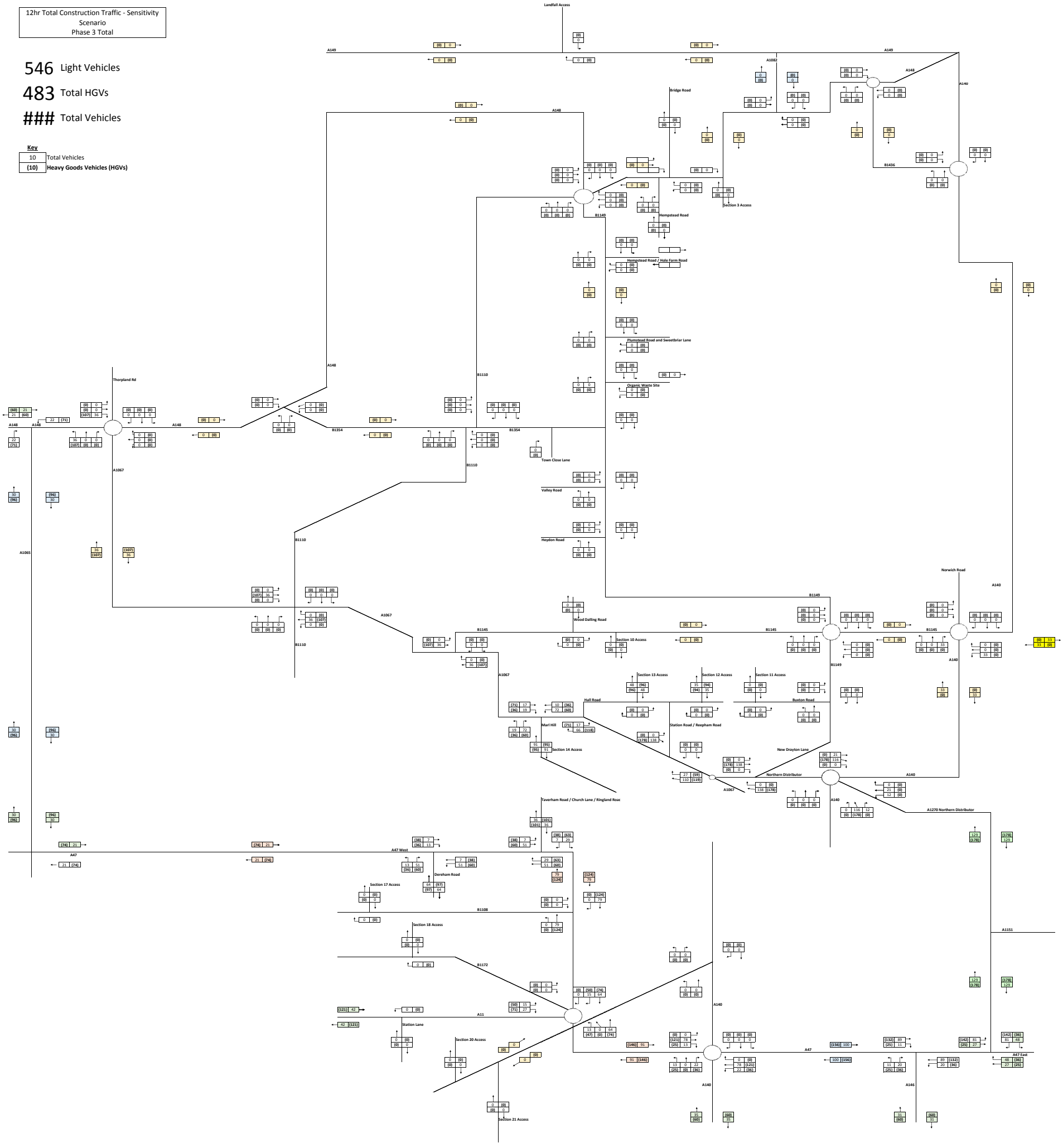
546 Light Vehicles

483 Total HGVs

Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

147 Light Vehicles

94 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 17

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

221 Light Vehicles

96 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 18

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

96 Light Vehicles

95 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 19

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

108 Light Vehicles

95 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 20

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

128 Light Vehicles

140 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Route Section 21

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

12hr Total Construction Traffic - Sensitivity Scenario
Phase 4 Total

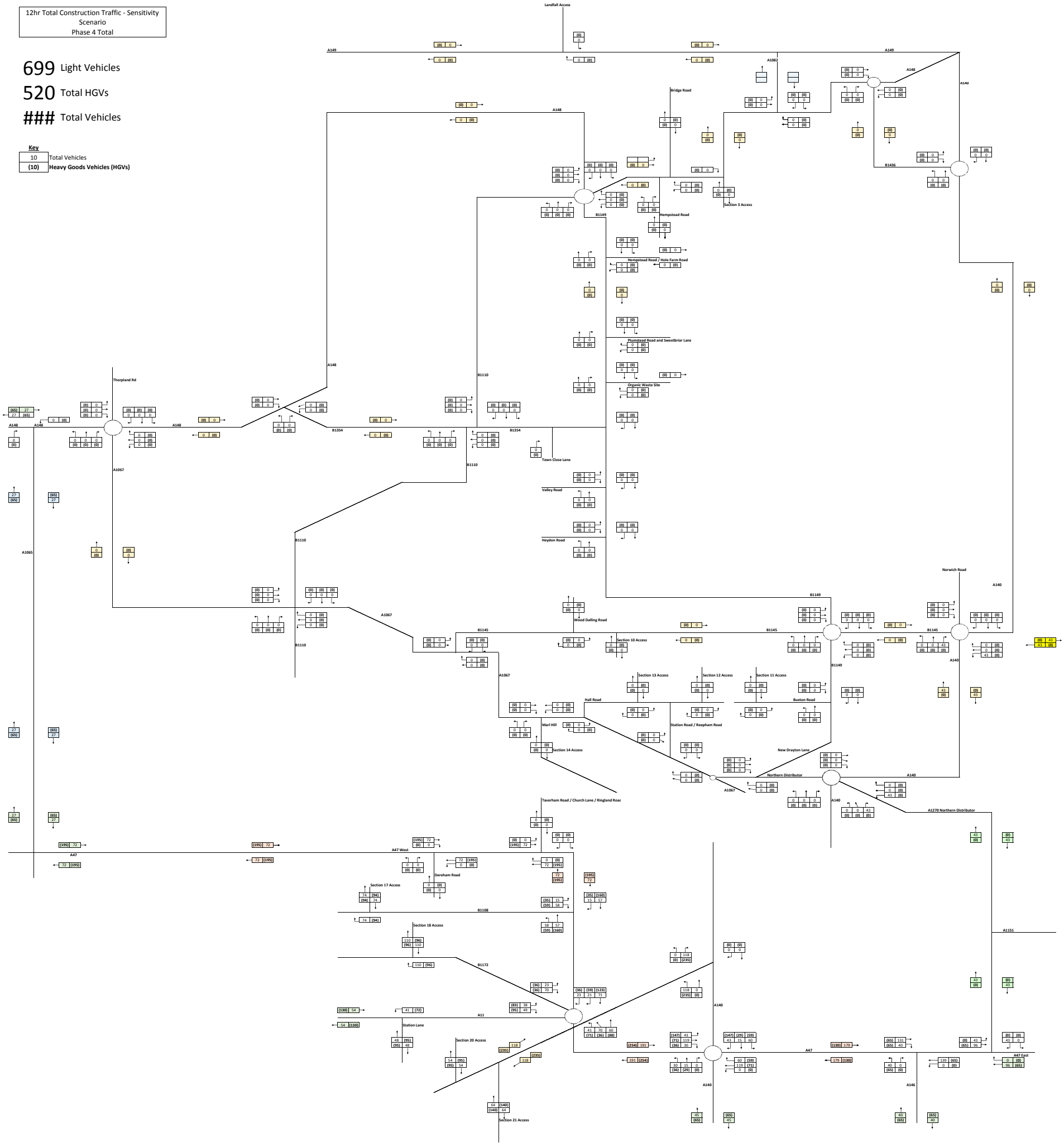
699 Light Vehicles

520 Total HGVs

Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

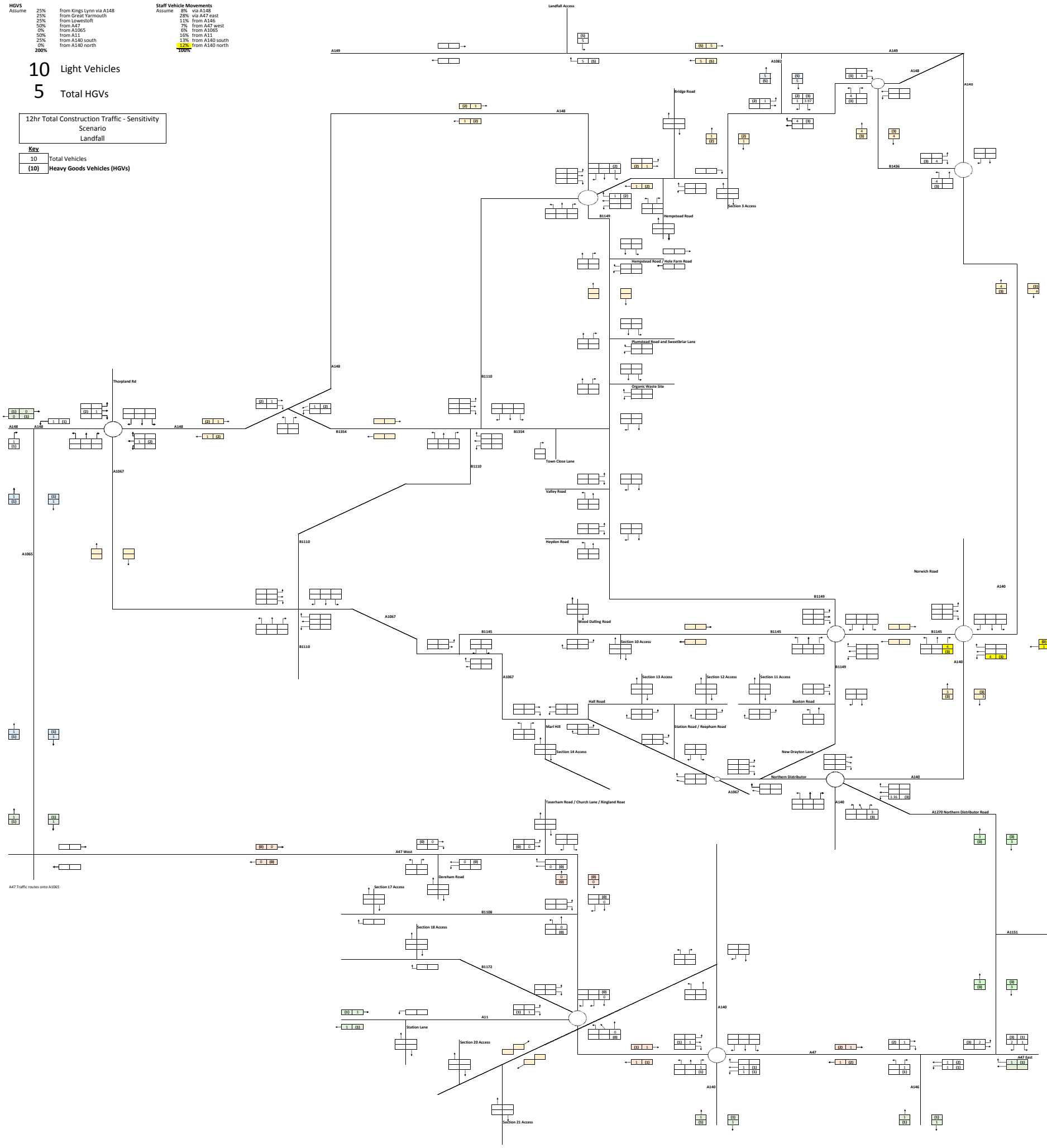
10 Light Vehicles

5 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Landfall

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

34 Light Vehicles

12 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
Booster Station

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

Landfall Access
A149
A1082
A148
Bridge Road
A140
B1436
Section 5 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1067
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Mari Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
Taverham Road / Church Lane / Ringland Road
A1270 Northern Distributor
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A1151
A146

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

82 Light Vehicles

29 Total HGVs

12hr Total Construction Traffic - Sensitivity Scenario
HVAC Substation

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065 and onto A47

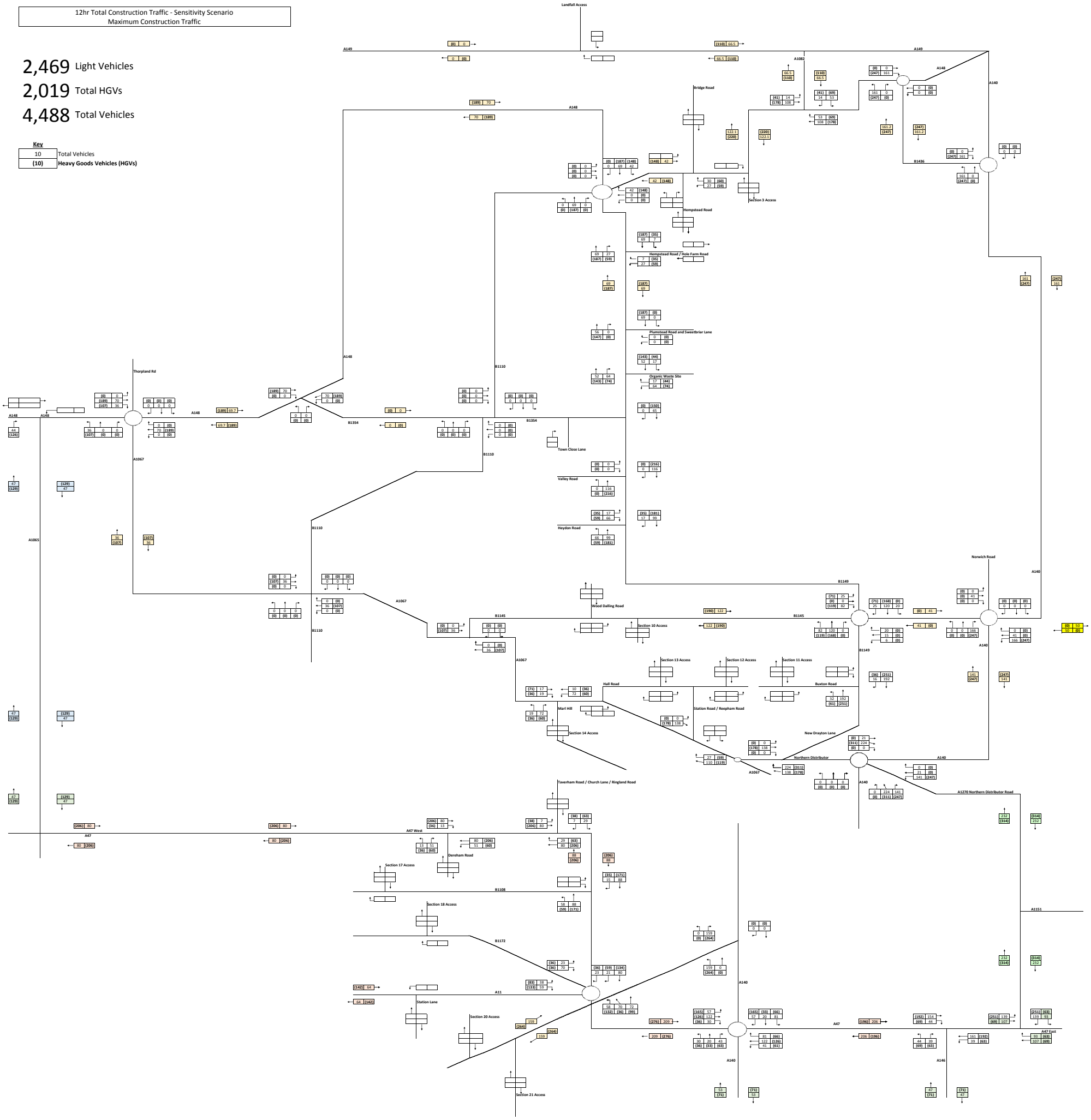
12hr Total Construction Traffic - Sensitivity Scenario
Maximum Construction Traffic

2,469 Light Vehicles

2,019 Total HGVs

4,488 Total Vehicles

Key	
10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



12hr Total Construction Traffic - Sensitivity Scenario
Total Construction Traffic

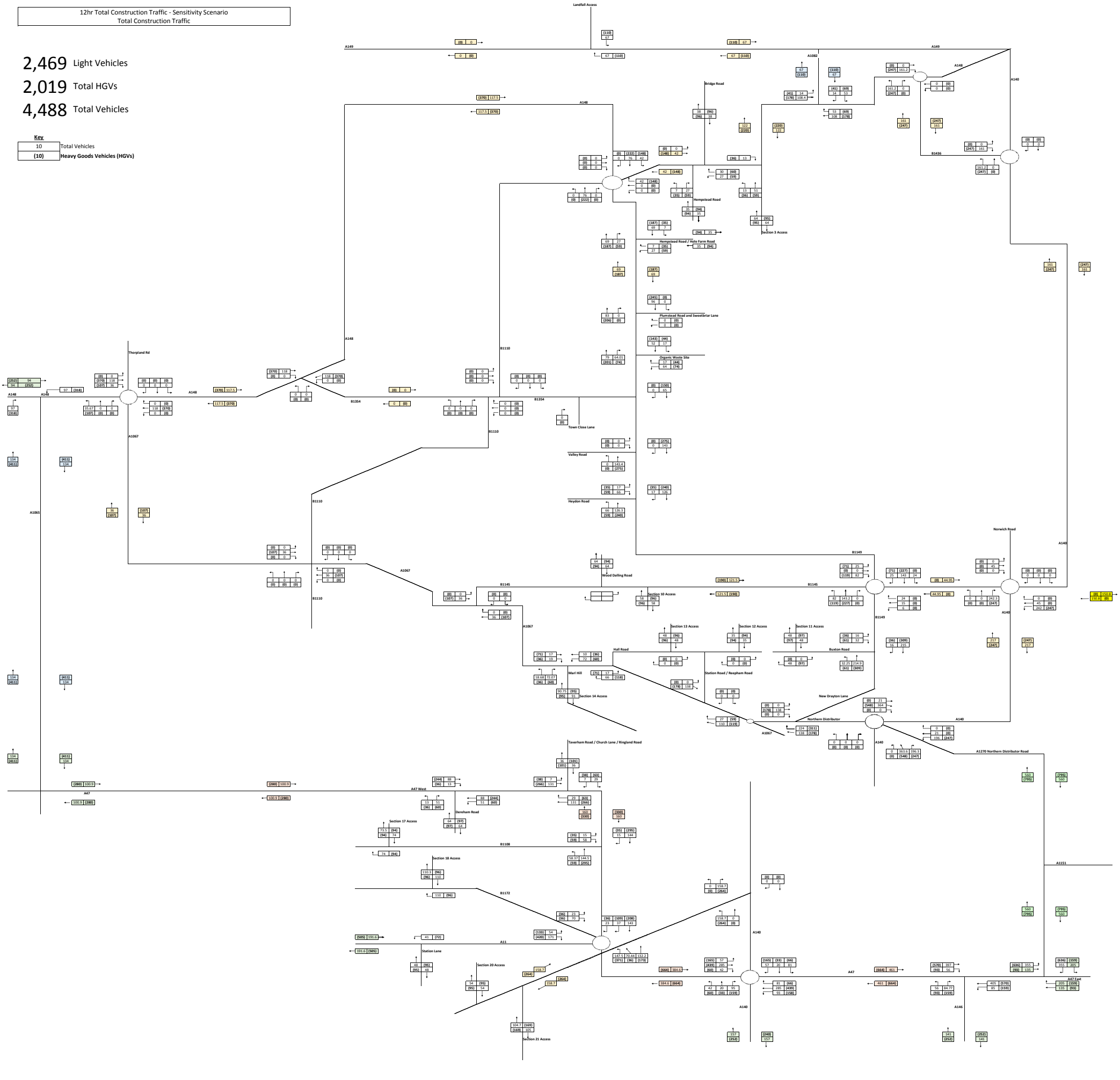
2,469 Light Vehicles

2,019 Total HGVs

4,488 Total Vehicles

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Traffic Flow Diagrams

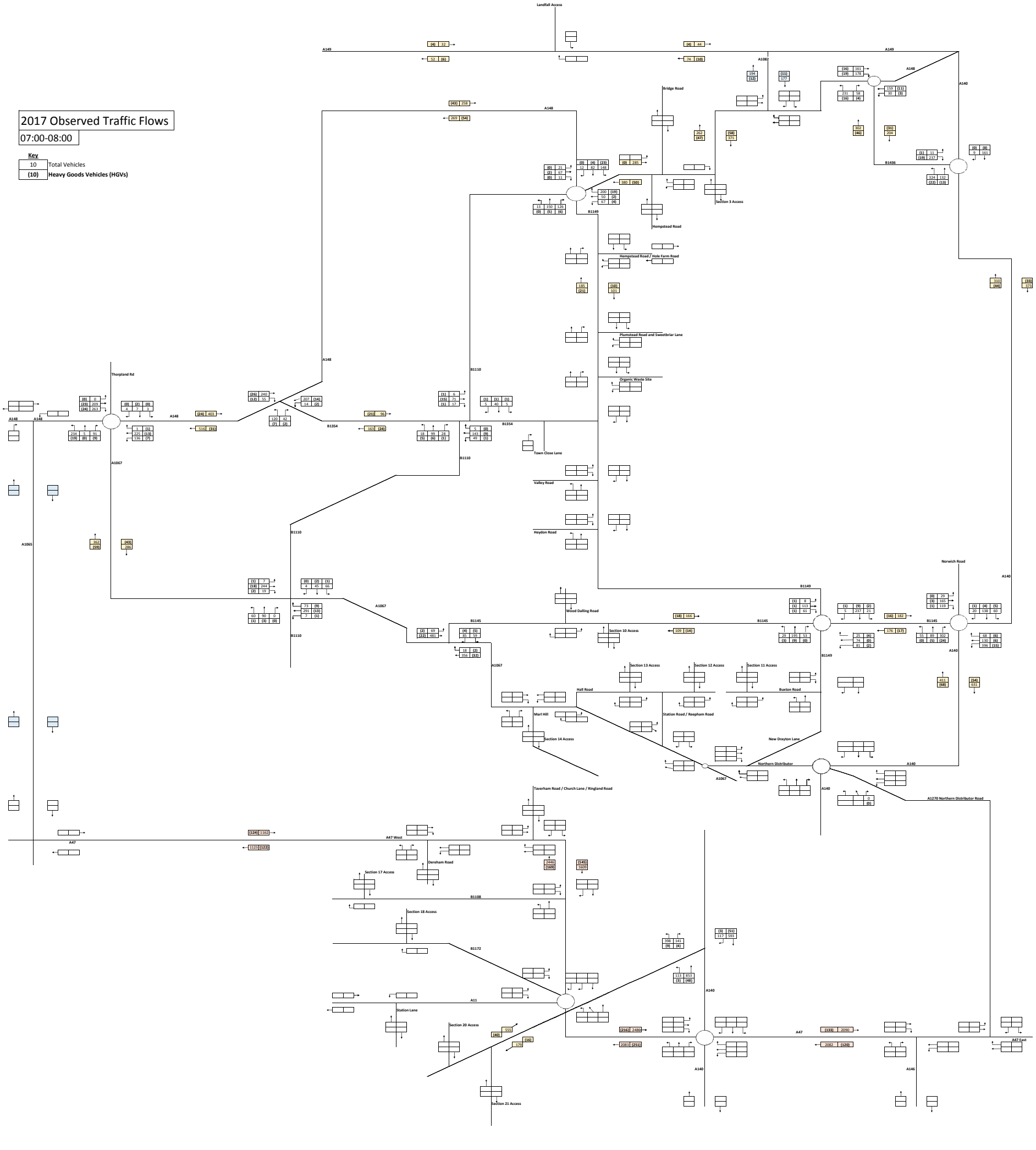
Construction Staff Traffic Flows
AM (07:00-08:00

2017 Observed Traffic Flows

07:00-08:00

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



TEMPRO

Average Weekday

Trunk
1.10 growth 2017-2022

Principal
1.09 growth 2017-2022

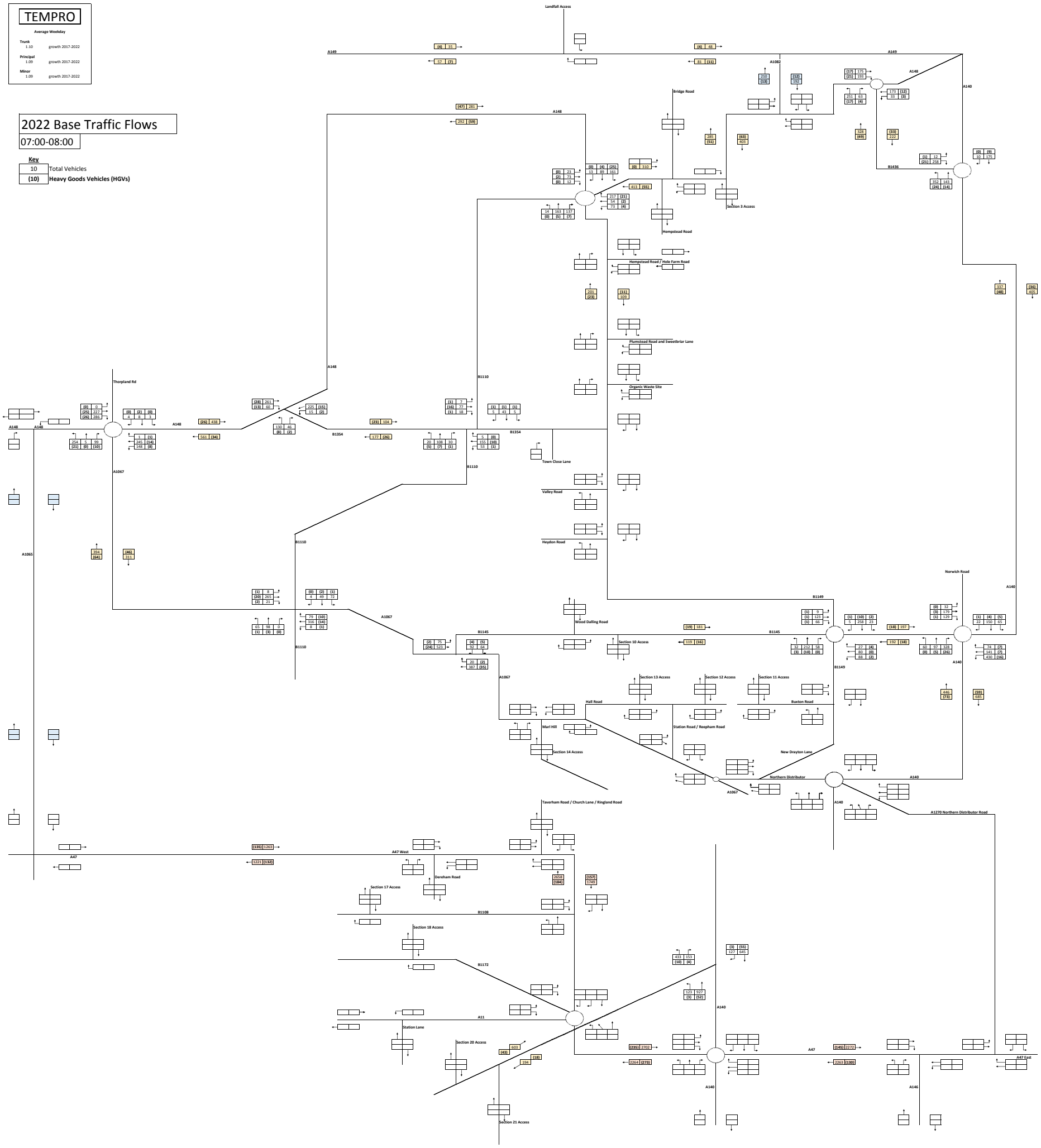
Minor
1.09 growth 2017-2022

2022 Base Traffic Flows

07:00-08:00

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Tables Linked to Construction Vehicle Movements Spreadsheet

Route Section	Description	Staff Peak Hour Vehicle Flows			
		Total	HGV	Lights	Phase
1	Landfall to Holgate Hill	68	0	68	1
2	Holgate Hill to woodland north east of High Kelling	38	0	38	1
3	Woodland northeast of High Kelling to woodland south of Church Road	58	0	58	1
4	Woodland south of Church Road to woodland south and east of School Lane	35	0	35	1
5	Woodland east of School Lane to Plumstead Road	35	0	35	1
6	Plumstead Road to the B1149	64	0	64	2
7	B1149 to land South of Town Close Lane	38	0	38	-
8	Land south of Town Close Lane to woodland north of Reepham Road	83	0	83	2
9	Land north of Reepham Road to woodland north of Reepham	64	0	64	2
10	Woodland north of Reepham to woodland at Booton Common	58	0	58	2
11	Woodland east of Reepham to The Grove	48	0	48	2
12	The Grove to woodland south of Church Farm Lane	35	0	35	3
13	Woodland south of Church Farm Lane to River Wensum	48	0	48	3
14	River Wensum to woodland south west of Ringland	97	0	97	3
15	Woodland south west of Ringland to A47	42	0	42	3
16	A47 to Bawburgh Road	64	0	64	3
17	Bawburgh Road to woodland west of Little Melton	68	0	68	4
18	Woodland west of Little Melton to A11	116	0	116	4
19	A11 to woodland north west of Swardeston	54	0	54	4
20	Woodland north west of Swardeston to B1113	54	0	54	4
21	B1113 to end of cable route	64	0	64	4
Landfall	Landfall	5	0	5	
Booster Station	Booster Station	17	0	17	
Converter / Sub Station	Converter / Sub Station	41	0	41	
	Total:	**1,294**	**0**	**1,294**	**1,294**

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

68 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 1

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Thorpland Rd
A1065
A1067
Town Close Lane
Valley Road
Heydon Road
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor Road
Taverham Road / Church Lane / Ringland Road
A47 West
A47 East
A47
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A146
A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

38 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 2

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

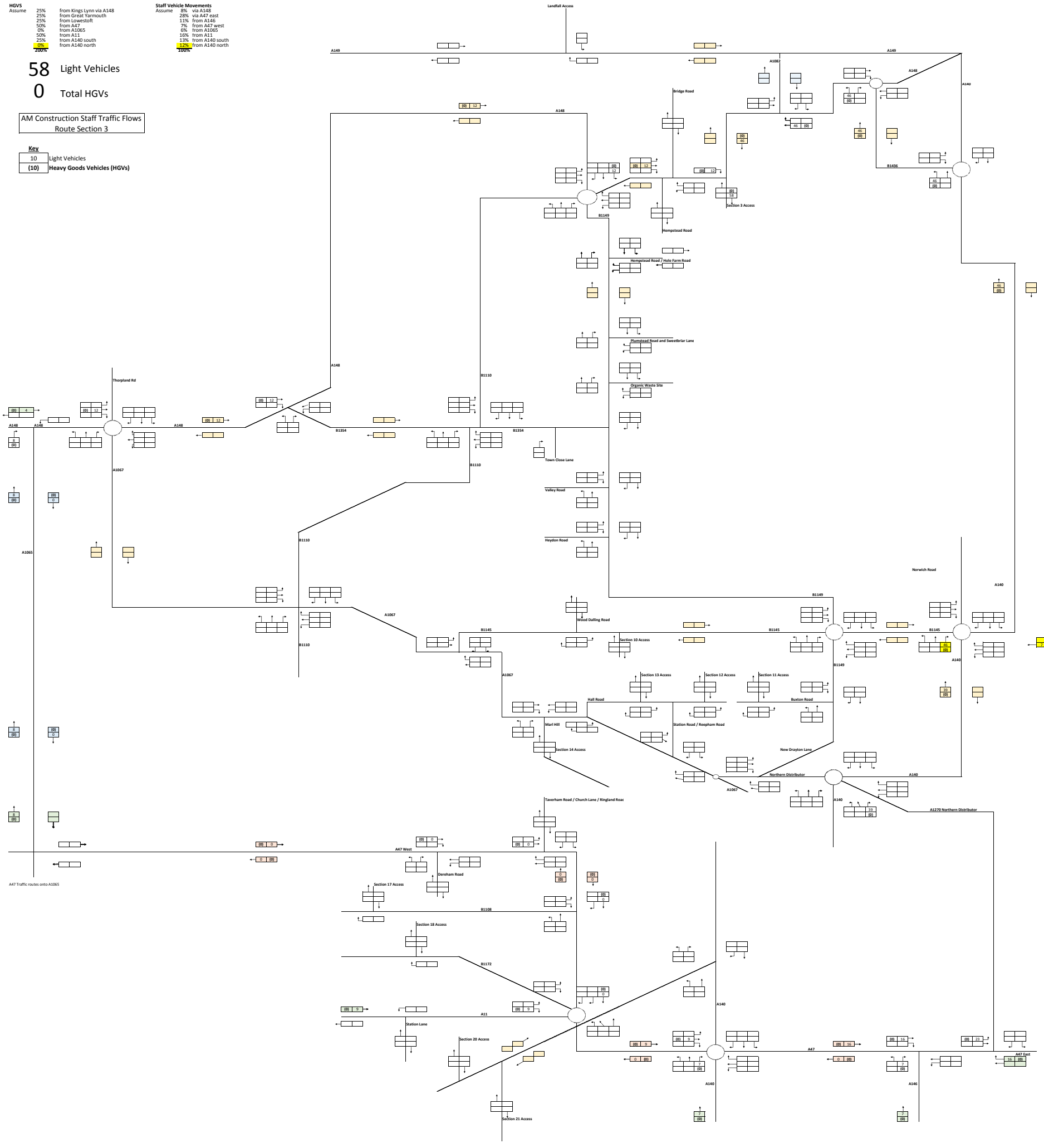
58 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 3

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

35 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 4

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Section 3 Access
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Thorpland Rd
A1067
A1065
Town Close Lane
Valley Road
Heydon Road
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
A47 East
A47
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A146
A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

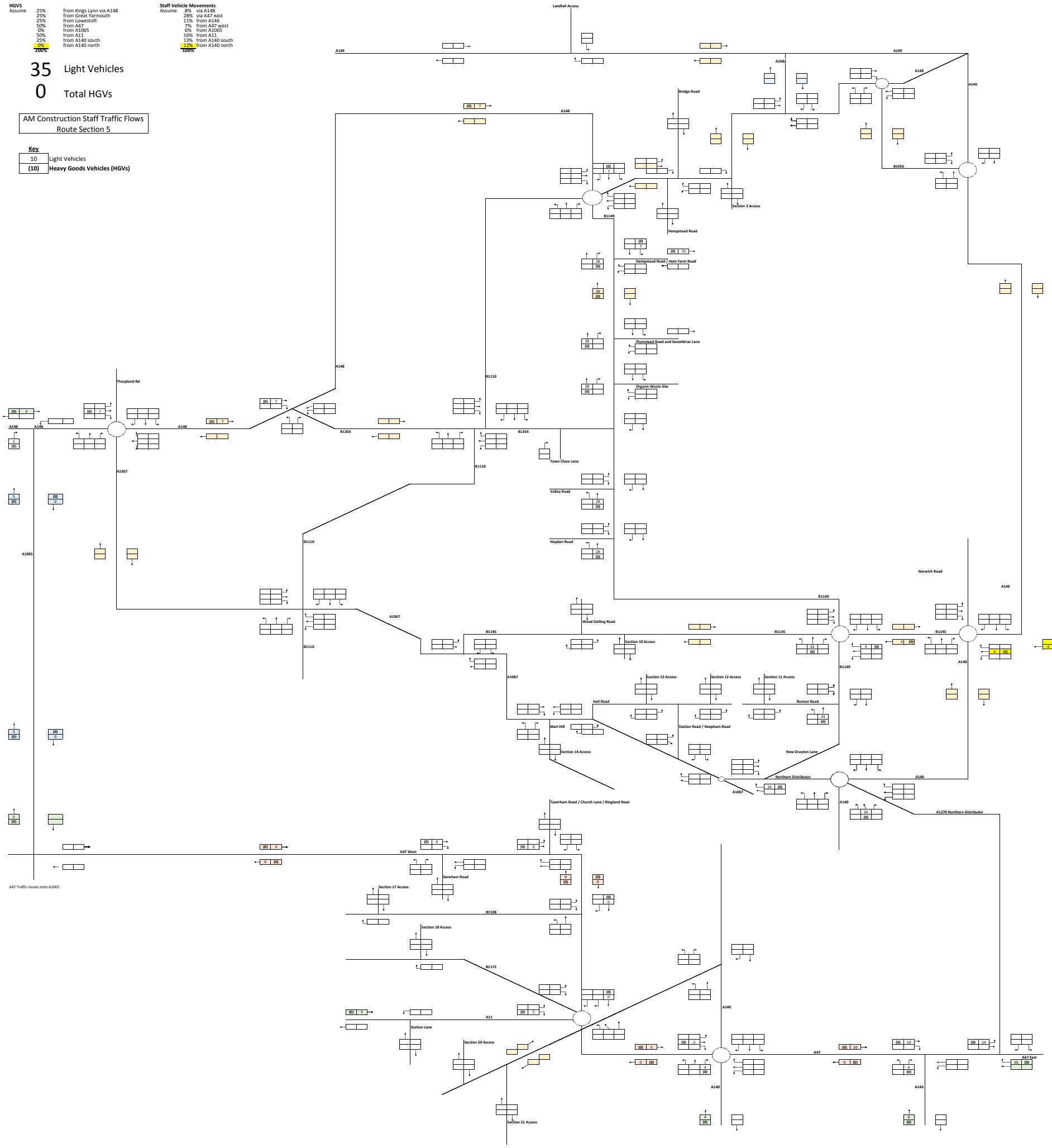
35 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 5

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



AM Construction Staff Traffic Flows
Phase 1 Total

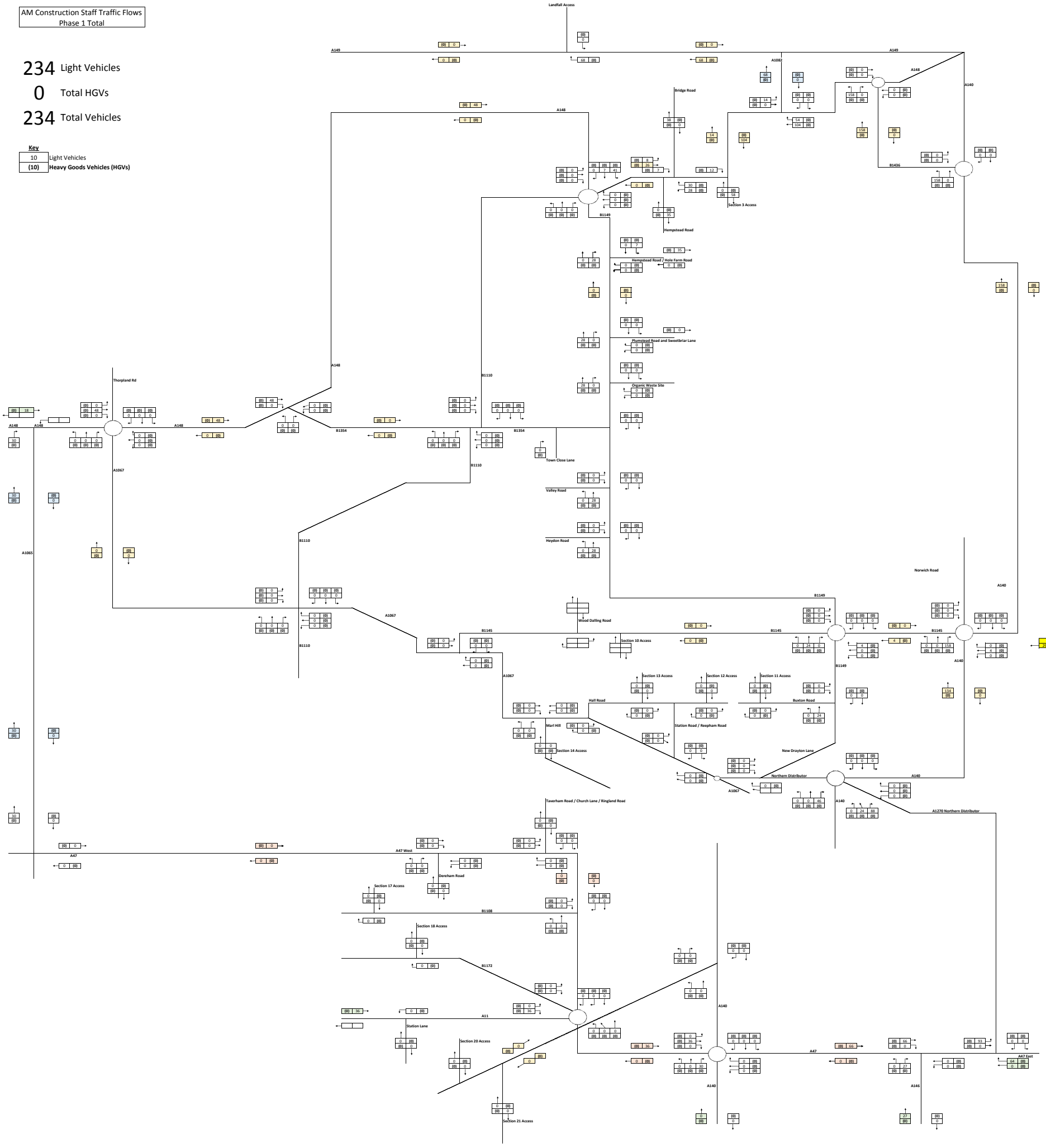
234 Light Vehicles

0 Total HGVs

234 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume		
	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

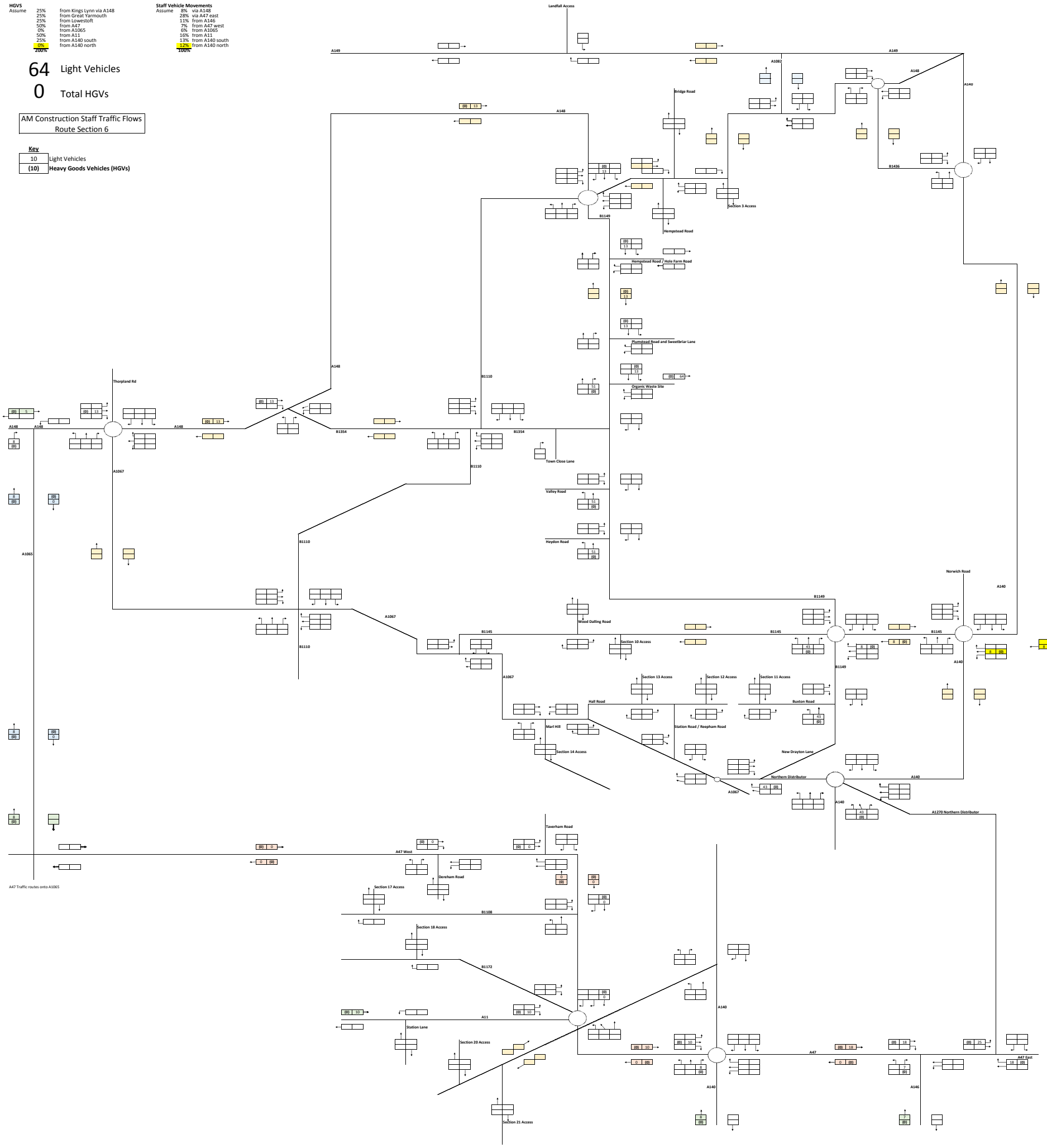
64 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 6

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

83 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 8

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
Section 3 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Thorpland Rd
A1067
A1065
Town Close Lane
Valley Road
Heydon Road
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47 West
A47 Traffic routes onto A1065
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A146

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

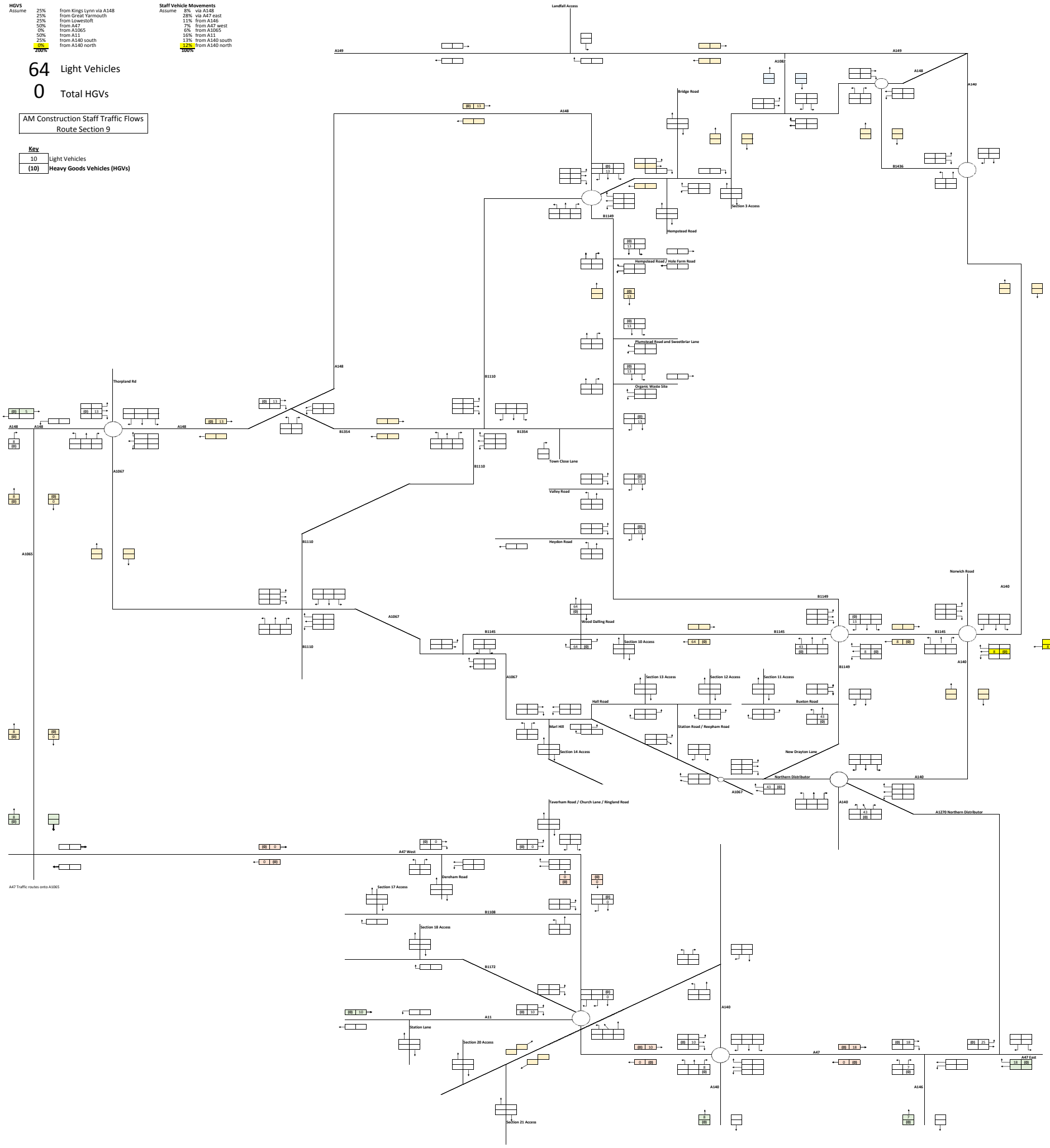
64 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 9

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

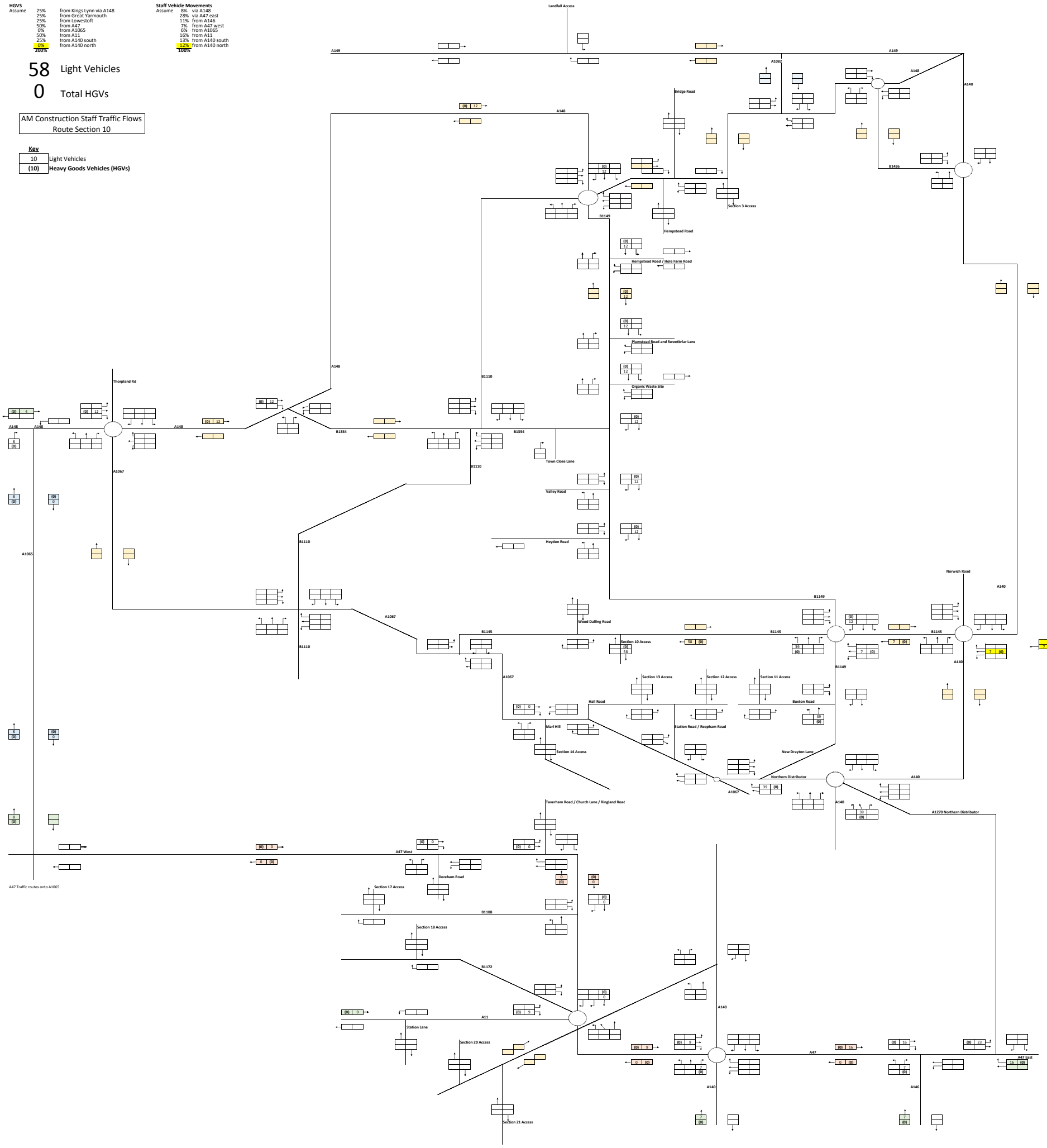
58 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 10

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

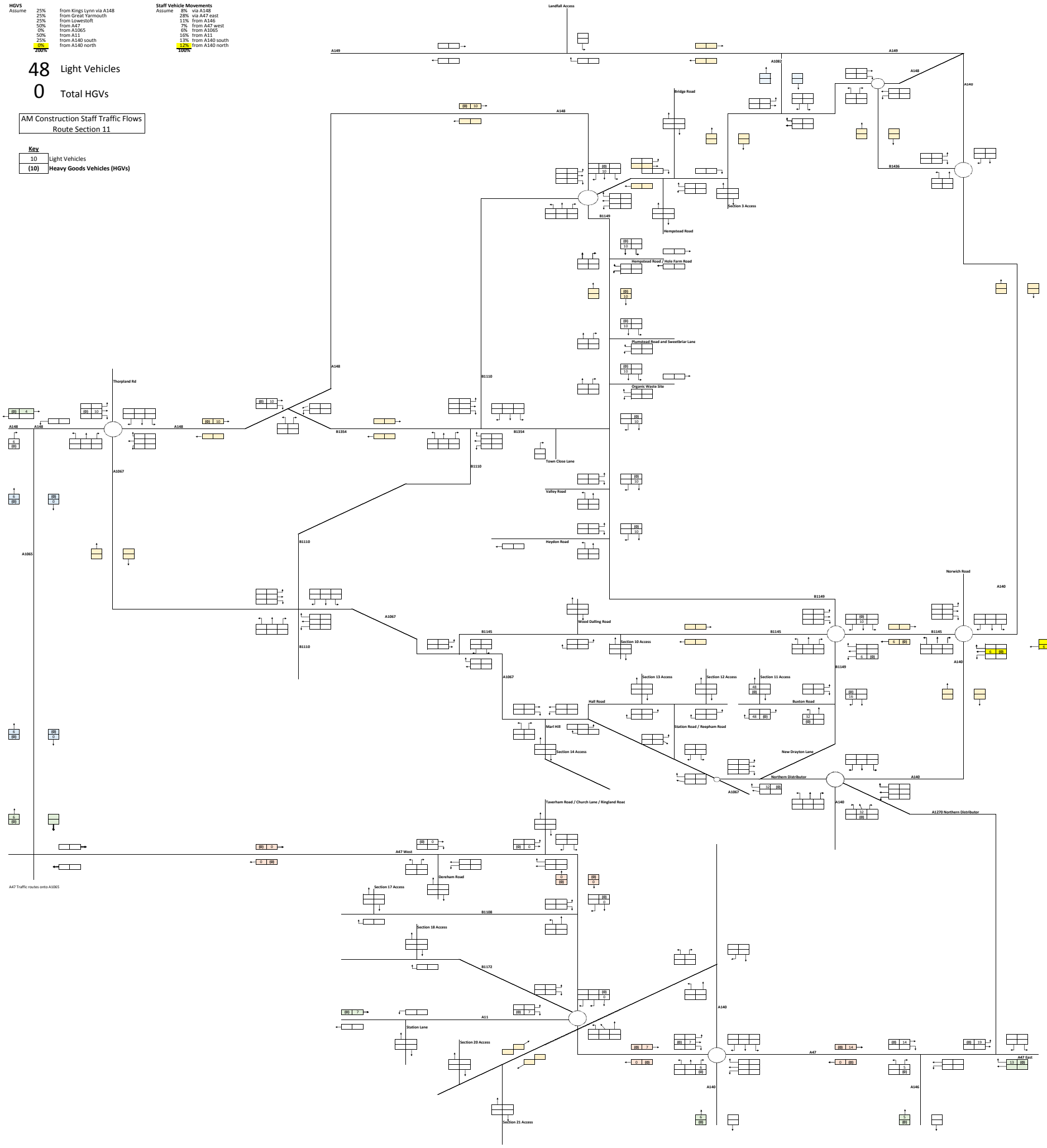
48 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 11

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



AM Construction Staff Traffic Flows
Phase 2 Total

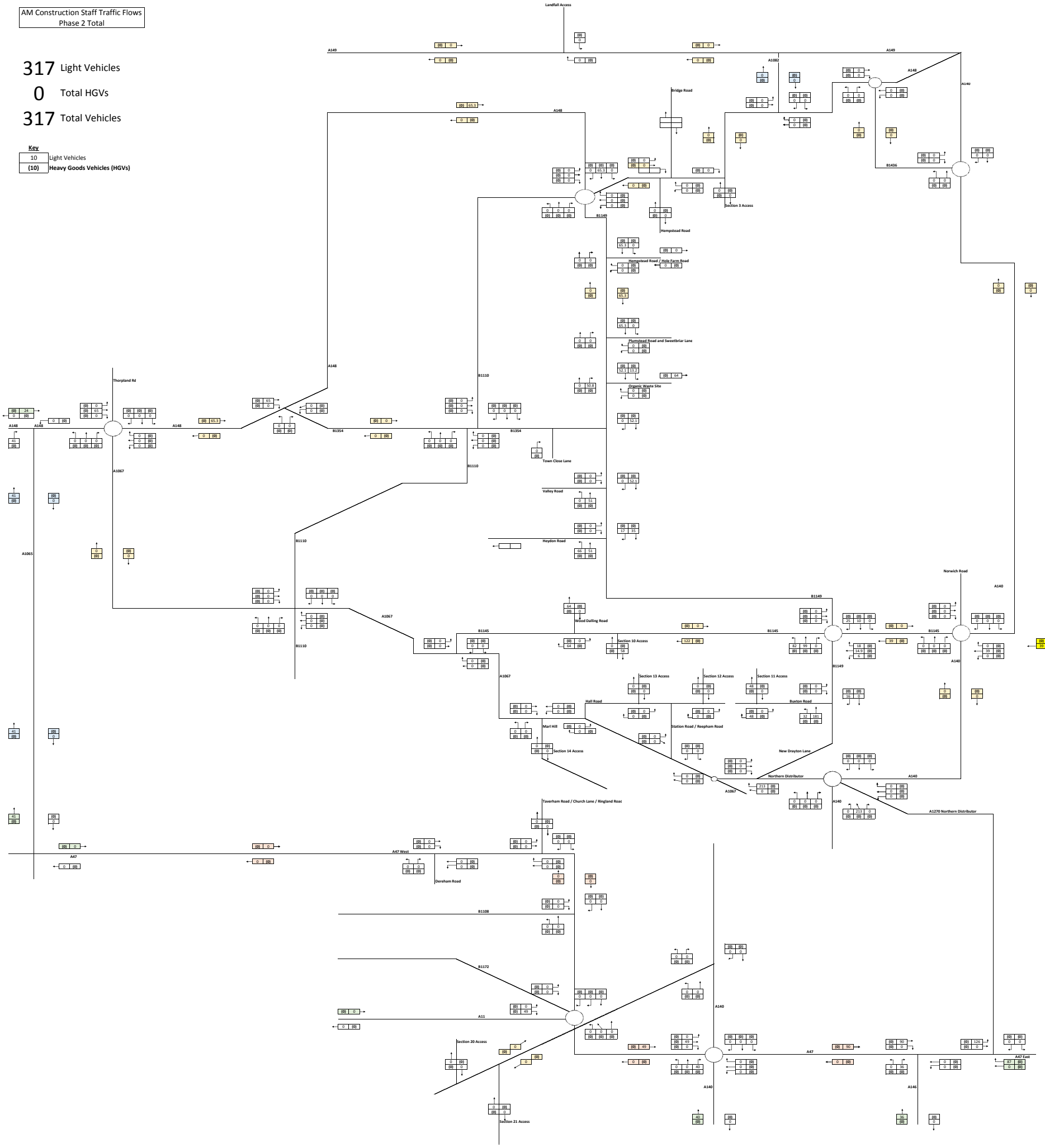
317 Light Vehicles

0 Total HGVs

317 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

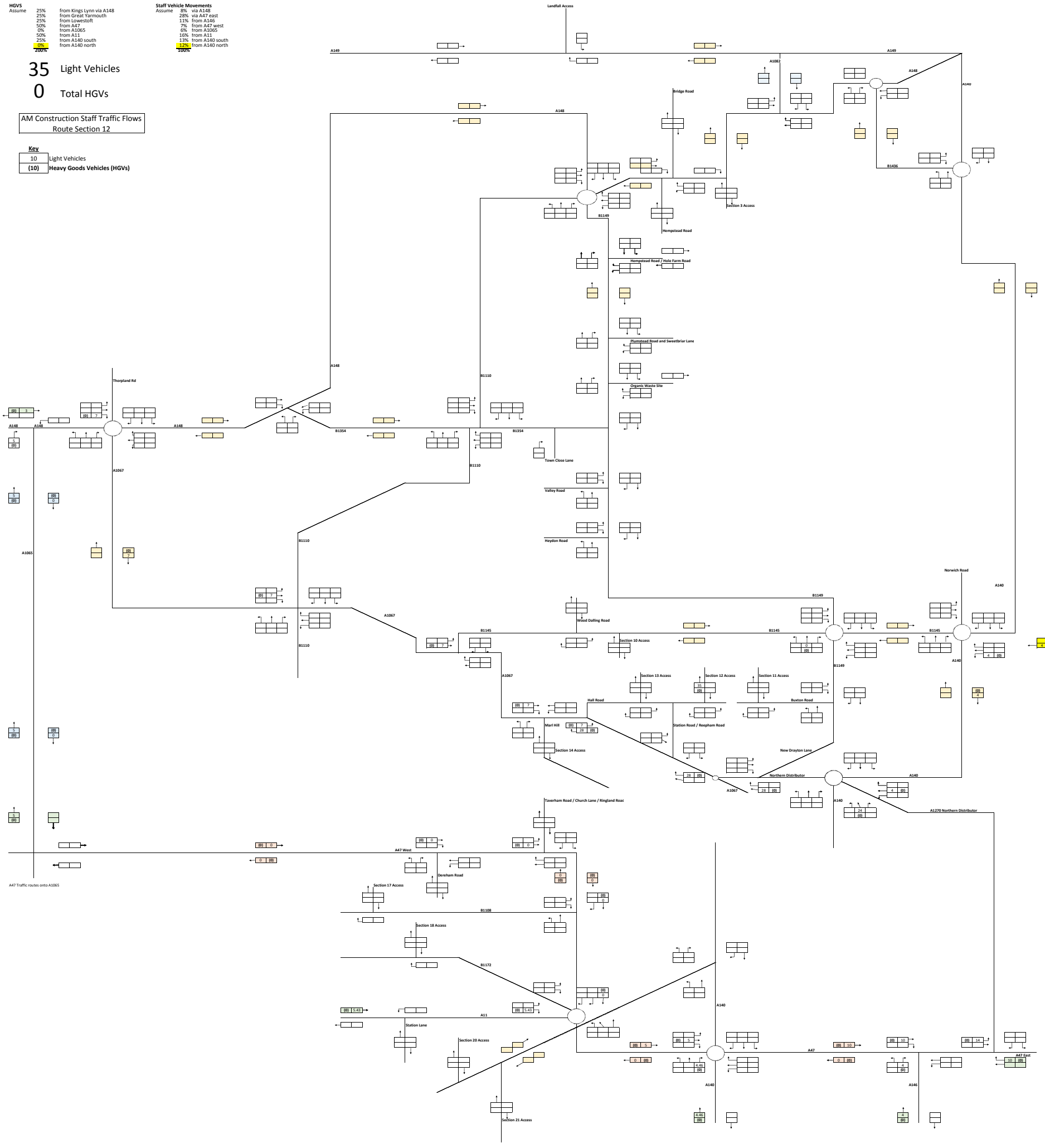
35 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 12

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

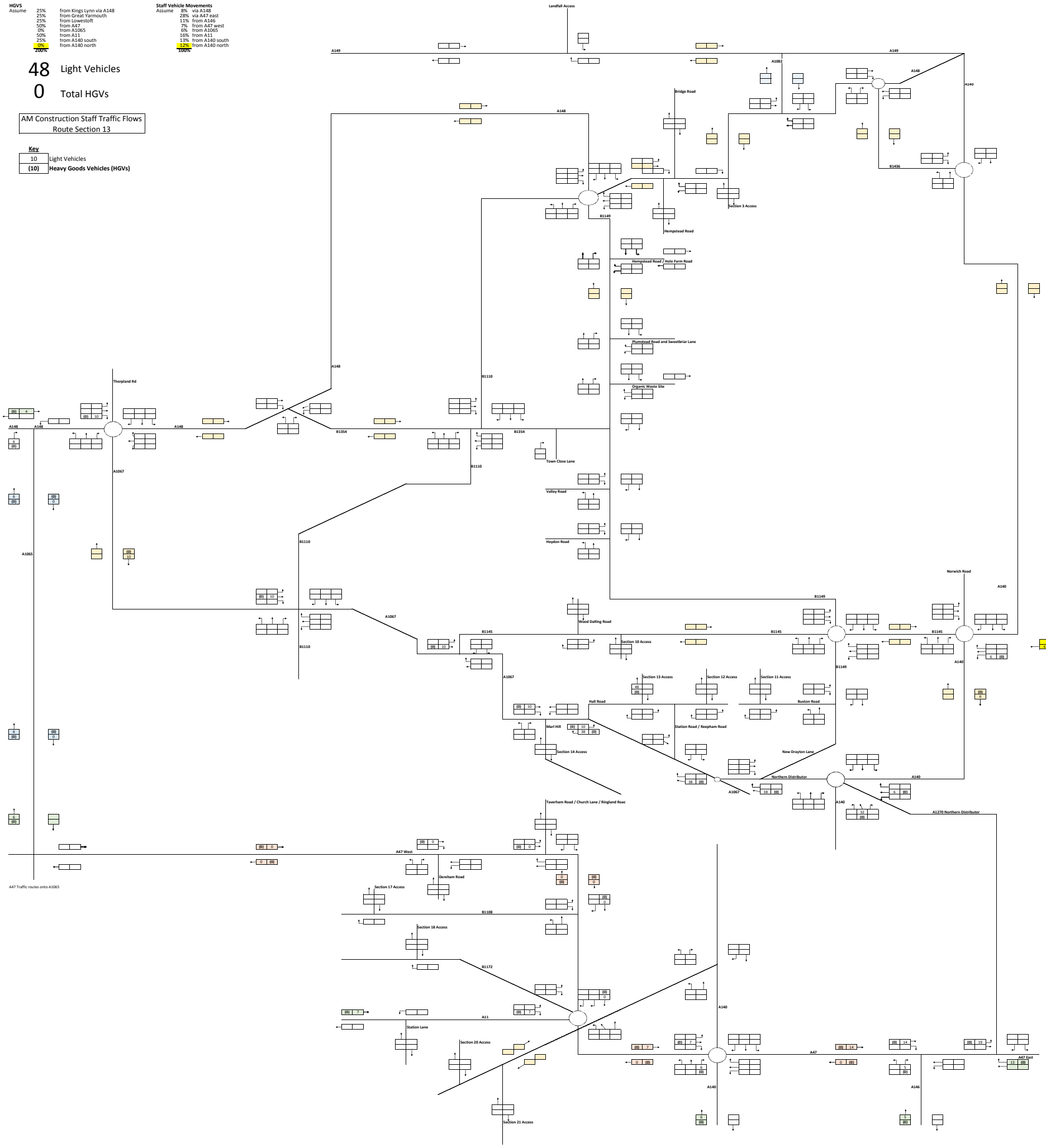
48 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 13

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

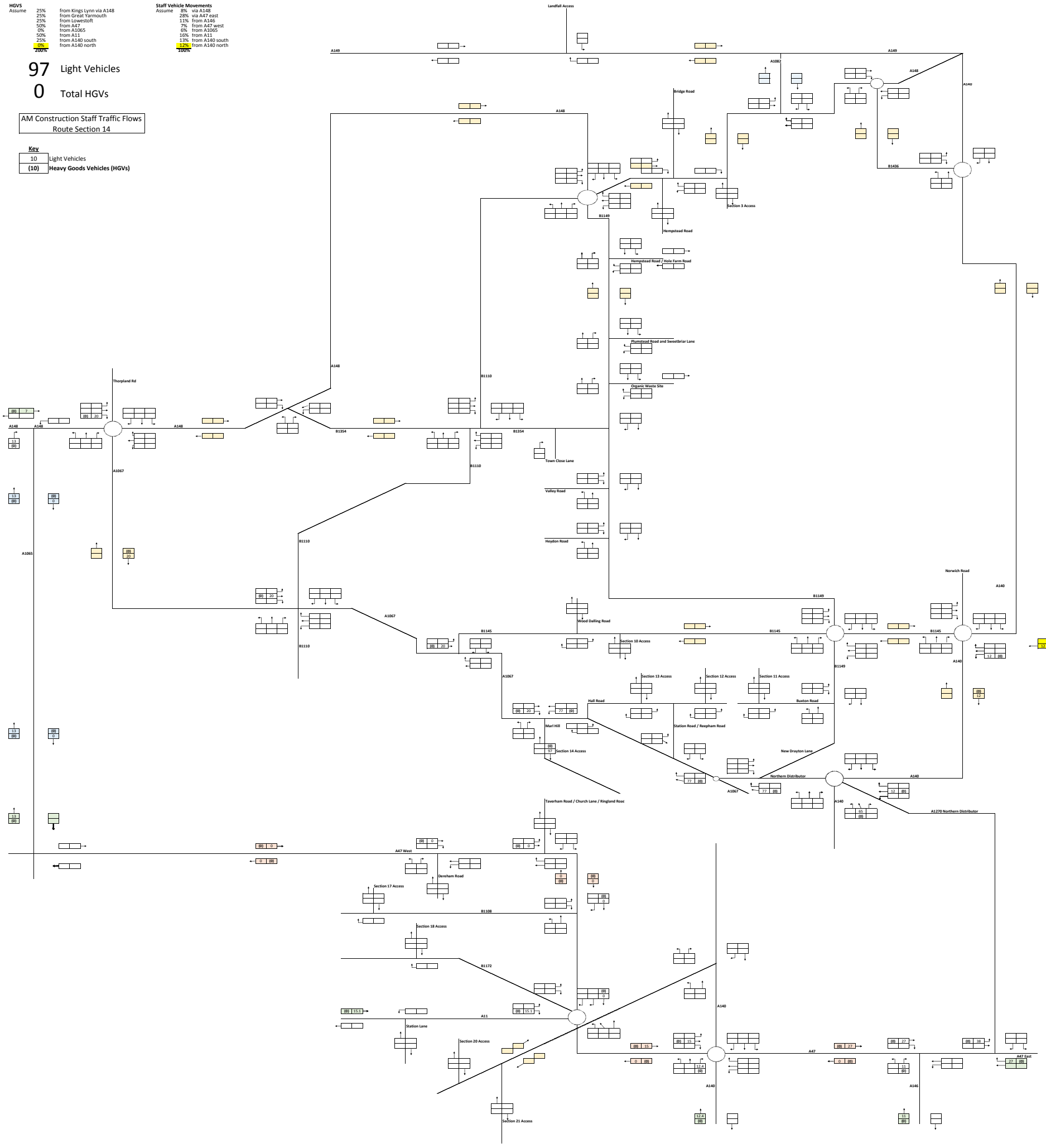
97 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 14

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

42 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 15

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

64 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 16

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

AM Construction Staff Traffic Flows
Phase 3 Total

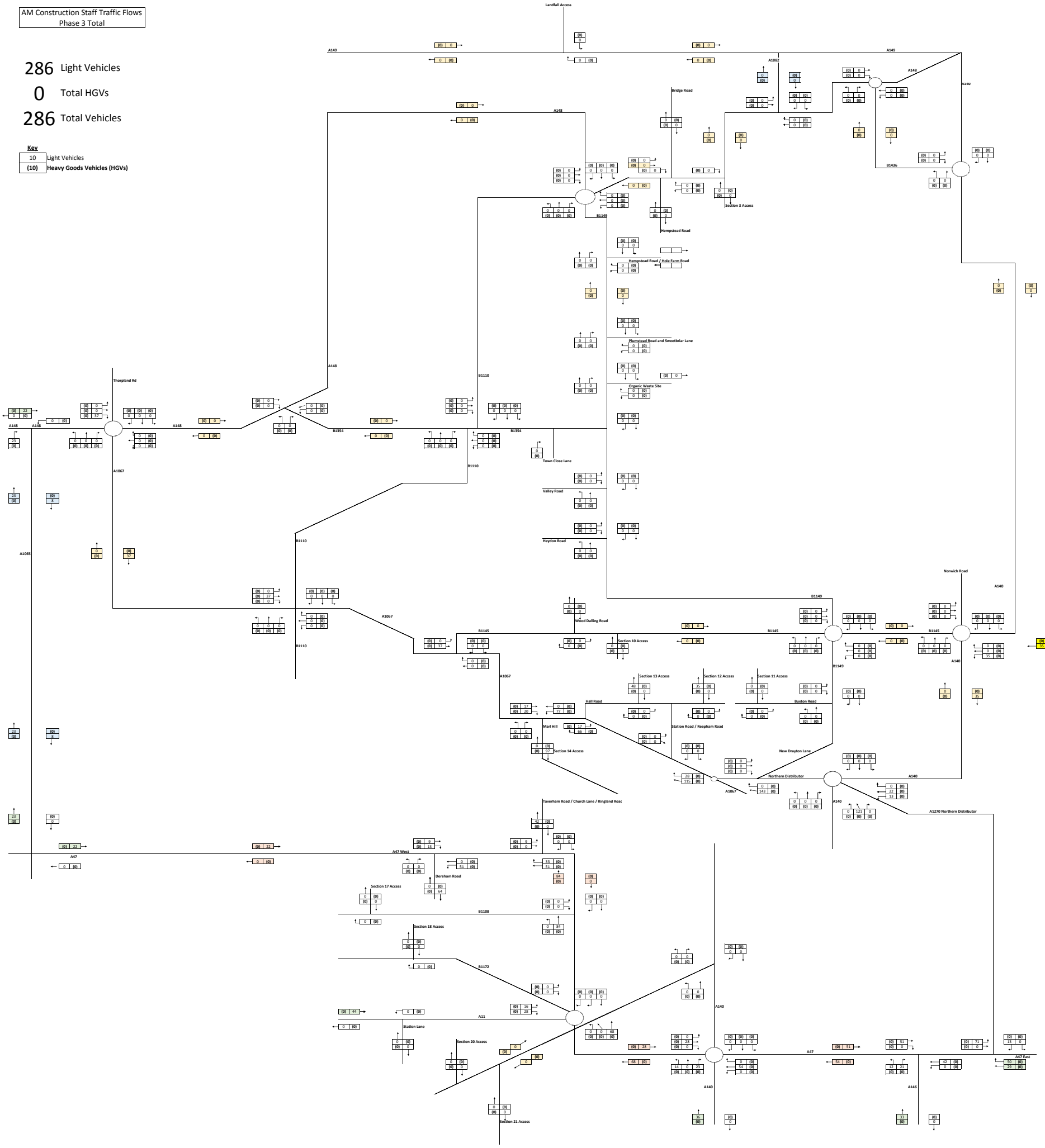
286 Light Vehicles

0 Total HGVs

286 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

68 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 17

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

116 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 18

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

54 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 19

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

54 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 20

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

64 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Route Section 21

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

AM Construction Staff Traffic Flows
Phase 4 Total

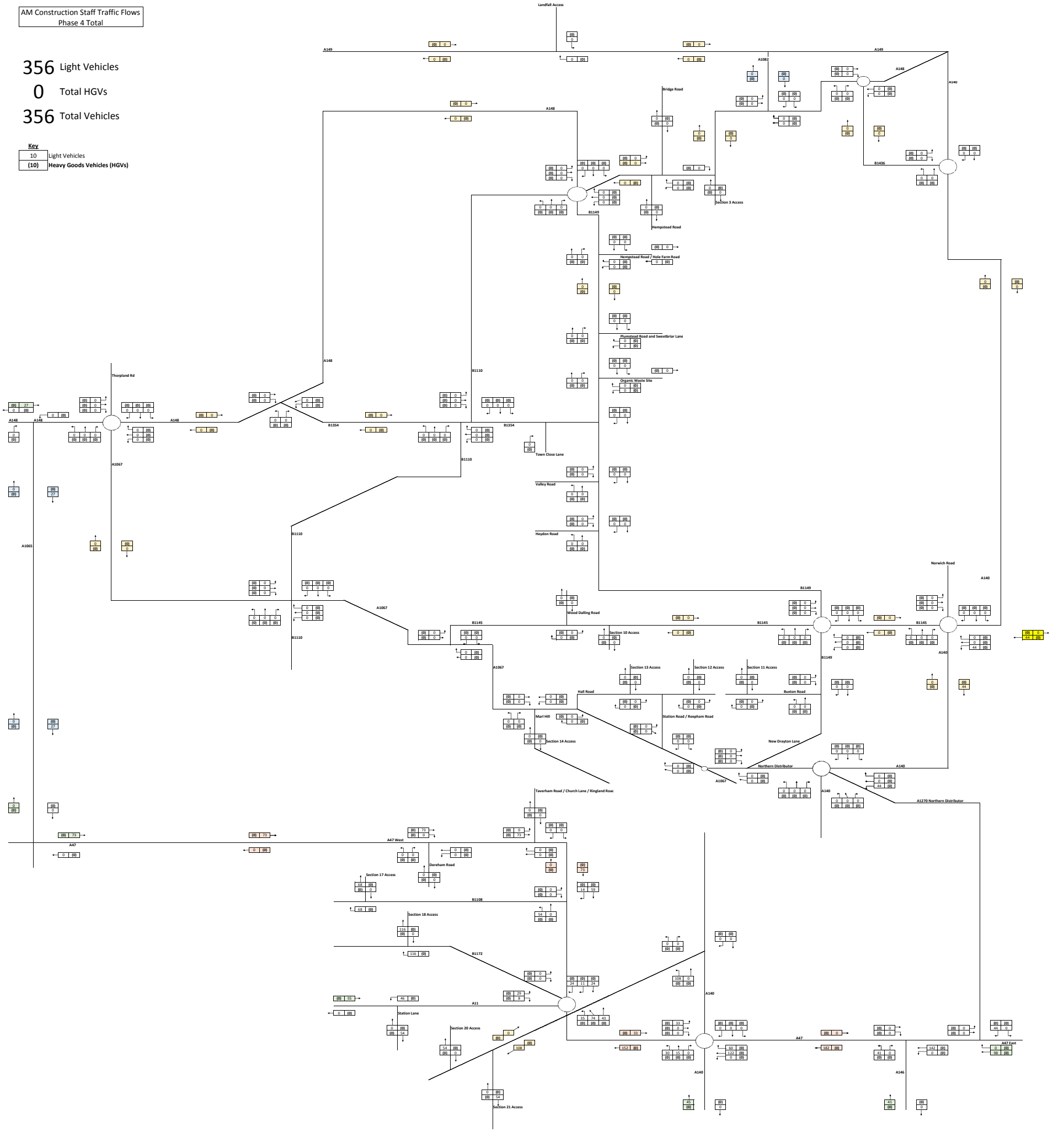
356 Light Vehicles

0 Total HGVs

356 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

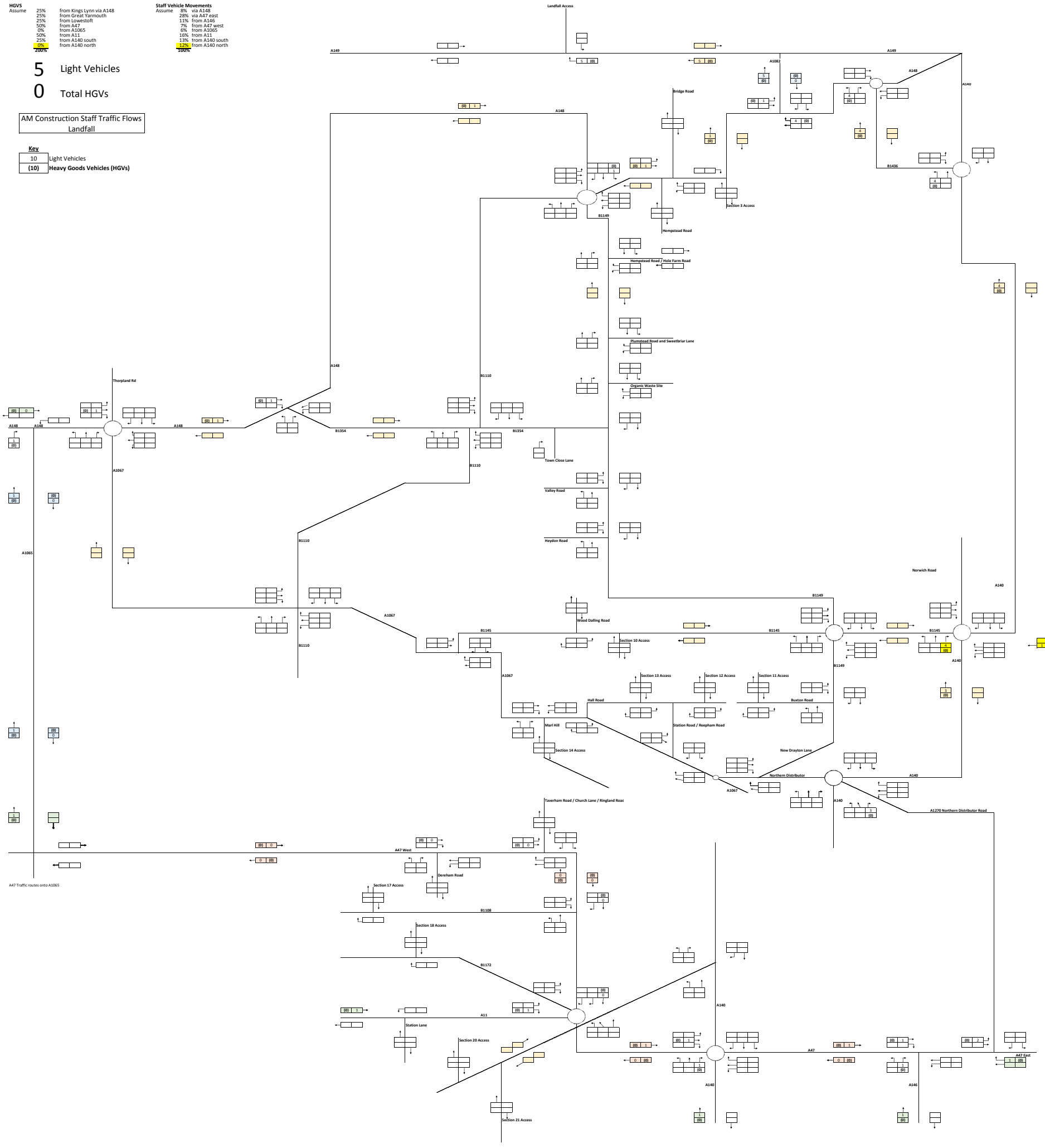
5 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
Landfall

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

17 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
HVAC Booster Station

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

Landfall Access
A149
A1082
Bridge Road
A148
A140
B1436
Section 5 Access
B1149
Hempstead Road
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1067
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Mari Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road
A47 West
Oxnham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47
A47 East
A146

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

41 Light Vehicles

0 Total HGVs

AM Construction Staff Traffic Flows
HVAC Substation

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Traffic from A1065 routeing onto A47
Traffic from A148 routeing south on A1065

AM Construction Staff Traffic Flows
Maximum Construction Traffic

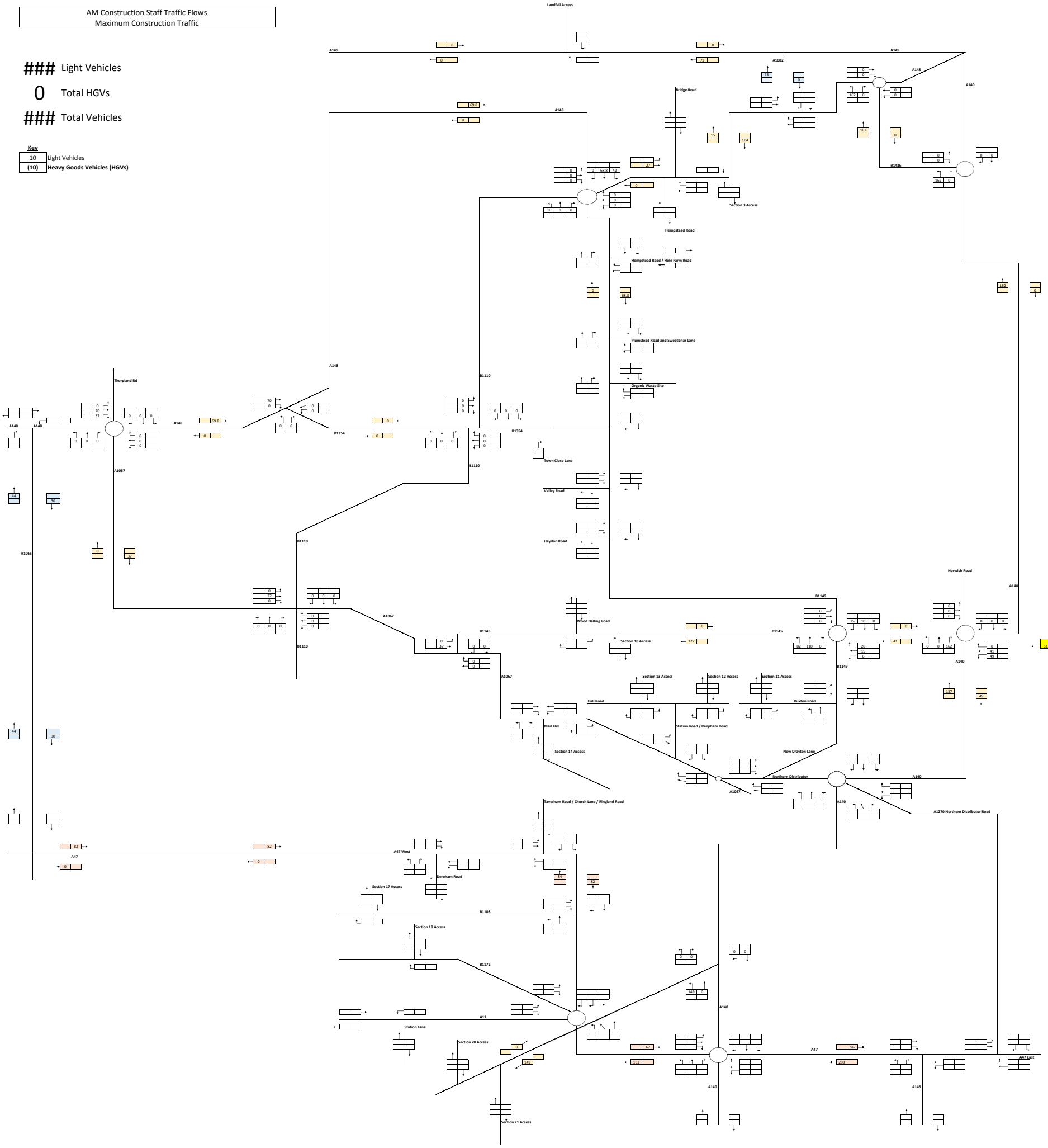
Light Vehicles

0 Total HGVs

Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



AM Construction Staff Traffic Flows
Total Construction Traffic

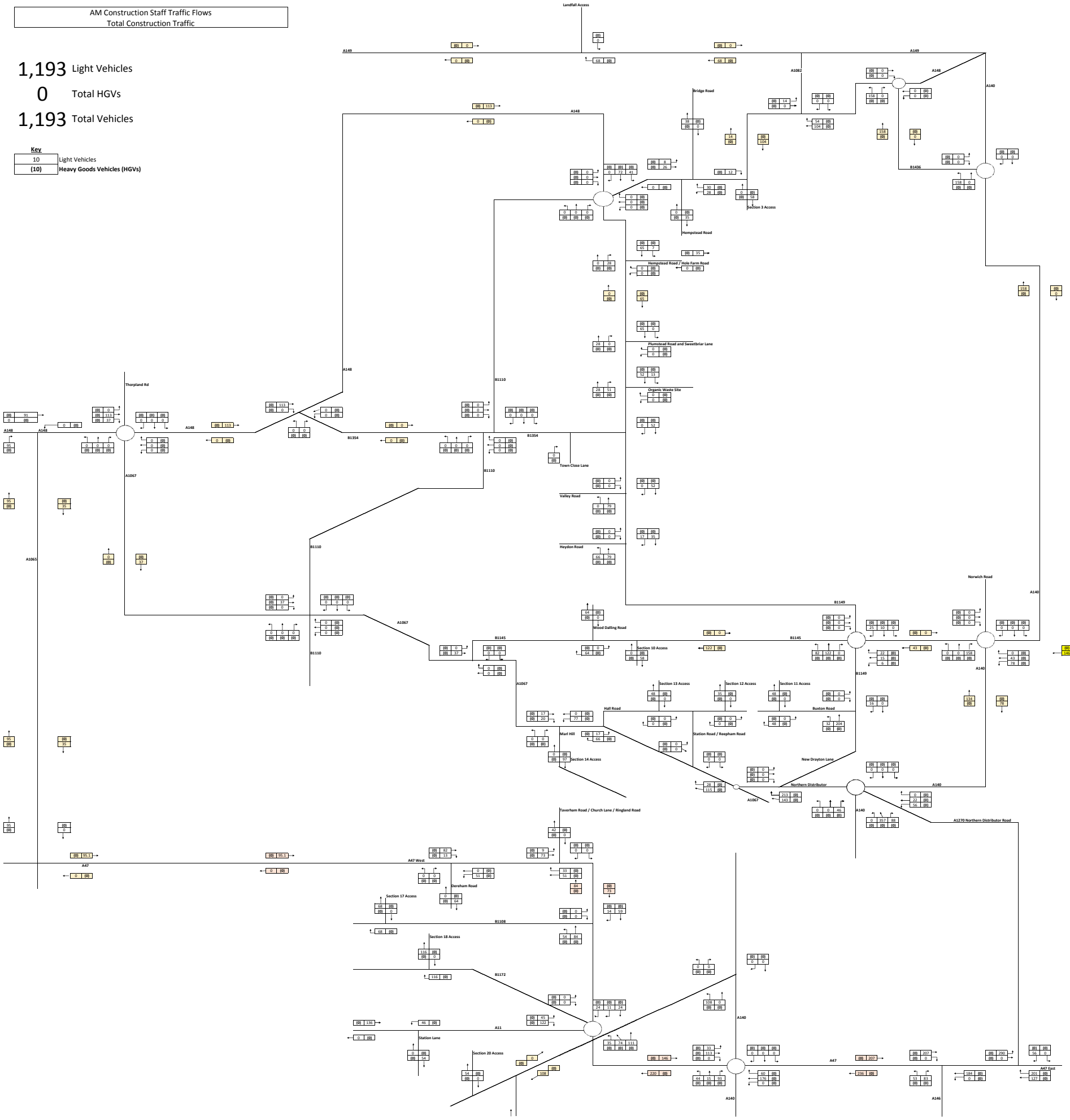
1,193 Light Vehicles

0 Total HGVs

1,193 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Traffic Flow Diagrams

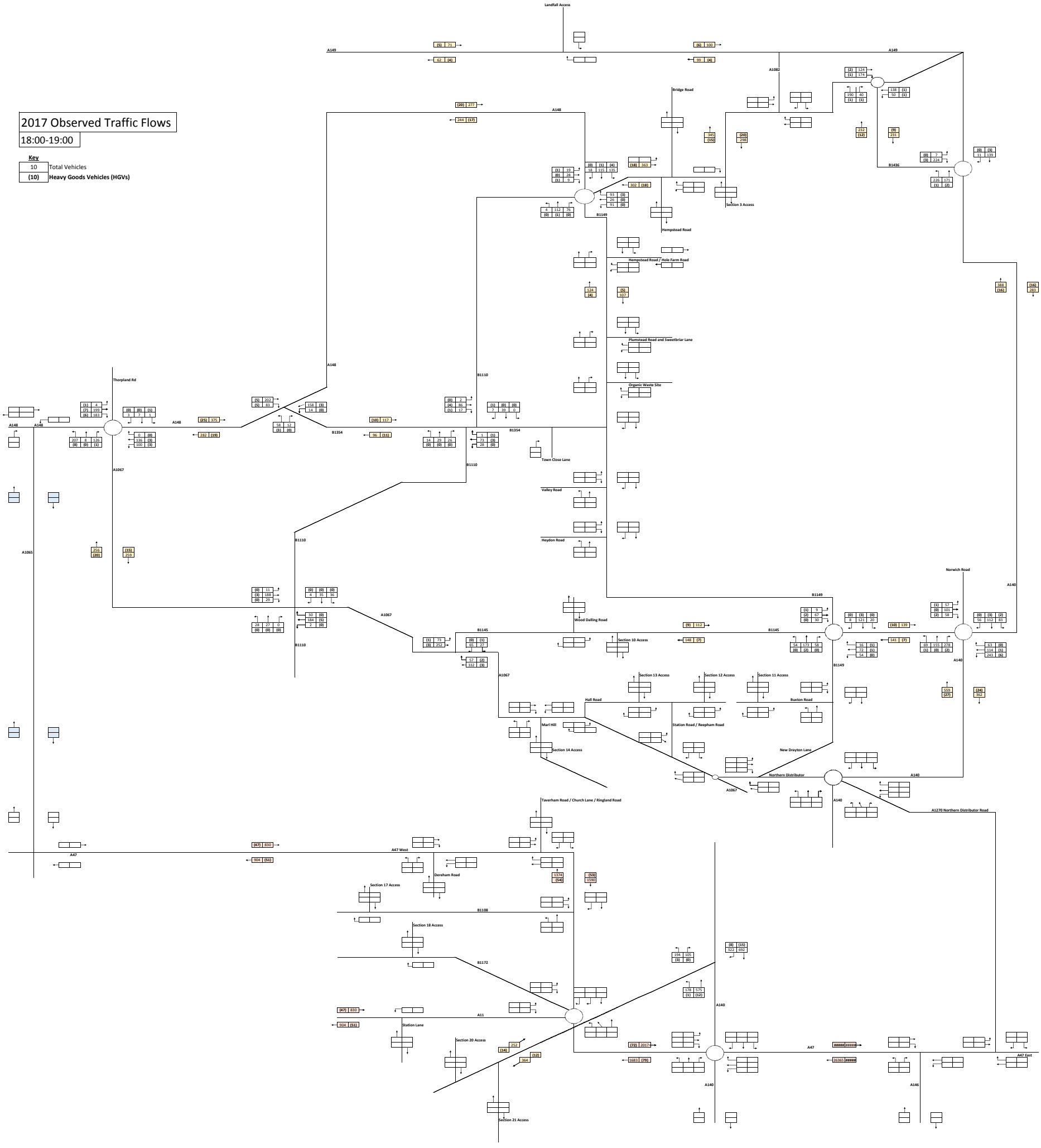
Construction Staff Traffic Flows
PM (18:00-19:00)

2017 Observed Traffic Flows

18:00-19:00

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



TEMPRO

Average Weekday

Trunk
1.10 growth 2017-2022

Principal
1.09 growth 2017-2022

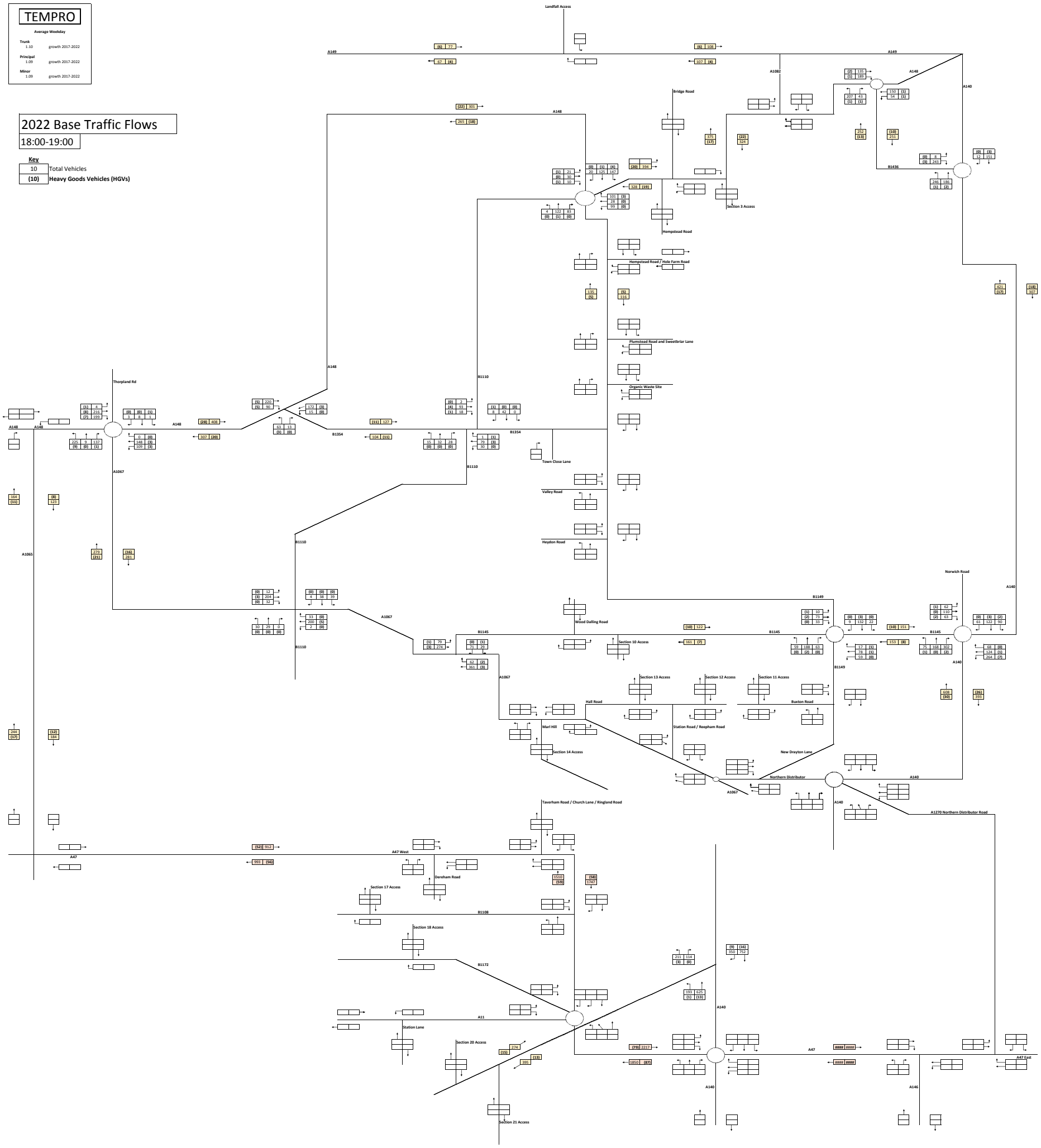
Minor
1.09 growth 2017-2022

2022 Base Traffic Flows

18:00-19:00

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



truction Vehicle Movements Spreadsheet

Route Section	Description	Staff Peak Hour Vehicle Flows			
		Total	HGV	Lights	Phase
1	Landfall to Holgate Hill	68	0	68	1
2	Holgate Hill to woodland north east of High Kelling	38	0	38	1
3	Woodland northeast of High Kelling to woodland south of Church Road	58	0	58	1
4	Woodland south of Church Road to woodland south and east of School Lane	35	0	35	1
5	Woodland east of School Lane to Plumstead Road	35	0	35	1
6	Plumstead Road to the B1149	64	0	64	2
7	B1149 to land South of Town Close Lane	38	0	38	-
8	Land south of Town Close Lane to woodland north of Reepham Road	83	0	83	2
9	Land north of Reepham Road to woodland north of Reepham	64	0	64	2
10	Woodland north of Reepham to woodland at Booton Common	58	0	58	2
11	Woodland east of Reepham to The Grove	48	0	48	2
12	The Grove to woodland south of Church Farm Lane	35	0	35	3
13	Woodland south of Church Farm Lane to River Wensum	48	0	48	3
14	River Wensum to woodland south west of Ringland	97	0	97	3
15	Woodland south west of Ringland to A47	42	0	42	3
16	A47 to Bawburgh Road	64	0	64	3
17	Bawburgh Road to woodland west of Little Melton	68	0	68	4
18	Woodland west of Little Melton to A11	116	0	116	4
19	A11 to woodland north west of Swardeston	54	0	54	4
20	Woodland north west of Swardeston to B1113	54	0	54	4
21	B1113 to end of cable route	64	0	64	4
Landfall	Landfall	5	0	5	
Booster Station	Booster Station	17	0	17	
Converter / Sub Station	Converter / Sub Station	41	0	41	
	Total:	**1,294**	**0**	**1,294**	**1,294**

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

68 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 1

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1067
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor Road
Taverham Road / Church Lane / Ringland Road
A47
A47 West
A47 East
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A146
A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

38 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 2

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

58 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 3

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1065
A1067
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47
A47 West
A47 East
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A146
A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

35 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 4

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
A148
Thorpland Rd
A148
A148
B1354
B1110
B1354
Town Close Lane
B1110
Valley Road
Heydon Road
A1067
A1065
B1110
Norwich Road
A140
B1149
Wood Dalling Road
A1067
B1145
B1145
B1145
Section 10 Access
B1110
B1149
A140
A1067
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A140
A1067
A140
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A140
A47
A47 East
A140
A146

A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

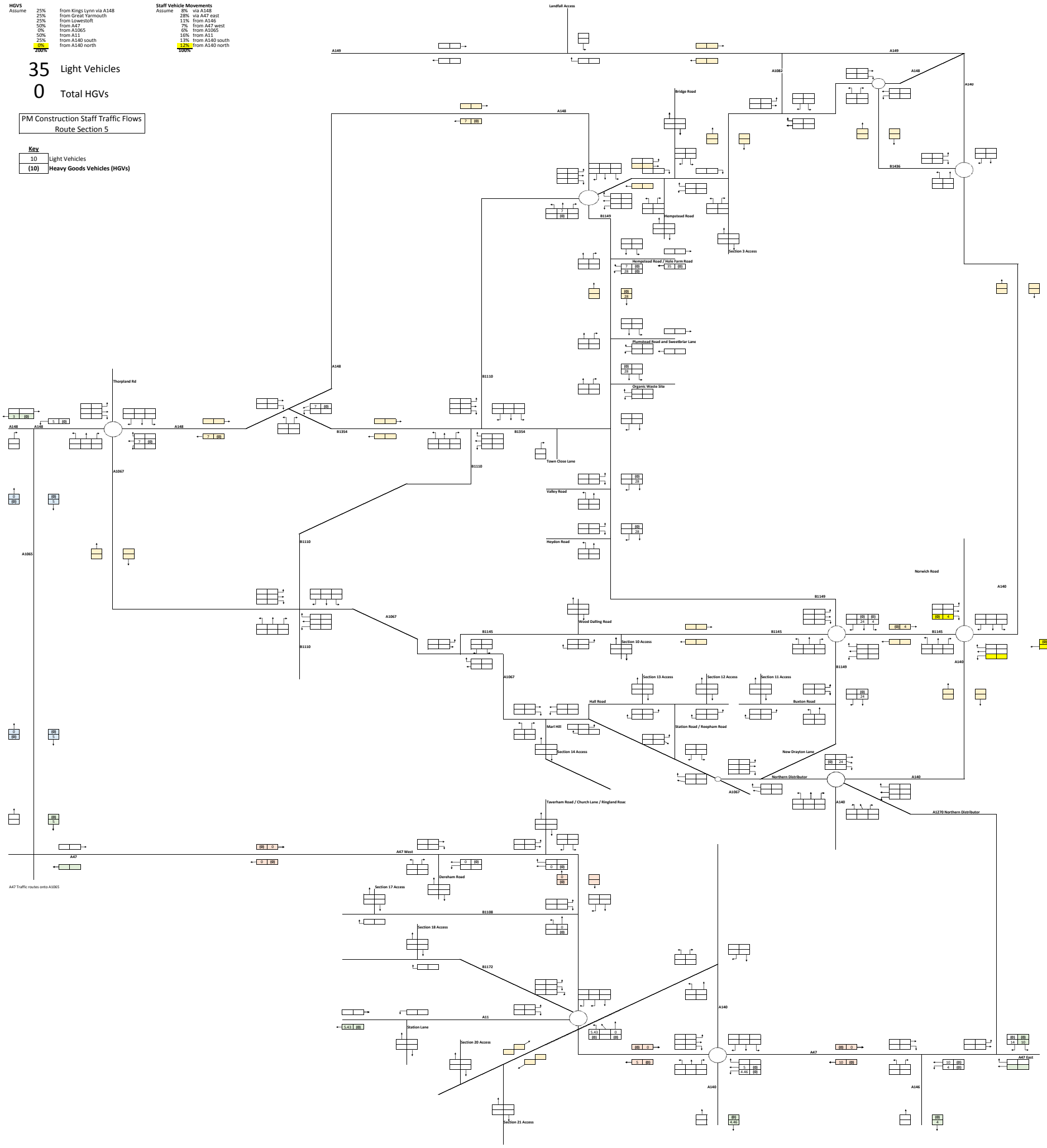
35 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 5

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



PM Construction Staff Traffic Flows
Phase 1 Total

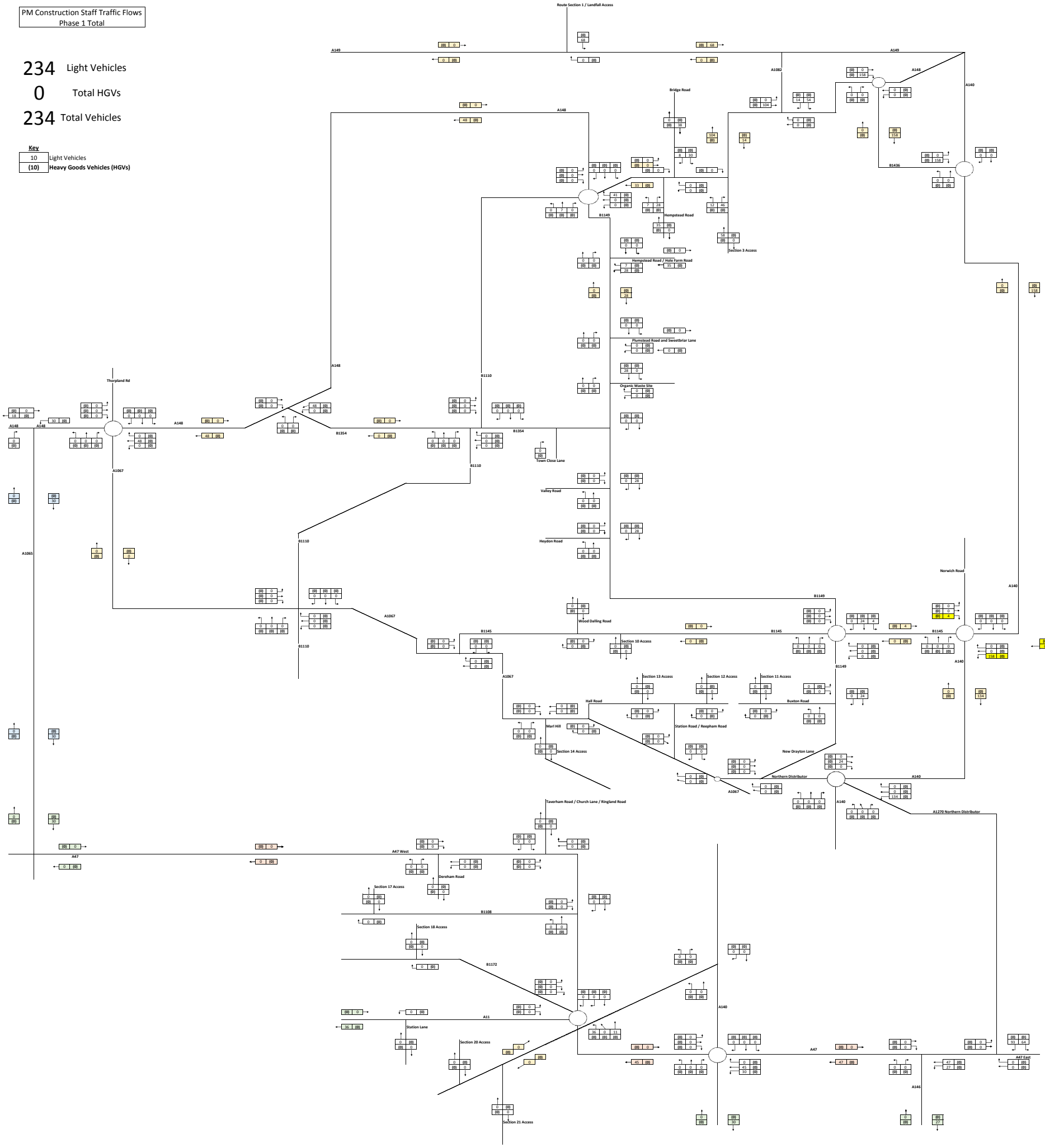
234 Light Vehicles

0 Total HGVs

234 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVs

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

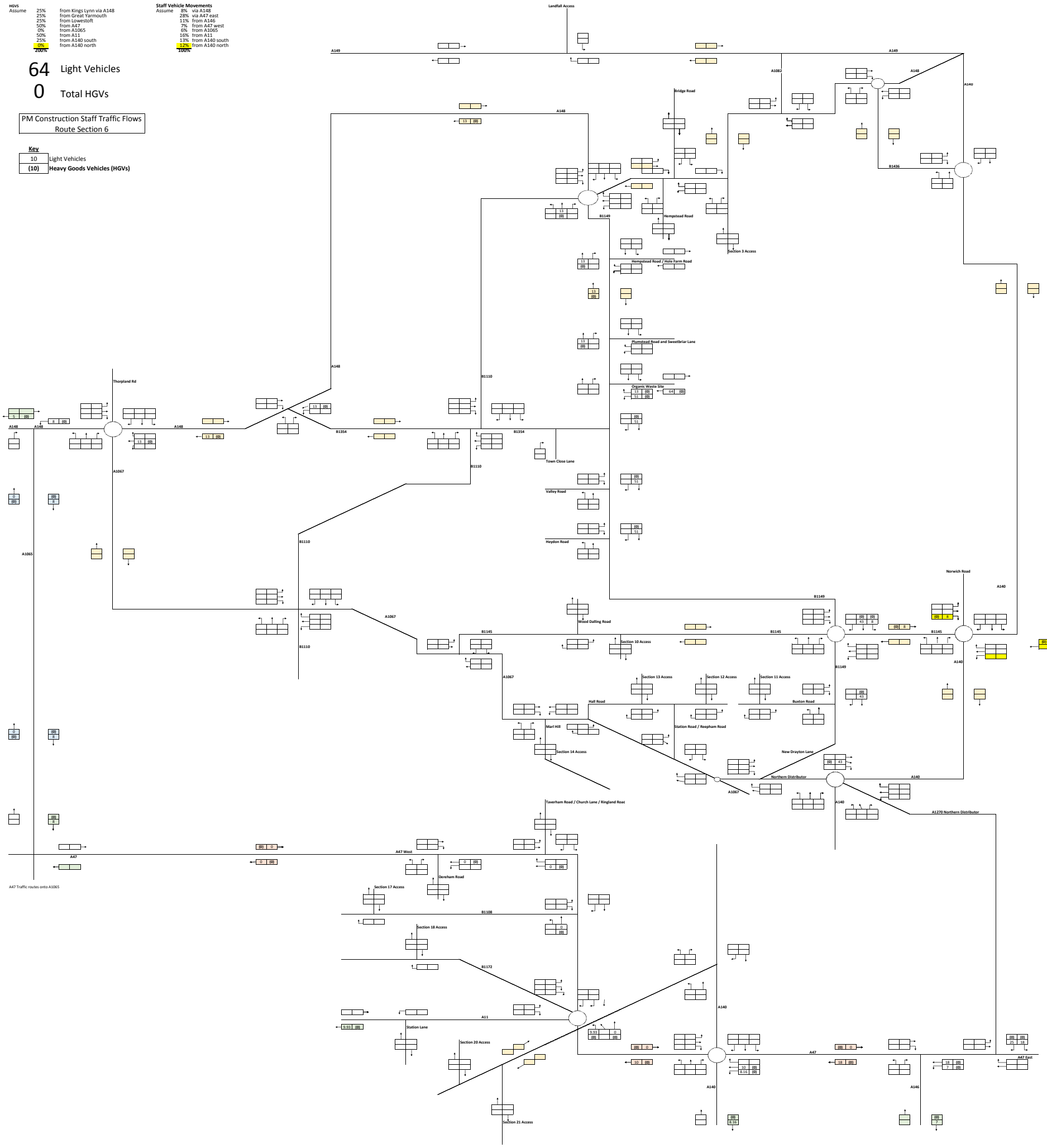
64 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 6

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

83 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 8

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

64 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 9

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

58 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 10

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1065
A1067
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47
A47 West
A47 East
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A146
A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

48 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 11

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Thorpland Rd
A1067
Town Close Lane
Valley Road
Heydon Road
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47 East
A146

PM Construction Staff Traffic Flows
Phase 2 Total

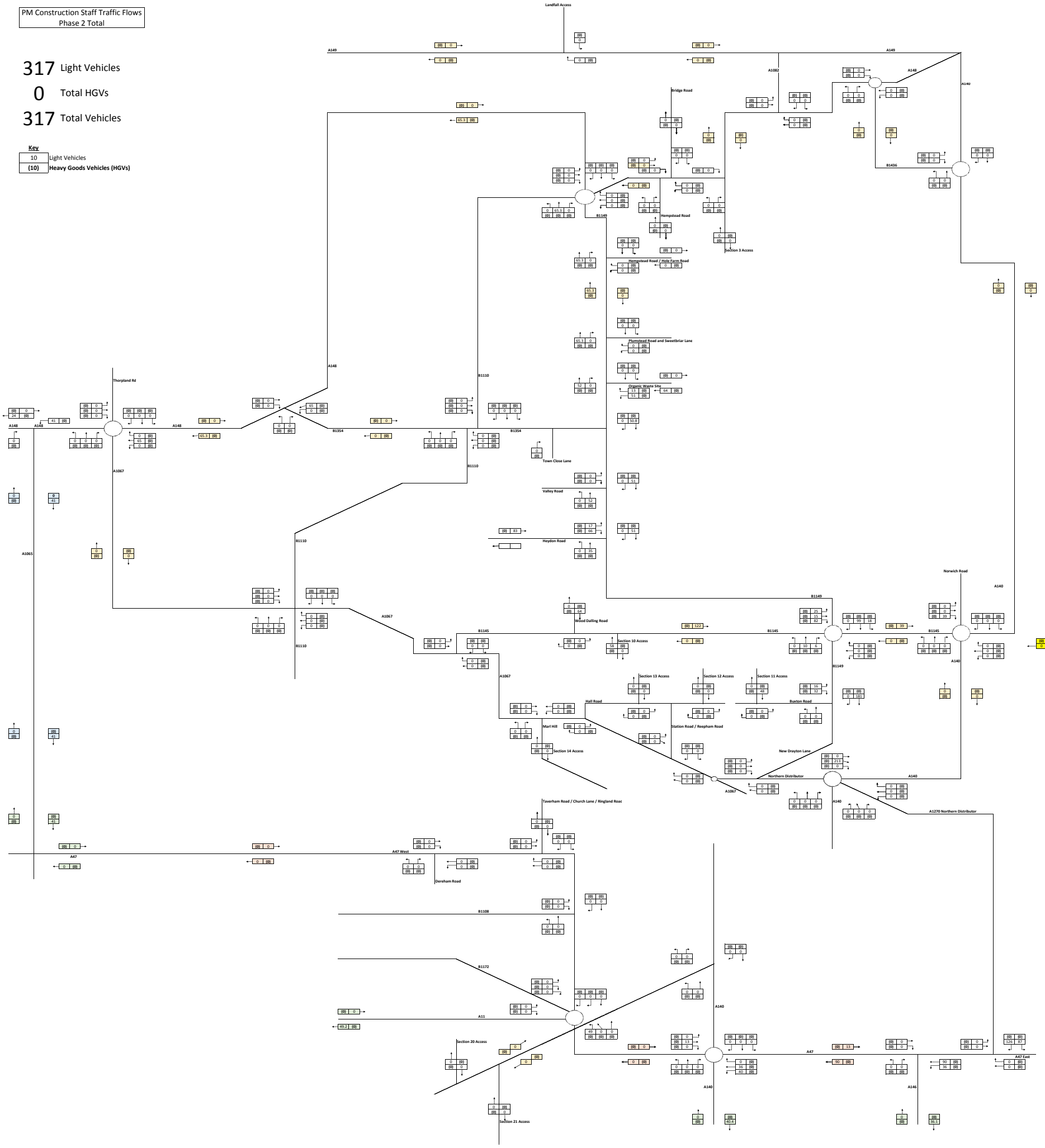
317 Light Vehicles

0 Total HGVs

317 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

35 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 12

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Thorpland Rd
A1065
A1067
Town Close Lane
Valley Road
Heydon Road
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47
A47 West
A47 East
A47 Traffic routes onto A1065
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A146

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

48 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 13

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1065
A1067
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor
Taverham Road / Church Lane / Ringland Road
A47
A47 West
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A47 East
A146
A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

97 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 14

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

A47 Traffic routes onto A1065

HGVS

Assume		
	25%	from Kings Lynn via A47
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065 via A47
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

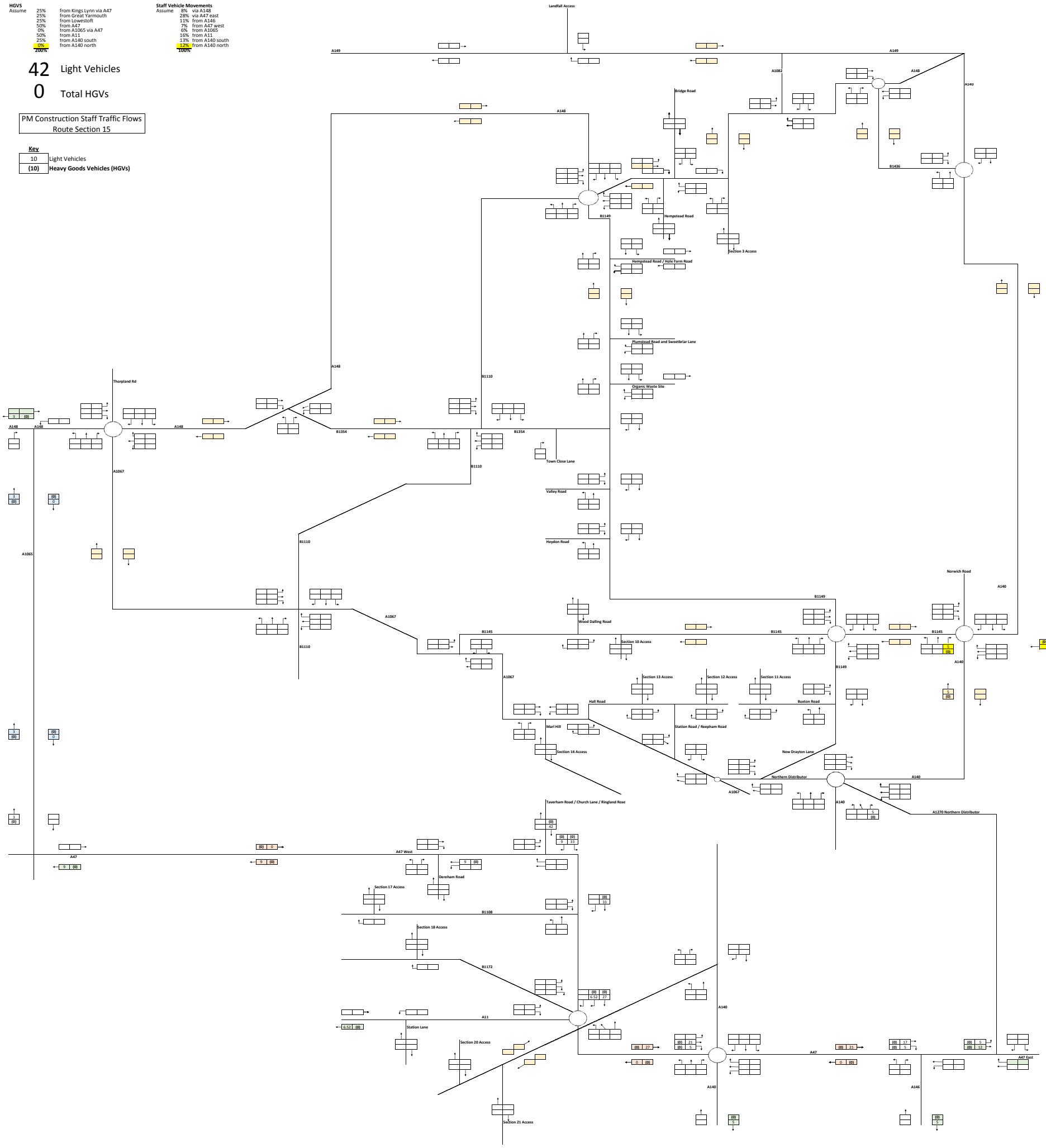
42 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 15

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A47
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065 via A47
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

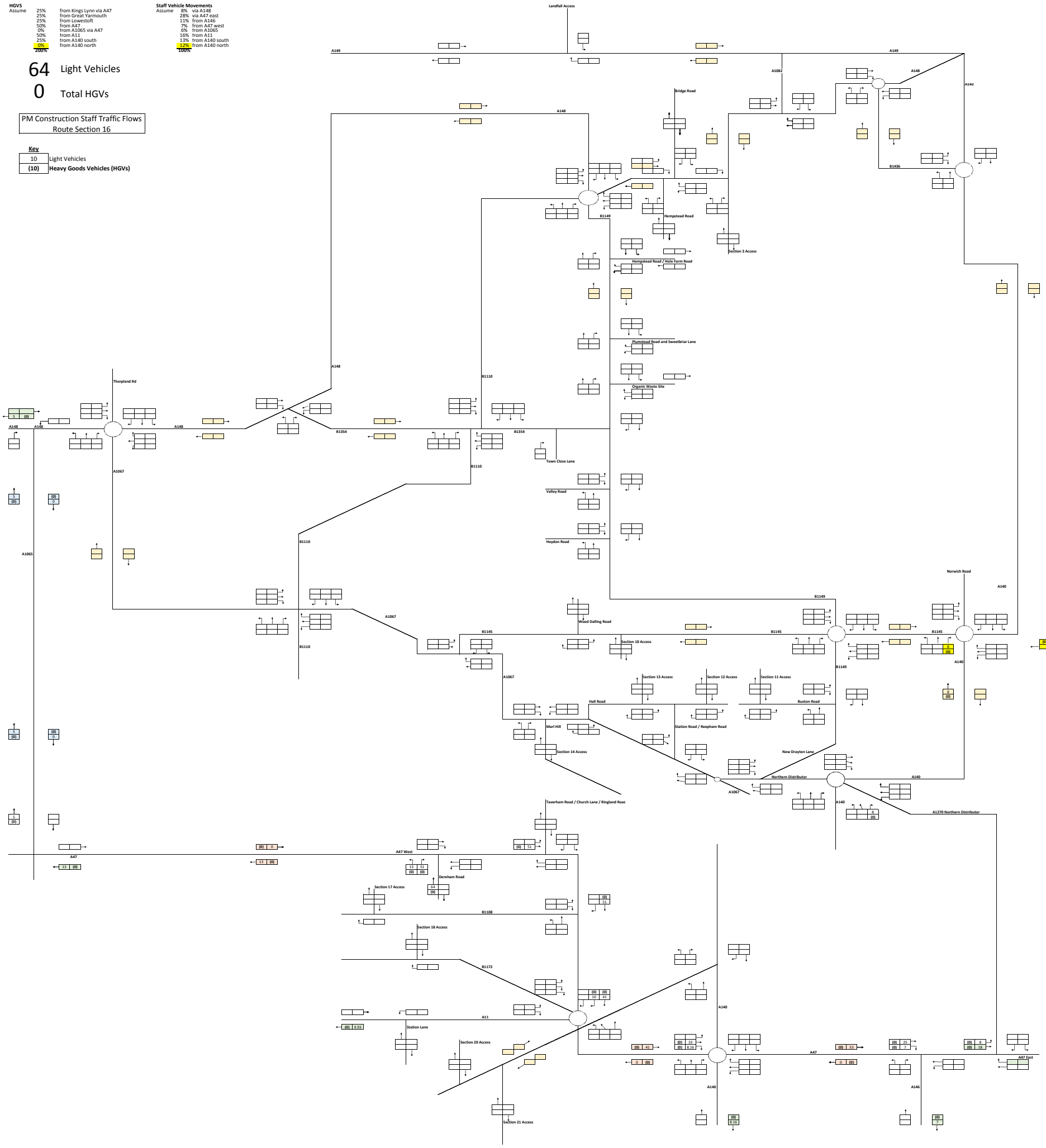
64 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 16

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



PM Construction Staff Traffic Flows
Phase 3 Total

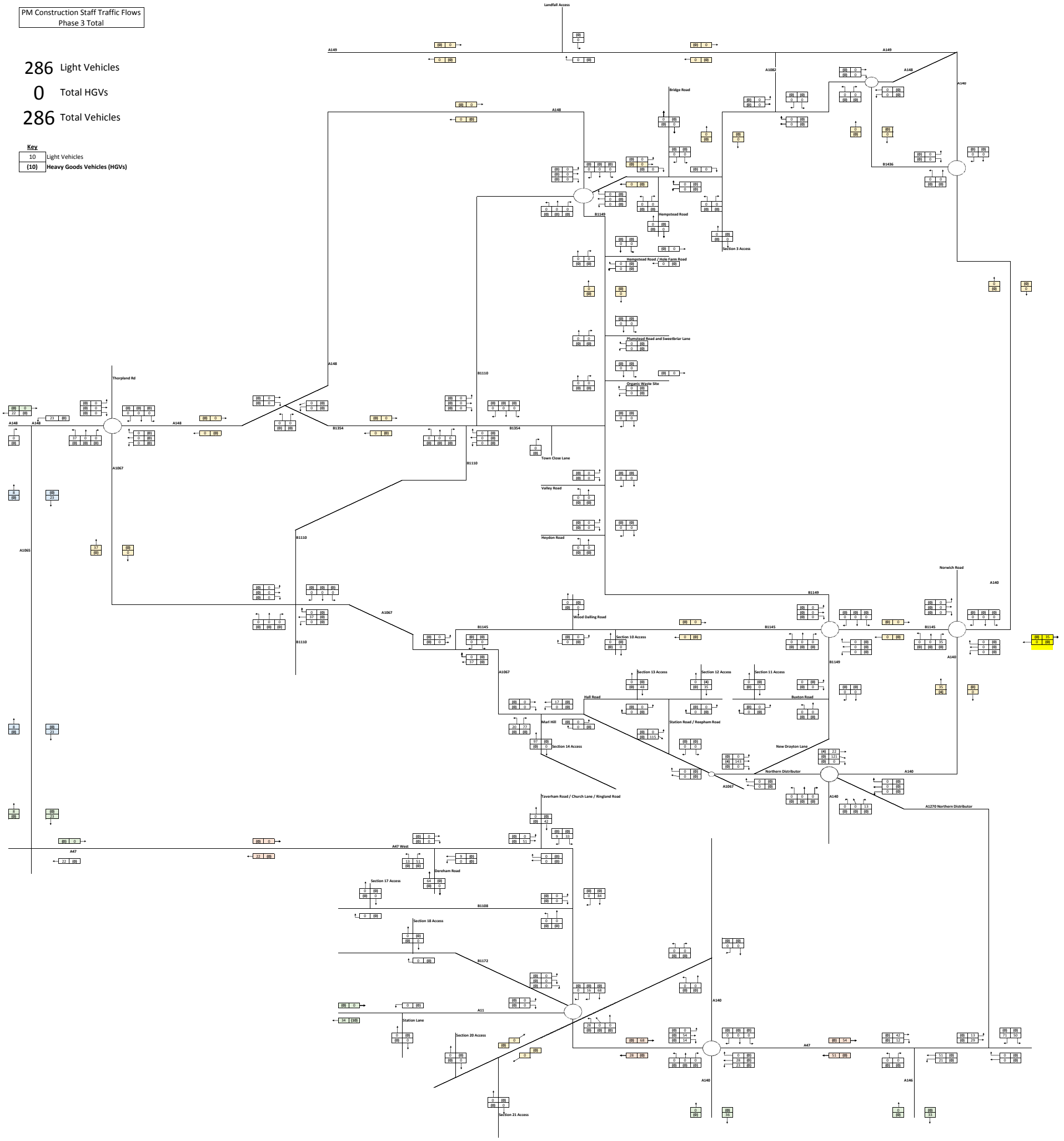
286 Light Vehicles

0 Total HGVs

286 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A47
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065 via A47
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

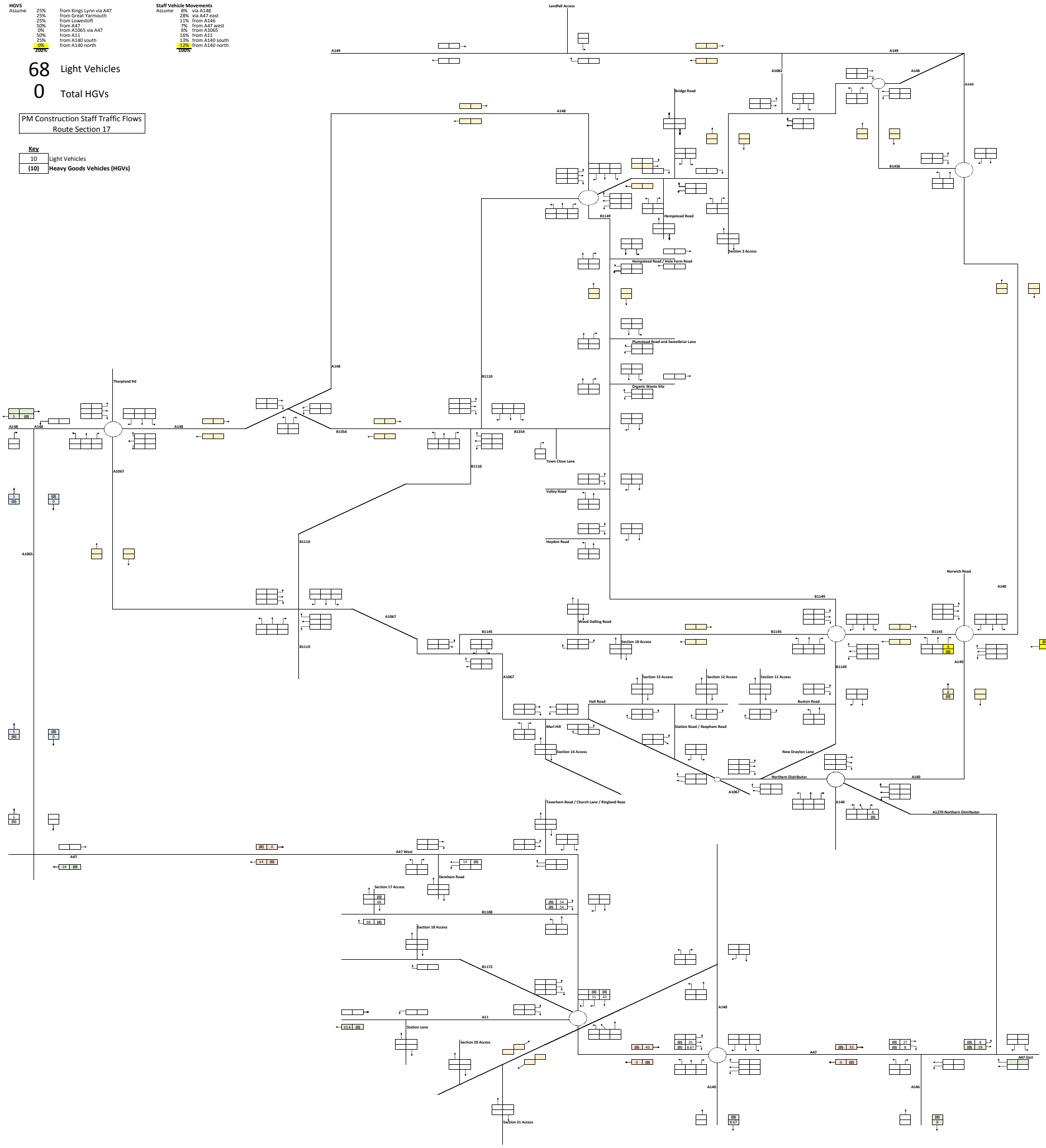
68 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 17

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume		
	25%	from Kings Lynn via A47
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065 via A47
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

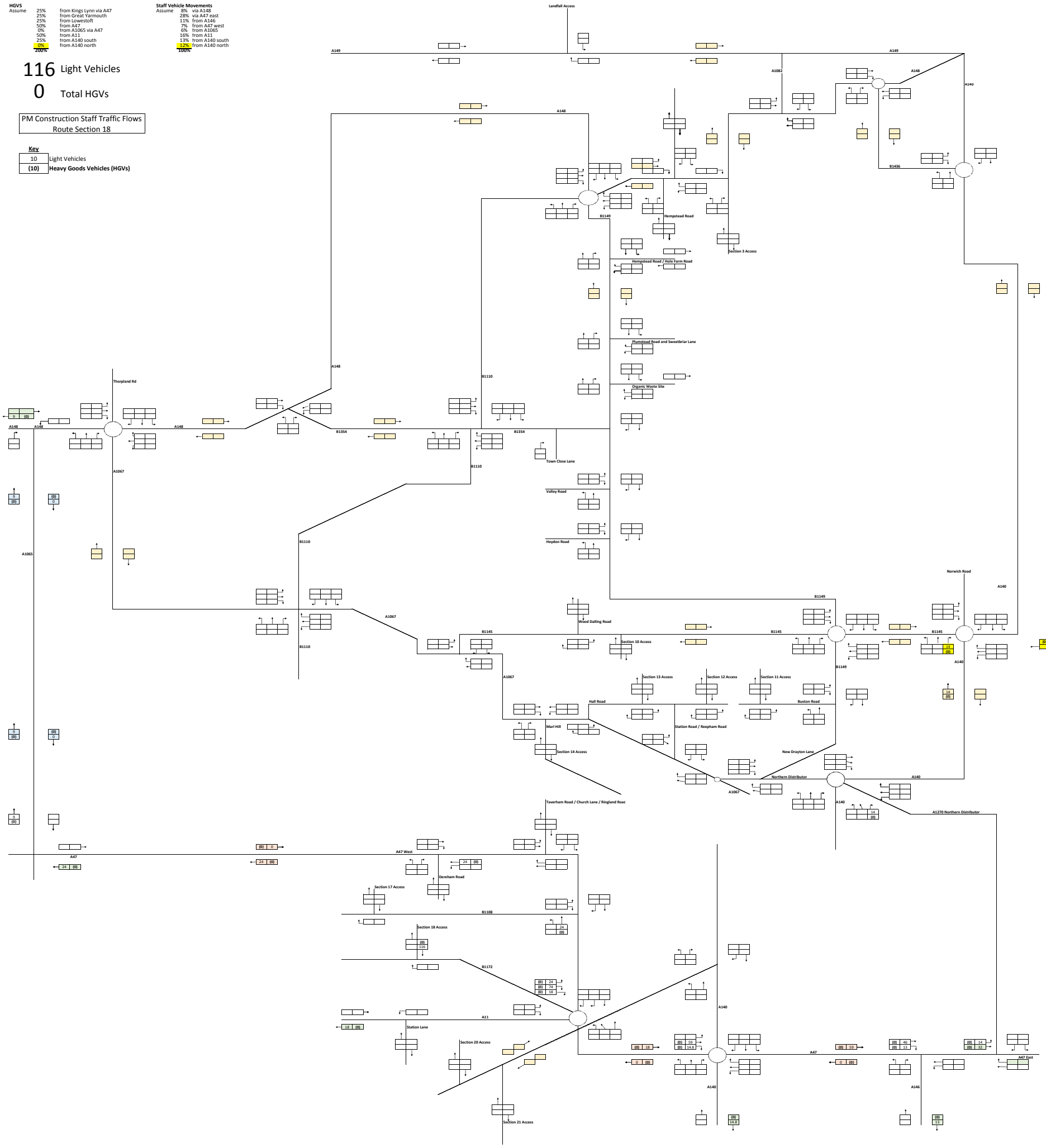
116 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 18

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume		
	25%	from Kings Lynn via A47
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065 via A47
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

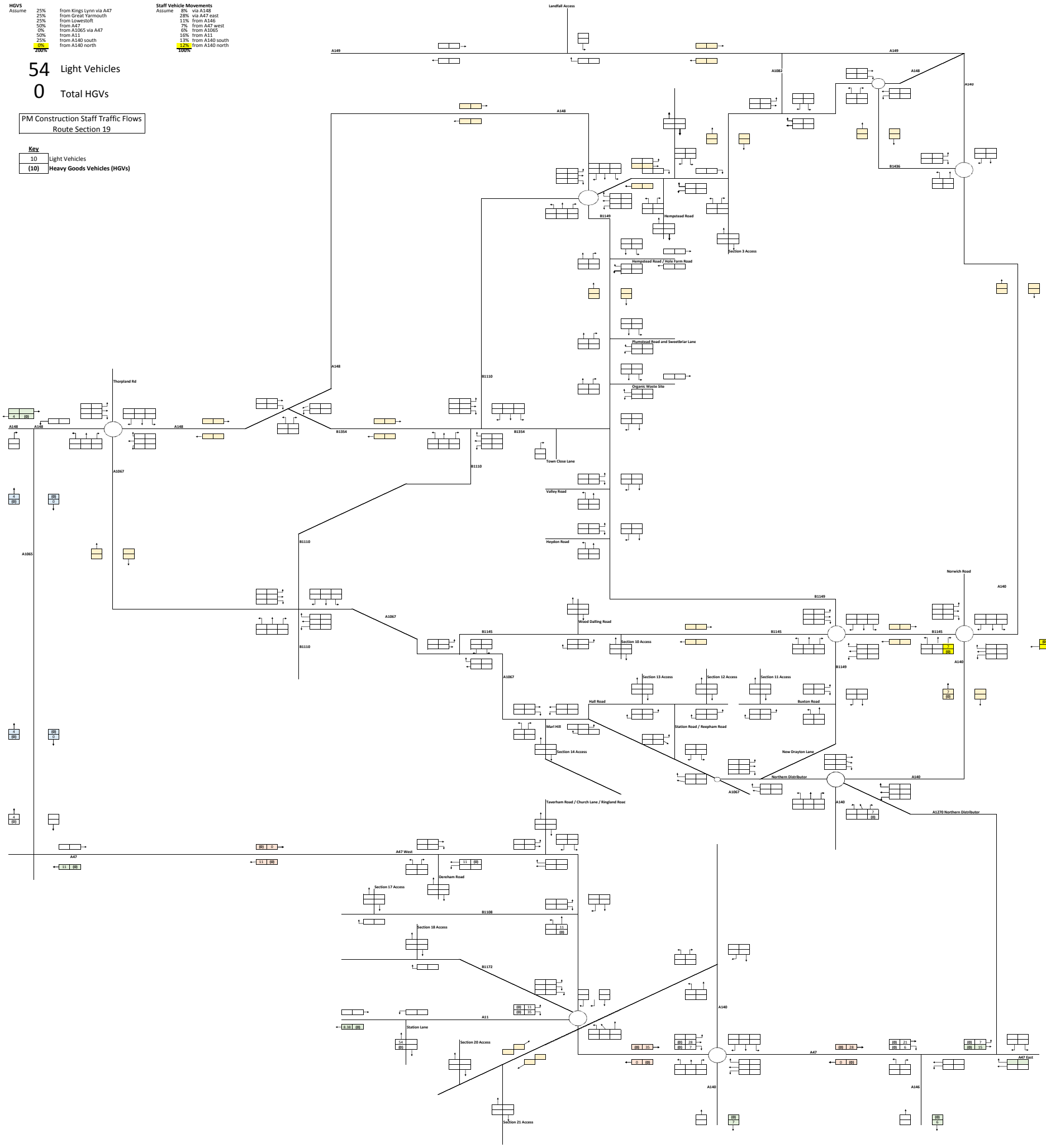
54 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 19

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume		
	25%	from Kings Lynn via A47
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065 via A47
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

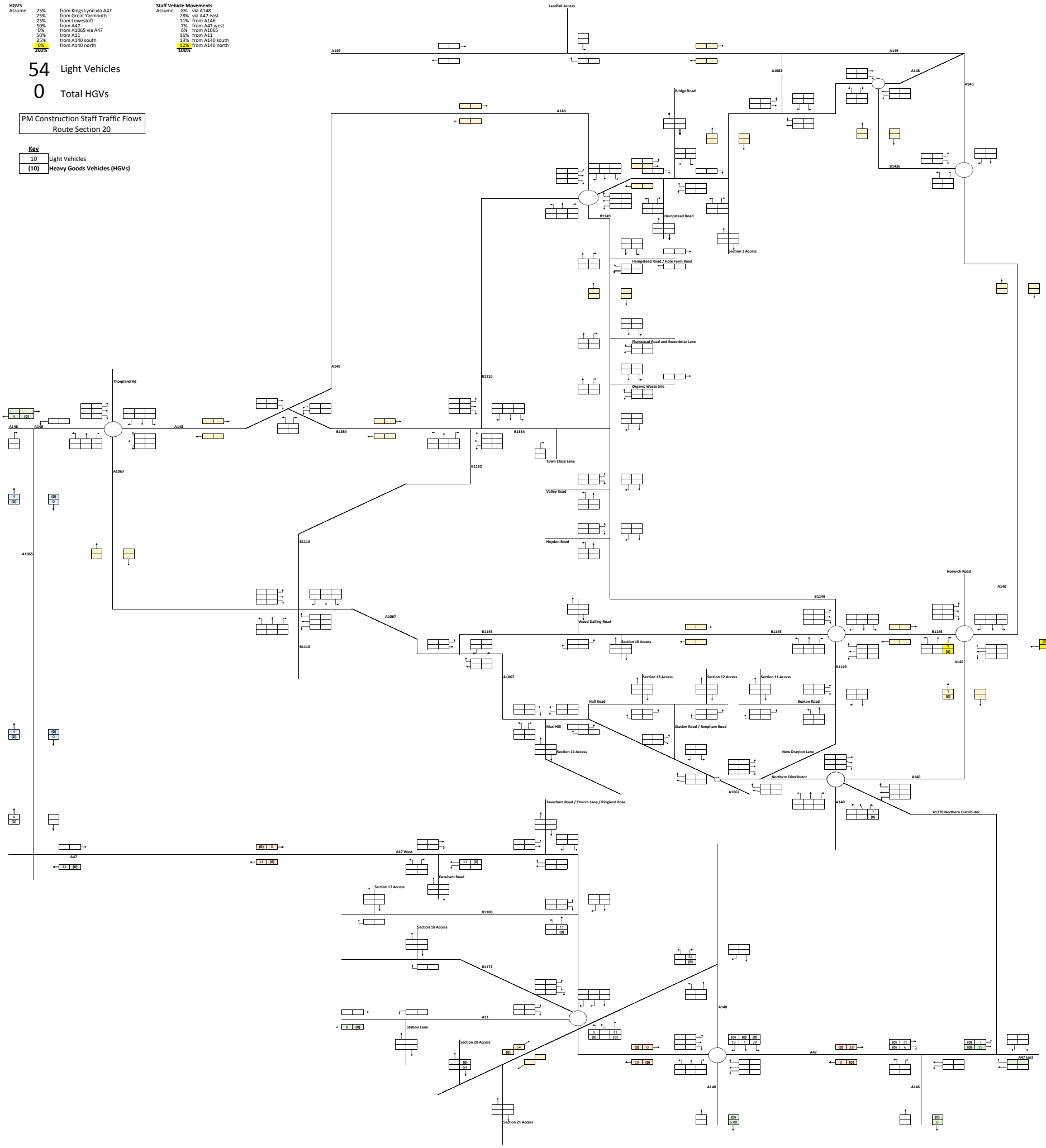
54 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 20

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume		
	25%	from Kings Lynn via A47
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065 via A47
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

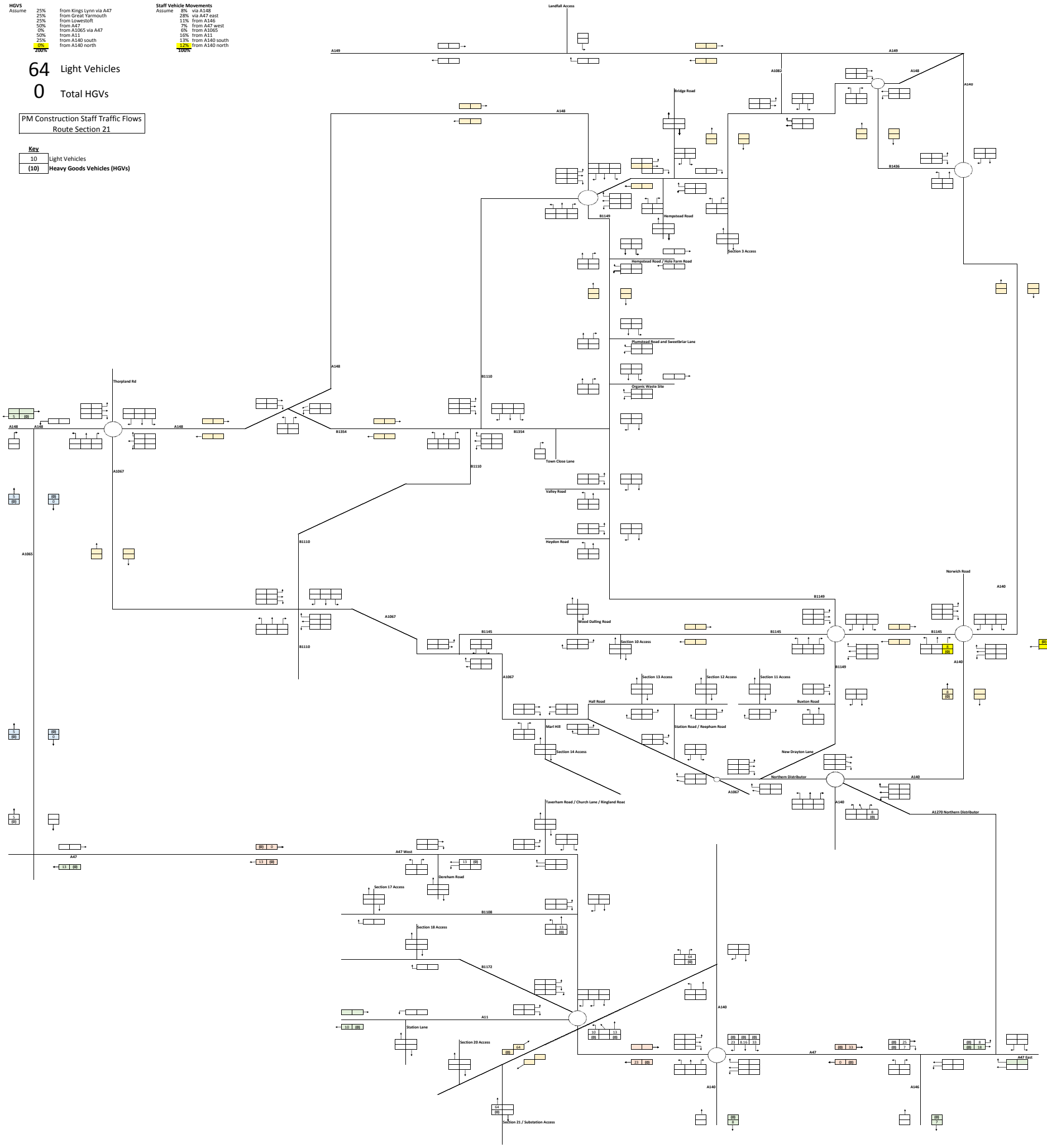
64 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Route Section 21

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



PM Construction Staff Traffic Flows
Phase 4 Total

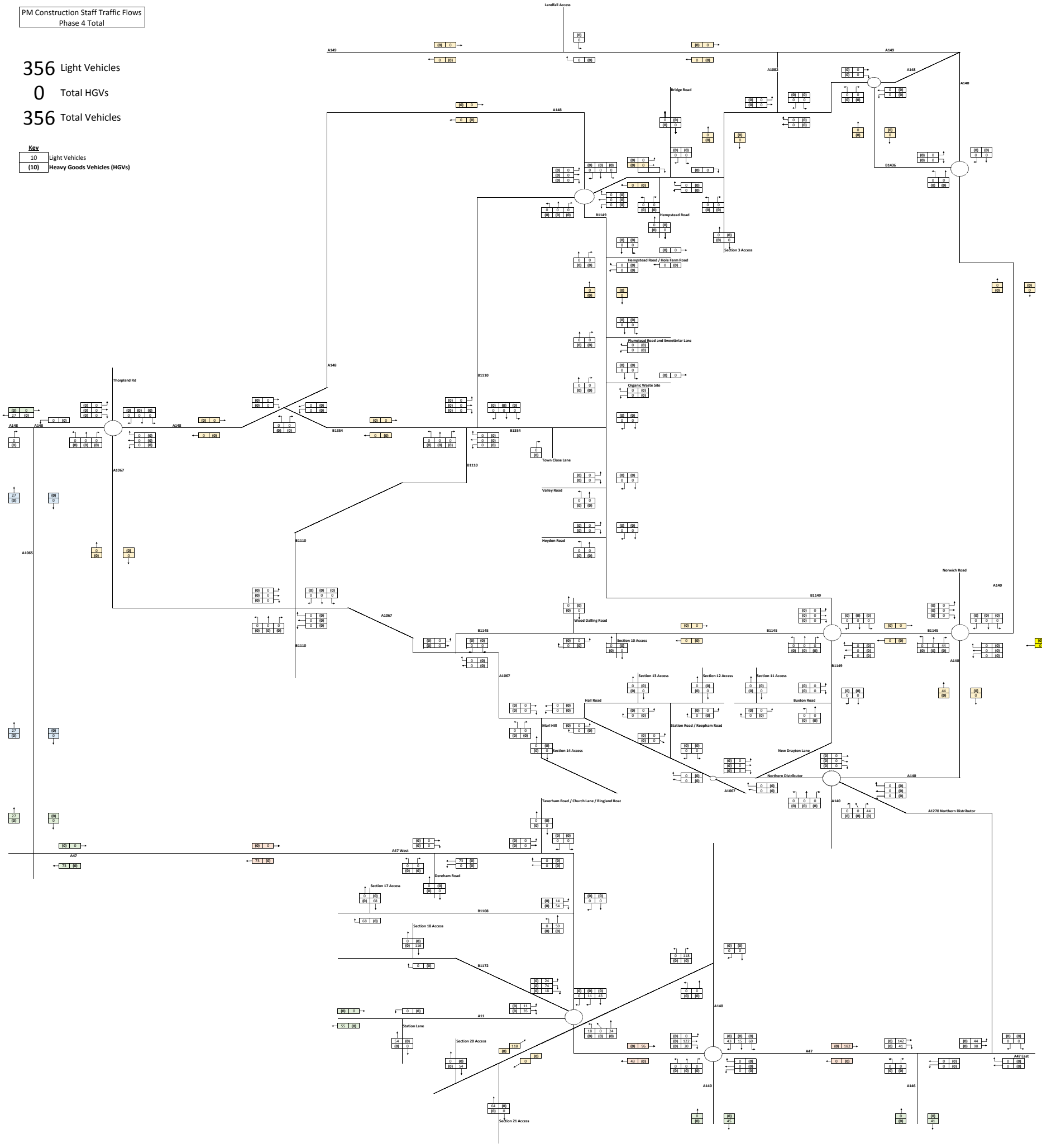
356 Light Vehicles

0 Total HGVs

356 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

5 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
Landfall

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

Landfall Access
A149
A1082
A148
A140
Bridge Road
B1436
B1149
Hempstead Road
Section 3 Access
Hempstead Road / Hole Farm Road
Plumstead Road and Sweetbriar Lane
Organic Waste Site
B1110
B1354
Town Close Lane
Valley Road
Heydon Road
Thorpland Rd
A1067
A1065
Norwich Road
Wood Dalling Road
B1145
Section 10 Access
Section 13 Access
Section 12 Access
Section 11 Access
Hall Road
Buxton Road
Marl Hill
Station Road / Reepham Road
Section 14 Access
New Drayton Lane
Northern Distributor
A1270 Northern Distributor Road
Taverham Road / Church Lane / Ringland Road
A47
A47 West
A47 East
Dereham Road
Section 17 Access
B1108
Section 18 Access
B1172
A11
Station Lane
Section 20 Access
Section 21 Access
A146
A47 Traffic routes onto A1065

HGVS

Assume	25%	from Kings Lynn via A148
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

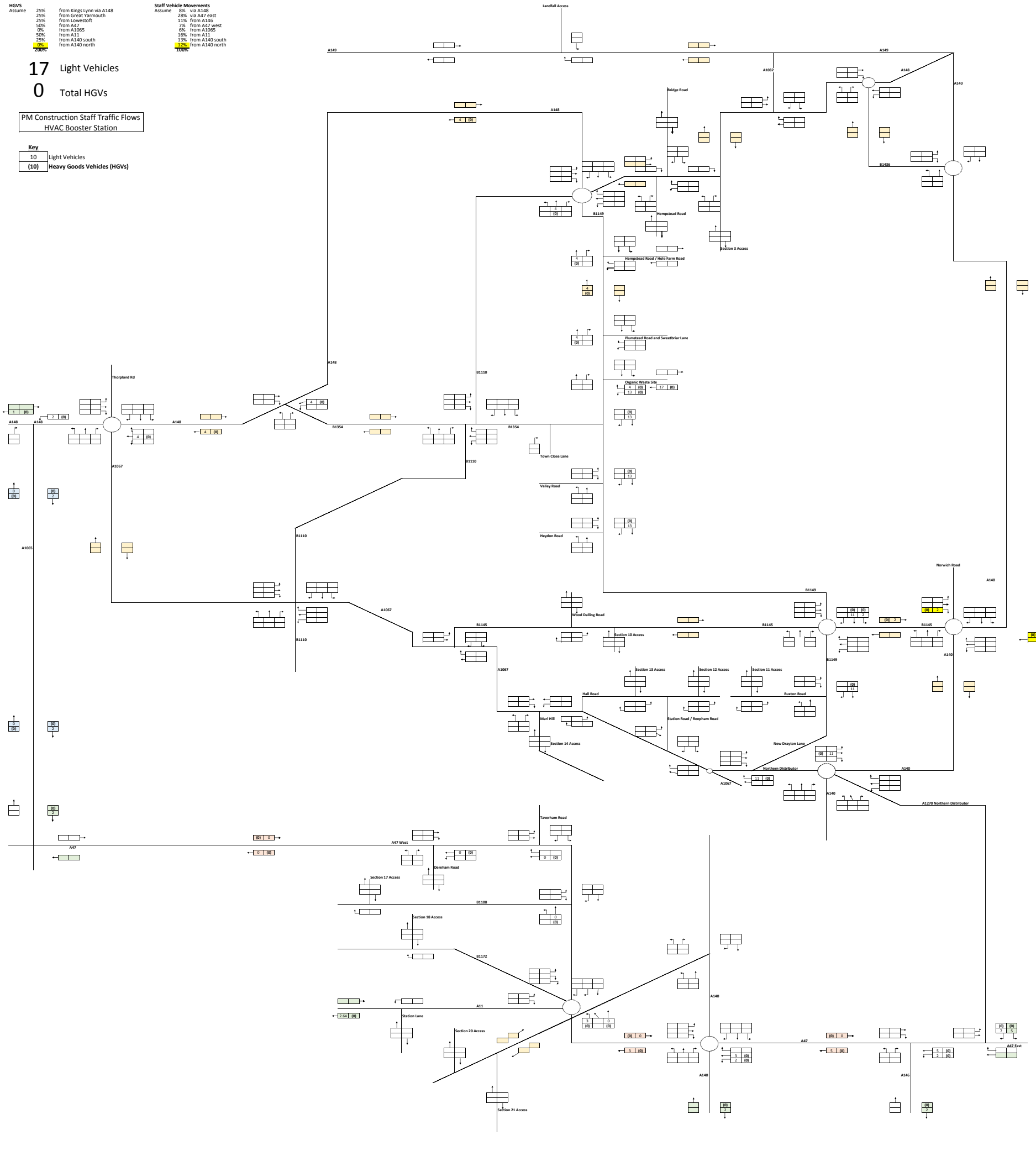
17 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
HVAC Booster Station

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



HGVS

Assume		
	25%	from Kings Lynn via A47
	25%	from Great Yarmouth
	25%	from Lowestoft
	50%	from A47
	0%	from A1065 via A47
	50%	from A11
	25%	from A140 south
	0%	from A140 north
	200%	

Staff Vehicle Movements

Assume		
	8%	via A148
	28%	via A47 east
	11%	from A146
	7%	from A47 west
	6%	from A1065
	16%	from A11
	13%	from A140 south
	12%	from A140 north
	100%	

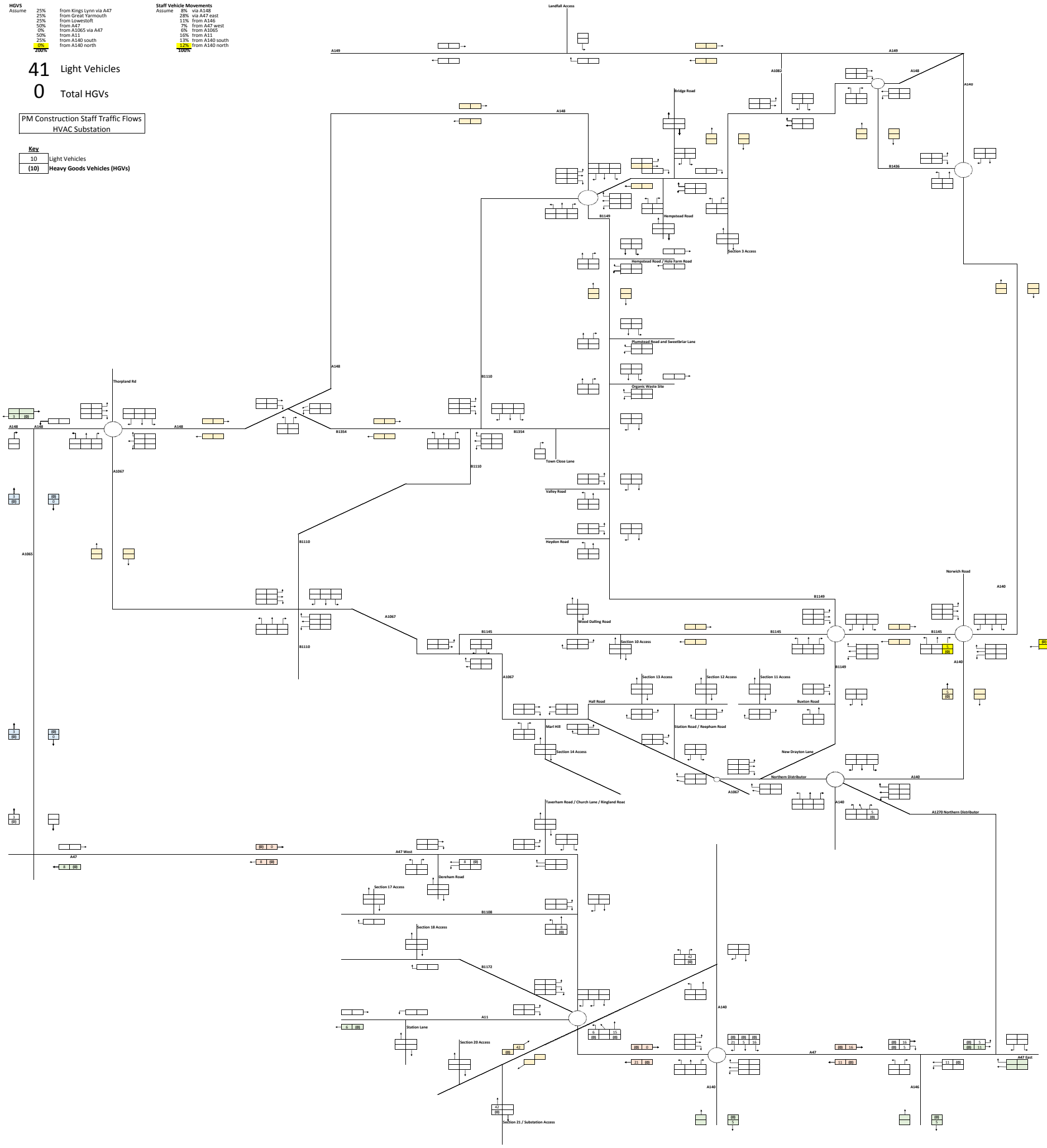
41 Light Vehicles

0 Total HGVs

PM Construction Staff Traffic Flows
HVAC Substation

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



PM Construction Staff Traffic Flows
Maximum Construction Traffic

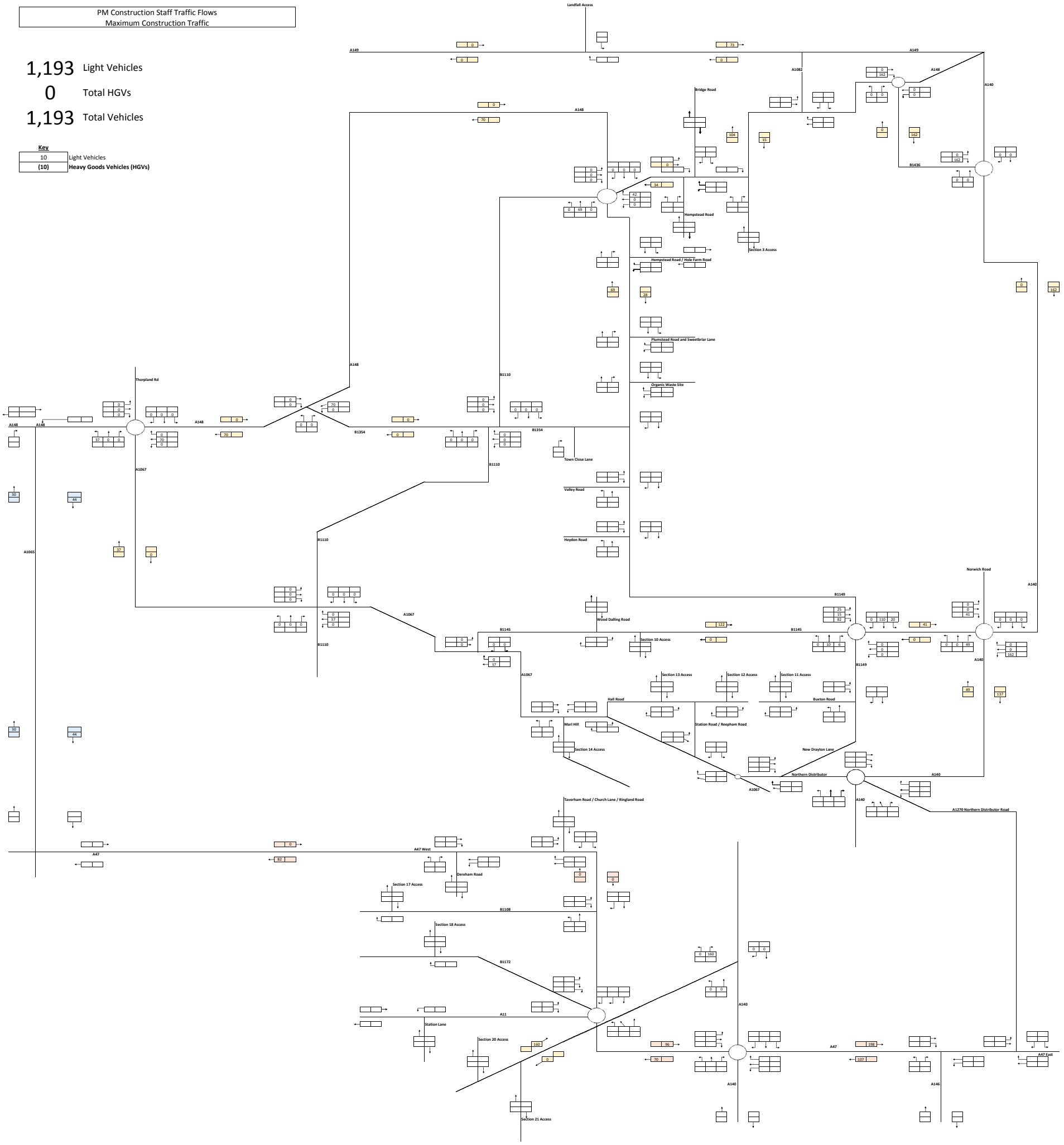
1,193 Light Vehicles

0 Total HGVs

1,193 Total Vehicles

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



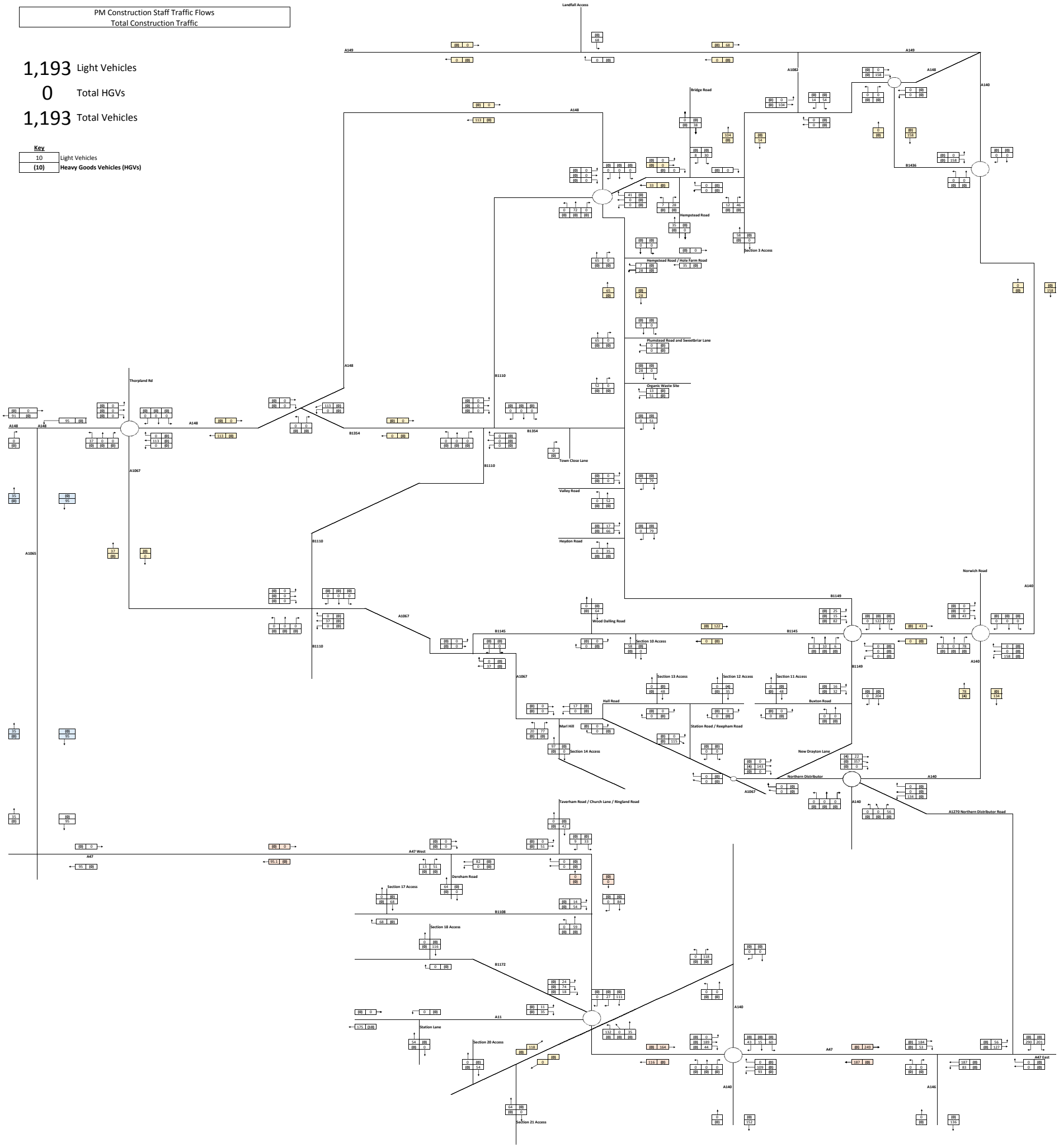
PM Construction Staff Traffic Flows
Total Construction Traffic

1,193 Light Vehicles

0 Total HGVs

1,193 Total Vehicles

Key	
10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Appendix C Network Peak Calculations with Construction Flows

Traffic Flow Diagrams

Network and Construction Peak Comparisons

Network Peak Calcs

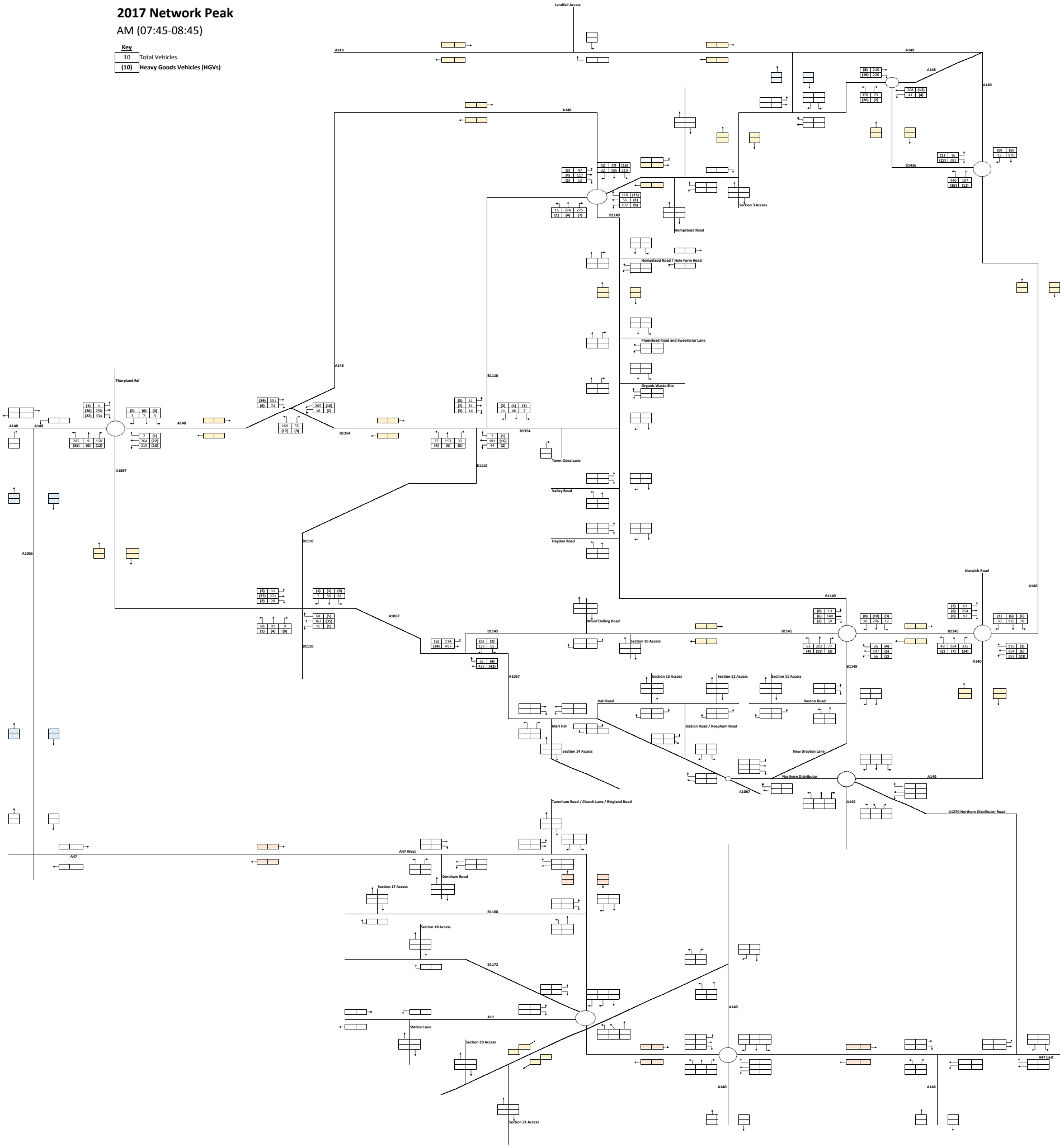
All turning movements across all Manual Counts

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT
0700-0800	8319	2439	390	271	79	87	21	740	11585
0715-0815	9706	2413	438	289	86	89	21	813	13021
0730-0830	10646	2347	468	319	98	92	17	885	13970
0745-0845	11194	2182	482	317	106	102	21	905	14383
0800-0900	11159	2013	482	326	115	97	19	923	14192
0815-0915	10706	1901	488	318	114	82	18	920	13609
0830-0930	10244	1835	484	294	103	73	24	881	13033
0845-0945	9664	1746	461	297	96	58	20	854	12322
0900-1000	9376	1661	458	289	91	53	20	838	11928
0915-1015	9213	1611	445	290	98	54	23	833	11711
0930-1030	9201	1479	425	292	92	56	26	809	11545
0945-1045	9313	1477	436	288	89	56	33	813	11659
1000-1100	9293	1470	440	275	81	67	32	796	11626
1015-1115	9366	1450	433	275	73	80	33	781	11677
1030-1130	9258	1466	413	267	77	82	27	757	11563
1045-1145	9053	1469	396	248	69	92	27	713	11327
1100-1200	9024	1468	376	233	70	82	29	679	11253
1115-1215	8999	1467	355	222	66	79	23	643	11188
1130-1230	9023	1506	354	216	60	79	23	630	11238
1145-1245	9001	1479	339	227	59	67	17	625	11172
1200-1300	8963	1482	335	232	59	69	20	626	11140
1215-1315	8835	1486	345	226	61	75	24	632	11028
1230-1330	8693	1420	348	223	67	79	20	638	10830
1245-1345	8776	1423	345	215	76	89	27	636	10924
1300-1400	8626	1392	359	217	79	98	23	655	10771
1315-1415	8755	1384	374	221	81	97	22	676	10912
1330-1430	8907	1394	386	221	89	99	24	696	11096
1345-1445	9104	1403	386	219	91	91	16	696	11294
1400-1500	9398	1471	364	224	98	87	14	686	11642
1415-1515	9558	1519	334	222	103	99	14	659	11835
1430-1530	9960	1585	313	216	93	102	17	622	12269
1445-1545	10250	1670	315	207	90	107	19	612	12639
1500-1600	10628	1780	333	197	91	121	24	621	13150
1515-1615	11084	1972	340	174	94	119	23	608	13783
1530-1630	11314	2182	357	165	111	127	20	633	14256
1545-1645	11552	2403	351	161	109	153	23	621	14729
1600-1700	11937	2454	302	149	97	155	28	548	15094
1615-1715	12447	2415	274	159	88	180	29	521	15563
1630-1730	13007	2310	218	150	76	212	44	444	15973
1645-1745	13051	2020	170	131	71	205	45	372	15648
1700-1800	12583	1722	152	102	78	227	41	332	14864
1715-1815	11744	1428	122	78	79	213	45	279	13664
1730-1830	10501	1146	106	53	69	196	43	228	12071
1745-1845	9345	910	86	38	69	192	62	193	10640
1800-1900	8390	807	71	36	57	179	78	164	9540

2017 Network Peak

AM (07:45-08:45)

Key	
10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



TEMPRO

Average Weekday

Trunk 1.10 growth 2017-2022

Principal 1.09 growth 2017-2022

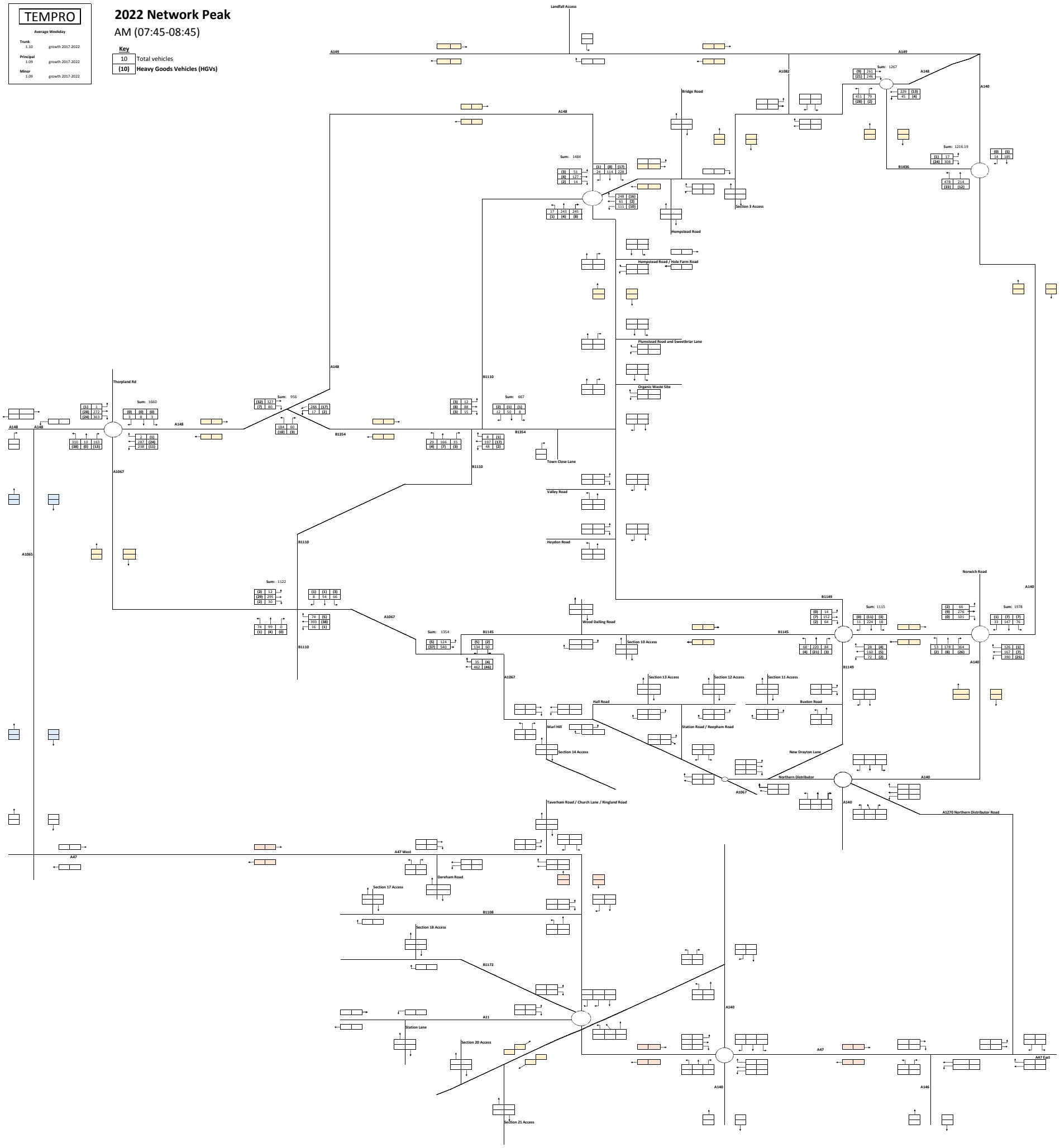
Minor 1.09 growth 2017-2022

2022 Network Peak

AM (07:45-08:45)

Key

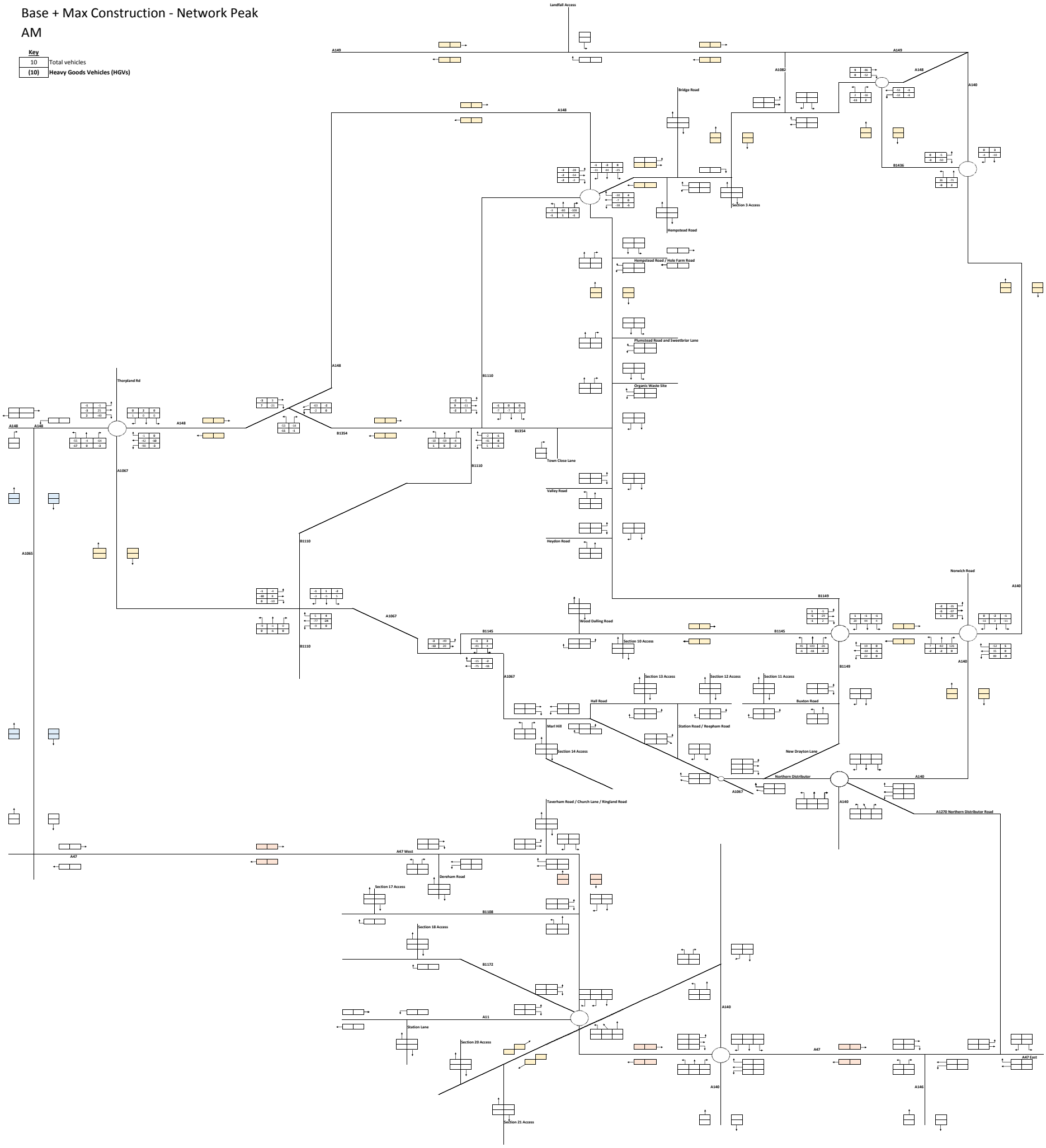
10	Total vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Base + Max Construction - Network Peak

AM

Key	
10	Total vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



TEMPRO

Average Weekday

Trunk 1.10 growth 2017-2022

Principal 1.09 growth 2017-2022

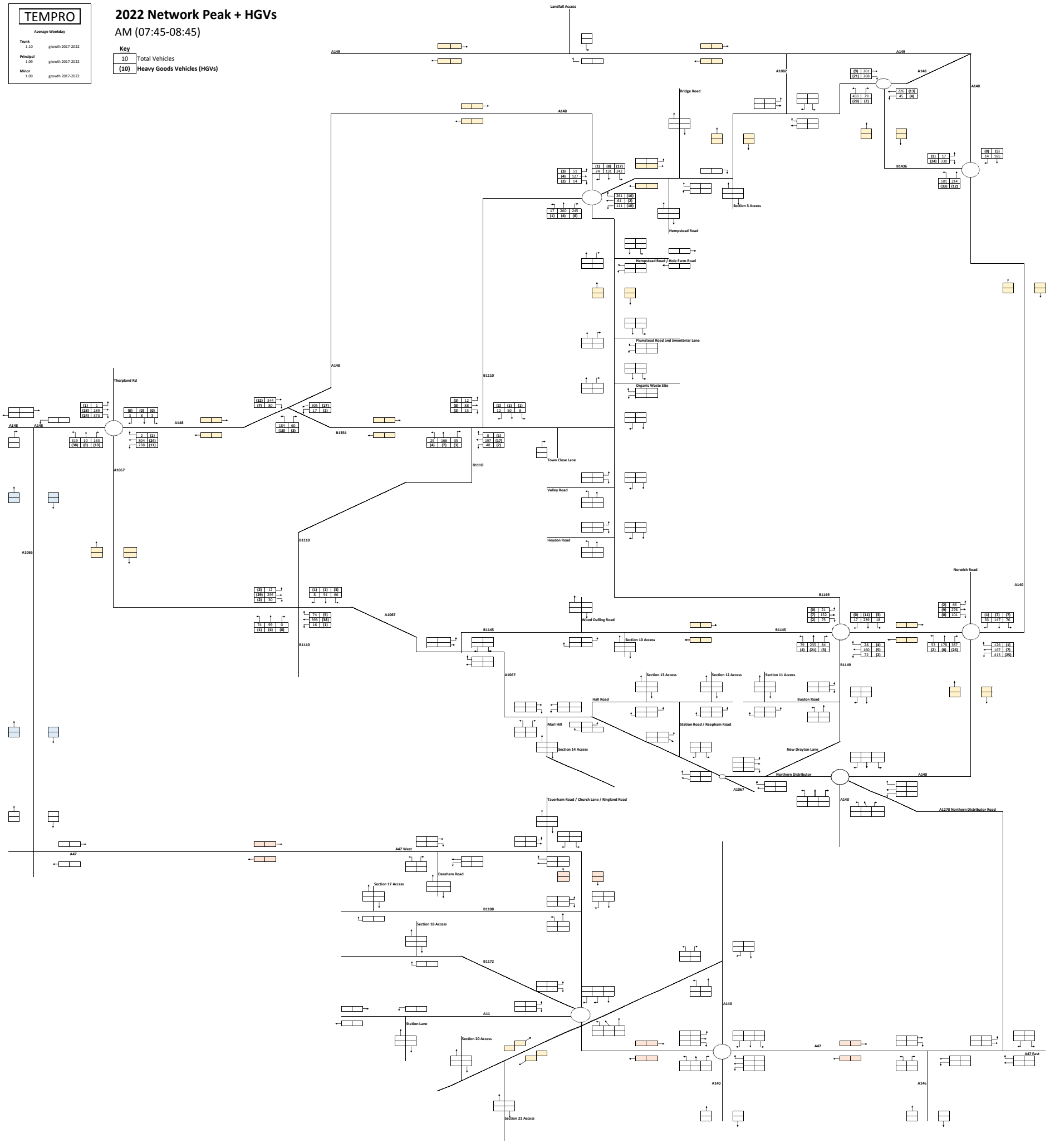
Minor 1.09 growth 2017-2022

2022 Network Peak + HGVs

AM (07:45-08:45)

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

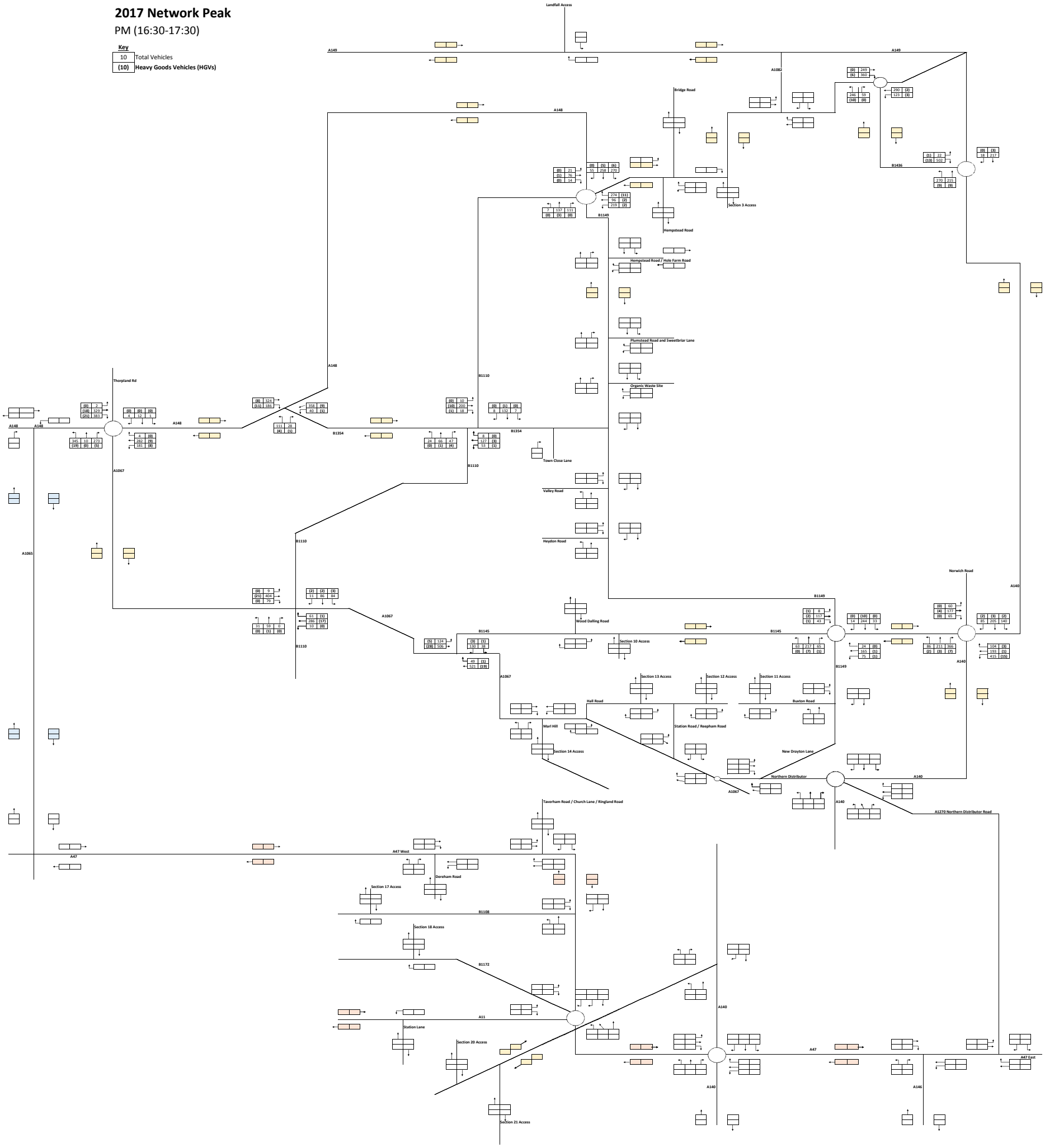


2017 Network Peak

PM (16:30-17:30)

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



TEMPRO

Average Weekday

Trunk 1.10 growth 2017-2022

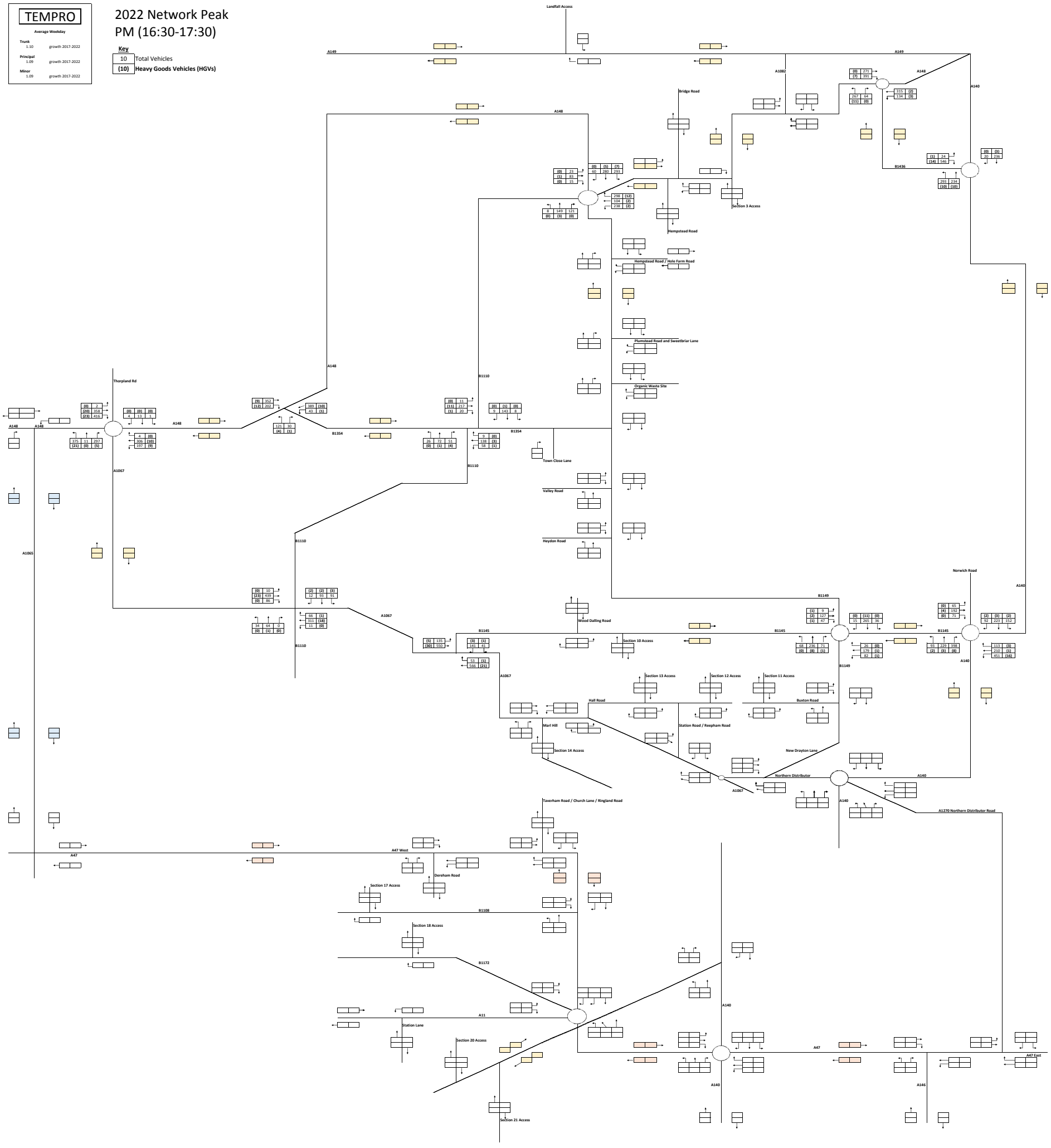
Principal 1.09 growth 2017-2022

Minor 1.09 growth 2017-2022

2022 Network Peak PM (16:30-17:30)

Key

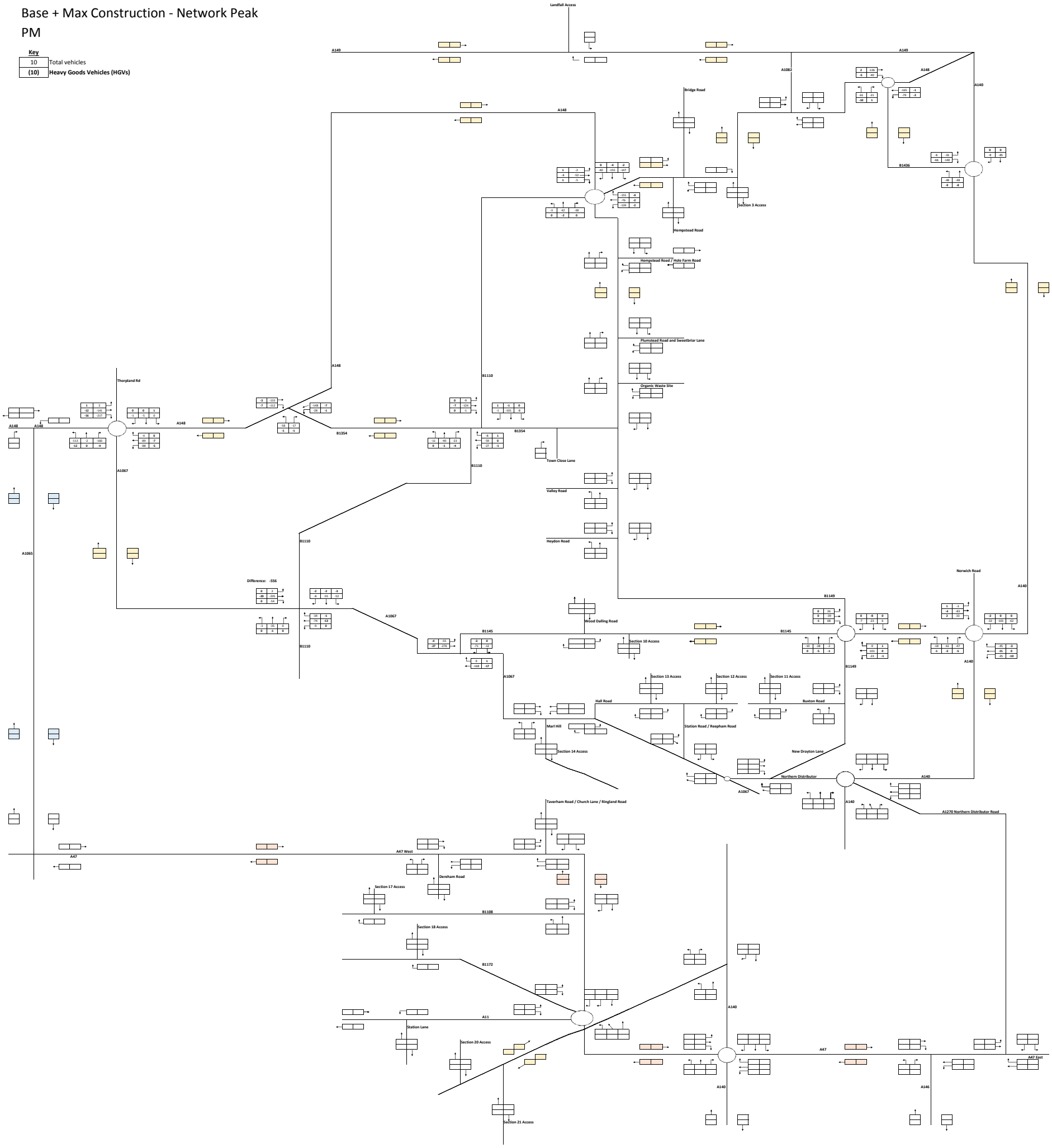
10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Base + Max Construction - Network Peak

PM

Key	
10	Total vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



TEMPRO

Average Weekday

Trunk 1.10 growth 2017-2022

Principal 1.09 growth 2017-2022

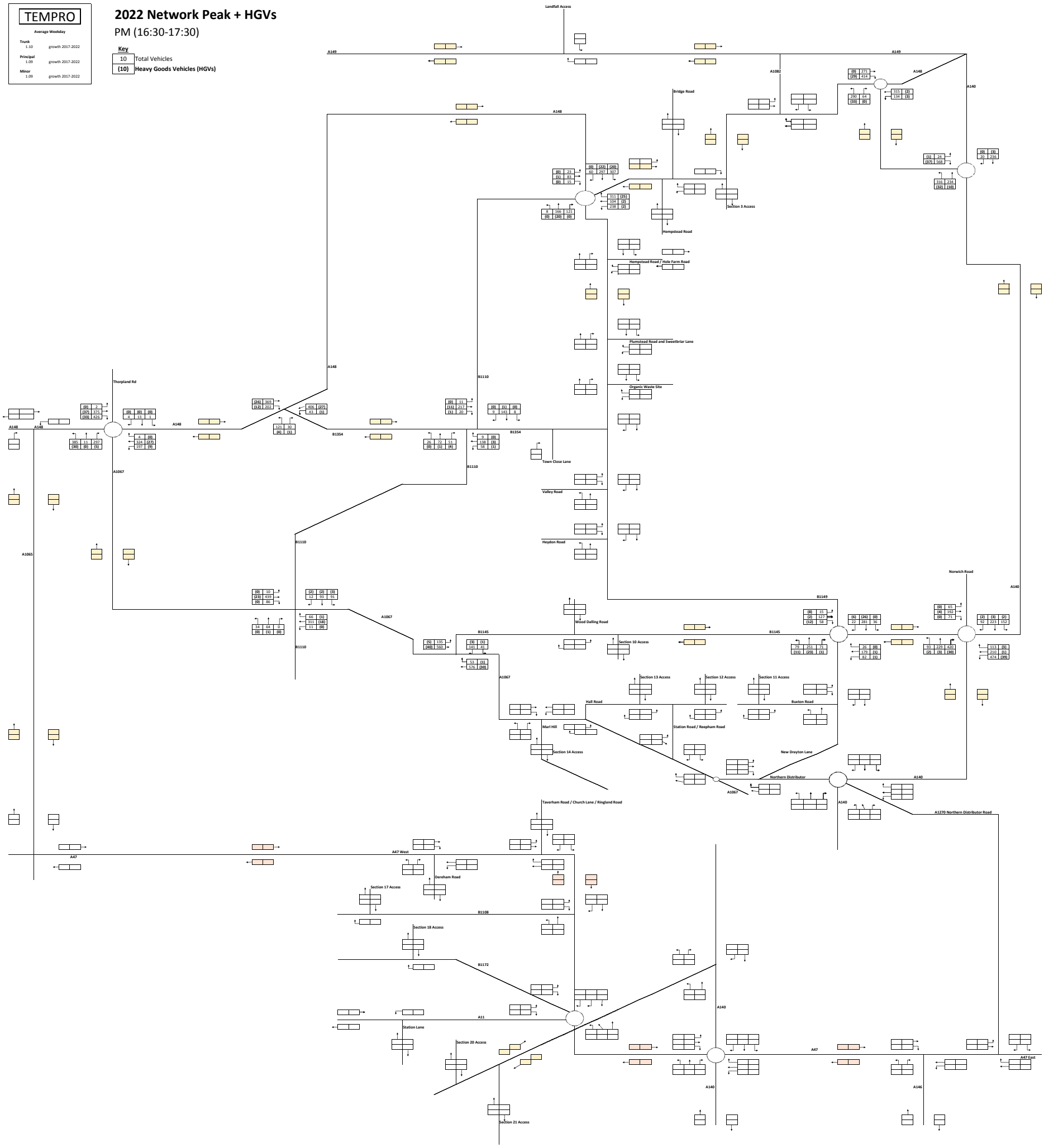
Minor 1.09 growth 2017-2022

2022 Network Peak + HGVs

PM (16:30-17:30)

Key

10	Total Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Appendix D Signalised Junction

A140/B1113, KESWICK | SCN 02371 | DWG 065B

CONTROLLER.....ST400
MONITOR.....OTU
BT LINE NUMBER..REPLIES VIA LINK TO INST 63, LINE NO ANUK 511737

FROM PHASE \ TO PHASE	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
a	X		5	7	6											
b		X			5											
c	6		X		6											
d	5			X												
e	5	6	6		X											
f						X										
g							X									
h								X								
i									X							
j										X						
k											X					
l												X				
m													X			
n														X		
o															X	
p																X

PHASE	PEDESTRIAN BLACK-OUT	MINIMUM GREEN	EXTENSIONS	MAXIMUM SET A	MAXIMUM SET B	DELAY PHASE	UPON CHANGE FROM STAGE	TO STAGE	BY...SECONDS
a		7	1.6	30	36	b	1	3	1
b		7	1.6	32	36	d	2	1	2
c		7	1.6	12	8	a	0	0	0
d		7	1.6	15	28				
e		7	1.6	8	8				
f									
g									
h									
i									
j									
k									
l									
m									
n									
o									
p									

BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
CONTROL 1								SO	DX	D3	D2			F3#	F2#	F1
REPLY 1							LF2	LF1	DF	DR3	DR2	CF	MC	G3	G2	G1
REPLY 2					SD2-02361D1				SD1-02371J1				SD0-NOT USED			
REPLY 3									SD5-02371A1				SD4-NOT USED			
REPLY 4																

ROUTINE MAINTENANCE INSPECTION SHEET

Remedial action taken or required:

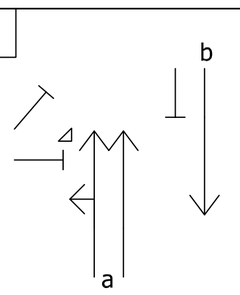
Inspector:

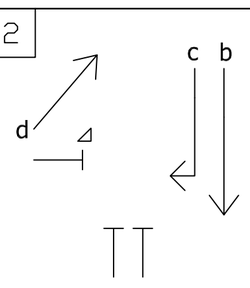
Date:

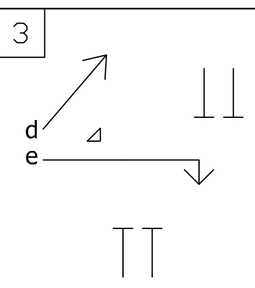
Time:

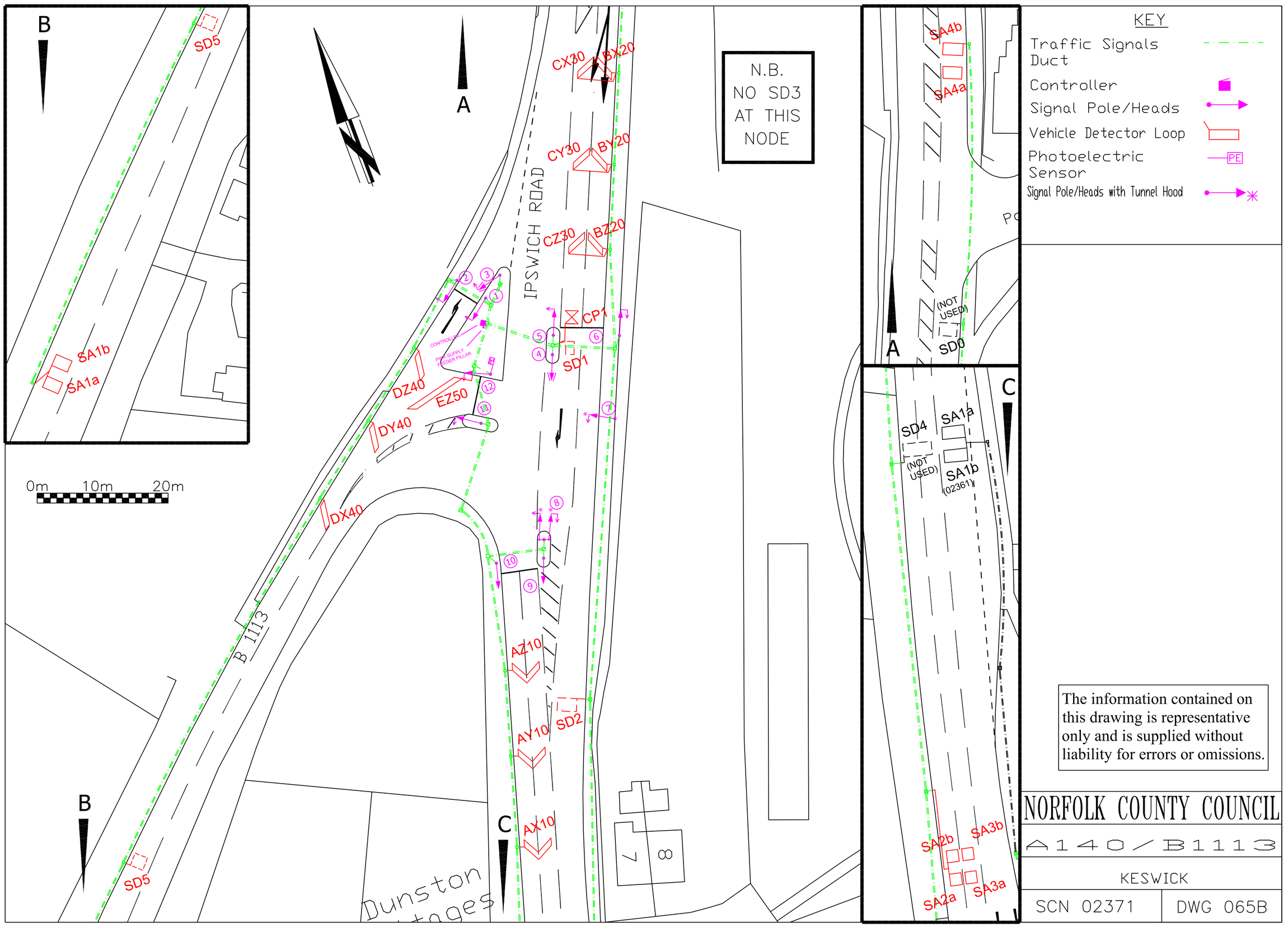
Revision	Description	Date
A	PLAN PRODUCED	05.02.96
B	SCOOT CHANGES WITH 02381	06.09.06

CHECK LIST	✓/×
CONTROLLER CASE	
Doors,flap etc.	
TIMINGS	
HEADS	
Bodies	
Lamps	
Lenses	
Transformers	
Alignment	
Backing boards	
Box signs	
POLES	
Pole caps	
Brackets	
DETECTION	
Loops V.A.	
Loops SCOOT	
SA	
Chambers	
PUSH BUTTONS	
MARKINGS/STUDS	
DIMMING	
SOCKET TEST	
OTHER	

1 

2 

3 



NORFOLK COUNTY COUNCIL

A140/B1113

KESWICK

SCN 02371 | DWG 065B

A – Signals switched ON 05–FEB–96

DATE : TUESDAY 13th JUNE 2017

WEATHER CONDITIONS: DRY

LOCATION : A140 IPSWICH ROAD / B1113, NORWICH

Countsequential SURVEYS

A140 IPSWICH ROAD (SOUTH)

NORTHBOUND

movement 1 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	89	34	5	4	2	5	0	11	139	7.9%
0715-0730	143	36	8	5	2	3	0	15	197	7.6%
0730-0745	186	43	4	2	3	2	0	9	240	3.8%
0745-0800	240	21	6	4	3	3	0	13	277	4.7%
0800-0815	281	39	9	0	1	2	0	10	332	3.0%
0815-0830	238	32	6	2	4	5	0	12	287	4.2%
0830-0845	197	23	10	5	3	4	0	18	242	7.4%
0845-0900	234	24	13	8	2	5	1	23	286	8.0%
0900-0915	153	23	8	5	1	2	0	14	192	7.3%
0915-0930	190	31	2	5	2	3	0	9	233	3.9%
0930-0945	145	21	5	2	2	1	0	9	176	5.1%
0945-1000	132	18	7	5	3	1	0	15	166	9.0%
1000-1015	121	14	4	7	5	0	0	16	151	10.6%
1015-1030	115	16	6	9	2	2	0	17	150	11.3%
1030-1045	118	19	9	2	4	2	0	15	154	9.7%
1045-1100	131	25	5	3	1	3	0	9	168	5.4%
1100-1115	132	22	6	4	1	0	0	11	165	6.7%
1115-1130	130	16	7	4	3	1	0	14	161	8.7%
1130-1145	128	20	4	2	1	3	0	7	158	4.4%
1145-1200	118	19	1	2	2	2	0	5	144	3.5%
1200-1215	118	26	3	4	1	2	0	8	154	5.2%
1215-1230	116	23	5	6	2	2	0	13	154	8.4%
1230-1245	131	24	5	1	1	0	0	7	162	4.3%
1245-1300	121	20	1	5	2	0	0	8	149	5.4%
1300-1315	122	17	3	3	2	3	2	8	150	5.3%
1315-1330	128	20	1	4	4	2	0	9	159	5.7%
1330-1345	117	21	4	1	1	0	0	6	144	4.2%
1345-1400	117	17	7	2	3	2	0	12	148	8.1%
1400-1415	108	15	5	4	1	0	0	10	133	7.5%
1415-1430	122	15	4	3	3	4	0	10	151	6.6%
1430-1445	118	21	6	3	2	0	0	11	150	7.3%
1445-1500	89	23	7	1	2	2	0	10	124	8.1%
1500-1515	119	19	7	3	1	0	0	11	149	7.4%
1515-1530	123	31	3	1	2	0	0	6	160	3.8%
1530-1545	143	31	5	2	3	0	0	10	184	5.4%
1545-1600	126	25	7	1	5	1	1	13	165	7.9%
1600-1615	100	33	2	1	1	0	0	4	137	2.9%
1615-1630	142	25	3	1	8	3	0	12	182	6.6%
1630-1645	125	33	1	1	2	3	0	4	165	2.4%
1645-1700	152	21	2	3	4	2	1	9	184	4.9%
1700-1715	140	20	1	2	2	2	1	5	167	3.0%
1715-1730	158	23	1	0	3	0	0	4	185	2.2%
1730-1745	130	20	1	0	1	2	0	2	154	1.3%
1745-1800	146	22	1	0	5	4	0	6	178	3.4%
1800-1815	133	15	0	0	2	2	0	2	152	1.3%
1815-1830	124	11	0	1	2	1	0	3	139	2.2%
1830-1845	117	12	0	2	2	2	0	4	135	3.0%
1845-1900	131	15	1	0	2	0	0	3	149	2.0%
0700-1900	**6737**	**1094**	**211**	**135**	**116**	**88**	**6**	**462**	**8381**	**5.5%**

A140 IPSWICH ROAD (NORTH)

SOUTHBOUND

movement 2 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	89	31	1	2	2	1	0	5	126	4.0%
0715-0730	100	28	5	3	4	3	0	12	143	8.4%
0730-0745	112	38	14	3	5	4	0	22	176	12.5%
0745-0800	104	32	5	5	2	0	0	12	148	8.1%
0800-0815	99	32	2	1	2	2	0	5	138	3.6%
0815-0830	99	31	9	4	4	0	0	17	147	11.6%
0830-0845	103	17	7	2	5	2	0	14	136	10.3%
0845-0900	99	23	1	4	3	0	1	8	130	6.2%
0900-0915	96	28	7	7	1	0	0	15	139	10.8%
0915-0930	95	38	8	3	2	2	1	13	148	8.8%
0930-0945	102	22	7	8	1	1	0	16	141	11.3%
0945-1000	106	17	12	2	4	2	0	18	143	12.6%
1000-1015	100	25	10	5	2	0	0	17	142	12.0%
1015-1030	90	20	4	4	2	2	0	10	122	8.2%
1030-1045	104	17	3	3	2	0	0	8	129	6.2%
1045-1100	126	26	10	3	2	2	0	15	169	8.9%
1100-1115	107	21	6	6	3	3	0	15	146	10.3%
1115-1130	130	28	4	4	2	1	0	10	169	5.9%
1130-1145	102	22	5	6	2	1	0	13	138	9.4%
1145-1200	105	19	1	5	2	2	0	8	134	6.0%
1200-1215	127	27	2	4	1	1	0	7	162	4.3%
1215-1230	130	26	6	5	2	1	0	13	170	7.6%
1230-1245	144	20	5	2	2	3	0	9	176	5.1%
1245-1300	135	30	3	2	2	1	0	7	173	4.0%
1300-1315	139	24	4	1	1	0	0	6	169	3.6%
1315-1330	137	15	6	6	2	1	0	14	167	8.4%
1330-1345	132	17	4	6	2	2	0	12	163	7.4%
1345-1400	105	27	8	6	4	1	0	18	151	11.9%
1400-1415	143	17	2	2	1	1	0	5	166	3.0%
1415-1430	123	22	7	7	2	0	0	16	161	9.9%
1430-1445	165	24	5	3	4	3	0	12	204	5.9%
1445-1500	148	17	3	3	3	0	0	9	174	5.2%
1500-1515	178	26	3	5	2	5	0	10	219	4.6%
1515-1530	165	24	3	2	1	3	0	6	198	3.0%
1530-1545	160	33	4	0	2	4	0	6	203	3.0%
1545-1600	160	31	3	0	3	2	0	6	199	3.0%
1600-1615	207	35	5	2	1	4	0	8	254	3.1%
1615-1630	214	33	3	3	2	5	0	8	260	3.1%
1630-1645	215	32	1	2	3	5	0	6	258	2.3%
1645-1700	210	21	1	2	1	4	0	4	239	1.7%
1700-1715	241	34	1	0	2	3	0	3	281	1.1%
1715-1730	226	19	1	0	2	4	0	3	252	1.2%
1730-1745	227	13	1	1	2	2	0	4	246	1.6%
1745-1800	187	13	0	2	1	9	1	3	212	1.4%
1800-1815	216	17	0	0	2	2	0	2	237	0.8%
1815-1830	169	11	1	0	3	7	0	4	191	2.1%
1830-1845	127	5	2	0	3	1	1	5	138	3.6%
1845-1900	109	10	3	1	0	3	0	4	126	3.2%
0700-1900	**6707**	**1138**	**208**	**147**	**108**	**105**	**4**	**463**	**8413**	**5.5%**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	658	134	23	15	10	13	0	48	853	5.6%
0715-0815	850	139	27	11	9	10	0	47	1046	4.5%
0730-0830	945	135	25	8	11	12	0	44	1136	3.9%
0745-0845	956	115	31	11	11	14	0	53	1138	4.7%
0800-0900	950	118	38	15	10	16	1	63	1147	5.5%
0815-0915	822	102	37	20	10	16	1	67	1007	6.7%
0830-0930	774	101	33	23	8	14	1	64	953	6.7%
0845-0945	722	99	28	20	7	11	1	55	887	6.2%
0900-1000	620	93	22	17	8	7	0	47	767	6.1%
0915-1015	588	84	18	19	12	5	0	49	726	6.7%
0930-1030	513	69	22	23	12	4	0	57	643	8.9%
0945-1045	486	67	26	23	14	5	0	63	621	10.1%
1000-1100	485	74	24	21	12	7	0	57	623	9.1%
1015-1115	496	82	26	18	8	7	0	52	637	8.2%
1030-1130	511	82	27	13	9	6	0	49	648	7.6%
1045-1145	521	83	22	13	6	7	0	41	652	6.3%
1100-1200	508	77	18	12	7	6	0	37	628	5.9%
1115-1215	494	81	15	12	7	8	0	34	617	5.5%
1130-1230	480	88	13	14	6	9	0	33	610	5.4%
1145-1245	483	92	14	13	6	6	0	33	614	5.4%
1200-1300	486	93	14	16	6	4	0	36	619	5.8%
1215-1315	490	84	14	15	7	5	2	36	615	5.9%
1230-1330	502	81	10	13	9	5	2	32	620	5.2%
1245-1345	488	78	9	13	9	5	2	31	602	5.1%
1300-1400	484	75	15	10	10	7	2	35	601	5.8%
1315-1415	470	73	17	11	9	4	0	37	584	6.3%
1330-1430	464	68	20	10	8	6	0	38	576	6.6%
1345-1445	465	68	22	12	9	6	0	43	582	7.4%
1400-1500	437	74	22	11	8	6	0	41	558	7.3%
1415-1515	448	78	24	10	8	6	0	42	574	7.3%
1430-1530	449	94	23	8	7	2	0	38	583	6.5%
1445-1545	474	104	22	7	8	2	0	37	617	6.0%
1500-1600	511	106	22	7	11	1	1	40	658	6.1%
1515-1615	492	120	17	5	11	1	1	33	646	5.1%
1530-1630	511	114	17	5	17	4	1	39	668	5.8%
1545-1645	493	116	13	4	16	7	1	33	649	5.1%
1600-1700	519	112	8	6	15	8	1	29	668	4.3%
1615-1715	559	99	7	7	16	10	2	30	698	4.3%
1630-1730	575	97	5	6	11	7	2	22	701	3.1%
1645-1745	580	84	5	5	10	6	2	20	690	2.9%
1700-1800	574	85	4	2	11	8	1	17	684	2.5%
1715-1815	567	80	3	0	11	8	0	14	669	2.1%
1730-1830	533	68	2	1	10	9	0	13	623	2.1%
1745-1845	520	60	1	3	11	9	0	15	604	2.5%
1800-1900	505	53	1	3	8	5	0	12	575	2.1%

TOTAL FLOW INTO SURVEY SITE= **8381**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	405	129	25	13	13	8	0	51	593	8.6%
0715-0815	415	130	26	12	13	9	0	51	605	8.4%
0730-0830	414	133	30	13	13	6	0	56	609	9.2%
0745-0845	405	112	23	12	13	4	0	48	569	8.4%
0800-0900	400	103	19	11	14	4	1	44	551	8.0%
0815-0915	397	99	24	17	13	2	1	54	552	9.8%
0830-0930	393	106	23	16	11	4	2	50	553	9.0%
0845-0945	392	111	23	22	7	3	2	52	558	9.3%
0900-1000	399	105	34	20	8	5	1	62	571	10.9%
0915-1015	403	102	37	18	9	5	1	64	574	11.1%
0930-1030	398	84	33	19	9	5	0	61	548	11.1%
0945-1045	400	79	29	14	10	4	0	53	536	9.9%
1000-1100	420	88	27	15	8	4	0	50	562	8.9%
1015-1115	427	84	23	16	9	7	0	48	566	8.5%
1030-1130	467	92	23	16	9	6	0	48	613	7.8%
1045-1145	465	97	25	19	9	7	0	53	622	8.5%
1100-1200	444	90	16	21	9	7	0	46	587	7.8%
1115-1215	464	96	12	19	7	5	0	38	603	6.3%
1130-1230	464	94	14	20	7	5	0	41	604	6.8%
1145-1245	506	92	14	16	7	7	0	37	642	5.8%
1200-1300	536	103	16	13	7	6	0	36	681	5.3%
1215-1315	548	100	18	10	7	5	0	35	688	5.1%
1230-1330	555	89	18	11	7	5	0	36	685	5.3%
1245-1345	543	86	17	15	7	4	0	39	672	5.8%
1300-1400	513	83	22	19	9	4	0	50	650	7.7%
1315-1415	517	76	20	20	9	5	0	49	647	7.6%
1330-1430	503	83	21	21	9	4	0	51	641	8.0%
1345-1445	536	90	22	18	11	5	0	51	682	7.5%
1400-1500	579	80	17	15	10	4	0	42	705	6.0%
1415-1515	614	89	18	18	11	8	0	47	758	6.2%
1430-1530	656	91	14	13	10	11	0	37	795	4.7%
1445-1545	651	100	13	10	8	12	0	31	794	3.9%
1500-1600	663	114	13	7	8	14	0	28	819	3.4%
1515-1615	692	123	15	4	7	13	0	26	854	3.0%
1530-1630	741	132	15	5	8	15	0	28	916	3.1%
1545-1645	796	131	12	7	9	16	0	28	971	2.9%
1600-1700	846	121	10	9	7	18	0	26	1011	2.6%
1615-1715	880	120	6	7	8	17	0	21	1038	2.0%
1630-1730	892	106	4	4	8	16	0	16	1030	1.6%
1645-1745	904	87	4	3	7	13	0	14	1018	1.4%
1700-1800	881	79	3	3	7	18	1	13	991	1.3%
1715-1815	856	62	2	3	7	17	1	12	947	1.3%
1730-1830	799	54	2	3	8	20	1	13	886	1.5%
1745-1845	699	46	3	2	9	19	2	14	778	1.8%
1800-1900	621	43	6	1	8	13	1	15	692	2.2%

TOTAL FLOW INTO SURVEY SITE= **8413**

DATE : TUESDAY 13th JUNE 2017

WEATHER CONDITIONS: DRY

LOCATION : A140 IPSWICH ROAD / B1113, NORWICH

Countsequential SURVEYS

A140 IPSWICH ROAD (SOUTH)
LEFT INTO B1113
movement 3 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	9	6	1	0	0	1	0	1	17	5.9%
0715-0730	15	4	1	0	0	0	0	1	20	5.0%
0730-0745	22	6	0	0	0	1	0	0	29	0.0%
0745-0800	36	9	1	0	0	1	0	1	47	2.1%
0800-0815	26	5	3	0	0	1	0	3	35	8.6%
0815-0830	22	4	1	1	0	0	0	2	28	7.1%
0830-0845	29	0	1	0	0	0	0	1	30	3.3%
0845-0900	26	7	2	0	2	0	0	4	37	10.8%
0900-0915	23	2	1	0	3	0	0	4	29	13.8%
0915-0930	9	10	1	0	0	0	0	1	20	5.0%
0930-0945	19	2	0	0	0	0	0	0	21	0.0%
0945-1000	20	1	1	0	0	0	0	1	22	4.5%
1000-1015	21	3	0	0	0	0	0	0	24	0.0%
1015-1030	16	3	0	0	0	0	0	0	19	0.0%
1030-1045	18	1	1	0	0	0	0	1	20	5.0%
1045-1100	17	0	1	0	0	0	0	1	18	5.6%
1100-1115	22	1	1	0	0	0	0	1	24	4.2%
1115-1130	20	5	0	0	0	0	0	0	25	0.0%
1130-1145	20	4	1	0	0	0	0	1	25	4.0%
1145-1200	22	4	2	1	0	0	0	3	29	10.3%
1200-1215	16	1	0	0	0	0	0	0	17	0.0%
1215-1230	28	3	0	0	0	0	0	0	31	0.0%
1230-1245	16	1	1	1	0	0	0	2	19	10.5%
1245-1300	36	1	1	0	0	0	0	1	38	2.6%
1300-1315	25	2	0	0	0	0	0	0	27	0.0%
1315-1330	24	1	0	1	0	1	0	1	27	3.7%
1330-1345	24	1	1	1	0	0	0	2	27	7.4%
1345-1400	24	3	1	0	0	1	0	1	29	3.4%
1400-1415	18	6	1	0	0	0	0	1	25	4.0%
1415-1430	26	1	2	1	0	0	0	3	30	10.0%
1430-1445	19	4	0	0	1	0	0	1	24	4.2%
1445-1500	27	0	1	0	0	0	0	1	28	3.6%
1500-1515	18	1	0	0	0	0	0	0	19	0.0%
1515-1530	26	2	0	1	0	1	0	1	30	3.3%
1530-1545	21	5	1	0	0	0	0	1	27	3.7%
1545-1600	24	7	1	0	0	0	0	1	32	3.1%
1600-1615	20	3	1	0	4	0	0	5	28	17.9%
1615-1630	39	4	0	0	0	0	0	0	43	0.0%
1630-1645	30	5	0	1	0	3	0	1	39	2.6%
1645-1700	39	5	0	0	0	0	0	0	44	0.0%
1700-1715	44	3	0	0	0	0	0	0	47	0.0%
1715-1730	39	6	0	0	0	1	0	0	46	0.0%
1730-1745	45	6	0	0	0	5	0	0	56	0.0%
1745-1800	36	1	0	0	0	8	0	0	45	0.0%
1800-1815	41	4	0	0	0	3	0	0	48	0.0%
1815-1830	52	3	0	0	0	6	0	0	61	0.0%
1830-1845	35	0	0	0	0	2	0	0	37	0.0%
1845-1900	23	5	1	0	0	3	0	1	32	3.1%
0700-1900	**1227**	**161**	**31**	**8**	**10**	**38**	**0**	**49**	**1475**	**3.3%**

A140 IPSWICH ROAD (NORTH)
RIGHT INTO B1113
movement 4 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	10	5	0	0	0	0	0	0	15	0.0%
0715-0730	19	3	0	0	0	0	1	0	22	0.0%
0730-0745	23	11	2	0	0	1	1	2	37	5.4%
0745-0800	27	14	0	0	1	1	0	1	43	2.3%
0800-0815	26	3	1	0	1	1	0	2	32	6.3%
0815-0830	35	5	0	0	0	0	0	0	40	0.0%
0830-0845	42	7	0	0	1	1	0	1	51	2.0%
0845-0900	28	3	1	0	0	1	0	1	33	3.0%
0900-0915	27	5	0	1	1	0	1	2	34	5.9%
0915-0930	24	4	0	0	0	0	2	0	28	0.0%
0930-0945	20	3	1	0	2	1	0	3	27	11.1%
0945-1000	29	4	0	0	0	0	0	0	33	0.0%
1000-1015	39	4	2	0	1	0	2	3	46	6.5%
1015-1030	25	3	0	0	0	0	0	0	28	0.0%
1030-1045	32	7	2	0	2	1	0	4	44	9.1%
1045-1100	28	4	0	0	1	1	1	1	34	2.9%
1100-1115	27	2	1	0	2	1	0	3	33	9.1%
1115-1130	32	9	1	0	0	0	0	1	42	2.4%
1130-1145	39	2	1	1	2	0	0	4	45	8.9%
1145-1200	33	2	1	0	0	0	0	1	36	2.8%
1200-1215	47	7	0	0	3	1	0	3	58	5.2%
1215-1230	45	4	1	0	1	0	0	2	51	3.9%
1230-1245	36	3	0	0	4	1	0	4	44	9.1%
1245-1300	46	9	4	1	0	0	0	5	60	8.3%
1300-1315	44	1	1	0	2	2	0	3	50	6.0%
1315-1330	49	3	0	0	0	1	0	0	53	0.0%
1330-1345	40	4	0	0	4	1	0	4	49	8.2%
1345-1400	46	8	1	0	0	1	0	1	56	1.8%
1400-1415	48	2	1	0	2	1	0	3	54	5.6%
1415-1430	31	4	1	0	0	1	0	1	37	2.7%
1430-1445	33	9	1	1	2	0	0	4	46	8.7%
1445-1500	49	4	0	0	0	0	0	0	53	0.0%
1500-1515	55	3	1	0	2	1	1	3	62	4.8%
1515-1530	46	2	0	0	0	1	0	0	49	0.0%
1530-1545	58	5	2	0	2	0	0	4	67	6.0%
1545-1600	64	4	0	0	0	0	0	0	68	0.0%
1600-1615	70	12	2	0	2	1	0	4	87	4.6%
1615-1630	54	4	0	0	1	1	1	1	60	1.7%
1630-1645	83	13	2	0	2	1	3	4	101	4.0%
1645-1700	80	6	0	0	0	1	1	0	87	0.0%
1700-1715	83	5	1	0	1	4	0	2	94	2.1%
1715-1730	83	9	1	0	0	2	2	1	95	1.1%
1730-1745	93	2	0	0	1	2	0	1	98	1.0%
1745-1800	107	9	0	0	2	4	4	2	122	1.6%
1800-1815	94	2	1	0	1	9	0	2	107	1.9%
1815-1830	75	3	1	0	1	6	1	2	86	2.3%
1830-1845	56	2	1	0	2	7	10	3	68	4.4%
1845-1900	49	5	1	0	0	6	3	1	61	1.6%
0700-1900	**2229**	**244**	**36**	**4**	**49**	**64**	**34**	**89**	**2626**	**3.4%**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	82	25	3	0	0	3	0	3	113	2.7%
0715-0815	99	24	5	0	0	3	0	5	131	3.8%
0730-0830	106	24	5	1	0	3	0	6	139	4.3%
0745-0845	113	18	6	1	0	2	0	7	140	5.0%
0800-0900	103	16	7	1	2	1	0	10	130	7.7%
0815-0915	100	13	5	1	5	0	0	11	124	8.9%
0830-0930	87	19	5	0	5	0	0	10	116	8.6%
0845-0945	77	21	4	0	5	0	0	9	107	8.4%
0900-1000	71	15	3	0	3	0	0	6	92	6.5%
0915-1015	69	16	2	0	0	0	0	2	87	2.3%
0930-1030	76	9	1	0	0	0	0	1	86	1.2%
0945-1045	75	8	2	0	0	0	0	2	85	2.4%
1000-1100	72	7	2	0	0	0	0	2	81	2.5%
1015-1115	73	5	3	0	0	0	0	3	81	3.7%
1030-1130	77	7	3	0	0	0	0	3	87	3.4%
1045-1145	79	10	3	0	0	0	0	3	92	3.3%
1100-1200	84	14	4	1	0	0	0	5	103	4.9%
1115-1215	78	14	3	1	0	0	0	4	96	4.2%
1130-1230	86	12	3	1	0	0	0	4	102	3.9%
1145-1245	82	9	3	2	0	0	0	5	96	5.2%
1200-1300	96	6	2	1	0	0	0	3	105	2.9%
1215-1315	105	7	2	1	0	0	0	3	115	2.6%
1230-1330	101	5	2	2	0	1	0	4	111	3.6%
1245-1345	109	5	2	2	0	1	0	4	119	3.4%
1300-1400	97	7	2	2	0	2	0	4	110	3.6%
1315-1415	90	11	3	2	0	2	0	5	108	4.6%
1330-1430	92	11	5	2	0	1	0	7	111	6.3%
1345-1445	87	14	4	1	1	1	0	6	108	5.6%
1400-1500	90	11	4	1	1	0	0	6	107	5.6%
1415-1515	90	6	3	1	1	0	0	5	101	5.0%
1430-1530	90	7	1	1	1	1	0	3	101	3.0%
1445-1545	92	8	2	1	0	1	0	3	104	2.9%
1500-1600	89	15	2	1	0	1	0	3	108	2.8%
1515-1615	91	17	3	1	4	1	0	8	117	6.8%
1530-1630	104	19	3	0	4	0	0	7	130	5.4%
1545-1645	113	19	2	1	4	3	0	7	142	4.9%
1600-1700	128	17	1	1	4	3	0	6	154	3.9%
1615-1715	152	17	0	1	0	3	0	1	173	0.6%
1630-1730	152	19	0	1	0	4	0	1	176	0.6%
1645-1745	167	20	0	0	0	6	0	0	193	0.0%
1700-1800	164	16	0	0	0	14	0	0	194	0.0%
1715-1815	161	17	0	0	0	17	0	0	195	0.0%
1730-1830	174	14	0	0	0	22	0	0	210	0.0%
1745-1845	164	8	0	0	0	19	0	0	191	0.0%
1800-1900	151	12	1	0	0	14	0	1	178	0.6%

TOTAL FLOW INTO SURVEY SITE= **1475**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	79	33	2	0	1	2	2	3	117	2.6%
0715-0815	95	31	3	0	2	3	2	5	134	3.7%
0730-0830	111	33	3	0	2	3	1	5	152	3.3%
0745-0845	130	29	1	0	3	3	0	4	166	2.4%
0800-0900	131	18	2	0	2	3	0	4	156	2.6%
0815-0915	132	20	1	1	2	2	1	4	158	2.5%
0830-0930	121	19	1	1	2	2	3	4	146	2.7%
0845-0945	99	15	2	1	3	2	3	6	122	4.9%
0900-1000	100	16	1	1	3	1	3	5	122	4.1%
0915-1015	112	15	3	0	3	1	4	6	134	4.5%
0930-1030	113	14	3	0	3	1	2	6	134	4.5%
0945-1045	125	18	4	0	3	1	2	7	151	4.6%
1000-1100	124	18	4	0	4	2	3	8	152	5.3%
1015-1115	112	16	3	0	5	3	1	8	139	5.8%
1030-1130	119	22	4	0	5	3	1	9	153	5.9%
1045-1145	126	17	3	1	5	2	1	9	154	5.8%
1100-1200	131	15	4	1	4	1	0	9	156	5.8%
1115-1215	151	20	3	1	5	1	0	9	181	5.0%
1130-1230	164	15	3	1	6	1	0	10	190	5.3%
1145-1245	161	16	2	0	8	2	0	10	189	5.3%
1200-1300	174	23	5	1	8	2	0	14	213	6.6%
1215-1315	171	17	6	1	7	3	0	14	205	6.8%
1230-1330	175	16	5	1	6	4	0	12	207	5.8%
1245-1345	179	17	5	1	6	4	0	12	212	5.7%
1300-1400	179	16	2	0	6	5	0	8	208	3.8%
1315-1415	183	17	2	0	6	4	0	8	212	3.8%
1330-1430	165	18	3	0	6	4	0	9	196	4.6%
1345-1445	158	23	4	1	4	3	0	9	193	4.7%
1400-1500	161	19	3	1	4	2	0	8	190	4.2%
1415-1515	168	20	3	1	4	2	1	8	198	4.0%
1430-1530	183	18	2	1	4	2	1	7	210	3.3%
1445-1545	208	14	3	0	4	2	1	7	231	3.0%
1500-1600	223	14	3	0	4	2	1	7	246	2.8%
1515-1615	238	23	4	0	4	2	0	8	271	3.0%
1530-1630	246	25	4	0	5	2	1	9	282	3.2%
1545-1645	271	33	4	0	5	3	4	9	316	2.8%
1600-1700	287	35	4	0	5	4	5	9	335	2.7%
1615-1715	300	28	3	0	4	7	5	7	342	2.0%
1630-1730	329	33	4	0	3	8	6	7	377	1.9%
1645-1745	339	22	2	0	2	9	3	4	374	1.1%
1700-1800	366	25	2	0	4	12	6	6	409	1.5%
1715-1815	377	22	2	0	4	17	6	6	422	1.4%
1730-1830	369	16	2	0	5	21	5	7	413	1.7%
1745-1845	332	16	3	0	6	26	15	9	383	2.3%
1800-1900	274	12	4	0	4	28	14	8	322	2.5%

TOTAL FLOW INTO SURVEY SITE= **2626**

DATE : TUESDAY 13th JUNE 2017

WEATHER CONDITIONS: DRY

LOCATION : A140 IPSWICH ROAD / B1113, NORWICH

B1113
LEFT INTO A140 IPSWICH ROAD (N)
movement 5 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	39	10	1	0	1	2	3	2	53	3.8%
0715-0730	64	9	0	0	2	0	3	2	75	2.7%
0730-0745	98	16	1	0	1	3	0	2	119	1.7%
0745-0800	141	4	1	1	1	3	2	3	151	2.0%
0800-0815	115	3	0	0	0	1	1	0	119	0.0%
0815-0830	125	8	0	0	0	2	0	0	135	0.0%
0830-0845	86	7	1	0	1	2	2	2	97	2.1%
0845-0900	77	4	1	0	0	1	0	1	83	1.2%
0900-0915	84	1	4	0	1	0	0	5	90	5.6%
0915-0930	73	4	2	0	1	0	0	3	80	3.8%
0930-0945	61	6	0	0	3	0	0	3	70	4.3%
0945-1000	57	5	1	0	3	0	0	4	66	6.1%
1000-1015	55	5	0	0	1	0	0	1	61	1.6%
1015-1030	43	5	0	0	1	1	0	1	50	2.0%
1030-1045	41	8	2	0	2	0	0	4	53	7.5%
1045-1100	47	2	0	0	2	1	0	2	52	3.8%
1100-1115	34	6	0	0	1	0	0	1	41	2.4%
1115-1130	30	5	2	0	1	0	1	3	38	7.9%
1130-1145	62	10	0	0	1	2	0	1	75	1.3%
1145-1200	48	1	1	0	1	0	0	2	51	3.9%
1200-1215	53	7	0	0	1	2	0	1	63	1.6%
1215-1230	36	2	0	0	0	0	1	0	38	0.0%
1230-1245	37	5	1	0	2	1	0	3	46	6.5%
1245-1300	38	8	1	0	2	1	1	3	50	6.0%
1300-1315	42	4	1	0	1	1	0	2	49	4.1%
1315-1330	45	4	1	0	1	1	0	2	52	3.8%
1330-1345	34	3	3	0	1	1	0	4	42	9.5%
1345-1400	25	4	2	0	1	0	0	3	32	9.4%
1400-1415	28	5	1	1	2	0	0	4	37	10.8%
1415-1430	27	5	1	1	0	1	0	2	35	5.7%
1430-1445	26	3	0	0	2	2	0	2	33	6.1%
1445-1500	43	6	0	0	1	1	0	1	51	2.0%
1500-1515	28	11	1	0	2	0	1	3	42	7.1%
1515-1530	43	6	1	0	1	2	0	2	53	3.8%
1530-1545	65	5	0	0	1	2	0	1	73	1.4%
1545-1600	42	11	0	0	1	1	1	1	55	1.8%
1600-1615	39	8	0	0	1	1	0	1	49	2.0%
1615-1630	46	6	0	0	0	1	0	0	53	0.0%
1630-1645	36	8	0	0	0	2	1	0	46	0.0%
1645-1700	47	8	1	0	2	2	1	3	60	5.0%
1700-1715	55	8	0	0	1	2	0	1	66	1.5%
1715-1730	54	2	0	0	0	3	0	0	59	0.0%
1730-1745	64	1	0	0	1	3	3	1	69	1.4%
1745-1800	41	6	1	0	0	0	0	1	48	2.1%
1800-1815	47	4	0	0	1	0	1	1	52	1.9%
1815-1830	34	1	0	0	0	3	3	0	38	0.0%
1830-1845	42	2	0	0	0	0	1	0	44	0.0%
1845-1900	55	2	0	0	2	1	0	2	60	3.3%
0700-1900	**2552**	**264**	**32**	**3**	**51**	**52**	**26**	**86**	**2954**	**2.9%**

B1113
RIGHT INTO A140 IPSWICH ROAD (S)
movement 6 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	20	9	0	0	0	1	0	0	30	0.0%
0715-0730	26	7	1	0	0	1	0	1	35	2.9%
0730-0745	35	4	1	1	0	0	0	2	41	4.9%
0745-0800	24	8	0	1	0	2	0	1	35	2.9%
0800-0815	31	2	1	0	1	2	0	2	37	5.4%
0815-0830	25	4	0	0	3	0	0	3	32	9.4%
0830-0845	24	0	2	0	0	0	0	2	26	7.7%
0845-0900	25	3	1	0	0	0	0	1	29	3.4%
0900-0915	23	2	1	0	0	0	0	1	26	3.8%
0915-0930	32	1	2	1	0	0	0	3	36	8.3%
0930-0945	22	3	2	0	1	0	0	3	28	10.7%
0945-1000	23	1	0	1	0	0	0	1	25	4.0%
1000-1015	19	3	0	0	0	0	0	0	22	0.0%
1015-1030	31	1	0	0	0	0	0	0	32	0.0%
1030-1045	19	0	5	0	0	0	0	5	24	20.8%
1045-1100	14	3	3	0	0	0	0	3	20	15.0%
1100-1115	19	4	0	0	0	1	0	0	24	0.0%
1115-1130	15	3	2	2	0	1	0	4	23	17.4%
1130-1145	14	0	1	0	0	0	0	1	15	6.7%
1145-1200	22	2	1	1	0	0	0	2	26	7.7%
1200-1215	22	2	0	0	0	0	0	0	24	0.0%
1215-1230	22	3	0	0	1	0	0	1	26	3.8%
1230-1245	18	2	1	0	1	1	0	2	23	8.7%
1245-1300	19	1	0	0	1	0	0	1	21	4.8%
1300-1315	11	3	3	0	0	1	0	3	18	16.7%
1315-1330	14	9	0	0	0	0	0	0	23	0.0%
1330-1345	17	2	1	0	0	0	0	1	20	5.0%
1345-1400	16	2	2	0	0	0	0	2	20	10.0%
1400-1415	27	0	3	1	0	0	0	4	31	12.9%
1415-1430	13	3	0	0	0	0	0	0	16	0.0%
1430-1445	17	2	0	0	0	0	0	0	19	0.0%
1445-1500	18	2	0	0	0	1	0	0	21	0.0%
1500-1515	23	3	2	0	1	0	0	3	29	10.3%
1515-1530	22	4	0	1	0	0	0	1	27	3.7%
1530-1545	24	8	1	0	0	0	0	1	33	3.0%
1545-1600	17	8	2	0	0	0	0	2	27	7.4%
1600-1615	38	6	0	0	0	1	0	0	45	0.0%
1615-1630	34	11	0	0	1	0	0	1	46	2.2%
1630-1645	18	5	0	0	0	1	0	0	24	0.0%
1645-1700	41	4	0	1	0	1	0	1	47	2.1%
1700-1715	20	2	1	0	0	0	0	1	23	4.3%
1715-1730	26	6	0	0	0	0	0	0	32	0.0%
1730-1745	33	2	1	0	0	2	0	1	38	2.6%
1745-1800	43	4	1	0	1	0	0	2	49	4.1%
1800-1815	30	3	0	0	0	0	0	0	33	0.0%
1815-1830	28	5	0	0	0	0	0	0	33	0.0%
1830-1845	15	1	0	0	0	0	0	0	16	0.0%
1845-1900	22	1	0	0	0	0	0	0	23	0.0%
0700-1900	**1111**	**164**	**41**	**10**	**11**	**16**	**0**	**62**	**1353**	**4.6%**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	342	39	3	1	5	8	8	9	398	2.3%
0715-0815	418	32	2	1	4	7	6	7	464	1.5%
0730-0830	479	31	2	1	2	9	3	5	524	1.0%
0745-0845	467	22	2	1	2	8	5	5	502	1.0%
0800-0900	403	22	2	0	1	6	3	3	434	0.7%
0815-0915	372	20	6	0	2	5	2	8	405	2.0%
0830-0930	320	16	8	0	3	3	2	11	350	3.1%
0845-0945	295	15	7	0	5	1	0	12	323	3.7%
0900-1000	275	16	7	0	8	0	0	15	306	4.9%
0915-1015	246	20	3	0	8	0	0	11	277	4.0%
0930-1030	216	21	1	0	8	1	0	9	247	3.6%
0945-1045	196	23	3	0	7	1	0	10	230	4.3%
1000-1100	186	20	2	0	6	2	0	8	216	3.7%
1015-1115	165	21	2	0	6	2	0	8	196	4.1%
1030-1130	152	21	4	0	6	1	1	10	184	5.4%
1045-1145	173	23	2	0	5	3	1	7	206	3.4%
1100-1200	174	22	3	0	4	2	1	7	205	3.4%
1115-1215	193	23	3	0	4	4	1	7	227	3.1%
1130-1230	199	20	1	0	3	4	1	4	227	1.8%
1145-1245	174	15	2	0	4	3	1	6	198	3.0%
1200-1300	164	22	2	0	5	4	2	7	197	3.6%
1215-1315	153	19	3	0	5	3	2	8	183	4.4%
1230-1330	162	21	4	0	6	4	1	10	197	5.1%
1245-1345	159	19	6	0	5	4	1	11	193	5.7%
1300-1400	146	15	7	0	4	3	0	11	175	6.3%
1315-1415	132	16	7	1	5	2	0	13	163	8.0%
1330-1430	114	17	7	2	4	2	0	13	146	8.9%
1345-1445	106	17	4	2	5	3	0	11	137	8.0%
1400-1500	124	19	2	2	5	4	0	9	156	5.8%
1415-1515	124	25	2	1	5	4	1	8	161	5.0%
1430-1530	140	26	2	0	6	5	1	8	179	4.5%
1445-1545	179	28	2	0	5	5	1	7	219	3.2%
1500-1600	178	33	2	0	5	5	2	7	223	3.1%
1515-1615	189	30	1	0	4	6	1	5	230	2.2%
1530-1630	192	30	0	0	3	5	1	3	230	1.3%
1545-1645	163	33	0	0	2	5	2	2	203	1.0%
1600-1700	168	30	1	0	3	6	2	4	208	1.9%
1615-1715	184	30	1	0	3	7	2	4	225	1.8%
1630-1730	192	26	1	0	3	9	2	4	231	1.7%
1645-1745	220	19	1	0	4	10	4	5	254	2.0%
1700-1800	214	17	1	0	2	8	3	3	242	1.2%
1715-1815	206	13	1	0	2	6	4	3	228	1.3%
1730-1830	186	12	1	0	2	6	7	3	207	1.4%
1745-1845	164	13	1	0	1	3	5	2	182	1.1%
1800-1900	178	9	0	0	3	4	5	3	194	1.5%

TOTAL FLOW INTO SURVEY SITE= **2954**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	105	28	2	2	0	4	0	4	141	2.8%
0715-0815	116	21	3	2	1	5	0	6	148	4.1%
0730-0830	115	18	2	2	4	4	0	8	145	5.5%
0745-0845	104	14	3	1	4	4	0	8	130	6.2%
0800-0900	105	9	4	0	4	2	0	8	124	6.5%
0815-0915	97	9	4	0	3	0	0	7	113	6.2%
0830-0930	104	6	6	1	0	0	0	7	117	6.0%
0845-0945	102	9	6	1	1	0	0	8	119	6.7%
0900-1000	100	7	5	2	1	0	0	8	115	7.0%
0915-1015	96	8	4	2	1	0	0	7	111	6.3%
0930-1030	95	8	2	1	1	0	0	4	107	3.7%
0945-1045	92	5	5	1	0	0	0	6	103	5.8%
1000-1100	83	7	8	0	0	0	0	8	98	8.2%
1015-1115	83	8	8	0	0	1	0	8	100	8.0%
1030-1130	67	10	10	2	0	2	0	12	91	13.2%
1045-1145	62	10	6	2	0	2	0	8	82	9.8%
1100-1200	70	9	4	3	0	2	0	7	88	8.0%
1115-1215	73	7	4	3	0	1	0	7	88	8.0%
1130-1230	80	7	2	1	1	0	0	4	91	4.4%
1145-1245	84	9	2	1	2	1	0	5	99	5.1%
1200-1300	81	8	1	0	3	1	0	4	94	4.3%
1215-1315	70	9	4	0	3	2	0	7	88	8.0%
1230-1330	62	15	4	0	2	2	0	6	85	7.1%
1245-1345	61	15	4	0	1	1	0	5	82	6.1%
1300-1400	58	16	6	0	0	1	0	6	81	7.4%
1315-1415	74	13	6	1	0	0	0	7	94	7.4%
1330-1430	73	7	6	1	0	0	0	7	87	8.0%
1345-1445	73	7	5	1	0	0	0	6	86	7.0%
1400-1500	75	7	3	1	0	1	0	4	87	4.6%
1415-1515	71	10	2	0	1	1	0	3	85	3.5%
1430-1530	80	11	2	1	1	1	0	4	96	4.2%
1445-1545	87	17	3	1	1	1	0	5	110	4.5%
1500-1600	86	23	5	1	1	0	0	7	116	6.0%
1515-1615	101	26	3	1	0	1	0	4	132	3.0%
1530-1630	113	33	3	0	1	1	0	4	151	2.6%
1545-1645	107	30	2	0	1	2	0	3	142	2.1%
1600-1700	131	26	0	1	1	3	0	2	162	1.2%
1615-1715	113	22	1	1	1	2	0	3	140	2.1%
1630-1730	105	17	1	1	0	2	0	2	126	1.6%
1645-1745	120	14	2	1	0	3	0	3	140	2.1%
1700-1800	122	14	3	0	1	2	0	4	142	2.8%
1715-1815	132	15	2	0	1	2	0	3	152	2.0%
1730-1830	134	14	2	0	1	2	0	3	153	2.0%
1745-1845	116	13	1	0	1	0	0	2	131	1.5%
1800-1900	95	10	0	0	0	0	0	0	105	0.0%

TOTAL FLOW INTO SURVEY SITE= **1353**

DATE : TUESDAY 13th JUNE 2017

WEATHER CONDITIONS: DRY

LOCATION : A140 IPSWICH ROAD / B1113, NORWICH

Countsequential SURVEYS

DIRECTIONAL TOTALS - MOVEMENTS 1 - 6

A140 IPSWICH ROAD (SOUTH)
NORTHBOUND
movements 1 & 3 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	98	40	6	4	2	6	0	12	156	7.7%
0715-0730	158	40	9	5	2	3	0	16	217	7.4%
0730-0745	208	49	4	2	3	3	0	9	269	3.3%
0745-0800	276	30	7	4	3	4	0	14	324	4.3%
0800-0815	307	44	12	0	1	3	0	13	367	3.5%
0815-0830	260	36	7	3	4	5	0	14	315	4.4%
0830-0845	226	23	11	5	3	4	0	19	272	7.0%
0845-0900	260	31	15	8	4	5	1	27	323	8.4%
0900-0915	176	25	9	5	4	2	0	18	221	8.1%
0915-0930	199	41	3	5	2	3	0	10	253	4.0%
0930-0945	164	23	5	2	2	1	0	9	197	4.6%
0945-1000	152	19	8	5	3	1	0	16	188	8.5%
1000-1015	142	17	4	7	5	0	0	16	175	9.1%
1015-1030	131	19	6	9	2	2	0	17	169	10.1%
1030-1045	136	20	10	2	4	2	0	16	174	9.2%
1045-1100	148	25	6	3	1	3	0	10	186	5.4%
1100-1115	154	23	7	4	1	0	0	12	189	6.3%
1115-1130	150	21	7	4	3	1	0	14	186	7.5%
1130-1145	148	24	5	2	1	3	0	8	183	4.4%
1145-1200	140	23	3	3	2	2	0	8	173	4.6%
1200-1215	134	27	3	4	1	2	0	8	171	4.7%
1215-1230	144	26	5	6	2	2	0	13	185	7.0%
1230-1245	147	25	6	2	1	0	0	9	181	5.0%
1245-1300	157	21	2	5	2	0	0	9	187	4.8%
1300-1315	147	19	3	3	2	3	2	8	177	4.5%
1315-1330	152	21	1	5	4	3	0	10	186	5.4%
1330-1345	141	22	5	2	1	0	0	8	171	4.7%
1345-1400	141	20	8	2	3	3	0	13	177	7.3%
1400-1415	126	21	6	4	1	0	0	11	158	7.0%
1415-1430	148	16	6	4	3	4	0	13	181	7.2%
1430-1445	137	25	6	3	3	0	0	12	174	6.9%
1445-1500	116	23	8	1	2	2	0	11	152	7.2%
1500-1515	137	20	7	3	1	0	0	11	168	6.5%
1515-1530	149	33	3	2	2	1	0	7	190	3.7%
1530-1545	164	36	6	2	3	0	0	11	211	5.2%
1545-1600	150	32	8	1	5	1	1	14	197	7.1%
1600-1615	120	36	3	1	5	0	0	9	165	5.5%
1615-1630	181	29	3	1	8	3	0	12	225	5.3%
1630-1645	155	38	1	2	2	6	0	5	204	2.5%
1645-1700	191	26	2	3	4	2	1	9	228	3.9%
1700-1715	184	23	1	2	2	2	1	5	214	2.3%
1715-1730	197	29	1	0	3	1	0	4	231	1.7%
1730-1745	175	26	1	0	1	7	0	2	210	1.0%
1745-1800	182	23	1	0	5	12	0	6	223	2.7%
1800-1815	174	19	0	0	2	5	0	2	200	1.0%
1815-1830	176	14	0	1	2	7	0	3	200	1.5%
1830-1845	152	12	0	2	2	4	0	4	172	2.3%
1845-1900	154	20	2	0	2	3	0	4	181	2.2%
0700-1900	**7964**	**1255**	**242**	**143**	**126**	**126**	**6**	**511**	**9856**	**5.2%**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	740	159	26	15	10	16	0	51	966	5.3%
0715-0815	949	163	32	11	9	13	0	52	1177	4.4%
0730-0830	1051	159	30	9	11	15	0	50	1275	3.9%
0745-0845	1069	133	37	12	11	16	0	60	1278	4.7%
0800-0900	1053	134	45	16	12	17	1	73	1277	5.7%
0815-0915	922	115	42	21	15	16	1	78	1131	6.9%
0830-0930	861	120	38	23	13	14	1	74	1069	6.9%
0845-0945	799	120	32	20	12	11	1	64	994	6.4%
0900-1000	691	108	25	17	11	7	0	53	859	6.2%
0915-1015	657	100	20	19	12	5	0	51	813	6.3%
0930-1030	589	78	23	23	12	4	0	58	729	8.0%
0945-1045	561	75	28	23	14	5	0	65	706	9.2%
1000-1100	557	81	26	21	12	7	0	59	704	8.4%
1015-1115	569	87	29	18	8	7	0	55	718	7.7%
1030-1130	588	89	30	13	9	6	0	52	735	7.1%
1045-1145	600	93	25	13	6	7	0	44	744	5.9%
1100-1200	592	91	22	13	7	6	0	42	731	5.7%
1115-1215	572	95	18	13	7	8	0	38	713	5.3%
1130-1230	566	100	16	15	6	9	0	37	712	5.2%
1145-1245	565	101	17	15	6	6	0	38	710	5.4%
1200-1300	582	99	16	17	6	4	0	39	724	5.4%
1215-1315	595	91	16	16	7	5	2	39	730	5.3%
1230-1330	603	86	12	15	9	6	2	36	731	4.9%
1245-1345	597	83	11	15	9	6	2	35	721	4.9%
1300-1400	581	82	17	12	10	9	2	39	711	5.5%
1315-1415	560	84	20	13	9	6	0	42	692	6.1%
1330-1430	556	79	25	12	8	7	0	45	687	6.6%
1345-1445	552	82	26	13	10	7	0	49	690	7.1%
1400-1500	527	85	26	12	9	6	0	47	665	7.1%
1415-1515	538	84	27	11	9	6	0	47	675	7.0%
1430-1530	539	101	24	9	8	3	0	41	684	6.0%
1445-1545	566	112	24	8	8	3	0	40	721	5.5%
1500-1600	600	121	24	8	11	2	1	43	766	5.6%
1515-1615	583	137	20	6	15	2	1	41	763	5.4%
1530-1630	615	133	20	5	21	4	1	46	798	5.8%
1545-1645	606	135	15	5	20	10	1	40	791	5.1%
1600-1700	647	129	9	7	19	11	1	35	822	4.3%
1615-1715	711	116	7	8	16	13	2	31	871	3.6%
1630-1730	727	116	5	7	11	11	2	23	877	2.6%
1645-1745	747	104	5	5	10	12	2	20	883	2.3%
1700-1800	738	101	4	2	11	22	1	17	878	1.9%
1715-1815	728	97	3	0	11	25	0	14	864	1.6%
1730-1830	707	82	2	1	10	31	0	13	833	1.6%
1745-1845	684	68	1	3	11	28	0	15	795	1.9%
1800-1900	656	65	2	3	8	19	0	13	753	1.7%

TOTAL FLOW INTO SURVEY SITE= **9856**

A140 IPSWICH ROAD (NORTH)
SOUTHBOUND
movements 2 & 4 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	99	36	1	2	2	1	0	5	141	3.5%
0715-0730	119	31	5	3	4	3	1	12	165	7.3%
0730-0745	135	49	16	3	5	5	1	24	213	11.3%
0745-0800	131	46	5	5	3	1	0	13	191	6.8%
0800-0815	125	35	3	1	3	3	0	7	170	4.1%
0815-0830	134	36	9	4	4	0	0	17	187	9.1%
0830-0845	145	24	7	2	6	3	0	15	187	8.0%
0845-0900	127	26	2	4	3	1	1	9	163	5.5%
0900-0915	123	33	7	8	2	0	1	17	173	9.8%
0915-0930	119	42	8	3	2	2	3	13	176	7.4%
0930-0945	122	25	8	8	3	2	0	19	168	11.3%
0945-1000	135	21	12	2	4	2	0	18	176	10.2%
1000-1015	139	29	12	5	3	0	2	20	188	10.6%
1015-1030	115	23	4	4	2	2	0	10	150	6.7%
1030-1045	136	24	5	3	4	1	0	12	173	6.9%
1045-1100	154	30	10	3	3	3	1	16	203	7.9%
1100-1115	134	23	7	6	5	4	0	18	179	10.1%
1115-1130	162	37	5	4	2	1	0	11	211	5.2%
1130-1145	141	24	6	7	4	1	0	17	183	9.3%
1145-1200	138	21	2	5	2	2	0	9	170	5.3%
1200-1215	174	34	2	4	4	2	0	10	220	4.5%
1215-1230	175	30	7	5	3	1	0	15	221	6.8%
1230-1245	180	23	5	2	6	4	0	13	220	5.9%
1245-1300	181	39	7	3	2	1	0	12	233	5.2%
1300-1315	183	25	5	1	3	2	0	9	219	4.1%
1315-1330	186	18	6	6	2	2	0	14	220	6.4%
1330-1345	172	21	4	6	6	3	0	16	212	7.5%
1345-1400	151	35	9	6	4	2	0	19	207	9.2%
1400-1415	191	19	3	2	3	2	0	8	220	3.6%
1415-1430	154	26	8	7	2	1	0	17	198	8.6%
1430-1445	198	33	6	4	6	3	0	16	250	6.4%
1445-1500	197	21	3	3	3	0	0	9	227	4.0%
1500-1515	233	29	4	5	4	6	1	13	281	4.6%
1515-1530	211	26	3	2	1	4	0	6	247	2.4%
1530-1545	218	38	6	0	4	4	0	10	270	3.7%
1545-1600	224	35	3	0	3	2	0	6	267	2.2%
1600-1615	277	47	7	2	3	5	0	12	341	3.5%
1615-1630	268	37	3	3	3	6	1	9	320	2.8%
1630-1645	298	45	3	2	5	6	3	10	359	2.8%
1645-1700	290	27	1	2	1	5	1	4	326	1.2%
1700-1715	324	39	2	0	3	7	0	5	375	1.3%
1715-1730	309	28	2	0	2	6	2	4	347	1.2%
1730-1745	320	15	1	1	3	4	0	5	344	1.5%
1745-1800	294	22	0	2	3	13	5	5	334	1.5%
1800-1815	310	19	1	0	3	11	0	4	344	1.2%
1815-1830	244	14	2	0	4	13	1	6	277	2.2%
1830-1845	183	7	3	0	5	8	11	8	206	3.9%
1845-1900	158	15	4	1	0	9	3	5	187	2.7%
0700-1900	**8936**	**1382**	**244**	**151**	**157**	**169**	**38**	**552**	**11039**	**5.0%**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	484	162	27	13	14	10	2	54	710	7.6%
0715-0815	510	161	29	12	15	12	2	56	739	7.6%
0730-0830	525	166	33	13	15	9	1	61	761	8.0%
0745-0845	535	141	24	12	16	7	0	52	735	7.1%
0800-0900	531	121	21	11	16	7	1	48	707	6.8%
0815-0915	529	119	25	18	15	4	2	58	710	8.2%
0830-0930	514	125	24	17	13	6	5	54	699	7.7%
0845-0945	491	126	25	23	10	5	5	58	680	8.5%
0900-1000	499	121	35	21	11	6	4	67	693	9.7%
0915-1015	515	117	40	18	12	6	5	70	708	9.9%
0930-1030	511	98	36	19	12	6	2	67	682	9.8%
0945-1045	525	97	33	14	13	5	2	60	687	8.7%
1000-1100	544	106	31	15	12	6	3	58	714	8.1%
1015-1115	539	100	26	16	14	10	1	56	705	7.9%
1030-1130	586	114	27	16	14	9	1	57	766	7.4%
1045-1145	591	114	28	20	14	9	1	62	776	8.0%
1100-1200	575	105	20	22	13	8	0	55	743	7.4%
1115-1215	615	116	15	20	12	6	0	47	784	6.0%
1130-1230	628	109	17	21	13	6	0	51	794	6.4%
1145-1245	667	108	16	16	15	9	0	47	831	5.7%
1200-1300	710	126	21	14	15	8	0	50	894	5.6%
1215-1315	719	117	24	11	14	8	0	49	893	5.5%
1230-1330	730	105	23	12	13	9	0	48	892	5.4%
1245-1345	722	103	22	16	13	8	0	51	884	5.8%
1300-1400	692	99	24	19	15	9	0	58	858	6.8%
1315-1415	700	93	22	20	15	9	0	57	859	6.6%
1330-1430	668	101	24	21	15	8	0	60	837	7.2%
1345-1445	694	113	26	19	15	8	0	60	875	6.9%
1400-1500	740	99	20	16	14	6	0	50	895	5.6%
1415-1515	782	109	21	19	15	10	1	55	956	5.8%
1430-1530	839	109	16	14	14	13	1	44	1005	4.4%
1445-1545	859	114	16	10	12	14	1	38	1025	3.7%
1500-1600	886	128	16	7	12	16	1	35	1065	3.3%
1515-1615	930	146	19	4	11	15	0	34	1125	3.0%
1530-1630	987	157	19	5	13	17	1	37	1198	3.1%
1545-1645	1067	164	16	7	14	19	4	37	1287	2.9%
1600-1700	1133	156	14	9	12	22	5	35	1346	2.6%
1615-1715	1180	148	9	7	12	24	5	28	1380	2.0%
1630-1730	1221	139	8	4	11	24	6	23	1407	1.6%
1645-1745	1243	109	6	3	9	22	3	18	1392	1.3%
1700-1800	1247	104	5	3	11	30	7	19	1400	1.4%
1715-1815	1233	84	4	3	11	34	7	18	1369	1.3%
1730-1830	1168	70	4	3	13	41	6	20	1299	1.5%
1745-1845	1031	62	6	2	15	45	17	23	1161	2.0%
1800-1900	895	55	10	1	12	41	15	23	1014	2.3%

TOTAL FLOW INTO SURVEY SITE= **11039**

B1113 (WEST)
EASTBOUND
movements 5 & 6 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0715	59	19	1	0	1	3	3	2	83	2.4%
0715-0730	90	16	1	0	2	1	3	3	110	2.7%
0730-0745	133	20	2	1	1	3	0	4	160	2.5%
0745-0800	165	12	1	2	1	5	2	4	186	2.2%
0800-0815	146	5	1	0	1	3	1	2	156	1.3%
0815-0830	150	12	0	0	3	2	0	3	167	1.8%
0830-0845	110	7	3	0	1	2	2	4	123	3.3%
0845-0900	102	7	2	0	0	1	0	2	112	1.8%
0900-0915	107	3	5	0	1	0	0	6	116	5.2%
0915-0930	105	5	4	1	1	0	0	6	116	5.2%
0930-0945	83	9	2	0	4	0	0	6	98	6.1%
0945-1000	80	6	1	1	3	0	0	5	91	5.5%
1000-1015	74	8	0	0	1	0	0	1	83	1.2%
1015-1030	74	6	0	0	1	1	0	1	82	1.2%
1030-1045	60	8	7	0	2	0	0	9	77	11.7%
1045-1100	61	5	3	0	2	1	0	5	72	6.9%
1100-1115	53	10	0	0	1	1	0	1	65	1.5%
1115-1130	45	8	4	2	1	1	1	7	61	11.5%
1130-1145	76	10	1	0	1	2	0	2	90	2.2%
1145-1200	70	3	2	1	1	0	0	4	77	5.2%
1200-1215	75	9	0	0	1	2	0	1	87	1.1%
1215-1230	58	5	0	0	1	0	1	1	64	1.6%
1230-1245	55	7	2	0	3	2	0	5	69	7.2%
1245-1300	57	9	1	0	3	1	1	4	71	5.6%
1300-1315	53	7	4	0	1	2	0	5	67	7.5%
1315-1330	59	13	1	0	1	1	0	2	75	2.7%
1330-1345	51	5	4	0	1	1	0	5	62	8.1%
1345-1400	41	6	4	0	1	0	0	5	52	9.6%
1400-1415	55	5	4	2	2	0	0	8	68	11.8%
1415-1430	40	8	1	1	0	1	0	2	51	3.9%
1430-1445	43	5	0	0	2	2	0	2	52	3.8%
1445-1500	61	8	0	0	1	2	0	1	72	1.4%
1500-1515	51	14	3	0	3	0	1	6	71	8.5%
1515-1530	65	10	1	1	1	2	0	3	80	3.8%
1530-1545	89	13	1	0	1	2	0	2	106	1.9%
1545-1600	59	19	2	0	1	1	1	3	82	3.7%
1600-1615	77	14	0	0	1	2	0	1	94	1.1%
1615-1630	80	17	0	0	1	1	0	1	99	1.0%
1630-1645	54	13	0	0	0	3	1	0	70	0.0%
1645-1700	88	12	1	1	2	3	1	4	107	3.7%
1700-1715	75	10	1	0	1	2	0	2	89	2.2%
1715-1730	80	8	0	0	0	3	0	0	91	0.0%
1730-1745	97	3	1	0	1	5	3	2	107	1.9%
1745-1800	84	10	2	0	1	0	0	3	97	3.1%
1800-1815	77	7	0	0	1	0	1	1	85	1.2%
1815-1830	62	6	0	0	0	3	3	0	71	0.0%
1830-1845	57	3	0	0	0	0	1	0	60	0.0%
1845-1900	77	3	0	0	2	1	0	2	83	2.4%
0700-1900	**3663**	**428**	**73**	**13**	**62**	**68**	**26**	**148**	**4307**	**3.4%**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	VEH TOT	% HVs
0700-0800	447	67	5	3	5	12	8	13	539	2.4%
0715-0815	534	53	5	3	5	12	6	13	612	2.1%
0730-0830	594	49	4	3	6	13	3	13	669	1.9%
0745-0845	571	36	5	2	6	12	5	13	632	2.1%
0800-0900	508	31	6	0	5	8	3	11	558	2.0%
0815-0915	469	29	10	0	5	5	2	15	518	2.9%
0830-0930	424	22	14	1	3	3	2	18	467	3.9%
0845-0945	397	24	13	1	6	1	0	20	442	4.5%
0900-1000	375	23	12	2	9	0	0	23	421	5.5%
0915-1015	342	28	7	2	9	0	0	18	388	4.6%
0930-1030	311	29	3	1	9	1	0	13	354	3.7%
0945-1045	288	28	8	1	7	1	0	16	333	4.8%
1000-1100	269	27	10	0	6	2	0	16	314	5.1%
1015-1115	248	29	10	0	6	3	0	16	296	5.4%
1030-1130	219	31	14	2	6	3	1	22	275	8.0%
1045-1145	235	33	8	2	5	5	1	15	288	5.2%
1100-1200	244	31	7	3	4	4	1	14	293	4.8%
1115-1215	266	30	7	3	4	5	1	14	315	4.4%
1130-1230	279	27	3	1	4	4	1	8	318	2.5%
1145-1245	258	24	4	1	6	4	1	11	297	3.7%
1200-1300	245	30	3	0	8	5	2	11	291	3.8%
1215-1315	223	28	7	0	8	5	2	15	271	5.5%
1230-1330	224	36	8	0	8	6	1	16	282	5.7%
1245-1345	220	34	10	0	6	5	1	16	275	5.8%
1300-1400	204	31	13	0	4	4	0	17	256	6.6%
1315-1415	206	29	13	2	5	2	0	20	257	7.8%
1330-1430	187	24	13	3	4	2	0	20	233	8.6%
1345-1445	179	24	9	3	5	3	0	17	223	7.6%
1400-1500	199	26	5	3	5	5	0	13	243	5.3%
1415-1515	195	35	4	1	6	5	1	11	246	4.5%
1430-1530	220	37	4	1	7	6	1	12	275	4.4%
1445-1545	266	45	5	1	6	6	1	12	329	3.6%
1500-1600	264	56	7	1	6	5	2	14	339	4.1%
1515-1615	290	56	4	1	4	7	1	9	362	2.5%
1530-1630	305	63	3	0	4	6	1	7	381	1.8%
1545-1645	270	63	2	0	3	7	2	5	345	1.4%
1600-1700	299	56	1	1	4	9	2	6	370	1.6%
1615-1715	297	52	2	1	4	9	2	7	365	1.9%
1630-1730	297	43	2	1	3	11	2	6	357	1.7%
1645-1745	340	33	3	1	4	13	4	8	394	2.0%
1700-1800	336	31	4	0	3	10	3	7	384	1.8%
1715-1815	338	28	3	0	3	8	4	6	380	1.6%
1730-1830	320	26	3	0	3	8	7	6	360	1.7%
1745-1845	280	26	2	0	2	3	5	4	313	1.3%
1800-1900	273	19	0	0	3	4	5	3	299	1.0%

TOTAL FLOW INTO SURVEY SITE= **4307**

DATE : TUESDAY 13th JUNE 2017

WEATHER CONDITIONS: DRY

LOCATION : A140 IPSWICH ROAD / B1113, NORWICH

GRAND TOTAL

ALL MOVEMENTS

INTO SITE

movements 1 - 6 (0700 - 0900)

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	**VEH TOT**	% HVs
0700-0715	256	95	8	6	5	10	3	19	380	5.0%
0715-0730	367	87	15	8	8	7	4	31	492	6.3%
0730-0745	476	118	22	6	9	11	1	37	642	5.8%
0745-0800	572	88	13	11	7	10	2	31	701	4.4%
0800-0815	578	84	16	1	5	9	1	22	693	3.2%
0815-0830	544	84	16	7	11	7	0	34	669	5.1%
0830-0845	481	54	21	7	10	9	2	38	582	6.5%
0845-0900	489	64	19	12	7	7	2	38	598	6.4%
0900-0915	406	61	21	13	7	2	1	41	510	8.0%
0915-0930	423	88	15	9	5	5	3	29	545	5.3%
0930-0945	369	57	15	10	9	3	0	34	463	7.3%
0945-1000	367	46	21	8	10	3	0	39	455	8.6%
1000-1015	355	54	16	12	9	0	2	37	446	8.3%
1015-1030	320	48	10	13	5	5	0	28	401	7.0%
1030-1045	332	52	22	5	10	3	0	37	424	8.7%
1045-1100	363	60	19	6	6	7	1	31	461	6.7%
1100-1115	341	56	14	10	7	5	0	31	433	7.2%
1115-1130	357	66	16	10	6	3	1	32	458	7.0%
1130-1145	365	58	12	9	6	6	0	27	456	5.9%
1145-1200	348	47	7	9	5	4	0	21	420	5.0%
1200-1215	383	70	5	8	6	6	0	19	478	4.0%
1215-1230	377	61	12	11	6	3	1	29	470	6.2%
1230-1245	382	55	13	4	10	6	0	27	470	5.7%
1245-1300	395	69	10	8	7	2	1	25	491	5.1%
1300-1315	383	51	12	4	6	7	2	22	463	4.8%
1315-1330	397	52	8	11	7	6	0	26	481	5.4%
1330-1345	364	48	13	8	8	4	0	29	445	6.5%
1345-1400	333	61	21	8	8	5	0	37	436	8.5%
1400-1415	372	45	13	8	6	2	0	27	446	6.1%
1415-1430	342	50	15	12	5	6	0	32	430	7.4%
1430-1445	378	63	12	7	11	5	0	30	476	6.3%
1445-1500	374	52	11	4	6	4	0	21	451	4.7%
1500-1515	421	63	14	8	8	6	2	30	520	5.8%
1515-1530	425	69	7	5	4	7	0	16	517	3.1%
1530-1545	471	87	13	2	8	6	0	23	587	3.9%
1545-1600	433	86	13	1	9	4	2	23	546	4.2%
1600-1615	474	97	10	3	9	7	0	22	600	3.7%
1615-1630	529	83	6	4	12	10	1	22	644	3.4%
1630-1645	507	96	4	4	7	15	4	15	633	2.4%
1645-1700	569	65	4	6	7	10	3	17	661	2.6%
1700-1715	583	72	4	2	6	11	1	12	678	1.8%
1715-1730	586	65	3	0	5	10	2	8	669	1.2%
1730-1745	592	44	3	1	5	16	3	9	661	1.4%
1745-1800	560	55	3	2	9	25	5	14	654	2.1%
1800-1815	561	45	1	0	6	16	1	7	629	1.1%
1815-1830	482	34	2	1	6	23	4	9	548	1.6%
1830-1845	392	22	3	2	7	12	12	12	438	2.7%
1845-1900	389	38	6	1	4	13	3	11	451	2.4%
0700-1900	**20563**	**3065**	**559**	**307**	**345**	**363**	**70**	**1211**	**25202**	**4.8%**

	CAR	LGV	OGV1	OGV2	PSV	MBIKE	CYC	TOT HVs	**VEH TOT**	% HVs
0700-0800	1671	388	58	31	29	38	10	118	2215	5.3%
0715-0815	1993	377	66	26	29	37	8	121	2528	4.8%
0730-0830	2170	374	67	25	32	37	4	124	2705	4.6%
0745-0845	2175	310	66	26	33	35	5	125	2645	4.7%
0800-0900	2092	286	72	27	33	32	5	132	2542	5.2%
0815-0915	1920	263	77	39	35	25	5	151	2359	6.4%
0830-0930	1799	267	76	41	29	23	8	146	2235	6.5%
0845-0945	1687	270	70	44	28	17	6	142	2116	6.7%
0900-1000	1565	252	72	40	31	13	4	143	1973	7.2%
0915-1015	1514	245	67	39	33	11	5	139	1909	7.3%
0930-1030	1411	205	62	43	33	11	2	138	1765	7.8%
0945-1045	1374	200	69	38	34	11	2	141	1726	8.2%
1000-1100	1370	214	67	36	30	15	3	133	1732	7.7%
1015-1115	1356	216	65	34	28	20	1	127	1719	7.4%
1030-1130	1393	234	71	31	29	18	2	131	1776	7.4%
1045-1145	1426	240	61	35	25	21	2	121	1808	6.7%
1100-1200	1411	227	49	38	24	18	1	111	1767	6.3%
1115-1215	1453	241	40	36	23	19	1	99	1812	5.5%
1130-1230	1473	236	36	37	23	19	1	96	1824	5.3%
1145-1245	1490	233	37	32	27	19	1	96	1838	5.2%
1200-1300	1537	255	40	31	29	17	2	100	1909	5.2%
1215-1315	1537	236	47	27	29	18	4	103	1894	5.4%
1230-1330	1557	227	43	27	30	21	3	100	1905	5.2%
1245-1345	1539	220	43	31	28	19	3	102	1880	5.4%
1300-1400	1477	212	54	31	29	22	2	114	1825	6.2%
1315-1415	1466	206	55	35	29	17	0	119	1808	6.6%
1330-1430	1411	204	62	36	27	17	0	125	1757	7.1%
1345-1445	1425	219	61	35	30	18	0	126	1788	7.0%
1400-1500	1466	210	51	31	28	17	0	110	1803	6.1%
1415-1515	1515	228	52	31	30	21	2	113	1877	6.0%
1430-1530	1598	247	44	24	29	22	2	97	1964	4.9%
1445-1545	1691	271	45	19	26	23	2	90	2075	4.3%
1500-1600	1750	305	47	16	29	23	4	92	2170	4.2%
1515-1615	1803	339	43	11	30	24	2	84	2250	3.7%
1530-1630	1907	353	42	10	38	27	3	90	2377	3.8%
1545-1645	1943	362	33	12	37	36	7	82	2423	3.4%
1600-1700	2079	341	24	17	35	42	8	76	2538	3.0%
1615-1715	2188	316	18	16	32	46	9	66	2616	2.5%
1630-1730	2245	298	15	12	25	46	10	52	2641	2.0%
1645-1745	2330	246	14	9	23	47	9	46	2669	1.7%
1700-1800	2321	236	13	5	25	62	11	43	2662	1.6%
1715-1815	2299	209	10	3	25	67	11	38	2613	1.5%
1730-1830	2195	178	9	4	26	80	13	39	2492	1.6%
1745-1845	1995	156	9	5	28	76	22	42	2269	1.9%
1800-1900	1824	139	12	4	23	64	20	39	2066	1.9%

TOTAL FLOW INTO SURVEY SITE= **25202**

DATE : TUESDAY 13th JUNE 2017

WEATHER CONDITIONS: DRY

LOCATION : A140 IPSWICH ROAD / B1113, NORWICH

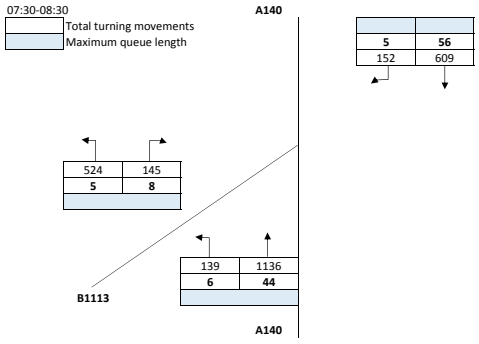
Countsequential SURVEYS

TIME	ARM 1 A140 (N)		ARM 2 A140 (S)		ARM 3 B1113 (W)		
	LANE 1	LANE 2	LANE 1	LANE 2	LANE 1	LANE 2	LANE 3
07:00	9	4	6	6	3	2	1
07:05	7	3	9	7	3	2	1
07:10	8	3	7	8	2	2	2
07:15	10	1	8	8	10	2	2
07:20	15	4	13	9	7	1	2
07:25	6	3	14	11	14	1	2
07:30	19	4	8	5	7	2	2
07:35	18	5	23	17	8	2	3
07:40	15	9	25	24	14	1	2
07:45	22	4	18	14	14	2	2
07:50	21	7	20	12	16	2	2
07:55	12	9	36	36	14	2	2
08:00	6	2	38	40	16	1	1
08:05	12	4	40	38	15	3	3
08:10	4	4	38	39	18	2	2
08:15	14	7	36	36	14	3	2
08:20	20	3	26	26	16	1	2
08:25	18	9	22	16	14	2	2
08:30	12	10	25	16	12	2	3
08:35	18	6	13	13	9	1	3
08:40	7	6	14	14	9	2	3
08:45	14	6	15	14	14	1	3
08:50	13	3	14	13	10	2	2
08:55	4	6	23	20	13	2	2
09:00	4	5	15	10	10	2	1
09:05	4	3	8	5	14	2	2
09:10	5	6	12	15	12	3	2
09:15	6	4	10	9	13	2	2
09:20	1	5	8	9	5	3	3
09:25	2	3	12	7	14	2	2
09:30	1	3	10	9	12	2	2
09:35	2	5	9	8	4	2	2
09:40	3	5	7	5	10	3	2
09:45	11	3	10	4	8	1	1
09:50	11	4	13	6	3	2	2
09:55	5	4	9	4	11	2	1
10:00	6	4	6	4	2	2	2
10:05	5	5	7	6	2	2	1
10:10	8	3	9	6	11	1	1
10:15	13	4	9	4	7	2	2
10:20	6	4	5	5	3	2	2
10:25	5	5	7	3	4	1	2
10:30	3	4	8	6	4	2	2
10:35	3	5	11	5	10	1	3
10:40	6	7	8	5	3	1	2
10:45	12	8	8	7	3	2	2
10:50	11	3	8	11	5	2	1
10:55	8	2	16	7	9	3	2
11:00	15	3	10	3	2	2	1
11:05	4	4	9	5	4	1	2
11:10	10	6	13	5	14	1	1
11:15	12	4	7	4	2	1	3
11:20	9	5	6	2	4	2	2
11:25	8	5	6	3	2	3	1
11:30	10	3	4	3	14	1	1
11:35	5	6	13	4	6	1	1
11:40	11	5	9	4	8	1	2
11:45	10	3	11	5	3	2	1
11:50	8	3	10	6	9	2	1
11:55	5	4	6	5	14	1	2
12:00	16	4	12	11	13	1	2
12:05	11	7	7	5	8	1	2
12:10	15	5	12	6	7	2	2
12:15	14	3	18	7	2	2	1
12:20	8	7	9	3	6	2	2
12:25	7	4	13	6	5	1	2
12:30	10	6	8	9	5	2	2
12:35	22	5	12	4	4	2	2
12:40	8	5	6	5	2	2	1
12:45	14	11	12	4	11	1	1
12:50	9	7	9	6	11	2	1
12:55	4	4	7	4	6	1	2
13:00	9	3	11	6	6	2	0

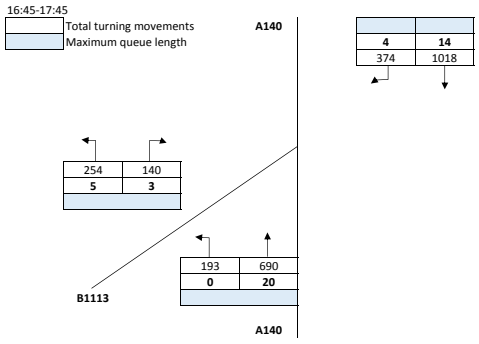
TIME	ARM 1 A140 (N)		ARM 2 A140 (S)		ARM 3 B1113 (W)		
	LANE 1	LANE 2	LANE 1	LANE 2	LANE 1	LANE 2	LANE 3
13:05	19	7	9	6	8	2	1
13:10	7	5	14	2	3	2	1
13:15	8	4	7	4	5	2	1
13:20	9	7	12	6	7	2	2
13:25	16	11	13	4	6	2	1
13:30	7	5	8	6	10	2	1
13:35	12	5	10	5	4	2	5
13:40	10	9	10	3	4	2	2
13:45	5	7	15	3	6	1	2
13:50	3	5	9	3	5	2	0
13:55	9	3	8	2	3	1	1
14:00	9	4	6	4	13	2	2
14:05	12	6	14	5	13	2	2
14:10	10	6	9	4	3	2	2
14:15	9	5	8	5	6	2	1
14:20	16	3	13	10	2	1	1
14:25	7	4	7	4	3	1	1
14:30	12	5	14	7	5	2	2
14:35	5	5	11	7	2	1	2
14:40	17	8	10	5	5	1	2
14:45	11	6	11	8	5	2	2
14:50	16	7	5	2	6	1	2
14:55	11	5	7	5	8	2	2
15:00	17	7	12	5	4	2	2
15:05	21	8	7	5	6	1	2
15:10	8	8	12	5	3	1	2
15:15	20	6	8	5	3	1	2
15:20	16	4	11	7	5	1	2
15:25	4	4	7	6	14	2	2
15:30	21	6	13	10	12	2	2
15:35	21	7	13	5	8	2	2
15:40	7	11	12	7	3	1	2
15:45	10	6	10	8	8	2	1
15:50	11	10	15	8	4	2	1
15:55	18	7	12	5	6	1	2
16:00	7	4	7	5	7	2	2
16:05	21	8	18	6	4	2	2
16:10	21	10	13	10	14	2	2
16:15	16	7	10	6	8	2	2
16:20	2	7	11	6	14	2	2
16:25	21	11	14	7	8	2	2
16:30	17	12	13	9	4	1	1
16:35	18	15	10	12	2	1	2
16:40	18	15	11	13	14	2	2
16:45	8	12	16	8	14	2	2
16:50	12	13	7	8	14	2	2
16:55	13	10	15	7	2	2	2
17:00	12	11	10	6	14	2	2
17:05	9	13	7	6	6	2	1
17:10	18	11	10	10	12	2	2
17:15	26	15	13	16	11	2	2
17:20	12	13	14	10	4	2	2
17:25	3	4	20	13	2	2	2
17:30	7	13	14	6	14	2	2
17:35	6	7	10	6	6	2	2
17:40	20	8	14	9	14	2	2
17:45	9	14	17	15	11	2	2
17:50	12	15	12	8	5	2	2
17:55	6	18	12	10	3	2	2
18:00	10	10	8	7	5	2	2
18:05	8	8	14	8	5	2	2
18:10	12	7	17	8	6	2	2
18:15	8	13	10	10	10	2	2
18:20	5	4	11	8	1	2	2
18:25	4	6	10	7	3	1	2
18:30	6	7	15	6	2	1	2
18:35	6	6	4	2	4	1	1
18:40	6	7	10	6	4	2	1
18:45	4	8	8	10	4	2	2
18:50	8	8	5	3	6	1	2
18:55	8	3	5	4	2	2	2
19:00	0	0	0	0	0	0	0

A140 / B1113 Signalised Junction Traffic Flows
2017 Base

AM
07:30-08:30



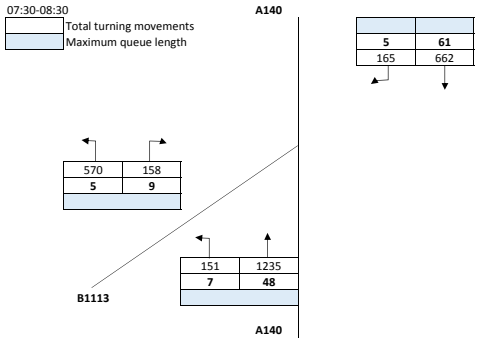
PM
16:45-17:45



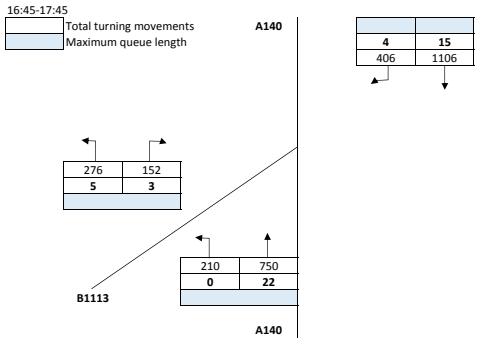
2022 Base

Tempro Growth rate: 1.087

AM
07:30-08:30

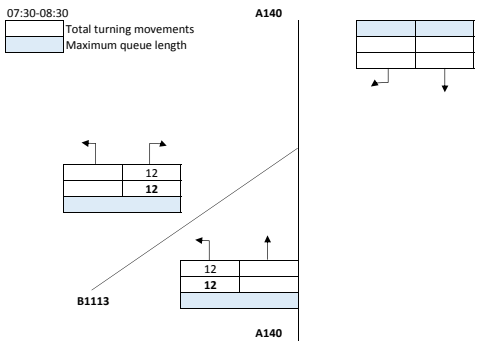


PM
16:45-17:45

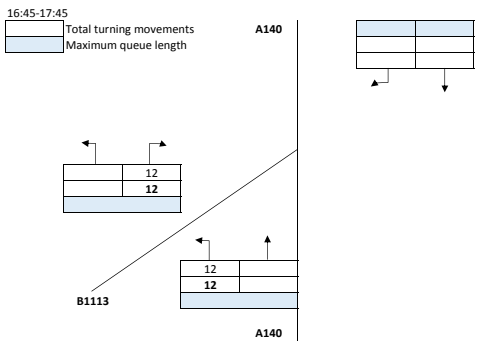


Total Construction (100% Scenario)

AM
07:30-08:30

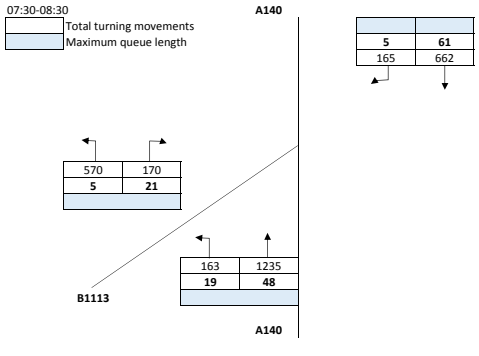


PM
16:45-17:45

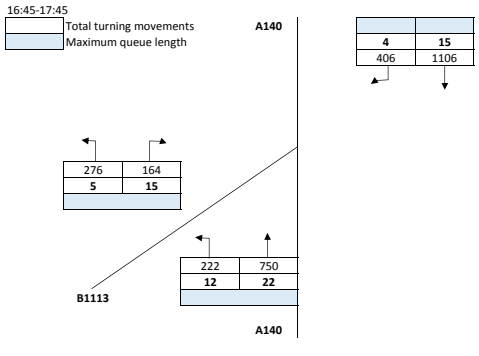


2022 Base + Construction (100% Scenario)

AM
07:30-08:30

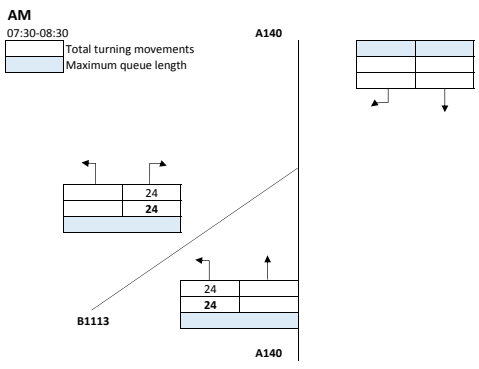


PM
16:45-17:45

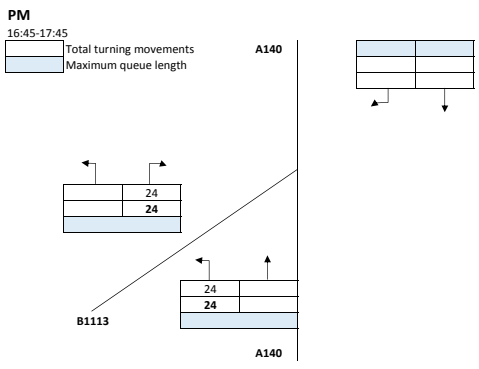


Construction (Sensitivity - 200% Scenario)

AM
07:30-08:30

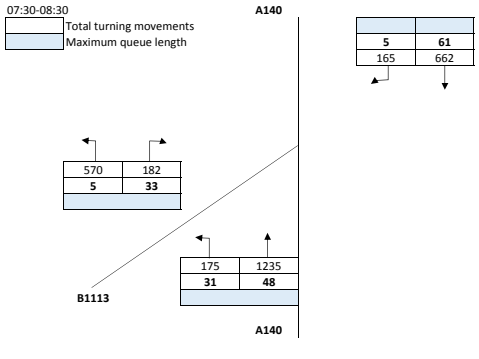


PM
16:45-17:45

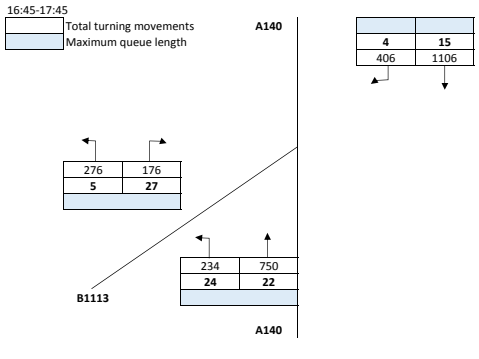


2022 Base + Construction (Sensitivity - 200% Scenario)

AM
07:30-08:30



PM
16:45-17:45



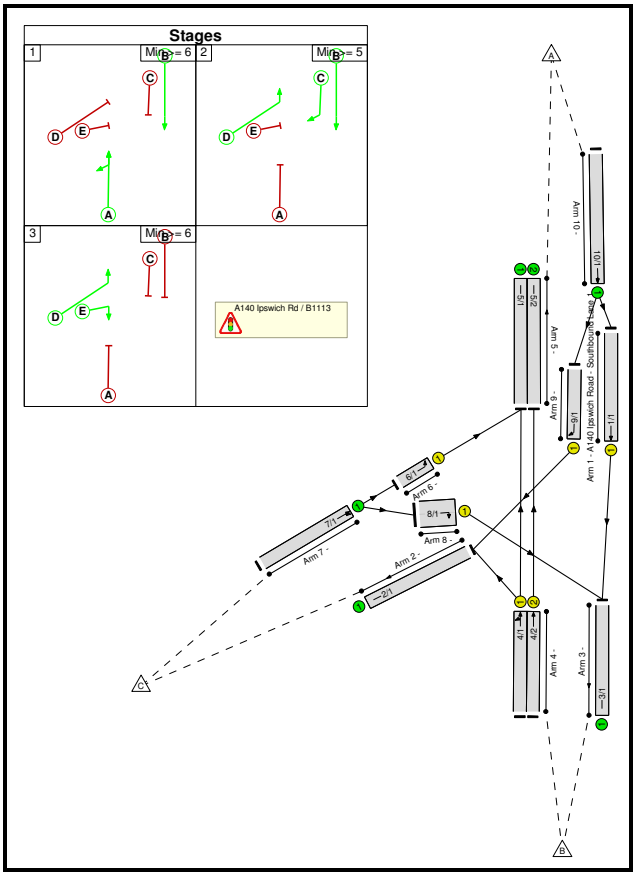
Appendix E LinSig Full Input Data and Results

Full Input Data And Results

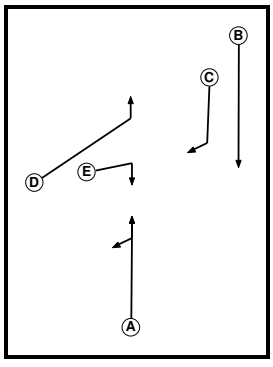
User and Project Details

Project:	**JNY8772 Hornsea Project 3**
Title:	**Existing junction model**
Location:	
File name:	A140 - B1113 Junction Revised 06-04-18.lsg3x
Author:	Paul Warner
Company:	RPS
Address:	
Notes:	

Network Layout Diagram



Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7

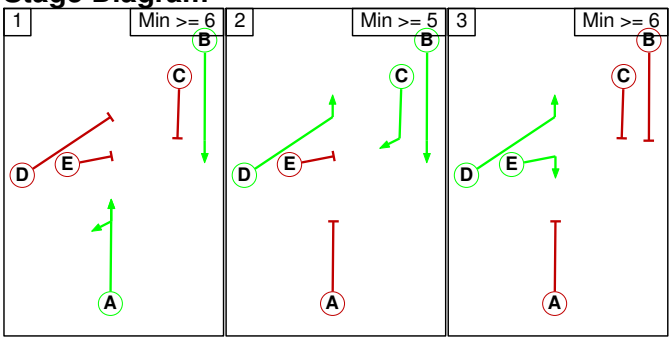
Phase Intergreens Matrix

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		-	5	7	6
	B	-		-	-	5
	C	6	-		-	6
	D	5	-	-		-
	E	5	6	6	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	B C D
3	D E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		7	7
	2	6		6
	3	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: A140 Ipswich Rd / B1113
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: A140 Ipswich Rd / B1113												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (A140 Ipswich Road - Southbound Lane 1)	U	B	2	3	10.7	User	1500	-	-	-	-	-
2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1	U	A	2	3	50.2	User	1660	-	-	-	-	-
4/2	U	A	2	3	50.2	User	1610	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U	D	2	3	5.2	User	1295	-	-	-	-	-
7/1	U		2	3	47.0	Inf	-	-	-	-	-	-
8/1	U	E	2	3	5.2	User	950	-	-	-	-	-
9/1	U	C	2	3	10.7	User	795	-	-	-	-	-
10/1	U		2	3	59.1	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2017 AM Peak Hour Existing'	07:30	08:30	01:00	
2: '2017 PM Peak Hour Existing'	16:45	17:45	01:00	
3: '2022 AM Peak Hour Growthed'	07:30	08:30	01:00	
4: '2022 PM Peak Hour Growthed'	16:45	17:45	01:00	
5: '2022 AM Peak Hour + Proposed Development'	07:30	08:30	01:00	
6: '2022 PM Peak Hour + Proposed Development'	16:45	17:45	01:00	
7: '2022 AM Peak Hour + Proposed Development - Sensitivity Test'	07:30	08:30	01:00	
8: '2022 PM Peak Hour + Proposed Development - Sensitivity Test'	16:45	17:45	01:00	

Scenario 1: '2017 Existing AM Peak' (FG1: '2017 AM Peak Hour Existing', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	650	154	804
	B	1163	0	141	1304
	C	524	150	0	674
	Tot.	1687	800	295	2782

Traffic Lane Flows

Lane	Scenario 1: 2017 Existing AM Peak
Junction: A140 Ipswich Rd / B1113	
1/1	650
2/1	295
3/1	800
4/1	664
4/2	640
5/1	1047
5/2	640
6/1	524
7/1	674
8/1	150
9/1	154
10/1	804

Full Input Data And Results

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						1065	1065
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						1660	1660
4/2	This lane uses a directly entered Saturation Flow						1610	1610
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1295	1295
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						950	950
9/1	This lane uses a directly entered Saturation Flow						795	795
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2017 Existing PM Peak' (FG2: '2017 PM Peak Hour Existing', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1023	372	1395
	B	706	0	189	895
	C	253	141	0	394
	Tot.	959	1164	561	2684

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2017 Existing PM Peak
Junction: A140 Ipswich Rd / B1113	
1/1	1023
2/1	561
3/1	1164
4/1	189
4/2	706
5/1	253
5/2	706
6/1	253
7/1	394
8/1	141
9/1	372
10/1	1395

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						2010	2010
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						460	460
4/2	This lane uses a directly entered Saturation Flow						2600	2600
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						620	620
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						890	890
9/1	This lane uses a directly entered Saturation Flow						1835	1835
10/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2022 Growthed AM Peak' (FG3: '2022 AM Peak Hour Growthed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	706	167	873
	B	1264	0	153	1417
	C	569	163	0	732
	Tot.	1833	869	320	3022

Traffic Lane Flows

Lane	Scenario 3: 2022 Growthed AM Peak
Junction: A140 Ipswich Rd / B1113	
1/1	706
2/1	320
3/1	869
4/1	720
4/2	697
5/1	1136
5/2	697
6/1	569
7/1	732
8/1	163
9/1	167
10/1	873

Full Input Data And Results

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						1065	1065
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						1660	1660
4/2	This lane uses a directly entered Saturation Flow						1610	1610
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1295	1295
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						950	950
9/1	This lane uses a directly entered Saturation Flow						795	795
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2022 Growthed PM Peak' (FG4: '2022 PM Peak Hour Growthed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1112	404	1516
	B	767	0	205	972
	C	275	153	0	428
	Tot.	1042	1265	609	2916

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2022 Growthed PM Peak
Junction: A140 Ipswich Rd / B1113	
1/1	1112
2/1	609
3/1	1265
4/1	205
4/2	767
5/1	275
5/2	767
6/1	275
7/1	428
8/1	153
9/1	404
10/1	1516

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						2010	2010
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						460	460
4/2	This lane uses a directly entered Saturation Flow						2600	2600
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						620	620
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						890	890
9/1	This lane uses a directly entered Saturation Flow						1835	1835
10/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: '2022 AM Peak + Proposed Development' (FG5: '2022 AM Peak Hour + Proposed Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	706	167	873
	B	1264	0	181	1445
	C	569	191	0	760
	Tot.	1833	897	348	3078

Traffic Lane Flows

Lane	Scenario 5: 2022 AM Peak + Proposed Development
Junction: A140 Ipswich Rd / B1113	
1/1	706
2/1	348
3/1	897
4/1	734
4/2	711
5/1	1122
5/2	711
6/1	569
7/1	760
8/1	191
9/1	167
10/1	873

Full Input Data And Results

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						1065	1065
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						1660	1660
4/2	This lane uses a directly entered Saturation Flow						1610	1610
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1295	1295
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						950	950
9/1	This lane uses a directly entered Saturation Flow						795	795
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2022 PM Peak + Proposed Development' (FG6: '2022 PM Peak Hour + Proposed Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1112	404	1516
	B	767	0	233	1000
	C	275	181	0	456
	Tot.	1042	1293	637	2972

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2022 PM Peak + Proposed Development
Junction: A140 Ipswich Rd / B1113	
1/1	1112
2/1	637
3/1	1293
4/1	233
4/2	767
5/1	275
5/2	767
6/1	275
7/1	456
8/1	181
9/1	404
10/1	1516

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						2010	2010
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						460	460
4/2	This lane uses a directly entered Saturation Flow						2600	2600
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						620	620
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						890	890
9/1	This lane uses a directly entered Saturation Flow						1835	1835
10/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 7: '2022 AM Peak + Proposed Development - Sensitivity Test' (FG7: '2022 AM Peak Hour + Proposed Development - Sensitivity Test', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	706	167	873
	B	1264	0	208	1472
	C	569	218	0	787
	Tot.	1833	924	375	3132

Traffic Lane Flows

Lane	Scenario 7: 2022 AM Peak + Proposed Development - Sensitivity Test
Junction: A140 Ipswich Rd / B1113	
1/1	706
2/1	375
3/1	924
4/1	747
4/2	725
5/1	1108
5/2	725
6/1	569
7/1	787
8/1	218
9/1	167
10/1	873

Full Input Data And Results

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						1065	1065
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						1660	1660
4/2	This lane uses a directly entered Saturation Flow						1610	1610
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1295	1295
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						950	950
9/1	This lane uses a directly entered Saturation Flow						795	795
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2022 PM Peak + Proposed Development - Sensitivity Test' (FG8: '2022 PM Peak Hour + Proposed Development - Sensitivity Test', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1112	404	1516
	B	767	0	260	1027
	C	275	208	0	483
	Tot.	1042	1320	664	3026

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2022 PM Peak + Proposed Development - Sensitivity Test
Junction: A140 Ipswich Rd / B1113	
1/1	1112
2/1	664
3/1	1320
4/1	260
4/2	767
5/1	275
5/2	767
6/1	275
7/1	483
8/1	208
9/1	404
10/1	1516

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						2010	2010
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						460	460
4/2	This lane uses a directly entered Saturation Flow						2600	2600
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						620	620
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						890	890
9/1	This lane uses a directly entered Saturation Flow						1835	1835
10/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 9: 'Copy of 2022 AM Peak + Proposed Development' (FG5: '2022 AM Peak Hour + Proposed Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	706	167	873
	B	1264	0	181	1445
	C	569	191	0	760
	Tot.	1833	897	348	3078

Traffic Lane Flows

Lane	Scenario 9: Copy of 2022 AM Peak + Proposed Development
Junction: A140 Ipswich Rd / B1113	
1/1	706
2/1	348
3/1	897
4/1	734
4/2	711
5/1	1122
5/2	711
6/1	569
7/1	760
8/1	191
9/1	167
10/1	873

Full Input Data And Results

Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						1065	1065
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						1660	1660
4/2	This lane uses a directly entered Saturation Flow						1610	1610
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1295	1295
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						950	950
9/1	This lane uses a directly entered Saturation Flow						795	795
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 10: 'Copy of 2022 PM Peak + Proposed Development' (FG6: '2022 PM Peak Hour + Proposed Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1112	404	1516
	B	767	0	233	1000
	C	275	181	0	456
	Tot.	1042	1293	637	2972

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 10: Copy of 2022 PM Peak + Proposed Development
Junction: A140 Ipswich Rd / B1113	
1/1	1112
2/1	637
3/1	1293
4/1	233
4/2	767
5/1	275
5/2	767
6/1	275
7/1	456
8/1	181
9/1	404
10/1	1516

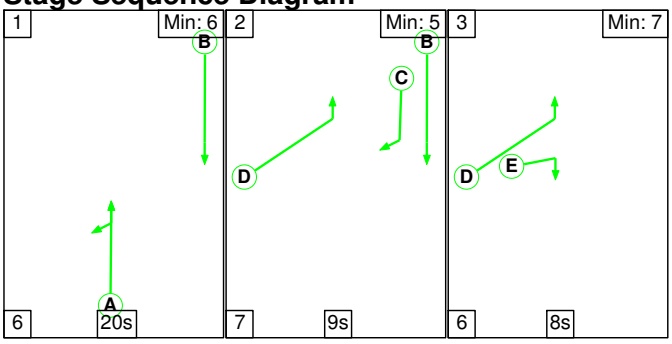
Lane Saturation Flows

Junction: A140 Ipswich Rd / B1113								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A140 Ipswich Road - Southbound Lane 1 Lane 1)	This lane uses a directly entered Saturation Flow						2010	2010
2/1	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1	This lane uses a directly entered Saturation Flow						460	460
4/2	This lane uses a directly entered Saturation Flow						2600	2600
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						620	620
7/1	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						890	890
9/1	This lane uses a directly entered Saturation Flow						1835	1835
10/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: '2017 Existing AM Peak' (FG1: '2017 AM Peak Hour Existing', Plan 1: 'Network Control Plan 1')

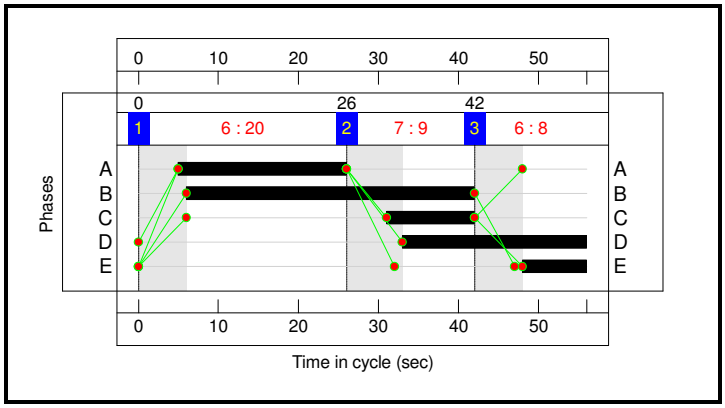
Stage Sequence Diagram



Stage Timings

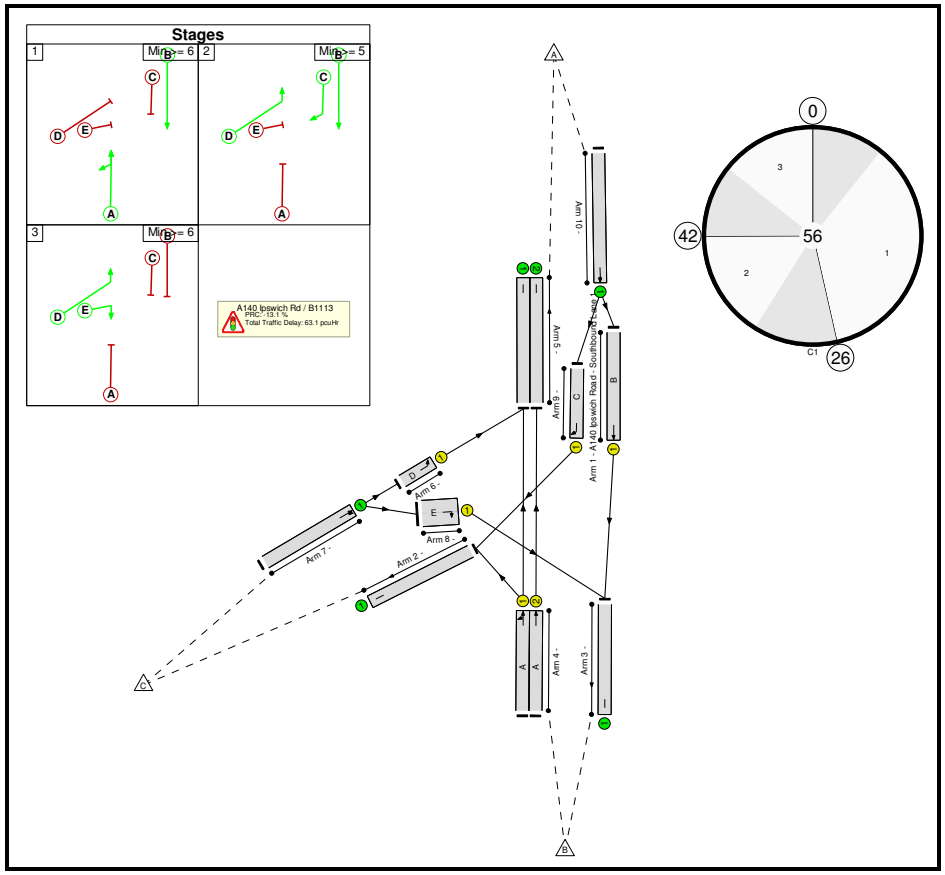
Stage	1	2	3
Duration	20	9	8
Change Point	0	26	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**101.8%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**101.8%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	650	1065	704	92.4%
2/1		U	N/A	N/A	-		-	-	-	295	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	800	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	21	-	664	1660	652	101.8%
4/2	Ahead	U	N/A	N/A	A		1	21	-	640	1610	632	101.2%
5/1		U	N/A	N/A	-		-	-	-	1047	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	640	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	23	-	524	1295	555	94.4%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	674	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	150	950	153	98.2%
9/1	Right	U	N/A	N/A	C		1	11	-	154	795	170	90.4%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	804	Inf	Inf	0.0%

Full Input Data And Results

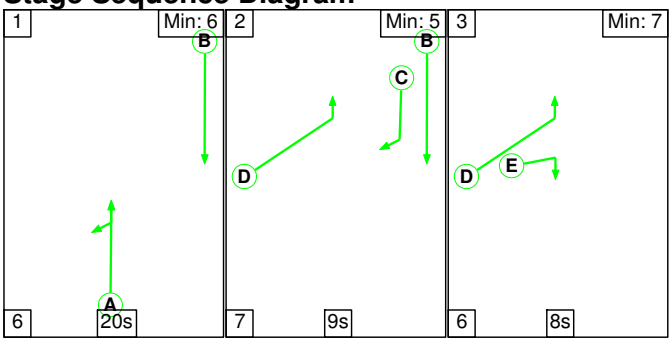
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**12.3**	**50.8**	**0.0**	**63.1**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**12.3**	**50.8**	**0.0**	**63.1**	**-**	**-**	**-**	**-**
1/1	650	650	-	-	-	1.5	5.1	-	6.6	36.5	8.7	5.1	13.8
2/1	292	292	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	800	800	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	664	652	-	-	-	3.4	16.2	-	19.6	106.4	10.5	16.2	26.7
4/2	640	632	-	-	-	3.2	14.7	-	17.9	100.6	10.1	14.7	24.7
5/1	1038	1038	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	633	633	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	524	524	-	-	-	2.2	6.1	-	8.3	57.1	7.7	6.1	13.8
7/1	674	674	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	150	150	-	-	-	1.0	5.5	-	6.5	155.2	1.1	2.7	3.9
9/1	154	154	-	-	-	0.9	3.3	-	4.3	99.6	2.3	3.3	5.7
10/1	804	804	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -13.1 Total Delay for Signalled Lanes (pcuHr): 63.13 Cycle Time (s): 56
PRC Over All Lanes (%): -13.1 Total Delay Over All Lanes(pcuHr): 63.13

Full Input Data And Results

Scenario 2: '2017 Existing PM Peak' (FG2: '2017 PM Peak Hour Existing', Plan 1: 'Network Control Plan 1')

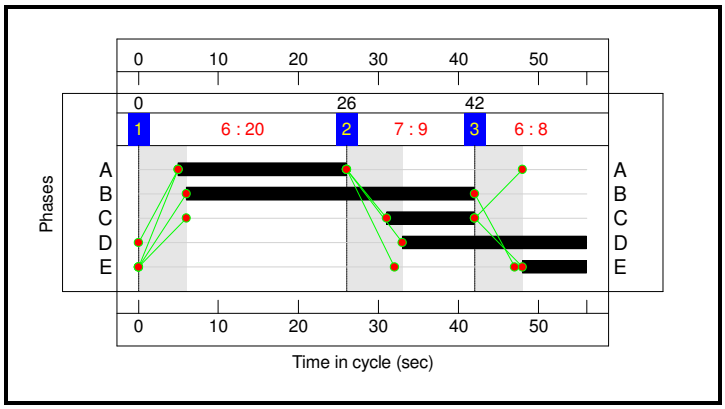
Stage Sequence Diagram



Stage Timings

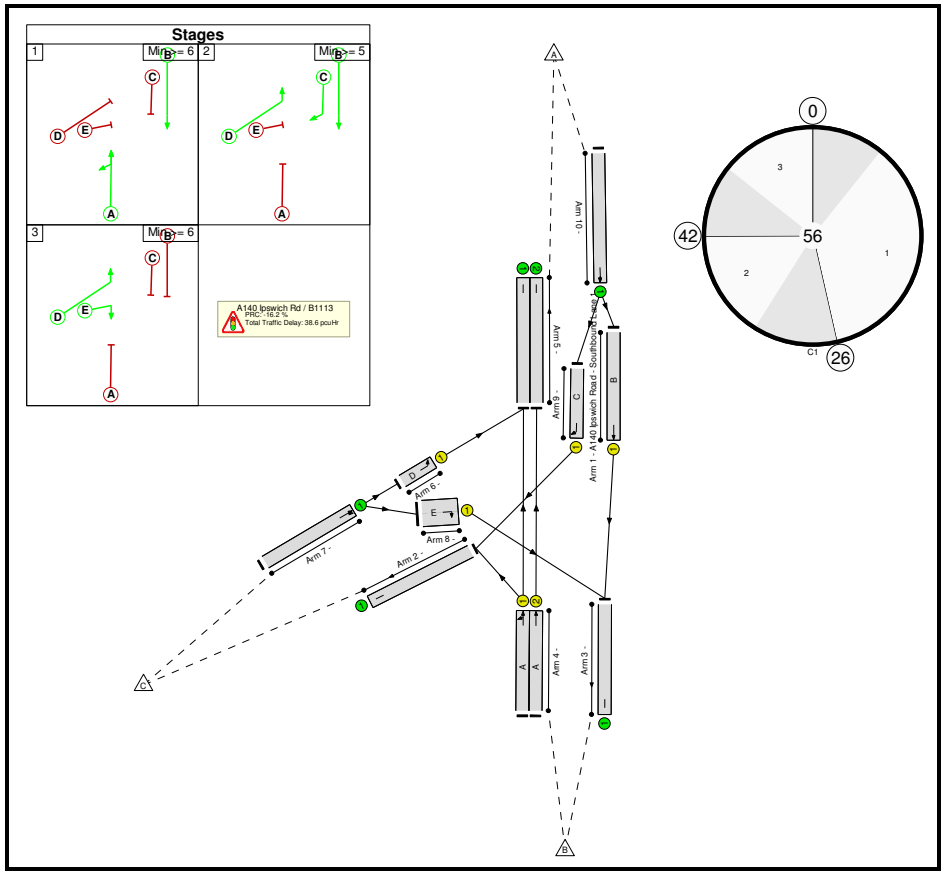
Stage	1	2	3
Duration	20	9	8
Change Point	0	26	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**104.6%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**104.6%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	1023	2010	1328	77.0%
2/1		U	N/A	N/A	-		-	-	-	561	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	1164	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	21	-	189	460	181	104.6%
4/2	Ahead	U	N/A	N/A	A		1	21	-	706	2600	1021	69.1%
5/1		U	N/A	N/A	-		-	-	-	253	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	706	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	23	-	253	620	266	95.2%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	394	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	141	890	143	98.6%
9/1	Right	U	N/A	N/A	C		1	11	-	372	1835	393	94.6%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	1395	Inf	Inf	0.0%

Full Input Data And Results

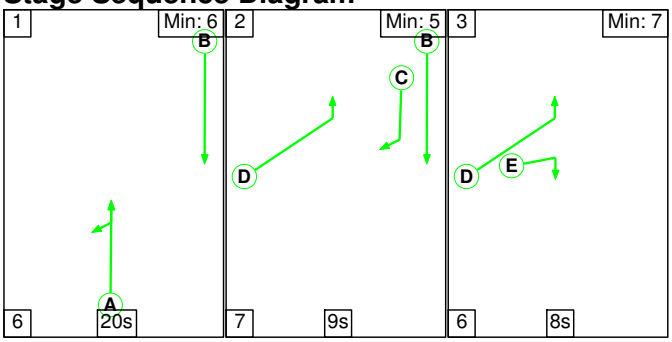
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**10.0**	**28.6**	**0.0**	**38.6**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**10.0**	**28.6**	**0.0**	**38.6**	**-**	**-**	**-**	**-**
1/1	1023	1023	-	-	-	1.9	1.7	-	3.5	12.4	10.8	1.7	12.5
2/1	553	553	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	1164	1164	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	189	181	-	-	-	1.1	9.3	-	10.4	197.3	3.1	9.3	12.3
4/2	706	706	-	-	-	2.8	1.1	-	3.9	19.8	9.0	1.1	10.1
5/1	253	253	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	706	706	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	253	253	-	-	-	1.1	5.4	-	6.5	92.1	3.8	5.4	9.2
7/1	394	394	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	141	141	-	-	-	0.9	5.5	-	6.4	162.6	1.1	2.7	3.8
9/1	372	372	-	-	-	2.2	5.7	-	7.9	76.9	5.7	5.7	11.4
10/1	1395	1395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -16.2 Total Delay for Signalled Lanes (pcuHr): 38.56 Cycle Time (s): 56
PRC Over All Lanes (%): -16.2 Total Delay Over All Lanes(pcuHr): 38.56

Full Input Data And Results

Scenario 3: '2022 Growthed AM Peak' (FG3: '2022 AM Peak Hour Growthed', Plan 1: 'Network Control Plan 1')

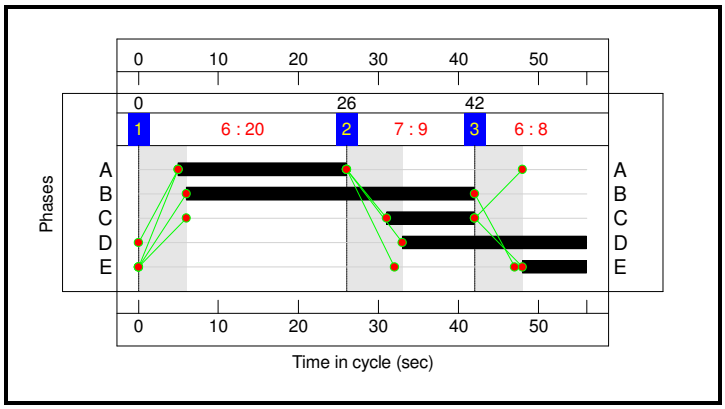
Stage Sequence Diagram



Stage Timings

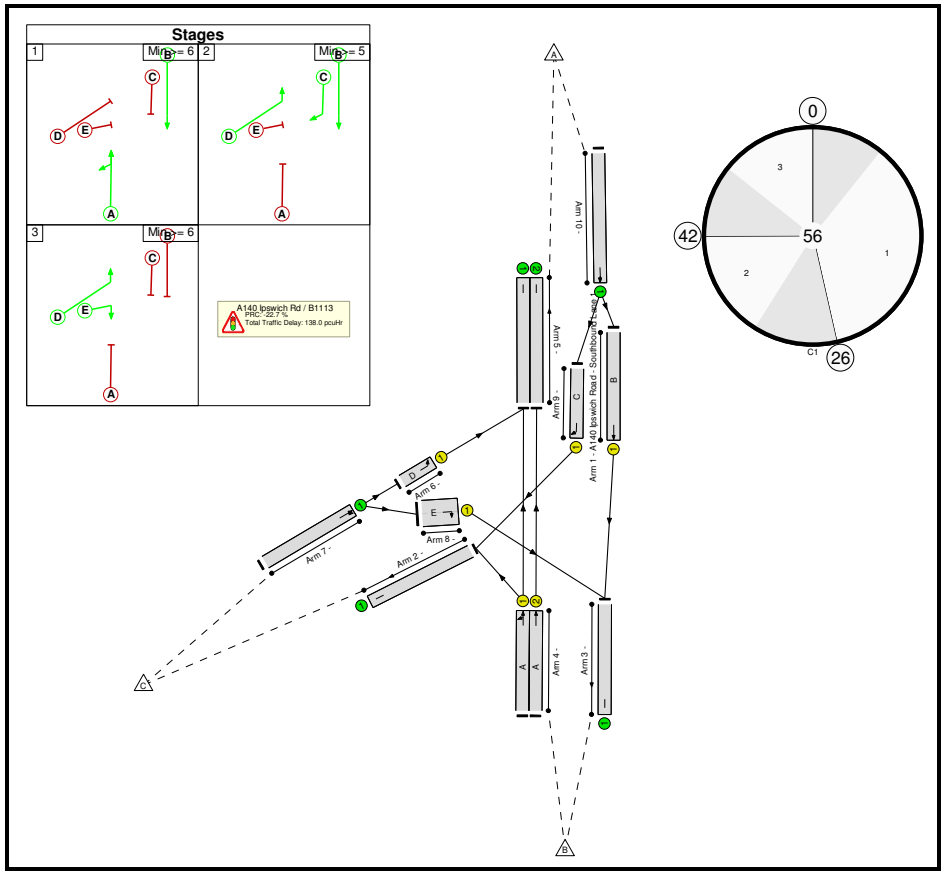
Stage	1	2	3
Duration	20	9	8
Change Point	0	26	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**110.4%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**110.4%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	706	1065	704	100.3%
2/1		U	N/A	N/A	-		-	-	-	320	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	869	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	21	-	720	1660	652	110.4%
4/2	Ahead	U	N/A	N/A	A		1	21	-	697	1610	632	110.2%
5/1		U	N/A	N/A	-		-	-	-	1136	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	697	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	23	-	569	1295	555	102.5%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	732	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	163	950	153	106.8%
9/1	Right	U	N/A	N/A	C		1	11	-	167	795	170	98.0%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	873	Inf	Inf	0.0%

Full Input Data And Results

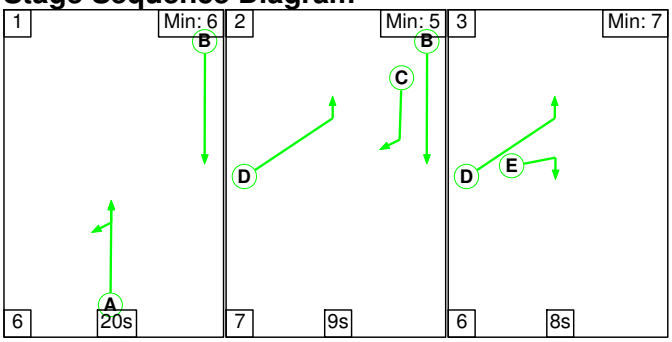
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**17.5**	**120.5**	**0.0**	**138.0**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**17.5**	**120.5**	**0.0**	**138.0**	**-**	**-**	**-**	**-**
1/1	706	704	-	-	-	1.9	13.9	-	15.8	80.6	11.0	13.9	24.9
2/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	856	856	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	720	652	-	-	-	5.2	38.6	-	43.8	218.9	12.3	38.6	50.8
4/2	697	632	-	-	-	5.0	37.0	-	41.9	216.7	11.8	37.0	48.8
5/1	1069	1069	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	633	633	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	569	555	-	-	-	3.0	15.9	-	18.9	119.8	9.1	15.9	25.0
7/1	732	732	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	163	153	-	-	-	1.4	9.5	-	10.9	239.8	1.4	4.7	6.1
9/1	167	167	-	-	-	1.0	5.7	-	6.7	144.3	2.6	5.7	8.2
10/1	873	873	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -22.7 Total Delay for Signalled Lanes (pcuHr): 138.00 Cycle Time (s): 56
PRC Over All Lanes (%): -22.7 Total Delay Over All Lanes(pcuHr): 138.00

Full Input Data And Results

Scenario 4: '2022 Growthed PM Peak' (FG4: '2022 PM Peak Hour Growthed', Plan 1: 'Network Control Plan 1')

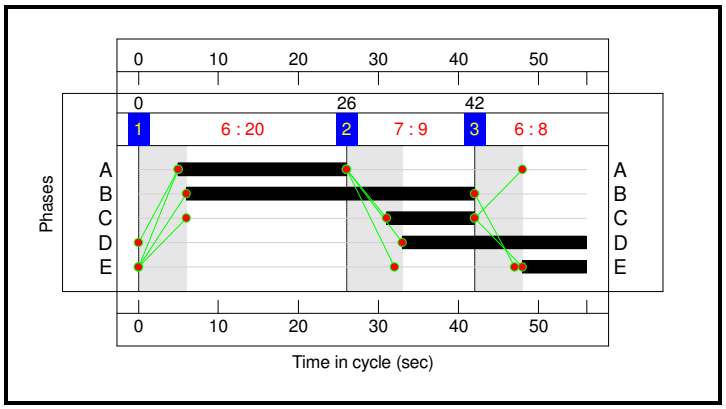
Stage Sequence Diagram



Stage Timings

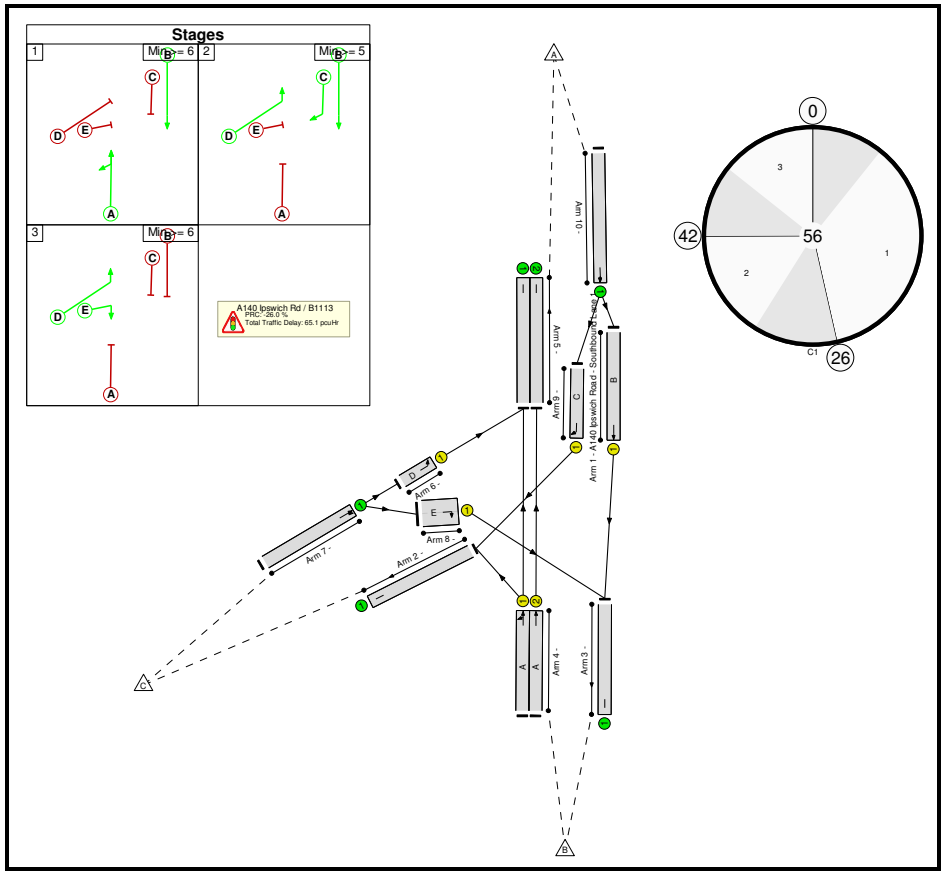
Stage	1	2	3
Duration	20	9	8
Change Point	0	26	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**113.4%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**113.4%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	1112	2010	1328	83.7%
2/1		U	N/A	N/A	-		-	-	-	609	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	1265	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	21	-	205	460	181	113.4%
4/2	Ahead	U	N/A	N/A	A		1	21	-	767	2600	1021	75.1%
5/1		U	N/A	N/A	-		-	-	-	275	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	767	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	23	-	275	620	266	103.5%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	428	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	153	890	143	107.0%
9/1	Right	U	N/A	N/A	C		1	11	-	404	1835	393	102.7%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	1516	Inf	Inf	0.0%

Full Input Data And Results

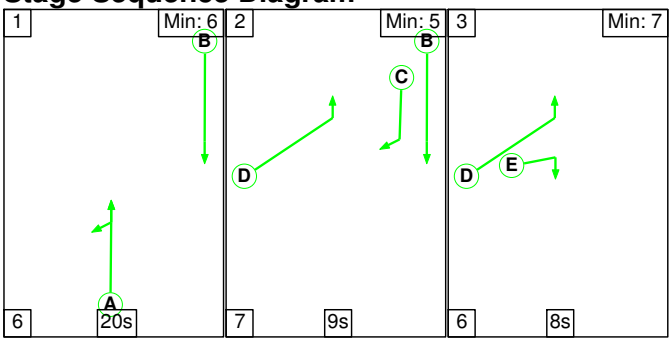
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**12.5**	**52.7**	**0.0**	**65.1**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**12.5**	**52.7**	**0.0**	**65.1**	**-**	**-**	**-**	**-**
1/1	1112	1112	-	-	-	2.2	2.5	-	4.7	15.4	13.0	2.5	15.5
2/1	574	574	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	1255	1255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	205	181	-	-	-	1.6	15.5	-	17.1	299.7	3.6	15.5	19.0
4/2	767	767	-	-	-	3.1	1.5	-	4.6	21.6	10.2	1.5	11.7
5/1	266	266	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	767	767	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	275	266	-	-	-	1.5	10.9	-	12.5	163.2	4.4	10.9	15.4
7/1	428	428	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	153	143	-	-	-	1.3	9.2	-	10.5	246.4	1.3	4.6	5.9
9/1	404	393	-	-	-	2.7	13.1	-	15.8	140.7	6.5	13.1	19.6
10/1	1516	1516	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -26.0 Total Delay for Signalled Lanes (pcuHr): 65.15 Cycle Time (s): 56
PRC Over All Lanes (%): -26.0 Total Delay Over All Lanes(pcuHr): 65.15

Full Input Data And Results

Scenario 5: '2022 AM Peak + Proposed Development' (FG5: '2022 AM Peak Hour + Proposed Development', Plan 1: 'Network Control Plan 1')

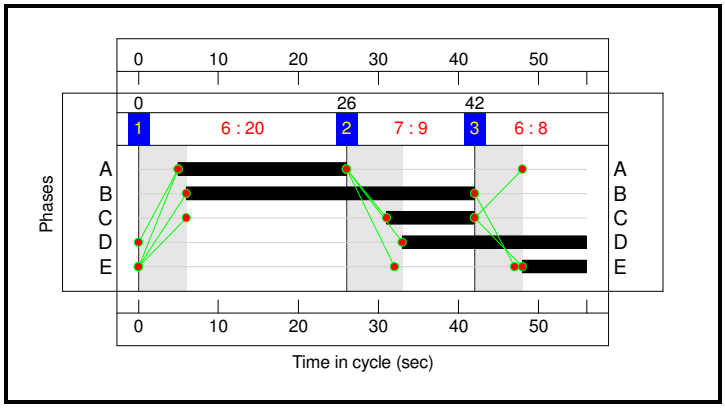
Stage Sequence Diagram



Stage Timings

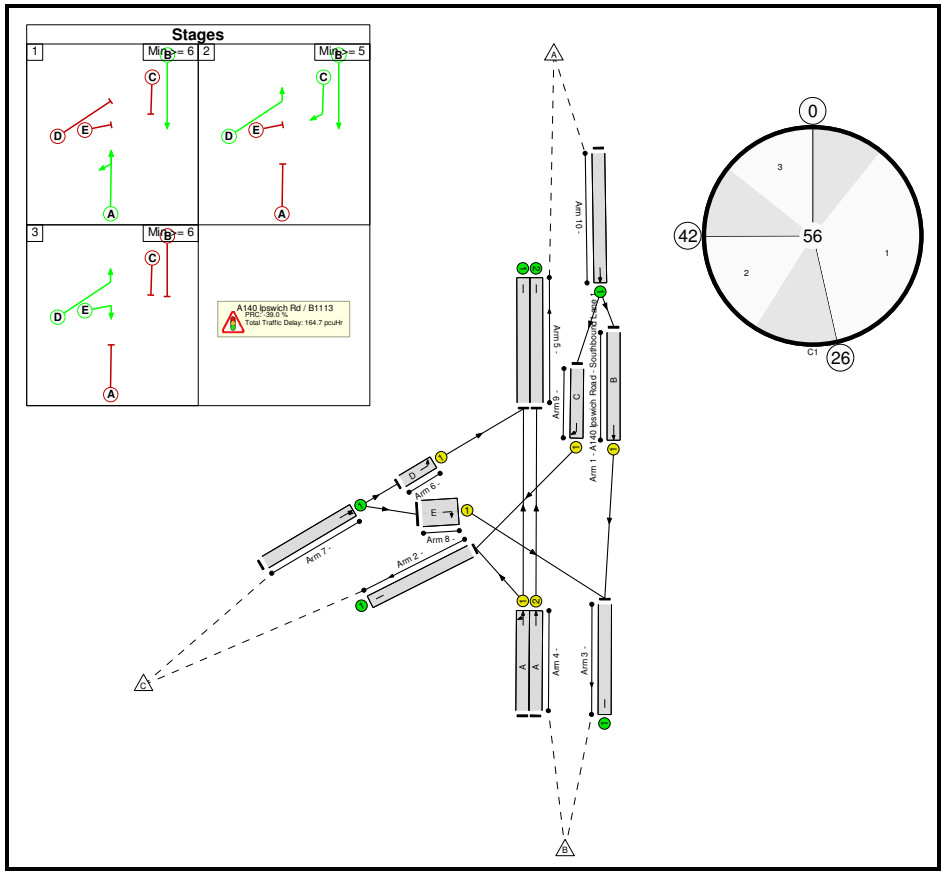
Stage	1	2	3
Duration	20	9	8
Change Point	0	26	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**125.1%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**125.1%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	706	1065	704	100.3%
2/1		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	897	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	21	-	734	1660	652	112.6%
4/2	Ahead	U	N/A	N/A	A		1	21	-	711	1610	632	112.4%
5/1		U	N/A	N/A	-		-	-	-	1122	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	711	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	23	-	569	1295	555	102.5%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	760	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	191	950	153	125.1%
9/1	Right	U	N/A	N/A	C		1	11	-	167	795	170	98.0%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	873	Inf	Inf	0.0%

Full Input Data And Results

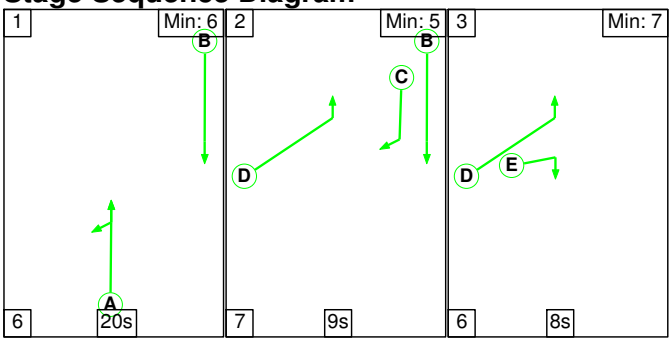
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**19.4**	**145.2**	**0.0**	**164.7**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**19.4**	**145.2**	**0.0**	**164.7**	**-**	**-**	**-**	**-**
1/1	706	704	-	-	-	1.9	13.9	-	15.8	80.6	11.0	13.9	24.9
2/1	328	328	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	856	856	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	734	652	-	-	-	5.6	45.0	-	50.6	248.3	12.7	45.0	57.7
4/2	711	632	-	-	-	5.4	43.4	-	48.8	246.9	12.3	43.4	55.6
5/1	1046	1046	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	633	633	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	569	555	-	-	-	3.0	15.9	-	18.9	119.8	9.1	15.9	25.0
7/1	760	760	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	191	153	-	-	-	2.5	21.4	-	23.9	449.6	2.0	10.7	12.7
9/1	167	167	-	-	-	1.0	5.7	-	6.7	144.3	2.6	5.7	8.2
10/1	873	873	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -39.0 Total Delay for Signalled Lanes (pcuHr): 164.67 Cycle Time (s): 56
PRC Over All Lanes (%): -39.0 Total Delay Over All Lanes(pcuHr): 164.67

Full Input Data And Results

Scenario 6: '2022 PM Peak + Proposed Development' (FG6: '2022 PM Peak Hour + Proposed Development', Plan 1: 'Network Control Plan 1')

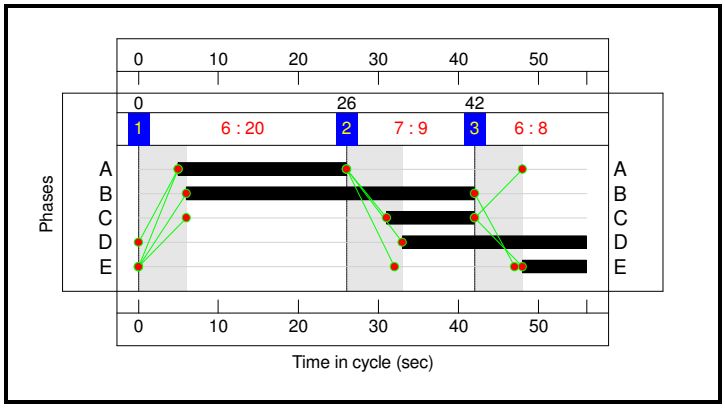
Stage Sequence Diagram



Stage Timings

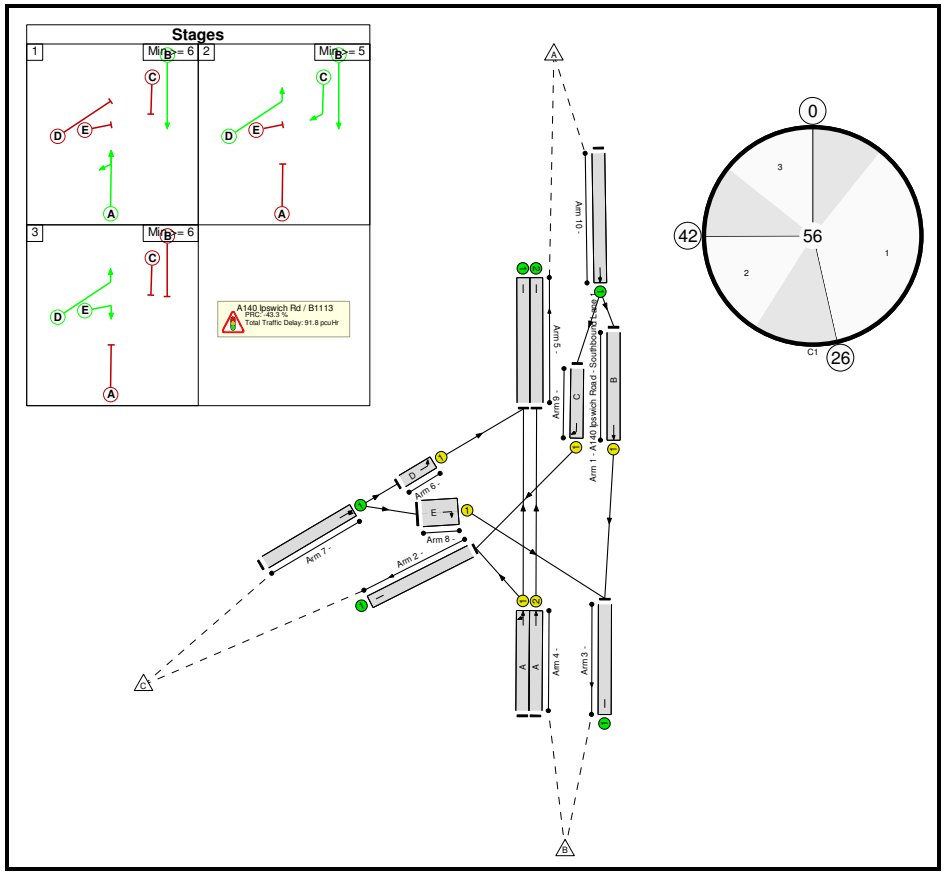
Stage	1	2	3
Duration	20	9	8
Change Point	0	26	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**128.9%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**128.9%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	1112	2010	1328	83.7%
2/1		U	N/A	N/A	-		-	-	-	637	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	1293	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	21	-	233	460	181	128.9%
4/2	Ahead	U	N/A	N/A	A		1	21	-	767	2600	1021	75.1%
5/1		U	N/A	N/A	-		-	-	-	275	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	767	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	23	-	275	620	266	103.5%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	456	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	181	890	143	126.5%
9/1	Right	U	N/A	N/A	C		1	11	-	404	1835	393	102.7%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	1516	Inf	Inf	0.0%

Full Input Data And Results

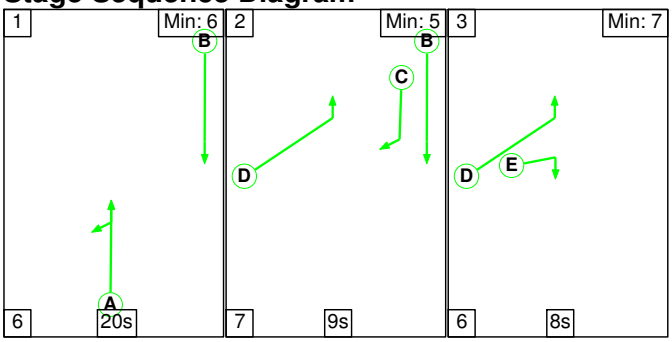
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**14.4**	**77.4**	**0.0**	**91.8**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**14.4**	**77.4**	**0.0**	**91.8**	**-**	**-**	**-**	**-**
1/1	1112	1112	-	-	-	2.2	2.5	-	4.7	15.4	13.0	2.5	15.5
2/1	574	574	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	1255	1255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	233	181	-	-	-	2.5	28.2	-	30.7	474.0	4.4	28.2	32.6
4/2	767	767	-	-	-	3.1	1.5	-	4.6	21.6	10.2	1.5	11.7
5/1	266	266	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	767	767	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	275	266	-	-	-	1.5	10.9	-	12.5	163.2	4.4	10.9	15.4
7/1	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	181	143	-	-	-	2.4	21.1	-	23.5	467.6	1.9	10.6	12.5
9/1	404	393	-	-	-	2.7	13.1	-	15.8	140.7	6.5	13.1	19.6
10/1	1516	1516	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -43.3 Total Delay for Signalled Lanes (pcuHr): 91.80 Cycle Time (s): 56
PRC Over All Lanes (%): -43.3 Total Delay Over All Lanes(pcuHr): 91.80

Full Input Data And Results

Scenario 7: '2022 AM Peak + Proposed Development - Sensitivity Test' (FG7: '2022 AM Peak Hour + Proposed Development - Sensitivity Test', Plan 1: 'Network Control Plan 1')

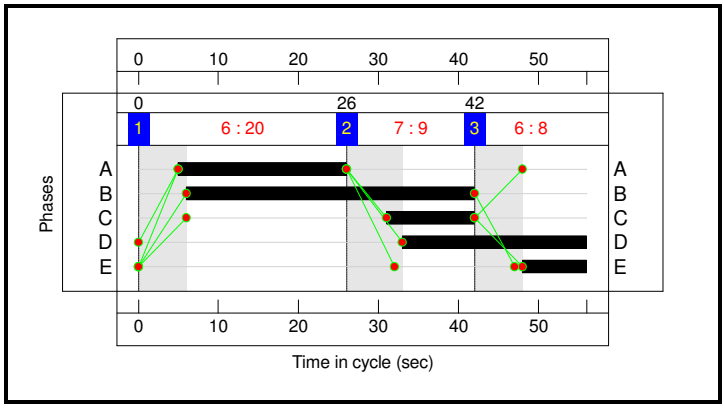
Stage Sequence Diagram



Stage Timings

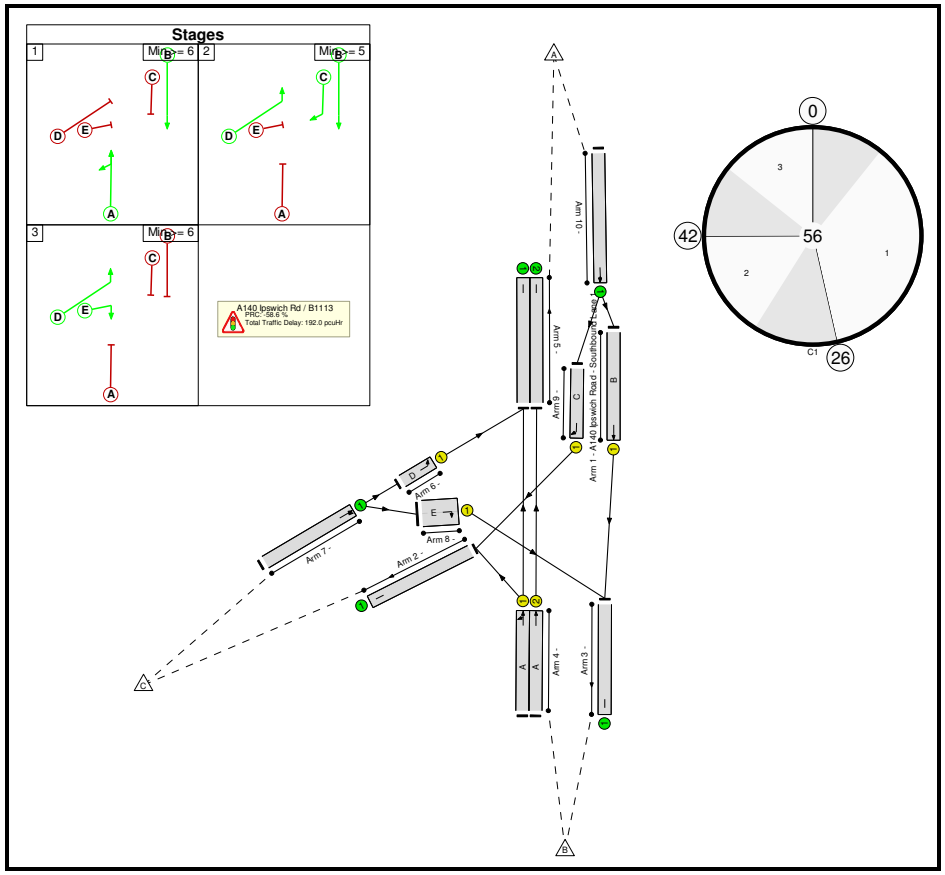
Stage	1	2	3
Duration	20	9	8
Change Point	0	26	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**142.8%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**142.8%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	706	1065	704	100.3%
2/1		U	N/A	N/A	-		-	-	-	375	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	924	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	21	-	747	1660	652	114.5%
4/2	Ahead	U	N/A	N/A	A		1	21	-	725	1610	632	114.6%
5/1		U	N/A	N/A	-		-	-	-	1108	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	725	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	23	-	569	1295	555	102.5%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	787	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	218	950	153	142.8%
9/1	Right	U	N/A	N/A	C		1	11	-	167	795	170	98.0%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	873	Inf	Inf	0.0%

Full Input Data And Results

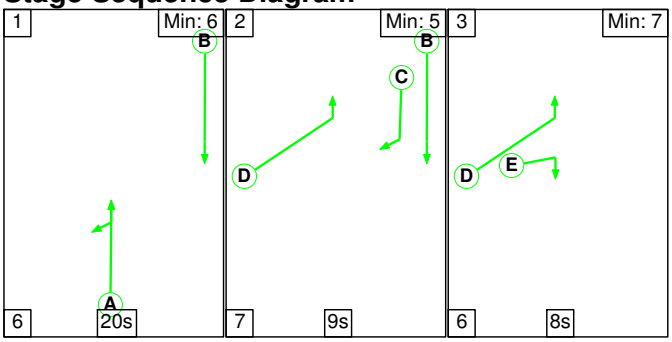
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**21.3**	**170.7**	**0.0**	**192.0**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**21.3**	**170.7**	**0.0**	**192.0**	**-**	**-**	**-**	**-**
1/1	706	704	-	-	-	1.9	13.9	-	15.8	80.6	11.0	13.9	24.9
2/1	349	349	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	856	856	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	747	652	-	-	-	6.0	51.1	-	57.1	275.2	13.1	51.1	64.2
4/2	725	632	-	-	-	5.9	49.9	-	55.7	276.8	12.7	49.9	62.6
5/1	1026	1026	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	633	633	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	569	555	-	-	-	3.0	15.9	-	18.9	119.8	9.1	15.9	25.0
7/1	787	787	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	218	153	-	-	-	3.5	34.3	-	37.7	623.3	2.6	17.1	19.7
9/1	167	167	-	-	-	1.0	5.7	-	6.7	144.3	2.6	5.7	8.2
10/1	873	873	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -58.6 Total Delay for Signalled Lanes (pcuHr): 192.01 Cycle Time (s): 56
PRC Over All Lanes (%): -58.6 Total Delay Over All Lanes(pcuHr): 192.01

Full Input Data And Results

Scenario 8: '2022 PM Peak + Proposed Development - Sensitivity Test' (FG8: '2022 PM Peak Hour + Proposed Development - Sensitivity Test', Plan 1: 'Network Control Plan 1')

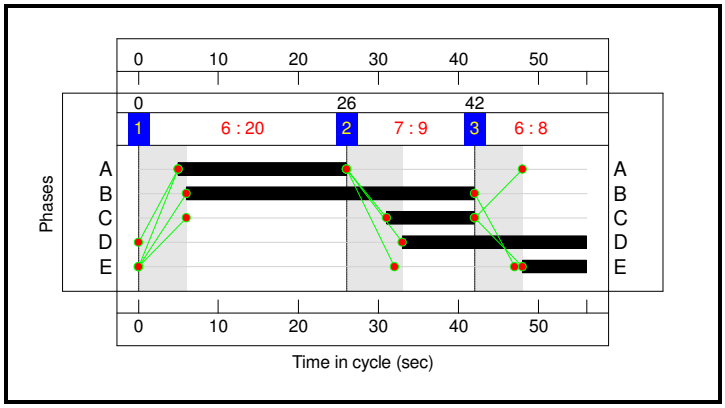
Stage Sequence Diagram



Stage Timings

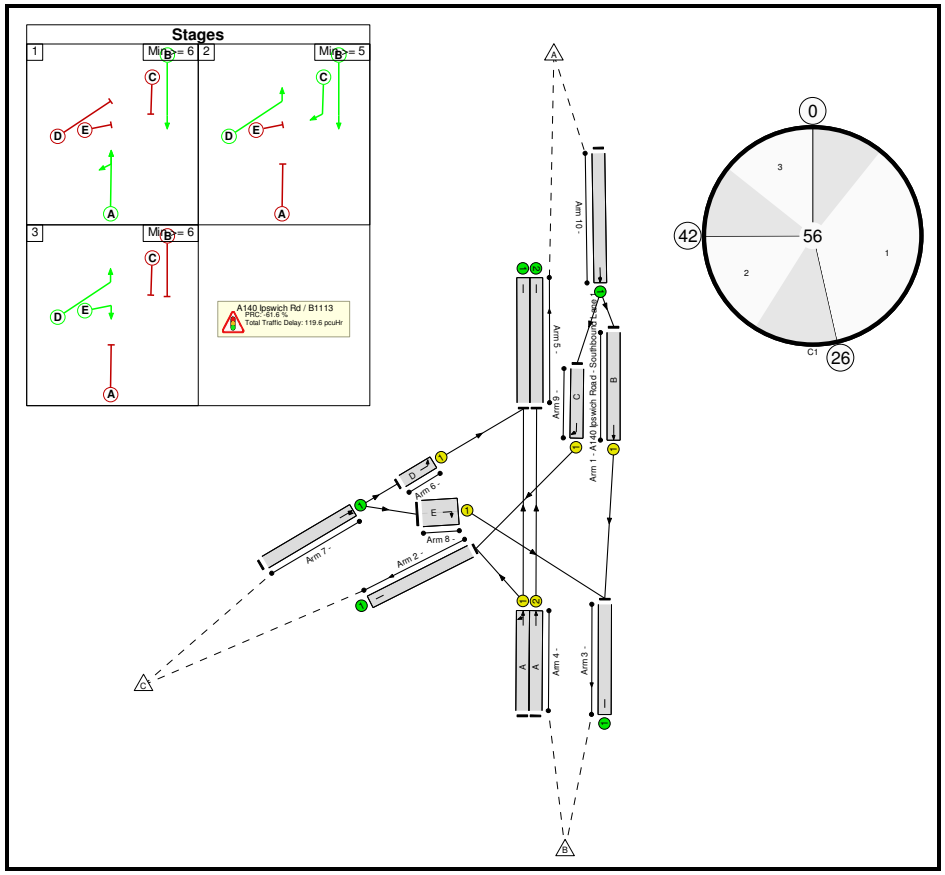
Stage	1	2	3
Duration	20	9	8
Change Point	0	26	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**145.4%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**145.4%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	1112	2010	1328	83.7%
2/1		U	N/A	N/A	-		-	-	-	664	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	1320	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	21	-	260	460	181	143.9%
4/2	Ahead	U	N/A	N/A	A		1	21	-	767	2600	1021	75.1%
5/1		U	N/A	N/A	-		-	-	-	275	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	767	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	23	-	275	620	266	103.5%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	208	890	143	145.4%
9/1	Right	U	N/A	N/A	C		1	11	-	404	1835	393	102.7%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	1516	Inf	Inf	0.0%

Full Input Data And Results

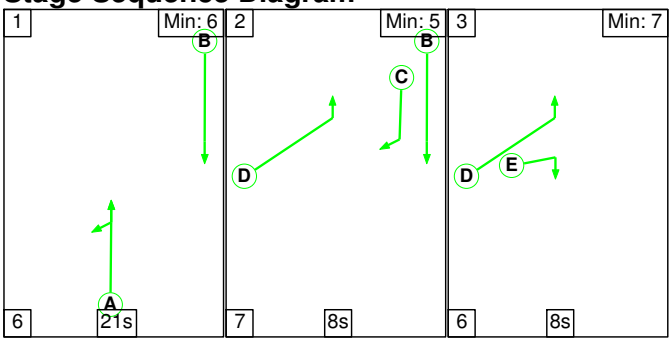
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**16.3**	**103.3**	**0.0**	**119.6**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**16.3**	**103.3**	**0.0**	**119.6**	**-**	**-**	**-**	**-**
1/1	1112	1112	-	-	-	2.2	2.5	-	4.7	15.4	13.0	2.5	15.5
2/1	574	574	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	1255	1255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	260	181	-	-	-	3.3	41.2	-	44.5	616.6	5.3	41.2	46.5
4/2	767	767	-	-	-	3.1	1.5	-	4.6	21.6	10.2	1.5	11.7
5/1	266	266	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	767	767	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	275	266	-	-	-	1.5	10.9	-	12.5	163.2	4.4	10.9	15.4
7/1	483	483	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	208	143	-	-	-	3.4	34.0	-	37.4	647.8	2.5	17.0	19.5
9/1	404	393	-	-	-	2.7	13.1	-	15.8	140.7	6.5	13.1	19.6
10/1	1516	1516	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -61.6 Total Delay for Signalled Lanes (pcuHr): 119.57 Cycle Time (s): 56
PRC Over All Lanes (%): -61.6 Total Delay Over All Lanes(pcuHr): 119.57

Full Input Data And Results

Scenario 9: 'Copy of 2022 AM Peak + Proposed Development' (FG5: '2022 AM Peak Hour + Proposed Development', Plan 1: 'Network Control Plan 1')

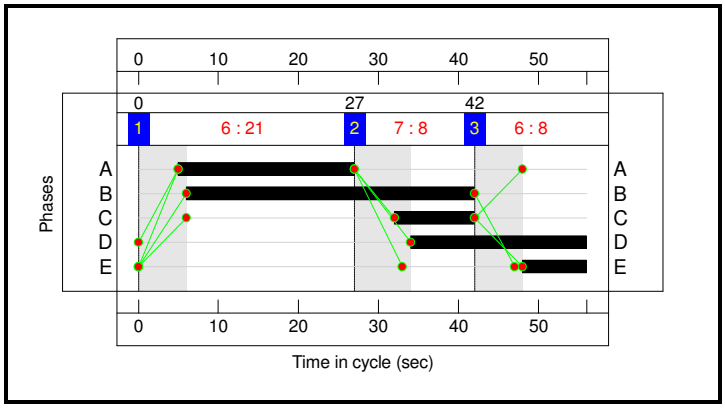
Stage Sequence Diagram



Stage Timings

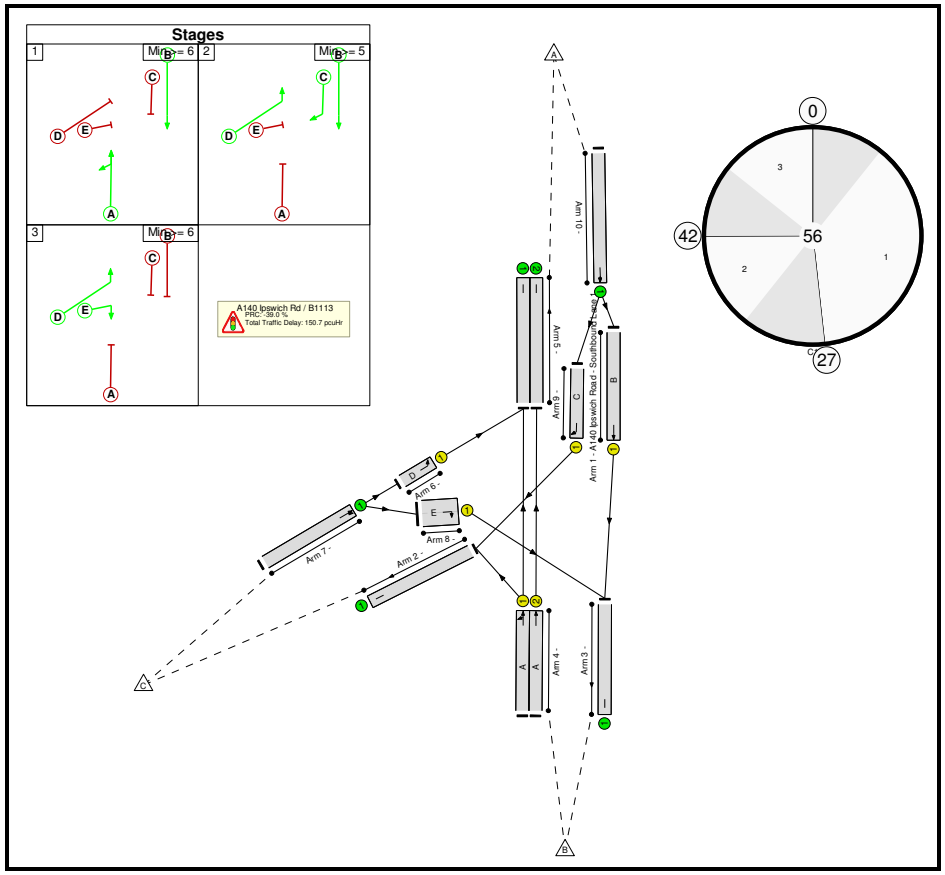
Stage	1	2	3
Duration	21	8	8
Change Point	0	27	42

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**125.1%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**125.1%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	36	-	706	1065	704	100.3%
2/1		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	897	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	22	-	734	1660	682	107.7%
4/2	Ahead	U	N/A	N/A	A		1	22	-	711	1610	661	107.5%
5/1		U	N/A	N/A	-		-	-	-	1122	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	711	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	22	-	569	1295	532	107.0%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	760	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	8	-	191	950	153	125.1%
9/1	Right	U	N/A	N/A	C		1	10	-	167	795	156	106.9%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	873	Inf	Inf	0.0%

Full Input Data And Results

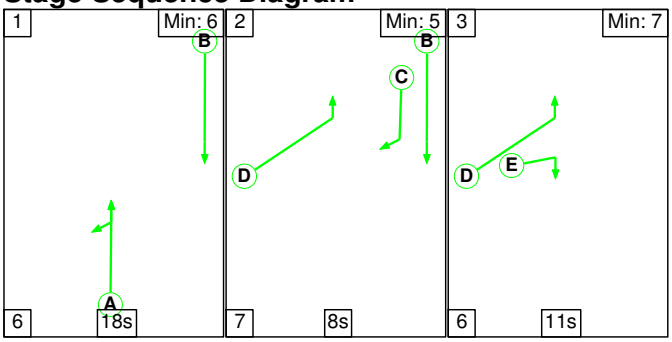
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**18.8**	**131.9**	**0.0**	**150.7**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**18.8**	**131.9**	**0.0**	**150.7**	**-**	**-**	**-**	**-**
1/1	706	704	-	-	-	1.9	13.9	-	15.8	80.6	11.0	13.9	24.9
2/1	324	324	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	856	856	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	734	682	-	-	-	4.7	31.9	-	36.6	179.5	12.2	31.9	44.1
4/2	711	661	-	-	-	4.6	30.7	-	35.2	178.4	11.8	30.7	42.5
5/1	1046	1046	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	661	661	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	569	532	-	-	-	3.9	24.4	-	28.2	178.7	9.5	24.4	33.9
7/1	760	760	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	191	153	-	-	-	2.5	21.4	-	23.9	449.6	2.0	10.7	12.7
9/1	167	156	-	-	-	1.3	9.7	-	11.0	236.7	2.8	9.7	12.5
10/1	873	873	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -39.0 Total Delay for Signalled Lanes (pcuHr): 150.71 Cycle Time (s): 56
PRC Over All Lanes (%): -39.0 Total Delay Over All Lanes(pcuHr): 150.71

Full Input Data And Results

Scenario 10: 'Copy of 2022 PM Peak + Proposed Development' (FG6: '2022 PM Peak Hour + Proposed Development', Plan 1: 'Network Control Plan 1')

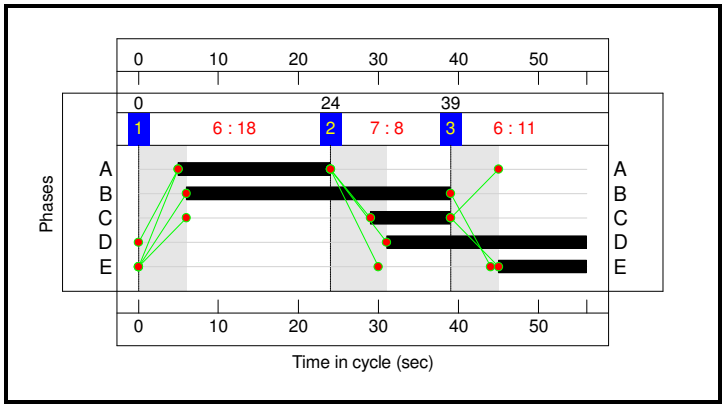
Stage Sequence Diagram



Stage Timings

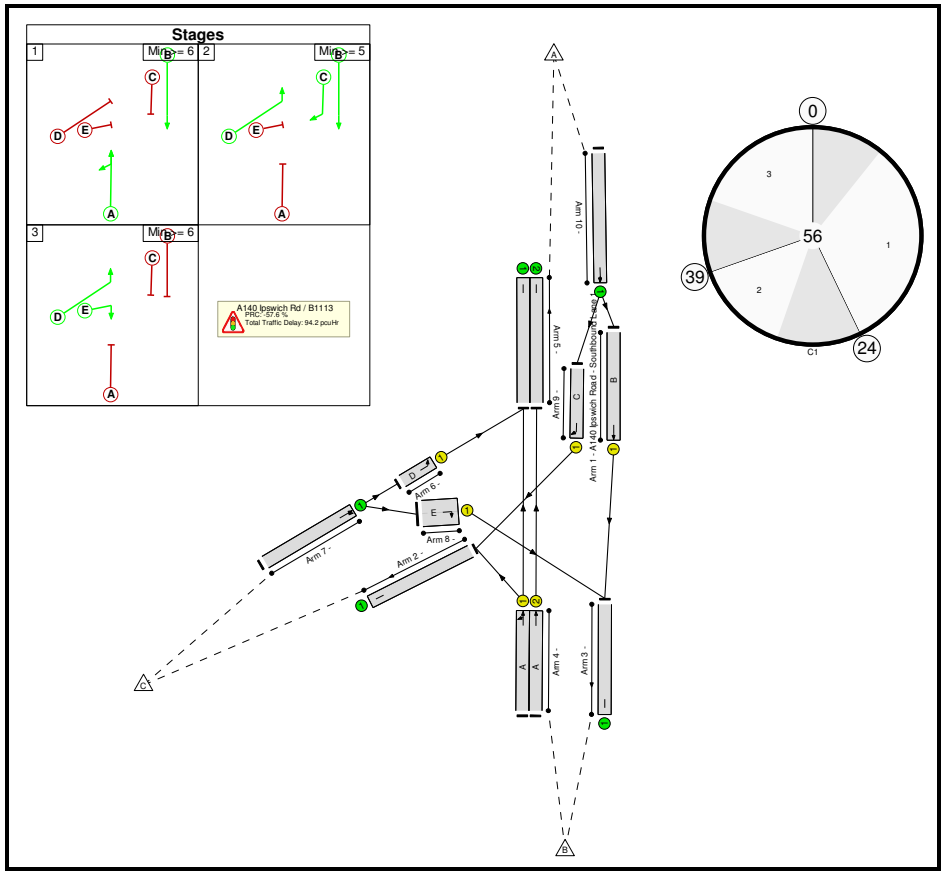
Stage	1	2	3
Duration	18	8	11
Change Point	0	24	39

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Existing junction model	-	-	**N/A**	-	-		-	-	-	-	-	-	**141.8%**
A140 Ipswich Rd / B1113	-	-	**N/A**	-	-		-	-	-	-	-	-	**141.8%**
1/1	A140 Ipswich Road - Southbound Lane 1 Ahead	U	N/A	N/A	B		1	33	-	1112	2010	1220	91.1%
2/1		U	N/A	N/A	-		-	-	-	637	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	1293	Inf	Inf	0.0%
4/1	Left Ahead	U	N/A	N/A	A		1	19	-	233	460	164	141.8%
4/2	Ahead	U	N/A	N/A	A		1	19	-	767	2600	929	82.6%
5/1		U	N/A	N/A	-		-	-	-	275	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	767	Inf	Inf	0.0%
6/1	Left	U	N/A	N/A	D		1	25	-	275	620	288	95.5%
7/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	456	Inf	Inf	0.0%
8/1	Right	U	N/A	N/A	E		1	11	-	181	890	191	94.9%
9/1	Right	U	N/A	N/A	C		1	10	-	404	1835	360	112.1%
10/1	Ahead Ahead2	U	N/A	N/A	-		-	-	-	1516	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Existing junction model	**-**	**-**	**0**	**0**	**0**	**15.1**	**79.1**	**0.0**	**94.2**	**-**	**-**	**-**	**-**
A140 Ipswich Rd / B1113	**-**	**-**	**0**	**0**	**0**	**15.1**	**79.1**	**0.0**	**94.2**	**-**	**-**	**-**	**-**
1/1	1112	1112	-	-	-	3.0	4.7	-	7.7	25.0	15.1	4.7	19.9
2/1	525	525	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	1293	1293	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	233	164	-	-	-	3.0	36.0	-	39.0	602.0	4.7	36.0	40.7
4/2	767	767	-	-	-	3.5	2.3	-	5.8	27.2	10.9	2.3	13.2
5/1	275	275	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	767	767	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	275	275	-	-	-	1.1	5.7	-	6.8	88.8	4.0	5.7	9.7
7/1	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	181	181	-	-	-	1.1	4.7	-	5.8	115.6	1.4	2.4	3.7
9/1	404	360	-	-	-	3.4	25.7	-	29.2	259.8	7.0	25.7	32.7
10/1	1516	1516	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -57.6 Total Delay for Signalled Lanes (pcuHr): 94.22 Cycle Time (s): 56
PRC Over All Lanes (%): -57.6 Total Delay Over All Lanes(pcuHr): 94.22

Appendix F Roundabout Operational Assessments

Junctions 9

ARCADY 9 - Roundabout Module

Filename: A148_B1110_B1149 Junction.j9
Path: P:\JNY8772 - Hornsea Project 3\Transport\Arcady
Report generation date: 13/04/2018 15:21:29

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2017					
1 - A148 (E)	0.4	3.32	0.28	0.8	4.49	0.45
2 - B1149	0.5	3.43	0.33	0.2	2.96	0.19
3 - B1110	0.2	4.15	0.18	0.1	3.29	0.10
4 - A148 (N)	0.4	3.47	0.26	0.7	3.72	0.40
	2022					
1 - A148 (E)	0.4	3.46	0.31	1.0	4.96	0.49
2 - B1149	0.6	3.66	0.36	0.3	3.09	0.21
3 - B1110	0.3	4.43	0.21	0.1	3.42	0.11
4 - A148 (N)	0.4	3.66	0.29	0.8	4.00	0.44
	2022 + Construction HGVs					
1 - A148 (E)	0.5	3.52	0.32	1.1	5.44	0.52
2 - B1149	0.6	3.77	0.38	0.3	3.44	0.24
3 - B1110	0.3	4.54	0.21	0.1	3.55	0.12
4 - A148 (N)	0.5	3.74	0.31	0.9	4.55	0.48

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	A148_B1110_B1149 Junction
Location	Holt
Site number	
Date	09/03/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EUR\charles.montgomerie
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:30	09:00	15
D2	2017	PM	ONE HOUR	16:15	17:45	15
D3	2022	AM	ONE HOUR	07:30	09:00	15
D4	2022	PM	ONE HOUR	16:15	17:45	15
D5	2022 + Construction HGVs	AM	ONE HOUR	07:30	09:00	15
D6	2022 + Construction HGVs	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2017, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A148 (E)	
2	B1149	
3	B1110	
4	A148 (N)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A148 (E)	3.75	8.00	14.0	10.0	35.0	26.5	
2 - B1149	3.75	6.50	26.5	20.0	35.0	15.5	
3 - B1110	3.75	7.00	13.5	7.5	35.0	25.0	
4 - A148 (N)	3.75	6.50	15.0	40.0	40.0	14.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A148 (E)	0.645	1724
2 - B1149	0.698	1850
3 - B1110	0.608	1584
4 - A148 (N)	0.684	1791

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A148 (E)		✓	386	100.000
2 - B1149		✓	465	100.000
3 - B1110		✓	177	100.000
4 - A148 (N)		✓	337	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	102	56	228
	2 - B1149	225	0	16	224
	3 - B1110	117	13	0	47
	4 - A148 (N)	210	105	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	9	4	7
	2 - B1149	3	0	6	2
	3 - B1110	3	15	0	6
	4 - A148 (N)	8	7	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - A148 (E)	0.28	3.32	0.4	A
2 - B1149	0.33	3.43	0.5	A
3 - B1110	0.18	4.15	0.2	A
4 - A148 (N)	0.26	3.47	0.4	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	291	105	1542	0.189	290	0.2	2.874	A
2 - B1149	350	230	1637	0.214	349	0.3	2.791	A
3 - B1110	133	508	1206	0.110	133	0.1	3.352	A
4 - A148 (N)	254	266	1491	0.170	253	0.2	2.906	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	347	126	1528	0.227	347	0.3	3.047	A
2 - B1149	418	275	1605	0.261	418	0.4	3.033	A
3 - B1110	159	608	1146	0.139	159	0.2	3.648	A
4 - A148 (N)	303	319	1457	0.208	303	0.3	3.119	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	425	154	1510	0.281	425	0.4	3.317	A
2 - B1149	512	337	1560	0.328	511	0.5	3.431	A
3 - B1110	195	745	1063	0.183	195	0.2	4.144	A
4 - A148 (N)	371	390	1410	0.263	371	0.4	3.465	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	425	154	1510	0.282	425	0.4	3.317	A
2 - B1149	512	337	1560	0.328	512	0.5	3.435	A
3 - B1110	195	745	1063	0.183	195	0.2	4.148	A
4 - A148 (N)	371	391	1409	0.263	371	0.4	3.466	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	347	126	1528	0.227	347	0.3	3.049	A
2 - B1149	418	275	1604	0.261	419	0.4	3.037	A
3 - B1110	159	609	1145	0.139	159	0.2	3.656	A
4 - A148 (N)	303	320	1456	0.208	303	0.3	3.125	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	291	105	1541	0.189	291	0.2	2.881	A
2 - B1149	350	231	1637	0.214	350	0.3	2.801	A
3 - B1110	133	510	1205	0.111	133	0.1	3.359	A
4 - A148 (N)	254	268	1490	0.170	254	0.2	2.911	A

2017, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.86	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2017	PM	ONE HOUR	16:15	17:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A148 (E)		✓	589	100.000
2 - B1149		✓	255	100.000
3 - B1110		✓	111	100.000
4 - A148 (N)		✓	583	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	219	96	274
	2 - B1149	111	0	7	137
	3 - B1110	76	14	0	21
	4 - A148 (N)	270	258	55	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	1	2	4
	2 - B1149	0	0	0	2
	3 - B1110	1	0	0	0
	4 - A148 (N)	2	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - A148 (E)	0.45	4.49	0.8	A
2 - B1149	0.19	2.96	0.2	A
3 - B1110	0.10	3.29	0.1	A
4 - A148 (N)	0.40	3.72	0.7	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	443	245	1524	0.291	442	0.4	3.323	A
2 - B1149	192	319	1604	0.120	191	0.1	2.548	A
3 - B1110	84	392	1330	0.063	83	0.1	2.886	A
4 - A148 (N)	439	151	1658	0.265	437	0.4	2.948	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	529	294	1493	0.355	529	0.5	3.732	A
2 - B1149	229	382	1559	0.147	229	0.2	2.705	A
3 - B1110	100	469	1282	0.078	100	0.1	3.043	A
4 - A148 (N)	524	181	1638	0.320	524	0.5	3.229	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	648	360	1451	0.447	647	0.8	4.475	A
2 - B1149	281	467	1499	0.187	281	0.2	2.955	A
3 - B1110	122	574	1217	0.100	122	0.1	3.286	A
4 - A148 (N)	642	221	1610	0.399	641	0.7	3.710	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	648	360	1451	0.447	648	0.8	4.487	A
2 - B1149	281	468	1498	0.187	281	0.2	2.956	A
3 - B1110	122	575	1217	0.100	122	0.1	3.288	A
4 - A148 (N)	642	221	1610	0.399	642	0.7	3.716	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	529	294	1493	0.355	531	0.6	3.747	A
2 - B1149	229	383	1559	0.147	229	0.2	2.708	A
3 - B1110	100	470	1282	0.078	100	0.1	3.048	A
4 - A148 (N)	524	181	1638	0.320	525	0.5	3.239	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	443	246	1523	0.291	444	0.4	3.339	A
2 - B1149	192	320	1603	0.120	192	0.1	2.551	A
3 - B1110	84	393	1329	0.063	84	0.1	2.889	A
4 - A148 (N)	439	151	1657	0.265	439	0.4	2.958	A

2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.70	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2022	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A148 (E)		✓	420	100.000
2 - B1149		✓	505	100.000
3 - B1110		✓	192	100.000
4 - A148 (N)		✓	366	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	111	61	248
	2 - B1149	245	0	17	243
	3 - B1110	127	14	0	51
	4 - A148 (N)	228	114	24	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	9	4	7
	2 - B1149	3	0	6	2
	3 - B1110	3	15	0	6
	4 - A148 (N)	8	7	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - A148 (E)	0.31	3.46	0.4	A
2 - B1149	0.36	3.66	0.6	A
3 - B1110	0.21	4.43	0.3	A
4 - A148 (N)	0.29	3.66	0.4	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	316	114	1536	0.206	315	0.3	2.946	A
2 - B1149	380	250	1623	0.234	379	0.3	2.892	A
3 - B1110	145	552	1179	0.123	144	0.1	3.475	A
4 - A148 (N)	276	290	1476	0.187	275	0.2	2.995	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	378	137	1521	0.248	377	0.3	3.147	A
2 - B1149	454	299	1587	0.286	454	0.4	3.176	A
3 - B1110	173	661	1114	0.155	172	0.2	3.824	A
4 - A148 (N)	329	347	1438	0.229	329	0.3	3.244	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	462	167	1501	0.308	462	0.4	3.461	A
2 - B1149	556	366	1539	0.361	555	0.6	3.660	A
3 - B1110	211	809	1024	0.206	211	0.3	4.428	A
4 - A148 (N)	403	424	1387	0.290	403	0.4	3.653	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	462	167	1501	0.308	462	0.4	3.464	A
2 - B1149	556	367	1538	0.361	556	0.6	3.664	A
3 - B1110	211	810	1023	0.207	211	0.3	4.433	A
4 - A148 (N)	403	425	1387	0.291	403	0.4	3.657	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	378	137	1521	0.248	378	0.3	3.152	A
2 - B1149	454	300	1587	0.286	455	0.4	3.181	A
3 - B1110	173	663	1113	0.155	173	0.2	3.833	A
4 - A148 (N)	329	348	1438	0.229	329	0.3	3.251	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	316	115	1535	0.206	316	0.3	2.953	A
2 - B1149	380	251	1622	0.234	381	0.3	2.902	A
3 - B1110	145	555	1178	0.123	145	0.1	3.484	A
4 - A148 (N)	276	291	1475	0.187	276	0.2	3.001	A

2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	4.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2022	PM	ONE HOUR	16:15	17:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A148 (E)		✓	640	100.000
2 - B1149		✓	278	100.000
3 - B1110		✓	121	100.000
4 - A148 (N)		✓	633	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	238	104	298
	2 - B1149	121	0	8	149
	3 - B1110	83	15	0	23
	4 - A148 (N)	293	280	60	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	1	2	4
	2 - B1149	0	0	0	2
	3 - B1110	1	0	0	0
	4 - A148 (N)	2	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - A148 (E)	0.49	4.96	1.0	A
2 - B1149	0.21	3.09	0.3	A
3 - B1110	0.11	3.42	0.1	A
4 - A148 (N)	0.44	4.00	0.8	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	482	266	1510	0.319	480	0.5	3.487	A
2 - B1149	209	346	1584	0.132	209	0.2	2.615	A
3 - B1110	91	426	1309	0.070	91	0.1	2.955	A
4 - A148 (N)	477	164	1649	0.289	475	0.4	3.063	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	575	319	1477	0.390	575	0.6	3.987	A
2 - B1149	250	415	1536	0.163	250	0.2	2.798	A
3 - B1110	109	510	1257	0.087	109	0.1	3.135	A
4 - A148 (N)	569	197	1627	0.350	569	0.5	3.399	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	705	390	1431	0.492	703	1.0	4.936	A
2 - B1149	306	508	1470	0.208	306	0.3	3.092	A
3 - B1110	133	625	1186	0.112	133	0.1	3.419	A
4 - A148 (N)	697	241	1597	0.436	696	0.8	3.991	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	705	391	1431	0.492	705	1.0	4.956	A
2 - B1149	306	509	1469	0.208	306	0.3	3.094	A
3 - B1110	133	625	1185	0.112	133	0.1	3.420	A
4 - A148 (N)	697	241	1597	0.436	697	0.8	3.999	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	575	320	1476	0.390	577	0.6	4.007	A
2 - B1149	250	416	1535	0.163	250	0.2	2.804	A
3 - B1110	109	511	1256	0.087	109	0.1	3.138	A
4 - A148 (N)	569	197	1627	0.350	570	0.5	3.411	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	482	268	1510	0.319	483	0.5	3.508	A
2 - B1149	209	348	1583	0.132	209	0.2	2.620	A
3 - B1110	91	428	1308	0.070	91	0.1	2.961	A
4 - A148 (N)	477	165	1648	0.289	477	0.4	3.076	A

2022 + Construction HGVs, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2022 + Construction HGVs	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A148 (E)		✓	433	100.000
2 - B1149		✓	522	100.000
3 - B1110		✓	192	100.000
4 - A148 (N)		✓	397	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	111	61	261
	2 - B1149	245	0	17	260
	3 - B1110	127	14	0	51
	4 - A148 (N)	242	131	24	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	9	4	6
	2 - B1149	3	0	6	2
	3 - B1110	3	15	0	6
	4 - A148 (N)	7	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - A148 (E)	0.32	3.52	0.5	A
2 - B1149	0.38	3.77	0.6	A
3 - B1110	0.21	4.54	0.3	A
4 - A148 (N)	0.31	3.74	0.5	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	326	127	1537	0.212	325	0.3	2.967	A
2 - B1149	393	260	1617	0.243	392	0.3	2.935	A
3 - B1110	145	575	1167	0.124	144	0.1	3.517	A
4 - A148 (N)	299	290	1489	0.201	298	0.3	3.019	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	389	152	1521	0.256	389	0.3	3.181	A
2 - B1149	469	311	1580	0.297	469	0.4	3.239	A
3 - B1110	173	688	1099	0.157	172	0.2	3.887	A
4 - A148 (N)	357	347	1451	0.246	357	0.3	3.289	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	477	186	1499	0.318	476	0.5	3.519	A
2 - B1149	575	381	1530	0.376	574	0.6	3.763	A
3 - B1110	211	842	1006	0.210	211	0.3	4.528	A
4 - A148 (N)	437	424	1400	0.312	437	0.5	3.736	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	477	186	1499	0.318	477	0.5	3.522	A
2 - B1149	575	381	1530	0.376	575	0.6	3.767	A
3 - B1110	211	843	1005	0.210	211	0.3	4.535	A
4 - A148 (N)	437	425	1399	0.312	437	0.5	3.741	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	389	152	1520	0.256	390	0.3	3.184	A
2 - B1149	469	311	1580	0.297	470	0.4	3.244	A
3 - B1110	173	690	1098	0.157	173	0.2	3.893	A
4 - A148 (N)	357	348	1451	0.246	357	0.3	3.293	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	326	127	1536	0.212	326	0.3	2.974	A
2 - B1149	393	261	1616	0.243	393	0.3	2.946	A
3 - B1110	145	577	1165	0.124	145	0.1	3.526	A
4 - A148 (N)	299	291	1488	0.201	299	0.3	3.027	A

2022 + Construction HGVs, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	4.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2022 + Construction HGVs	PM	ONE HOUR	16:15	17:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A148 (E)		✓	653	100.000
2 - B1149		✓	295	100.000
3 - B1110		✓	121	100.000
4 - A148 (N)		✓	664	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	238	104	311
	2 - B1149	121	0	8	166
	3 - B1110	83	15	0	23
	4 - A148 (N)	307	297	60	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A148 (E)	2 - B1149	3 - B1110	4 - A148 (N)
From	1 - A148 (E)	0	1	2	8
	2 - B1149	0	0	0	12
	3 - B1110	1	0	0	0
	4 - A148 (N)	7	8	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - A148 (E)	0.52	5.44	1.1	A
2 - B1149	0.24	3.44	0.3	A
3 - B1110	0.12	3.55	0.1	A
4 - A148 (N)	0.48	4.55	0.9	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	492	279	1466	0.335	490	0.5	3.678	A
2 - B1149	222	356	1487	0.149	221	0.2	2.842	A
3 - B1110	91	449	1282	0.071	91	0.1	3.022	A
4 - A148 (N)	500	164	1571	0.318	498	0.5	3.348	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	587	334	1430	0.410	586	0.7	4.262	A
2 - B1149	265	426	1439	0.184	265	0.2	3.066	A
3 - B1110	109	537	1224	0.089	109	0.1	3.226	A
4 - A148 (N)	597	197	1551	0.385	596	0.6	3.770	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	719	409	1381	0.521	717	1.1	5.413	A
2 - B1149	325	522	1373	0.237	324	0.3	3.433	A
3 - B1110	133	657	1146	0.116	133	0.1	3.553	A
4 - A148 (N)	731	241	1522	0.480	730	0.9	4.537	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	719	410	1381	0.521	719	1.1	5.440	A
2 - B1149	325	523	1372	0.237	325	0.3	3.435	A
3 - B1110	133	658	1146	0.116	133	0.1	3.555	A
4 - A148 (N)	731	241	1522	0.480	731	0.9	4.550	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	587	335	1430	0.411	589	0.7	4.289	A
2 - B1149	265	428	1438	0.184	266	0.2	3.073	A
3 - B1110	109	539	1223	0.089	109	0.1	3.230	A
4 - A148 (N)	597	197	1550	0.385	598	0.6	3.783	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - A148 (E)	492	280	1465	0.335	492	0.5	3.704	A
2 - B1149	222	358	1486	0.149	222	0.2	2.850	A
3 - B1110	91	451	1280	0.071	91	0.1	3.026	A
4 - A148 (N)	500	165	1571	0.318	501	0.5	3.366	A

Junctions 9

ARCADY 9 - Roundabout Module

Filename: B1145_B1149 junction.j9
Path: P:\JNY8772 - Hornsea Project 3\Transport\Arcady
Report generation date: 13/04/2018 15:27:42

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2017					
1 - B1145 (E)	0.2	3.27	0.19	0.3	3.27	0.21
2 - B1149 (S)	0.4	3.51	0.27	0.4	3.33	0.26
3 - B1145 (W)	0.2	3.39	0.18	0.2	3.18	0.14
4 - B1149 (N)	0.2	3.33	0.19	0.3	3.31	0.23
	2022					
1 - B1145 (E)	0.3	3.40	0.21	0.3	3.41	0.23
2 - B1149 (S)	0.4	3.67	0.29	0.4	3.48	0.29
3 - B1145 (W)	0.2	3.53	0.20	0.2	3.28	0.16
4 - B1149 (N)	0.3	3.45	0.21	0.3	3.44	0.25
	2022 + Construction HGVs					
1 - B1145 (E)	0.3	3.49	0.22	0.3	3.59	0.24
2 - B1149 (S)	0.5	3.82	0.32	0.4	3.82	0.31
3 - B1145 (W)	0.3	3.63	0.22	0.3	3.88	0.20
4 - B1149 (N)	0.3	3.70	0.24	0.4	3.89	0.29

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	B1149_B1145 Junction
Location	Cawston
Site number	
Date	09/03/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EUR\charles.montgomerie
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:30	09:00	15
D2	2017	PM	ONE HOUR	16:15	17:45	15
D3	2022	AM	ONE HOUR	07:30	09:00	15
D4	2022	PM	ONE HOUR	16:15	17:45	15
D5	2022 + Construction HGVs	AM	ONE HOUR	07:30	09:00	15
D6	2022 + Construction HGVs	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2017, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.39	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	B1145 (E)	
2	B1149 (S)	
3	B1145 (W)	
4	B1149 (N)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - B1145 (E)	3.50	7.00	9.0	27.5	40.0	16.5	
2 - B1149 (S)	3.50	6.50	11.5	25.0	35.0	17.0	
3 - B1145 (W)	3.50	6.00	10.5	27.5	35.0	18.0	
4 - B1149 (N)	3.25	6.00	16.0	27.5	40.0	16.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - B1145 (E)	0.645	1625
2 - B1149 (S)	0.657	1641
3 - B1145 (W)	0.643	1572
4 - B1149 (N)	0.644	1617

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2017	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - B1145 (E)		✓	239	100.000
2 - B1149 (S)		✓	342	100.000
3 - B1145 (W)		✓	212	100.000
4 - B1149 (N)		✓	233	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	66	147	26
	2 - B1149 (S)	77	0	63	202
	3 - B1145 (W)	140	59	0	13
	4 - B1149 (N)	17	206	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	3	3	15
	2 - B1149 (S)	4	0	6	9
	3 - B1145 (W)	4	3	0	0
	4 - B1149 (N)	18	5	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - B1145 (E)	0.19	3.27	0.2	A
2 - B1149 (S)	0.27	3.51	0.4	A
3 - B1145 (W)	0.18	3.39	0.2	A
4 - B1149 (N)	0.19	3.33	0.2	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	180	206	1425	0.126	179	0.1	2.888	A
2 - B1149 (S)	257	137	1442	0.179	257	0.2	3.037	A
3 - B1145 (W)	160	229	1366	0.117	159	0.1	2.981	A
4 - B1149 (N)	175	207	1398	0.125	175	0.1	2.941	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	215	247	1399	0.154	215	0.2	3.040	A
2 - B1149 (S)	307	164	1424	0.216	307	0.3	3.222	A
3 - B1145 (W)	191	274	1335	0.143	190	0.2	3.143	A
4 - B1149 (N)	209	248	1372	0.153	209	0.2	3.095	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	263	303	1363	0.193	263	0.2	3.272	A
2 - B1149 (S)	377	201	1401	0.269	376	0.4	3.514	A
3 - B1145 (W)	233	335	1294	0.180	233	0.2	3.393	A
4 - B1149 (N)	257	304	1337	0.192	256	0.2	3.331	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	263	303	1363	0.193	263	0.2	3.273	A
2 - B1149 (S)	377	201	1400	0.269	377	0.4	3.514	A
3 - B1145 (W)	233	336	1294	0.180	233	0.2	3.394	A
4 - B1149 (N)	257	304	1337	0.192	257	0.2	3.331	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	215	247	1398	0.154	215	0.2	3.042	A
2 - B1149 (S)	307	165	1424	0.216	308	0.3	3.225	A
3 - B1145 (W)	191	275	1335	0.143	191	0.2	3.148	A
4 - B1149 (N)	209	248	1372	0.153	210	0.2	3.099	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	180	207	1424	0.126	180	0.1	2.892	A
2 - B1149 (S)	257	138	1441	0.179	258	0.2	3.044	A
3 - B1145 (W)	160	230	1365	0.117	160	0.1	2.986	A
4 - B1149 (N)	175	208	1397	0.126	176	0.1	2.948	A

2017, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.29	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2017	PM	ONE HOUR	16:15	17:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - B1145 (E)		✓	264	100.000
2 - B1149 (S)		✓	345	100.000
3 - B1145 (W)		✓	168	100.000
4 - B1149 (N)		✓	291	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	75	165	24
	2 - B1149 (S)	65	0	63	217
	3 - B1145 (W)	117	43	0	8
	4 - B1149 (N)	33	244	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	1	1	0
	2 - B1149 (S)	2	0	0	3
	3 - B1145 (W)	2	2	0	13
	4 - B1149 (N)	0	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - B1145 (E)	0.21	3.27	0.3	A
2 - B1149 (S)	0.26	3.33	0.4	A
3 - B1145 (W)	0.14	3.18	0.2	A
4 - B1149 (N)	0.23	3.31	0.3	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	199	226	1461	0.136	198	0.2	2.848	A
2 - B1149 (S)	260	152	1506	0.172	259	0.2	2.884	A
3 - B1145 (W)	126	230	1386	0.091	126	0.1	2.857	A
4 - B1149 (N)	219	169	1457	0.150	218	0.2	2.905	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	237	270	1432	0.166	237	0.2	3.013	A
2 - B1149 (S)	310	182	1487	0.209	310	0.3	3.058	A
3 - B1145 (W)	151	275	1357	0.111	151	0.1	2.984	A
4 - B1149 (N)	262	202	1436	0.182	261	0.2	3.065	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	291	331	1391	0.209	290	0.3	3.269	A
2 - B1149 (S)	380	223	1460	0.260	380	0.3	3.330	A
3 - B1145 (W)	185	337	1317	0.140	185	0.2	3.178	A
4 - B1149 (N)	320	248	1407	0.228	320	0.3	3.312	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	291	331	1391	0.209	291	0.3	3.270	A
2 - B1149 (S)	380	224	1460	0.260	380	0.4	3.331	A
3 - B1145 (W)	185	337	1317	0.140	185	0.2	3.179	A
4 - B1149 (N)	320	248	1407	0.228	320	0.3	3.313	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	237	271	1431	0.166	238	0.2	3.018	A
2 - B1149 (S)	310	183	1487	0.209	310	0.3	3.060	A
3 - B1145 (W)	151	275	1357	0.111	151	0.1	2.986	A
4 - B1149 (N)	262	202	1435	0.182	262	0.2	3.067	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	199	227	1460	0.136	199	0.2	2.853	A
2 - B1149 (S)	260	153	1506	0.172	260	0.2	2.891	A
3 - B1145 (W)	126	231	1385	0.091	127	0.1	2.861	A
4 - B1149 (N)	219	170	1456	0.150	219	0.2	2.912	A

2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.53	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2022	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - B1145 (E)		✓	260	100.000
2 - B1149 (S)		✓	372	100.000
3 - B1145 (W)		✓	230	100.000
4 - B1149 (N)		✓	253	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	72	160	28
	2 - B1149 (S)	84	0	68	220
	3 - B1145 (W)	152	64	0	14
	4 - B1149 (N)	18	224	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	3	3	15
	2 - B1149 (S)	4	0	6	9
	3 - B1145 (W)	4	3	0	0
	4 - B1149 (N)	18	5	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - B1145 (E)	0.21	3.40	0.3	A
2 - B1149 (S)	0.29	3.67	0.4	A
3 - B1145 (W)	0.20	3.53	0.2	A
4 - B1149 (N)	0.21	3.45	0.3	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	196	224	1413	0.138	195	0.2	2.953	A
2 - B1149 (S)	280	149	1434	0.195	279	0.2	3.114	A
3 - B1145 (W)	173	249	1352	0.128	173	0.1	3.050	A
4 - B1149 (N)	190	225	1387	0.137	190	0.2	3.005	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	234	269	1385	0.169	234	0.2	3.126	A
2 - B1149 (S)	334	179	1415	0.236	334	0.3	3.330	A
3 - B1145 (W)	207	298	1319	0.157	207	0.2	3.235	A
4 - B1149 (N)	227	269	1359	0.167	227	0.2	3.180	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	286	329	1346	0.213	286	0.3	3.396	A
2 - B1149 (S)	410	219	1389	0.295	409	0.4	3.670	A
3 - B1145 (W)	253	365	1274	0.199	253	0.2	3.525	A
4 - B1149 (N)	279	330	1321	0.211	278	0.3	3.453	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	286	329	1346	0.213	286	0.3	3.396	A
2 - B1149 (S)	410	219	1389	0.295	410	0.4	3.673	A
3 - B1145 (W)	253	366	1274	0.199	253	0.2	3.526	A
4 - B1149 (N)	279	330	1320	0.211	279	0.3	3.454	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	234	269	1385	0.169	234	0.2	3.128	A
2 - B1149 (S)	334	179	1415	0.236	335	0.3	3.336	A
3 - B1145 (W)	207	299	1319	0.157	207	0.2	3.240	A
4 - B1149 (N)	227	270	1359	0.167	228	0.2	3.185	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	196	225	1413	0.139	196	0.2	2.960	A
2 - B1149 (S)	280	150	1433	0.195	280	0.2	3.124	A
3 - B1145 (W)	173	250	1351	0.128	173	0.1	3.055	A
4 - B1149 (N)	190	226	1386	0.137	191	0.2	3.012	A

2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2022	PM	ONE HOUR	16:15	17:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - B1145 (E)		✓	287	100.000
2 - B1149 (S)		✓	375	100.000
3 - B1145 (W)		✓	183	100.000
4 - B1149 (N)		✓	316	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	82	179	26
	2 - B1149 (S)	71	0	68	236
	3 - B1145 (W)	127	47	0	9
	4 - B1149 (N)	36	265	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	1	1	0
	2 - B1149 (S)	2	0	0	3
	3 - B1145 (W)	2	2	0	13
	4 - B1149 (N)	0	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - B1145 (E)	0.23	3.41	0.3	A
2 - B1149 (S)	0.29	3.48	0.4	A
3 - B1145 (W)	0.16	3.28	0.2	A
4 - B1149 (N)	0.25	3.44	0.3	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	216	245	1448	0.149	215	0.2	2.918	A
2 - B1149 (S)	282	165	1498	0.188	281	0.2	2.958	A
3 - B1145 (W)	138	250	1373	0.100	137	0.1	2.914	A
4 - B1149 (N)	238	184	1447	0.164	237	0.2	2.973	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	258	294	1416	0.182	258	0.2	3.107	A
2 - B1149 (S)	337	198	1477	0.228	337	0.3	3.157	A
3 - B1145 (W)	165	299	1341	0.123	164	0.1	3.058	A
4 - B1149 (N)	284	220	1424	0.199	284	0.2	3.156	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	316	360	1373	0.230	316	0.3	3.406	A
2 - B1149 (S)	413	242	1448	0.285	412	0.4	3.473	A
3 - B1145 (W)	201	366	1298	0.155	201	0.2	3.282	A
4 - B1149 (N)	348	270	1393	0.250	348	0.3	3.444	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	316	360	1372	0.230	316	0.3	3.407	A
2 - B1149 (S)	413	242	1448	0.285	413	0.4	3.476	A
3 - B1145 (W)	201	367	1298	0.155	201	0.2	3.282	A
4 - B1149 (N)	348	270	1393	0.250	348	0.3	3.444	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	258	294	1416	0.182	258	0.2	3.112	A
2 - B1149 (S)	337	198	1477	0.228	338	0.3	3.160	A
3 - B1145 (W)	165	300	1341	0.123	165	0.1	3.060	A
4 - B1149 (N)	284	220	1424	0.199	284	0.3	3.161	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	216	246	1448	0.149	216	0.2	2.925	A
2 - B1149 (S)	282	166	1498	0.189	283	0.2	2.962	A
3 - B1145 (W)	138	251	1372	0.100	138	0.1	2.918	A
4 - B1149 (N)	238	185	1447	0.164	238	0.2	2.980	A

2022 + Construction HGVs, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2022 + Construction HGVs	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - B1145 (E)		✓	260	100.000
2 - B1149 (S)		✓	398	100.000
3 - B1145 (W)		✓	248	100.000
4 - B1149 (N)		✓	274	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	72	160	28
	2 - B1149 (S)	84	0	79	235
	3 - B1145 (W)	152	75	0	21
	4 - B1149 (N)	18	239	17	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	3	3	15
	2 - B1149 (S)	4	0	5	9
	3 - B1145 (W)	4	3	0	0
	4 - B1149 (N)	18	5	54	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - B1145 (E)	0.22	3.49	0.3	A
2 - B1149 (S)	0.32	3.82	0.5	A
3 - B1145 (W)	0.22	3.63	0.3	A
4 - B1149 (N)	0.24	3.70	0.3	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	196	248	1394	0.140	195	0.2	3.001	A
2 - B1149 (S)	300	154	1429	0.210	299	0.3	3.181	A
3 - B1145 (W)	187	260	1346	0.139	186	0.2	3.102	A
4 - B1149 (N)	206	233	1341	0.154	206	0.2	3.168	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	234	297	1361	0.172	234	0.2	3.191	A
2 - B1149 (S)	358	184	1409	0.254	357	0.3	3.423	A
3 - B1145 (W)	223	312	1311	0.170	223	0.2	3.306	A
4 - B1149 (N)	246	279	1313	0.188	246	0.2	3.373	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	286	364	1317	0.217	286	0.3	3.490	A
2 - B1149 (S)	438	225	1381	0.317	438	0.5	3.812	A
3 - B1145 (W)	273	382	1264	0.216	273	0.3	3.630	A
4 - B1149 (N)	302	342	1275	0.237	301	0.3	3.699	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	286	364	1317	0.217	286	0.3	3.491	A
2 - B1149 (S)	438	226	1381	0.317	438	0.5	3.816	A
3 - B1145 (W)	273	382	1264	0.216	273	0.3	3.631	A
4 - B1149 (N)	302	342	1274	0.237	302	0.3	3.699	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	234	298	1361	0.172	234	0.2	3.194	A
2 - B1149 (S)	358	185	1409	0.254	358	0.3	3.430	A
3 - B1145 (W)	223	312	1311	0.170	223	0.2	3.312	A
4 - B1149 (N)	246	280	1313	0.188	247	0.2	3.376	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	196	249	1393	0.141	196	0.2	3.006	A
2 - B1149 (S)	300	154	1429	0.210	300	0.3	3.191	A
3 - B1145 (W)	187	262	1345	0.139	187	0.2	3.107	A
4 - B1149 (N)	206	234	1341	0.154	206	0.2	3.173	A

2022 + Construction HGVs, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1, 2, 3, 4	3.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2022 + Construction HGVs	PM	ONE HOUR	16:15	17:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - B1145 (E)		✓	287	100.000
2 - B1149 (S)		✓	381	100.000
3 - B1145 (W)		✓	217	100.000
4 - B1149 (N)		✓	340	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	82	179	26
	2 - B1149 (S)	71	0	68	242
	3 - B1145 (W)	127	68	0	22
	4 - B1149 (N)	36	289	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - B1145 (E)	2 - B1149 (S)	3 - B1145 (W)	4 - B1149 (N)
From	1 - B1145 (E)	0	1	1	0
	2 - B1149 (S)	2	0	14	9
	3 - B1145 (W)	2	21	0	50
	4 - B1149 (N)	0	9	30	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS
1 - B1145 (E)	0.24	3.59	0.3	A
2 - B1149 (S)	0.31	3.82	0.4	A
3 - B1145 (W)	0.20	3.88	0.3	A
4 - B1149 (N)	0.29	3.89	0.4	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	216	279	1411	0.153	215	0.2	3.010	A
2 - B1149 (S)	287	165	1409	0.204	286	0.3	3.202	A
3 - B1145 (W)	163	254	1239	0.132	163	0.2	3.343	A
4 - B1149 (N)	256	200	1357	0.189	255	0.2	3.262	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	258	334	1371	0.188	258	0.2	3.233	A
2 - B1149 (S)	343	198	1389	0.247	342	0.3	3.440	A
3 - B1145 (W)	195	305	1208	0.161	195	0.2	3.551	A
4 - B1149 (N)	306	239	1333	0.229	305	0.3	3.504	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	316	409	1318	0.240	316	0.3	3.593	A
2 - B1149 (S)	419	242	1361	0.308	419	0.4	3.819	A
3 - B1145 (W)	239	373	1167	0.205	239	0.3	3.877	A
4 - B1149 (N)	374	293	1299	0.288	374	0.4	3.891	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	316	410	1317	0.240	316	0.3	3.594	A
2 - B1149 (S)	419	242	1361	0.308	419	0.4	3.823	A
3 - B1145 (W)	239	373	1167	0.205	239	0.3	3.880	A
4 - B1149 (N)	374	293	1299	0.288	374	0.4	3.895	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	258	335	1371	0.188	258	0.2	3.239	A
2 - B1149 (S)	343	198	1388	0.247	343	0.3	3.444	A
3 - B1145 (W)	195	305	1208	0.161	195	0.2	3.557	A
4 - B1149 (N)	306	239	1332	0.229	306	0.3	3.511	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	LOS
1 - B1145 (E)	216	280	1410	0.153	216	0.2	3.018	A
2 - B1149 (S)	287	166	1408	0.204	287	0.3	3.213	A
3 - B1145 (W)	163	255	1238	0.132	164	0.2	3.352	A
4 - B1149 (N)	256	200	1357	0.189	256	0.2	3.273	A

Hornsea Project Three
Offshore Wind Farm

Hornsea Project Three

Offshore Wind Farm

Statement of Common Ground between Hornsea Project Three (UK) Ltd. and Natural England

Date: November 2018

Hornsea 3
Offshore Wind Farm

Ørsted

Statement of Common Ground between Orsted Hornsea Project Three (UK) Ltd. and Natural England

Ørsted

5 Howick Place,

London, SW1P 1WG

Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2018.

Revision History

Version	Date	Author	Context
1	July 2018	Ørsted	Pre-examination: Initial draft for discussion with Natural England
2	October 2018	Ørsted and Natural England	Updates following Natural England review

Signatories

Signed	K. L. Burton and E. Brown
Name	Louise Burton and Emma Brown
Position	Marine Senior Advisers
For	Natural England

Signed	[redacted]
Name	Andrew Guyton
Position	Hornsea Three Consents Manager
For	Ørsted Hornsea Project Three (UK) Ltd

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Acronyms

Acronym	Description
CEA	Cumulative Effects Assessment
Cefas	Centre for Environment, Fisheries & Aquaculture Science
CoCP	Code of Construction Practice
DCO	Development Consent Order
cSAC	Candidate Special Area of Conservation
EIA	Environmental Impact Assessment
EMP	Ecological Management Plan
EWG	Expert Working Group
Ex.A	Examining Authority
HRA	Habitats Regulations Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Directional Current
HDD	Horizontal Directional Drilling
LSE	Likely Significant Effects
MCZ	Marine Conservation Zone
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Mammal Organisation
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
RSPB	Royal Society for the Protection of Birds
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SCI	Site of Community Importance
SoCG	Statement of Common Ground
TTS	Temporary Threshold Shift
TWT	The Wildlife Trusts

Acronym	Description
UXO	Unexploded Ordinance

1. Introduction

Overview

1.1 This Statement of Common Ground (SoCG) has been prepared by Orsted Hornsea Project Three (UK) Ltd. ('the Applicant') and Natural England (together 'the parties') as a means of clearly stating the areas of agreement, and any areas of disagreement, between the two parties in relation to the proposed Development Consent Order (DCO) application for the Hornsea Project Three offshore wind farm (hereafter referred to as 'Hornsea Three'). This SoCG does not deal with or extend to any development other than Hornsea Three.

Approach to SoCG

1.2 This SoCG has been developed during the pre-application phase of Hornsea Three. In accordance with discussions between the parties, the SoCG is therefore, focused on those issues raised by Natural England within its response to Scoping, Section 42 consultation and as raised through the Evidence Plan process that has underpinned the pre-application consultation between the parties.

1.3 The structure of this SoCG is as follows:

- Section 1: Introduction;
- Section 2: Consultation;
- Section 3: Agreements Log (offshore);
- Section 4: Agreements Log (onshore); and
- Section 5: Summary.

1.4 It is the intention that this document will help facilitate post application discussions between the parties and also give the Examining Authority (Ex.A) an early sight of the level of common ground between both parties from the outset of the examination process.

Hornsea Three

1.5 Hornsea Three is a proposed offshore wind farm located in the southern North Sea, with a total capacity of up to 2,400 MW and will include all associated offshore (including up to 300 turbines) and onshore infrastructure.

1.6 The key components of Hornsea Three include:

- Turbines and associated foundations;
- Turbine foundations;
- Array cables;
- Offshore substation(s), and platform(s) and associated foundations;
- Offshore accommodation platform/s and associated foundations;
- Offshore export cable/s;
- Offshore and/or onshore High Voltage Alternating Current (HVAC) booster station(s) (HVAC transmission option only);
- Onshore cables; and
- Onshore High Voltage Direct Current (HVDC) converter/HVAC substation.

1.7 The Hornsea Three array area (i.e. the area in which the turbines are located) is approximately 696 km^2 and is located approximately 121 km northeast off the Norfolk coast and 160 km east of the Yorkshire coast.

1.8 The Hornsea Three offshore cable corridor extends from the Norfolk coast, offshore in a north-easterly direction to the western and southern boundary of the Hornsea Three array area. The Hornsea Three offshore cable corridor is approximately 163 km in length.

1.9 From the Norfolk coast, underground cables will connect the offshore wind farm to an onshore HVDC converter/HVAC substation, which will in turn, connect to an existing National Grid substation. Hornsea Three will connect to the existing Norwich Main National Grid substation, located to the south of Norwich. The Hornsea Three onshore cable corridor is 55 km in length at its fullest extent.

2. Consultation

Application elements under Natural England's remit

2.1 Work Nos. 1 to 5 (offshore works), and 6 to 15 (onshore works) detailed in Part 1 of Schedule 1 of the draft DCO (Document A3.1) describe the elements of Hornsea Three which may affect the interests (fish and shellfish ecology, marine mammals, seascape and visual resources, ecology and nature conservation, and landscape and visual resources) of Natural England.

Consultation summary

2.2 This section briefly summarises the consultation that the Applicant has undertaken with Natural England. Those technical topics of the Development Consent application of relevance to Natural England (and therefore considered within this SoCG) comprise:

- Fish and Shellfish Ecology;
- Marine Mammals;
- Seascape and Visual Resources;
- Onshore Ecology and Nature Conservation;
- Landscape and Visual Resources; and
- The Report to Inform Appropriate Assessment (RIAA).

2.3 Due to the nature and complexities of offshore ornithology, a separate SoCG has been developed with Natural England to address this topic (including RIAA related ornithology issues). A separate SoCG has also been developed with Natural England and JNCC to address marine processes and benthic ecology matters.

Pre-Application

2.4 The Applicant has engaged with Natural England on Hornsea Three during the pre-application process, both in terms of informal non-statutory engagement and formal consultation carried out pursuant to section 42 of the Planning Act 2008.

2.5 Table 2.1 summarises the consultation undertaken between the parties during the pre-application phase, including consultation through scoping, consultation on the Preliminary Environmental Information Report (PEIR), further section 42 consultation undertaken in November 2017 and the focused section 42 consultation in February 2018.

2.6 In addition to section 42 consultation, the Applicant held several meetings with Natural England through the Evidence Plan process (further detail of this consultation is presented in Volume 5, Annex 1 - Evidence Plan; Document A5.5.1).

Post-application

2.7 Table 2.2 summarises the consultation undertaken between the parties during the post-application phase.

Table 2.1: Pre-application consultation with Natural England.

Date	Attending	Detail
Overarching		
Re-occurring throughout pre-application phase	Natural England	Regular meetings to discuss project status.
22 March 2016	PINS, Natural England and MMO	Evidence Plan Steering Group
18 July 2016	PINS, Natural England, MMO and Cefas	Evidence Plan Steering Group
08 September 2016	Natural England	Meeting to discuss project outline and update including the scoping area including what data will be presented in the scoping report assessment.
17 October 2016	Natural England	Meeting to discuss project updates and the intended level of detail to be presented within the PEIR.
26 October 2016	N/A	Scoping report published for consultation by the Applicant.
25 November 2016	N/A	Natural England letter response to scoping report.
16 December 2016	Natural England	Meeting to discuss project updates, ornithology matters, MCZ and cable installation lessons learnt.
27 January 2017	PINS, Natural England, MMO and Cefas	Evidence Plan Steering Group
22 May 2017	PINS, Natural England, MMO and Cefas	Evidence Plan Steering Group
26 July 2017	N/A	PEIR published by the Applicant for consultation (section 42).
20 September 2017	N/A	Natural England letter response providing comments on PEIR.
16 November 2017	N/A	Further statutory consultation published by the Applicant.
11 December 2017	N/A	Natural England letter response to further statutory consultation.
31 January 2018	PINS, Natural England, MMO and Cefas	Evidence Plan Steering Group
28 February 2018	N/A	Focused statutory consultation published by the Applicant.

Date	Attending	Detail
3 April 2018	N/A	Natural England letter response to focused statutory consultation.
Offshore		
10 March 2016	Natural England, MMO and PINS	Marine Mammal Expert Working Group (EWG)
13 April 2016	Natural England, TWT and MMO (Marine Mammal EWG)	Marine Mammal EWG
06 June 2016	Natural England, MMO and Cefas	Marine Processes, Benthic Ecology and Fish Ecology EWG
12 July 2016	Natural England, MMO and Cefas	Marine Processes, Benthic Ecology and Fish Ecology EWG
04 August 2016	Natural England and TWT (Marine Mammal EWG)	Marine Mammal EWG
17 November 2016	Natural England, MMO, TWT and Cefas	Marine Processes, Benthic Ecology and Fish Ecology EWG
23 November 2016	Natural England, MMO and TWT	Marine Mammal EWG
01 February 2017	Natural England, MMO, TWT and Cefas	Marine Processes, Benthic Ecology and Fish Ecology EWG Meeting to discuss Marine Processes, Benthic Ecology and Fish and Shellfish Ecology matters, including surveys and evidence base.
28 March 2017	Natural England, TWT, MMO	Marine Mammal EWG
10 July 2017	Natural England, TWT, MMO	Marine Mammal EWG
20 November 2017	Natural England, MMO and TWT	Marine Mammal EWG
04 December 2017	PINS, Natural England, MMO, Cefas and TWT	Marine Processes, Benthic Ecology and Fish Ecology EWG
15 February 2018	Natural England, MMO, Cefas and TWT	Marine Mammal EWG

Date	Attending	Detail
23 February 2018	Natural England, MMO, Cefas and TWT	Marine Processes, Benthic Ecology and Fish Ecology EWG
Onshore		
17 February 2017	TWT, Natural England, Norfolk County Council, Environment Agency, RSPB, North Norfolk District Council	Onshore Ecology EWG
28 April 2017	TWT, Natural England, Norfolk County Council, Environment Agency, RSPB, North Norfolk District Council	Onshore Ecology EWG
25 June 2017	TWT, Natural England, Norfolk County Council, Environment Agency, RSPB	Onshore Ecology EWG
02 November 2017	TWT, Norfolk County Council, Environment Agency, RPSB	Onshore Ecology EWG
23 March 2018	TWT, Norfolk County Council, Environment Agency, North Norfolk District Council, RSPB	Onshore Ecology EWG

Table 2.2: Post application consultation with Natural England.

Date	Detail
25 July 2018	Meeting to discuss Natural England's Relevant Representation.
2 October 2018	Meeting to discuss high level approach to resolving outstanding issues, including updates to SoCG on All Other Matters.

Date	Detail
25 October 2018	Meeting to discuss updates to SoCG on All Other Matters primarily regarding Marine Mammals.
26 October 2018	Meeting to discuss updates to SoCG on All Other Matters regarding Onshore matters.

3. Agreement Log (offshore)

3.1 The following section of this SoCG identifies the level of agreement between the parties for each relevant component of the application material (as identified in paragraph 2.1 and 2.2) relevant to fish and shellfish, marine mammal and seascape and visual resources matters. In order to easily identify whether a matter is "agreed", "under discussion" or indeed "not agreed" a colour coding system of green, yellow and orange, respectively, is used in the "final position" column to represent the respective status of discussions. To date, the agreed final positions as outlined in the following sections have been achieved through the evidence plan process during the pre-application phase.

3.2 Section 4 of this SoCG identifies the level of agreement between the parties for each relevant component of the application as it relates to ecology and nature conservation landward of MHWS, and landscape and visual resources landward of MLWS.

Fish and Shellfish Ecology

3.3 Hornsea Three has the potential to impact upon fish and shellfish ecology and these interactions are duly considered within Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement (Document A6.2.3).

3.4 Table 3.1 identifies the status of discussions relating to this topic area between the parties.

Marine Mammals

3.5 Hornsea Three has the potential to impact upon marine mammal receptors and these interactions are duly considered within Volume 2, Chapter 4: Marine Mammals of the Environmental Statement (Document A6.2.4).

3.6

3.7 Table 3.2 identifies the status of discussions relating to this topic area between the parties.

Seascape and Visual Resources

3.8 Hornsea Three has the potential to impact upon seascape and visual resources and these interactions are duly considered within Volume 2, Chapter 10: Seascape and Visual Resources (Document A6.2.10) of the Environmental Statement.

3.9 Table 3.3 identifies the status of discussions relating to this topic area between the parties.

Table 3.1: Fish and shellfish ecology.

Discussion point	Hornsea Three position	Natural England's position	Final position
Environmental Impact Assessment			
Policy and planning	Section 3.4 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement has identified all appropriate plans and policies relevant to fish and shellfish ecology and due regard has been given to them within the assessment.	Agreed	**Agreed**
Baseline environment	Sufficient primary and secondary data, as listed in Section 3.6 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement, has been collated to appropriately characterise the baseline environment (in Section 3.7 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement) to inform the EIA.	Agreed	**Agreed**
	The existing characterisation of sandeel habitats within the Hornsea Three array area and offshore cable corridor in Section 3.7 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement is sufficient for the purposes of undertaking the EIA. It is not necessary to undertake further surveys to characterise sandeel habitat given that the EIA has adopted a precautionary approach which assumes that sandeel spawning habitat extends across the whole Hornsea Three array area.	Agreed	**Agreed**
	All data gaps have been highlighted and all appropriate measures for filling any data gaps have been proposed.	Agreed	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
Assessment methodology	The evidence based approach to the assessment of effects is deemed appropriate for the purposes of predicting potential effects on the receiving environment.	Agreed	**Agreed**
	The potential impacts identified within Section 3.8 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement represent a comprehensive list of potential impacts on fish and shellfish ecology from Hornsea Three.	Agreed	**Agreed**
	The definitions used for magnitude and sensitivity, as outlined in Section 3.9 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement are appropriate.	Agreed	**Agreed**
	The maximum design scenarios identified for each impact in Table 3.11 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement are appropriate based on the information presented in Volume 1, Chapter 3: Project Description of the Environmental Statement (Document A6.1.3).	Agreed	**Agreed**
	All the conservation sites relevant to the fish and shellfish ecology topic with the potential to be affected by Hornsea Three have been considered within Section 3.7.5 and Section 3.11 of Volume 2, Chapter 2: Fish and Shellfish Ecology of the Environmental Statement.	Agreed	**Agreed**
	The list of projects screened into the Cumulative Effect Assessment (CEA) in Section 3.12 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement are appropriate. This includes only those projects within the representative CEA buffers described in Table 3.23 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement and those projects for which sufficient project detail is available. Sufficient project detail to enable a meaningful assessment was not available for Norfolk Boreas and Hornsea Four wind farms. Dogger Bank Teesside A is outside of the representative 100 km buffer from Hornsea Three.	List of other plans and projects: There are some inconsistencies on the projects scoped in/out for cumulative impact assessment. In Vol. Chapter 6 (Commercial Fisheries) the Dogger Bank Teesside A wind farm has been included in the Tier 3 projects, in Vol. 2 Chapter 3 (Fish and Shellfish Ecology) only the	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
	The location of these schemes relative to Hornsea Three, including the 50 km and 100 km buffer zones around Hornsea Three, are shown in Volume 4, Annex 5.3: Location of Cumulative Schemes (APP-098).	neighbouring Dogger Bank Creyke Beck A, Dogger Bank Creyke Beck B and Dogger Bank Teesside B (Sofia offshore wind farm) have been considered. Similarly in Vol. 2 Chapter 6 the Norfolk Boreas and Hornsea Four wind farms have been included in the Tier 3 projects while in Vol. 2 - Ch 3 only Norfolk Vanguard (in close proximity with Norfolk Boreas) was considered in the Tier 3, while only Hornsea Projects One and Two are considered in Tier 1. We request that further clarification is provided to justify if and why the Dogger Bank Teesside A, Norfolk Boreas and Hornsea Four wind farms were scoped out from the assessment.	
Assessment conclusions	With the exception of the assessment of underwater noise associated with unexploded ordinance (UXO) detonation which remains under discussion, the assessment of potential effects on fish and shellfish receptors in Section 3.11 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement is appropriate and no impacts from the construction, operation and maintenance and/or decommissioning of Hornsea Three will be significant in EIA terms given the implementation of the measures adopted as part of Hornsea three (see Section 3.10 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement).		**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
	The underwater noise modelling is appropriate for informing the assessment of effects from piling on fish and the modelling has been based on the most appropriate threshold criteria and metrics. It is appropriate that underwater noise associated with UXO detonation has not been modelled on the basis that i) detonations will represent very short duration occurrences (i.e. seconds) and therefore will have a considerably shorter overall duration than piling operations (see paragraph 3.11.1.72 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement); and ii) the thresholds for potential injury for UXO detonations are higher than for piling and so are within the predicted impact ranges outlined in Table 3.18 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement.	Point to clarify: Paragraph 3.11.1.60 states that 'underwater noise modelling has not been undertaken for underwater noise associated with UXO detonation, however the ASA guidelines (Popper et al., 2014) indicate that the noise levels at which potential injury effects in fish species may occur are higher for explosions than for piling activities. As such, any injury effects associated with UXO detonation would be within the areas presented Table 3.18.' Table 3.18 refers to the range of distances where recoverable injury from piling can occur in species of fish. However UXOs and piling are different types of noises and it is not necessarily the case that the worst case scenario for piling would include noise from UXO detonation.	**Agreed**
	No significant cumulative effects are predicted in Section 3.13 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement.	Point to clarify: In section 3.12 for the cumulative impact assessment, two buffer zones of 50 km and 100 km were considered. The only impact for which a cumulative impact	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
		assessment was conducted within the 100 km buffer was for underwater noise, while for all others a 50 km buffer was used. In the cumulative impact assessment of the increase in SSC and associated sediment deposition the buffer is not specified at all. Could the applicant provide reasoning behind using the specific buffer zone for each of the impacts as it is currently not clear what parameters were taken into account? It would be helpful to have the two buffer zones (50 km and 100 km) added to Figure 3.6: Offshore project/plans/activities screened into the Hornsea Three Cumulative Effects Assessment (CEA) for fish and shellfish ecology.	
	No further mitigation to those embedded measures identified in Section 3.10 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement is necessary as a result of the assessment conclusions.	Agreed	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
Report to Inform Appropriate Assessment (Document A5.2)			
Screening	All relevant sites for fish and shellfish receptors are identified within the HRA Screening Report (Document A5.2.1).	Agreed	**Agreed**
	No sites are identified as having potential LSE from Hornsea Three alone or in-combination and therefore, no further assessment within the RIAA (Document A5.2) is required.	Agreed	**Agreed**
Draft Development Consent Order			
Commitments / restrictions	The commitment to producing a Project Environmental Management and Monitoring Plan (Schedule 11, Part 2, Condition 11(1)(d) and Schedule 12, Part 2, Condition 12(1)(d) of the draft DCO (Document 3.1)), that must be submitted to and approved by the MMO prior to the commencement of construction activities, is appropriate to ensure that the potential for release of pollutants from construction, operation and maintenance, and decommissioning plant is minimised.	Agreed	**Agreed**
	In the event that driven or part-driven pile foundations are proposed to be used, the commitment to soft start procedures (Schedule 11, Part 2, Condition 11(1)(g) and Schedule 12, Part 2, Condition 12(1)(g) of the draft DCO), is appropriate to reduce the risk of injury to fish species in the immediate vicinity of piling operations.	Agreed	**Agreed**
	The commitment to producing a Cable Specification and Installation Plan (Schedule 11, Part 2, Condition 11(1)(h) and Schedule 12, Part 2, Condition 12(1)(h) of the draft DCO), which will include a desk-based assessment of attenuation of electro-magnetic field (EMF) strengths, shielding and cable burial depth in accordance with industry good practice, that must be submitted to and approved by the MMO prior to the commencement of construction activities, is appropriate to ensure the effect of EMF on fish and shellfish receptors is within	Agreed	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
	the range assessed in Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement.		
	Given the embedded measures identified in Section 3.10 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement and Environmental Statement conclusions (see Section 3.16 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement) no further specific commitments and/or restrictions are required in the DCO for fish and shellfish ecology.	Agreed	**Agreed**
Monitoring	Given the Environmental Statement conclusions (see Section 3.16 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement), no site specific monitoring is required for fish and shellfish ecology.	Agreed	**Agreed**

Table 3.2: Marine mammals.

Discussion point	Hornsea Three position	Natural England's position	Final position
Environmental Impact Assessment			
Policy and planning	Section 4.4 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement has identified all appropriate plans and policies relevant to marine mammals and due regard has been given to them within the assessment.	Agreed	**Agreed**
Baseline environment	Sufficient primary and secondary data, as listed in Section 4.6 Volume 2, Chapter 4: Marine Mammals of the Environmental Statement has been collated to appropriately characterise the baseline environment (in Section 4.7 Volume 2, Chapter 4: Marine Mammals of the Environmental Statement) to inform the EIA	Agreed	**Agreed**
	The reference populations, densities and study areas for all marine mammals considered within Section 4.7 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement are appropriate.	Agreed	**Agreed**
Assessment methodology	The potential impacts identified within Section 4.8 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement represent a comprehensive list of potential impacts on marine mammals from Hornsea Three.	Agreed	**Agreed**
	The definitions used for magnitude and sensitivity, as outlined in Section 4.9 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement are appropriate.	Agreed	**Agreed**
	The maximum design scenarios identified for each impact in Table 4.15 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement are appropriate based on the	Agreed	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
	information presented in Volume 1, Chapter 3: Project Description of the Environmental Statement (Document A6.1.3).		
	The TTS (Temporary Threshold Shift) threshold is not appropriate for use as the behavioural threshold of 'fleeing' for multiple pulse noise.	Agreed	**Agreed**
	It is appropriate for TTS ranges to have been presented as a separate impact to disturbance, with the disturbance impacts assessed through the application of dose response curves.	Agreed	**Agreed**
	The underwater noise modelling and use of INSPIRE is appropriate for informing the assessment of effects from piling on marine mammals and that the modelling has been based on the most appropriate threshold criteria and metrics.	Agreed	**Agreed**
	Hornsea Three has not included within its application a request for permission for Unexploded Ordinance (UXO) detonation but notwithstanding this the assessment in Section 4.11 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement has considered this potential activity to an appropriate level of detail.	Natural England agrees that Hornsea Three has recognised the potential effect of UXO clearance even though they are not seeking to consent such clearance works within this DCO application.	**Agreed**
	The Applicant has provided further clarification in response to the CEA comments from Natural England in Appendix A of this SoCG.	Notwithstanding the agreement for the assessment of the project alone, Natural England consider that the CEA should assess UXO (at all wind farms) with piling (at all wind farms) and seismic activities. It should also be noted that larger UXOs from the wind farm alone could potentially injure 200 porpoise per explosion. That is not insignificant and should be reflected as much within the assessment.	**Under discussion**

Discussion point	Hornsea Three position	Natural England's position	Final position
	It is agreed that given the potential for UXO's anywhere within the Order Limits, it is more appropriate to use SCANS III data over site specific data for just the array area.	Agreed	**Agreed**
	The assessment of impacts from vessel activity in Section 4.11 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement have addressed the comments raised by Natural England in the Marine Mammal EWG meeting (20 November 2017) and in their S42 consultation response on the PEIR.	Agreed	**Agreed**
	The list of projects screened into the Cumulative Effect Assessment (CEA) in Section 4.12 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement are appropriate.	Agreed	**Agreed**
	A qualitative approach to including seismic survey activity within the cumulative assessment in Section 4.13 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement is appropriate.	Natural England is content with how seismic survey activity has been assessed.	**Agreed**
	The Applicant has provided further clarification in response to the CEA comment from Natural England in Appendix A of this SoCG.	See comment on the UXO above. Notwithstanding the above agreed statement, Natural England considers that the cumulative assessment still needs to assess UXOs (at all wind farms) with piling (at all wind farms) AND seismic.	**Under discussion**

Discussion point	Hornsea Three position	Natural England's position	Final position
Assessment conclusions	The assessment of potential effects on marine mammal receptors in Section 4.11 Volume 2, Chapter 4: Marine Mammals of the Environmental Statement, is appropriate and no impacts from the construction, operation and maintenance and/or decommissioning of Hornsea Three alone will be significant in EIA terms given the implementation of the measures adopted as part of Hornsea Three (see Section 4.10 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement).	Agreed	**Agreed**
	It is agreed that moderate cumulative effects are predicted in Section 4.13 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement, as a result of the uncertainty in which other projects may have temporal overlap of the Hornsea Three piling schedules and uncertainty surrounding the population consequences of disturbance over this timescale. The Applicant has provided further clarification in response to the comment from Natural England in Appendix A of this SoCG.	Whilst Natural England agrees that it is not a realistic for the worst case theoretical combination of projects to occur, they retain concerns with regard to the Applicant's conclusion that "*The conclusion for Tier 1 and 2 combined states: moderate for the duration of the piling (~12 yrs)* ***but minor in terms of long term population level effects, therefore not an issue in terms of the EIA***". Notwithstanding this, Natural England agrees that in principle (and notwithstanding the concerns cited below) the Site Integrity Plan commitment will ensure that significant levels of overlapping "noisy" activity will not occur without appropriate mitigation in place and therefore, in EIA terms long term population level effects are unlikely.	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
		Whilst Natural England agree that the SIP is the appropriate control measure to manage concerns relating to cumulative disturbance effects on marine mammals, Natural England notes the forthcoming Review of Consents (RoC) regarding the Southern North Sea cSAC, required under regulation 33 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. Natural England has advised that as part of the RoC process the SNCB advice on acceptability of disturbance using the Thresholds Approach needs to be applied (subjected to no other suitable alternative approach/s being presented) for those projects that are already consented. The SNCBs are aware from our work with the developers and review of the environmental statements for consented projects that certain Round 3 OWF projects have the ability to exceed the 20% disturbance threshold, especially if piling occurs simultaneously. Therefore, as part of the RoC process a mechanism needs to be identified and implemented to control the number of piling events to ensure that thresholds are not exceeded. It is Natural England advice that until that happens an AEoI cannot be excluded for consented projects.	**Under discussion**
	It is agreed that no further mitigation to those embedded measures identified in Section 4.10 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement is necessary as a result of the assessment conclusions. The Applicant has provided further clarification in response to the comment from Natural England in Appendix A of this SoCG.	Whilst Natural England agrees that the measures proposed by the Hornsea Three are appropriate, given the regulatory concerns mentioned in the point above, we currently cannot agree with this statement.	**Under discussion**

Discussion point	Hornsea Three position	Natural England's position	Final position
	The Applicant notes Natural England's response on this point, and is aware that the RoC process has produced draft outputs which point towards the need for projects to commit to a SIP to ensure appropriate control measures is in place for the SNS SCI. As discussed with Natural England, the Applicant has made this commitment and has produced an outline SIP for Deadline I. It is hoped therefore, that this matter can be resolved with Natural England in due course.		
Report to Inform Appropriate Assessment (Document A5.2)			
Screening	All relevant sites for marine mammals receptors are identified within the HRA Screening Report (Document A5.2.1) and the only sites which have the potential for LSE from Hornsea Three alone or in-combination is the southern North Sea candidate SAC (cSAC); for harbour porpoise, The Wash and North Norfolk Coast SAC for harbour seal, Doggerbank Site of Community Importance (SCI) for harbour seal and grey seal, Klavernack SCI for harbour porpoise, harbour seal and grey seal, Humber Estuary SAC/Ramsar and Noordzeekustzone SAC for grey seal.	Agreed	**Agreed**
	The only impacts where LSE has been identified or could not be ruled out for the sites and features identified above are: Underwater noise and Changes in prey availability.	Agreed	**Agreed**
Assessment methodology	The methodology for assessing effects on marine mammal features within the RIAA (Document A5.2) has been undertaken in accordance with guidance from Natural England and is appropriate.	Agreed	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
	For the disturbance assessment in the RIAA, the standard distance of 26 km has been followed, in line with the recent work around the southern North Sea cSAC.	Agreed	**Agreed**
Assessment conclusions	It is agreed that no adverse effect on integrity of Natura 2000 sites are predicted from Hornsea Three alone.	Agreed	**Agreed**
	The magnitude of the in-combination underwater noise impact on harbour porpoise, in relation to behavioural effects, is uncertain as it depends on the timing of works at other projects. There is most certainty about those projects included in Tier 1 and there is no indication that these would lead to an adverse effect on integrity for the Southern North Sea cSAC as their combined effect is below the agreed threshold. There is less certainty in relation to other projects. Although inclusion of all projects in tiers 2 and 3 (in addition to tier 1) could theoretically result in an exceedance of the agreed threshold, it is considered that a scenario where all these projects are taken forward and are constructed concurrently is highly unlikely. On this basis there is no indication of an adverse effect on the integrity of the Southern North Sea cSAC. Notwithstanding, that the Applicant committed toto a Condition (Schedule 11, Part 2, Condition 11(4, 5 and 6) and Schedule 12, Part 2, Condition 12(4, 5 and 6)) to ensure appropriate	As per Natural England's Relevenat Representations, we agree that the Hornsea Three windfarm alone will not adversely affect the site integrity given the relatively small disturbance spatial footprints within the site. Natural England agree that the theoretical worst case in-combination development scenarios will not realistically occur, we do retain concerns that thresholds could be exceeded under certain scenarios that could realistically occur. However, we recognise that the commitment of Hornsea Three to a SIP would in principle (and notwithstanding the regulatory concerns cited below) ensure that if (at the time of drafting the SIP) risk to site integrity is identified then construction will not be able to commence until appropriate mitigation is put in place to reduce effects to an acceptable level.	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
	mitigation (to reduce effects to acceptable levels) is applied under a scenario where significant projects construction activity does coincide. Following comments from Natural England and the MMO, the Applicant has replaced this Condition, with a commitment to a Site Integrity Plan, which will ensure that appropriate mitigation is applied if required (and approved by the MMO) prior to the commencement of works.	Whilst Natural England agree that the SIP is the appropriate control measure to manage concerns relating to in-combination disturbance effects on marine mammals, Natural England cross refer the Applicant to their comment above on this matter.	**Under discussion**
Draft Development Consent Order			
Commitments / restrictions	The commitment to a SIP will provide the appropriate control mechanism within the DCO to ensure that if, in the unlikely in-combination scenario, there is a risk of adverse effects on site integrity of the Southern North Sea SCI then appropriate mitigation measures must be agreed and approved by the MMO before construction can commence.	Natural England has requested the inclusion of a Site Integrity plan in place of these conditions. Ørsted have agreed to this request, however, the final wording has yet to be agreed. It is anticipated that this wording will be agreed in the near future.	**Under Discussion**
	The commitment to producing a Cable Specification and Installation Plan (Schedule 11, Part 2, Condition 11(1)(h) and Schedule 12, Part 2, Condition 12(1)(h) of the draft DCO), which will include a desk-based assessment of attenuation of electro-magnetic field (EMF) strengths, shielding and cable burial depth in accordance with industry good practice, that must be submitted to and approved by the MMO prior to the commencement of construction activities, is appropriate to	Agreed.	**Agreed**

Discussion point	Hornsea Three position	Natural England's position	Final position
	ensure the effect of EMF on fish and shellfish receptors is within the range assessed in the ES.		
	In the event that driven or part-driven pile foundations are proposed, the commitment to producing a Marine Mammal Mitigation Protocol (Schedule 11, Part 2, Condition 11(1)(g) and Schedule 12, Part 2, Condition 12(1)(h) of the draft DCO), to include details of soft start procedures, is appropriate to mitigate for the risk of physical or permanent auditory injury to marine mammals within a 'mitigation zone'.	Agreed in terms of the MMMP requirement. The details of what mitigation is included in the MMMP should be discussed and agreed by all parties.	**Agreed**
	Based on comments received from Natural England and the MMO the Applicant has included a Condition within the updated draft DCO to reflect a 5,000kJ hammer energy limit. The wording is as proposed by the MMO within their Relevant Representation: *In the event that driven or part-driven pile foundations are proposed to be used, the hammer energy used to drive or part-drive the pile foundations must not exceed 5,000kJ.*	Subject to provision of updated wording in the dMLs to limit to 5000 kJ as proposed in Hornsea Three draft response to Natural England RR All other matters 5.9.18. Currently, these two points contradict each other.	**Agreed**
Monitoring	It is agreed that the following monitoring commitments (that relate to marine mammals) are appropriate:	Whilst Natural England agrees in principle, in light of recent cases we would like to consider this further.	**Under Discussion**

Discussion point	Hornsea Three position	Natural England's position	Final position
	• A plan for marine mammal monitoring that will contribute to reducing key uncertainties within assessments relating to effects on marine mammals from construction activities; • Construction phase; underwater noise monitoring of the first four piled foundations to validate the noise model; and • Construction phase; provision of piling duration records to enhance the knowledge base on actual durations of piling.		

Table 3.3: Seascape and visual resources.

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
Environmental Impact Assessment (EIA)			
Policy and planning	Section 10.4 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement. has identified all appropriate plans and policies relevant to seascape and visual resource.	Agreed	**Agreed**
Baseline environment	Sufficient secondary data, as listed in Section 10.6 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement has been collated to appropriately characterise the baseline environment seaward of Mean Low Water Springs (MLWS) (in Section 10.7 of Volume 2, Chapter 10:	Agreed – the right locations and information has been collected.	**Agreed**

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
	Seascape and Visual Resources of the Environmental Statement) to inform the EIA.		
Assessment methodology	The potential impacts identified within Section 10.8 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement represent a comprehensive list of potential impacts on seascape and visual resource from Hornsea Three.	Agreed	**Agreed**
	The definitions used for magnitude and sensitivity, as outlined in Section 10.9 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement are appropriate.	Agreed - although effects that are not considered to be significant, i.e. moderate, should not be completely disregarded	**Agreed**
	The viewpoints used in the assessment, as described in paragraph 10.9.1.9 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement, are appropriate.	No comment	**No Comment from Natural England**
	The maximum design scenarios identified for each impact in Table 10.8 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement are appropriate based on the information presented in Volume 1, Chapter 3: Project Description of the Environmental Statement (Document A6.1.3).	No comment - there will be no impact from turbines or offshore substation on seascape as viewed from AONB, so we have not considered this further	**No Comment from Natural England**
	The list of projects screened into the CEA in Section 10.12 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement are appropriate.	No comment	**No Comment from Natural England**
Assessment conclusions	The assessment of potential impacts to seascape and visual resources seaward of MLWS in Section 10.11 of Volume 2, Chapter 10: Seascape and	No comment	**No Comment**

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
	Visual Resources of the Environmental Statement, is appropriate and no impacts from the construction, operation and maintenance and/or decommissioning of Hornsea Three will be significant in EIA terms.		**from Natural England**
	No significant cumulative effects on seascape and visual resources seaward of MLWS are predicted (see Section 10.13 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement).	Agreed - Photomontage in Vol 6 Annex 4.7 shows offshore substation as a small feature on the horizon and it is stated that it would only be seen on very clear days. There may be a cumulative effect on views from AONB, including at night from lighting of the substation, but not likely to be significant.	**Agreed**
	No embedded mitigation measures, as identified in Section 10.10 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement, are necessary as a result of the assessment conclusions.	No comment	**No Comment from Natural England**
Draft Development Consent Order			
Commitments / restrictions	No specific commitments are required within the DCO to mitigate effects on seascape and visual resources seaward of MLWS.	In principle this is Agreed.	**Agreed**

4. Agreements Log (onshore)

4.1 The following section of this SoCG identifies the level of agreement between the parties for each relevant component of the application material (as identified in Section 1) as it relates to ecology and nature conservation, and landscape and visual resources matters. In order to easily identify whether a matter is "agreed", "under discussion" or indeed "not agreed" a colour coding system of green, yellow and orange is used, respectively, in the "final position" column to represent the respective status of discussions.

4.2 Section 3 of this SoCG identifies the level of agreement between the parties for each relevant component of the application as it relates to fish and shellfish ecology, and marine mammals seaward of MHWS, and seascape and visual resources seaward of MLWS.

Ecology and Nature Conservation

4.3 Hornsea Three has the potential to impact upon ecology and nature conservation receptors and these interactions are duly considered within Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement (Document A6.3.3). An Outline Ecological Management Plan (EMP) (Document A8.6) and an Outline Code of Construction Practice (CoCP) (Document A8.5) have been prepared that captures all ecological management and mitigation measures associated with this topic.

4.4 Table 4.1 identifies the status of discussions relating to this topic area between the parties.

Landscape and Visual Resources

4.5 Hornsea Three has the potential to impact upon landscape and visual resources and these interactions are duly considered within Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement. An Outline Landscape Management Plan (LMP; Document A8.7) and Outline CoCP (Document A8.5) have been prepared that captures all relevant management and mitigation measures associated with this topic.

4.6 Table 4.2 identifies the status of discussions relating to this topic area between the parties.

Table 4.1: Ecology and nature conservation.

Discussion point	The Applicant's position	Natural England's position	Final position
Design, Site Selection and Route Refinement			
Site selection of onshore HVAC booster station and HVDC converter/HVAC substation	The sites selected for the onshore HVAC booster station and onshore HVDC converter/HVAC substation are appropriate given the avoidance of sensitive habitats and designated sites.	Agreed	**Agreed**
Route of Hornsea Three onshore cable corridor	The route selected for the Hornsea Three onshore cable corridor is appropriate given its avoidance of designated and non-designated sites (including Natura 2000 sites) and where possible, avoidance of sensitive habitats and species. Where the route alignment could not avoid designated and non-designated sites horizontal directional drilling (HDD) was used.	Agreed	**Agreed**
Use of HDD	The use of HDD to cross all main rivers, and most ordinary water courses, as well as many hedgerows is appropriate and has reduced the potential for significant impacts on riparian species and reduces fragmentation of the hedgerow and woodland network from Hornsea Three.	Agreed	**Agreed**
Environmental Impact Assessment			
Policy and planning	Section 3.4 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement has identified all appropriate plans and policies relevant to ecology and nature conservation landward of MHWS and due regard has been given to them within the assessment.	Agreed	**Agreed**
Baseline environment	Sufficient primary and secondary data, as listed in Section 3.6 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement has been collated to appropriately characterise the baseline environment landward of MHWS (in Section 3.7 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement) to inform the EIA.	Agreed	**Agreed**

Discussion point	The Applicant's position	Natural England's position	Final position
	The scope and methodology of the protected species surveys, as outlined in Volume 6, Annex 3.3: Desmoulin's Whorl Snail Survey (Document A6.6.3.3), Annex 3.4: White Clawed Crayfish Survey (Document A6.6.3.4), Annex 3.5: Great Crested Newt Survey (Document A6.6.3.5), Annex 3.6: Reptile Survey (Document A6.6.3.6), Annex 3.7: Water Vole Survey (Document A6.6.3.7), Annex 3.8: Bat Survey (Document A6.6.3.8), Annex 3.9: Onshore Ornithology – Wintering and Migratory Birds (Document A6.6.3.9), Annex 3.10: Onshore Ornithology – Breeding Birds (Document A6.6.3.10), Annex 3.11: Otter Survey (Document A6.6.3.11) and 3.12: Badger Survey (Document A6.6.3.12) of the Environmental Statement were appropriate and adequate (taking into consideration access limitations) to inform the assessment of potential significant effects. No further protected species surveys were considered necessary to inform the characterisation of the baseline environment for the purposes of the EIA.	Agreed	**Agreed**
	Surveys for hazel dormouse, red squirrel, fish and freshwater pearl mussel were not deemed necessary to inform the baseline environment for the purposes of the EIA based on the outcomes of the Hazel Dormouse, Red Squirrel and Freshwater Pearl Mussel Desk Study (Volume 6, Annex 3.13 of the Environmental Statement (Document A6.6.3.13)).	Agreed	**Agreed**
	The future baseline identified in Section 3.7.4 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement is considered appropriate.	Agreed	**Agreed**
Assessment methodology	The potential impacts identified within Section 3.8 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement represent a comprehensive list of potential impacts on ecology and nature conservation from the construction, operation and maintenance, and decommissioning of Hornsea Three.	Agreed following post-application discussion with the Applicant	**Agreed**

Discussion point	The Applicant's position	Natural England's position	Final position
	The definitions used for magnitude and sensitivity, as outlined in Section 3.9 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement are appropriate.	Agreed	**Agreed**
	The maximum design scenarios identified for each impact in Table 3.14 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement are appropriate based on the information presented in Volume 1, Chapter 3: Project Description of the Environmental Statement (Document A6.1.3).	Agreed	**Agreed**
	The list of projects screened into the CEA in Section 3.12 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement is appropriate.	Agreed	**Agreed**
	The scope of the Hydrological Characterisation Study (see Volume 6, Annex 2.4 of the Environmental Statement (Document A6.6.2.4)) is considered appropriate to identify the linkages between hydrology and designated nature conservation sites, and to guide appropriate measures adopted as part of Hornsea Three (as outlined in Section 3.10 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement and the Outline CoCP). The site specific crossing method statement for the HDD at Blackwater Drain (at Booton Common) will be developed in consultation with the Environment Agency and Natural England. Paragraphs 3.1.1.1 and 6.4.1.10 of the Outline CoCP [APP-179] have been updated post-application to secure this commitment.	Agreed	**Agreed**

Assessment conclusions	The assessment of potential effects on ecology and nature conservation landward of MHWS during the construction, operation and maintenance, and decommissioning of Hornsea Three in Section 3.11 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement is appropriate and accurate given the implementation of the measures adopted as part of Hornsea Three (see Section 3.10 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement). The potential impacts and effects on groundwater flows, including around Booton Common SSSI, are considered in Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement, and no significant effects from cabling or HDD were identified. On this basis, the provisions to carry out a hydrogeological risk assessment and prepare a site specific method statement for the nearby HDD crossing (of Blackwater Drain), which will incorporate areas for consideration identified in the Hydrological Characterisation Study (Volume 6, Annex 2.4 of the Environmental Statement) are appropriate control measures for impacts on Booton Common SSSI. The site specific crossing method statement for the HDD of Blackwater Drain (at Booton Common) will be developed in consultation with the Environment Agency and Natural England. Paragraphs 3.1.1.1 and 6.4.1.10 of the CoCP [APP-179] have been updated post-application to secure this commitment. The potential impacts and effects of runoff are considered in Volume 3, Chapter 2: Hydrology and Flood Risk (see paragraphs 2.11.1.14, 2.11.1.9, 2.11.1.19) and no significant effects were identified. Appropriate measures to control impacts associated with runoff from construction, including access tracks, are detailed in the Outline CoCP and are in line with best practice (Table 2.17 of Volume 2, Chapter 2: Hydrology and Flood Risk of the Environmental Statement). On this basis, it has been agreed with Norfolk County Council, as Lead Local Flood Authority, that control measures identified in the application documents relating to run-off along the onshore cable corridor are appropriate, and that details on the measures specific to the secondary compounds and storage areas will be provided during detailed design once a contractor has been appointed. These measures will be	The Applicant has sufficiently clarified the approval process associated with crossing method statement for the HDD at BlackWater Drain for Natural England to agree on this issue. The Applicant has clarified that measures to prevent sediment pollution will be suitable for intense rainfall events associated with climate change, and therefore Natural England agree on this issue.	**Agreed**

Discussion point	The Applicant's position	Natural England's position	Final position
	captured within the final CoCP which will be agreed with the relevant planning authority. Following input from Natural England, the following clarification text has been added to paragraph 6.4.1.13 of the outline CoCP: '*Measures to avoid or minimise sediment and potential contaminants from entering surface water will be designed to accommodate 1 in 100 year plus climate change worst case storm events.'*. It is noted that paragraph 6.4.1.17 (last bullet point) of the Outline CoCP includes a provision for ongoing consultation with the Environment Agency and Natural England during the construction period to promote best practice and to implement proposed mitigation measures.		
	With the exception of the impact of open cut trenching, installation of cables, and construction and use of access tracks, to cause temporary habitat loss and disturbance between November and January (inclusive) on Pink-footed Goose, no effects on ecology and nature conservation from the construction, operation and maintenance, and/or decommissioning of Hornsea Three will be significant in EIA terms given the implementation of the measures adopted as part of Hornsea Three (see Section 3.10 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement). A Pink-footed Goose Management Plan will be prepared and submitted to Natural England for approval in the 12 months preceeding commencement (post-consent). This is likely to include a decision tree process in line with adaptive management principles, which will determine triggers for appropriate levels of mitigation (i.e. ECoW watching brief, toolbox talks for construction teams, restricting more intrusive construction works in certain locations). It is not appropriate to deliver further detail pre-consent as factors such as crop regime, construction timelines and construction processes, all of which determine the mitigation proposed, will be confirmed post-consent.	We note that a mitigation plan for pink-footed geese is in preparation and are happy to comment when available.	**Under discussion**

Discussion point	The Applicant's position	Natural England's position	Final position
	With the exception of the impact of open cut trenching, installation of cables, and construction and use of access tracks, to cause habitat loss and disturbance between November and January (inclusive) on Pink Footed Geese, no further mitigation to those embedded measures identified in Section 3.10 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement and the Outline CoCP (Document A8.5) are necessary as a result of the assessment conclusions. A full clarification of the Applicant's management of run off and prevention of sediment pollution has been incorporated into the first point of the 'Assessment conclusions' section of Table 4.1 of this SoCG.	The Applicant has sufficiently clarified their position on runoff for Natural England to agree on this issue.	**Agreed**
	Hornsea Three has taken an appropriate approach to great crested newt mitigation (i.e. mitigation will be implemented where necessary. It provides sufficient flexibility to allow the implementation of either the translocation method or the innovative landscape scale great crested newt solution, promoted by Natural England during the Onshore Ecology EWG meeting on 25 July 2017, with appropriate local organisations. As a result of EWG meeting advice (25 July 2017), Hornsea Three has been engaging with the Norfolk Ponds Project with regard to the implementation of the preferred landscape-scale licencing route for GCN. Hornsea Three is preparing a ghost licence application using this method, which will be submitted to Natural England during the course of Examination no later than Deadline 3. If Natural England do not agree that a LONI can be issued with the principles outlined in the ghost licence application, Hornsea Three propose to submit a revised ghost licence application based on the traditional exclusion route.	Natural England agrees that this approach is appropriate, but at this stage it is not possible to comment on the content of the licence as no LONI has been issued.	**Agreed**
	Hornsea Three has adequately sought to minimise the impact from open cut trenching, installation of cables, and construction and use of access tracks, to cause temporary habitat loss and disturbance between November and January (inclusive) on Pink-footed Goose, via the implementation of a Pink-footed Goose	Agreed	**Agreed**

Discussion point	The Applicant's position	Natural England's position	Final position
	mitigation plan which will be submitted to Natural England for approval in the 12 months prior to construction. Hornsea Three will include the Pink-footed Goose mitigitation plan as an appendix to the final CoCP, which is secured in Requirement 17 of the draft DCO [APP-027]. The following text will be added to the outline CoCP, in Section 6.5.1: Wintering birds, "The final version of this document will have, as an appendix, the approved Pink-footed Goose mitigation plan. The Pink-footed-Goose mitigation plan will be submitted to Natural England for approval in the 12 months prior to construction".		
	Pre-construction surveys in-line with Table 3.21 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement are proposed. The surveys are deemed appropriate control measures for managing the potential effects on ecology and nature conservation landward of MHWS.	Agreed.	**Agreed**
	The assessment of potential cumulative impacts on ecology and nature conservation receptors landward of MHWS in Section 3.13 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement is appropriate, and no impacts from the construction, operation and maintenance and/or decommissioning of Hornsea Three, alongside other projects, plans and activities on ecology and nature conservation receptors will be significant in EIA terms. As Natural England concerns regarding hydrology have been resolved in the first point of the 'Assessment conclusions' section of Table 4.1 of this SoCG, it is agreed that there will be no combined impact with Norfolk Vanguard/Boreas Offshore Wind Farm cable route with regards to surface water run off, sediment pollution and hydrological impacts. The assessment of potential cumulative impacts on hydrology and flood risk receptors landward of MHWS in Section 2.13 of Volume 3, Chapter 2: Hydrology and Flood Risk of the Environmental Statement is appropriate.	Agreed	**Agreed**

Discussion point	The Applicant's position	Natural England's position	Final position
Report to Inform Appropriate Assessment (Document A5.2)			
Screening	Those sites identified as having potential LSE from Hornsea Three alone or in-combination are appropriate.	Agreed	**Agreed**
Assessment methodology	The RIAA (Document A5.2) has identified all relevant features of the designated sites that may be sensitive to potential effects on ecology.	Agreed	**Agreed**
	The methodology to assess features of designated sites that may be sensitive to potential effects on ecology is appropriate. A full clarification of the Applicant's management of hydrological and hydrogeological impacts, run off management and prevention of sediment pollution has been incorporated into the first point of the 'Assessment conclusions' section of Table 4.1 of this SoCG.	The Applicant has sufficiently clarified the approval process associated with crossing method statement for Booton Common for Natural England to agree on this issue. The Applicant has clarified that measures to prevent sediment pollution will be suitable for intense rainfall events associated with climate change, and therefore Natural England agree on this issue.	**Agreed**

Discussion point	The Applicant's position	Natural England's position	Final position
Assessment conclusions	No significant effects on Natura 2000 sites are predicted either alone or in-combination. A full clarification of the Applicant's management of hydrological and hydrogeological impacts, run off management and prevention of sediment pollution has been incorporated into the first point of the 'Assessment conclusions' section of Table 4.1 of this SoCG.	Agreed following post-application clarification	**Agreed**
	Hornsea Three has adequately sought to minimise the impact from open cut trenching, installation of cables, and construction and use of access tracks, to cause temporary habitat loss and disturbance between November and January (inclusive) on Pink-footed Goose, via the implementation of a Pink-footed Goose mitigation plan which will be submitted to Natural England for approval in the 12 months prior to construction. A clarification of the Applicant's approach to the Pink-footed Goose mitigation plan is detailed above in Table 4.1 of this SoCG.	Not agreed, until we have had a chance to comment on the mitigation plan	**Under discussion**
Draft Development Consent Order			
Commitments / restrictions	The commitment to produce both an EMP (Schedule 1, Part 3, Requirement 10 of the draft DCO) and a CoCP (Schedule 1, Part 3, Requirement 17 of the draft DCO) that must be approved prior to the commencement of works are appropriate control measures for managing potential effects on ecology and nature conservation landward of MHWS. The EMP and CoCP will include all relevant embedded measures cited within Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement, as well as the Outline EMP and Outline CoCP.	Agreed	**Agreed**
Outline Management Plans			
Outline EMP - and Outline CoCP	The management measures identified within the Outline EMP and Outline CoCP, including paragraph 6.4.1.17 of the Outline CoCP and Section 6.4: Protection of the surface water environment, are appropriate for managing	Agreed	**Agreed**

Discussion point	The Applicant's position	Natural England's position	Final position
	construction and post construction impacts from Hornsea Three on ecology and nature conservation receptors landward of MHWS. It is noted that this includes a provision for ongoing consultation with the Environment Agency and Natural England during the construction period to promote best practice and to implement proposed mitigation measures. As addressed above in Table 4.1 of this SoCG, the Applicant has addressed Natural England's request for clarifications on hydrology, run-off and water pollution risks.		

Table 4.2: Landscape and visual resources.

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
Environmental Impact Assessment			
Policy and planning	Section 4.4 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement has identified all appropriate plans and policies relevant to landscape and visual resource landward of MHWS and due regard has been given to them within the assessment.	Agreed	**Agreed**
Baseline environment	Sufficient primary and secondary data, as listed in Section 4.6 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement has been collated to appropriately characterise the baseline environment landward of MHWS (in Section 4.7 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement) to inform the EIA.	Agreed	**Agreed**

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
Assessment methodology	The potential impacts identified in Section 4.8 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement chapter represent a comprehensive list of potential impacts on landscape and visual resources from the construction, operation and maintenance, and/or decommissioning of Hornsea Three. As the cable will be buried underground and there will be no significant changes to landscape character or visual amenity within the AONB, the Secretary of State agreed in their Scoping Opinion that the impacts of the onshore cable route corridor, which includes the area within the AONB, could be scoped out for the operation and maintenance phase. This position remains appropriate. A clarification of the landscape effects associated with the removal of hedgerows and trees during construction of Hornsea Three, specifically within the AONB, is included in the clarification note on the special qualities of the Norfolk Coast AONB, which will be submitted at Deadline 1. This includes the period during which hedgerow planting will not be mature. The Applicant considers this will address NE concerns.	**Table 4.6** We suggest that the operation phase of the onshore cable corridor within the AONB is scoped in for completeness. **Table 4.7** We suggest that the day time impacts of the onshore cable route within the AONB are scoped in.	**Under discussion**
	The definitions used for magnitude and sensitivity, as outlined in Section 4.9 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement are appropriate.	We agree but note that effects that are not considered to be significant, i.e. moderate, should not be completely disregarded	**Agreed**
	The viewpoints selected for Hornsea Three are appropriate for the characterisation of effects on the receiving environment (including those agreed with the Norfolk Coast Partnership for the assessment of impacts on the Area of Outstanding Natural Beauty (AONB) and of the offshore infrastructure on onshore receptors).	No comment	**No comment from Natural England**

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
	The methods used to establish the visual effects from Hornsea Three on the receiving environment are appropriate. Details of interactions with PRoW and linear routes, including management measures to be applied at specific locations will be provided in a Public Rights of Way Management Plan which will form part of the final Code of Construction Practice. This will be developed post-consent once a contractor has been appointed. Initial discussions have however been undertaken with Norfolk County Council, and proposed diversions for the Norfolk Coast Path have been provided to the North Norfolk Trails Partnership, of which Natural England is member, for comment.	The offshore activity associated with the landfall and works in the intertidal zone would be visible from the national trails. We agree that the sensitivity of users is very high and we consider that the effect on them would be significant for the duration of the construction, stated to be 3 months on 2 occasions. We note that a PRoW management plan is being drafted and we are happy to provide further comment in relation to national trails when available.	**Under discussion**
	The methods used to establish the visual effects from offshore infrastructure on onshore receptors is appropriate.	Agreed	**Agreed**
	The maximum design scenarios identified for each impact in Table 4.6 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement are appropriate based on the information presented in Volume 1, Chapter 3: Project Description of the Environmental Statement (Document A6.1.3).. As the cable will be buried underground and there will be no significant changes to landscape character or visual amenity, the Secretary of State agreed in their Scoping Opinion that the impacts of the onshore cable route corridor, which includes the area within the AONB, could be soped out for the operation and maintenance phase. This position remains appropriate.	**Table 4.6** We agree with the potential impacts scoped in for assessment for the construction and decommissioning phases. However, we suggest that the operation phase of the onshore cable corridor within the AONB is scoped in for completeness.	**Agreed**

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
	The list of projects screened into the CEA in Section 4.12 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement are appropriate.	Agreed	Agreed
Assessment conclusions	The assessment of potential impacts on landscape and visual resource landward of MLWS is appropriate and based on the commitments made (and set out within the Outline LMP and Outline CoCP). The following effects would be significant in EIA terms: • Effects on the landscape character of the host landscape character areas of the HVAC booster station (TF3 Hempstead, Bodham, Aylmerton and Wickmere; and, WP5 Plumstead and Barningham) • Effects on the landscape character of the host landscape character areas of the HVDC converter/HVAC substation (B1 Tas Tributary Farmland; and, C1 Yare Tributary Farmland with Parkland) • Visual effects on local routes between the B1113 and A140, north of Swainsthorpe on completion (effects on this receptor group would reduce as mitigation planting matures and would be not significant in EIA terms). No other impacts from the construction, operation and maintenance, or decommissioning of Hornsea Three will be significant in EIA terms given the implementation of the measures adopted as part of Hornsea Three (see Section 4.10 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement). A clarification note on the special qualities of the Norfolk Coast AONB will submitted at Deadline 1 and the Applicant considers this will address NE concerns.	We note that a note is being drafted which gives further information about the impacts on the special qualities of the AONB and we are happy to comment when available	**Under discussion**

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
	No significant cumulative effects on landscape and visual resources landward of MLWS are predicted (see Section 4.13 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement). Dudgeon Offshore Wind Farm is operational (see Volume 4, Annex 5.2: Cumulative Effects Screening Matrix) and its inclusion as an 'Under Construction' project in Table 10.24 of Volume 2, Chapter 10: Seascape and Visual Resources is an error. There will be no overlap between construction activities for Hornsea Three and Dudgeon offshore wind farms.	We agree that the following nationally designated landscapes may experience a potentially significant cumulative effect during construction, operation or decommissioning of Hornsea Project Three: • Norfolk Coast AONB (with PF/14/0177, at construction and decommissioning); and • Salle Park RPaG (with EN010079, at construction and possibly at decommissioning); Local LCAs and Visual Receptors	**Under discussion**
	The measures adopted as part of Hornsea Three as set out in Section 4.10 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement are considered appropriate. A clarification note on the special qualities of the Norfolk Coast AONB will be submitted at Deadline 1 and the Applicant considers this will address NE concerns.	The Applicant has advised that a clarification note on the AONB will be provided at Deadline 1. Natural England will then be able to conclude whether the measures are appropriate or not.	**Under discussion**
	No further mitigation to those embedded measures identified in Section 4.10 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement is necessary as a result of the assessment conclusions.	See above	**Under discussion**

Discussion Point	The Applicant's Position	Natural England's Position	Final Position
Draft Development Consent Order			
Commitments / restrictions	The commitment to produce both an LMP (Schedule 1, Part 3, Requirement 8 of the draft DCO) and CoCP (Schedule 1, Part 3, Requirement 17 of the draft DCO) that must be approved prior to the commencement of works is appropriate control measures for managing the potential effects on landscape and visual resources. The LMP and CoCP will include all relevant embedded measures cited within Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement, as well as the Outline LMP and Outline CoCP.	Agreed	**Agreed**
Outline Management Plans			
Management and mitigation measures	The management measures identified within the Outline LMP and the Outline CoCP are appropriate for controlling any potentially significant effects on landscape and visual resources landward of MLWS and no further measures are required to those stated within this document.	Agreed	**Agreed**

5. Summary

5.1 This SoCG has been developed with Natural England to capture those matters agreed, under discussion and not agreed in relation to fish and shellfish ecology, marine mammals, seascape and visual resources, ecology and nature conservation, and landscape and visual resources.

5.2 The agreement logs outline those areas for which agreement has been reached with Natural England to date. The Applicant will seek to reach further agreement with Natural England on those items still under discussion following Deadline 1.

Appendix A: further comments on Natural England's responses to V1.0 of the SoCG

This Appendix provides further detail in response to specific comments made by Natural England on V1.0 of this SoCG.

Topic: Marine Mammals (Table 3.2 of the SOCG)
Natural England comment on V1.0 of the SoCG: *Under discussion. The CEA should assess UXO (at all wind farms) with piling (at all wind farms) and seismic activities. It should also be noted that larger UXOs from the wind farm alone could potentially injure 200 porpoise per explosion. That is not insignificant and should be reflected as much within the assessment*.
Applicant's response: It must be noted that the 200 per explosion is the figure estimated before any mitigation is applied and is based on baseline levels of density. It is likely that local disturbance resulting from vessel presence would reduce this number. More importantly, a MMMP will be agreed that will reduce this risk to negligible levels. It must also be highlighted that the 'injury' referred to is Permanent Threshold Shift, which is defined as auditory injury and results in a permanent reduction in hearing sensitivity at specific frequencies. This is not the same as physical injury resulting from the blast. Furthermore, the Applicant's cumulative assessment has sought to present a quantification of all effects where specified within each relevant application document. If a project has not presented quantified information within its application material with regard to UXO clearance and or seismic survey work then it is not appropriate for the Applicant to generate hypothetical numbers on their behalf. Therefore, the Applicant is limited to a qualitative acknowledged that UXO clearance and geophysical surveys may be undertaken by these projects and that such activities if undertaken have the potential to contribute to disturbance effects on marine mammals.
Natural England comment on V1.0 of the SoCG: *See comment on the UXO above. While Natural England is content with how seismic survey activity has been assessed, the cumulative assessment still needs to assess UXOs (at all wind farms) with piling (at all wind farms) AND seismic.*
Applicant's response: The Applicant refers Natural England to the response it provides above. Furthermore, with regard to adding different types of disturbance together, the Applicant notes that there is currently no framework or methodology that would allow this to be done quantitatively with any confidence. The Applicant would argue that this is outside the ability of any one single project proponent to carry out.
Natural England comment on V1.0 of the SoCG: *The main concern that Natural England commented on in the Relevant Representation refers to the cumulative conclusions and long term impacts on the harbour porpoise population: "The conclusion for Tier 1 and 2 combined states: moderate for the duration of the piling (~12 yrs)* ***but minor in terms of long term population level effects, therefore not an issue in terms of the EIA****. Natural England does not agree with this conclusion."*

Topic: Marine Mammals (Table 3.2 of the SOCG)
Applicant's response: We understand that the basis of these concerns relate mainly to the uncertainty in the degree of overlap of projects in the cumulative assessment, as well as uncertainty in our ability to predict how animals will respond to long term disturbance in an area of importance. We would disagree that there is currently 'no understanding' as to how animals will respond in the long term. There are a growing number of studies exploring the potential effect of disturbance on individuals and populations and scientific consensus on this issue is developing. There is a growing body of data that suggests local recovery of harbour porpoise density is rapid after the cessation of a piling event, even over relatively long timescales and in high density areas in the southern North Sea. e.g. within 1-2 days at 7 German OWFs (Brandt et al. 2018), less than 6 hours at the Gemini Wind Park in the Netherlands (Nabe-Nielsen et al. 2018). There have also been indications that the local response may diminish over the course of construction periods that last several months (data from BOWL monitoring presented at the INPAS symposium). Porpoises are also capable of very high foraging rates and are likely to be able to rapidly compensate for short term reductions in food intake. In addition there were no population level consequences of simulated cumulative levels of repeated disturbance from the construction of 65 OWFs in the North Sea (Nabe-Nielsen et al., 2018). Studies have also shown that porpoises have a varied diet and can exploit a variety of prey species (Santos and Pierce 2003, Leopold 2015, Andreasen et al. 2017), it is therefore unlikely that long term displacement from a particular area, even if it were to occur (but note comments above about rapid local recovery), would result in a significant biological consequence for the individual. The current best scientific approaches to predicting population impacts suggest that population level consequences may be limited, even for the currently envisaged scale of development in the North Sea (Booth et al. 2017, Nabe-Nielsen et al. 2018). Following best practice in EIA, our assessment of the magnitude and overall significance of disturbance at the cumulative level has been based on this available scientific data, interpreted using expert judgement. We accept that there a number of uncertainties in relation to this evidence base and this modelling which is why a site integrity plan will be developed and monitoring proposed to reduce these uncertainties. It is also important to recognise the large degree of precaution built into the cumulative assessment, resulting from a precautionary envelope at project level (which is additive across all projects when considered cumulatively) as well as precautionary assumptions about the degree of overlap between projects. The Applicant cross refers Natural England to its clarification note "Consideration of precaution within the marine mammal assessment" for further context on this point. This fact, coupled with the evidence summarised in the paragraphs above, allows, despite uncertainties, a high degree of confidence in the assessment that there will not be a significant long term change in the harbour porpoise population trajectory, as a result of the levels of disturbance from the construction of Hornsea Three acting cumulatively with other offshore wind farms in the North Sea. With regard to the lack of quantitative assessment of Tier three, and the certainty that this would increase impacts, this is not necessarily true as given the likely timing of these projects, it is entirely likely that these projects will not overlap or abut with the Hornsea Three construction periods and therefore would not be considered in the cumulative assessment. These projects, at the time of the assessment were without sufficient available information on the foundation construction envelope to assess quantitatively with any confidence.
Natural England comment on V1.0 of the SoCG: *Based on the concerns mentioned in the point above, we currently cannot agree with this statement. Given the uncertainty around other projects and their overlap with Hornsea Three, there is still uncertaintly whether other mitigation may be required. This point also related to the HRA.*

Topic: Marine Mammals (Table 3.2 of the SOCG)
Applicant's response: The Applicant cross refers Natural England to its response above. Furthermore, and with specific reference to the HRA this the Applicant made a commitment within the draft DCO submitted at Application to apply mitigation (if required) if (prior to construction) a risk to site integrity (through significant disturbance) was identified at an in-combination level. The Applicant has since updated this commitment (on request from Natural England and the MMO) to reflect a commitment to a SIP that serves the same function. The Applicant considers that with the precaution applied to the assessment (as detailed within the clarification note referenced above) confidence can be held that site integrity will not be risked, and that in the unlikely circumstance that such risk does exist then the SIP control measure will ensure that the project impliments appropriate mitigation. Therefore, Natural England can be certain that Hornsea Project Three will not result in, or materially contribute to any risk to site integrity.

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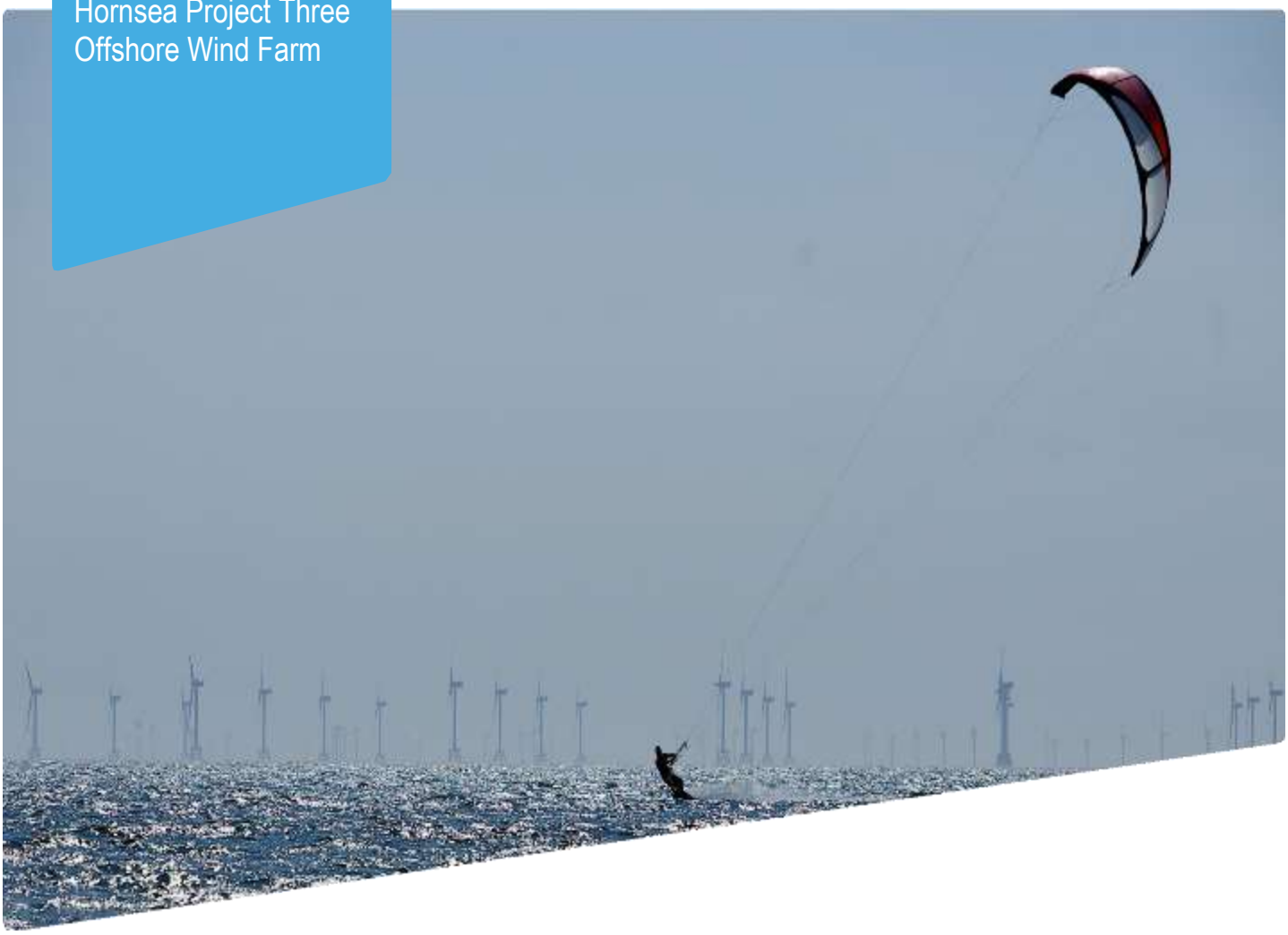
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Appendix 16 to Hornsea Three Deadline I Submission: Applicant's Response to Ex.A Question Q1.15.3

Date: 7th November 2018

Hornsea 3
Offshore Wind Farm

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1. Introduction

1.1 This note sets out the Applicant's response to Ex.A Question Q1.15.3:

> *Q1.15.3: The lists of other plans or projects and maximum design scenarios for the cumulative effect assessments of each principal ES chapter do not account for the change in status of more recent projects such as Norfolk Vanguard and Thanet Extension.*
>
> *Please provide updated tables and assessments that take into account all relevant plans and projects that have emerged since the application was submitted.*

1.2 This note provides an update to the Hornsea Three cumulative effects assessment (CEA) taking into account those projects which were considered in the Hornsea Three CEA but have either changed in status or have made changes to project parameters and/or updated impact assessments since the Hornsea Three Development Consent Order (DCO) application. This note also considers any new projects which have entered the planning process since the Hornsea Three DCO application.

1.3 This note is structured as follows:

- Section 2: Provides the list of onshore and offshore projects which were considered in the updated CEA and the process by which these were identified;
- Section 3: Presents an updated CEA Screening Matrix for those projects identified in section 2 (this is in line with the CEA Screening Matrix presented in Volume 4, Annex 5.2: Cumulative Effects Screening Matrix of the Environmental Statement (APP-097)).
- Section 4: Presents a summary of the implications of the new and/or updated projects on the Hornsea Three CEA for each of the onshore and offshore topics screened in section 3.

2. Projects to be considered in the Updated CEA

2.1 This section outlines the projects that have been identified for consideration in the updated Hornsea Three CEA and provides a description of the changes to each of the projects that have occurred since the Hornsea Three DCO application was submitted. The updated Hornsea Three CEA considered both onshore and offshore aspects of the assessment and whether changes or updates to these projects have an effect on the conclusions of the Hornsea Three CEA.

Identification of projects: onshore

2.2 Relevant onshore plans, projects or activities to be considered within this updated Hornsea Three CEA were identified through identification of new planning applications and identification of updated project information for those projects considered within the original Hornsea Three CEA. Planning Application Monitoring was undertaken to identify any new planning applications and/or Local Planning Authority allocations submitted since the submission of the Hornsea Three application that should be considered within this updated CEA. In addition, new planning applications or projects specifically identified by the relevant local planning authorities in post submission discussions were also considered within this note. These included updates to two outline planning permissions which were considered within the original Hornsea Three CEA (i.e. 2013/1793 and 2013/1494; see Volume 4, Annex 5.2: Cumulative Effects Screening Matrix of the Environmental Statement). On review of the updated information within these two outline planning applications, it was concluded that the updates would not result in any changes to the conclusions of the Hornsea Three CEA and as a result these two projects were not considered further.

2.3 Projects listed in Volume 4, Annex 5.2 Cumulative Effects Screening Matrix of the Environmental Statement (APP-097) were reviewed to identify any changes or updates to their design parameters which may materially change the CEA undertaken in the onshore topic chapters of the Environmental Statement. The projects listed in Volume 4, Annex 5.2: Cumulative Effects Screening Matrix of the Environmental Statement were first screened to identify those projects which were most likely to influence the CEA. Projects were screened out from the review based on the following criteria:

- Projects whose construction timeframe does not overlap with Hornsea Three construction;
- Projects not screened into any environmental topic assessments in the Environmental Statement;
- Smaller housing projects with fewer than 50 houses; and
- Projects whose design parameters have not been updated/changed.

2.4 Following a review of projects from paragraphs 2.2 to 2.3, those projects listed below were identified as the only projects which have the potential to materially affect the CEA (e.g. potentially lead to a change in the significance of effect):

- 2018/1640 – Gas powered electricity generator and related infrastructure at land off Mangreen Hall Lane. This is a new application submitted in July 2018 and would be considered to be a Tier 2 project;
- 2018/2017 – 49.9 MW battery storage facility, fencing and access road on land east of Norwich Main Substation. This is a new application submitted in September 2018 and would be considered to be a Tier 2 project;
- 20180963 – Food retail unit, care home, assisted residential dwellings, club house and associated infrastructure at Old Station Yard, Reepham. This is a new application submitted in June 2018 and would be considered to be a Tier 2 project.
- Norfolk Vanguard – The Hornsea Three CEA considered Norfolk Vanguard Offshore Wind Farm based on the information available in the Norfolk Vanguard Offshore Wind Farm Preliminary Environmental Information Report (PEIR) and as such, this was considered to be a Tier 3 project (see section 5.4 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement (APP-060)). As noted by the Ex.A, this project has now submitted a DCO application and accompanying final Environmental Statement to the Planning Inspectorate, which has now been accepted for Examination and can therefore be considered to be a Tier 2 project. Specific changes to the Norfolk Vanguard project description and impact assessments relevant to each of the Hornsea Three onshore topics are considered below in Table 4.1 (onshore).

Identification of projects: offshore

2.5 Following review of the projects considered within the CEA for Hornsea Three, the following offshore wind farm projects were identified as the only projects which have the potential to materially affect the CEA (e.g. potentially lead to a change in the significance of effect) through changes in status (e.g. submission of DCO application) or recent changes in their design parameters:

- Norfolk Vanguard – The Hornsea Three CEA considered Norfolk Vanguard Offshore Wind Farm based on the information available in the Norfolk Vanguard Offshore Wind Farm Preliminary Environmental Information Report (PEIR) and as such, this was considered to be a Tier 3 project (see section 5.4 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement) (APP-060). As noted by the Ex.A, this project has now submitted a DCO application and accompanying Environmental Statement to the Planning Inspectorate, which has now been accepted for Examination and can therefore be considered to be a Tier 2 project. Specific changes to the Norfolk Vanguard project description and impact assessments relevant to each of the Hornsea Three offshore topics are considered below in Table 4.2 (offshore).
- Thanet Extension – As with Norfolk Vanguard, the Hornsea Three CEA considered this project based on the information available in the Thanet Extension PEIR and as such, this was considered to be a Tier 3 project. This project has also recently submitted a DCO application and accompanying Environmental Statement to the Planning Inspectorate, which has also been accepted for Examination and can therefore be considered to be a Tier 2 project. Specific changes to the Thanet Extension project description and impact assessments relevant to each of the Hornsea Three offshore topics are considered in Table 4.2 (offshore) below;
- Dogger Bank Creyke Beck A and B – In July 2018, this project submitted an application for Non-Material Change (NMC) for the parameters outlined below. These changes to the project parameters relevant to each of the Hornsea Three offshore topics are considered in Table 4.2 (offshore) below:
    - Increase in maximum wind turbine rotor diameter from 215 m, in the original Environmental Statement, to 280 m in the NMC;
    - Increase in maximum hammer energy for monopile turbine foundations from 3,000 kJ, in the original Environmental Statement, to 4,000 kJ in the NMC; and
    - Increase in maximum monopile diameter from 10 m, in the original Environmental Statement, to 12 m in the NMC.
- Sofia Offshore Wind Farm (formally Teesside B) – In July 2018, this project submitted an application for Non-Material Change (NMC) for the parameters outlined below. These changes to the project parameters relevant to each of the Hornsea Three offshore topics are considered in Table 4.2 (offshore) below:
    - Increase in maximum wind turbine rotor diameter from 215 m, in the original Environmental Statement, to 288 m in the NMC;
    - Increase in maximum hammer energy for monopile turbine foundations from 3,000 kJ, in the original Environmental Statement, to 5,500 kJ in the NMC;
    - Increase in foundation options for offshore platforms to include monopile foundations in the NMC, previously only included jacket and gravity base foundations in the original Environmental Statement;
    - Maximum hammer energy for monopile foundations for substations to be up to 5,500 kJ in the NMC (previously 1,900 kJ for driven piles in the original Environmental Statement) and to have a pile diameter of up to 12 m in the NMC (2.75 m for driven piles in the original Environmental Statement); and

- Increase the maximum capacity from 1.2 GW in the original Environmental Statement to 1.4 GW in the NMC.

- Seagreen Phase 1 (formerly Seagreen Alpha and Bravo) – In September 2018, this project submitted an application to Marine Scotland for Section 36 consents and marine licences for the optimised Seagreen Phase 1 project, with the changes to the project parameters outlined below. These changes to the project parameters relevant to each of the Hornsea Three offshore topics are considered in Table 4.2 (offshore) below:

  - Decrease in the number of turbines from 75 for each project (up to 150 in total in the original Environmental Statement) to up to 70 turbines in each project. A total of up to 120 turbines across Phase 1 in the Environmental Impact Assessment Report (EIAR);
  - Increase in the maximum rotor diameter from 167 m, in the original Environmental Statement, to 220 m in the EIAR;
  - Increase in the blade tip height from 209.7 m, in the original Environmental Statement, to 280 m in the EIAR;
  - Increase in the minimum blade tip clearance form 29.8 m, in the original Environmental Statement, to 32.5 m in the EIAR; and
  - Expansion of the foundation options to include monopile foundation options at up to 70 locations in the EIAR, previously the original Environmental Statement only included jacket and gravity base foundations.

- Neart na Gaoithe – In March 2018 this project submitted a new application to Marine Scotland for Section 36 consent and marine licences including an updated design for offshore elements of the project to incorporate advances in technology. These changes to the project parameters relevant to each of the Hornsea Three offshore topics are considered in Table 4.2 (offshore) below:

  - Decrease in the number of turbines from 75, in the original Environmental Statement, to up to 54 turbines in the EIAR;
  - Increase in the rotor tip height from 197 m, in the original Environmental Statement, to 208 m in the EIAR;
  - Increase in hub height from 115 m, in the original Environmental Statement, to 126 m in the EIAR;
  - Increase in the maximum rotor diameter from 154 m, in the original Environmental Statement, to 167 m in the EIAR;
  - Increase in the minimum spacing between turbines from 450 m, in the original Environmental Statement, to 800 m in the EIAR;
  - Increase in the minimum blade tip clearance form 30.5 m, in the original Environmental Statement, to 35 m in the EIAR;
  - Increase in the maximum number of piles per foundation for jackets from 4 piles, in the original Environmental Statement, to 6 piles in the EIAR;
  - Reduction of the foundation options to jackets only, the original Environmental Statement included both gravity base structures and jackets;

- Increase from 6 turbines per collector circuit, in the original Environmental Statement, to 10 turbines per collector circuit in the EIAR for inter-array cables;
- Decrease from up to 15 circuits, in the original Environmental Statement, to up to 14 circuits in the EIAR for inter-array cables;
- An increase in the maximum level of Offshore Substation Platforms (OSPs) above Lowest Astronomical Tide (LAT) from 18 m, in the original Environmental Statement, to 21 m in the EIAR; and
- An increase in the length of the export cable from 33 km to 43 km.

- Inch Cape – In August 2018, this project submitted an application to Marine Scotland for Section 36 consents and accompanying marine licences for an updated project, with the changes to the project parameters outlined below. These changes to the project parameters relevant to each of the Hornsea Three offshore topics are considered in Table 4.2 (offshore) below:

  - Decrease in the number of turbines from 110 in the original Environmental Statement to 72 turbines in the EIAR;
  - Increase in the blade tip height from 215 m in the original Environmental Statement to 291 m in the EIAR;
  - Removal of two met masts in the Environmental Statement from the development parameters in the EIAR (i.e. there will no longer be any met masts);
  - Decrease in the number of offshore substation platforms from 5 in the original Environmental Statement, to 2 in the EIAR;
  - Decrease in the inter-array cabling length from 353 km in the original Environmental Statement to 190 km in the EIAR; and
  - Decrease in the number of export cables from 6 in the original Environmental Statement to 2 in the EIAR.

- Moray West - The Hornsea Three CEA considered Moray West Offshore Wind Farm based on the information available in the Moray West Offshore Wind Farm Scoping Report and as such, this was considered to be a Tier 3 project (see section 5.4 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement) (APP-060). This project has now submitted a Marine Licence application and accompanying Environmental Statement to Marine Scotland, which is currently in determination and can therefore be considered to be a Tier 2 project. Specific changes to the Moray West project description and impact assessments relevant to each of the Hornsea Three offshore topics are considered below in Table 4.2 (offshore) below.

3. Cumulative Effects Screening Matrix

3.1 A fundamental requirement of undertaking the Hornsea Three CEA was to identify those projects, plans and activities with which Hornsea Three may interact to produce a cumulative impact. These interactions may arise within the construction, operation and maintenance or decommissioning phases. To undertake a comprehensive CEA, a long list of relevant projects, plans and activities occurring within extensive onshore and offshore search areas was produced for the Hornsea Three DCO Application (see Volume 4, Annex 5.2: Cumulative Effects Screening Matrix of the Environmental Statement – APP097). Once the CEA long list was collated, all projects, plans and activities were then individually screened, based on the level of detail available at that time, as well as the potential for interactions on a conceptual, physical and temporal basis, with specific reference to each onshore and offshore topic of the Environmental Statement. Those that were 'screened in' were then carried forward into the CEA of the relevant topic chapters of the Environmental Statement.

3.2 The update of the Hornsea Three CEA in response to the Ex.A questions, focuses on projects that have changed since the Hornsea Three DCO application was submitted (i.e. those listed in section 2 above). This screening matrix is presented in Appendix A to this document which identifies those projects which were 'screened in' for each onshore and offshore topic based on the potential for conceptual, physical and temporal overlap. The implications of the changes and updates to the relevant onshore and offshore projects outlined identified in section 2 are discussed in section 4 below.

4. Implications for Hornsea Three CEA

4.1 Table 4.1 and Table 4.2 below provide updates to the Hornsea Three CEA for onshore and offshore topics, respectively. The topics considered below are those which were screened in via the Cumulative Effects Screening Matrix in Appendix A to this document, for those projects identified in section 2. These provide narratives on the implications of these changes to the Hornsea Three CEA, including any potential changes to conclusions of significance in EIA terms.

Table 4.1: Summary of Hornsea Three CEA based on updated project information – Onshore

CEA Impact Title	Update to Hornsea Three CEA
Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement (APP-073)	
Impacts of construction may result in the loss of mineral resources within Mineral Safeguarding Areas	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and final Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; and • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2. The above reduction in the area affected by the Norfolk Vanguard would mean a reduction in Mineral Safeguarding Areas affected cumulatively and represent a smaller proportion of Norfolk's sand and gravel resources than indicated at the PEIR stage. This has not affected the Norfolk Vanguard assessment of the loss of mineral resources, which is assessed as minor adverse in both its PEIR and Environmental Statement. As with Hornsea Three, the Norfolk Vanguard onshore cable corridor does not represent permanent development and the resource could be extracted, as part of any future mineral extraction activity, following decommissioning of the Norfolk Vanguard onshore cable corridor. Overall, changes to the Norfolk Vanguard maximum design scenario between PEIR and Environmental Statement and different tier classification do not materially affect the cumulative assessment in Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement (APP-073). 2018/1640 and 2018/2017 were screened into this CEA, however given the nature of the projects, a gas powered electricity generator and a battery storage facility, and in particular the limited extent of these (0.32 ha and 0.56 ha respectively), the significance of effects assigned in Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement is unlikely to change.
Impacts of construction, including horizontal directional drilling (HDD), may cause disturbance or contamination of principal aquifers or surface waters fed by groundwater	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows:

CEA Impact Title	Update to Hornsea Three CEA
	• Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; and • Selection of HVDC transmission. As a result of the changes above the maximum potential extent of geographical overlap between the onshore cable corridors for Hornsea Three and Norfolk Vanguard would be decreased. Also, selection of HVDC transmission has resulted a reduction in the number of circuits required in the Norfolk Vanguard onshore cable corridor. This has not affected the assessment of the disturbance or contamination of principal aquifers, which was assessed as minor adverse in both the PEIR and Environmental Statement for Norfolk Vanguard. Overall, changes to the Norfolk Vanguard maximum design scenario between PEIR and Environmental Statement and different tier classification would not increase the significance of effect assigned in Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement. 2018/1640 and 2018/2017 were screened into this CEA, however given the nature of the projects, a gas powered electricity generator and a battery storage facility, and in particular the limited extent of these (0.32 ha and 0.56 ha respectively), the significance of effects assigned in Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement is unlikely to change.
Impacts of operation may affect groundwater quality from thermal effects of underground power cables	Selection of HVDC transmission by Norfolk Vanguard has resulted a reduction in the number of circuits required in the Norfolk Vanguard onshore cable corridor between the PEIR and Environmental Statement. In addition, the HVAC transmission option represents the maximum design scenario in terms of thermal pollution effects on principal aquifers from operation of cables. Overall, changes to the Norfolk Vanguard maximum design scenario between PEIR and Environmental Statement and different tier classification would not change the significance of effect assigned in Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement.
Volume 3, Chapter 2: Hydrology and Flood Risk of the Environmental Statement (APP-074)	
The impacts of construction may affect flood risk.	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows:

CEA Impact Title	Update to Hornsea Three CEA
	• Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2; • Selection of HVDC transmission; • Decrease in temporary land take for the substation extension and overhead line modification from 444,709 m^2 to 241,746 m^2; and • Increase in permanent land take for the substation extension from 47,850 m^2 to 49,300 m^2. Selection of the HVDC transmission has resulted in an overall reduction the land take and infrastructure required for Norfolk Vanguard thereby possibly reducing any impact to surface water runoff and consequently flood risk within the site or the surrounding areas. The assessment for increased surface water runoff and flood risk in the PEIR and Environmental Statement for Norfolk Vanguard remained negligible to minor adverse. Given the reductions in the Norfolk Vanguard maximum design scenario and mitigation measures implemented by both projects, changes to the Norfolk Vanguard parameters are unlikely to affect the significance of the cumulative effect assigned in Volume 3, Chapter 2: Hydrology and Flood Risk of the Environmental Statement would not be affected.
The impacts of construction HDD techniques may affect main surface watercourses.	The rivers identified as being crossed by HDD as part of the Norfolk Vanguard Project, which are also identified as being crossed by HDD as part of Hornsea Three, remain the same at both PEIR and Environmental Statement stage of Norfolk Vanguard. The cumulative assessments for direct disturbance of surface water bodies, and increased sediment supply have changed from negligible to minor, to negligible to moderate adverse between PEIR and Environmental Statement stage for Norfolk Vanguard. However, as the rivers being crossed by both Hornsea Three and Norfolk Vanguard have not changed, and given the mitigation implemented by both projects, the significance of effect assigned in Volume 3, Chapter 2: Hydrology and Flood Risk of the Environmental Statement would not be affected.
The impacts of open cut, temporary bridging and culverts may affect surface watercourses.	The rivers identified as being crossed by open cut techniques as part of the Norfolk Vanguard Project, which are also identified as being crossed by open cut techniques as part of Hornsea Three, remain very similar at PEIR and Environmental Statement stage of Norfolk Vanguard, with the number of being crossed by open cut reducing by one (Wendling Beck (upstream)). The cumulative assessments for direct disturbance of surface water bodies, and increased sediment supply have changed from negligible to minor, to negligible to moderate adverse between PEIR and Environmental Statement stage for Norfolk Vanguard. However, as the rivers being crossed by HDD by Norfolk Vanguard has increased, and given the mitigation implemented by both projects, the significance of effect assigned in Volume 3, Chapter 2: Hydrology and Flood Risk of the Environmental Statement would not increase.

CEA Impact Title	Update to Hornsea Three CEA
The impacts of construction may affect field drainage and irrigation. The impacts of construction may affect drainage pipeline infrastructure.	Pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2; and • Selection of HVDC transmission resulting in less infrastructure and fewer cable trenches. Cumulative impacts on field drainage, irrigation and drainage pipeline infrastructure would only occur where development limits coincide with Hornsea Three. The above reductions in the maximum design scenario for Norfolk Vanguard between the PEIR and Environmental Statement would mean that the area where development limits of Hornsea Three and Norfolk Vanguard coincide is reduced and therefore would not increase the significance of effect assigned in Volume 3, Chapter 2: Hydrology and Flood Risk of the Environmental Statement.
Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement (APP-075)	
Potential for open cut trenching and installation of cables and associated temporary construction compounds to habitat loss and/or severance for a number of species	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and final Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2; • Reduction in the gaps between hedgerows from 54 m to 20 m; • Increase in the number of hedgerows to be removed from 100 to 165; • Reduction in total construction window for the onshore cable corridor from 7 years to 6 years; and • Selection of HVDC transmission resulting in less infrastructure and fewer cable trenches. Given that cumulative effects between Hornsea Three and Norfolk Vanguard are only likely to occur where and to the extent the two projects overlap (in a physical and temporal sense), the only area which would be cumulatively impacted is where the two onshore cable corridors cross. There are no other Tier 2 developments in the immediate vicinity of where the onshore cable corridors of Hornsea Three and Norfolk Vanguard cross. Therefore, Norfolk Vanguard being considered as a Tier 2 development does not affect or change the significance of effect assigned in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement (APP-075).

CEA Impact Title	Update to Hornsea Three CEA
	Other than the number of hedgerows removed, all aspects of Norfolk Vanguard maximum design scenario relating to the onshore cable corridor have been reduced between the PEIR and Environmental Statement. The Norfolk Vanguard assessment of habitats and species at the PEIR stage did not include any mitigation and ranged from moderate to major. At the Environmental Statement stage cumulative impacts relating to habitat loss and severance species range from minor to moderate adverse. As outlined above, cumulative impacts as a result of Hornsea Three and Norfolk Vanguard would occur where the two onshore cable corridors cross. From approximately 1.5 km north of the Norfolk Vanguard cable corridor to 1 km south all but one hedgerow would be crossed by Horizontal Directional Drilling, along with other ecological resources. Therefore, there would be very little habitat fragmentation as a result of Hornsea Three in the vicinity of where the onshore cable route cross. Overall, the significance of effect assigned in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement would not be affected. 2018/1640 and 2018/2017 were screened into this CEA, however given the relatively small scale of the projects (0.32 ha and 0.56 ha respectively) and therefore the limited extent of any loss or severance of habitats, the significance of effects assigned in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement is unlikely to change.
Potential for operation to result in low-level visual disturbance, and noise and vibration disturbance of habitats and wildlife during routine maintenance operations	The selection of a HVDC transmission by Norfolk Vanguard between the PEIR and Environmental Statement has resulted in less infrastructure for that project, e.g. no Cable Relay Station. Therefore, any cumulative impacts related to operational maintenance work are. The significance of operational effects for Norfolk Vanguard assessed in the PEIR were negligible and have remained so in the Environmental Statement. Overall, the significance of effect assigned in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement would not be affected. 2018/1640 and 2018/2017 were screened into this CEA, however due to the relatively small scale of these projects (0.32 ha and 0.56 ha respectively), the likely visual and noise disturbance on habitats and wildlife is unlikely to change the significance of effects assigned in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement.
Potential for decommissioning of onshore HVAC booster station and onshore HVDC converter/HVAC substation to affect designated sites, habitats and species	The significance of decommissioning effects for Norfolk Vanguard at the PEIR were similar to those of construction and have remained so in the Environmental Statement. The significance of effect assigned in Volume 3, Chapter 2: Ecology and Nature Conservation of the Environmental Statement for decommissioning impacts are would not be increased by changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement. 2018/1640 and 2018/2017 were screened into this CEA, however given the relatively small scale of the projects (0.32 ha and 0.56 ha respectively), the significance of effects assigned in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement is unlikely to change.

CEA Impact Title	Update to Hornsea Three CEA
Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076)	
Potential for construction of the onshore cable corridor to affect landscape and visual receptors	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2; • Reduction in the gaps between hedgerows from 54 m to 20 m; • Increase in the number of hedgerows to be removed from 100 to 165; • Reduction in total construction window for the onshore cable corridor from 7 years to 6 years; • Selection of HVDC transmission resulting in less infrastructure and fewer cable trenches; and • Reduction in the number joint pits from 450 to 150. Despite the reductions in the Norfolk Vanguard maximum design scenario above, there remains the potential for cumulative effects on landscape and visual receptors, to the north of Reepham, where the Hornsea Three and the Norfolk Vanguard onshore cable corridors cross. However, the significance of effect assigned in Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement will not be affected. 2018/1640 and 2018/2017 were screened into this CEA however, the potential for combined or sequential views is unlikely due to intervening vegetation between and around them. Cumulative landscape and visual effects are unlikely to occur.

CEA Impact Title	Update to Hornsea Three CEA
Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077)	
Construction works of the onshore elements of Hornsea Three (including any stripping required for storage areas, compounds and accesses) could result in cumulative permanent loss of or damage to, buried archaeological remains	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and final Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2; • Reduction in the gaps between hedgerows from 54 m to 20 m; • Increase in the number of hedgerows to be removed from 100 to 165; and • Selection of HVDC transmission resulting in less infrastructure and fewer cable trenches. The discovery of archaeological remains by either Hornsea Three or Norfolk Vanguard in the area where the onshore cable corridors extents overlap is likely to result in their removal, and therefore any impact by Hornsea Three alone is likely to be similar to the cumulative effect. Given that between the PEIR and final Environmental Statement of Norfolk Vanguard the maximum design scenario has narrowed, the area which could be impacted has reduced. The Norfolk Vanguard assessment of archaeological remains is Moderate – Major at PEIR (no mitigation included for PEIR) and is negligible to major adverse in the Environmental Statement stage. Following the implementation of project-wide geophysical survey, targeted metal detecting and field walking, and trail trenching impacts are considered to be not significant. The significance of effect assigned for the cumulative assessment in Volume 3, Chapter 5: Historic Environment of the Environmental Statement is not affected. 2018/1640 and 2018/2017 were screened into this CEA. A planning condition has been assigned to the consent of 2018/1640 (and a similar condition is likely to be attached to 2018/2017) which requires a WSI to be prepared and implemented before construction. Therefore, the significance of effect is unlikely to change from that reported Volume 3, Chapter 5: Historic Environment of the Environmental Statement.

CEA Impact Title	Update to Hornsea Three CEA
Construction, operation and decommissioning works at the site of the onshore HVAC booster station and HVDC converter/HVAC substation could potentially result in temporary cumulative impacts on the settings of heritage assets including Scheduled Monuments (SMs), listed buildings, Conservation Areas, Registered Parks and Gardens and on the overall historic landscape.	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2; • Reduction in the gaps between hedgerows from 54 m to 20 m; • Increase in the number of hedgerows to be removed from 100 to 165; • Selection of HVDC transmission resulting in less infrastructure and fewer cable trenches; • Increase in onshore project substation land take for temporary works area from 15,000 m^2 to 20,000 m^2; • Increase in onshore project substation construction duration 18 months to 30 months. • Decrease in temporary land take for the substation extension and overhead line modification from 444,709 m^2 to 241,746 m^2; • Increase in National Grid extension and overhead line modification construction duration 18 months to 30 months; and • Increase in permanent land take for the substation extension from 47,850 m^2 to 49,300 m^2. The other developments included in the cumulative assessment in section 5.12 of Volume 3, Chapter 5: Historic Environment of the Environmental Statement are either distant to Norfolk Vanguard or small in scale. Therefore, Norfolk Vanguard being considered as a Tier 2 development would not affect the significance of effect assigned in Volume 3, Chapter 5: Historic Environment of the Environmental Statement. In terms of cumulative impacts as a result of Hornsea Three and Norfolk Vanguard, the greatest impact will be where the onshore cable corridors cross. The settings of historic assets in that locality were not assessed at PEIR for Norfolk Vanguard but between PEIR and Environmental Statement the maximum design scenario for the Norfolk Vanguard onshore cable corridor has reduced. However, overall the significance of effect assigned in Volume 3, Chapter 5: Historic Environment of the Environmental Statement is not changed. 2018/1640 and 2018/2017 was screened into this CEA as there are a number of listed buildings in the vicinity, however the significance of effect is unlikely to change from that reported Volume 3, Chapter 5: Historic Environment of the Environmental Statement.
Construction, operation and decommissioning works at Hornsea Three landfall area, along the onshore cable corridor (including compounds, storage areas and accesses) could result in temporary cumulative impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas, Registered Parks and Gardens and on the overall historic landscape.	
Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement (APP-078)	
Impacts of construction on Agricultural Land Classification and farm holdings	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows:

CEA Impact Title	Update to Hornsea Three CEA
	• Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2; • Reduction in the gaps between hedgerows from 54 m to 20 m; • Increase in the number of hedgerows to be removed from 100 to 165; • Reduction in the number joint pits from 450 to 150; • Selection of HVDC transmission resulting in less infrastructure and fewer cable trenches; • Increase in onshore project substation land take for temporary works area from 15,000 m^2 to 20,000 m^2; • Increase in onshore project substation construction duration 18 months to 30 months; • Decrease in temporary land take for the substation extension and overhead line modification from 444,709 m^2 to 241,746 m^2; • Increase in National Grid extension and overhead line modification construction duration 18 months to 30 months; and • Increase in permanent land take for the substation extension from 47,850 m^2 to 49,300 m^2. The significance of impacts of construction on Agricultural Land Classification and farm holdings for Norfolk Vanguard at the PEIR were negligible to minor adverse and have remained the same in their Environmental Statement. Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement outlines how cumulative impacts to Agricultural Land Classification and farm holdings would occur where the Hornsea Three onshore cable corridor crosses the cable corridor of the Norfolk Vanguard and concludes that as remediation work would be undertaken by both developments, no cumulative permanent losses of agricultural land. Overall, Norfolk Vanguard maximum design scenario reduces between the PEIR and Environmental Statement but overall the significance of effect assigned in Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement for decommissioning impacts are not affected. Given the above, the significance of effect assigned in Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement would not be affected.
Cumulative temporary impact on PRoWs and other linear routes	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2; The significance of impacts of construction of Norfolk Vanguard on PRoWs and other linear routes in the PEIR were minor adverse and now as identified as negligible to minor adverse in the Environmental Statement.

CEA Impact Title	Update to Hornsea Three CEA
	Despite the reductions in the Norfolk Vanguard maximum design scenario above, there is the potential for cumulative effects on Reepham FP18, Marriott's Way and the B1145, to the north of Reepham, where the Hornsea Three and the Norfolk Vanguard onshore cable corridors cross. However, as the above changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement do not affect the approach to be implemented by the Applicant (HDD under Marriott's Way and the B1145 and open-cut across Reepham FP18) and so the significance of effect assigned in Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement (APP-078) is unchanged. However, with regard to Station Road Reepham (planning reference 20180963; see paragraph 2.4 of this document), due to the vicinity of 20180963 to Marriots Way, there is potential for a cumulative impact with Hornsea Three to Marriots Way. However, 20180963 is located on the other side of Reepham to Hornsea Three and is unlikely to result in a significant cumulative impact to Marriots Way. The nature of the development (care home and assisted housing) suggests that it will not result in a significant level of increase in users of the route, and even if there was, measures will be put in place by the Applicant (to be set out in the final CoCP and agreed with the relevant planning authority) to manage the interface between non-motorised users and construction traffic. In addition, the Old Station Yard development is committed to making drainage improvements to that part of Marriott's Way adjacent to the development which will have an overall benefit to the route. 2018/1640 was screened into this CEA as the land is currently used for agriculture, however given the size of the site, the significance of effect assigned in Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement will not be affected.
Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement (APP-079)	
Cumulative temporary impacts on local highway network and shared routes	The Applicant is currently working with Norfolk Vanguard to update the CEA on traffic and transport, air quality and noise and vibration. Although highway threshold levels on shared roads have not been agreed at Deadline 1, material headway has been made and both projects in this regard and the Applicant is confident that agreement can be reached in the short term. There may be cumulative impacts on a small number of shared road links during construction of Hornsea Project Three and Norfolk Vanguard. Both parties continue to work together to ensure alignment of highway threshold levels applied by each project, i.e. traffic capacity of each road link before significant impacts are expected, and alignment as to the scope of appropriate traffic management measures that may be required as thresholds are reached – i.e. confirming: - • Thresholds on each street (or part of street) where no or limited ("soft") traffic management measures would be required, such as controls on daily traffic demand, driver induction, community liaison;

CEA Impact Title	Update to Hornsea Three CEA
	• Thresholds on each street (or part of street) which would trigger further "soft" traffic management measures, such as timing of deliveries, hazard signage, restricted periods, and temporary speed restrictions; and • Thresholds on each street (or part of street) which would trigger further "harder" traffic management measures -such as flow control, pedestrian crossing points, parking restrictions and other traffic management measures, in some instances physical interventions such as localised widening or passing places. Any mitigation measures identified for these shared links would be secured through each project's final Construction Traffic Management Plans to be developed post-consent. These would be developed with, and required to be approved by, Norfolk County Council as Highways Authority under requirement 18 of the draft DCO (Version 1, as submitted for Deadline 1). Whilst these workstreams are ongoing, the locations which require further consideration due to the potential cumulative impact of both projects is limited to:- • The Street (linking B1149 with Oulton Street); • Along B1149, in particular through the settlement of Horsford; and • Along B1145, in particular through the settlement of Cawston. No cumulative impacts are predicted on the Strategic Road Network managed by Highways England. Hornsea Three and Norfolk Vanguard will be looking to reach an agreement on these matters and engage with Norfolk County Council as the highways authority to reach a shared common point of agreement. Although these measures have not been agreed at Deadline 1, material headway has been made and both projects are confident that agreement can be reached in the short term. If Construction Traffic Management Plan (CTMP) measures are required along these stretches of road, these measures will be captured in a revised Outline CTMP to be submitted in due course into the Hornsea Three examination.

CEA Impact Title	Update to Hornsea Three CEA
Volume 3, Chapter 8: Noise and Vibration of the Environmental Statement (APP-080)	
The temporary impact of cable installation during construction may affect receptors sensitive to noise or vibration.	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; and • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2. • Reduction in the number joint pits from 450 to 150; and • Selection of HVDC transmission resulting in less infrastructure and fewer cable trenches. The significance of noise impacts for the construction of Norfolk Vanguard ranged from no impact to negligible at the PEIR and from no impact to minor adverse in the Environmental Statement. The Applicant is currently working with Norfolk Vanguard to update the CEA on noise and vibration in relation to traffic and transport impacts at the main construction compound. Although highway threshold levels on shared roads have not been agreed at Deadline 1, material headway has been made and both projects in this regard and the Applicant is confident that agreement can be reached in the short term. When this workstream has concluded, the Applicant can review the conclusions reached in the relevant sections of the noise and vibration ES assessment. Hornsea Three onshore HVDC converter/HVAC substation is approximately 30 km from Norfolk Vanguard at its closest point. Therefore, cumulative impacts resulting from Norfolk Vanguard and the construction of Hornsea Three onshore HVDC converter/HVAC substation are unlikely. There is also limited potential for cumulative impacts where the Hornsea Three and Norfolk Vanguard onshore cable corridors cross. The significance of effect assigned in Volume 3, Chapter 8: Noise and Vibration of the Environmental Statement is unlikely to be affected by the information submitted in the Norfolk Vanguard Environmental Statement. 2018/1640 and 2018/2017 were screened into this CEA, however the noise and vibration impacts from the projects are unlikely to changes the significance of effects as reported in Volume 3, Chapter 8: Noise and Vibration of the Environmental Statement.
The temporary impact of cable installation by HDD (including duct installation at Hornsea Three landfall area) may affect receptors sensitive to noise or vibration.	
The temporary impact of constructing the construction accesses on the Hornsea Three onshore cable corridor may affect receptors sensitive to noise or vibration.	
The temporary impacts of onshore HVDC converter/HVAC substation construction, operation or decommissioning may affect receptors sensitive to noise or vibration.	

CEA Impact Title	Update to Hornsea Three CEA
Volume 3, Chapter 9: Air Quality of the Environmental Statement (APP-081)	
Temporary impacts during construction and decommissioning of Hornsea Three that may affect receptors sensitive to dust (human and ecological).	The pertinent changes to the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement are as follows: • Reduction in the maximum working width of the onshore cable corridor from 100 m to 45 m; and • Reduction in the onshore cable corridor maximum footprint 6,000,000 m^2 to 2,700,000 m^2. • Reduction in the number joint pits from 450 to 150; and • Selection of HVDC transmission resulting in less infrastructure and fewer cable trenches. The significance of construction air quality effects for Norfolk Vanguard were not significant as assessed in the PEIR (ecological sites not assessed) and remain not significant in the Environmental Statement. The greatest potential for cumulative impacts as a result of Hornsea Three and Norfolk Vanguard would be where the onshore cable corridors cross. Between PEIR and Environmental Statement the maximum design scenario for the Norfolk Vanguard onshore cable corridor has reduced. The significance of cumulative effects assigned in Volume 3, Chapter 9: Air Quality of the Environmental Statement is unlikely to be affected. 2018/1640 and 2018/2017 would be screened into the cumulative assessment, however due to the scale of these developments (0.32 ha and 0.56 ha respectively), the dust emission impacts from the projects are unlikely to changes the significance of effects as reported in Volume 3, Chapter 9: Air Quality of the Environmental Statement.
Temporary impacts due to traffic that may affect human and ecological receptors during the construction and decommissioning phases	The construction traffic air quality effects for Norfolk Vanguard were assessed as not significant in the PEIR (ecological sites not assessed) and remain not significant in the Environmental Statement. The Applicant is currently working with Norfolk Vanguard to update the CEA on air quality, specifically in relation to traffic and transport impacts at the main construction compound. Although highway threshold levels on shared roads have not been agreed at Deadline 1, material headway has been made and both projects in this regard and the Applicant is confident that agreement can be reached in the short term. If measures are required they will be captured in a revised Outline CTMP to be submitted in due course into the Hornsea Three examination. When this workstream has concluded, the Applicant can review the conclusions reached in the relevant sections of the air quality ES assessment.

CEA Impact Title	Update to Hornsea Three CEA
	The selection of HVDC transmission by Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement would result in less infrastructure and fewer cable trenches. This is likely to reduce the traffic movements for Norfolk Vanguard. The changes in the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement would not affect the significance of effect assigned in Volume 3, Chapter 9: Air Quality of the Environmental Statement.
Volume 3, Chapter 10: Socio-economics of the Environmental Statement (APP-082)	
The cumulative impact of construction of Hornsea Three on access to construction-related employment and GVA considered together with the construction and operation of other planned nearby wind farm projects.	Overall, the selection of HVDC transmission for Norfolk Vanguard within the final DCO application results in fewer cable trenches, when compared to the PEIR stage However, given the scale of the development involved this change in the Norfolk Vanguard maximum design scenario between the PEIR and Environmental Statement is unlikely to affect the significance of effect assigned in Volume 3, Chapter 10: Socio-economics of the Environmental Statement.
The cumulative impact of construction of Hornsea Three on the performance of the renewable energy sector considered together with the construction and operation of other planned nearby wind farm projects.	
The cumulative impact of construction of Hornsea Three on the demand for housing, accommodation and local services considered together with the construction and operation of other planned nearby wind farm projects.	The significance of community infrastructure impacts during construction for Norfolk Vanguard are minor adverse at PEIR and not assessed in the Environmental Statement. Norfolk Vanguard maximum design scenario between the PEIR and final Environmental Statement is unlikely to affect the significance of effect assigned in Volume 3, Chapter 10: Socio-economics of the Environmental Statement.
The cumulative impact of construction of Hornsea Three on offshore and coastal tourism and recreation activity	

CEA Impact Title	Update to Hornsea Three CEA
and associated economic value considered together with the construction and operation of other planned nearby wind farm projects.	
The cumulative impact of construction of Hornsea Three on local tourism and recreational resources, including PRoW considered together with the construction and operation of other planned nearby wind farm projects.	
The cumulative impact of operation and maintenance of Hornsea Three on access to operation and maintenance-related employment and GVA considered together with the construction and operation of other planned nearby wind farm projects.	The significance of job creation effects during operation of Norfolk Vanguard were assessed as major beneficial (direct and supply chain) in the PEIR and minor beneficial (direct and supply chain) at Environmental Statement stage. Overall, the selection of HVDC transmission for Norfolk Vanguard within the final DCO application resulting in less infrastructure, when compared to the project assessed in the PEIR, stage is likely to result in smaller increases to capacity in the supply chain and the labour market. The possibility of the catalytic effect on the development of the renewable energy sector may also be reduced. However, given the scale of the developments involved this change in the Norfolk Vanguard maximum design scenario between the PEIR and final Environmental Statement is unlikely to affect the significance of effect assigned in Volume 3, Chapter 10: Socio-economics of the Environmental Statement in isolation.
The cumulative impact of operation and maintenance of Hornsea Three on the performance of the renewable energy sector considered together with the construction and operation of other planned nearby wind farm projects.	
The cumulative impact of operation and maintenance of Hornsea Three on the demand for housing, accommodation and local services considered together with the construction and operation of	The significance of community infrastructure impacts during operation of Norfolk Vanguard were assessed as negligible in the PEIR and not assessed at Environmental Statement stage. The selection of HVDC transmission resulting in less infrastructure is likely to reduce the number of operational staff required to deliver Norfolk Vanguard and therefore the demand for housing, accommodation and local services. However, Norfolk Vanguard

CEA Impact Title	Update to Hornsea Three CEA
other planned nearby wind farm projects.	maximum design scenario between the PEIR and Environmental Statement is unlikely to affect the significance of effect assigned in Volume 3, Chapter 10: Socio-economics of the Environmental Statement.
The cumulative impact of operation and maintenance of Hornsea Three on offshore and coastal tourism and recreation activity and associated economic value considered together with the construction and operation of other planned nearby wind farm projects.	The cumulative effects on the receptor would be driven by effects in Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076), Chapter 6: Land Use and Recreation of the Environmental Statement (APP-078), Chapter 7: Traffic and Transport of the Environmental Statement (APP-079), and Chapter 8: Noise and Vibration of the Environmental Statement (APP-080). Above it is concluded that the significance of effect assigned in topics are unlikely to be affected by the Norfolk Vanguard maximum design scenario or by considering Norfolk Vanguard as a Tier 2 development. Therefore, the significance of effect assigned in Volume 3, Chapter 10: Socio-economics of the Environmental Statement would not be affected.

Table 4.2: Summary of Hornsea Three CEA based on updated project information – Offshore

CEA Impact Title	Update to Hornsea Three CEA
Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement (APP-063)	
Construction phase: Cumulative effect of underwater noise from piling operations at other offshore wind farm sites	Norfolk Vanguard was originally considered as a Tier 3 project within the CEA. However, based on the application for Norfolk Vanguard being accepted for examination it would now be considered in Tier 2 within the CEA Assessment. The overall duration of piling at Norfolk Vanguard has increased, which increases the overall duration of piling activities for all Tier 1, 2 and 3 offshore wind farm projects from 1,261 days (as stated in paragraph 3.13.2.52 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement) to 1,283 days. This remains approximately 25% of the 14 year cumulative construction period (as predicted in Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement). While there were no changes to the maximum hammer energy in the Norfolk Vanguard Environmental Statement, revised noise modelling resulted in reductions to the predicted impact ranges for fish (Vattenfall Wind Power Ltd., 2018). Dogger Bank Creyke Beck A and B and Sofia (formally Dogger Bank Teesside B) were considered as Tier 2 projects for the Hornsea Three CEA on fish and shellfish ecology. Within the original Creyke Beck A and B impact assessment, the potential for fish to be impacted was assessed on the basis of maximum duration of piling events. The maximum design scenario was based on a maximum number of foundations being installed on jacket / multi-pile foundations with a maximum of six pin-piles per foundation using a maximum hammer energy of 2,300 kJ. The proposed amendments to the hammer energy required for monopiles (as outlined in paragraph 2.5 above) does not significantly alter the maximum design scenario assessed with respect to fish for Creyke Beck A and B (SSE and Equinor, 2018). A revised assessment using the latest Popper *et al* 2014 criteria has been undertaken for Creyke Beck A and B, the results of which have demonstrated that fish injury ranges for the 4,000 kJ hammer energy result in smaller injury ranges than were predicted in the original Creyke Beck A and B impact assessment (SSE and Equinor, 2018). While the greater hammer energy in the NMC applications for Dogger Bank Creyke Beck A and B result in increases in behavioural response ranges, these represent relatively small increases on those predicted in the original Creyke Beck A and B impact assessments (as presented in Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement). As a result, the maximum design scenario for Creyke Beck has not changed (i.e. it remains piling for pin piles using 2,300 kJ hammer; SSE and Equinor, 2018). The potential for fish to be impacted by Dogger Bank Sofia (formally Dogger Bank Teesside B) was considered within paragraph 3.13.2.47 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement, on the basis of maximum duration of piling events. This assumed a maximum duration of piling events for Dogger Bank Sofia of 202 days, based on the piling duration for pin-pile (multi-leg) foundations. The inclusion of monopile foundations in the NMC, as outlined in paragraph 2.5 above, would not affect the maximum duration assumed within the original assessment, as this type of foundation would have considerably shorter

CEA Impact Title	Update to Hornsea Three CEA
	piling durations (i.e. 71 days). The Sofia NMC Environmental Report (Innorgy Renewables UK, 2018) reports that proposed hammer energy amendments has not changed the piling durations assessed in the original impact assessment and therefore there is no change in the maximum design scenario. The changes to the Norfolk Vanguard, Dogger Bank Creyke Beck A and B and Sofia impact assessments have not resulted in material changes (i.e. significant increases in either the extent or duration of the impact) to the Hornsea Three CEA for Tier 2 projects. As such, there is no change to the conclusion of minor adverse significance due to cumulative effects of underwater noise from Tier 2 piling operations on fish and shellfish ecology (as presented in paragraph 3.13.2.74 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement). As noted in paragraph 3.13.2.67 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement, this is particularly the case, given that the Hornsea Three assessment was considered to be highly precautionary due to piling events, in most cases, likely being shorter and simultaneous piling operations (between and within offshore wind farm sites) also resulting in a reduction in the total piling duration.
Volume 2, Chapter 4: Marine Mammals of the Environmental Statement (APP-064)	
Construction phase: Underwater noise from foundation piling and other construction activities (e.g. drilling of piles) within the Hornsea Three with underwater noise arising during construction of other projects has the potential to cause injury or disturbance to marine mammals.	Norfolk Vanguard, Thanet Extension and Moray West were considered as Tier 3 projects within the Hornsea Three marine mammal CEA (see Table 4.56 of Volume 2, Chapter 4 – Marine Mammals of the Environmental Statement). Based on the application documents for both Norfolk Vanguard and Thanet Extension being accepted for Examination, and the submission of an application for Moray West to Marine Scotland, these projects have now been considered within Tier 2 within the CEA. For the purposes of this CEA (i.e. cumulative effects of underwater noise from piling on marine mammals), the revised applications for the Seagreen (Firth of Forth), Inch Cape and Neart na Gaoithe projects, were considered as Tier 3 projects in the Hornsea Three marine mammal CEA (see Table 4.55 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement). As these have now been submitted as revised applications to Marine Scotland, these projects have now been considered within Tier 2 within the CEA. Tier 1 remains unchanged. In addition, as a result of changes in maximum hammer energy parameters resulting from the NMC applications for Dogger Bank Creyke Beck A and B, and Sofia (remaining as Tier 2 projects), revised predictions of the magnitude of impact on marine mammal receptors have become available since the Hornsea Three CEA was carried out. Therefore, the quantitative assessment of the effect of underwater noise generated by construction activities for marine mammals has also been revised in line with these changes. The assessment of significance in the marine mammal chapter was based on the sequential scenario as it was considered unrealistic that multiple projects would be in a position to operate with multiple vessels concurrently (for example, a total of 28 piling vessels would be required to realise all the concurrent piling scenarios within Tier 1 and 2 combined).The inclusion of the predicted levels of disturbance resulting from the Norfolk Vanguard, Thanet Extension, Moray West and revised Forth and Tay projects in Tier 2 and the

CEA Impact Title	Update to Hornsea Three CEA
	revision from the change in design parameters from the NMC applications from the other existing Tier 2 projects would increase the total summed numbers of harbour porpoises potentially affected in Tier 1 and 2 from 22,546 (assuming all sequential piling scenarios), which is equivalent to 7 % of the North Sea Management Unit reference population, to 41,150 (11.9 % of the North Sea Management Unit). It is important to note that these numbers are summed across all projects regardless of the degree of temporal and spatial overlap in pile driving and this approach does not provide any information on how the total magnitude is predicted to vary over time. These maximum summed numbers of animals impacted will never be reached as there is no point at which all of these individual projects could be overlapping and the maximum magnitude of impact at any one time will be significantly lower than this. Taking into account the spatial overlap in impacted areas within each year, which could be considerable for some areas, e.g. the three Dogger Bank, the two Hornsea projects and the Forth and Tay projects would further significantly reduce the total number of animals potentially affected. On this basis, this level of disturbance is not expected to have a significant effect on the size or trajectory of the harbour porpoise population and therefore the impact is still considered low magnitude. As such, there is no change in impact significance in the Hornsea Three CEA for the effect of underwater construction activities on harbour porpoises considering a revised Tier 2. For minke whales, the revised Tier 2 total summed numbers of animals potentially affected by disturbance from pile driving increases from 368 under sequential piling scenarios (representing a total of 1.6 % of the Celtic and Greater North Sea Management Unit reference population), to 796, representing a total of 3.4 % of the reference population. As discussed for harbour porpoises above, this summed magnitude will never be realised at any single time and in any given year, the magnitude of impact will be much lower. This magnitude of impact is still considered low therefore there is no change in impact significance in the Hornsea Three CEA for minke whales. For white beaked dolphins the Tier 2 total summed numbers of animals potentially affected by disturbance from pile driving presented in the original assessment was 14 under sequential piling scenarios, which at the time of assessment, represented a total of 0.1% of the Celtic and Greater North Sea Management Unit reference population. However to update the assessment for Tier 2, which now includes the Scottish projects in the Forth and Tay region (Neart na Gaoithe, Inch Cape and Seagreen), it is necessary to reconsider the appropriate abundance value for the white beaked dolphin reference population. The Forth and Tay projects are situated in Block R of the SCANS III survey design. The total estimated abundance of Block R from the SCANS III surveys carried out in 2016 is 15,694, which almost as much as the previous abundance estimate for the whole of the Celtic and Greater North Sea Management Unit (15,895, which was recommended by the Inter Agency Marine Mammal Working Group, in 2015, based on SCANS II survey data). In light of this, a revised SCANS III-based abundance for the entire management unit has since been calculated at 36,287 (excluding the Irish Sea portion of the management unit for which data is not yet available). Taking this into account, the previous Tier 2 estimate of 14 animals represents 0.04% of the updated reference population. The revised Tier 2 summed impact incorporating

CEA Impact Title	Update to Hornsea Three CEA
	Norfolk Vanguard, Thanet Extension, Moray West and the Forth and Tay projects, is 1,494 animals summed over all projects, representing 4.1% of the reference population. This increase results mainly from the numbers of white beaked dolphins predicted to be disturbed by the Forth and Tay projects in Scotland which are proposed in an area of relatively high white beaked dolphin density. As discussed for harbour porpoises and minke whales above, this summed magnitude will never be realised at any single time and in any given year, the magnitude of impact will be much lower. This is still considered low magnitude therefore there is no change in impact significance in the Hornsea Three CEA for white beaked dolphins.
For the construction, operation and maintenance and decommissioning phases the following effects were considered: Changes in prey species Increased traffic	Norfolk Vanguard, Thanet Extension and Moray West were considered as Tier 3 projects within the Hornsea Three marine mammal CEA (see Table 4.56 of Volume 2, Chapter 4 – Marine Mammals of the Environmental Statement). Based on the application documents for both Norfolk Vanguard and Thanet Extension now being accepted for Examination, and the submission of an application for Moray West and revised applications for Neart na Gaoithe, Inch Cape and Seagreen to Marine Scotland, for revised additional quantitative information on the potential magnitude of vessel related impacts have become available. In the absence of specific quantitative information to include at the time of carrying out the Hornsea CEA, the assumption was made that that number of additional vessel movements for Norfolk Vanguard, Thanet Extension and Moray West would be similar to other projects of similar scale (e.g. for Norfolk Vanguard it was assumed that based on the installation of up to 257 turbines, there would be a potential 5,000-6,000 additional vessel movements during construction and 700 during operation). The assumptions adopted in the Hornsea Three marine mammal CEA were precautionary when compared with the details presented within the project ESs (e.g. the Norfolk Vanguard ES assessed 1,180 vessel movements compared to the 5,000-6,000 assessed within the Hornsea Three CEA). Therefore, there is no change to the Hornsea Three CEA conclusions for the effect of increased vessel traffic on marine mammals. The specific parameters for which Dogger Bank Creyke Beck A and B, and Sofia, are seeking a NMC, and the revised parameters within the revised applications for Seagreen (Firth of Forth), Inch Cape and Neart na Gaoithe, did not result in any changes to the parameters under consideration in the Hornsea Three CEA for assessment of the effects of increased vessel traffic, therefore there is no change to the Hornsea Three CEA conclusions for these effects on marine mammals. As outlined above, the changes to the projects outlined above did not result in an increase in the significance of effects on fish and shellfish receptors when considered cumulatively with Hornsea Three, therefore there is no change to the CEA for Hornsea Three for the effects of changes in prey species on marine mammals.

CEA Impact Title	Update to Hornsea Three CEA
Volume 2, Chapter 4: Ornithology of the Environmental Statement (APP-065)	
Construction and decommissioning phases: The impact of construction activities such as increased vessel activity and underwater noise, may result in direct disturbance or displacement from important foraging and habitat areas of birds	Norfolk Vanguard, Thanet Extension and Moray West were considered as Tier 3 projects within the Hornsea Three offshore ornithology CEA (see Table 5.38 of Volume 2, Chapter 5 – Offshore Ornithology of the Environmental Statement). Thanet Extension and Moray West are highly unlikely to act cumulatively/in-combination with Hornsea Three due to the distances of those projects from Hornsea Three. Norfolk Vanguard was considered as part of the CEA with the magnitude of any effects considered to be equivalent to that predicted for the East Anglia Three offshore wind farm (i.e. negligible). There is therefore no change to the Hornsea Three CEA conclusions for this impact on offshore ornithological receptors. The specific parameters for which Dogger Bank Creyke Beck A and B, and Sofia, are seeking a NMC, and the revised parameters within the revised applications for Seagreen (Firth of Forth), Inch Cape and Neart na Gaoithe, did not result in any changes to the parameters under consideration in the Hornsea Three CEA for assessment of the effects of disturbance/displacement in the construction/decommissioning phases and there is therefore no change to the Hornsea Three CEA conclusions for this impact on offshore ornithological receptors.
Operation and maintenance phase: The impact of physical displacement from the Hornsea Three array area during the operational and maintenance phase of the development may result in effective habitat loss and reduction in survival or fitness rates. Collision with rotating turbine blades resulting in mortality of birds	Norfolk Vanguard, Thanet Extension and Moray West were considered as Tier 3 projects within the Hornsea Three offshore ornithology CEA (see Table 5.38 of Volume 2, Chapter 5 – Offshore Ornithology of the Environmental Statement). As the applications for both Norfolk Vanguard and Thanet Extension have been accepted for Examination, and the application for Moray West now in the determination phase, additional quantitative information on the potential magnitude of collision risk and displacement impacts has become available. This now means that these three projects now need to be considered as part of Tier 2 in the Hornsea Three CEA. The implications for the assessments conducted in Volume 2, Chapter 5 – Offshore Ornithology of the Environmental Statement and in the Report to Inform Appropriate Assessment (APP-051) are considered in Appendix 7 to the Applicant's response to Deadline I. Dogger Bank Creyke Beck A&B, Sofia, Inch Cape and Seagreen Alpha and Bravo were all considered as Tier 2 projects within the Hornsea Three offshore ornithology CEA (see Table 5.38 of Volume 2, Chapter 5 – Offshore Ornithology of the Environmental Statement) whilst Neart na Gaoithe was considered as a Tier 1 project. The specific parameters for which Dogger Bank Creyke Beck A and B, and Sofia, are seeking a NMC, and the revised parameters within the revised applications for Seagreen (Firth of Forth), Inch Cape and Neart na Gaoithe, have the potential to result in changes to the parameters under consideration in the Hornsea Three CEA for the assessment of collision risk only. However, it is important to note that the revised design envelopes proposed by each of these projects still includes the design scenario originally consented and incorporated into the Hornsea Three CEA. There is therefore no change to the Hornsea Three CEA in respect of these projects.

CEA Impact Title	Update to Hornsea Three CEA
	Consideration is however, given in Appendix 7 to the Applicant's response to Deadline I to the potential changes to the Hornsea Three CEA that may result if the revised project designs are ultimately constructed.
Volume 2, Chapter 6: Commercial Fisheries of the Environmental Statement (APP-066)	
For the construction, operation and maintenance and decommissioning phases the following effects were considered: Cumulative effects of reduction in access to, or exclusion from, potential and/or established fishing grounds. Cumulative effects of displacement leading to gear conflict and increased fishing pressure on alternative grounds. Cumulative effects of longer steaming distances to alternative fishing grounds. Cumulative effects of changes in shipping routes, leading to interference with fishing activity.	Both Norfolk Vanguard and Thanet Extension were originally considered as Tier 3 projects within the Hornsea Three CEA (see Table 6.15 of Volume 2, Chapter 6: Commercial Fisheries of the Environmental Statement). Based on the applications for both these projects being accepted for examination, these would now be considered as Tier 2 projects within the CEA. Changes to the Norfolk Vanguard and Thanet Extension project design would not have any effect on the Hornsea Three commercial fisheries CEA, as the assessment only considered the presence of these wind farms, rather than any specific design parameters. As the Tier 3 projects in the Hornsea Three CEA did not raise the Tier 2 significance levels, there would similarly be no change in the Tier 2 conclusions with the inclusion of Norfolk Vanguard and Thanet Extension as Tier 2 projects. The specific parameters for which Dogger Bank Creyke Beck A and B, Sofia, Seagreen Phase 1 and Neart na Gaoithe are seeking a NMC are not considered in the Hornsea Three CEA and therefore there is no change to the Hornsea Three CEA for commercial fisheries.
Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement (APP-067)	
For the construction, operation and maintenance and decommissioning phases the following effects were considered:	Both Norfolk Vanguard and Thanet Extension were originally considered as Tier 3 projects within the Hornsea Three CEA (see Table 7.18 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement). Based on the applications for both these projects being accepted for examination, these would now be considered as Tier 2 projects within the CEA. Changes to the Norfolk Vanguard and Thanet Extension project design would not have any effect on the Hornsea Three shipping and navigation CEA, as the assessment only considered the presence of these wind farms, rather than any specific design parameters. As the Tier 3 projects in

CEA Impact Title	Update to Hornsea Three CEA
Cumulative effects of displacement of vessels leading to increased journey times or distances for all commercial vessels. Cumulative effects of displacement of vessels leading to increased journey times or distances for all vessels (including commercial ferries) during periods of adverse weather.	the Hornsea Three CEA did not raise the Tier 2 significance levels, there would similarly be no change in the Tier 2 conclusions with the inclusion of Norfolk Vanguard and Thanet Extension as Tier 2 projects. The specific parameters for which Dogger Bank Creyke Beck A and B and Sofia are seeking a NMC are not considered in the Hornsea Three CEA, which included red line boundaries for these projects in the CEA presented in section 7.13 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement. Therefore, there is no change to the Hornsea Three CEA for shipping and navigation.
Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement (APP-068)	
Operation: Wind turbines may disrupt radar coverage of Military ADR located at Framingham	Norfolk Vanguard was originally considered as a Tier 3 project within the Hornsea Three CEA (see Table 8.15 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement). Based on the application documents for Norfolk Vanguard being accepted for Examination, these would now be considered as Tier 2 projects within the CEA. Changes to the Norfolk Vanguard project design would not have any effect on the Hornsea Three aviation, military and communications CEA, as the assessment only considered the presence of these wind farms, rather than any specific design parameters. As the Tier 3 projects in the Hornsea Three CEA did not raise the Tier 2 significance levels, there would similarly be no change in the Tier 2 conclusions with the inclusion of Norfolk Vanguard as a Tier 2 project. As a result, the significance of effect remains minor adverse.
Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement (APP-070)	
Operation: The cumulative impact upon seascape character, HSC and visual receptors when the operation phase of Hornsea Three is considered together with the construction and operation of other planned nearby wind farm projects, planned	Norfolk Vanguard was originally considered as a Tier 3 project within the Hornsea Three CEA (see Table 10.24 of Volume 2, Chapter 10: Seascape and Visual Resources of the Environmental Statement). Based on the application for Norfolk Vanguard being accepted for Examination, this would now be considered as a Tier 2 project within the CEA. Changes to the Norfolk Vanguard project design would not have any effect on the Hornsea Three seascape and visual resources CEA, as the assessment only considered the presence of these wind farms, rather than any specific design parameters. As the Tier 3 projects in the Hornsea Three CEA did not raise the Tier 2 significance levels, there would similarly be no change in the Tier 2 conclusions with the inclusion of Norfolk Vanguard as a Tier 2 project. As a result, the significance of effect would remain negligible for the East Anglia Shipping Waters NSCA.

CEA Impact Title	Update to Hornsea Three CEA
decommissioning operations for cables and pipelines and applications for aggregate extraction.	The specific parameters for which Dogger Bank Creyke Beck A is seeking a NMC were not considered in the Hornsea Three CEA and therefore there is no change to the Hornsea Three CEA for seascape and visual resources.
Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement (APP-071)	
For the construction, operation and maintenance and decommissioning phases the following effects were considered: Hornsea Three infrastructure, safety zones and advisory safety distances associated with activities within the Hornsea Three array area and along the offshore cable corridor, alongside other plans/projects, may displace recreational craft and recreational fishing vessels resulting in a loss of recreational resource.	Norfolk Vanguard was originally considered as a Tier 3 projects within the CEA assessment. Based on the application being accepted for Examination the project would now be considered in Tier 2. However, it is not considered that the assessment would change as the assessment again only considers the presence of the wind farm rather than any specific aspects of the design. As the Tier 3 projects in the original assessment were considered unlikely to raise the cumulative effect assessed for Tier 2 projects, having Norfolk Vanguard as a Tier 2 project in the CEA would not change the conclusions made within the assessment. As a result, the significance of effect remains minor. The specific parameters for which Dogger Bank Creyke Beck A and B, Sofia are seeking changes are not considered in the Hornsea Three CEA and therefore there is no change to the Hornsea Three CEA for Infrastructure and Other Users.
Construction Phase: The piling of wind turbine and substation foundations, alongside other plans/projects, will generate underwater noise that may acoustically interfere with seismic survey operations.	The cumulative assessment included in the Hornsea Three Environmental Statement was qualitative and did not involve any modelling of hammer energies. The assessment focuses on the management of the impact and the amendments to Norfolk Vanguard, Dogger Bank Creyke Beck A and B and Sofia do not affect this element of the assessment.

Appendix A: Cumulative Effects Screening Matrix

Energy Projects - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* ***Screened in to assessment.***
c	*Potential cumulative impact exists:* ***Screened in to assessment.***
d	*No conceptual effect-receptor pathway:* ***Screened out of assessment.***
e	*Low data confidence:* ***Screened out of assessment.***
f	*No physical effect-receptor overlap:* ***Screened out of assessment.***
g	*No temporal overlap:* ***Screened out of assessment.***

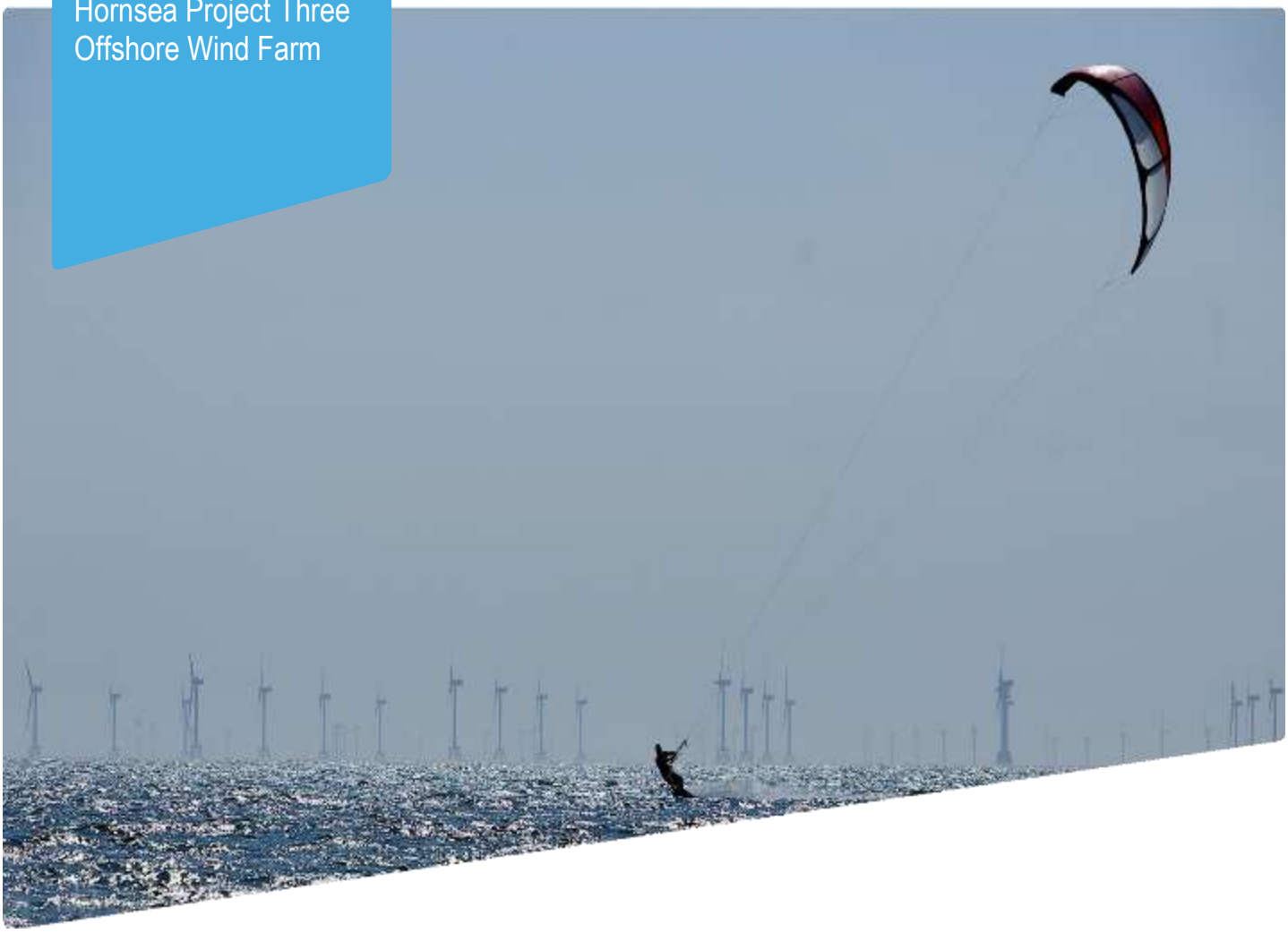
Project	Distance from the Hornsea Three Array Area (km)	Distance from the Hornsea Three Offshore Export Cable Route Corridor (km)	Status of Development	Data Confidence	Marine Processes	Benthic Ecology	Fish & Shellfish Ecology	Marine Mammals	Ornithology	Commercial Fisheries	Shipping & Navigation	Military and Aviation	Marine Archaeology	Seascape and Visual Resources	Infrastructure & Other Users
Offshore Wind Farms															
United Kingdom															
Dogger Bank Creyke Beck A	76	91	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	c	c	c	c	c	f	f	c	c
Dogger Bank Creyke Beck B	99	115	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	c	c	c	c	c	f	f	f	c
Dogger Bank Teesside B (now Sofia Offshore Wind Farm)	95	108	Consented	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	c	c	c	c	c	f	f	f	c
Inch Cape Offshore Wind Farm	386	402	Consented and NMC Submitted	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	f	f	f	f	f
Moray West Offshore Wiund Farm	554	571	Submitted	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	f	f	f	f	f	f
Norfolk Vanguard	73	51	Submitted	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	c	c	c	c	c	c	f	c	c
Neart na Gaoithe	372	388	Consented and NMC Submitted	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	f	f	f	f	f
SeaGreen Alpha	383	399	Consented and NMC Submitted	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	f	f	f	f	f
SeaGreen Bravo	367	384	Consented and NMC Submitted	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	f	f	f	f	f
Thanet Extension	260	168	Submitted	High - Third party project details published in the public domain and confirmed as being 'accurate' by the developer.	f	f	f	c	c	c	c	f	f	f	f

Onshore Projects - Spatial and Screening

a	*Included as part of the topic baseline and hence not considered within the cumulative impact assessment.*
b	*Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment:* ***Screened in to assessment.***
c	*Potential cumulative impact exists:* ***Screened in to assessment.***
d	*No conceptual effect-receptor pathway:* ***Screened out of assessment.***
e	*Low data confidence:* ***Screened out of assessment.***
f	*No physical effect-receptor overlap:* ***Screened out of assessment.***
g	*No temporal overlap:* ***Screened out of assessment.***

Project	Address	District	Data Confidence Assessment	Status of Development	Shortest distance from Hornsea Three	Geology and Ground Conditions	Hydrology and Flood Risk	Ecology and Nature Conservation	Landscape and Visual Resources	Historic Environment	Land Use and Recreation	Traffic and Transport	Noise and Vibration	Air Quality and Health	Socio-Economics
2018/1640 Gas powered electricity generator and related infrastructure.	Land Off Mangreen Hall Lane, Dunston, Norfolk	South Norfolk District Council	High - Third party project details published in the public domain/planning portal.	Approved 18 October 2018	0 m	c	f	c	c	c	c	f	c	c	f
2018/2017 Full planning application for the laying out of a 49.9MW battery storage facility, fencing and access road on land east of the existing Norwich 400kV substation	Norwich Main Substation, Mangreen Hall Lane, Dunston, Norfolk NR14 8PG	South Norfolk District Council	High - Third party project details published in the public domain/planning portal.	Pending Consideration as of 12 October 2018.	0 m	c	f	c	c	c	f	f	c	c	f
20180963 Erection of Food Retail Store (A1 Use), Offices (B1a Use), 70 No Bedroom Care Home (C2 Use), 24 No Assisted Flats (C2 Use), 15 No Assisted Bungalows (C2 Use) Assembly Room/Club House (C2 Use) & Associated Car Parking, Service Yards, Access Roads, Drainage Works & Landscaping	Old Station Yard,Cawston Road /Stoney Lane,Reepham	Broadland District Council	High - Third party project details published in the public domain/planning portal.	Registered as of 5 July 2018.	950m	f	f	f	f	f	c	f	f	f	f
Norfolk Vanguard	The centre of Norfolk Vanguard West is 67km from the Bacton coast and 63km from the Gorleston coast at their nearest point. The centre of Norfolk Vanguard East is 98km from the Bacton coast and 86km from the Gorleston coast at their nearest point. Norfolk Vanguard West is approximately 295km2, Norfolk Vanguard East being 297km2.		High - Third party project details published in the public domain/planning portal.	Application submitted on 11 July 2018 and excepted for examination on 24 July 2018.	0m	c	c	c	c	c	c	c	c	c	c

Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Appendix 49 to Hornsea Three Deadline I Submission: Applicant's Response to ExA Question Q1.2.79

Date: 7th November 2018

Hornsea 3
Offshore Wind Farm

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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2018.

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1. Introduction

1.1 This clarification note presents further information in response to Question 1.2.79 of the Examining Authorities first round of Written Questions:

"Table 5.38 of the ES [APP-065] groups projects into tiers depending on the stage that each project has reached. The Norfolk Vanguard and Thanet Extension offshore wind farms have recently been accepted for examination by the Planning Inspectorate, making them Tier 2 projects.

Please provide an updated CEA that takes into account the Norfolk Vanguard and Thanet Extension offshore wind farms as Tier 2 projects."

1.2 In this response, the implications for the cumulative and in-combination assessments for offshore ornithology presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065), the RIAA (APP-051) and Appendix 7 to the Applicants response to Deadline I are considered in relation to collision risk and displacement impacts from Norfolk Vanguard, Thanet Extension and Moray West offshore wind farms all of which have submitted consent applications since the submission of the Hornsea Three application. Only those assessments conducted for collision risk and operational displacement impacts are potentially affected by the inclusion of Norfolk Vanguard, Thanet Extension and Moray West as Tier 2 projects meaning that consideration has been given to the species and designated sites identified in Table 1.1

Table 1.1: Species and designated sites considered in this note

Impact	Species	Designated site
Collision risk	Gannet	Flamborough and Filey Coast (FFC) pSPA
	Kittiwake	FFC pSPA
	Lesser black-backed gull	N/A
	Great black-backed gull	N/A
Displacement	Guillemot	FFC pSPA
	Razorbill	FFC pSPA
	Puffin	FFC pSPA

1.3 This note should be read in conjunction with Appendix 4 to the Applicants response to Deadline I which considers changes to the assessed and as-built turbine scenarios proposed/constructed at other projects considered cumulatively/in-combination including for those projects which have submitted non-material amendments (Dogger Bank Creyke Beck A&B and Sofia offshore wind farms) or revised applications (Neart na Gaoithe, Inch Cape and Seagreen Alpha and Bravo) since the submission of the Hornsea Three application

2. Projects to be considered

New applications

2.1 Following review of the projects considered within the CEA for Hornsea Three the following 'new' projects were identified which have the potential to materially affect the CEA (e.g. potentially lead to a change in the significance of effect) through recent changes in their design parameters:

- Norfolk Vanguard – The Hornsea Three CEA considered Norfolk Vanguard Offshore Wind Farm based on the information available in the Norfolk Vanguard Offshore Wind Farm Preliminary Environmental Information Report (PEIR) and as such, this was considered to be a Tier 3 project (see Section 5.4 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement). This project has now submitted a DCO application and accompanying Environmental Statement to the Planning Inspectorate and can therefore be considered to be a Tier 2 project;
- Thanet Extension – As with Norfolk Vanguard, the Hornsea Three CEA considered this project based on the information available in the Thanet Extension PEIR and as such, this was considered to be a Tier 3 project. This project has also recently submitted a DCO application and accompanying Environmental Statement to the Planning Inspectorate and can therefore be considered to be a Tier 2 project;
- Moray West - The Hornsea Three CEA considered Moray West Offshore Wind Farm based on the information available in the Moray West Offshore Wind Farm Scoping Report and as such, this was considered to be a Tier 3 project (see Section 5.4 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement). This project has now submitted a Marine Licence application and accompanying Environmental Statement to Marine Scotland, which is currently in determination and can therefore be considered to be a Tier 2 project.

Other projects

2.2 In addition to the projects identified above, a number of projects that were considered in the CEA for Hornsea Three have submitted updated project designs, either in the form of new applications or non-material amendments.

- Seagreen Alpha and Bravo (revised application);
    - Decrease in the number of turbines from 75 for each project (up to 150 in total in the original Environmental Statement) to up to 70 turbines in each project. A total of up to 120 turbines across Phase 1 in the Environmental Impact Assessment Report (EIAR);
    - Increase in the maximum rotor diameter from 167 m, in the original Environmental Statement, to 220 m in the EIAR;
    - Increase in the blade tip height from 209.7 m, in the original Environmental Statement, to 280 m in the EIAR;
    - Increase in the minimum blade tip clearance form 29.8 m, in the original Environmental Statement, to 32.5 m in the EIAR;

- Expansion of the foundation options to include monopile foundation options at up to 70 locations in the EIAR, previously the original Environmental Statement only included jacket and gravity base foundations;

- Neart na Gaoithe (revised application);
  - Decrease in the number of turbines from 75, in the original Environmental Statement, to up to 54 turbines in the EIAR;
  - Increase in the rotor tip height from 197 m, in the original Environmental Statement, to 208 m in the EIAR;
  - Increase in hub height from 115 m, in the original Environmental Statement, to 126 m in the EIAR;
  - Increase in the maximum rotor diameter from 154 m, in the original Environmental Statement, to 167 m in the EIAR;
  - Increase in the minimum spacing between turbines from 450 m, in the original Environmental Statement, to 800 m in the EIAR;
  - Increase in the minimum blade tip clearance form 30.5 m, in the original Environmental Statement, to 35 m in the EIAR;
  - Increase in the maximum number of piles per foundation for jackets from 4 piles, in the original Environmental Statement, to 6 piles in the EIAR;
  - Reduction of the foundation options to jackets only, the original Environmental Statement included both gravity base structures and jackets;
  - Increase from 6 turbines per collector circuit, in the original Environmental Statement, to 10 turbines per collector circuit in the EIAR for inter-array cables;
  - Decrease from up to 15 circuits, in the original Environmental Statement, to up to 14 circuits in the EIAR for inter-array cables;
  - An increase in the maximum level of Offshore Substation Platforms (OSPs) above Lowest Astronomical Tide (LAT) from 18 m, in the original Environmental Statement, to 21 m in the EIAR; and
  - An increase in the length of the export cable from 33 km to 43 km.

- Inch Cape (revised application);
  - Decrease in the number of turbines from 110 in the original Environmental Statement to 72 turbines in the EIAR;
  - Increase in the blade tip height from 215 m in the original Environmental Statement to 291 m in the EIAR;
  - Removal of two met masts in the ES from the development parameters in the EIAR (i.e. there will no longer be any met masts);
  - Decrease in the number of offshore substation platforms from 5 in the original Environmental Statement, to 2 in the EIAR;
  - Decrease in the inter-array cabling length from 353 km in the original Environmental Statement to 190 km in the EIAR; and

- Decrease in the number of export cables from 6 in the original Environmental Statement to 2 in the EIAR.

- Dogger Bank Creyke Beck A&B (non-material amendment); and
  - Increase in maximum wind turbine rotor diameter from 215 m, in the original Environmental Statement, to 280 m in the NMC;
  - Increase in maximum hammer energy for monopile turbine foundations from 3,000 kJ, in the original Environmental Statement, to 4,000 kJ in the NMC; and
  - Increase in maximum monopile diameter from 10 m, in the original Environmental Statement, to 12 m in the NMC.

- Sofia (non-material amendment);
  - Increase in maximum wind turbine rotor diameter from 215 m, in the original Environmental Statement, to 288 m in the NMC;
  - Increase in maximum hammer energy for monopile turbine foundations from 3,000 kJ, in the original Environmental Statement, to 5,500 kJ in the NMC;
  - Increase in foundation options for offshore platforms to include monopile foundations in the NMC, previously only included jacket and gravity base foundations in the original Environmental Statement;
  - Maximum hammer energy for monopile foundations for substations to be up to 5,500 kJ in the NMC (previously 1,900 kJ for driven piles in the original Environmental Statement) and to have a pile diameter of up to 12 m in the NMC (2.75 m for driven piles in the original Environmental Statement); and
  - Increase the maximum capacity from 1.2 GW in the original Environmental Statement to 1.4 GW in the NMC.

2.3 The potential changes to the conclusions reached in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the RIAA (APP-051) as a result of design changes for these projects are considered in Appendix 4 to the Applicants response to Deadline I alongside changes that have occurred between the assessments and construction of other offshore wind farm projects.

3. Assessment parameters

Avoidance rates and Band model Options

3.1 Two approaches are used to calculate cumulative and in-combination collision totals. In Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the RIAA (APP-051) the cumulative and in-combination assessments used collision risk estimates calculated using the Extended model (Options 3 or 4) where available. If collision risk estimates calculated using the Extended model were unavailable then estimates calculated using the Basic model (Options 1 or 2) were used. Appendix 7 to the Applicants response to Deadline I presents cumulative and in-combination assessments using collision risk estimates calculated using the Basic model only. In order to provide updates to both of these assessment approaches, this document presents cumulative and in-combination totals incorporating the three new applications (Norfolk Vanguard, Thanet Extension and Moray West) using the Extended model (where available) and the Basic model.

3.2 For each of the three new applications collision risk estimates applying the avoidance rates and Band model Options presented in Table 3.1 have been used. The avoidance rates used are consistent with those applied in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the RIAA (APP-051) for the Extended model and in Appendix 7 to the Applicants response to Deadline I for the Basic model.

3.3 Norfolk Vanguard and Thanet Extension only present collision risk estimates in their Environmental Statements calculated using the Basic model (Option 2) and therefore these collision risk estimates are used for both of the cumulative/in-combination approaches presented in the species-specific sections (i.e. Extended model, where available and the Basic model). Moray West presents collision risk estimates calculated using both the Basic and Extended models and as such the estimates used are those relevant to the cumulative/in-combination approaches presented below.

Table 3.1: Avoidance rates and Band model Options used for collision risk estimates from Norfolk Vanguard, Thanet Extension and Moray West

Project	Cumulative/in-combination approach	Gannet		Kittiwake		Lesser black-backed gull		Great black-backed gull	
		Option	Avoidance rate (%)	Option	Avoidance rate (%)	Option	Avoidance rate (%)	Option	Avoidance rate (%)
Norfolk Vanguard	Basic	2	98.9	2	98.9	2	99.5	2	99.5
	Extended (where available)	2	98.9	2	99.2	2	99.5	2	99.5
Thanet Extension	Basic	2	98.9	2	98.9	2	99.5	2	99.5
	Extended (where available)	2	98.9	2	99.2	2	99.5	2	99.5
Moray	Basic	2	98.9	2	98.9	No collision risk		2	99.5

Project	Cumulative/in-combination approach	Gannet		Kittiwake		Lesser black-backed gull	Great black-backed gull	
West	Extended (where available)	3	98	3	98	estimates presented	3	98.9

Displacement and mortality rates

3.4 The displacement and mortality rates applied in the following sections for relevant species are presented in Table 3.2 and are consistent with those used in the assessments presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the RIAA (APP-051).

Table 3.2: Displacement and mortality rates applied for relevant species

Species	Season	Displacement rate (%)	Mortality rate (%)
Guillemot	Breeding	50	2-10
	Non-breeding		1
Razorbill	Breeding	40	2-10
	Post-breeding		2
	Non-breeding		1
	Pre-breeding		2
Puffin	Breeding	50	2-10
	Non-breeding		1

4. Revised cumulative/in-combination totals

Gannet

Overview

4.1 Seasonal collision risk estimates for Norfolk Vanguard, Thanet Extension and Moray West are presented in Table 4.1 and Table 4.2 with these tables presenting the respective cumulative and in-combination totals when using the Extended model, where available, and the Basic model for other projects considered.

4.2 Of the three new applications, the largest contribution to both the cumulative and in-combination impacts for gannet comes from Norfolk Vanguard with this project being one of the largest contributors of all projects considered. Moray West and Thanet Extension both contribute a negligible number of collisions, especially from an in-combination perspective (only one collision when both projects are combined).

Implications for Hornsea Three CEA

4.3 Norfolk Vanguard, Thanet Extension and Moray West do not contribute to the cumulative and in-combination assessments conducted for Hornsea Three for breeding adult birds in the breeding season due to a lack of connectivity between these projects and regional breeding populations.

4.4 The cumulative collision risk assessment for gannet presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) (using the Extended model where available) predicted collision risk totals of 626 and 321 collisions in the post- and pre-breeding seasons respectively. The inclusion of Norfolk Vanguard, Thanet Extension and Moray West increases the post-breeding and pre-breeding season totals to 696 and 360 collisions respectively due predominantly to the contribution of Norfolk Vanguard (Table 4.1). This represents an increase in the baseline mortality of the regional post-breeding population from 1.7% to 1.9% and in regional pre-breeding population of 1.6% to 1.8%.

4.5 When using the Basic model, the analysis presented in Appendix 7 to the Applicants response to Deadline I predicted cumulative totals of 684 and 292 collisions in the post- and pre-breeding seasons respectively. These totals increase to 757 and 331 collisions respectively when collisions from Norfolk Vanguard, Thanet Extension and Moray West are included with these increases again due predominantly to the contribution of Norfolk Vanguard. This represents an increase in the baseline mortality of the regional post-breeding population from 1.9% to 2.0% and in regional pre-breeding population of 1.5% to 1.6%.

4.6 Despite these increases it is considered that the conclusions in Volume 2, Chapter 5: Offshore Ornithology (APP-065) remain valid as the change to the increase in baseline morality is not considered to be of a magnitude that may suggest a considerable increase in the associated impact. In addition, there are considerable areas of over-estimation inherent in the cumulative totals presented (see paragraphs 5.13.3.119 and 5.13.3.137) and there remains a degree of uncertainty as to the turbine scenarios to be applied at all three of these projects as well as a number of other projects that are in Tier 2 (see Appendix 4 to the Applicants response to Deadline I).

4.7 For the in-combination assessment the total collision risk attributable to FFC pSPA estimated in the RIAA (APP-051) (when using the Extended model where available) was 193 collisions/annum. This increases to 198 collisions/annum when collisions from Norfolk Vanguard, Thanet Extension and Moray West are included (Table 4.1). This represents a change in the increase in baseline mortality of the FFC pSPA population from 14.1% to 14.4%. When using the Basic model, the total in-combination collision impact on FFC pSPA was estimated as 161 collisions/annum, increasing to 168 when collisions from Norfolk Vanguard, Thanet Extension and Moray West are included. This represents a change in the increase in baseline mortality of the FFC pSPA population from 11.7% to 12.2%. These increases do not change the PVA metrics considered as part of the conclusions presented in the RIAA and are not considered to represent a change in magnitude sufficient to alter the conclusions reached in the RIAA (APP-051).

Table 4.1: Cumulative and in-combination collision risk for gannet using the Extended model where available[1]

Project	Breeding season			Post-breeding season			Pre-breeding season		
	No. of collisions	Apportioning (%)	pSPA collisions	No. of collisions	Apportioning (%)	pSPA collisions	No. of collisions	Apportioning (%)	pSPA collisions
Hornsea Project Three	7	40	3	5	4.8	0	3	6.2	0
Other Tier 1 projects	93	72-100	91	304	4.8	15	159	6.2	10
Tier 1 total	**100**		**94**	**309**		**15**	**163**		**10**
Tier 2									
Moray West				3	4.8	0	0	6.2	0
Norfolk Vanguard				62	4.8	3	30	6.2	2
Thanet Extension				4	4.8	0	9	6.2	1
Other Tier 2 projects	97	50	48	317	4.8	15	158	6.2	10
Tier 2 total	**97**		**48**	**387**		**19**	**198**		**12**
Overall total	**197**		**142**	**696**		**34**	**360**		**22**

[1] All figures in all tables are calculated using exact numbers (i.e. with all decimals) and therefore summing constituent numbers may not equal the totals presented

Table 4.2: Cumulative and in-combination collision risk for gannet using the Basic model

Project	Breeding season			Post-breeding season			Pre-breeding season		
	No. of collisions	Apportioning (%)	pSPA collisions	No. of collisions	Apportioning (%)	pSPA collisions	No. of collisions	Apportioning (%)	pSPA collisions
Hornsea Project Three	18	40	7	12	4.8	1	8	6.2	0
Tier 1 projects	96	72-100	93	409	4.8	20	175	6.2	11
Tier 1 total	**113**		**100**	**420**		**20**	**183**		**11**
Tier 2									
Moray West				6	4.8	0	1	6.2	0
Norfolk Vanguard				62	4.8	3	30	6.2	2
Thanet Extension				4	4.8	0	9	6.2	1
Other Tier 2 projects	20	50	10	264	4.8	13	109	6.2	7
Tier 2 total	**20**		**10**	**336**		**16**	**149**		**9**
Overall total	**134**		**110**	**757**		**37**	**331**		**21**

Kittiwake

Overview

4.8 Seasonal collision risk estimates for Norfolk Vanguard, Thanet Extension and Moray West are presented in Table 4.3 and Table 4.4 with these tables presenting the respective cumulative and in-combination totals when using the Extended model, where available and the Basic model for other projects considered cumulatively/in-combination.

4.9 Of the three new applications, the largest contribution to both the cumulative and in-combination impacts for kittiwake comes from Norfolk Vanguard. Moray West also contributes to some extent, especially in an EIA context however, when considered in a HRA context (i.e. the number of collision attributable to FFC pSPA), the contribution of Moray West and Thanet Extension can be considered to be negligible (only one collision when both projects are combined).

Implications for Hornsea Three CEA

4.10 Norfolk Vanguard, Thanet Extension and Moray West do not contribute to the cumulative and in-combination assessments conducted for Hornsea Three for breeding adult birds in the breeding season due to a lack of connectivity between these projects and regional breeding populations.

4.11 The cumulative collision risk assessment for kittiwake presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) (using the Extended model where available) predicted collision risk totals of 673 and 446 collisions in the post- and pre-breeding seasons respectively. The inclusion of Norfolk Vanguard, Thanet Extension and Moray West increases the post-breeding and pre-breeding season totals to 738 and 508 collisions respectively due predominantly to the contribution of Norfolk Vanguard (Table 4.3). This represents an increase in the baseline mortality of the regional post-breeding population from 0.56% to 0.61% and in regional pre-breeding population of 0.49% to 0.55%.

4.12 When using the Basic model, the analysis presented in Appendix 7 to the Applicants response to Deadline I predicted cumulative totals of 1,418 and 1,076 collisions in the post- and pre-breeding seasons respectively. These totals increase to 1,518 and 1,162 collisions respectively when collisions from Norfolk Vanguard, Thanet Extension and Moray West are included with these increases again due predominantly to the contribution of Norfolk Vanguard (Table 4.4). This represents an increase in the baseline mortality of the regional post-breeding population from 1.2% to 1.3% and in regional pre-breeding population of 1.2% to 1.3%.

4.13 Despite these increases it is considered that the conclusions in Volume 2, Chapter 5: Offshore Ornithology (APP-065) remain valid as the change to the increase in baseline morality is not considered to be of a magnitude that may suggest a considerable increase in the associated impact. In addition, there are considerable areas of over-estimation inherent in the cumulative totals presented (see paragraphs 5.13.3.119 and 5.13.3.137)and there remains a degree of uncertainty as to the turbine scenarios to be applied at all three of these projects as well as a number of other projects that are in Tier 2 (see Appendix 4 to the Applicants response to Deadline I).

4.14 For the in-combination assessment the total collision risk attributable to FFC pSPA estimated in the RIAA (Document 5.2) (APP-051) (when using the Extended model where available) was 119 collisions/annum. This increases to 126 collisions/annum when collisions from Norfolk Vanguard, Thanet Extension and Moray West are included (Table 4.1). This represents a change in the increase in baseline mortality of the FFC pSPA population from 0.92% to 0.97%. When using the Basic model, the total in-combination collision impact on FFC pSPA was estimated as 249 collisions/annum, increasing to 262 when collisions from Norfolk Vanguard, Thanet Extension and Moray West are included. This represents a change in the increase in baseline mortality of the FFC pSPA population from 1.92% to 2.02%. These increases do not change the PVA metrics considered as part of the conclusions presented in the RIAA and are not considered to represent a change in magnitude sufficient to alter the conclusions reached in the RIAA (APP-051).

Table 4.3: Cumulative and in-combination collision risk for kittiwake using the Extended model where available

Project	Breeding season			Post-breeding season			Pre-breeding season		
	No. of collisions	Apportioning (%)	pSPA collisions	No. of collisions	Apportioning (%)	pSPA collisions	No. of collisions	Apportioning (%)	pSPA collisions
Hornsea Project Three	42	40.4	18	26	5.4	1	14	7.1	1
Tier 1 projects	18	83-100	18	206	5.4	11	120	7.1	9
Tier 1 total	**60**		**35**	**232**		**13**	**134**		**10**
Tier 2									
Moray West				18	5.4	1	3	7.1	0
Norfolk Vanguard				45	5.4	2	52	7.1	4
Thanet Extension				2	5.4	0	7	7.1	0
Other Tier 2 projects	87	16.8	15	441	5.4	24	312	7.1	22
Tier 2 total	**87**		**15**	**506**		**28**	**373**		**27**
Overall total	**148**		**50**	**738**		**40**	**508**		**36**

Table 4.4: Cumulative and in-combination collision risk for kittiwake using the Basic model

Project	Breeding season			Post-breeding season			Pre-breeding season		
	No. of collisions	Apportioning (%)	pSPA collisions	No. of collisions	Apportioning (%)	pSPA collisions	No. of collisions	Apportioning (%)	pSPA collisions
Hornsea Project Three	23	40.4	10	14	5.4	1	8	7.1	1
Tier 1 projects	41	83-100	37	567	5.4	31	264	7.1	19
Tier 1 total	64		47	581		32	272		20
Tier 2									
Moray West				36	5.4	2	7	7.1	0
Norfolk Vanguard				61	5.4	3	71	7.1	5
Thanet Extension				3	5.4	0	9	7.1	1
Other Tier 2 projects	288	16.8	48	837	5.4	46	804	7.1	58
Tier 2 total	288		48	937		51	891		64
Overall total	352		95	1518		83	1162		84

Lesser black-backed gull

Overview

4.15 Seasonal collision risk estimates for Norfolk Vanguard, Thanet Extension and Moray West are presented in Table 4.5 and Table 4.6 with these tables presenting the respective cumulative and in-combination totals when using the Extended model, where available and the Basic model for other projects considered cumulatively/in-combination.

4.16 Norfolk Vanguard is the largest contributor to the Tier 2 cumulative total providing approximately 50% of the total Tier 2 impact in both the breeding and post-breeding seasons. Thanet Extension provides no collisions to the overall cumulative total. Moray West has not conducted collision risk modelling for lesser black-backed gull most likely due to low numbers of the species recorded during site-specific surveys.

Implications for Hornsea Three CEA

4.17 The cumulative collision risk assessment for lesser black-backed gull presented in Volume 2, Chapter 5: Offshore Ornithology (Document 6.2.5) (APP-065) (using the Extended model where available) predicted collision risk totals of 153, 89, 140 and 57 collisions in the breeding, post-breeding, non-breeding and pre-breeding seasons respectively. Norfolk Vanguard contributes collisions in the breeding and post-breeding seasons with Thanet Extension contributing to the cumulative total in the post-breeding season (Table 4.5). The cumulative totals for the breeding and post-breeding seasons therefore increase to 165 and 103 collisions respectively. This represents an increase in the baseline mortality of the breeding and post-breeding regional populations from 29.3% and 0.37% to 31.5% and 0.43% respectively.

4.18 When using the Basic model, the analysis presented in Appendix 7 to the Applicants response to Deadline I predicted cumulative totals of 169, 99, 161 and 55 collisions in the breeding, post-breeding, non-breeding and pre-breeding seasons respectively. As with the totals for the Extended model, only those for the breeding and post-breeding seasons increase to 181 and 114 collisions respectively Table 4.4. This represents an increase in the baseline mortality of the breeding and post-breeding regional populations from 32.3% and 0.41% to 34.6% and 0.43% respectively.

4.19 Despite these increases it is considered that the conclusions in Volume 2, Chapter 5: Offshore Ornithology (Document 6.2.5) (APP-065) remain valid as the change to the increase in baseline morality is not considered to be of a magnitude that may suggest a considerable increase in the associated impact. In addition, there are considerable areas of over-estimation inherent in the cumulative totals presented (see paragraphs 5.13.3.119 and 5.13.3.137 in Volume 2, Chapter 5: Offshore Ornithology (Document 6.2.5) (APP-065) and there remains a degree of uncertainty as to the turbine scenarios to be applied at all three of these projects as well as a number of other projects that are in Tier 2 (see Appendix 4 to the Applicants response to Deadline I).

Table 4.5: Cumulative collision risk for lesser black-backed gull using the Extended model where available

Project	Breeding	Post-breeding	Non-breeding	Pre-breeding
Hornsea Three	10	1	0	1
Tier 1 projects	129	72	131	46
Tier 1 total	**139**	**73**	**131**	**47**
Tier 2				
Norfolk Vanguard	13	15	0	0
Thanet Extension		0	0	0
Other Tier 2 projects	14	16	9	10
Tier 2 total	**27**	**31**	**9**	**10**
Total	**165**	**103**	**140**	**57**

Table 4.6: Cumulative collision risk for lesser black-backed gull using the Basic model

Project	Breeding	Post-breeding	Non-breeding	Pre-breeding
Hornsea Three	15	2	0	1
Tier 1 projects	142	79	153	48
Tier 1 total	**157**	**81**	**153**	**49**
Tier 2				
Norfolk Vanguard	13	15	0	0
Thanet Extension		0	0	0
Other Tier 2 projects	12	18	8	6
Tier 2 total	**25**	**33**	**8**	**6**
Total	**181**	**114**	**161**	**55**

Great black-backed gull

Overview

4.20 Seasonal collision risk estimates for Norfolk Vanguard, Thanet Extension and Moray West are presented in Table 4.7 and Table 4.8 with these tables presenting the respective cumulative and in-combination totals when using the Extended model, where available and the Basic model for other projects considered cumulatively.

4.21 Norfolk Vanguard and Thanet Extension both contribute a similar number of collisions to the overall cumulative total, representing nearly 10% of the Tier 2 total in non-breeding season. In contrast, Moray West only contributes approximately 3% of the Tier 2 total. All three projects contribute a negligible number of collisions in the breeding season.

Implications for Hornsea Three CEA

4.22 The cumulative collision risk assessment for great black-backed gull presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) (using the Extended model where available) predicted collision risk totals of 60 and 606 collisions in the breeding and non-breeding seasons respectively. The inclusion of Norfolk Vanguard, Thanet Extension and Moray West increases the breeding and non-breeding season totals to 64 and 657 collisions (Table 4.7). This represents an increase in the baseline mortality of the regional breeding population from 2.5% to 2.7% and in regional non-breeding population of 9.5% to 10.3%.

4.23 When using the Basic model, the analysis presented in Appendix 7 to the Applicants response to Deadline I predicted cumulative totals of 68 and 709 collisions in the breeding and non-breeding seasons respectively. These totals increase to 72 and 761 collisions respectively when collisions from Norfolk Vanguard, Thanet Extension and Moray West are included (Table 4.8). This represents an increase in the baseline mortality of the regional breeding population from 2.9% to 3.0% and in regional non-breeding population of 11.1% to 11.9%.

4.24 Despite these increases it is considered that the conclusions in Volume 2, Chapter 5: Offshore Ornithology (APP-065) remain valid as the change to the increase in baseline morality is not considered to be of a magnitude that may suggest a considerable increase in the associated impact. In addition, there are considerable areas of over-estimation inherent in the cumulative totals presented (see paragraphs 5.13.3.119 and 5.13.3.137) and there remains a degree of uncertainty as to the turbine scenarios to be applied at all three of these projects as well as a number of other projects that are in Tier 2 (see Appendix 4 to the Applicants response to Deadline I).

Table 4.7: Cumulative collision risk for great black-backed gull using the Extended model where available

Project	Breeding	Non-breeding
Hornsea Three	12	40
Tier 1 projects	37	367
Tier 1 total	**49**	**407**
Tier 2		
Moray West	1	8
Norfolk Vanguard	0	22
Thanet Extension	2	21
Other Tier 2 projects	11	198
Tier 2 total	**14**	**250**
Total	**64**	**657**

Table 4.8: Cumulative collision risk for great black-backed gull using the Basic model

Project	Breeding	Non-breeding
Hornsea Three	16	50
Tier 1 projects	40	444
Tier 1 total	**56**	**495**
Tier 2		
Moray West	1	8
Norfolk Vanguard	0	22
Thanet Extension	2	21
Other Tier 2 projects	13	215
Tier 2 total	**16**	**266**
Total	**72**	**761**

Guillemot

Norfolk Vanguard

4.25 The assessment of displacement of guillemot at Norfolk Vanguard in the breeding season predicts a displacement mortality of 216 guillemot when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 10% mortality). However, as there is no connectivity between any breeding colonies and Norfolk Vanguard in the breeding season, birds present at Norfolk Vanguard in the breeding season are likely to be immature and non-breeding birds and therefore a lower mortality rate is considered to be more appropriate. The displacement mortality at Norfolk Vanguard is therefore considered to be 43-216 (50% displacement and 2-10% mortality). In the non-breeding season, when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 1% mortality) a total displacement mortality of 24 guillemot is predicted for Norfolk Vanguard.

4.26 There is considered to be no connectivity between Norfolk Vanguard and FFC pSPA in the breeding season and therefore no displacement mortality associated with Norfolk Vanguard in the breeding season is attributable to the breeding adult population at FFC pSPA. A proportion of the impact at Norfolk Vanguard may be attributable to the immature population associated with FFC pSPA. The level of mortality predicted however, is not considered to represent a significant increase on the total displacement mortality for immature birds at FFC pSPA (as estimated in the RIAA (APP-051)). The apportioning value used for guillemot at FFC pSPA in the non-breeding season is 4.4%. This would therefore lead to one bird being apportioned to FFC pSPA from Norfolk Vanguard in the non-breeding season.

Thanet Extension

4.27 Displacement analyses in the breeding season at Thanet Extension predicted no displacement mortality of guillemot when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 10% mortality).

4.28 The displacement analysis for Thanet Extension uses three non-breeding seasons (spring, winter and autumn) for guillemot. Of these the highest impact occurs during spring migration, with a total displacement mortality of three birds when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 1% mortality).

4.29 The apportioning value used for guillemot at FFC pSPA in the non-breeding season is 4.4%. This would therefore lead to less than one bird being apportioned to FFC pSPA from Thanet Extension in the non-breeding season.

Moray West

4.30 Due to the methodology used to calculate baseline populations for use in the assessments for Moray West, it is not possible to calculate displacement mortality using the seasonal definitions for guillemot applied at Hornsea Three. Therefore the seasonal displacement mortality as reported in the consent application documents for Moray West are assumed to provide a representative assessment.

4.31 In the breeding season, a displacement mortality of 1,221 guillemot is predicted when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 10% mortality) with the majority of these likely to be associated with local breeding colonies due to the proximity of Moray West to the Caithness coast. There is no connectivity between breeding guillemot from FFC pSPA and Moray West in the breeding season although some of the guillemot present at Moray West may be immature birds associated with FFC pSPA. However, this is not likely to represent a significant increase on the total displacement mortality for immature birds at FFC pSPA (as discussed in the RIAA (APP-051).

4.32 Displacement analyses for Moray West use a post-breeding and non-breeding season for guillemot. A post-breeding season was defined due increases in the population of guillemot recorded towards the end of the breeding season with such populations considered to be birds dispersing from breeding colonies. For the Hornsea Three cumulative assessment it is therefore considered more appropriate to use the predicted displacement mortality from the non-breeding season for which a displacement mortality of 41 birds was predicted when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 1% mortality). The apportioning value used for guillemot at FFC pSPA in the non-breeding season is 4.4%. This would therefore lead to two birds being apportioned to FFC pSPA from Moray West in the non-breeding season.

Implications for Hornsea Three CEA

4.33 Volume 2, Chapter 5: Offshore Ornithology (APP-065) predicted an overall cumulative displacement mortality of 5,660-6,195 guillemot in the breeding season and 411 guillemot in the non-breeding season. Displacement mortality of guillemot from Norfolk Vanguard, Thanet Extension and Moray West therefore increases the total cumulative impact to 6,924—7,637 in the breeding season and 481 in the non-breeding season. In the breeding season, impacts from different projects will impact different populations due to the constraints on breeding birds at this time (provisioning of young) and the distribution of immature birds. However, the impact presented here is likely to be significantly lower as many projects, especially those south of Hornsea Three, will be impacting a population composed primarily of immature and non-breeding birds which are considered to less susceptible to displacement impacts due to an increased habitat flexibility suggesting a lower mortality rate should be applied. As such, although the increase in the breeding season appears to be considerable, the population affected by the cumulative breeding season is substantial likely representing all breeding birds on the east coast of the UK (952,646 breeding birds), a significant proportion of the 704,957 immature birds estimated to be associated with these breeding colonies and a proportion of immature birds associated with colonies on the west coast of the UK and birds from foreign colonies. This is discussed in paragraphs 5.13.3.59 to 5.13.3.62 in Volume 2, Chapter 5: Offshore Ornithology (APP-065).

4.34 The level of increase predicted is therefore not considered to change the conclusions reached in Volume 2, Chapter 5: Offshore Ornithology (APP-065) especially as it is considered unlikely that all projects included in Tier 2 will be brought forward or, if constructed, they are unlikely to be built out to the maximum design scenario assumptions made in the respective impact assessments.

4.35 Norfolk Vanguard, Thanet Extension and Moray West are not considered to contribute to any impact on breeding adult guillemot from FFC pSPA in the breeding season due to a lack of connectivity between these projects and the breeding colony. However, these projects may contribute to impacts on immature birds associated with FFC pSPA although based on the magnitude of the impacts predicted in the breeding season for each project it is considered unlikely that any contribution would be significant.

4.36 In the non-breeding season the total in-combination impact on FFC pSPA was estimated as 18 birds from Tier 1 and 2 projects (APP-051). When the contribution from Norfolk Vanguard, Thanet Extension and Moray West are incorporated this increases to 21 birds.

4.37 The displacement mortality attributable from Norfolk Vanguard, Thanet Extension and Moray West to FFC pSPA is not considered to be significant. The conclusions reached in the RIAA (APP-051) in relation to in-combination displacement impacts on guillemot are therefore considered to remain valid when these projects are included in the in-combination assessment.

Razorbill

Norfolk Vanguard

4.38 The assessment of displacement of razorbill at Norfolk Vanguard in the breeding season predicts a displacement mortality of 35 razorbill when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (40% displacement and 10% mortality). However, as there is no connectivity between any breeding colonies and Norfolk Vanguard, birds present at Norfolk Vanguard in the breeding season are likely to be immature and non-breeding birds and therefore a lower mortality rate is considered to be more appropriate. The displacement mortality at Norfolk Vanguard is therefore considered to be 7-35 (40% displacement and 2-10% mortality).

4.39 In the post-breeding, non-breeding and pre-breeding seasons, when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (40% displacement and 2% mortality (post-breeding and pre-breeding) 1% mortality (non-breeding season)) a total displacement mortality of seven, two and seven razorbill is predicted in each season respectively for Norfolk Vanguard.

Thanet Extension

4.40 No razorbill were recorded in the breeding season at Thanet Extension and as such no displacement analysis was conducted.

4.41 In the post-breeding, non-breeding and pre-breeding seasons, when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (40% displacement and 2% mortality (post-breeding and pre-breeding) 1% mortality (non-breeding season)) a total displacement mortality no razorbill is predicted in each of the three seasons for Thanet Extension.

Moray West

4.42 Due to the methodology used to calculate baseline populations for use in the assessments for Moray West, it is not possible to calculate displacement mortality using the seasonal definitions for guillemot applied at Hornsea Three. Therefore the seasonal displacement mortality as reported in the consent application documents for Moray West are assumed to provide a representative assessment.

4.43 In the breeding season, a displacement mortality of 112 razorbill is predicted when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (40% displacement and 10% mortality) with the majority of these likely to be associated with local breeding colonies due to the proximity of Moray West to the Caithness coast. There is no connectivity between breeding razorbill from FFC pSPA and Moray West in the breeding season although some of the razorbill present at Moray West may be immature birds associated with FFC pSPA. However, this is not likely to represent a significant increase on the total displacement mortality for immature birds at FFC pSPA (as discussed in the RIAA (APP-051)).

4.44 In the post-, non- and pre-breeding seasons for razorbill displacement mortalities of 28, 1 and 29 razorbill were predicted respectively when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (40% displacement and 2% mortality (post-breeding and pre-breeding) 1% mortality (non-breeding season)). Apportioning rates of 3.4%, 2.7% and 3.4% are applied in each season respectively providing apportioned displacement mortalities of one bird in both the post- and pre-breeding seasons and no birds in the non-breeding season.

Implications for Hornsea Three CEA

4.45 Volume 2, Chapter 5: Offshore Ornithology (APP-065) predicted an overall cumulative displacement mortality of 776-796, 232, 71 and 185 razorbill in the breeding, post-breeding, non-breeding and pre-breeding seasons respectively. Displacement mortality of razorbill from Norfolk Vanguard, Thanet Extension and Moray West therefore increases the total cumulative impact to 924-944, 267, 75 and 221 in the four defined seasons respectively. As discussed for guillemot above (see paragraph 4.33), the population of razorbill potentially affected by displacement impacts in the breeding season will differ depending on the location of a project. The cumulative impact predicted will therefore likely affect breeding birds associated with UK east coast breeding colonies (approximately 86,624 breeding birds), immature birds associated with these colonies (approximately 64,968 immature birds) and a proportion of immature birds associated with colonies outside of the UK North Sea. This is discussed in paragraphs 5.13.3.28 to 5.13.3.30 in Volume 2, Chapter 5: Offshore Ornithology (APP-065).

4.46 Th level of increase predicted is therefore not considered to change the conclusions reached in Volume 2, Chapter 5: Offshore Ornithology (APP-065) especially as it is considered unlikely that all projects included in Tier 2 will be brought forward or, if constructed, they are unlikely to be built out to the maximum design scenario assumptions made in the respective impact assessments.

4.47 Norfolk Vanguard, Thanet Extension and Moray West are not considered to contribute to any impact on breeding adult razorbill from FFC pSPA in the breeding season due to a lack of connectivity between these projects and the breeding colony. However, these projects may contribute to impacts on immature birds associated with FFC pSPA although based on the magnitude of the impacts predicted in the breeding season for each project it is considered unlikely that any contribution would be significant.

4.48 The predicted displacement mortality from Hornsea Three was not considered to materially alter the current in-combination impact on FFC pSPA in the post-, non- and pre-breeding seasons. As a result any increase in the in-combination impact as a result of displacement of razorbill from Norfolk Vanguard, Thanet Extension and Moray West is not considered to alter the conclusion reached in the RIAA (APP-051).

4.49 The conclusions reached in the RIAA (APP-051) in relation to in-combination displacement impacts on razorbill are therefore considered to remain valid when these projects are included in the in-combination assessment.

Puffin

Norfolk Vanguard

4.50 The assessment of displacement of puffin at Norfolk Vanguard in the breeding season predicts a displacement mortality of three puffin when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 10% mortality). However, as there is no connectivity between any breeding colonies and Norfolk Vanguard, birds present at Norfolk Vanguard in the breeding season are likely to be immature and non-breeding birds and therefore a lower mortality rate is considered to be more appropriate. The displacement mortality at Norfolk Vanguard is therefore considered to be 1-3 birds (50% displacement and 2-10% mortality). In the non-breeding season, when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 1% mortality) a total displacement mortality of one puffin is predicted for Norfolk Vanguard.

4.51 There is considered to be no connectivity between Norfolk Vanguard and FFC pSPA in the breeding season and therefore no displacement mortality associated with Norfolk Vanguard in the breeding season is attributable to the breeding adult population at FFC pSPA. A proportion of the impact at Norfolk Vanguard may be attributable to the immature population associated with FFC pSPA. The level of mortality predicted however, is not considered to represent a significant increase on the total displacement mortality for immature birds at FFC pSPA (as estimated in the RIAA (APP-051)).

Thanet Extension

4.52 Displacement analyses were not conducted for puffin at Thanet Extension. This appears to be due to no sightings of puffin during the site-specific surveys undertaken for the project.

Moray West

4.53 Due to the methodology used to calculate baseline populations for use in the assessments for Moray West, it is not possible to calculate displacement mortality using the seasonal definitions for guillemot applied at Hornsea Three. Therefore the seasonal displacement mortality as reported in the consent application documents for Moray West are assumed to provide a representative assessment.

4.54 In the breeding season, a displacement mortality of 56 puffins is predicted when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 10% mortality) with the majority of these likely to be associated with local breeding colonies due to the proximity of Moray West to the Caithness coast. There is no connectivity between breeding puffin from FFC pSPA and Moray West in the breeding season although some of the puffin present at Moray West may be immature birds associated with FFC pSPA. However, this is not likely to represent a significant increase on the total displacement mortality for immature birds at FFC pSPA (as discussed in the RIAA (APP-051)).

4.55 Displacement analyses for Moray West use a post-breeding and non-breeding season for puffin. A post-breeding season was defined due increases in the population of puffin recorded towards the end of the breeding season with such populations considered to be birds dispersing from breeding colonies. For the Hornsea Three cumulative assessment it is therefore considered more appropriate to use the predicted displacement mortality from the non-breeding season during which time the displacement mortality is zero when applying the displacement and mortality rates used in the cumulative assessment for Hornsea Three (50% displacement and 1% mortality).

Implications for Hornsea Three CEA

4.56 Volume 2, Chapter 5: Offshore Ornithology (APP-065) predicted an overall cumulative displacement mortality of 116-119 and 68 puffin in the breeding and non-breeding seasons respectively. Displacement mortality of puffin from Norfolk Vanguard, Thanet Extension and Moray West therefore increases the total cumulative impact to 168-178 and 68 in each season respectively. As discussed for guillemot above (see paragraph 4.33), the population of puffin potentially affected by displacement impacts in the breeding season will differ depending on the location of a project. The cumulative impact predicted will therefore likely affect breeding birds associated with UK east coast breeding colonies (approximately 310,490 breeding birds), immature birds associated with these colonies (approximately 322,910 immature birds) and a proportion of immature birds associated with colonies outside of the UK North Sea.

4.57 The level of increase predicted is therefore not considered to change the conclusions reached in Volume 2, Chapter 5: Offshore Ornithology (APP-065) especially as it is considered unlikely that all projects included in Tier 2 will be brought forward or, if constructed, they are unlikely to be built out to the maximum design scenario assumptions made in the respective impact assessments.

4.58 Norfolk Vanguard, Thanet Extension and Moray West are not considered to contribute to any impact on breeding adult puffin from FFC pSPA in the breeding season due to a lack of connectivity between these projects and the breeding colony. However, these projects may contribute to impacts on immature birds associated with FFC pSPA although it is considered unlikely that any contribution would be significant.

4.59 The predicted displacement mortality from Hornsea Three was not considered to materially alter the current in-combination impact on FFC pSPA in the post-, non- and pre-breeding seasons. As a result any increase in the in-combination impact as a result of displacement of puffin from Norfolk Vanguard, Thanet Extension and Moray West is not considered to alter the conclusion reached in the RIAA (APP-051).

4.60 The conclusions reached in the RIAA (APP-051) in relation to in-combination displacement impacts on puffin are therefore considered to remain valid when these projects are included in the in-combination assessment.

Hornsea Project Three
Offshore Wind Farm

Hornsea Project Three

Offshore Wind Farm

Applicant Responses to the ExA's First Written Questions

Deadline I: 7th Nov 2018

Date: 7th November 2018

Hornsea 3
Offshore Wind Farm

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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2018.

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1. Applicant's responses to the First Written Questions

1.1.1.1 Following the issue of First Written Questions by the Examining Authority outlined in the Rule 8 Letter of 9th October 2018 to the Applicant and other Interested Parties, the Applicant has subsequently responded to each of those questions. Details of Applicant's responses are set out within this document in subsequent sections below.

1.1 Written Question 1.1 Alternatives and Design Flexibility

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.1.1	Applicant	"Table 3.6 in the Environmental Statement (ES) [APP-058] sets out the maximum design scenarios for the most numerous type of turbine (with a maximum blade tip height of 250m above lowest astronomical tide (LAT)) and the largest type of turbine (with a maximum blade tip height of 325m above LAT). A) What factors would the undertaker take into account when choosing which turbines to install?	A) The choice of wind turbine generator for an offshore windfarm project such as Hornsea Project Three is influenced by a variety of different factors such as cost, availability, proven technology, commercial availability, competition for demand, supply time etc. Offshore wind farm technology, particularly for the turbines themselves is rapidly maturing and we have seen increases from 3MW turbines used approximately 15 years ago to turbines over 8MW in capacity more recently, and this trend is likely to continue. In general, a higher capacity wind turbine generator tends to also be larger in rotor diameter, and thus hub height and upper blade tip height. Capacity is one element that will be considered when considering the turbine type selected, typically a larger turbine would likely be more cost effective as fewer would need to be deployed in the array area (requiring fewer foundations etc), however offshore wind is rapidly expanding in the UK and overseas in existing and new markets and therefore the availability of turbines at certain sizes, capacities, required volumes and the degree of competition between the limited number of offshore turbine manufacturers will also influence what a developer could seek to acquire. Ultimately this will be guided by the Project Envelope parameters described and assessed as part of the EIA to ensure that the assessment of impacts and any required mitigation where required is aligned.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		B) Is it envisaged that the two scenarios could be combined, for example if the offshore works were carried out in phases, or are the scenarios mutually exclusive?"	B) Depending on final detailed design of the two phases, and supplier availability and choice, it is possible that turbines with different maximum blade tip heights could be installed, and indeed there could be a situation where two different turbine suppliers may contribute to the wind farm. In this case, the dimensions of the turbines would not exceed the maximum design scenarios evaluated in the ES. For example, in the scenario for the largest type of turbine, two different types of turbines, with different rotor radii, could be installed, but neither would exceed the maximum blade tip height of 325m LAT. An example of such a situation can be seen in the Walney and Walney Extension Projects. The Applicant has assessed maximum design scenarios as described in Table 3.6 in the Environmental Statement (ES) [APP-058]. The two scenarios describe the most numerous WTG scenario with 300 WTGs and the largest WTG scenario with 160 WTGs. The final number of turbines would be limited by the maximum total rotor swept area as given by the maximum design scenario, driven by the 300 WTG case. The total rotor swept area in this case is 9.0 km^2, and the environmental impacts of this have been assessed in the ES as a maximum design scenario. This is reflected in revised Requirement 2 of the dDCO (see response to Q 1.13.38 and 1.13.62).
Q1.1.2	Applicant	"The range of foundation types being considered is set out in Table 3.9 in the ES [APP-058]. The ES states that flexibility is required to ensure that anticipated changes in available technology and project economics can be accommodated within the project design. A) Is this degree of flexibility still necessary having regard to the growing body of experience of windfarm construction in the North Sea?	A) The applicant notes that the project has already refined the range of foundations being considered post PEIR, to remove floating foundations from the project envelope. The flexibility provided by the remaining range of foundation types ensures that suitable foundations can be constructed for all offshore infrastructure under various site conditions, soil characteristics, and WTG and other offshore infrastructure choice, which are not fully known at this stage. The choice and suitability of the foundation type depends on detailed design studies, which would be completed post consent. Soil types and layers should be studied for detailed design, obtained through geotechnical investigations at the finalised turbine locations. Therefore, design flexibility is needed at this stage of project design. The UK government's stated policy objective, through The Clean Growth Strategy: Leading the way to a low carbon future (HM Government, Oct 2017, updated April 2018), is to support the development of a domestic offshore wind

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		B) Please provide an up-to-date assessment of the advantages and disadvantages of each of the foundation types currently under consideration, including a summary table showing the scale and significance of impact of each foundation type on benthic habitats, harbour porpoise and marine geophysical features. C) What is known about the foundation types actually used for comparable offshore wind farms, either recently commissioned or under construction, in the North Sea?"	industry which delivers renewable energy at a reducing cost to the UK consumer through competitive market mechanisms. The Applicant strongly supports this policy and recognises the value that vigorous competition between offshore developers and within the offshore supply chain brings to the wider industry and to the UK consumer. In order to continue to deliver reductions in the price of offshore wind energy Hornsea Three requires flexibility in the choice of foundation types, with flexibility encouraging competition within the supply chain across a greater number of potential suppliers. B) As outlined in section 5.3.3 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement (APP-060), the impact assessment has been undertaken following the Rochdale Envelope approach. This approach has involved selecting the maximum design scenario for each identified potential impact from the range of relevant design parameters outlined in the Project Description (Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058)). In this case, the Environmental Statement identified four foundation types (gravity base, suction bucket, piled jacket and monopile). For impacts that consider foundation type, the maximum design scenario considered, amongst a range of other parameters, the number, installation method, dimensions and orientation of foundations for turbines and other offshore structures considered for Hornsea Three. The maximum design scenarios for benthic ecology, marine mammals and marine processes are presented in Table 2.14 of Volume 2, Chapter 2: Benthic Ecology (APP-062), Table 4.15 of Volume 2, Chapter 4: Marine Mammals (APP-064) and Table 1.11 of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061), respectively. These maximum design scenarios have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the project Design Envelope (e.g. changes in the number, size, spacing of foundations), be taken

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			forward in the final design scheme. For the three topics queried by the ExA, no significant impacts were predicted in EIA terms as a result of the maximum design scenario assessed and therefore any other scenario would similarly lead to effects which are not significant in EIA terms.
			C) While monopiles are a commonly used foundation type in the North Sea, there are also projects that use jackets, gravity base structures (GBS) and tripods as foundations. The choice of foundation type depends on the specific soil and site conditions. While monopiles are used in Hornsea Project One and Hornsea Project Two, piled jackets are used for East Anglia ONE, suction cassion jackets have been installed at Borkum Riffgrund I, followed by further units at Borkum Riffgrund II and Aberdeen, GBS have been installed at Blyth and suction monopods are scheduled for deployment at DeBu (Deutsche Bucht Wind Farm in the German North Sea). As is illustrated by these examples, a range of foundation types are viable in the North Sea, depending on the specific soil and site conditions at the particular site. Therefore, as discussed in part (A) of this response, it is important for the project to retain the current range of foundation types in the project envelope.
Q1.1.3	Applicant	Paragraph 3.6.10.6 of the ES [APP-058] states that cables will typically be buried at a depth of 1 to 2m with actual burial depth informed by a cable burial risk assessment. Condition 12 of the Deemed Marine Licence (DML) for transmission assets [APP-027] refers to a detailed cable laying plan, to be approved by the Marine Management Organisation (MMO).	A) As set out in Schedule 11, Part 2, Condition 11(1)(h) and Schedule 12, Part 2, Condition 12(1)(h) of the draft DCO (APP-027), a Cable Specification and Installation Plan will be submitted to and approved by the MMO prior to cable installation. This will include details of cable laying techniques and an assessment of suitable burial depths across the Hornsea Three array area and offshore cable corridor. Following installation of offshore cables, the MMO will be provided with details of the achieved burial depths across the Hornsea Three array area and offshore cable corridor. The Cable Specification and Installation Plan will also include proposals for monitoring of offshore cables, including a risk-based approach to management of unburied or shallow buried cables and identification of the need for cable protection during the operational lifetime of Hornsea Three. These management measures (e.g. reburial or deployment of cable protection) may be required should target burial depths not be achieved.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		A) Is it intended that the MMO would approve the actual burial depth of any given section of cable? B) To what extent does the suggested approach accord with advice in paragraph 2.6.76 of National Policy Statement (NPS) EN-3 that where cables are buried at depths greater than 1.5m below the sea bed impacts from electromagnetic fields (EMF) are likely to be negligible?"	B) The potential effects of electromagnetic fields (EMF) on marine ecological receptors are fully assessed in paragraph 3.11.2.44 *et seq*. of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement (APP-063) and paragraph 4.11.2.23 *et seq*. of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement (APP-064). The assessments considered a maximum design scenario that offshore cables will typically be buried to between 1 to 2 m, in line with paragraph 3.6.10.6 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058). Where burial to the target depth is not possible, cables may be buried using cable protection. These impact assessments concluded that effects of EMF on fish and shellfish and marine mammal receptors were of minor or negligible significance, respectively, which is not significant in EIA terms. The Applicant considers that the approach taken is in line with NPS EN-3 while also taking into account the best available scientific evidence to ensure a robust impact assessment.
Q1.1.4	Applicant	"The representation from the Eastern Inshore Fisheries and Conservation Authority (EIFCA) [RR-070] suggests that, if the nearshore re-route took a more direct route across the north west corner of the Cromer Shoals Chalk Bed Marine Conservation Zone, the impacts on the fishing industry and benthic ecology would be reduced. Please provide further justification for the proposed nearshore re-route, having regard to the issues raised by the EIFCA."	The Applicant would like to draw the Ex.A's attention to the response to the EIFCA Relevant Representation (RR-070) as submitted with Applicant's response to Deadline 1, which provides further justification for the nearshore re-route, having regard to the EIFCA's comments. In summary, alternative routeing options to minimise overlap with the Cromer Shoal Chalk Beds MCZ further offshore, to the north west (as suggested by the Eastern IFCA) were considered but were not deemed feasible. This was because the Sheringham Shoal and Pollard Bank bathymetric features were considered to pose potential technical constraints and were avoided, particularly where alternatives would have meant crossing existing cables in close proximity to these (see Figure 4.8 in Volume 1, Chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement; APP-059). Section 2.11 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) predicted that effects on benthic ecological receptors (including designated features of The Wash and North Norfolk Coast SAC and Cromer Shoal Chalk Beds MCZ) were not significant in Environmental Impact Assessment terms. The nearshore re-route was discussed with stakeholders (including Natural England, MMO and the Wildlife Trusts) during the Marine Processes, Benthic Ecology and Fish and Shellfish Expert Working Group (EWG) following section 42 consultation on

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			the Preliminary Environmental Information Report (PEIR). The decision to progress the nearshore re-route was taken on the basis of feedback from stakeholders (including Natural England and The Wildlife Trusts) that habitats in the eastern section of the Wash and North Norfolk Coast SAC were expected to be less sensitive than those designated features identified in the western section of the Cromer Shoal Chalk Beds MCZ (e.g. clay exposures, which have no recovery potential following cable installation). In addition, the re-route considerably reduced the cable protection volume and area of habitat affected by cable protection across the two designations, primarily by ensuring that all crossings in the nearshore environment were outside designated sites. As such, the overall impact on designated features across the two designated sites combined was reduced from the PEIR. With regard to impacts on the local potting fleet due to construction activities, paragraphs 6.11.1.30 to 6.11.1.53 of Volume 2, Chapter 6: Commercial Fisheries of the Environmental Statement (APP-066), present an assessment of the effects of construction activities within the Hornsea Three offshore cable corridor on this fleet (and other fleets). It is acknowledged that the local potting fleet has increased sensitivity to this impact and that, unmitigated, the effect would be significant. As such, further mitigation measures have been proposed as outlined in Paragraphs 6.11.1.54 of Volume 2, Chapter 6: Commercial Fisheries of the Environmental Statement and in the outline Fisheries Coexistence and Liaison Plan (APP-183). While routing through the northwest corner of the MCZ may have marginally reduced the length of the offshore cable corridor (noting the technical constraints to this suggestion outlined above), this reduction would not have been sufficient to reduce the significance of this impact to a level whereby further mitigation would not be required. This is demonstrated by the conclusion presented within the PEIR (i.e. based on the original, shorter Hornsea Three offshore cable corridor), which also showed an effect which was significant in EIA terms (unmitigated), in line with the conclusions presented in the final Environmental Statement. The requirement for a Fisheries Coexistence and Liaison Plan (and mitigation measures outlined within) is secured via the dMLs, (APP-027), which require the plan to be approved by the MMO prior to commencement of works (condition 11(3) of Schedule 11, Generation Assets dML, condition 12(3), Transmission Assets dML).

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Q1.1.5	Applicant	"North Norfolk District Council (NNDC) [RR-133] expresses concern that the option of open cut cable installation is still being considered for the landfall works. The ES states that horizontal directional drilling (HDD) may not be possible due to ground conditions, cable design, or other factors [APP-058] (paragraph 3.6.12.5). A) Please provide further justification for retaining the option of using open cut techniques for the landfall works. B) What would be the implications for beach closures and diversion of the coastal path if open cut techniques were to be used instead of HDD?"	Open cut trenching is retained as an option for cable installation within the intertidal area as identified by the Ex.A and as there are no complex features such as cliffs or sea defences to be transitioned at the Applicant's chosen landfall, both open cut and HDD are expected to be technically viable solutions based on currently available knowledge of the site. Notwithstanding this, the specific approach taken forward (as part of the final scheme design) will be informed by further detailed site investigation work undertaken post consent as well as input from onshore and offshore construction contractors and cable suppliers. The ES and HRA have considered the worst-case scenario (between open cut and HDD, noting that HDD represents the worst-case in a number assessments) for each relevant receptor. Whilst it is recognised that open cut trench forms the worst-case scenario for a number of receptors, it is important to note that neither option would result in significant adverse effects in EIA or HRA terms. Notwithstanding this, open cut remains the Applicants preferred approach to cable installation at landfall. Specific benefits of open cut trenching are described in the following paragraphs. Whilst a HDD landfall negates beach disruption, and the need to close the coastal path, Open cut installation is a less technically complex approach, utilising simpler construction methods as well as decoupling time critical construction activities thus providing greater certainty in construction and installation programmes at reduced cost and reduced construction risk. In most cases, open cut construction techniques will result in a reduced overall duration of landfall construction activities and minimise or eliminate the need for 24 hour working onsite. The Applicant has made allowance within the dDCO for temporary diversion of the Norfolk Coast Path and any temporary beach closures will be managed in line with the Outline CoCP. Open cut works also reduce the marine interface, with no need for offshore HDD exit pits and associated dredge and backfill operations and may reduce the risk of under burial and subsequent need for remedial cable protection (at the HDD exit) as cables can be buried in a continuous operation from the intertidal through the nearshore region. Onshore, open cut activities typically entail less onshore traffic (with no HDD drill rigs required for example, or bentonite deliveries to site) and typically entail a smaller associated construction compound than those required to support HDD operations.

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			The Applicant would refer to Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement (APP-078) where the impacts of an open cut technique at landfall, which represents the maximum design scenario, on the beach and Norfolk Coast Path are assessed. Should open cut techniques be used at landfall, a temporary beach closure will be required from mean low water springs (MLWS) to the landfall construction compound for security and health and safety. The beach closure will have a duration of up to one month per cable circuit (on up to six occasions). The Norfolk Coast Path would be temporarily diverted during construction, along existing tracks to the immediate south within grounds of the Muckleburgh Collection. The diversion is shown on Sheet 1 of 35 of the Works Plan (Onshore) (APP-013) and is approximately 600 m in length. The route within the Order Limits will be agreed with the landowner post-consent. The diversion, and access to it from the beach on either side, would be fenced and gated and managed in accordance with beach access measures in accordance with a PRoW Management Plan, which will be developed as part of the Code of Construction Practice secured under Requirement 17. This commitment is captured in the Outline CoCP (APP-179). The Applicant is in ongoing discussions with NCC in regard to the proposed diversion and associated management measures as set out in the NCC Statement of Common Ground. If HDD techniques were used at the landfall, the Norfolk Coast Path would remain on its existing alignment for the duration of the landfall construction works, however a temporary beach closure of up to 24 hours duration may be required for pulling and removing a mud line over the beach (if required) and a separate temporary beach closure of up to 24 hours may be required per circuit if pulling onshore welded pipes offshore, for example.

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			If the footpath is required to be closed during these shorter periods, a diversion will either make use of the wider diverted route utilised under the open cut scenario or a localised diversion provided for within the Order Limits on the beach.
Q1.1.6	Applicant	"The ES states that the maximum number of construction phases would be two and that there may be a gap in construction, for example due to constraints in the supply chain or the timing of auctions for the Government's Contract for Difference process [APP-058] (paragraph 3.8.1.5). A) Please provide further justification for the possible need for a gap in the construction programme of up to 3 years. B) In practical terms how is it envisaged that the project might be divided into phases? Please give illustrative examples. C)What control measure is there to ensure that the construction duration does not extend beyond what has been assessed in the ES?"	A)The Applicant is seeking a DCO for an offshore wind farm in the order of 2.4 GW which could be built out in one or two phases. Similar to other recent Round 3 offshore wind farms (Dogger Bank Creyke Beck, Dogger Bank Teesside A and B, interlinks between Norfolk Vanguard and Norfolk Boreas), projects are seeking to identify the optimum approach to the consenting of the largest, and furthest offshore Round 3 offshore windfarms. The application of a phasing is interlinked with the UK Government's approach to supporting projects through the CFD auction process (or alternative funding mechanism) and both the Government's and the projects' shared objective of maximising the ability to bring forward strong, viable projects. Since the DCO application was submitted, the CfD delivery mechanism has received further clarity in July 2018 from the Energy minister Claire Perry, who advised that: - the next CfD allocation round will be held in May 2019 (with successful auction round announcements anticipated to be made in summer 2019): - a subsequent allocation round in 2021; and - further auctions "around every two years". Nonetheless, there remains key elements of the CfD tender framework yet to be announced, including the total budget for each tender, with Government noting that "depending on the price achieved, these auctions will deliver between 1GW and 2GW of offshore wind each year in the 2020s". A single project build-out scenario could still be the preferred option. However announcements from UK government (Claire Perry, July 2018) have suggested a cap on the total auction award per delivery year of 1-2 GW with up to 4 GW supported in a single auction. Therefore, it may be the case that a two phased project is required to successfully respond to the available CfD budget, depending on

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			how many competing bids/projects participate in the auction round, e.g. many competitive bids may warrant a smaller project, i.e. two phases. The ability to secure key infrastructure for such a large project, including WTGs, offshore installation vessels, lead in times for high voltage transmission cables (in particular HVDC cables), offshore substations installation vessels in a timely manner, will also add challenges to the whole offshore wind industry to deliver the largest, and furthest offshore Round 3 offshore windfarms, meaning that a project needs to be phased in response to the availability and capacity of the supply chain. On this basis the 3 year construction scenario gap is to incorporate the anticipated time between future CfD auction rounds, accommodate alternative funding mechanisms and/or supplier availability/capacity to cope with demand.

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			B) There are a range of development scenarios that could develop which inform the phasing and scale of the development and its associated timings. Figures 3.38 and 3.39 of the Project Description Chapter of the ES [APP-058] illustrate indicative construction programme if Hornsea Three is built out in a single or two phases. Under a single phase delivery: - • Hornsea Three secures a CfD (or alternative funding mechanism) for the whole project (i.e. up to 300 turbines (as noted under part A, there is a suggested cap on the total auction award per delivery year). • Hornsea Three is successful in securing two CfD contracts in the same auction for a project to be delivered under different delivery years) e.g. 1.2 GW in delivery year 2024 and 1.2 GW in delivery year 2025. Under which scenario – on the basis that both phases would then secure FiD, for the purposes of onshore impacts detailed below this would be treated as a "single phase". • Hornsea Three is successful in securing a CfD contracts for part of the project to be delivered and has sufficient commercial confidence, to secure FiD for subsequent phase. Under a two phase delivery:- • Hornsea Three secures a CfD (or alternative funding mechanism) for part of the project. Leaving the opportunity to make a tender(s) for subsequent CfD allocation rounds for the residual phase, but ultimately no further commitment is secured for that second phase at the time of constructing the first phase. When applied to the onshore cable installation element of the project, these range of development scenarios may ultimately delivered in two approaches. The first, is one phase (either because the project is being delivered as a single phase, or both phases have secured a FiD.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			The Applicant recognises the potential for minimising impacts and disruption to the local community through pre-ducting for the second phase. Therefore the Applicant has made two commitments – documented further in response to Q1.9.7. Firstly, the Applicant has committed to installing all onshore export cables circuits within ducts, as opposed to direct burial. Furthermore, the Applicant has committed to installing ducts for the second phase as part of the first phase of works, should both phases be awarded a CFD in the same auction round (or alternative funding mechanism) or the second project still secures Final Investment Decision (See response to RR-006 for the proposed amendments). Alternatively, two separate phases, delivered at two different points in time. The onshore installation would be divided into two discrete phases, dependant on the number of circuits required for each phase. Only those works required for the first phase would be undertaken. As such the construction corridor would be broadly (where it traverses open fields) split in two and all works associated with the first phase would be confined to the allocated construction corridor. Similarly, all HDD works, trench excavation works, cable installation, cable jointing and testing works would be carried out for the first phase only. It is noted that the ES "worst case" provides for the whole width of onshore corridor to be cleared for each phase as the scale of each phase being taken forward is not known, the exact land take required at certain locations may draw on the full corridor width – for example to make use of site access points or in the setting out of HDD works, or through utilising soil storage or secondary construction compounds.
			C) Requirement 6 of the draft DCO (Version 1, submitted for Deadline 1) provides for a phasing scheme to be submitted to and approved by the relevant planning authority prior to commencement of development. This will set out details of phasing and under the requirement this scheme must be abided by when the project is constructed.
Q1.1.7	Applicant	"The application seeks to use either high voltage alternating current (HVAC) or high voltage direct current (HVDC) transmission, or a combination of the two. The ES states that flexibility is required to ensure a low	A– D) Please see Appendix 22 to the Applicant's response to Deadline 1 which refers to the HVAC and HVDC Transmission Systems.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		cost of energy to the UK consumer and to facilitate successful completion of the project in a competitive market [APP-058] (paragraph 3.5.1.5). Relevant representations have pointed out that other projects have committed to HVDC transmission [RR-026, RR-096 amongst others]. A) Please provide an updated justification for retaining this element of design flexibility, given what is now known about the intentions of comparable projects. B) Please provide an assessment of the relative advantages and disadvantages of HVAC and HVDC, including environmental impacts (offshore and onshore), project delivery and implications for compulsory acquisition. C) Please explain how and why HVAC and HVDC might be combined. D) At what point would the choice of transmission technology be made?"	

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.1.8	Applicant	"Paragraph 3.5.1.5 of the ES [APP-058] states that Hornsea Project Three may use HVAC or HVDC transmission or a combination of both technologies. Please explain how a combination of HVAC and HVDC transmission systems could be achieved without exceeding the maximum parameters used as the basis for the assessments in the ES."	Please see Appendix 22 to the Applicant's response to Deadline 1 which refers to the HVAC and HVDC Transmission Systems.
Q1.1.9	Applicant	"Figure 3.32 in the ES [APP-058] shows an indicative layout for the onshore cable corridor. A) What are the key determinants of the corridor width? B) Is the width shown the minimum that is reasonably required? C) What would the corridor width be if HVDC transmission were used?	A) Paragraph 3.7.3.12 of the ES [APP-058] and Table 3.56 notes the dimensions of the export cable corridor, with the circuits must be spaced out in order to minimise the mutual heating effect of one circuit on another, this enables the cables to effectively carry the large power volumes required without overheating and damaging the cable. The key determinants of the corridor width are then primarily determined by the number of circuits to be installed, the area of land required for soil storage and space required to install the haul road. B) For the installation of six circuits, the Applicant considers that an 80m temporary corridor, provides an efficient and safe working width within whilst seeking to minimise land take. Where required, this working width can be reduced, but at the cost of cable installation efficiency, increased complexity for field drainage and added management requirements for soil separation and management. C) Please see Appendix 22 to the Applicant's response to Deadline 1 which refers to the HVAC and HVDC Transmission Systems.

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		D) Please provide an indicative layout for HVDC in similar format to Figure 3.32."	D) Please see Appendix 22 to the Applicant's response to Deadline 1 which refers to the HVAC and HVDC Transmission Systems.
Q1.1.10	Applicant	"Relevant representations [RR-096, RR-133 amongst others] have suggested that the onshore cables could be laid in ducts, with a view to reducing the construction impacts in the event that there are 2 phases. A) What would be the advantages and disadvantages of installing ducts for phase 2 whilst carrying out the installation of cables in phase 1? B) If the onshore works were carried out in two phases is it intended that the haul road would remain in place between the first and second phases? C) If the onshore works were carried out in two phases what would be the advantages and disadvantages, in terms of environmental impacts, of removing or retaining the haul road between the first and second phases?"	A) The principal advantages of installing ducts for the second phase as part of the first phase of works are that the majority of intrusive construction works on any individual parcel of land would take place only once, thereby minimising impacts to the land and the landowners. The majority of pre-construction activities, such as vegetation removal, fencing, pre-construction drainage and similar would typically only be undertaken once, rather than once per phase. Once the installation of ducts is complete for both phases, the majority of land would be reinstated between joint bays leaving only that which is needed to facilitate to subsequent cable pull activities, thus minimising the duration of disturbance on a given parcel of land. The principal disadvantage of installing ducts for the second phase as part of the first phase of works is that there is the potential to cause unnecessary disruption to communities and landowners associated with installing ducts for works that ultimately are not delivered as well as generate non-realised capital expenditure for the first project should the second phase of works not ultimately be delivered. Therefore, should the second phase not be delivered, the ducts would either represent a permanently unused component of the project, an unnecessary inconvenience for landowners and/or works would be required to remove them, causing further disruption. An additional disadvantage of installing the ducts for the second phase as part of the first phase of works, are that the ducts are not considered to be fully sealed units, such that there is a need to clean the duct system prior to installation of the cables. Where the duct system is found to be obstructed due to the ingress of foreign material, excavations to clear any blockages would be required, requiring access for construction vehicles anywhere along the cable route. With due regard given to the advantages and disadvantages as set out above, the Applicant recognises the potential for minimising impacts and disruption to the local community through pre-ducting for the second phase. These commitments i.e. the Applicant has committed to installing all onshore export cables circuits within ducts and installing

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			ducts for the second phase as part of the first phase of works, should both phases be awarded a Contract for Difference in the same auction round – detailed under response to Question 1.1.6 and 1.1.9. To mitigate the disadvantages of this approach, as noted above, Hornsea Three has only committed to installing ducts for the second phase as part of the first phase of works if both phases are awarded a Contract for Difference (or other alternative funding mechanism) in the same auction round. This means that pre-ducting for the second phase would only occur it there was certainty that the second phase will go ahead (by means of having secured a CfD at the same time as the first phase) thus avoiding the potential to cause greater disruption than is necessary to the communities and landowners and a greater environmental impact should the second phase ultimately not be delivered. Furthermore, the Applicant would cap the end of ducts to minimise the chance of obstructions within the ducts. Should cleaning be required, impacts from construction vehicle movements would be minimised through the use of the haul road, or where not possible, through the use of a temporary trackway system.
			B) Should Hornsea Three be delivered in two phases, the haul road will be removed unless otherwise agreed. Upon review, the Applicant has amended paragraph 1.2.3.1 in the Outline Construction Traffic Management Plan (APP-176) to clarify this point (new next underlined): "1.2.3.1 ~~*The haul road will be used where needed throughout the installation of the cable and will be removed upon reinstatement.*~~ *Following completion of the works being served by that access point, the haul road will be removed and the land reinstated, unless otherwise agreed with the local planning authority*." A second haul road could then be installed for the second phase of works.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			C) For the landowner, the principal disadvantages of retaining the haul road between phases is that the land would stay out of agricultural production for a longer period of time and the imposition of the haul road may sever parcels of land in that interim period between phases. Reinstatement of the remaining land along cable corridor may also be complicated. For other users of the land, during the interim period, consideration would also need to be afforded any disruption caused to any public rights of way crossing points. For the construction contractor, the haul road installed under phase 1 may not be in the optimal position for phase two works. If the haul road is retained between phases, consideration would need to be given to ongoing maintenance to ensure it is kept in a safe and suitable condition and speed control measures and restrictive usage, applied during the construction period maintained during any interim period. The principal advantage of retaining the haul road between phases, is that there would be a reduction in HGV movements for Hornsea Three as the aggregate and geotextile would have to be imported once and removed once. The construction traffic flow figures as reported in Volume 6, Annex 7.7: Traffic Flows with Construction Traffic of the Environmental Statement [APP-165] have been calculated based on the maximum design scenario that the haul road would be removed between phases. If the haul road was retained between phases, these traffic flows would reduce. Further, retaining the haul road between phases holds the advantage of less aggregate waste - although it is possible that the aggregate material could be re-used elsewhere (as suggested in Volume 4, Annex 3.4: Site Waste Management Plan of the Environmental Statement [APP-088]).

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Q1.1.13	Applicant	"Figure 3.21 of Annex 4.3 to the ES [APP-094] indicates the construction compound options that were considered. Please provide further justification for the selection of Oulton Street as the proposed location for the main construction compound."	Justification for the selection of the former Oulton Airfield as the main construction compound is provided at Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1.
Q1.1.14	Applicant	"Mulbarton Parish Council [RR-049] suggests that the Lafarge Aggregates quarry at Mangreen should have been considered as an option for the onshore HVDC converter/HVAC substation. To what extent was the quarry site considered and, if it was considered, what were the reasons for rejecting it?"	Please refer to the Applicants response to Relevant Representation RR-049.

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Q1.1.15	Applicant	"Figure 3.8 of the ES [APP-094] shows the shortlisted options for locating the onshore HVDC converter/HVAC substation. The rejected option (Option A) is described as physically more constrained than the selected option. A) What are the relative advantages and disadvantages of the two shortlisted options in terms of landscape and visual impacts and other environmental impacts? B) Please provide further justification for the selection of Option B."	A) In terms of landscape character, both of the shortlisted sites are located within the same landscape character area (B1 Tas Tributary Farmland) as shown on ES Figure 4.3 Sheet 8 (APP-076), with Option B also partly within the adjacent character area (C1 Yare Tributary Farmland with Parkland). As set out within sections 4.11.2.50 to 4.11.2.71 of the ES (APP-076), these two character areas have many similarities and are of the same susceptibility, value and sensitivity. The Option A site is also within approximately 200m of character area A1 Tas Rural River Valley, which is protected by South Norfolk Local Plan Development Management Policies Document (October 2015) Policy DM4.5 as shown on ES Figure 4.1 Sheet 8. ZTV studies for the two options were prepared as part of the viewpoint consultation process and show that whilst the pattern of visibility arising from the two sites is slightly different, the overall area of potential visibility for both options is broadly similar. Option A would have given rise to more extensive visibility from character area A1 – with the potential for effects to arise, whereas Option B indicated limited visibility from area A1 and the river valleys protected by Policy DM4.5. The two ZTV studies indicate that once existing vegetation and built form is taken into account. The Option A site is further from the Norwich View Cones and falls outside of the Norwich Southern Bypass Protection Zone protected by South Norfolk Local Plan Development Management Policies Document (October 2015) Policy DM4.6, as shown on ES Figure 4.1 Sheet 8 (APP-076), and is not adjacent to Undeveloped Approaches as shown on Map 4.6 of the South Norfolk Local Plan Development Management Policies Document 2018. In terms of visual receptors, both sites are near main road and rail routes and are located at similar distances from settlements, though Option A is closer to Public Rights of Way and Option B is closer to local roads. As shown by Figure 3.6 in Annex 4.3: Extracts from Local Landscape Character Area Descriptions to the Environmental Statement (APP-094), proximity to residential properties was considered as part of the site selection

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			process and both sites are at a distance such that effects on residential visual amenity would be acceptable, though the Option A site is slightly more distant from the nearest properties. In describing the Option A site as more physically constrained, the appraisal also specifically mentions that Option B has "*a greater availability of land for potential mitigation to be implemented"* at Annex 4.3 to the ES, para 3.2.4.9 (APP-094). In summary therefore, there is little to choose in landscape and visual terms between the two locations. Option B is likely to have less effects on river landscape character areas protected by Policy DM4.5, but slightly greater effects on some visual receptors (views from roads and residential receptors) but lesser effects on users of Public Rights of Way. However, the reduced constraints affecting Option B were judged to allow more flexibility for the inclusion of effective mitigation, such as landscaping, rather than mitigation options being limited by site constraints.

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			B) Section 4.11.5 of APP-059 documents the refinement of the onshore HVDC converter/HVAC substation. It notes that the two substation site options were considered, relative to one another, to determine a preferred option, supported by site visits in the summer of 2016. During the site inspections, further consideration was given to matters such as topography, access, landscape framework/screening, hydrology and ground conditions, to supplement the desk top work that was carried out. Furthermore, the sites had been subject of desk top heritage assessment and phase 1 ecology surveys (as part of the early EIA process) since their initial identification and shortlisting, and this information was also considered. In addition, an assessment of the potential access to Option B identified that this was significantly less constrained and would involve less highway works and the associated construction disruption. Option B also had a receptive landowner, subject to agreement to suitable commercial terms, with Option A presenting a stronger, initial opposition to the citing of the substation on their land. It was determined that Option B provided a greater availability of land for potential mitigation to be implemented. Option A was comparatively constrained by the railway line directly to the east and by the Norwich Main NGET substation to the north.
Q1.1.16	Applicant	"Paragraph 3.5.1.7 of the ES [APP-058] states that a construction base may be required for stockpiling materials before delivery to the array area. It goes on to state that an onshore operations and maintenance base may be required to support the operational phase of the proposal.	A) The Applicants response to Questions 1.10.1 and Q1.11.13 details the status of the selection of ports for use during construction, operation and maintenance and decommissioning activities of Hornsea Project Three, noting that the Applicant has not selected the ports that it will use and does not intend to make a decision during the Examination period. This includes the likely necessity for a construction facility to support the construction of the offshore works, the location of which has not been determined at this time and is reliant upon a number of factors (detailed further in response to Question 1.10.1). If a new onshore construction base is required to support the offshore works for Hornsea Three then this will either utilise existing consents secured by the port operator, or if necessary consented separately by grant of planning

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		A) How have any environmental effects relating to these facilities been assessed?	permission under the Town and Country Planning Act 1990 (or other statutory consents such as a harbor revision order). With the assessment of the impacts of the port use taking place at that stage.
		B)How would any mitigation of such effects be secured?"	B) The mitigation of any negative effects would be secured under either existing consents secured by the port operator, or if necessary through the grant of planning permission under the Town and Country Planning Act 1990 (or other statutory consent such as a harbour revision order).

1.3 Written Question 1.2 Ecology - Offshore

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.2.1	Applicant	Tables 1.1 and 1.2 of the ES [APP-097] summarise the search area extents that have been used to evaluate the cumulative offshore and onshore impacts of the proposal. Please explain why you considered these areas to be sufficient with regard to the extent of the anticipated cumulative impacts.	The onshore and offshore search area extents used to identify the projects, plans and activities in the Cumulative Effects Assessment (CEA) long list were designed to be wide enough to capture all projects, plans and activities within the potential effects range for all onshore and offshore receptors considered in the Environmental Statement. As such, these were intentionally broad, extending over a sufficiently wide scale to capture all projects with the potential to interact cumulatively with Hornsea Three. The search area extents in Table 1.1 of Volume 4, Annex 5.2: Cumulative Effects Screening Matrix of the Environmental Statement (APP-097) were sufficiently large to encompass the extent of potential impacts associated with the various offshore project types. For example, cables and pipeline projects have a highly limited zone of influence and as such had a relatively small search area extent (i.e. 100 km), while for offshore wind farms, a more extensive search area (i.e. 500 km) was required due to the extensive zone of influence from these projects, particularly on highly mobile and wide ranging receptors (e.g. foraging ranges for offshore bird and marine mammals, and operating ranges for vessels including commercial fishing vessels). The search area extents were sufficiently wide to encompass the largest topic specific study areas and zones of influence, for example, for offshore ornithology the CEA considered impacts on bird populations along the UK east coast. Similarly, the marine mammal study area included the entire southern North Sea and adjacent Small Cetaceans in the European and Atlantic North Sea Blocks (see Figure 4.1 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement; APP-064) with cumulative effects from offshore wind farm piling considered across this extent. The search areas presented in Table 1.1 of Volume 4, Annex 5.2: Cumulative Effects Screening Matrix of the Environmental Statement were sufficiently large to encompass projects within these areas. The Applicant would highlight that this use of search area extents for the identification of projects, plans and activities was the first stage in the CEA screening process. Following this first stage a more detailed screening has been undertaken on a topic by topic level. This process is further described in section 5.4.3 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement (APP-060). This involves a stepwise process that considers the level of detail available for projects, plans and activities, as well as the potential for interactions on a conceptual, physical and temporal basis.

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			As detailed in paragraph 5.4.3.17 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement, the potential for impacts arising from Hornsea Three to physically overlap with those from other projects, plans and activities has been assessed on a receptor basis for each topic. This means that, in most examples, an overlap of the physical extents of the impacts arising from the two (or more) projects, plans and activities must be established for a cumulative impact to arise. Screening on the basis of physical extent was carried out for all topics in line with the maximum potential impact (and hence physical extent) that may arise from Hornsea Three, in line with the maximum design scenario approach. For the purposes of the Hornsea Three CEA, all projects, plans and activities which did not have a physical overlap of impacts for a given Environmental Impact Assessment topic with those of Hornsea Three were screened out. This process further refines the initial screening of projects based on search area extents. In addition to considering the potential for physical overlap, the screening process also considers data confidence associated with projects (i.e. the availability of a sufficient level of detail to allow a meaningful cumulative effects assessment to be completed), the conceptual overlap (i.e. the presence of an impact-receptor pathway) and a temporal overlap of activities associated with the projects. The approach adopted is consistent with Guiding Principle 5 of the RenewableUK Cumulative Impact Assessment Guidelines (RenewableUK, 2013). The search area extents outlined in Table 1.1 and Table 1.2 of Volume 4, Annex 5.2: Cumulative Effects Screening Matrix of the Environmental Statement (APP-097) are therefore large enough to capture all projects with the potential to affect onshore and offshore receptors considered within each topic chapter of the Environmental Statement (Volume 2: Chapters 1 to 11 and Volume 3: Chapters 1 to 10). Projects, plans and activities identified via the search area extents are then considered via a more detailed screening process, as detailed above, to determine their inclusion or otherwise in the cumulative effects assessment. The Applicant therefore considers these areas to be sufficient with regard to the extent of the anticipated cumulative impacts.

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Q1.2.2	Natural England (NE)	Paragraph 4.4.5 of NE's representation [RR-097] states that the consideration of each phase in isolation failed to consider cumulative impacts over time. Please explain why the approach outlined in paragraph 12.7.1.14 of the ES [APP-072] and paragraph 11.7.2.6 of the ES [APP-083] is not adequate.	Whilst not directed at the Applicant, the Applicant refers the Ex.A to their response to Natural England's Relevant Representation (RR-097), as submitted at Deadline I. In summary, the Applicant can confirm that the potential for disturbance and repeat disturbance to benthic habitats from cable installation, across the lifetime of the project, has been fully assessed within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). The Applicant's response to Natural England's Relevant Representation provides signposting to the relevant sections of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement where the assessments are presented. All assessments relating to the potential for repeat disturbance associated with cable installation, maintenance and decommissioning conclude that the areas likely to be impacted by such repeat disturbance are limited spatially.
Q1.2.4	Applicant	Paragraph 2.7.1.3 of the ES [APP-062] states that the inshore section of the cable corridor is characterised by sub-cropping rock at a depth of 0.2 to3m. How has this informed the estimated extent of cable protection that would be required, as set out in paragraph 3.6.10.7 of the ES [APP-058]?	The Applicant has based the estimated extent of cable protection in the nearshore on knowledge of best available technologies and success rates on other projects using such equiptment on similar terrain. For example, mechanical trenchers such as the T3200 have proven successful in burying cable in chalk/stiff clay. This trencher was used sucessfully on both the Nemo-Link interconnector project and Hornsea One Offshore Wind Farm. This trencher can also offer a pre-cut solution. Another option for nearshore trenching in sub-cropping rock would be the cable plough. The rock unit encountered in the nearshore section during the Hornsea Three site investigation is generally described as extremely weak to weak low to medium density chalk, and may be anticipated to have a rock strength lower than 600 kPa. Therefore, an advanced cable plough could be utlised. The Advanced Multi-Pass Plough (AMP500) also has an extensive track record for the Pre-Cut and Post-Lay protection of large diameter pipelines, flowlines and power cables. The AMP500 plough spread is proven in multiple seabed conditions. Post-consent, further detailed pre-construction geophysical and Geotechical survey data will be used to inform the Cable Specification and Installation Plan, specifically in relation to the tools required to install cables in this area, to

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			maximise the chance of cable burial. The Applicant is therefore confident that the 10% represents the maximum design scenario, even when considering the subcropping rock in the nearshore.
Q1.2.5	Applicant	Paragraph 3.6.6.8 of the ES [APP-058] states that up to 10% of the array cable length may need protection and the same estimate has also been applied to the protection that may be required along the cable export corridor in paragraph 3.6.10.7. What is the evidential basis for this estimate?	The Applicant has produced a Clarification Note on Cable Protection as presented at Appendix 6 to the Applicants response to Deadline I which provides clarification on the requirement for, and assessment of, cable protection as presented in the Project Description chapter of the ES [APP-058] and a rationale behind the maximum scenario of 10% based on experience from other projects. The clarification note shows the assumption for export cables, but the same assumptions (e.g. about burial success) apply equally to array cables. The information available about the array area does not indicate that burial is going to be more problematic than encountered on other projects and it is therefore considered that 10% is suitably precautionary.
Q1.2.6	NE, Marine Management Organisation (MMO)	Table 2.38 of the ES [APP-062] states that the introduction of hard substrates associated with foundations, scour protection and cable protection would only lead to a minor adverse impact. Do you agree that there are unlikely to be significant changes in the composition of epifaunal and infaunal communities as a result of the introduction of hard substrates?	Whilst not directed at the Applicant, it is material to note that the Applicant has provided the MMO and Natural England with a Cable Protection Clarification Note which is included in Appendix [6] of the Applicant's response to Deadline I. The Cable Protection Clarification Note provides a clarification on the requirement for, and assessment of, cable protection in designated sites as presented in ES [APP-062].
Q1.2.7	Applicant	Paragraph 2.11.2.3 of the ES [APP-062] states that up to 25% of the cable protection would be replenished during the operational phase of the project.	A) The Applicant is confident that the value of 25% is suitably precautionary. The design of the cable protection would consider the environment in which the protection will be deployed, including hydrodynamic regime (e.g. wave energy, storm conditions) to ensure rock protection embeds significant robustness, such that replenishment would not be required. This would be set out in the cable specification and installation plan

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		A) Why do you consider that the 'worst case scenario' of 25% cable protection replenishment is appropriate and what justification do you have for concluding that it would not be greater? B) Please explain the justification for the assumption that replenishment would only occur in areas of existing cable protection. C) If you have relied on experience from previous projects then please provide further details.	as secured in the DCO. The Applicant is therefore confident that the assumption of 25% replenishment is set within appropriate precaution. B) As outlined in row 4 of Table 2.14, and paragraph 2.11.2.3 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), the replenishment of cable protection and cable/pipeline crossings during the operation and maintenance phase will not result in any additional long-term habitat loss. It is assumed that replenishment works will be additive in areas in which cable protection was laid during construction (i.e. that cable protection replenishment will involve replenishment of protection on top of cable protection previously installed over the Hornsea Three cables). Therefore, the maximum design scenario that up to 10% of the total length of export cables within designated sites will require cable protection is applicable throughout the O&M phase of the project. C) Replenishment has not been required so far on existing Orsted projects and that good design (as detailed in part A of this question) has eliminated the need for this. Following questions raised by Natural England in their Relevant Representation (RR-097) in response to the maximum design scenario for cable protection, the Applicant is therefore re-examining this precautionary assumption in the Project Design envelope.
Q1.2.9	Applicant	Paragraph 4.1 of the MMO's representation [RR-085] observes that the turbines would be painted every 10 years and that this would require preparation to break down existing surface coatings and any associated corrosion. As this would lead to material entering the benthic environment, how has this effect been assessed in the ES?	The Applicant would highlight that, for large re-painting campaigns such as those which would be required every 10 years, any spent abrasive material from blasting activities will be recovered by the blasting unit and therefore no environmental effects are predicted from this particular process. Simultaneous blast and vacuum recovery systems are also likely to recover debris (e.g. paint chips). Therefore, any potential impact would be associated with small amounts of paint being accidentally released into the marine environment. The Applicant refers the Ex.A to the Applicant's response to the MMO's Relevant Representation [RR-085], as submitted at Deadline I. An assessment of the potential effects associated with the accidental release of pollutants, including synthetic compounds (e.g. paint) on benthic receptors during the operation and maintenance phase is presented in paragraph 2.11.2.174 *et seq*. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). Given the mitigation measures which are proposed (i.e. the implementation of a Project Environmental Management and Mitigation Plan (PEMMP) which is secured by the deemed marine licences in the draft DCO (Version 1, submitted for Deadline I [APP-027]) (see condition 13(1)(d) of Schedule 11 (generation assets) and condition 14(1)(d) of Schedule 12 (transmission assets)), the likelihood of accidental release was assessed to be extremely low (see paragraph 2.11.2.186 of Volume

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			2, Chapter 2: Benthic Ecology of the Environmental Statement). In the event that surface preparation works result in the accidental release of small amounts of this material into the marine environment, the volumes of potential contaminants released would be small and rapidly dispersed to concentrations below which deleterious effects would be expected (also see paragraph 2.11.2.186 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement).
Q1.2.10	Applicant	Table 2.1 of the ES [APP-062] states that the 'likely rates of recovery' of benthic communities have been assessed as required by paragraph 2.6.113 of NPS EN-3. Paragraph 2.9.2.2 goes on to state that impacts on Valued Ecological Receptors (VER) have been informed by 'best available evidence'. Please explain the sources of this evidence. Has this evidence been derived from schemes that are comparable, for example in relation to substrates, marine processes, foundation types and scale of project? Is there any peer reviewed scientific evidence to justify the assumed recovery times?	As noted in paragraph 2.9.2.2 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) the Marine Evidence based Sensitivity Assessment (MarESA) has been drawn upon, in the first instance, to support the assessments of recoverability of benthic communities presented in sections 2.11 to 2.13 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). As outlined in Table 2.6 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, the use of the MarESA was advised by Natural England in their section 42 consultation response to the Preliminary Environmental Impact Report (PEIR). The 'evidence base' presented in the MarESA is peer reviewed and is the largest review yet undertaken on the effects of human activities and natural events on marine species and habitats. The MarESA approach is a defined process of literature review, documentation of evidence, and systematic assessment of the evidence to assess sensitivity (including recoverability). On this basis, the details provided therein on recovery are considered by the Applicant to be one of the best available sources of evidence relating to recovery of benthic species and habitats. As such, the use of this source of evidence is standard best practice in offshore wind farm assessments. It should be noted, however, that the MarESA has not been used in isolation to inform the assessments of recovery of benthic communities within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. Where available and relevant data exist from monitoring studies of similar activities (e.g. sandwave clearance, jack-up footprints, cable installation, introduction of hard substrate) at other offshore wind farms, these have been drawn upon to support the assessment of likely rates of recovery. For example, paragraph 2.11.1.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement draws on monitoring evidence for sandbank recovery following sandwave clearance activities at the Race Bank offshore wind farm and offshore cable corridor. The Applicant would also direct the Ex.A to the Sandwave Clearance Clarification Note as submitted at Appendix [11] of the Applicant's response to Deadline I, where the findings of this monitoring data are expanded on to validate the predictions made within the Environmental Statement.

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		Have previous schemes adopted pre-construction corridor clearance techniques of a similar scale? If modelling has been used please provide a summary of the assumptions of those models and how they were tested.	In addition, the assessment of recovery of benthic communities to impacts associated with jack-up vessel footprints in paragraphs 2.11.1.12 and 2.11.1.32 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement also draws on monitoring evidence of this activity at other offshore wind farms (i.e. Barrow, Lynn and Inner Dowsing). Paragraph 2.11.1.77 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement draws on evidence from cable installation monitoring for the Humber Gateway offshore wind farm to support the assessment of effects of and recovery following cable installation in mixed and coarse sediments. The Hornsea Three assessment of effects associated with the habitat creation from the introduction of hard substrates in paragraph 2.11.2.48 *et seq*. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement has also drawn on a number of examples of post-construction monitoring of the colonisation of foundations at other offshore wind farms (e.g. Egmond an Zee, Horns Rev). In addition to drawing on evidence from other offshore wind farms, the assessments of recovery and sensitivity of benthic species and habitats presented in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement has also drawn on evidence from analogous activities, including marine aggregate dredging. This evidence has been used on the basis that marine aggregate extraction results in impacts of a similar nature and magnitude to a number of construction impacts associated with Hornsea Three. These include physical disturbance/substrate removal associated with seabed preparation and sandwave clearance (see paragraphs 2.11.1.28 and 2.11.1.31 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement) and increased suspended sediment concentrations associated with these activities and also cable installation (see paragraph 2.11.1.113 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement). The Applicant can confirm that the rates of recovery predicted in in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, were based on published, peer reviewed evidence from the all of the sources outlined above and was not based on modelling.

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			It is also useful to view the approach to assessing recovery of benthic communities in the Environmental Statement in the context of two published reports: i) the Marine Management Organisation (MMO) *Review of environmental data associated with post-consent monitoring of licence conditions of offshore wind farms* (MMO, 2014); and ii) the report by Royal HaskoningDHV and The Crown Estate (2018) on proportionate Environmental Impact Assessment (EIA) for offshore wind farms. The results of the MMO (2014) review indicated that, to date, post-consent monitoring of offshore wind farms has not demonstrated any significant impacts on benthic infaunal communities, suggesting therefore that the communities impacted during construction have recovered. The Royal HaskoningDHV and The Crown Estate (2018) report concluded that there are elements of EIA where there is sufficient evidence (via repeated assessment) that based on current practice, the impacts are sufficiently known, and evidence suggests minimal impacts. The suggestion being that low risk activities, with the application of standard mitigations, do not require as much detail. It is the Applicant's position that the impacts to benthic receptors from the impacts associated with offshore wind farm construction and operation are well understood and that with the designed in mitigation measures in place (as outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement), the risk to benthic receptors is low. In conclusion, it is the Applicant's position that the evidence supporting the conclusions with respect to rates of recovery of benthic ecology receptors is scientifically robust, having drawn upon both peer reviewed scientific evidence and relevant monitoring data from offshore wind and other relevant industries. As such, the impact assessment has been based on the best available evidence.
Q1.2.11	Applicant	Paragraph 2.3.1.1 of the ES [APP-062] defines the extent of the benthic ecology study area which includes the former Hornsea Zone with a 5 km buffer and an area defined by the boundaries of the Southern North Sea Natural Area. Why is the inclusion of these areas in the assessment process justified having regard	As discussed in paragraph 2.3.1.1 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), two benthic ecology study areas were defined: i) the Hornsea Three benthic ecology study area (encompassing Hornsea Three, the former Hornsea Zone plus a 5 km buffer); and ii) ii) the southern North Sea benthic ecology study area (defined by the limits of the southern North Sea Marine Natural Area). The first of those, the Hornsea Three benthic ecology study area, was identified as the area within which direct and indirect effects associated with Hornsea Three may occur (i.e. beyond this range, any effects would be well within natural variability), and was therefore selected as the focus of site-specific surveys in order to comprehensively

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		to the extent of the likely significant effects from the project?	characterise the benthic ecology baseline. It is the Applicant's position that this study area was sufficiently large to capture likely effects of Hornsea Three on benthic ecology receptors. The southern North Sea benthic ecology study area covered the extent of the desktop data review, the purpose of this information being to provide wider context to the site-specific Hornsea Three data, e.g. to provide an indication of how representative benthic ecology receptors (i.e. species, communities and habitats) are within the wider southern North Sea.
Q1.2.12	Applicant	The benthic grab locations shown in figure 2.4 of the ES [APP-062] indicate that no samples of the nearshore cable corridor re-route were obtained. Paragraph 2.6.1.4 of the ES [APP-062] states that a combination of site specific and desktop survey data were deemed adequate by the EWG. Representations from Natural England [RR-097], the MMO [RR-085] and the Eastern Inshore Fisheries and Conservation Authority (EIFCA) [RR-070] question the assumption that the benthic habitats in the re-route are likely to be the same as those sampled elsewhere. Please explain the scientific justification for the assumption that the survey effort was adequate.	A description of the nearshore benthic ecology study area of the Hornsea Three offshore cable corridor, is presented in paragraph 2.7.1.11 *et seq*. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and paragraph 4.1.4.83 *et seq*. of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-107). The desktop data sets which were used to extend the nearshore biotope maps generated from the Hornsea Three site specific benthic ecology data into The Wash and North Norfolk Coast SAC (i.e. into the nearshore re-route) are outlined in paragraph 2.7.6.2 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. The desktop data indicates that the broadscale sediment types are similar across the benthic ecology study area with sandy sediments inshore grading into coarse/mixed sediments further offshore within The Wash and North Norfolk Coast Special Area of Conservation (SAC). The consistency in the pattern of sediments present across datasets and over a long time series, provided confidence in the extrapolation of biotopes into areas where there had been no site-specific sampling and confidence in the sufficiency of this information for the purposes of the Environmental Impact Assessment. Paragraph 4.1.4.83 *et seq*. of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement describe the biotopes mapped within the part of Hornsea Three offshore cable corridor re-route coinciding with The Wash and North Norfolk Coast SAC. The biotopes predicted are also shown in Figure 2.5 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement and were consistent with findings of previous surveys in this area for the Sheringham Shoal and Dudgeon offshore wind farms, as well as surveys within The Wash and North Norfolk Coast SAC. On the basis of the desktop data sets outlined in paragraph 2.7.6.2 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement and also the results of a site-specific drop down video survey in October 2017 within areas of potential chalk outcrops within The Wash and North Norfolk Coast SAC, it was

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			concluded that Annex I reef habitats were unlikely to be present within the part of the Hornsea Three offshore cable corridor which coincides with The Wash and North Norfolk Coast SAC. Since the Hornsea Three DCO application was submitted in May 2018, the Applicant has undertaken a drop down video survey of the Hornsea Three offshore cable corridor that coincides with The Wash and North Norfolk Coast SAC in the nearshore area (i.e. the re-route section). The results of the survey validates the benthic ecology baseline, and therefore the predictions made within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. The results and full details of this survey have been provided to Natural England and the MMO in September 2018 via The Wash and North Norfolk Coast Clarification Note which is also included in Appendix [5] of the Applicant's response to Deadline I. Analysis of the Hornsea Three 2018 drop down video survey data validated the prediction (made in the ES) of predominantly mixed sediments within the parts of the Hornsea Three offshore cable corridor that coincide with The Wash and North Norfolk Coast SAC and confirmed that there is no evidence of Annex I stony reef habitat, or any other Annex I reef habitat, in this area. No evidence of *Sabellaria spinulosa* was found during the 2018 Hornsea Three drop down video survey, which suggests that the allocation of the SspiMx biotope to this area of mixed sediment, for the purposes of the assessment presented in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, was over-conservative.
Q1.2.14	The Wildlife Trusts (TWT)	TWT's representation [RR-047] states that more realistic expectations of cable burial and protection within The Wash and North Norfolk Coast Special Area of Conservation are required. Please provide further justification for your view that the assessments in the application documents are not realistic. What reasonable measures should, in your view, be taken to remedy this situation?	Whilst not directed at the Applicant, it is material to note that the Applicant has provided TWT with a Cable Protection Clarification Note which is also included in Appendix 6 of the Applicant's response to Deadline I. The Cable Protection Clarification Note further explains how the maximum design scenario for cable protection for Hornsea Three has been derived and is therefore precautionary but realistic and justified.

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Q1.2.15	NE	Paragraph 5.4.13 of NE's representation [RR-097] states that there are outstanding questions regarding how the survey data have been analysed and interpreted. Errors have been noted in the results and the significance of potential impacts on biotopes and VER. Please identify the nature of these errors and the implications that you think this has for the findings of the ES.	Whilst not directed at the Applicant, it is important to note that the Applicant has acknowledged the general limitations associated with biotope mapping in paragraph 2.7.6.3 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). As discussed in paragraph 2.7.6.5 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, these limitations have been controlled by grouping habitats with similar overall general ecology, species assemblages and sensitivities together as valued ecological receptors. Therefore, as discussed in paragraph 2.7.6.5 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, any uncertainties or differences in expert opinion in relation to classification of individual biotope codes to certain sites will not materially affect the overall conclusions or certainty of the impact assessment presented in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement.
Q1.2.16	Applicant	Paragraph 2.4.3.2 of the ES [APP-102] states that the mini-Hamon grab sample size that was used for macrofaunal analysis was 0.1 m2. A)What proportion of the total benthic study area was surveyed and how was the sample size statistically determined to ensure that it was representative? B) Please explain the justification for the sampling strategy with reference to empirical measures of the heterogeneity and spatial grain of benthic habitats.	A) Paragraph 2.4.2.3 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102) explains that data from 334 benthic grab samples, taken using a 0.1 m^2 Hamon grab, from historic benthic ecology surveys undertaken across the former Hornsea Zone were used to characterise the Hornsea Three benthic ecology study area. As discussed in section 2.4.3 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement, these data were augmented with the results of 60 site-specific grab samples (0.1 m^2 Hamon) undertaken by the Applicant in 2016/2017. Given the extent of offshore wind farm study areas such as those for Hornsea Three, the relative proportion of the area surveyed will inevitably appear comparatively small. However, the approach adopted for the benthic ecology characterisation of Hornsea Three is consistent with all relevant guidance for baseline characterisations (e.g. Davies *et al.*, 2001; Cefas, 2011; Ware and Kenny, 2011) as outlined in paragraph 2.5.1.2 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement. The approach is also consistent with that adopted for other offshore wind farm projects and offshore industries. The Applicant is confident that, on the basis of this approach, the number of samples collected is proportionate to the size of the project and that the coverage of samples is adequate for the purposes of facilitating a broad scale description of the seabed environment within and around Hornsea Three and to define the main habitats and their spatial extent. The emphasis of baseline characterisation surveys using grab and drop down video techniques is on the elucidation of spatial patterns in the biological communities associated with seabed sediment to

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		C) How does the sampling intensity reflect the observed spatial distribution of key benthic habitats, such as Sabellaria reefs?	an extent which then allows confident interpolation of biotopes across similar sediment types in wider un-surveyed areas. B) The site-specific benthic surveys in the Hornsea Three array area were first discussed with the Marine Processes, Benthic Ecology and Fish and Shellfish Expert Working Group (EWG) at a meeting on 6 June 2016 (see Appendix C.1 of the Consultation Report Annex 1: Evidence Plan [APP-035]). The principles of the design of the site-specific surveys of the Hornsea Three offshore cable corridor were first discussed with the EWG at a meeting on 18 November 2016 with full details of the Applicant's sampling strategy for the Hornsea Three offshore cable corridor presented at a meeting of the EWG on 1 February 2017 (see Appendix C.5 of the Consultation Report Annex 1: Evidence Plan). The sampling strategy and density of the site-specific benthic grab samples discussed with the EWG was intended to focus survey on areas where data were lacking or data coverage was poor (i.e. to provide further data coverage within representative sediment types in area of poor or moderate data coverage). Sample locations were also targeted at historic Sabellaria spinulosa reef locations. See the meeting minutes presented in Appendix C.5 of the Consultation Report Annex 1: Evidence Plan C) The Applicant would also highlight that, as discussed in paragraph 2.4.3.5 and 2.4.3.10 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102), seabed camera footage was obtained from grab sampling stations along the Hornsea Three offshore cable corridor to ensure that no potential Annex I habitats (such as Sabellaria spinulosa reefs) were present prior to seabed contact by the grab sampler. If a potential Annex I habitat was identified in the feed from the grab mounted camera, no grab sample was taken. This approach is consistent with the relevant guidance for sampling areas of potential S. spinulosa reef (i.e. Gubbay, 2007) which state that this type of sampling should be limited due to the destructive nature of the technique. Where discrete habitats (e.g. potential S. spinulosa reef habitats, potential clay/chalk exposures) were identified from the geophysical datasets along the Hornsea Three offshore cable corridor, these more sensitive and spatially limited features were thoroughly investigated using appropriate, non-destructive sampling equipment (i.e. seabed camera footage) to ensure a robust baseline characterisation.
Q1.2.17	Applicant, NE	Table 2.18 of the ES [APP-062] states that cables would be micro-sited through areas	Paragraph 2.7.1.19 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Assessment (APP-062) refers to the occurrence of *Sabellaria* biotopes within the Hornsea Three offshore cable corridor. The Applicant would highlight

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		of 'lower quality' Sabellaria reef. Paragraph 2.7.1.19 of the ES [APP-062] acknowledges that this is a widespread benthic feature with potential for occurrence in the array and cable corridor areas. How effective is this mitigation measure likely to be given the widespread distribution of this habitat?	that, as discussed in paragraph 4.1.4.97 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102), although biogenic *Sabellaria spinulosa* reefs are associated with *Sabellaria* biotopes (e.g. SS.SBR.PoR.SspiMx *Sabellaria spinulosa* on stable circalittoral mixed sediment (SspiMx) biotope), the widespread mapping of the SspiMx biotope along the Hornsea Three offshore cable corridor does not automatically indicate that reef is present. Therefore, it is important that the relevant guidance (i.e. Gubbay, 2007) is applied to distinguish between areas that do qualify as *S. spinulosa* reef and those which are 'not a reef'. As per the approach to the Environmental Impact Assessment, this approach will be applied to the pre-construction survey, which the Applicant is committed to undertaking (as per Schedule 12, Part 2, Paragraph 16 (2)(ii) of the draft DCO [APP-027]), to determine the location, extent and composition of any Annex I reefs within SACs and/or biogenic or geogenic reefs outside SACs within the Order limits at the time of construction. The Applicant's commitment to the designed-in mitigation measures outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (i.e. to develop measures to avoid direct impacts to *S. spinulosa* reef features, where possible), are standard mitigation measures which have been applied, and proved to be successful, over many offshore industries (including oil and gas drilling and pipeline installation, interconnectors and offshore wind). Furthermore, the assessment of an impact occurring to potential future Annex I reef (should this develop prior to construction), as presented in paragraph 2.11.1.43 et seq. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, has demonstrated that the Hornsea Three offshore cable corridor is of sufficient width to allow for micrositing around any potential Annex I reef features which may develop prior to construction within the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC). This indicates that this mitigation measure would be successful and that residual risks to Annex I *S. spinulosa* reef features are minimal. It is also widely accepted that, within any *S. spinulosa* reef, there are typically areas of higher and lower 'reefiness'. Therefore in the unlikely event that the primary mitigation (i.e. avoiding biogenic reefs, where possible) fails and export cables need to be installed through an area of reef(s), the Applicant is confident that the secondary mitigation, as outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (i.e. to microsite cables through areas of lower quality reef, avoiding areas of medium or high quality reef and/or cable installation would be restricted to the periphery of reef features to ensure continuous reef features are not bisected) would be feasible and successful.

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Q1.2.18	Applicant	Paragraph 5.4.3 of NE's representation [RR-097] highlights the potential use of the Joint Nature Conservation Committee Sabellaria reef layer. A)Why was this digital reef layer not used to determine the extent of this feature and, if it had been, how would this have altered the findings of the ES? B) How does an additional area of reef that has been identified since the analysis was completed alter the findings of the ES?	A) The Applicant refers the Ex.A to the Applicant's response to Natural England's (NE) Relevant Representation (APP-097), as submitted at Deadline I. The Applicant would highlight that the most up to date JNCC reef layer, available at the time of submission, was used by the Applicant to inform the core reef assessment, and it is this layer which is presented in Figure 2.9 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). The Applicant notes that the updated reef layer referred to in NE's Relevant Representation was not available at the time that the Environmental Impact Assessment was undertaken but that the Applicant has since requested that the Joint Nature Conservation Committee (JNCC) provide this layer. The Applicant considers it important to reiterate that no Annex I *Sabellaria spinulosa* reefs were recorded within Hornsea Three coinciding with designated sites (see paragraph 2.7.1.13 *et seq.* of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. However, as per best practice, and in response to a request by NE, an assessment of an impact occurring to potential future Annex I reef (should this develop prior to construction) within the North Norfolk Sandbanks and Saturn Reef SAC was undertaken as presented in paragraph 2.11.1.43 *et seq*. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. The purpose of this core reef exercise was to provide a high-level risk assessment, as advised by Natural England in the Marine Processes, Benthic Ecology and Fish and Shellfish Ecology Expert Working Group (EWG) meeting on 23 February 2018, in order to 'future proof' the assessment to cover the possibility of *S. spinulosa* reef developing in the intervening time between the Hornsea Three characterisation and the pre-construction Annex I reef surveys. Furthermore, as outlined in the Applicant's response to Q1.2.17 above, this assessment has demonstrated that the Hornsea Three offshore cable corridor is of sufficient width to allow for micrositing around any potential Annex I reef features which may develop prior to construction within the North Norfolk Sandbanks and Saturn Reef SAC. B) As outlined in response to Part A above, the Applicant has requested but not yet received the updated JNCC reef layer and is therefore unable to comment on the location of any additional *S. spinulosa* data points in respect to the Hornsea Three offshore cable corridor. The core reef assessment was, however, based upon the best available data at the time, with assumptions and limitations clearly stated in paragraph 2.11.1.53 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. The key limitation being the limited number of datasets available for the area of the North Norfolk Sandbanks and Saturn Reef SAC coinciding with the Hornsea Three offshore cable corridor. If the latest reef layer had been available for inclusion in the assessment it would have increased the datasets used to inform the Hornsea Three core reef assessment from three to four. However, when compared to the 16 datasets used

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			for the core reef approach in The Wash *S. spinulosa* synthesis (Roberts *et al*., 2016), the addition of the extra layer would have only marginally increased confidence in the conclusion of the core reef assessment. It is in acknowledgement of the residual uncertainty as to the location and extent of any potential future Annex I reefs, that the Applicant has proposed to control any residual risks to Annex I reef features of the North Norfolk Sandbanks and Saturn Reef SAC, should these develop within the Hornsea Three offshore cable corridor prior to construction, via the designed in mitigation measures adopted as part of Hornsea Three as outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. The key control measure being that, should *S. spinulosa* reef features be identified during pre-construction surveys of the Hornsea Three offshore cable corridor, appropriate measures will be discussed with statutory consultees to avoid direct impacts to these features, where possible. The Applicant would highlight that the proposed measures to avoid *S. spinulosa* reefs are standard mitigation measures which have been applied, and proved to be successful, across many offshore industries, including the offshore wind industry, oil and gas (including pipelines) and interconnector cables.
Q1.2.19	NE	Paragraph 5.4.4 of NE's representation [RR-097] states that the 'core reef approach' that was used to assess impacts on the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC) did not follow published guidance. Please explain how the adopted approach differs from the published guidance. How is any difference in approach likely to have affected the findings of the ES?	Whilst not directed at the Applicant, the Applicant refers the Ex.A to their response to Natural England's Relevant Representation (RR-097) as submitted at Deadline I. Here it is highlighted that the approach involved a high-level risk assessment, as advised by Natural England in the Marine Processes, Benthic Ecology and Fish and Shellfish Ecology EWG meeting on 23 February 2018, in order to future proof the assessment to cover the possibility of *Sabellaria spinulosa* reef developing in the intervening time between the Hornsea Three characterisation and the pre-construction Annex I reef surveys.
Q1.2.20	Applicant, NE, MMO	Paragraph 2.7.1.19 of the ES [APP-062] states that Sabellaria reefs are 'likely to be ephemeral'.	A) The Applicant considers that it is widely acknowledged that *Sabellaria spinulosa* reef can be a naturally ephemeral habitat which is vulnerable to both natural disturbance (e.g. storms) and anthropogenic activities such as bottom trawling.

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		A)What peer reviewed literature supports this assumption? B) Is it possible that the observed changes in distribution are attributable to regular loss of reefs from bottom trawling? C) Given the observed ephemerality, would pre-construction surveys be effective in mitigating potential impacts? D) Please could NE and the MMO comment on whether they agree that the reefs are likely to be ephemeral and whether it is reasonable to consider them as having medium recoverability.	As discussed in paragraph 2.11.1.44 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and paragraph 3.1.3.24 et seq. of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement [APP-102] for example, it has been widely reported that the Saturn *S. spinulosa* reef of the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC) was first recorded in 2003, creating a solid structure rising above the seabed (BMT Cordah, 2003), but subsequent surveys in 2006 failed to identify the extensive areas of S. spinulosa reef previously identified (Limpenny et al., 2010). Annex I *S. spinulosa* reef was, however, recorded to the west of the previously mapped Saturn reef by the JNCC/Cefas 2013 survey (Jenkins et al., 2013). The ephemeral nature of *S. spinulosa* reefs was also demonstrated during the baseline characterisation surveys for the Hornsea Project One and Hornsea Project Two offshore wind farms. During the Hornsea Project One baseline characterisation surveys in October 2011 (SMart Wind, 2013), *S. spinulosa* reef was recorded at six discrete locations along the Hornsea Project One offshore cable corridor. These locations were specifically revisited as part of the Hornsea Project Two baseline characterisation surveys in 2012, but no evidence of the *S. spinulosa* reef habitat was found (Smart Wind, 2015). The Applicant considers that these examples, together with the fact that Annex I reef was not recorded within the Hornsea Three offshore cable corridor during the baseline characterisation surveys, highlight the ephemeral nature of this habitat in the vicinity of Hornsea Three. The Joint Nature Conservation Committee (JNCC)/Cefas North Norfolk Sandbank and Saturn Reef cSAC/SCI Management Investigation Report (Jenkins *et al*., 2015) and the Conservation Objectives and Advice on Operations document for the site (JNCC, 2012) also both describe the Annex I *S. spinulosa* reef feature of the North Norfolk Sandbanks and Saturn Reef SAC as ephemeral.
			B) The Jenkins *et al*. (2015) and JNCC (2012) reports discussed in answer to Part A above, also outline that damage to the reef structure was observed during the original survey by BMT Cordah (2003) which may have been the result of bottom trawling. The Conservation Objectives and Advice on Operations document for the SAC (JNCC, 2012) states that trawling, dredging, net fishing and potting are all believed to cause physical damage to *S. spinulosa* reefs and demersal trawling, resulting in exposure to physical damage, has been identified as a pressure for reef features within the North Norfolk Sandbanks and Saturn Reef SAC (JNCC, 2012). The JNCC Report No. 504 *Assessing the sensitivity of Sabellaria spinulosa reef biotopes to pressures associated with marine activities* (Gibb *et al*., 2014) also

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			confirms that fishing activities are likely to result in physical disturbance impacts to reefs. As discussed above in answer to Part A, the Applicant considers that it is widely acknowledged that *S. spinulosa* reef is an ephemeral habitat, however, the Applicant considers that it is possible that some of the observed changes in distribution of *S. spinulosa* reefs in the southern North Sea may be attributable to bottom trawling.
			C) The Applicant would highlight that no Annex I *S. spinulosa* reef was recorded within the part of the Hornsea Three offshore cable corridor that coincides with the North Norfolk Sandbanks and Saturn Reef SAC during the baseline characterisation surveys. However, in acknowledgement of the ephemeral nature of this habitat, as outlined in Table 2.18 in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, the Applicant is committed to undertaking a pre-construction Annex I survey so that mitigation measures to avoid direct impacts to reefs can be defined which are appropriate on the basis of the extent of these features (if present) at the time of construction. The pre-construction Annex I survey would be scheduled within an appropriate timeframe to ensure that they are fit for purpose, which typically means within 12 to 18 months from construction. Although there is a very small residual risk that *S. spinulosa* reef may develop in the intervening period, the Applicant would highlight that such mitigation measures have been applied, and proved to be successful, over many offshore industries (e.g. oil and gas, interconnectors and offshore wind).
			D) The Applicant notes this is directed to NE and MMO but would highlight that the assessment of medium sensitivity of *S. spinulosa* reefs to temporary habitat disturbance, as described in paragraph 2.11.1.31 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, is based on sensitivity using the Marine Evidence based Sensitivity Assessment (MarESA) pressure benchmarks (i.e. Tillin and Marshall, 2018) as advised by Natural England in their Section 42 consultation response (see Table 2.6 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement). This is also consistent with the JNCC's sensitivity assessment of *S. spinulosa* reef to the Intercessional Correspondence Group on Cumulative Effects (ICG-C) pressure 'penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion' as presented in Gibb *et al*. (2014).
Q1.2.21	Applicant	Paragraph 2.11.1.20 of the ES [APP-062] states that 25,000 m2 of Habitat E would be lost which would amount to approximately 30% of the Habitat E area within the Hornsea Project Three benthic	The Applicant refers the Ex.A to the Applicant's response to the MMO's Relevant Representation (RR-085) as submitted at Deadline I and would clarify that the assessment presented in paragraph 2.11.1.20 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) relates to effects associated with temporary habitat disturbance/loss.

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		ecology study area. Paragraph 2.11.1.23 goes on to state that the magnitude of impact associated with the temporary loss of all benthic habitats during the construction phase would be minor. Given that the temporary loss of all other VER (Habitats A-D) would be around 3%, how is the magnitude of the predicted temporary loss of Habitat E justified as also being minor?	As discussed in paragraph 2.7.1.15 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, Habitat E corresponds to a single discrete area of *Sabellaria spinulosa* reef located within the Hornsea Three offshore cable corridor but outside the boundaries of a SAC/Site of Community Importance (SCI). This area of reef was assigned as 'medium reef' according to the relevant guidance for *S. spinulosa* reef assessment (i.e. Gubbay, 2007). The extent of Habitat E was estimated at 0.084 km^2 and the assessment of the magnitude of the impact of temporary habitat loss/disturbance of 29.63% of this habitat was based on the fact that this reduction would not alter the outcome of the *S. spinulosa* reef assessment in this locality (i.e. the reef would still be assessed as 'medium reef' on the basis of the extent criteria outlined in Gubbay, 2007). As the overall status of the reef would not change, the magnitude was considered to be minor. It should be noted that as outlined in paragraph 2.11.1.17 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, the assessment of temporary effects on Habitat E was highly precautionary on the basis that it assumed that cables would be installed through *S. spinulosa* reef (i.e. Habitat E). As outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, the Applicant is committed to employing appropriate mitigation measures to avoid direct impacts to *S. spinulosa* reef features, where possible. Therefore, the Applicant is confident that the extent of any temporary habitat loss/disturbance impacts to Habitat E as a result of cable installation will be considerably lower than those predicted within paragraph 2.11.1.20 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement.
Q1.2.22	Applicant	Paragraph 4.6 of the MMO's representation [RR-085] states that the VER would respond differently to the impacts arising from sediment disturbance, sandwave removal and smothering. The applicant is asked to comment on this point and to consider how separate significance ratings would alter the conclusions of the ES.	The Applicant refers the Ex.A to the Applicant's response to the MMO's Relevant Representation (RR-085), as submitted at Deadline I. Here it is explained that the assessment of the overall significance of the effect of temporary habitat disturbance/loss to Habitats A-E was based on an appraisal of how each of the habitats individually would respond to the impacts of sediment disturbance, sandwave removal and smothering. The assessment presented in paragraph 2.11.1.3 *et seq*. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) describes each of these impacts separately in order to provide an individual quantification of the effects. Both individually and overall, the significance of effects was considered to be of minor significance, and it should be noted that the assessment would have highlighted where there was an exception to this conclusion for a particular habitat.

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Q1.2.23	Applicant	Table 2.7 of the ES [APP-062] indicates that two benthic survey reports were more than 10 years old and that only one had been published in the last 3 years. Paragraph 2.6.1.2 states that this was deemed 'largely appropriate' by the expert working group. Please provide a justification of how these data provide a robust baseline from which to predict the likely benthic impacts of the proposal.	As outlined in the Applicant's response to Ex.A Question WQ-1.2.11 above, the primary purpose of the desktop data review was to provide context for the Hornsea Three site-specific data. The Applicant would highlight that, as described in paragraph 2.6.1.2 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), the Hornsea Three array area is located within the former Hornsea Zone, for which extensive data and knowledge regarding benthic ecology was already available (e.g. from zonal studies and surveys/characterisations undertaken for Hornsea Project One and Hornsea Project Two). However, as outlined in section 2.6.4 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, a number of Hornsea Three site-specific surveys were undertaken to establish a robust and up-to-date characterisation of the baseline environment within the Hornsea Three array area and offshore cable corridor. The consistency of the habitats and biotopes recorded during the Hornsea Three site-specific surveys (and historical surveys within the former Hornsea Zone), as described in full in section 4 of Volume 5, Annex 2.1: Benthic Ecology Technical Report (APP-102), with those described in the desktop data sets in section 3 of Volume 5, Annex 2.1: Benthic Ecology Technical Report, demonstrates that the historical variation, over a period of more than 10 years, in the sediments and associated benthic habitats is low. The Applicant considers that this confirms that the benthic ecology baseline characterisation for Hornsea Three is robust.
Q1.2.24	Applicant	Paragraph 5.4.11 of NE's representation [RR-097] states that the benthic analyses were not appropriate for characterising the Markham's Triangle proposed Marine Conservation Zone. The applicant is asked to comment on this point.	The Applicant refers the Ex.A to the Applicant's full response to Natural England's Relevant Representation (RR-097), as submitted at Deadline I. In summary the Applicant's response confirms that, in relation to the evidence queried by Natural England (i.e. the Cefas/Defra survey evidence for Markham's Triangle proposed Marine Conservation Zone (pMCZ)), the raw data from this survey were made available to the Applicant (as described in paragraph 2.4.2.4 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102)) and were used by the Applicant to inform the benthic ecology baseline characterisation within this site as discussed in paragraph 3.1.3.32 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement . With respect to the JNCC Report 608 (Sotheran *et al.*, 2017) report identified by Natural England in their Relevant Representation, the Applicant would note that this report was not highlighted to the Applicant during the pre-application phase. The Applicant has however since reviewed the Sotheran *et al.* (2017) report and a full commentary is provided in the Applicant's response to Natural England's Relevant Representation. In summary, the minor differences in the biotope classifications which exist between those mapped in the Sotheran *et al.* (2017) report and those mapped by the Applicant within Markham's Triangle pMCZ in Figure 2.5 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) do not change the overall conclusions of the Environmental

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			Impact Assessment or Volume 5, Annex 2.3: Marine Conservation Zone assessment of the Environmental Statement (APP-104) due to the similarities in biotope sensitivity, including recovery potential following disturbance.
Q1.2.26	Applicant	Paragraphs 2.11.2.116 and 2.11.2.117 of the ES [APP-062] predict that the impact on VER would be long term, continuous and irreversible for the lifetime of Hornsea Project Three. Paragraphs 2.11.2.120 and 2.11.2.121 go on to state that Habitats B, D and E have high intolerance to changes in water flow. A) How is the low-medium sensitivity of Habitats B, D and E justified under these circumstances? B) How has the impact of residual structures that would remain after decommissioning been assessed?	A) The Applicant refers the Ex.A to paragraph 2.11.2.124 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) where it is explained that the potential changes to the rates of flow and wave regime as a result of the presence of Hornsea Three are predicted to be small and below the benchmarks of the relevant Marine Evidence based Sensitivity Assessment (MarESA) pressures (see paragraph 2.11.2.107 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement) used to inform the assessment of impacts to benthic receptors in paragraphs 2.11.2.118 to 2.11.2.123 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. For example, as discussed in paragraph 2.11.2.110 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement the presence of Hornsea Three is predicted to result in maximum changes in current speeds varying from +0.04 ms^{-1} to -0.1 ms^{-1} in the near-field only (i.e. primarily within the offshore wind farm footprint). The MarESA benchmark for changes in rates of water flow is a change in peak mean spring bed flow velocity of between 0.1 ms^{-1} to 0.2 ms^{-1} for more than one year (see paragraph 2.11.2.107 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement). Furthermore, baseline tidal currents across the former Hornsea Zone vary from approximately 0.6 ms^{-1} (at High Water) to 1 ms^{-1} (at Low Water) for peak mean spring tides and therefore, the predicted changes are within natural variability for this area. Therefore, the Applicant is confident that the assessment of sensitivity to the likely magnitude of the impacts is precautionary and although some effects on benthic receptors may be observed they are likely to be more subtle than described in paragraphs 2.11.2.118 to 2.11.2.123 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. B) As outlined in section 3.14 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058), turbines and foundations will be removed during decommissioning and therefore there will be no impact to benthic receptors from a change to marine processes as a result of these structures post-decommissioning. Although scour and cable protection will be left in situ, as discussed in paragraph 2.11.2.110 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, these structures will only exert a highly localised influence on marine processes. Any effects on the wave and tidal regime as a result of the presence of cable and scour protection post-decommissioning will be inconsequential compared to the magnitude of the changes which are predicted during the operation phase due to the presence of foundations, as discussed above. The associated effects on benthic receptors post-decommissioning as a result of scour and cable protection will therefore be limited to habitat loss effects, as assessed in paragraph 2.11.3.38 et seq. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement.

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Q1.2.27	Applicant	Paragraph 2.11.1.7 of the ES [APP-062] states that the temporary habitat loss resulting from unexploded ordnance clearance would be within the 15 m cable burial corridor. What evidence supports this assumption?	As outlined in paragraph 3.6.2.5 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058), due to the intensity of the surveys required to accurately identify unexploded ordinance (UXO), it was not practicable and proportionate during the pre-application phase to define the number, nature or indeed location of UXO which may require detonation, for the purposes of the Environmental Impact Assessment. The Applicant intends to apply for a separate Marine Licence, pre-construction, for the detonation (where required) of any UXO which may be identified in pre-construction surveys (noting that this is standard industry practice). This Marine Licence application would fully consider the impact of UXO detonation on benthic receptors. However, the Applicant is confident, based on prior experience at Hornsea Project One for example, that this activity will be limited to a discrete number of detonation events affecting a limited area. In many instances, UXO targets will simply be microsited around and therefore there would be no need to detonate these UXOs. In other cases, UXO within the 15 m export cable installation corridor may need to be removed (if safe). Where detonation of UXO is required, the extent of the resulting seabed disturbance would be dependent on the size of the ordinance. Post-detonation data from other offshore wind farms have indicated that the diameter of craters created have been typically less than 10 m. The Applicant would also highlight that the maximum design scenario for other pre-construction activities (e.g. sandwave clearance and boulder clearance) considers temporary habitat loss/disturbance within wider corridor widths of up to 30 m.
Q1.2.28	Applicant	Paragraph 2.7.6.4 of the ES [APP-062] states that data limitations are such that the biotope map should not be interpreted as describing definitive areas. A)Given that the site-specific survey carried out along the export cable corridor within the Wash and North Norfolk SAC is limited in nature, what confidence can be attached	A) As outlined in the Applicant's response to Ex.A Question WQ-1.2.12 above, a combination of desktop data sources and Hornsea Three survey data were used to characterise the section of the Hornsea Three offshore cable corridor coinciding with The Wash and North Norfolk Coast Special Area of Conservation (SAC). The desktop data sets which were used to extend the nearshore biotope map generated from the Hornsea Three site specific benthic ecology data into The Wash and North Norfolk Coast SAC (i.e. into the re-route) are outlined in paragraph 2.7.6.2 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). The desktop data indicated that the broadscale sediment types were similar across the area with sandy sediments inshore grading into coarse/mixed sediments further offshore within The Wash and North Norfolk Coast SAC. The consistency of this pattern across datasets and over a long time series, provided confidence in the extrapolation of biotopes into areas where there had been no site-specific sampling and confidence in the sufficiency of this information for the purposes of the Environmental Impact Assessment. This is on the basis that the biological communities present in any given area largely dictated by the type of sediment present (although noting that other factors e.g. exposure to currents and

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		to the mapping of the biotopes within the SAC? B) How is uncertainty addressed in the approach that has been taken in the ES?	depth etc. also play a role). Therefore, the sediment type can be confidently defined, it is possible to infer, with some confidence, the associated benthic communities. Paragraph 4.1.4.83 *et seq*. of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102) describe the biotopes mapped within the part of Hornsea Three offshore cable corridor re-route coinciding with The Wash and North Norfolk Coast SAC. The biotopes predicted are also shown in Figure 2.5 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. The biotopes mapped (i.e. the SS.SSa.IFiSa.NcirBat (NcirBat) sandy sediment biotope with relatively impoverished communities in the inshore area and the SS.SBR.PoR.SspiMx (SspiMx) and SS.SCS.ICS.MoeVen (MoeVen) biotopes with increasing distance offshore) were consistent with findings of previous surveys in this area for the Sheringham Shoal and Dudgeon offshore wind farms, as well as surveys within The Wash and North Norfolk Coast SAC. As outlined in the Applicant's response to Ex.A Question WQ-1.2.12 above, since the Hornsea Three DCO application was submitted in May 2018, the Applicant has undertaken a drop down video survey of the Hornsea Three offshore cable corridor that coincides with The Wash and North Norfolk Coast SAC in the nearshore area, which has validated the benthic ecology baseline and the impact assessment within the Environmental Statement. The Applicant, therefore, considers that the characterisation of the baseline environment within The Wash and North Norfolk Coast SAC is adequate and sufficient for the purposes of assessing the impacts of cable installation on benthic features of the SAC within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement and the Report to Inform Appropriate Assessment (RIAA; APP-052).

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			B) The data limitations referred to by the Ex.A in paragraph 2.7.6.4 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement apply to biotope mapping in general, rather than being specific to the nearshore re-route. As outlined in paragraph 2.7.6.4 Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, benthic communities and seabed sediments generally grade into one another and therefore boundaries shown in biotope maps should not be viewed as definitive boundaries. This is in contrast to delineation of discrete habitat features, such as reef habitats, as their boundaries are more readily defined and accurately mapped using a combination of geophysical datasets and video sampling. The limitations therefore apply to the boundaries between biotopes, rather than biotope classification in general and as outlined above, the consistency in the biotope classifications across a long time period and over multiple datasets provide a high degree of confidence in the biotope classifications. Any residual uncertainty (e.g. due to Annex I reefs which may develop prior to construction) will be controlled via the designed-in mitigation measures as outlined in the Applicant's response to Ex.A Question WQ-1.2.18 above.
Q1.2.31	NE	Paragraph 5.4.8 of NE's representation [RR-097] states that the Relevant Authority will need to carry out a full Marine Conservation Zone assessment. Please supply the conservation objectives, operational advice and a sensitivity analysis for the Markham's Triangle pMCZ. If this information is not available, please advise on what information should be used to inform a Marine Conservation Zone assessment for Markham's Triangle pMCZ. Are you in agreement with the Applicant's approach of using the conservation objectives for the Cromer Shoals Chalk Beds Marine Conservation Zone?	Whilst not directed at the Applicant, it is material to note that the Applicant was advised by NE and JNCC at The MCZ Working Group Meeting (4th December 2017) that in the absence of conservation objectives for Markham's Triangle proposed Marine Conservation Zone (pMCZ), the draft Conservation Advice Package for Cromer Shoal Chalk Beds MCZ should be used.

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Q1.2.32	NE, MMO,TWT	Paragraph 2.12.2.3 of the ES [APP-062] identifies a number of impacts that have been scoped out of the cumulative impact assessment. Do you agree with the decision not to assess certain impacts on benthic ecology receptors within this assessment or within the HRA in-combination assessment for the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation? If not, why not?	Whilst not directed at the Applicant, it is material to note that the approach to scoping out the cumulative impacts described in paragraph 2.12.2.3 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) was consistent with the approach adopted for the Preliminary Environmental Information Report (PEIR) and no comments relating to this were received during the section 42 statutory consultation on the PEIR from any consultees.
Q1.2.33	Applicant	Paragraph 2.13.2.19 of the ES [APP-062] only considers the magnitude of impact on the sandbank Annex I feature of the North Norfolk Sandbanks and Saturn Reef SAC. Why is there no cumulative impact assessment of the second Annex I feature of the SAC, namely the Sabellaria reef?	Paragraph 2.13.2.18 *et seq*. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) presents the cumulative assessment of temporary habitat loss on features of the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC). As outlined in paragraph 2.11.1.43 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, no Annex I reefs were identified during the site specific surveys of the Hornsea Three offshore cable corridor coinciding with the North Norfolk Sandbanks and Saturn Reef SAC. Any residual risks to reefs which may develop prior to construction will be adequately controlled via the mitigation measures adopted as part of the project (see Table 2.18 in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement). Specifically, these include a pre-construction survey to be undertaken to provide a detailed assessment of *S. spinulosa* along the offshore cable corridor which will enable appropriate mitigation measures (e.g. micrositing) to be designed and discussed with the statutory consultees to avoid direct impacts to *S. spinulosa* reef, where possible. These measures are standard mitigation measures which have been applied, and proved to be successful, over many offshore industries. It is therefore assumed that any other projects operating within this SAC would apply similar mitigation should Annex I *S. spinulosa* reefs have the potential to be affected by these projects.

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			Furthermore, the results of the *S. spinulosa* core reef assessment presented in paragraph 2.11.1.47 *et seq*. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement have demonstrated that the Hornsea Three offshore cable corridor is of sufficient width to allow for micrositing around any potential Annex I reef features which may develop prior to construction. On this basis, cumulative effects on potential future Annex I *S. spinulosa* reef, as a result of Hornsea Three and other plans/projects are not predicted and, therefore, an assessment was not required within section 2.13 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement.
Q1.2.34	Applicant	Paragraph 2.13.2.28 of the ES [APP-062] identifies cumulative suspended sediment impacts on VER. Section 2.13.3 also identifies the cumulative long term loss of VER as a result of foundations, scour protection and cable protection. In both instances the significance of the effect is defined as minor adverse. A)Given the high sensitivity of the VER, please explain why the significance of the effect has not been classified as 'minor or moderate' as defined in table 2.17 of the ES? B) If it were classified in this way, how would this alter the findings of the ES?	A) The Applicant refers the Ex.A to the Applicant's response to the MMO's Relevant Representation (RR-085), as submitted at Deadline I. The approach to evaluation of significance of effect is outlined in paragraph 5.3.5.14 Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement (APP-060). The matrix approach, correlating magnitude of the impact and sensitivity of the receptor, has been adopted as a guide, with latitude for professional assessment, where deemed appropriate, in the application of the matrix. Specifically, where the matrix offers a choice of significance levels, professional judgement has been used to determine the most likely outcome. In paragraph 2.9.2.5 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) it is clarified that, in cases where a range is suggested for the significance of effect, there remains the possibility that this may span the significance threshold (i.e. the range is given as minor to moderate). In such cases the final significance concluded in the assessment is based upon the expert's professional judgement as to which outcome delineates the most likely effect. This is consistent with the methodology presented in Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. In the instance of cumulative long term habitat loss, the effect was assessed to be of minor adverse significance rather than moderate adverse significance on the basis that the impact will be highly localised to within the vicinity of each project. Furthermore, as described in paragraph 2.13.3.4 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, if during decommissioning, offshore wind farm structures and oil and gas pipelines are removed, the impacts will be reversible with recoverability of the affected habitats likely, within time scales similar to those outlined in paragraphs 2.11.1.24 to 2.11.1.36 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, following removal of the structures.

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			B) As discussed in response to Part A above, the Applicant is confident in the overall assessment of minor adverse significance and does not consider that is should have been classified as moderate adverse.
Q1.2.35	Applicant	Paragraph A.6 of NE's representation [RR-097] and paragraphs 1.65 to 1.69 of the MMO's representation [RR-085] highlight issues with monitoring before and after the construction phase. Please comment on the points that have been raised and suggest any changes that may be necessary to the DMLs.	The Applicant would direct the Ex.A to the responses to the relevant sections of the MMO (RR-085) and Natural England Relevant Representations (RR-097) as submitted at Deadline I. The Applicant has considered the comments made by the MMO and Natural England on the monitoring commitments and has updated the In Principle Monitoring Plan (APP-182) to reflect the ongoing discussions with the MMO and Natural England on this matter. The updated In Principle Monitoring Plan has been provided in Appendix [2] of the Applicant's response to Deadline I. The Applicant has also updated the relevant sections of the draft DCO and DMLs (Version 1 submitted at Deadline I) which relate to monitoring commitments, to reflect the changes to the In Principle Monitoring Plan.
Q1.2.36	Applicant	Table 2.18 of the ES [APP-062] states that 'appropriate measures' will be discussed with statutory consultees to avoid direct impacts and this is repeated in a number of other instances. Please explain what you mean by appropriate measures. How would a duty to consult and the resultant implementation of any recommendations be controlled through the dDCO and DMLs?	The wording in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) has deliberately not referenced the precise nature of the measures to be implemented to avoid direct impacts to *Sabellaria spinulosa* reefs on the basis that the Applicant considers they should be informed by best practice, and current advice from the statutory consultees, at the time of construction. As per Schedule 11(1)(h) (Generation Assets) and Schedule 12, Part 2, Paragraph 12(1)(h)(Tranmission Assets) of the draft DCO (APP-027), the duty to consult with the statutory consultees on any mitigation measures required within the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC) or The Wash and North Norfolk Coast SAC is secured, and the resultant implementation will be controlled, via the cable specification and installation plan which must be submitted to and signed off by the Marine Management Organisation (MMO) prior to the commencement of licensed activities. The appropriate measures referenced in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement for avoiding direct impacts to *S. spinulosa* reefs, are likely to include micrositing. Micrositing is a standard

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			mitigation measure which has been applied and proved to be successful at reducing direct impacts to *S. spinulosa* reefs, over many offshore industries. This standard approach can also be used to avoid interactions with other seabed features, including unexploded ordinance and archaeological features.
Q1.2.37	Applicant	The Band Model assumes the lowest astronomical tide (LAT) and a gap of around 35m between the turbine blades and the sea. A)How has the modelling accounted for bird strike for low flying species, such as gannets, under conditions of high swell which may reduce the gap? B)How does the model take account of changes in tidal height which may also reduce the gap? C)Is the model realistic in this respect and what information has been used to justify the use of LAT?	A) Collision Risk Modelling was undertaken using the Band (2012) collision risk model, as agreed in the Evidence Plan (APP-035). In the Band (2012), the air gap between the turbine blades and the sea is not a direct input parameter. Instead the air gap is incorporated into the calculation of the proportion of birds at collision height (PCH) either as part of the calculation of a site-specific PCH value (Option 1) or through the calculation processes in the Band model (Options 2 and 3, both of which use generic flight height distributions above the sea surface, included in the model). It is important, however, that the flight heights of birds are considered in the same frame of reference as the turbine design. The data used for flight height distribution and turbine heights (i.e. hub height) need to be calculated using the same reference point with respect to the sea surface, for collision risk modelling this is Mean Sea Level (MSL) and so all measurements are, for modelling purposes, corrected to this datum. For example, the hub height entered into the model is measured at Highest Astronomical Tide (HAT). This is corrected to MSL through the use of the tidal offset parameter. This is identified in Table 1.4 of Volume 5, Annex 5.3: Collision Risk Modelling (APP-109). Site-specific surveys of birds are conducted across long periods of time and therefore at various tidal states. For the purpose of collision risk modelling it is assumed that all bird flight height data is at MSL, as recommended in the guidance supporting the Band (2012) collision risk model. This is because it is assumed that birds orientate their flight height in response to the actual sea surface rather than an arbitrary datum. This is the standard approach used for all site-specific data used to inform assessments for offshore wind farms.

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			B) The calculation of PCH assumes that all bird flight heights are recorded at MSL. There is no function within the model that would allow for consideration in changes in tidal height and therefore it is assumed that there is an equal probability of sea heights above MSL as there are those below.
			C) See above: LAT is not used, MSL is used for bird flight heights and turbine parameters through the use of the tidal offset feature of the collision risk model.
Q1.2.38	NE, Royal Society for the Protection of Birds (RSPB), MMO	Representations from NE [RR-097], RSPB [RR-113] and the MMO [RR-085] consider that an appropriate site specific baseline has not been established. Why do you consider that two years of survey data is essential to provide an appropriate baseline? Given the potential for the variability in the number and distribution seabirds, what increased confidence would be provided by an additional 8 months of data?	The Applicant notes that this question is directed at Natural England, the RSPB and the MMO however, it should be noted that the applicant has collected 20 consecutive months of data from April 2016 to November 2017 (inclusive), which includes two breeding seasons. As discussed throughout the Evidence Plan process (see Consultation Report Annex 1 – Evidence Plan (APP-035)), the Applicant has used data from the wider Hornsea zone to understand the likely density and variability of key species during the period December – March. There is no indication that the Hornsea Three area is of particular importance to key species during this period, nor that the conclusions of EIA or HRA are sensitive to assumptions about the densities that are likely to be observed. It is considered that the approach taken to quantify risk to key species during all seasons in the Hornsea Three location allows for consideration of the appropriate level of precaution and that the assessment conclusions reached on the basis of these risk assessments is robust.
Q1.2.39	Applicant	Paragraph 1.3.2.4 of the ES [APP-107] states that the project analysed boat-based and aerial survey data collected between 1979 and 2011. Paragraph 1.3.3.2 goes on to highlight the 'acute negative impacts' of climate driven changes on marine food webs.	The assessments presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the RIAA (APP-051) are primarily based on contemporary site-specific baseline survey data with contextual data, such as WWT Consulting and MacArthur Green (2013), used to provide additional context. The data from this source has been used to contextualise the proposed Hornsea Three site into a wider context as these data provided, at the time the Application was made, the most recently available information on the distribution and relative abundance of seabirds at a large geographic scale.

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		What are the likely effects of climate change, since 2011, on this baseline and how might this affect the conclusions of the ES?	WWT Consulting and MacArthur Green (2013) uses data collected over a large geographic area and more than 30 year period as a consequence it will already reflect longer term trends in the distribution and relative abundance of seabirds in this region. At the spatial scales being considered in these descriptions and the relatively brief period that has elapsed since the study was published the findings are still considered to be relevant. The effects of climate change on the information presented in WWT Consulting and MacArthur Green (2013) are difficult to identify during this short period of time since 2011, but due to the use of these data as contextual information any effects will not affect the conclusions presented in the EIA and HRA. With respect to quantitative risk assessments for Valued Ornithological Receptors (VOR), these are primarily based on recently collected site-specific survey data. The conclusions reached in the ES (and HRA) are therefore not directly reliant on the information presented in WWT Consulting and MacArthur Green (2013) with these data only used contextually, if required. There is therefore considered to be no effect on the conclusions reached in the ES (and HRA).
Q1.2.40	Applicant	Paragraph 5.2.1 of NE's representation [RR-097] states that only 10% of the digital aerial survey data that covers the study area has been used. Please confirm the extent of your analysis of aerial data and explain why you consider that it is appropriate.	It should be noted that Natural England is referring to 10% of the survey area (ie survey coverage) not that 10% of the data acquired in the survey campaign has been analysed. The Digital Aerial Survey (DAS) method, which was agreed within the EWG (see Appendix D, Section D.2 of Consultation Report Annex 1 – Evidence Plan (APP-035)) used for these surveys uses four high definition digital video cameras. Together these cameras record, using a 2.5km transect separation, up to 20% of the survey area. In common with most surveys using these methods data from 2 of the cameras was analysed, resulting in 10% coverage. The primary purpose of conducting two years of survey is to characterise variability in animal abundance within a site. Increasing the survey coverage can only reduce the error on the abundance estimate for any one survey. Thus increasing the survey coverage from 10% to 20% in this instance will provide improved precision for the months sampled. This has been achieved through other approaches in this instance. While improving the precision in the abundance estimate is inherently a good thing to do, the level of improvement is likely to be driven by a variety of factors, not least the actual abundance of animals present. Animals already present in relatively large numbers will see relatively small gains in precision, as there are already suitable data for estimating abundance with a sufficient level of precision. For animals at very low relative abundance the precision in the abundance estimate may increase more, but these species are likely to be less important for impact assessment because of their low abundance. As a general rule of thumb, as survey coverage increases, the improvements in the abundance estimate becomes less

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			and less useful, as high levels of precision are generally not needed in these situations, where the biggest source of variability is the spatial distribution of the animals themselves at a scale much larger than the sampled area. It is clear that survey coverage of 10 – 20% is the accepted norm for these kinds of surveys. For example StUK 4 in Germany recommends at least 10% site coverage for characterisation surveys. It is surprisingly difficult to determine other levels of coverage in characterisation surveys for digital aerial surveys, but we note that other projects have used similar amounts of coverage to Hornsea Three. Dogger Bank Creyke Beck and Teesside projects all used 14% coverage while Norfolk Vanguard employed "at least 10%". The submitted coverage for Moray West was 10% and Lewis strategic surveys used 10% coverage.
Q1.2.41	Applicant	Paragraph 2.6.1.5 of the ES [APP-110] states that the analysis of four long transects produced a representative sample of bird density. What is the statistical basis for assuming that this sample was representative?	The Applicant can clarify that this paragraph states only that by requiring a minimum of four long transects across the length of the HOW03, this would "be sufficient to represent a suitable north to south coverage of the site". The paragraph goes on to mention that "*suitable east to west coverage of the site can be achieved by rejecting month/year density or population estimates in which all the long transects occur either in the eastern or the western half of Hornsea Three*." These requirements are used to ensure that data used in the assessment are not biased by uneven spatial coverage of the project area. The requirements are based upon basic survey design principles, which feature prominently in Buckland et al. (2001) and require that sample data are representative of the spatial extent of the study area.
Q1.2.42	Natural England	Paragraph 5.2.2 of NE's representation [RR-097] states that the hierarchical data selection method for integrating densities/numbers of species derived from digital aerial and boat-based survey data is flawed. Please explain in more detail why you consider the method to be flawed.	The Applicant notes this Question is directed at Natural England however the Applicant would draw the Examining Authorities attention to Appendix 8 to the Applicants response to Deadline I which outlines a sensitivity testing approach in relation to the baseline characterisation of Hornsea Three

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		What, in your view, are the implications for the findings of the ES and HRA?	
Q1.2.43	Applicant	Paragraph 2.7.1.1 of the ES [APP-110] defines a formula for the calculation of a coefficient of variation for pooled density estimates. A) Was the variance for the different density estimates the same for each month for the digital aerial surveys and the boat-based surveys when used? B) If not, how would this affect the robustness of this statistic?	The paragraph in question describes a method for pooling density estimates from two or more years in the same month and for describing the lower and upper confidence limits for those density estimates. The question seeks to understand if it is important if differences in the variance of the sample data between component years will affect the robustness of the statistics used. A) There will always be different amounts of variation underlying any mean density estimate for different years in any given month, regardless of which method has been used to collect the data. This is typical for all seabird density data at sea, where there is usually a degree of variation between years in both the density estimates and the variance for those estimates. For example, where two years of digital aerial data were used to calculate the pooled density, coefficient of variation and confidence limits, the variance for the density estimates will have differed from each other in exactly the same way as the variance differed between those months which pooled the density across different survey methods. B) We have not found any published reference that states that pooling the abundance or density estimates is any less robust when the variances are dissimilar than when they are similar. The only effect of pooling in this way is that the pooled variance and coefficient of variance will usually be higher than the variance of the contributing estimate with the lowest variance, and consequently, the confidence limits will be wider for the pooled estimates. This is a robust way of capturing the variance in the data used to pool flying bird density estimates to calculate lower and upper confidence limits of the pooled density estimate and has no negative implications for the way that these estimates are used in the subsequent assessment.

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Q1.2.44	Applicant	Paragraph 2.7.1.2 of the ES [APP-110] states that the calculation of upper and lower confidence intervals assumed a normal distribution about the mean. How has this assumption been tested?	The mean and upper and lower confidence limits of the component data were calculated using a bootstrapping method. Since this is a non-parametric technique, the distribution of the underlying data is ignored, and the distribution of the bootstrapped data will tend to normality as the number of bootstrap samples increases (see Efron and Tibshirani (1993). It is not possible to test whether the pooled distribution has a normal distribution with sample sizes of two or four. Similarly, examining the distributions of the component years' data does not work, as this is not the basis of this assumption, which is a pooled mean with confidence limits. The method employed is a robust technique to calculate lower and upper confidence limits for a pooled flying bird density estimate based on a low number of years of data. This method is more robust than using the highest and lowest density values of the component years, which does not account for the underlying variance in each of those component values.
Q1.2.45	Applicant	Figure 5.1 of the ES [APP-065] shows four different ornithological study areas. Please provide a diagram that depicts the different areas and sampling intensity of the digital aerial survey and boat-based surveys with the boundaries of the different ornithological study areas clearly indicated.	At Appendix 39 to the Applicant's response to Deadline 1 the Applicant has provided figures to show the different areas and sampling intensity for the Hornsea Three Ornithological surveys.
Q1.2.46	Applicant	Figure 5.7 of the ES [APP-065] shows gannet foraging density kernels that have been derived from satellite tracking studies. Please provide a revised figure that also shows the array area and export cable corridor.	This figure is taken from Langston *et al.* (2013) and was not produced by the Applicant. The location of Hornsea Three was identified in the version of the figure (Figure 1.18) presented in RIAA Annex 3 – Phenology, Connectivity and Apportioning (APP- 054) using a red star. The Applicant has however, requested the underlying Kernel Density Estimation data layer from the RSPB and will provide a more detailed figure when the data is received.

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Q1.2.47	Applicant	Paragraph 1.3.2.8 of the ES [APP-107] describes the importance of the 'Flamborough Front' and paragraph 1.3.2.10 goes on to stress the importance of Dogger Bank and Brown Ridge as key feeding areas. How have the nutrient upwellings and greater primary productivity associated with these areas informed the Valued Ornithological Receptors mean density surfaces and the conclusions of the ES?	Following relevant guidance (CIEEM, 2010), VOR were identified on the basis of their conservation status and importance, the latter being informed by their relative abundance within the project area. This abundance of seabirds within the survey area will reflect a range of environmental drivers, including the proximity of fronts and upwellings etc. The survey area for digital aerial surveys comprised the proposed wind farm plus a 4km buffer. Survey data from the wider Hornsea zone were obtained over a much larger geographic area. It is considered, therefore, that any influence of features such as the Flamborough Front are inherently reflected in the observed densities and distributions of seabirds recorded during surveys, which in turn is a factor in the identification of VORs and the baseline data that are used for risk assessment. These risk assessments inform the impact assessment and the conclusions of the ES.
Q1.2.48	Applicant	Paragraph 1.3.2.18 of the ES [APP-107] states that seabird abundance is influenced by three large geographic sectors, as shown in figure 1.3. A) Please elaborate on the relevance of this broad classification in terms of its influence on the distribution and abundance of prey items at the scale of the array and cable export corridor. B) Please explain how this has informed the conclusions you have reached in the ES.	A) The use of the broad classifications as defined by Stone *et al.* (1995) allows for consideration of Hornsea Three in a regional context and provides information on the general trends and distribution of birds and in-combination with other contextual information sources allows for consideration of the underlying factors that may influence this distribution (e.g. abundance of prey items) that occur in these different areas. This information supplements site-specific information upon which much greater weight is placed in terms of the assessments presented. B) Following relevant guidance (CIEEM, 2010), Valued Ornithological Receptors (VOR) were identified on the basis of their conservation status and importance, the latter being informed by their relative abundance within the project area. This abundance of seabirds within the survey area will reflect a range of environmental drivers, including the proximity of fronts and upwellings etc. The survey area for digital aerial surveys comprised the proposed wind farm plus a 4km buffer. Survey data from the wider Hornsea zone were obtained over a much larger geographic area. It is considered, therefore, that the factors that inform the broad classifications presented in Stone *et al.* (1995) are reflected in the observed densities and distributions of seabirds recorded during surveys, which in turn is a factor in the identification of VORs and the baseline data that are used for risk assessment.

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Q1.2.49	Applicant	Paragraph 1.6.1.2 of the ES [APP-107] states that species occurring in the Hornsea Project Three array area were identified using site-specific aerial surveys whilst those within the cable corridor were identified as part of the designation process for the Greater Wash pSAC. Please elaborate on what data were used to establish the baseline populations for the export cable corridor.	The baseline populations used for assessments in Volume 2, Chapter 5: Offshore Ornithology (APP-065) are sourced from Lawson *et al.* (2015) and represent the regional population (the Greater Wash) of relevant species. In the RIAA (APP-051) the designated populations for the Greater Wash pSPA have been used (note that the pSPA has now been fully designated. The derivation of these populations is fully explained in Lawson *et al.* (2015) and the documentation supporting the designation of the Greater Wash SPA. The use of these populations represents the best available data for these species within the Greater Wash and is in line with standard offshore wind industry practice, providing biologically appropriate reference populations against which impacts can be assessed. The approach applied is consistent with the approach applied for all species throughout Volume 2, Chapter 5: Offshore Ornithology (APP- 065) and the RIAA (APP-051) when defining regional populations (i.e. using desk-based sources as regional populations cannot be defined using only site-specific survey data).
Q1.2.50	Applicant	Table 1.4 of the ES [APP-107] shows the definition of biological seasons for the species that may be affected by the proposal. A) Why have you not used the standard definition of biological seasons as set out in Furness (2015) and recommended by NE and RSPB? B) If the standard definition were used, how would this alter the findings of the ES?	A) The 'standard' seasonal definitions are presented in Furness (2015) and represent generic time periods which apply to large sea areas (e.g. the English Channel to Shetland) across which differences in bird phenology will occur. The definition of breeding seasons in Furness (2015) was based on analysis of non-breeding periods and therefore are not necessarily representative of the phenology of birds at FFC pSPA or at Hornsea Three. During the Evidence Plan process, Natural England recommend that, where possible colony or site-specific seasons should be used and through the analysis in RIAA Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA (APP-054), the Applicant has defined site-specific seasonal definitions. This approach utilised an analysis of survey data from a number of offshore wind farms in the North Sea (see Section 1.2 in RIAA Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA) and, with the exception of puffin for which the analysis suggested a more refined breeding season definition, are consistent with those recommended and used by Natural England during the examination of the Hornsea Project Two offshore wind farm. It should be noted that it is not clear why Natural England's position has changed as no new evidence is available.

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			B) Using the 'standard definitions' would alter the seasonal definitions for gannet, kittiwake and puffin only. For gannet, the number of collisions in the breeding season would increase by 25% with the number of collisions when using Option 2 increasing to over 1% of baseline mortality in the breeding season. However, the conclusions in the ES would remain valid as it is considered that Option 2 over-estimates the number of collisions at Hornsea Three due to the use of a generic flight height distribution which is not representative of bird behaviour at Hornsea Three. For kittiwake, the number of collisions in the breeding season would increase by approximately 24% with the number of collisions when using Option 2 at a 98.9% avoidance rate increasing to over 1% of baseline mortality in the breeding season. However, the conclusions in the ES would remain valid as it is considered that Option 2 over-estimates the number of collisions at Hornsea Three due to the use of a generic flight height distribution which is not representative of bird behaviour at Hornsea Three. There would be no change to the magnitude of displacement impacts for puffin as the peak populations for puffin used to calculate a mean-peak population occur in May of both years with May included in the breeding season definition defined by the Applicant. It should be noted that the 'standard definitions' are different to those previously applied by Natural England during the examination of the Hornsea Project Two wind farm (specifically see paragraphs 3.47 to 3.51 of Natural England's submission at Deadline 5 of the Hornsea Project Two examination for kittiwake).
Q.1.2.51	NE	Paragraph 5.2.6 of NE's representation [RR-097] states that a considerably higher confidence and emphasis should be placed on the use of colony data to inform colony specific breeding seasons. Please explain why more confidence should be placed on colony specific data rather than 'at sea'	Hornsea Three is located 150 km from FFC pSPA and in terms of the calculation of impacts the phenology of birds at Hornsea Three is fundamentally more important than the phenology of birds 150 km away (i.e. beyond the foraging range of the majority of key species) at FFC pSPA. There is no colony-specific data publicly available for FFC pSPA. The Applicant has contacted the RSPB who are the colony managers and are unable to provide further information that would assist Hornsea Three.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		abundance data to define the length of the breeding season. Please provide a summary of the key findings and associated caveats of any peer reviewed evidence that supports your view. How would the use of colony data most likely alter the findings of the ES and the HRA?	The Applicant has based the seasonal definitions for key species at FFC pSPA on survey data (collected to support planning applications for offshore wind farms throughout the English North Sea) and contextual information on the movements of birds. This is presented in RIAA Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA (APP-054) and is considered to accurately reflect the phenology of birds at Hornsea Three (i.e. where impacts will occur). The seasonal definitions used throughout assessments for all species (with the exception of puffin) are consistent with those advised and used by Natural England as part of their assessments produced for Hornsea Project Two (see Natural England's submissions at Deadline 3 and Deadline 5, specifically paragraphs 3.47 to 3.51 for Hornsea Project Two). It is not clear why Natural England's position has changed as no new publically available scientific evidence or colony data has been published. As no colony data are available, it is not possible to identify how such data may alter the findings of the ES and HRA, if at all.The Applicant considers that the seasonal definitions used are informed by the best available evidence, including information relating to the phenology, distribution and movements of birds in addition to survey data collected throughout the southern North Sea and are robust and appropriately precautionary.
Q1.2.52	Applicant, NE	The RSPB [RR-113] considers that herring gull should not have been scoped out of the impact assessment. Please can the Applicant comment on this point. Does NE think that herring gull should have been identified as a Valued Ornithological Receptor?	The only impact associated with Hornsea Three for which herring gull would be considered vulnerable is collision risk. The densities of herring gull recorded in flight during baseline surveys at Hornsea Three were not considered to be high enough to warrant the identification of herring gull as a VOR. A VOR was identified where the numbers present at Hornsea Three plus a 4 km buffer exceeded the 1% threshold of the regional population in any season. It was considered that any impacts on species occurring in numbers of less than 1% of the relevant regional population would not be significant. This process was not however, applied as a definitive threshold with expert judgement also used to identify species for which this threshold may not have been applicable and therefore ensure that species were not erroneously omitted from further assessment.

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		If not, why not?	During post-submission consultation with the RSPB, as a good will gesture, the Applicant agreed to conduct collision risk modelling for herring gull. This exercise was conducted in order to provide the RSPB with the detail requested and not because the Applicant accepted that herring gull is a VOR which merited collision risk assessment in the ES This is contained within Appendix 12. This note concludes: "*The number of collisions for herring gull as a proportion of the relevant reference population using either of the three Band model Options is considered to be negligible. There would therefore be no significant effects on the status of herring gull as a result of the operation of Hornsea Three. This supports the conclusion to discount herring gull as a VOR in Volume 5, Annex 5.1: Baseline Characterisation Report (APP-107).*"
Q1.2.53	Natural England, RSPB	Paragraph 5.9.2.12 of the ES [APP-065] states that displacement effects along the cable corridor were assessed using seasonal mean population data derived from Lawson and others (2015). Do you agree that this survey data should be used to calculate displacement from the export cable corridor?	The Applicant notes this question is directed at Natural England and the RSPB and the Applicant does not have anything further to add on this for Deadline I.
Q1.2.54	Natural England	Paragraph 5.2.5 of NE's representation [RR-097] states that there is a need to account for uncertainty associated with natural variability and the underlying data sources.	The Applicant notes this question is directed at Natural England but would highlight that the uncertainty and variability associated with collision risk estimates has been taken into account in the assessments presented in both the ES and RIAA (for example see paragraph 5.11.2.107 in Volume 2, Chapter 5 Offshore Ornithology of the Environmental Statement (APP-065)). Collision risk estimates calculated using confidence metrics associated with density data, flight height distribution and avoidance rate are presented in Volume 5, Annex 5.3: Collision Risk Modelling (APP-109). The use of a mean-peak populations for displacement analysis is considered to take into account the year to year variation in seabird abundance with this approach consistent with that advised by JNCC et al. (2017). It is not

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		Please explain how you would expect to see the information on uncertainty and the variability of input parameters, such as bird densities, incorporated into the assessment of displacement effects?	considered appropriate to use the confidence limits associated with population estimates to calculate mean-peak populations as such confidence metrics are independent and describe the variability around individual population estimates. Averaging these confidence intervals is therefore not a valid statistical approach and does not describe the variability around the mean-peak population estimate.
Q1.2.55	Applicant	Table 1.4 of the ES [APP-109] expresses hub height in metres above the Highest Astronomical Tide (HAT) rather than metres above the Lowest Astronomical Tide (LAT). If LAT were used as a parameter rather than HAT how would this alter the findings of the ES?	The change proposed would not make any difference to the findings of the ES [APP-109] as these parameters are corrected to MSL for the purposes of collision risk modelling. Please refer to our response to Q1.2.37.
Q1.2.56	Natural England	Paragraph 5.9.3.4 of the ES [APP-065] refers to the use of mean estimate/maximum likelihood methods to estimate collision risk. Please explain in more detail why you consider that these methods do not account sufficiently for variability and uncertainty within the collision risk modelling (CRM)?	The Applicant notes this question is directed at Natural England and and the Applicant does not have anything further to add on this for Deadline I.

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Q1.2.57	Applicant	Paragraph 5.9.3.4 of the ES [APP-065] states that it would be inappropriate to apply lower and upper confidence intervals for all parameters in the CRM. A) Please explain why, with reference to statistical inference, this would provide unrealistic estimates of the collision risks associated with the proposal. B) Why were only bird density and flight height selected as the parameters for the upper and lower confidence intervals of the CRM?	A) The use of upper and lower confidence limits associated with the metrics identified describe the variation in these parameters. Essentially, when estimating these parameters, the use of 95% confidence limits indicates that 95% of predicted values would fall within the range of the confidence intervals. There is no statistically robust way in which these confidence intervals could be combined and combining confidence limits for multiple parameters would not provide a collision risk estimate that would describe the confidence around the mean collision risk estimate. The resulting value would in fact be meaningless and represent a considerable over- or under-estimate of the likely collision impact. Previous assessments including those conducted by Natural England at Hornsea Project Two have considered the confidence intervals for different parameters individually (for example see Natural England submission at Deadline 3 during the examination of Hornsea Project Two). The assessments presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the RIAA (APP_051) consider the variability associated with density data, flight height distribution and avoidance rates with a full range of collision risk estimates presented in Volume 5, Annex 5.3: Collision Risk Modelling) (APP-109). The implications of variability in these parameters is discussed in all relevant assessments presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the RIAA (APP-051) (see for example paragraph 5.11.2.107 in Volume 2, Chapter 5: Offshore Ornithology (APP-065)). It is important to note that the collision risk estimates predicted when using the upper and lower confidence intervals associated with relevant parameters describe the range within which the true collision risk estimate would fall. It is therefore statistically inappropriate to use the collision risk estimates associated with the upper or lower confidence intervals to suggest that this would be the actual number of collisions and instead, these should be used to inform the confidence that can be placed in the predicted best estimate of collision risk and thus inform any assessments conducted.
			B) In addition to the confidence intervals associated with density and flight height distribution, collision risk estimates calculated using the confidence intervals using the confidence intervals associated with avoidance rate are also presented in Volume 5, Annex 5.3: Collision Risk Modelling (APP-109).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			Density data, flight height distribution and avoidance rates are the three parameters for which there is likely to be the largest level of variability and as such it is these three parameters that have been incorporated into collision risk modelling with this approach welcomed by Natural England (Natural England's Discretionary Advice provided 16th February 2018).
Q1.2.58	Applicant	Paragraph 5.13.3.93 of the ES [APP-65] states that correction factors were applied to the CRM for different species. Please provide a copy of the publication that underpins these corrections (MacArthur Green (2017) - Estimates of Ornithological Headroom in Offshore Wind Farm Collision Mortality. The Crown Estate).	MacArthur Green (2017) - Estimates of Ornithological Headroom in Offshore Wind Farm Collision Mortality is provided at Appendix 43 to the Applicant's response to Deadline 1.
Q1.2.59	Natural England	Paragraph 5.2.3 of NE's representation [RR-097] questions the way in which nocturnal activity factors (NAF) have been applied to some species in the CRM. Please explain why you consider that the parameterisation of NAFs is wrong. How do you say it should be improved? Can you refer to any appropriate peer reviewed literature to support your view?	The Applicant notes this question is directed at Natural England however, the Applicant would draw the Examining Authorities attention to Appendix 10 to the Applicants response to Deadline I which provides additional information in relation to the nocturnal activity factors used for collision risk modelling and an explanation as to why those historically used for collision risk modelling are highly likely to over-estimate collision risk.

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Q1.2.60	Applicant	The RSPB [RR-113] questions the changes in NAF for kittiwake and gannet. Please comment on the points made by the RSPB and justify your approach. Can you refer to any appropriate peer reviewed literature to support your view?	At Hornsea Three a literature review of relevant studies was conducted for four of the species identified for collision risk modelling (gannet, kittiwake, lesser black-backed gull and great black-backed gull) with this review identifying that the classification of nocturnal activity by Band (2012) based on information presented in Garthe and Hüppop (2004) was over-estimating nocturnal activity (Appendix D of Volume 5, Annex 5.3: Collision Risk Modelling (APP-109)). The nocturnal activity factors applied in collision risk modelling by the Applicant were identified based on best available evidence (see Appendix D of Volume 5, Annex 5.3: Collision Risk Modelling (APP-109) and are those recommended for use by Scottish SNCBs. The change in nocturnal activity for kittiwake (i.e. from 3 to 2) is consistent with that advised by the RSPB for offshore wind farm projects in Scotland (see for example the Scoping Opinions submitted for the Forth and Tay offshore wind farm projects). The nocturnal activity factors used for gannet and kittiwake are based on empirical evidence as detailed in Appendix D of Volume 5, Annex 5.3: Collision Risk Modelling (APP-109). There is a significant, growing body of evidence, that suggests the percentage rates assigned to the nocturnal activity rates presented in Garthe and Huppop (2004) by Band (2012) lead to over-estimates of collision risk with the rates proposed by Band (2012) not based on any scientific evidence. The use of percentage rates was also not the intention of Garthe and Hüppop (2004) with these scores not intended to represent quantifiable rates of nocturnal activity rather they were intended to indicate that those bird species that scored higher were more likely to show more nocturnal flight activity than those that scored lower (Furness et al. 2018). The quantification of the rates of nocturnal activity in Garthe and Hüppop (2004) by Band (2012) was therefore incorrect and considerably over-estimates the actual level of nocturnal activity exhibited by birds. A recently published paper (Furness *et al.,* 2018) presents nocturnal activity rates for gannet based on empirical evidence. A similar exercise is also being conducted for kittiwake, with preliminary results presented in the planning

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			application for the Norfolk Vanguard offshore wind farm. The rates presented support the use of lower nocturnal activity rates as applied in the collision risk modelling for Hornsea Three. The implications of using these rates has been investigated in Appendix 10 to the Applicants response to Deadline I and it is considered that these rates now represent the best available evidence in relation to nocturnal activity factors. The RSPB state that peaks in the abundance of birds at first light have not been accounted for in the nocturnal activity factors recommended by Furness *et al.,* 2018) (for example). However, peaks in abundance that may occur at first light should not be accounted for by increasing the nocturnal activity factor which is used in the collision risk model to calculate the collision risk at night. The nocturnal activity rate used represents the activity expected as a proportion of daylight activity. As such, the application of a nocturnal activity factor does not require consideration of peaks in activity that may occur at first light as the amount of nocturnal activity is the same regardless of the activity that occurs in daylight hours. Therefore if an increased amount of daylight activity is expected (e.g. at sunrise), the nocturnal activity factor used in the model would be scaled to ensure the same amount of nocturnal activity was assumed in the model. Uncertainty in relation to the abundance of birds at a project (e.g. due to peaks at first light) should not be captured by arbitrarily increasing defined parameters, instead this form of uncertainty should form part of the avoidance rate (which represents bird avoidance behaviour and corrections for various assumptions made in the collision risk model). It is worth noting that Marine Scotland have previously stated that the RSPB's position appears to conflate nocturnal activity with colony attendance, foraging activity and timing of at-sea surveys and lacks an adequate empirical basis (see the Scoping Opnion's submiited for the revised application for the Neart na Gaoithe, Inch Cape and Seagreen offshore wind farms (e.g.Marine Scotland – Licensing Operations Team, 2017).

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Q1.2.61	Natural England, RSPB	Appendix B of the ES [APP-109] outlines the approach to CRM that was applied to migratory seabirds. Notwithstanding your concerns about the baseline data and model parameterisation, do you agree with the underlying approach that was used for the CRM for migratory seabirds? If not, why not?	The Applicant notes this question is directed at Natural England and the RSPB however, would like to state that migratory collision risk modelling is not based on site-specific information. The approach applied is also the standard approach that has been applied as part of the assessments conducted for multiple offshore wind farm projects.
Q1.2.62	Applicant	Paragraph 1.3.2.2 of the ES [APP-109] states that ongoing research is looking at the avoidance behaviour of seabirds at offshore wind farms. Please can you provide a summary of any peer reviewed publications or empirical observations that have been published since the application was submitted and highlight any implications that this might have for the CRM parameterisation.	The Applicant has provided Skov *et al.* (2018) at Appendix 41 and and Furness *et al.* (2018) at Appendix 40 to the Applicant's response to Deadline 1. The Applicant has produced a clarification note as presented at Appendix 10 to the Applicants response to Deadline I that investigates the effect on collision risk impacts as a result of using updated best available evidence. The clarification note includes consideration of nocturnal activity factors (Furness *et al.,* 2018; MacArthur Green, 2018), bird flight speed (Skov *et al.,* 2018) and avoidance rates (Skov *et al.,* 2018) with considerable reductions in collision risk identified for kittiwake. It is considered that the collision risk estimates presented in (add reference) are based on the best available evidence and as such are the most accurate quantification of this impact upon offshore ornithological receptors present at Hornsea Three.

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Q1.2.63	Applicant	Section 3 of the ES [APP-110] contains species accounts that apply analytical results to displacement analysis and CRM for key species. Why are there no tables showing seasonal means for black-legged kittiwake, lesser black-backed gull and great black-backed gull?	Seasonal means are used in displacement analyses and therefore have only been calculated for those species considered vulnerable to displacement impacts. Kittiwake, lesser black-backed gull and great black-backed gull are not sensitive to displacement impacts (Wade *et al.,* 2016) and therefore seasonal means do not need to be calculated.
Q1.2.64	Natural England, RSPB	Appendix C of the ES [APP-109] outlines the approach to CRM that was applied to migratory water birds. Notwithstanding your concerns about the baseline data and model parameterisation, do you agree with the underlying approach that was used for the CRM for migratory water birds? If not, why not?	The Applicant notes this question is directed at Natural England and the RSPB however, would like to state that the approach applied is the standard approach (Wright *et al.,* 2012 or Migropath) that has been applied as part of the assessments conducted for multiple consented offshore wind farm projects (e.g. Hornsea Project Two, East Anglia Three).

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Q1.2.65	Natural England, RSPB	Paragraphs 5.11.2.84, 5.11.2.205 and 5.11.2.221 of the ES [APP-065] identify the potential impacts associated with habitat loss, barrier effects and lighting. Notwithstanding your concerns about the baseline data, do you agree with the underlying approach that has been used to assess these impacts and the resulting conclusions? If not, why not?	The Applicant notes this question is directed at Natural England and the RSPB however, would like to state that the analyses conducted for these impacts are not reliant on site-specific baseline data and follow a standard approach that has been applied as part of the assessments at multiple consented offshore wind farm projects (e.g. Hornsea Project Two).
Q1.2.66	Natural England, RSPB	Paragraph 5.13.3.29 of the ES [APP-065] outlines the difficulties of evaluating the cumulative effects on the non-breeding component of the North Sea razorbill population. Do you agree that the complexities of the razorbill population structure preclude attempts to compare predicted displacement effects? If you do not agree, how might such an assessment be undertaken?	The Applicant notes this question is directed at Natural England and the RSPB however, despite the difficulties of evaluating cumulative effects on the non-breeding component of the North Sea razorbill population, the Applicant has provided a detailed assessment in paragraphs 5.3.13.28 to 5.13.3.58.

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Q1.2.67	Natural England, RSPB	Paragraph 5.9.2.9 of the ES [APP-065] highlights guidance that recommends the use of a 4km buffer for divers and sea ducks. Paragraph 5.9.2.10 goes on to state that the displacement analysis for the cable corridor only included a 2km buffer. Do you agree with the choice of buffer zone for the cable corridor given the presence of common scoter and red-throated diver?	The Applicant notes this question is directed at Natural England and the RSPB however it should be noted that the guidance referred to is in reference to impacts occurring at an array area. The use of a 2 km buffer for a cable route is based on advice provided by Natural England at a number of offshore wind farm projects (e.g. Norfolk Vanguard and Thanet Extension.
Q1.2.68	Applicant	Table 5.8 of the ES [APP-065] states that the maximum design scenario (MDS) for direct displacement or disturbance would be a duration of eight years, assuming a two phase construction programme. A) Please explain why this was chosen as the MDS. B) Why would disturbance and displacement be any greater than it would for two consecutive phases given that the absolute period over which construction activity would take place would be the same?	A) The construction phase will last up to eight years over two phases. A gap of up to three years will occur between an activity finishing in the first phase and starting in the second phase of construction thus providing a temporal period of up to eleven years assuming a two phase construction. This is considered, on a precautionary basis, to represent the worst case scenario as it is longest temporal period across which impacts could occur. B) In practice it is unlikely that any impact would be greater if the phased approach were to be adopted. However, on a precautionary basis, the phased approach, representing a longer temporal period across which impacts would occur, was selected as the worst case scenario.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.2.69	Applicant, NE, RSPB	Paragraph 1.3.3.2 of the ES [APP-108] outlines how predicted displacement mortality was evaluated when it exceeds a 1% background threshold. Paragraph 5.9.4.1 of the ES [APP-065] sets out the impact assessment criteria. A) Please can the Applicant explain how these two approaches relate to one another in the determination of the significance of effects in section 5.9.4 of the ES [APP-065]. B) Please can the Applicant explain how the levels of background mortality have been derived and outline any peer-reviewed, empirical evidence that supports the approach. C) Do NE and RSPB agree with the comparison of predicted mortality against background mortality as a means of determining the significance of any negative effects on bird populations? If NE and/or RSPB do not agree, how might such an assessment be undertaken? Are NE and RSPB satisfied with the way in which the predicted seasonal mortality has	A) With respect to displacement 1% of baseline mortality is indicated to aid interpretation of the magnitude of a predicted impact. If the mortality from an impact represents less than 1% of the baseline mortality for the relevant reference population then it points to a magnitude of impact (in EIA terms) that is very low, as it represents a very small change (by definition) of that reference population. The origin of the 1% criterion as an indication of small changes in a population is explained below. It should be noted that, in this assessment, 1% of background mortality is not treated as a threshold but an indication of the magnitude of an impact which is considered together with other factors as set out in paragraphs 5.9.4.16, 5.9.4.17 and Table 5.14 of the Environmental Statement (APP-065). The use of the 1% baseline mortality in this way was discussed and agreed as part of the Evidence Plan process (see Section D5 of Appendix D of the Consultation Report Annex 1 – Evidence Plan (APP-035)). B) Background mortality is calculated by multiplying the relevant reference population by the mortality rate of the species in question. The source of reference populations is presented in Table 1.5 of Volume 5, Annex 5.1: Baseline Characterisation Report (APP-107) with mortality rates calculated as the inverse of the survival rates presented in Horswill and Robinson (2015). The use of 1% of baseline mortality to understand the likely magnitude of an impact derives from attempts to interpret Article 9(1)(c) of the Birds Directive (Council Directive 79/409/EEC on the conservation of wild birds ("The Birds Directive"). This article provides a derogation from the provisions of the Directive to allow the taking of "small numbers" of birds for hunting purposes. The ORNIS committee was tasked with identifying what "small numbers" constituted and advised, for practical purposes, that this could be considered to be a number less than or equivalent to 1% of the baseline mortality of the relevant population. This was seen to be a reasonable threshold because mortality of this level would have a negligible effect on the population dynamics of the species concerned and because the parameters of population dynamics are seldom known to within less than 1 percentage point and bird taking amounting to less than 1% can be ignored from a mathematical point of view in model studies. See paragraph

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		been presented in section 1.4 of the ES [APP-108]?	3.5.33 of "Guidance document on hunting under Council Directive 79/409/EEC on the conservation of wild birds "The Birds Directive" " European Commission DOC/ORN. 04/02.
			C) The Applicant notes the part of the question directed at Natural England and the RSPB and would draw the Examining Authorities attention to the Evidence Plan meeting minutes presented in Section D5 of the Consultation Report Annex 1 – Evidence Plan (APP-035) where the approach applied by the Applicant was recommended by Natural England and accepted by the RSPB.
Q1.2.70	Natural England, RSPB	Table 5.9 of the ES [APP-065] summarises the assessment criteria for displacement effects and mortality rates for the array area. Do you agree with the displacement and mortality rates and if not, what values would you recommend?	The Applicant notes this question is directed at Natural England and the RSPB however, would like to highlight that the displacement rates and mortality rates applied by the Applicant are based on an extensive literature review representing the best available evidence. Displacement analyses also present displacement mortality across the full range of displacement and mortality rates.

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Q1.2.71	Applicant	Table 5.17 of the ES [APP-065] summarises the displacement mortality for red-throated diver for the cable corridor area. Please provide the equivalent tables for fulmar, gannet, puffin, razorbill and guillemot for the cable corridor and array areas.	The assessments for gannet, guillemot, razorbill and puffin in relation to disturbance during the construction phase are provided in Section 5.11.1 of Volume 2, Chapter 5: Offshore Ornithology (APP-065). Fulmar is not considered vulnerable to impacts associated with disturbance in the construction phase and was therefore scoped out of consideration. Gannet is also not considered vulnerable to disturbance impacts due to construction activities associated with cable installation and is therefore scoped out of consideration however, the species is considered for disturbance impacts occurring at the array area during the construction phase. Baseline data is unavailable for the cable corridor and therefore it is not possible to provide equivalent tables for guillemot, razorbill and puffin for the cable corridor. This does not however, limit the assessment provided as it is considered unlikely that the cable corridor represents an important area for these species and the magnitude of any impact is considered to be lower than that associated with impacts occurring at the array area. The equivalent values for these species at the array area are presented in Volume 5, Annex 5.2: Analysis of Displacement Impacts on Seabirds (APP-108) and in the relevant species assessment sections in Volume 2, Chapter 5: Offshore Ornithology (APP-065).
Q1.2.72	NE	Paragraph 5.2.4 of Natural England's representation [RR-097] highlights a concern over the mean seasonal peaks that were used to calculate displacement mortality for gannet and puffin. Please explain why you consider that the values that have been used are inadequate. What effect do you think this is likely to have had on the impact assessment and the HRA?	The Applicant notes this question is directed at Natural England but would draw the Examining Authorities attention to the Applicant's response to paragraph 5.2.4 in the Natural England Relevant Representation (RR-97) as submitted at Deadline 1...

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Q1.2.73	Applicant	Paragraph 5.11.2.115 of the ES [APP-065] states that the collision risk for gannets is negligible. Paragraph 5.11.2.107 states that more than 1% of the regional breeding population would be affected if flight height data are considered. A lower mortality rate is also given in paragraph 5.11.2.106. Please explain these apparently contradictory statements.	If using the upper 95% confidence limit flight height distribution from Johnston *et al.,* (2013) in collision risk modelling for gannet (as in paragraph 5.11.2.107), the resulting collision risk estimate in the breeding season represents more than a 1% increase in the baseline mortality of the regional population. The values used for assessment (i.e. those presented in paragraph 5.11.2.106) are those calculated using the maximum likelihood values for flight height distribution with these considered to provide a statistically robust figure against which assessments can be made. The confidence that can be placed in the collision risk estimates calculated using the maximum likelihood value for flight height distribution is described through the use of upper and lower confidence limits. The upper and lower 95% confidence limits describe the range of values within which the true collision risk estimate lies with a 95% certainty (i.e. the variability). This range is described by a bell shape and if input parameters were randomly sampled and modelling conducted multiple times, there would be a higher frequency of values towards the middle of the bell shape. To provide a statistically robust value, the mean (or maximum likelihood) value is used. Assessments should not be based on the collision risk estimate derived when using the upper confidence limit (or the lower confidence limit) as these describe the variability and do not provide a value upon which assessments should be based. It would be incorrect and grossly over-precautionary to apply the upper confidence limit for all parameters in the CRM. For assessment purposes, it is however important to acknowledge the variability associated with input parameters (as the Applicant as done for gannet in paragraph 5.11.2.107 of Volume 2, Chapter 5: Offshore Ornithology (APP-065)), the collision risk estimate derived from using the mean/maximum likelihood estimate is considered to be statistically robust. Although Band (2012) suggests replacing the central estimate of the proportion in each height band by its upper confidence limit when estimating collision risk, this is not an appropriate method as the proportion of birds at different flight heights are not independent of one another.

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Q1.2.74	Applicant	Paragraph 5.2.3 of NE's representation [RR-097] raises concerns over the application of Option 3 of the Extended Band Model in estimating the collision risk to gannet, kittiwake, lesser black-backed gull and great black-backed gull. Please explain how the assessment of the significance of the effects of collision related mortality would alter if the assessment were based solely on the outcomes of the Basic Band Model, Option 2, using the avoidance rates recommended by the Statutory Nature Conservation Bodies.	It is important to note that the assessments for Hornsea Three alone have not been based solely on the results from Option 3, as suggested by Natural England and the RSPB in their Relevant Representations. Instead the Applicant has considered collision risk estimates from all collision risk model Options and relevant avoidance rates, following the guidance of the SNCBs and Band (2012). Consideration is then given to the Option that is considered to best represent the collision risk posed to each species at Hornsea Three. The use of Option 2 only to inform assessments would potentially increase the significance level assigned to species as part of assessments as Option 2 provides the highest collision risk estimates for all species considered at Hornsea Three. However, it is considered that it is not appropriate to base decisions solely on Option 2 as this option over-estimates the collision risk. Option 2 utilises generic flight height distribution data (from Johnston *et al.* (2013)) which is not considered to accurately reflect the flight height behaviour of birds at Hornsea Three as illustrated by data collected as part of the extensive boat-based survey programme conducted to support the applications for the Hornsea Project One and Hornsea Project Two offshore wind farms. These data were collected using well established and widely applied boat-based survey methods as discussed as part of the submission made by the Hornsea Project Two applicant as part of their Deadline 4 submission. It should be noted that during the examination of the Hornsea Project Two offshore wind farm, Natural England queried the use of the aforementioned boat-based data. In order to address the issues raised the Hornsea Project Two applicant incorporated a upper confidence metric and calculated the proportion of birds at collision height based on this metric. Natural England agreed with this approach and subsequently used collision risk estimates from Option 1 to inform their assessment conclusions (see the Memorandum of Understanding between the Hornsea Project Two applicant and Natural England submitted at Deadline 7 of the examination of Hornsea Project Two).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.2.75	Applicant, NE, RSPB	Paragraph 5.7.2.95 of the ES [APP-065] states that the maximum foraging distance for kittiwake was determined from published evidence in Thaxter and others (2012). A) Could the Applicant explain how these estimates have been derived and to what extent they have been validated by satellite tracking data for the Valued Ornithological Receptors that may be affected by the project? B) Are NE and RSPB satisfied that the estimated maximum foraging distances are robust?	A) It should be noted that Paragraph 5.7.2.95 refers to both Thaxter *et al*. (2012) and the results of tracking from FFC pSPA as part of the FAME project. Whilst Hornsea Three lies beyond the maximum foraging range for kittiwake indicated by Thaxter *et al.* (2012), ie 120km, the assessment has assumed connectivity as indicated by the result of FAME tracking. Nevertheless, very few tracks of birds were located within the proposed Hornsea Three area which, together with the studies referenced in Thaxter *et al*. (2012) emphasises the extent to which the proposed wind farm lies at the extremity of any breeding season foraging activity. For context, tracks exist for 133 birds of which less than 5 show any significant interaction with the Hornsea Three array area. Further recent studies analyses, including Cleasby *et al*. (2018) (Appendix 42 to Applicant's response to Deadline 1) further emphasise the relative unimportance of the Hornsea Three area for foraging kittiwake associated with the breeding colony at FFC pSPA. B) It is the Applicant's position that the assessment of kittiwake, in light of the limited evidence of connectivity with the FFC pSPA during the breeding season is highly precautionary.
Q1.2.76	Applicant	Paragraph 5.12.1.13 of the ES [APP-065] specifies a range of other offshore activities that may either have a direct or indirect impact on birds. Table 5.38 lists other projects and plans that have been considered as part of the cumulative effects assessment (CEA) but only includes offshore windfarms. Please explain if non-windfarm projects have been included in the CEA for offshore	The CEA has considered all relevant projects and offshore activities including non-wind farm projects. As a result of this process all relevant projects that may have an impact pathway with a temporal overlap with the relevant project phase of Hornsea Three have been included in the CEA. A lack of impact pathway led to all non-wind farm projects being screened out.

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		ornithology and explain the rationale for their selection or exclusion.	
Q1.2.77	Applicant	Paragraph 5.13.2.4 of the ES [APP-065] states that the installation of offshore elements of Hornsea Three would take 11 years assuming a two phase construction. A)Please explain the apparent inconsistency with table 5.8 which gives a maximum construction duration of 8 years. B) Please explain which construction duration has been used in the CEA and why.	The construction phase will last up to eight years over two phases, with impacts only occurring during the eight years of construction. A gap of up to three years will occur between an activity finishing in the first phase and starting in the second phase of construction thus providing a temporal period of up to eleven years assuming a two phase construction. In order to identify those projects that may contribute to a cumulative or in-combination impact an eleven year time period is used as this is the longest period across which there may be temporal overlap and therefore represents the worst case scenario.. Also see response to Q1.2.68.
Q1.2.78	Applicant	Section 5.13 of the ES [APP-065] outlines the methodology for the cumulative effect of other offshore wind farms. Please explain how the cumulative effect of wind farms that could become operational before or during the construction of Hornsea Three, such as East Anglia One or	For projects that could become operational before the construction of Hornsea Three, these projects have been considered as part of the cumulative assessments conducted for operational impacts (i.e. collision and displacement). For projects that may become operational during the construction of Hornsea Three, these projects have been considered as part of the cumulative assessments conducted for construction and operational impacts. Projects considered in the cumulative assessment in Volume 2, Chapter 5: Offshore Ornithology (APP-065) is identified in Table 5.38. From this long list the suite of projects considered for cumulative construction impacts is identified in paragraphs 5.13.2.4 and 5.13.2.11 of Volume 2, Chapter 5: Offshore Ornithology (APP-065). For cumulative operational impacts all relevant projects from Table 5.38 are considered for relevant species.

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		Hornsea Project One, have been taken into account.	
Q1.2.79	Applicant	Table 5.38 of the ES [APP-065] groups projects into tiers depending on the stage that each project has reached. The Norfolk Vanguard and Thanet Extension offshore wind farms have recently been accepted for examination by the Planning Inspectorate, making them Tier 2 projects. Please provide an updated CEA that takes into account the Norfolk Vanguard and Thanet Extension offshore wind farms as Tier 2 projects.	The Applicant has answered this question in full at Appendix 49 to the Applicant's response to Deadline 1.
Q1.2.80	Applicant	Section 5.13.3 of the ES [APP-065] outlines the cumulative effects of displacement during the operational phase of the proposal. Please provide the predicted increase in baseline displacement mortality, as a result of cumulative operational displacement	It is not possible to provide this information for guillemot, razorbill and puffin as it is not possible to define a population against which the impacts to which Hornsea Three will contribute can be compared. It is considered highly likely that the population of guillemot, razorbill and puffin that will interact with Hornsea Three during the breeding season will be composed of immature and non-breeding birds. There is not considered to be any connectivity between breeding adult birds from breeding colonies and Hornsea Three (see Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA (APP-054)). There is limited empirical data and published information that describes the movements and distribution of immature and non-breeding birds in the breeding season and therefore it is not possible to accurately quantify the total population of birds that may interact with

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		effects, during the breeding season for puffin, razorbill, guillemot and gannet.	Hornsea Three. It is therefore not possible to calculate the increase in baseline mortality that would occur as there is no regional population for which baseline mortality can be calculated. This is discussed in further detail in paragraphs 5.13.3.28 to 5.13.3.30 for razorbill and paragraphs 5.13.3.59 to 5.13.3.62 for guillemot in Volume 2, Chapter 5: Offshore Ornithology (APP-065). The cumulative impact of operational displacement on gannet has not been quantified and therefore the increase in baseline mortality cannot be calculated. The consequences of displacement on gannet is considered to be trivial (see Searle et al. 2014 for evidence of this in the Firth of Forth) with the species having a vast foraging range in all seasons and a particularly high degree of habitat flexibility (Wade et al., 2016). This is explained in paragraph 5.13.3.7 of Volume 2, Chapter 5: Offshore Ornithology (APP-065).
Q1.2.81	Applicant	Representations from NE [RR-097] and RSPB [RR-113] raise a number of concerns about the CEA and the use of correction factors in the Extended Band Model. Please provide the following details for cumulative effects (including the effects from Norfolk Vanguard and Thanet Extension) on gannet, kittiwake, lesser black-backed gull and great black-backed gull: A) A seasonal breakdown of predicted cumulative collision related mortality using	A) The cumulative tables for gannet (Table 5.48), kittiwake (Table 5.51), lesser black-backed gull (Table 5.53) and great black-backed gull (Table 5.55) in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the in-combination tables for gannet (Table 7.36) and kittiwake (Table 7.39) in the RIAA (APP-051) present collision risk estimates that do not take account of as-built scenarios or corrections for changes to nocturnal activity. The corrections for as-built scenario and nocturnal activity factors have been presented to highlight the uncertainty associated with the cumulative and in-combination totals estimated in the aforementioned tables. The analyses conducted for these areas of uncertainty indicate that the cumulative and in-combination totals predicted represent a significant over-estimation of the cumulative/in-combination collision risk posed to relevant populations of seabirds and the Applicant considers that it is critical that these areas of uncertainty are taken into account. The conclusions reached in the cumulative and in-combination sections are informed by the analyses conducted for as-built scenarios and nocturnal activity factors but at no point in the assessment are the cumulative and in-combination totals derived from these corrections compared to the 1% baseline mortality threshold.

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		the Extended Band Model which has not had correction factors applied to account for an over-estimate of nocturnal activity and the increase in baseline mortality that would result from this predicted impact. B) A seasonal breakdown of predicted cumulative collision related mortality using the Extended Band Model which has not had correction factors applied to account for an over-estimate of nocturnal activity or to account for the difference between assessed and consented turbines and the increase in baseline mortality that would result from this predicted impact. C) A seasonal breakdown of predicted cumulative collision related mortality using Option 2 of the Basic Band Model and the avoidance rates recommended by the	The Applicant has produced a clarification note to be submitted at Deadline I that further examines the uncertainty associated with as-built scenarios and calculates updated cumulative and in-combination collision risk estimates taking into account the differences between assessed and as-built turbine scenarios. B) This information is presented in cumulative tables for gannet (Table 5.48), kittiwake (Table 5.51), lesser black-backed gull (Table 5.53) and great black-backed gull (Table 5.55) in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the in-combination tables for gannet (Table 7.36) and kittiwake (Table 7.39) in the RIAA (APP-051) present collision risk estimates that do not take account of as-built scenarios or corrections for changes to nocturnal activity.

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		statutory nature conservation bodies and the increase in baseline mortality that would result from this predicted impact. D) A seasonal breakdown of predicted cumulative collision related mortality using Option 2 of the Basic Band Model and the avoidance rates recommended by the statutory nature conservation bodies which has not had correction factors applied to account for an over-estimate of nocturnal activity and the increase in baseline mortality that would result from this predicted impact. E) A seasonal breakdown of predicted cumulative collision related mortality using Option 2 of the Basic Band Model and the avoidance rates recommended by the statutory nature conservation bodies which has not had correction factors applied to account for an over-estimate of nocturnal activity or to account for the difference between assessed and consented turbines and the increase in baseline mortality that	C) Cumulative totals using the Basic model are presented for all species in Appendix 7 to the Applicants response to Deadline I. It is important to note that Option 2 is not always available (i.e. for projects that used earlier versions of the Band CRM or the preferred Option for use at certain projects, where Option 1 which uses site-specific data is that accepted by Natural England. D) Cumulative totals using the Basic model are presented for all species in Appendix 7 to the Applicants response to Deadline I. It is important to note that Option 2 is not always available (i.e. for projects that used earlier versions of the Band CRM or the preferred Option for use at certain projects, where Option 1 which uses site-specific data is that accepted by Natural England. E) Cumulative totals using the Basic model are presented for all species in Appendix 7 to the Applicants response to Deadline I. It is important to note that Option 2 is not always available (i.e. for projects that used earlier versions of the Band CRM or the preferred Option for use at certain projects, where Option 1 which uses site-specific data is that accepted by Natural England.

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		would result from this predicted impact. F) Please provide the same information for potential in-combination effects on the gannet and kittiwake features of the Flamborough and Filey Coast proposed SPA.	F) In-combination totals that have not been corrected for as—built scenarios or nocturnal activity factors for gannet and kittiwake are presented in either the RIAA (APP-051) using the Extended model or in Appendix 7 to the Applicants response to Deadline I for the Basic model.
Q1.2.82	Natural England	Paragraph 5.2.7 of NE's representation [RR-097] states that the CEA should be applied across the whole annual cycle for each species at an appropriate scale. Please explain how you would expect to see such an assessment undertaken?	The Applicant notes this question is directed at Natural England and the Applicant does not have anything further to add on this for Deadline I.
Q1.2.83	Applicant	Condition 11(d) of the Generation Assets DML and condition 12(d) of the Transmission Assets DML [APP-027] require the production of a Project Environmental Management and Monitoring Plan. Please submit an outline Project Environmental Management and Monitoring Plan.	The Applicant has provided a number of outline plans as part of the DCO application in order to facilitate discussions with stakeholders during the pre-application and examination phases of the project on Hornsea Three commitments. For example, such outline plans have included an In Principle Monitoring Plan (APP-182) to allow further discussion and agreement of monitoring requirements with stakeholders and an Outline Fisheries Coexistence and Liaison Plan (APP-183) to aid discussion and agreement of measures to encourage coexistence with the fisheries industry throughout the lifetime of Hornsea Three. This exercise was completed for those plans where it was possible to produce outline documents based on information available prior to consent being granted. It was not considered appropriate to produce outline versions of all the plans committed to within the draft DCO (APP-027) as many of these plans require specific details which are not available pre-consent. The Project Environmental Management and Monitoring Plan (PEMMP) is typically produced by a developer alongside its construction contractors (normally contracted post consent). The key dependencies for production of the PEMMP are the final DCO and the final scheme design. This document is also comprised of a number of supporting plans (e.g. marine

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			pollution contingency plan, chemical risk assessment, waste management plan etc.) all of which are produced post consent and based on the final scheme design. As such, any outline PEMMP would represent a skeleton document with little or no detail. It is therefore the Applicant's position that production of an outline PEMMP would not be appropriate or informative at this stage. As outlined in Schedule 11, Part 2, paragraph 11(1)(d) (Generation Assets) and Schedule 12, Part 2, paragraph 12(1)(d) (Transmission Assets) of the DCO, the PEMMP will be submitted to and approved by the MMO prior to commencement of licensed activities.
Q1.2.84	Applicant	Paragraph 5.10.1.1 and table 5.16 of the ES [APP-065] state that there would be a number of 'designed-in' measures to reduce the potential for impacts on offshore birds with specific reference to a Code of Construction Practice. Why does the Outline Code of Construction Practice [APP-179] specifically exclude the offshore environment?	The Applicant notes that these two references to the Code of Construction Practice were incorrect and the 'designed-in' measures should have referred to the Project Environmental Management and Monitoring Plan (PEMMP), in line with other offshore ecology chapters of the Environmental Statement (i.e. Section 2.10 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062); Section 3.10 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement (APP-063); Section 4.10 of Volume 2, Chapter 4: Marine Mammals of the Environmental Statement (APP-064)). The PEMMP will be developed and implemented to cover the construction, and operation and maintenance phases of Hornsea Three and not solely the operation and maintenance phase, as indicated in Table 5.16 of Volume 2, Chapter 5: Offshore Ornithology of the Environmental Statement (APP-065).
Q1.2.85	Applicant	Paragraph 4.11.2.25 of the ES [APP-064] states that there are no burial depths that would reduce the magnitude of the magnetic field of cables within the array and export corridor. Paragraph 4.11.2.28 and table 4.53 indicate that the strength of the emitted magnetic field would not exceed the 50 uT background for the North	HV cables have an earthed metallic screen which contains the electrical field within the cable insulation. This is a required to manage electrical stress within the insulation and is described in more detail in the EMF Compliance Statement [APP-087]. Therefore this assessment has assumed that direct electrical field will be blocked by the conductive sheathing used in the cable. Therefore, emitted EMF will consist of the magnetic field (B) and the resultant induced electrical field (iE). This will be further detailed in the Cable Specification and Installation Plan, which will include a desk-based assessment of attenuation of electro-magnetic field (EMF) strengths, shielding and cable burial depth in accordance with industry good practice, that must be submitted to and approved by the MMO prior to the

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		Sea. What empirical observations were used to validate the model? What assumptions were made about the design of cables in relation to conductive sheathing and transmission load?	commencement of construction activities, is appropriate to ensure the effect of EMF on marine mammal receptors is within the range assessed in the ES. There are very few examples of the empirical measurement of emitted electromagnetic fields and associated validation of models of EMF from offshore wind farm cables in the scientific literature. However, the marine mammal species relevant to this assessment are considered to be insensitive to EMF and therefore, the impact significance has been assessed as negligible (APP-064). This conclusion is reflective of the industry's understanding of EIA risk on this topic for this receptor (for example the Applicant notes that this conclusion aligns with that of the Dogger Bank Projects and also that the environmental statements prepared for other recent projects such as East Anglia Three and Norfolk Vanguard have not even reported on EMF effects on marine mammals) and is not understood to have been contested by any Interested Party.
Q1.2.86	Applicant	Paragraph 4.7.2.23 of the ES [APP-064] states that the highest density of grey seal 'at sea usage' is near Donna Nook haul-out site and the Wash. Is it possible that these findings reflect a higher survey effort in areas near coastal nature reserves associated with this species?	The density maps referred to in this section of the marine mammal chapter are derived from a combination of telemetry data from a sample of tagged individuals scaled up by local population counts to estimate the total at-sea usage. As such they are not subject to effort related bias in the same way that traditional survey methods might be. The haul out counts are not biased as all potential haul out sites in each region are covered by the survey – it is effectively a census of hauled out seals. The data from tagged individuals comes from a total of 330 harbour seals and 270 grey seals tagged in the UK, ROI and France. As such the Applicant is confident that these usage maps provide a robust and unbiased indication of the average distribution of at-sea seals. In addition, the use of this data source to adequately characterise the seal baseline and inform the quantitative impact assessment was agreed with SNCBs and other stakeholders through the Evidence Plan process.
Q1.2.87	NE	Paragraph 5.5.1 Paragraph of NE's representation [RR-097] refers to a lack of 'at source' mitigation of piling noise. Paragraph 4.11.1.39 of the ES [APP-064] refers to the Joint Nature Conservation Committee piling mitigation protocol.	The Applicant notes that this is a question for Natural England and has nothing further to add at this stage beyond confirming that no residual long term significant effects are predicted on marine mammal receptors as a result of the existing embedded measures relating to soft start to piling and MMMP commitments.

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		Why do you consider that this would not ensure adequate mitigation?	
Q1.2.88	Applicant	Paragraph 5.5.1 of NE's representation [RR-097] states that no consideration has been given to pile driving noise reduction measures at source. This point has also been raised in a number of other relevant representations. A) Please explain what, if any, methods have been considered to reduce noise at source? B) Why have you chosen not to include noise-reduction mitigation methods at source as a firm commitment?	A) A pile driving soft start has been applied as an embedded measure to reduce the total amount of sound that mobile receptors are exposed to. B) The environmental impact assessment (see Volume 2, Chapter 4, Marine Mammals [APP-064], paragraph 4.11.3.1 onwards) concluded that there would be no significant impacts on marine mammal receptors at the population level as a result of pile driving noise, either alone or cumulatively with other plans or projects when standard mitigation is employed (e.g. by adopting the JNCC piling mitigation protocol including a soft start, alongside the use of an acoustic deterrent device) (see Volume 2, Chapter 4, Marine Mammals paragraph 4.11.1.39). Therefore further mitigation measures were not considered within the marine mammal assessment. This aligns with the conclusion of all offshore wind farm consent applications in the UK to date (i.e., there has not been a requirement for noise reduction technology to be applied for piling in UK waters to date). Notwithstanding this, in terms of the in-combination effects in the HRA, the Applicant accepts that there is uncertainty in relation to the timeline of other projects and the degree to which Tier Two and Three projects may overlap with construction at Hornsea Three. The Applicant accepts that theoretical (if not realistic) scenarios can be generated whereby agreed thresholds would be exceeded. As such, the Applicant has committed to a Site Integrity Plan which will ensure that any appropriate further mitigation will be applied if required, prior to the commencement of works (when there is certainty as to the final scheme design and level of overlap with other activities). This Site Integrity

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			Plan proposed to be secured by Schedule 11, condition 13(5) (generation assets DML) and Schedule 12, condition 14(5) (transmission assets DML) of the draft DCO (Version 1, as submitted for Deadline 1).
Q1.2.89	Applicant	Paragraph 4.11.1.84 of the ES [APP-064] states that the number of harbour porpoises affected by the proposal would be 4,046 but this value is not shown in table 4.32. Please explain how this value is derived and how it relates to the values in table 4.32.	The value of 4,046 harbour porpoises is shown in table 4.33. Each of these tables (4.32 and 4.33) presents results for the pin piling scenarios derived using alternative density sources to estimate the number of porpoises affected (as outlined in Paragraph 4.11.1.28-29 and Table 4.21 of the marine mammal chapter (APP-064)). Table 4.32 presents values calculated using a combination of aerial survey data over the Hornsea Three study area and SCANS III density estimates for the area out with the surveyed area, whereas Table 4.33 presents values calculated using a combination of the density surface modelled using acoustic survey data collected over the former Hornsea Zone and SCANS III density estimates for the area out with the surveyed area. Therefore, the higher values presented in table 4.33 consider the high density areas identified during the previous surveys (as shown in Figure 4.13).
Q1.2.90	Applicant	Figures 4.13 and 4.14 of the ES [APP-064] shows an aggregation of harbour porpoise in the array area that has been derived from both aerial and surface survey data. A) How has this aggregation informed the estimated magnitude and significance of disturbance effects? B) What biological process explains the observed pattern? C) Are there any high quality feeding	To provide clarification on this point, the ES presents survey data from a variety of sources. The data presented in Figures 4.13 and 4.14 of the ES show the modelled density surface derived from the acoustic data collected during boat based surveys of the zone. The densities derived from the aerial survey data are not presented on these figures. It is important to note for harbour porpoises, that although the potential impact was quantified using both density estimates (vessel based acoustic and aerial survey), the assessment conclusions were based on the higher of these two, to ensure a precautionary assessment. A) The data underlying this density surface have been explicitly used in the calculation of the maximum number of porpoises potentially within each noise contour – as presented in Table 4.31 for monopiles and Table 4.33 for pin piles. This therefore, represents a precautionary approach to the assessment. B) It is impossible to say for certain which biological and environmental factors explain the observed pattern. Density was modelled from the survey observations including a range of environmental covariates (e.g. season, depth, tide, sea state, depth, slope, aspect, sediment type). Of these covariates, only depth had any significant explanatory

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		grounds in the array area? D) If so, what would be the effect of displacement? E) If significant aggregations occur, how is the use of average densities justified? F) If a significant feeding ground is present, how would it alter the findings of the ES and HRA?	power. There was a large degree of variability between surveys in the overall distribution of sightings and it is highly likely that patterns were driven by variables that were not able to be included in the modelling, such as prey availability.
			C) It is possible, during the time of these surveys that high densities of prey species may have been present and this may explain the high observed densities of harbour porpoises. It is also important to note that the aerial surveys carried out several years after the boat surveys of the whole Hornsea Zone, and a number of other data sources (detailed in Table 4.12) indicated somewhat lower densities of harbour porpoises over these areas at other times, suggesting variability in the density of the prey resource over time.
			D) The effect of temporary displacement from areas with an abundant high quality food source would likely be a temporary reduction in foraging efficiency with an effect on individual energy balance over a period of a few hours. However, harbour porpoises are highly mobile animals and are capable of travelling large distances and can feed at very high rates. As such, individuals are expected to be able to find alternative prey patches if they are displaced from preferred areas and compensate for these lost foraging opportunities. Porpoise local densities have also been observed to recover within hours of the piling activity stopping. The resulting short term reductions in foraging efficiency is unlikely to affect individual survival but there is a small chance that breeding success, and calf survival may be affected, depending on the magnitude of the overall effect on energy balance.
			E) As the density of highly mobile marine mammal species can vary considerably over time, it is only by incorporating data across several surveys that the spatial pattern in distribution over an area can be confidently characterised with a view to predicting likely future conditions. The highest density areas indicated in Figures 4.13 and 4.14 persist through time over the whole survey period and therefore also appear in the average density surfaces derived from the amalgamated data set. It is important to note that this approach is standard across the industry and has been agreed with SNCBs and other stakeholders through the evidence plan process. This is also why a range of average density estimates are presented in the assessment – to indicate the range of potential effect as a result of variable distribution and abundance of a highly mobile animal. The highest density estimates were derived from the acoustic data from the boat based surveys covering the former Hornsea Zone between March 2011 to February 2013, and the lower density estimates were generated from the aerial surveys

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			between April 2016 and November 2017. It is important to note that the conclusions of the assessment were based on the higher of these two data sources and therefore are precautionary.
			F) The assessment was based on the worst case assumption that the Hornsea Three area does represent a high quality feeding ground for harbour porpoise. It was predicted that this would lead, at worst, to a reduction in breeding success in in the years where such disturbance would be experienced (a total of up to 2.5 years of piling activity). The total maximum magnitude of animals affected represents a very low proportion of the total population (1.45%) and only a proportion of the animals disturbed (<0.3) would be breeding females and therefore sensitive to the effects. Based on this level of impact, in terms of magnitude and duration, no change in the population trajectory would be anticipated at the management unit level. The HRA was carried out using guidance from the SNCBs which specified an area based threshold approach. This approach includes the implicit assumption that the harbour porpoise SCI contains high quality habitat (such as a feeding ground), as indicated by modelled persistent high density areas in the analysis that informed the site selection. Therefore significant displacement from such habitat would result in the potential for an adverse impact on site conservation objectives. A 20% threshold has been adopted to indicate the level at which significant habitat would be lost. On this basis, neither the EIA nor HRA conclusions would change from those presented if a significant feeding ground was found to indeed be present during the installation of the wind turbine foundations.

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Q1.2.91	Applicant	Figure 4.17 of the ES [APP-064] shows that there would be a wider zone of influence for concurrent piling that would affect aggregations of harbour porpoise beyond the array area. How have these aggregations informed the estimated magnitude and significance of the disturbance effects?	As described above, the explicit density surface presented in Figure 4.17 was used to predict how many individuals may be within the noise contours. As such this method takes into account the modelled aggregations beyond the array area and uses the resulting numbers of animals to derive the assessment of magnitude and significance of disturbance effects, assuming that these animals will be displaced from the area proportionate to their level of exposure and potentially suffer subsequent reductions in foraging efficiency.
Q1.2.92	Applicant	Paragraph 3.6.5.16 of the ES [APP-058] states that construction logs have been used to define the average pile hammer energy of 2,000 kJ. A) Would comparable piling equipment be used for Hornsea Project Three? B) If so, how would that be controlled in the dDCO?	A) Paragraph 3.6.5.16 of the ES [APP-058] refers to 2,000 kJ as worst case scenario for the average piling energy based on observations at several projects. The average maximum piling energy has been assumed to be 2,500 kJ with similar observations. Table 3.18 of the ES [APP-058] presents a piling scenario for monopile installation using a maximum hammer energy of 5,000 kJ. According to this profile, hammer energies of 4,500 kJ to 5,000 kJ would only be used at the end of a piling event, only in the case that lower energies are not sufficient to drive the pile to the desired depth. It is not yet known whether the selected equipment will be comparable to those used in past projects, however the information presented within the ES on average energies is based on the experience of the Applicant constructing similar projects including those within similar parts of the North Sea. The choice of piling equipment will be made once the detailed design of the foundations is completed. If monopile foundations are used, it is possible that the same or similar piling technologies will be used, including lower-hammer-energy technologies and methodologies, where these can be shown to be effective. Overall, a piling hammer with a maximum hammer energy of 5000 kJ as described in ES [APP-058] would be used.

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			B) The identification of this average hammer energy has been made for context to identify that the maximum hammer energy applied for is extremely unlikely to be used for the vast majority of piling. However, all assessments in the technical chapters of the ES have been undertaken on the basis of the worst case scenario with the use of the maximum hammer energy. Therefore, as the assessments have not been undertaken on the basis of this average hammer energy, the Applicant considers that the average piling hammer energy should not be controlled in the DCO. The Applicant has committed to a condition in the dML to limit the maximum hammer energy output to 5,000kJ (see Schedule 11, condition 13(6) (generation assets DML) and Schedule 12, condition 14(6) (transmission assets DML) of the draft DCO (Version 1, as submitted for Deadline 1).
Q1.2.94	Applicant	Paragraphs 5.11.1.50 and 5.11.1.61 of the ES [APP-065] state that the effect of construction disturbance on razorbill and guillemot are currently unclear. How can you rule out adverse effects on the integrity of associated European sites when such impacts are uncertain?	The statements referred to are in reference to the limited amount of published information in relation to the potential impact on guillemot and razorbill as a result of disturbance impacts due to construction activities associated with offshore wind farms. As a result of this, assessments have been undertaken with a high level of precaution, assuming highly conservative levels of impact beyond which might be expected based current evidence. In addition any impacts in the construction period are unlikely to of a magnitude larger than those that would occur during the operational phase with impacts in the operational phase assessed as having no adverse effect on the site integrity of any European site. The approach taken follows agreed standard methodologies (JNCC et al., 2017) in relation to displacement analysis albeit for an array area during the operational phase, the impacts from which are highly likely to be of a greater magnitude than would occur due to disturbance in the construction phase.
Q1.2.95	Applicant	Paragraph 4.4.1.5 of the Report to Inform the Appropriate Assessment [APP-051] sets out the tiered approach that has been used for evaluating in-combination effects. It is noted that the in-combination assessment has not included projects that were operational at the time the Hornsea Project Three baseline data were collected. The 'evidence based approach' described in the ES includes historic data which may pre-date operational projects.	For offshore ornithology, all projects that may contribute to an in-combination impact have been included in the relevant assessments. This includes those projects that were operational at the time of baseline data collection at Hornsea Three (Greater Gabbard, Humber Gateway, etc.). The suite of projects considered in the in-combination assessment for offshore ornithology is presented in Table 7.31 of the RIAA (APP-052).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		Is it possible that some plans or projects which should be included in the in-combination assessment have been overlooked?	
Q1.2.98	NE	Paragraph 5.4.7 of NE's representation [RR-097] refers to sub-features associated with the Wash and North Norfolk Coast Special Area of Conservation (SAC). Please list the sub-features of the sandbank feature. In your view, how should the assessment of site integrity take account of these sub-features?	Whilst not directed at the Applicant, it is material to note the Applicant's response to Natural England's Relevant Representation (RR-097), as submitted at Deadline I. In summary, all sub-features of the Annex I habitat 'Sandbanks which are slightly covered by seawater all the time' are assumed to be part of the sandbank habitat complex and their consideration is therefore inherent in the assessment of Annex I sandbank features presented within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and the Report to Inform Appropriate Assessment (APP-051). The assessment was undertaken by evaluating changes to the representative biotopes of the sandbank habitat complex and therefore the sub-features are assessed as represented by the characteristic biotopes.
Q1.2.100	Applicant	Paragraph 5.4.7 of NE's representation [RR-097] states that there is a high risk of significant impacts to designated features of The Wash and North Norfolk Coast Special Area of Conservation from cable installation and associated activities and that the Worst Case Scenario (WCS) is inadequate.	The Applicant's basis for the assumptions regarding impacts of cable installation on features of The Wash and North Norfolk Coast Special Area of Conservation (SAC) can be explained by reference to the following key areas which are discussed below: i) the adequacy of the baseline; ii) the confidence in the maximum design scenario for cable installation; iii) the evidence of recovery of features following sandwave clearance and cable installation; and iv) long-term effects associated with the installation of cable protection. i. As outlined in The Applicant's response to Ex.A Question WQ-1.2.12, the benthic ecology baseline characterisation of the section of the Hornsea Three offshore cable corridor coinciding with The Wash and

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		What is the empirical basis for your assumptions about the impacts of cable installation in this area of the North Sea?	North Norfolk Coast SAC was based on empirical data consisting of both published desktop data sources and Hornsea Three survey data. The Hornsea Three site-specific data sets are outlined in paragraph 2.6.1.3 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and the desktop data sets which were used to extend the nearshore biotope map, generated from the Hornsea Three site specific benthic ecology data, into The Wash and North Norfolk Coast SAC are outlined in paragraph 2.7.6.2 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. Since the Hornsea Three DCO application was submitted in May 2018, the Applicant has undertaken a drop down video survey of the Hornsea Three offshore cable corridor that coincides with The Wash and North Norfolk Coast SAC in the nearshore area. The Applicant has submitted the results of this survey in The Wash and North Norfolk Coast Clarification Note (presented at Appendix 5 of the Applicant's response to Deadline I), which validates the baseline characterisation presented for The Wash and North Norfolk Coast SAC in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement [APP-062] and the RIAA [APP-051]. ii. The Applicant considers that the maximum design scenario assessed with regards to cable installation within The Wash and North Norfolk Coast SAC was adequately precautionary and was based on the Applicant's extensive experience at other offshore wind farms in the UK and overseas. This includes the requirements for cable protection and the Applicant would refer the Ex.A to the Cable Protection Clarification Note (presented at Appendix 6 of the Applicant's response to Deadline I), which provides further clarification of the assumption that a maximum of 10% of the offshore export cables within The Wash and North Norfolk Coast SAC may require protection. iii. The Applicant has provided a full description of the numerous sources of empirical evidence, which have been used to inform and support the assessments of impacts from cable installation on features of The Wash and North Norfolk Coast SAC, in their response to Ex.A question Q1.2.10. The Applicant would also direct the Ex.A to section 3 of The Wash and North Norfolk Coast SAC Clarification Note, as presented in Appendix 5 of the Applicant's response to Deadline I, where empirical evidence for the recovery of the seabed following cable installation in the nearshore area is provided based on data collected over installed cables in the nearshore area and recent monitoring of Hornsea Three geotechnical investigations. The

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			Applicant would also direct the Ex.A to the Sandwave Clearance Clarification Note, as presented in Appendix 11 of the Applicant's response to Deadline I, where empirical evidence for the recovery of sandwave features following clearance works is presented based on the findings of monitoring data at Race Bank offshore wind farm. iv. Long term habitat loss associated with cable protection requirements is predicted to affect only a very small proportion (0.004%) of the total area of The Wash and North Norfolk Coast SAC. In addition, the Applicant's commitment to employ sensitive cable protection measures within the SAC, as outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement [APP-062], is predicted to facilitate some continued ecological functioning in these areas. The Applicant directs the Ex.A to the Cable Protection Clarification Note presented in Appendix 6 of the Applicant's response to Deadline I which outlines empirical evidence to support this prediction and to validate the prediction that sensitive cable protection could be expect to limit the effects of long term habitat loss in contrast to other cable protection measures (e.g. concrete mattressing, larger grain sizes etc.). As outlined in paragraph 5.5.2.31 and Appendix A of the RIAA [APP-052],, adverse effects on the integrity of the SAC were not predicted to arise as a result of changes to sediment transport in relation to cable protection. The Applicant refers the Ex.A to the Cable Protection Clarification Note presented in Appendix 6 of the Applicant's response to Deadline I, which includes a summary of empirical data sets (i.e. other desktop review studies, targeted analysis of high resolution bathymetry survey data and laboratory physical modelling experiments), which validate these conclusions.
Q1.2.101	NE, MMO	Paragraph 5.6.2.35 of the Report to Inform Appropriate Assessment [APP-051] states that the North Norfolk Sandbanks and Saturn Reef SAC sandbanks are dynamic and mobile and are therefore considered to have moderate levels of recoverability.	Whilst not directed at the Applicant, it is material to note the Applicant has submitted a Sandwave Clearance Clarification Note to Natural England in October 2018 (see Appendix 11 of the Applicant's response to Deadline I). The Sandwave Clearance Clarification Note presents empirical evidence from post-levelling sandwave monitoring data at the Race Bank offshore wind farm, providing additional detail on this monitoring data, which was used to inform the impact assessment presented in paragraph 1.11.5. *et seq.* of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061). This additional interpretation supports the conclusion that the levelled sandwaves in Hornsea Three would recover with time to a natural equilibrium state and supports the conclusion, as outlined in paragraph 5.5.1.13 of the Report to Inform Appropriate Assessment (APP-052), that temporary habitat

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		Do you agree with this assessment of the recoverability of the SAC sandbank feature? Please refer to any peer reviewed evidence that may be available in support of your response.	loss/disturbance will not adversely affect the ability for the Conservation Objectives of this SAC to be achieved with regards to the extent and distribution, supporting processes, structure and function of Annex I sandbanks which are slightly covered by seawater all the time or reef habitats.
Q1.2.103	Applicant	Effects on the integrity of The Wash and North Norfolk Coast SAC and the North Norfolk Sandbanks and Saturn Reef SAC have been considered in relation to each of the impacts identified for the individual phases of the development. Please provide an assessment of the cumulative impact on the integrity of these SACs across the lifetime of the proposal.	The Applicant notes that while the assessments presented in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and the Report to Inform Appropriate Assessment (RIAA; APP-052) were undertaken on an impact by impact basis, consideration of repeat disturbance during the construction and operation and maintenance phase was presented. In order to provide clarity and fully address the Ex.A question, additional narrative has been provided to summarise the assessment of impacts to The Wash and North Norfolk Coast Special Area of Conservation (SAC) and the North Norfolk Sandbanks and Saturn Reef SAC as a result of cable installation across the lifetime of the project. The full response from the Applicant to Ex.A question Q1.2.103 is presented at Appendix 17 to the Applicant's response to Deadline I. The detailed response at Appendix 17 to the Applicant's response to Deadline I shows that the majority of impacts associated with cable installation and maintenance over the 35 year design life of Hornsea Three, to Annex I features of both The Wash and North Norfolk Coast SAC and the North Norfolk Sandbanks and Saturn Reef SAC, will be temporary and reversible. These temporary and reversible effects will therefore not represent an adverse effect on integrity of The Wash and North Norfolk Coast SAC or the North Norfolk Sandbanks and Saturn Reef SAC. Although effects on Annex I features associated with the maximum design scenario for cable protection requirements will last throughout the operation and maintenance phase, and potentially post decommissioning, they are predicted

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			to affect a very small proportion (i.e. <0.01%) of total area of each SAC. The sensitive cable protection measures which are proposed for the project, as outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, to reflect the baseline environments of the SACs will allow some ecological function (e.g. partial recovery of communities into areas affected) to continue in the areas affected during the operation and maintenance phase thus limiting the effects of long term habitat loss in contrast to other cable protection measures (e.g. concrete mattressing, larger grain sizes etc.). The effects associated with cable protection will therefore not represent an adverse effect on integrity of The Wash and North Norfolk Coast SAC or the North Norfolk Sandbanks and Saturn Reef SAC.
Q1.2.104	Applicant	Paragraph 5.5.1.2 of the Report to Inform Appropriate Assessment [APP-051] states that material from sandwaves cleared within The Wash and North Norfolk Coast SAC would be deposited within the site boundary. How has this mitigation been secured in the dDCO and/or DMLs?	The Applicant notes that paragraph 2(1)(f) of each deemed marine licence specifies that these disposals must be within the order limits. The Applicant considers that paragraph 2(1)(a) would also permit deposits of this nature, and to streamline this provision has amended it as below in each DML in the draft DCO (Version 1, as submitted for Deadline 1) (the changes are underlined): **2.**—(1) Subject to the licence conditions, this licence authorises the undertaker (and any agent or contractor acting on their behalf) to carry out the following licensable marine activities under section 66(1) of the 2009 Act— (a) the deposit at sea within the Order Limits seaward of MHWS of the substances and articles specified in paragraph 4 below and up to 1,344,318 cubic metres of inert material of natural origin produced during construction drilling or seabed preparation for foundation works and cable sandwave preparation works within Work No. 1; (b) the construction of works in or over the sea and/or on or under the sea bed; (c) dredging for the purposes of seabed preparation for foundation works and/or electrical circuit works; the removal of sediment samples for the purposes of informing environmental monitoring under this licence during pre-construction, construction and operation; (d) boulder clearance works either by displacement ploughing or subsea grab technique or any other equivalent method; (e) removal of static fishing equipment;

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			~~the disposal within the Order limits seaward of MHWS of up to 1,344,318 cubic metres of inert material of natural origin produced during construction drilling or seabed preparation for foundation works and cable sandwave preparation works within Work No. 1~~; and (f) site preparation works.
Q1.2.105	Applicant	Paragraph 6.5.2.66 of the Report to Inform Appropriate Assessment [APP-051] states that it would be unrealistic to assume that all piling would be during summer months. NE advised in its relevant representation [RR-097] that it did not agree with the approach of averaging the number of piling days per season when considering effects on the Southern North Sea candidate SAC (cSAC). Instead it suggests that more work is likely to occur during the summer months. A) Please provide an assessment of the effects on the Southern North Sea cSAC	A) The assumption proposed by NE in RR-097 is very unlikely for the following reasons. Typically, installation is in stages, with monopile installation being commenced early in the year with the WTGs being installed on the foundations before winter. This staged process is used as WTGs are more sensitive to weather during installation, in particular due to the sensitivity of the blade lift process to high wind conditions. For the largest wind farms (in terms of numbers of foundations), the installation will progress over a number of months and would not be limited to the summer season. The Applicant can confirm that construction activity is likely to occur throughout the year noting that the most sensitive component of the installation process to weather conditions, is the blade lift and therefore, foundation installation is often scheduled to ensure that the installation of blades can occur before the winter months. Based on a highly conservative worst case scenario, it has been assumed that each piling day during the summer period would impact on the maximum possible area of the cSAC (431.74km2). This equates to a temporal impact on the cSAC of 1.6% over the 6 month summer season which is significantly less than the 10% threshold specified by the JNCC. It should be noted that these calculations are overly precautionary in that the area of effect (applying the 26km Effective Deterrence Range, as advocated by Natural England) will in reality result in a range of effect from 0km2 to 431.74km2. The precise level of effect would depend on the exact layout of the turbines. Given that such information is not available at this juncture, a maximum value is applied to all piling events.

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		where all the piling is carried out by one vessel during the summer months. B) Please provide an assessment for two vessels undertaking concurrent piling during the summer months.	B) Based on a highly conservative worst case scenario, it has been assumed that each piling day during the summer period for concurrent piling would impact on the maximum possible combined area (from two piling vessels) of the cSAC (469.45km^2). This equates to a temporal impact on the cSAC of 1.7% over the 6 month summer season which is significantly less than the 10% threshold specified by the JNCC. Again, this is significantly overestimating the actual level of effect given that only one pile location could result in that level of effect, and all subsequent ones would have a lesser effect.
Q1.2.106	Applicant	Paragraph 5.5.9 of NE's representation [RR-097] highlights a lack of consideration of combined impacts in relation to disturbance from a range of noise generating activities. Please provide an assessment of the in-combination effects from noise generating activities during construction (piling, increased vessel noise and the clearance of unexploded ordinance (UXO)) on the integrity of the marine mammal features of the following: •Berwickshire and North Northumberland Coast SAC; •The Southern North Sea cSAC; •The Wash and North Norfolk Coast SAC; and •The Humber Estuary SAC and Ramsar site.	It is important to note that no marine construction projects currently in the planning system (that could overlap with Hornsea Project Three's construction activity) have submitted detailed applications for marine licences for the clearance of unexploded ordinance. Therefore there is a lack of published, reliable information to inform a meaningful and realistic in-combination assessment of future levels of this activity combined with other noise generating activity on the marine mammal features of these SACs. A full in-combination assessment of UXO detonation will be completed to support a marine licence application should this activity be necessary at a future time. Therefore this assessment focuses on in-combination effects from pile driving and vessel activity during construction. It is also important to note that given the different spatial and temporal scales over which these two impacts operate (piling is a static source of disturbance operating at a particular location for a period of hours at a time, with an impact footprint that can be reasonably accurately predicted and quantified, whereas vessel disturbance is an ongoing mobile source of disturbance which will occur throughout the site at different times and it is not currently possible to accurately quantitatively predict exposure in terms of the numbers of animals affected in the same way as is done for piling noise disturbance), it is not possible to provide a meaningful and realistic quantitative combined assessment of both activities, therefore the assessment that follows is qualitative. **Berwickshire and North Northumberland Coast SAC** The marine mammal qualifying feature of Due to the very low numbers of individuals predicted to be affected by disturbance resulting from the construction of Hornsea Three (maximum of 0.13 % of the reference population), grey seals were not considered in the cumulative effects assessment in the marine mammal chapter. Summed across all projects in the CEA, within the North East and

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			South East England Seal Management Area the total number of grey seals potentially affected is 0.25% of the reference population within the combined North East and South East England Seal Management Areas. Therefore it is not considered likely that there is the potential for an in-combination effect of underwater noise disturbance that would significantly affect the population of grey seals associated with any SACs within those management areas. Furthermore, during construction of all the plans and projects considered in the in-combination assessment, additional vessel traffic would be constrained within existing shipping routes and focused around the array and export cable corridor and therefore, would be highly unlikely to be close to any coastal SAC sites where seals are hauled out, therefore there would be no potential to directly disturb seals hauled out or breeding at the SAC. In light of the above, these activities at Hornsea Three, in-combination with all other plans and projects will not result in any changes to the distribution of animals within the site, nor any changes to the size or trajectory of the population of animals associated with this site. Therefore there is no indication of an adverse effect on the integrity of the Berwickshire and North Northumberland Coast SAC taking into account the impact on grey seal as a feature of that site.
			The Southern North Sea cSAC The marine mammal qualifying feature of the Southern North Sea cSAC is the harbour porpoise. Of the three Conservation Objectives for this site, this question is relevant to the "no significant disturbance" objective. The RIAA undertook an assessment of disturbance effects on the site feature based on an approach advocated by the SNCBs (as detailed in the draft site management information for the SNS cSAC, and that was to apply an effective deterrence range (EDR) for certain activities of the project. Accordingly, a 26km EDR was applied to piling and UXO clearance activity. No specific EDR has been advocated by the SNCBs for disturbance from vessel presence and therefore, disturbance from this effect was informed through a consideration of the likely noise source levels from operating vessels, as presented in Section 6.5.2.132 onwards in the RIAA (AS-002). Section 6.7.2 of the RIAA considers the in-combination effect on underwater noise from other activity. This assessment presents a tiered and quantified assessment of the overlapping activity with the construction of Hornsea

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			Three. As identified above, no publicly available information exists with regard to UXO clearance for other projects and therefore, it is not possible to establish a prediction of effect between the piling of Hornsea Three and any other UXO clearance. What can be established however, is that the assessment considered a 26km EDR for a number of projects that may overlap in time with Hornsea Three. The UXO clearance and piling for any given project is very unlikely to have a direct temporal overlap. Therefore, whilst the assessment has not explicitly assessed UXO clearance for other activities (as there is no information to draw on) it has considered an EDR that is indicative of both piling and UXO clearance already. Furthermore, as identified in the consideration of precaution within the marine mammal assessment, as submitted at Appendix 14 of the Applicant's response to Deadline I, the cumulative / in-combination assessments will have significantly overestimated both the level of activity that may overlap and the duration of that activity. Therefore, it is more than likely that the existing assessment will have captured the effect of any UXO clearance (if undertaken) associated with other wind farm projects, that may overlap with the construction of Hornsea Three. With regard to additional vessel activity being considered at the same time as piling and UXO clearance, it is considered that any disturbance effects from vessels associated with the construction works of the projects identified within the in-combination assessment, would, for the majority of cases, be captured within the 26km EDR that has been applied for the piling works associated with those projects, and therefore, it would not extend the level of predicted impact (in spatial terms) beyond that already assessed to any material extent. As a consequence it is considered that the existing conclusions of the in-combination assessment within the RIAA remain valid in this regard and that the likelihood of thresholds being exceeded is low. The existing control measure (now updated to comprise a commitment to a Site Integrity Plan in condition 13(5) of the generation assets DML and 14(5) of the transmission assets DML (Schedule 11 and 12 respectively of the draft DCO (Version 1, submitted for Deadline 1)) will ensure that prior to the commence of construction the undertaker has accurately (based on final scheme design and certainty with regard to overlapping projects) represented the risk to site integrity and applied any necessary mitigation to reduce effects to acceptable levels.

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			The Wash and North Norfolk Coast SAC The marine mammal qualifying feature of the Wash and North Norfolk Coast SAC is the harbour seal, which haul out to rest and breed in large numbers at the SAC. Due to the very low numbers of individuals predicted to be affected by disturbance resulting from the construction of Hornsea Three (maximum of 0.12 % of the reference population), harbour seals were not considered in the cumulative effects assessment in the marine mammal chapter, therefore it is not considered likely that there is the potential for an in-combination effect of underwater noise disturbance that would significantly affect the population of harbour seals associated with the SAC. Summed across all projects in the CEA, within the South East England Seal Management Area, the total number of harbour seals potentially affected is 0.24% of the reference population. Furthermore, during construction of all the plans and projects considered in the in-combination assessment, additional vessel traffic would be constrained within existing shipping routes and would be highly unlikely to be close to any SAC sites where seals are hauled out and/or breeding, therefore there would be no potential to directly disturb seals hauled out or breeding at the SAC. In light of the above, these activities in-combination with other plans and projects will not result in any changes to the distribution of animals within the site, nor any changes to the size or trajectory of the population of animals associated with this site. Therefore there is no indication of an adverse effect on the integrity of the Wash and North Norfolk Coast SAC taking into account the impact on harbour seal as a feature of that site.
			The Humber Estuary SAC and Ramsar site The marine mammal qualifying feature of the Humber Estuary SAC and Ramsar site is the grey seal, which haul out to rest and breed in large numbers at the SAC. As discussed above, due to the very low numbers of individuals predicted to be affected by disturbance resulting from the construction of Hornsea Three (maximum of 0.13 % of the reference population), grey seals were not considered in the cumulative effects assessment in the marine mammal chapter. Summed across all projects in the CEA, within the North East and South East England Seal Management Area the total number of grey seals potentially affected is

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			0.25% of the reference population within the combined North East and South East England Seal Management Areas. Therefore it is not considered likely that there is the potential for an in-combination effect of underwater noise disturbance that would significantly affect the population of grey seals associated with any SAC within those management areas. Furthermore, during construction of all the plans and projects considered in the in-combination assessment, additional vessel traffic would be constrained within existing shipping routes and would be highly unlikely to be close to any coastal SAC sites where seals are hauled out, therefore there would be no potential to directly disturb seals hauled out or breeding at the SAC. In light of the above, these activities at Hornsea Three, in-combination with all other plans and projects will not result in any changes to the distribution of animals within the site, nor any changes to the size or trajectory of the population of animals associated with this site. Therefore there is no indication of an adverse effect on the integrity of the Humber Estuary SAC and Ramsar site taking into account the impact on grey seal as a feature of that site.
Q1.2.109	NE	Paragraph 5.5.9 of NE's representation [RR-097] identifies the potential importance of considering the in-combination effects of other cable and pipeline installations in terms of UXO detonations within the Southern North Sea cSAC. Please explain how this effect could be meaningfully addressed given the significant uncertainties associated with the specific locations of UXO?	The Applicant notes that this question is not directed at them, however notes that this issue is being discussed between the Applicant and Natural England as part of the Statement of Common Ground process. Specifically, the Applicant notes that the consideration of UXO detonations has not been assessed for cable and pipeline installations due to the current lack of information regarding UXO detonations for these projects. The Applicant can only consider information on other licenced activity that is publicly available. In the absence of such information the Applicant does not consider it appropriate to generate hypothetical numbers and produce an entirely speculative assessment for an activity that may not occur. Finally, the Applicant notes that it has committed to the production of a SIP closer to the construction period which will include consideration of any known UXO clearance works from any other licenced scheme at that stage.

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Q1.2.110	Applicant	Table 4.6 of the Report to Inform Appropriate Assessment [APP-051] refers to a UXO specific Marine Mammal Mitigation Plan that would mitigate the risk of physical or permanent auditory injury to marine mammals. How has this mitigation been secured in the dDCO and DMLs?	The Applicant confirms that it is not seeking consent for the clearance of UXO within the application for a DCO for Hornsea Project Three and therefore no conditions relating to UXO clearance are included in the draft DCO or DMLs (Version 1, as submitted for Deadline 1). However, and importantly, if and when UXO clearance is deemed necessary and the number, type, location and nature of any UXO are known, a separate marine licence will have to be applied for, which will have to contain a commitment for a UXO specific MMMP, in the same way that the draft DMLs require a MMMP for piling. This approach is standard offshore wind industry practice.
Q1.2.111	TWT	TWT [RR-047] states that the science underpinning underwater noise management is weak, difficult to deliver and does not encourage noise reduction. Please provide further information on the reasons for your concerns. In your view, what alternative noise impact mitigation would be effective?	The Applicant notes that this question is directed at TWT. The Applicant would advise that the techniques employed are industry standard, and therefore if TWT is able to substantiate its comments, they represent a general criticism of the management of underwater noise and not specifically concerned with Hornsea Project Three.
Q1.2.112	TWT	TWT [RR-047] considers that management of underwater noise, detailed monitoring of noise levels and harbour porpoise population activity and strategic mitigation and monitoring should be managed at a regional or strategic level. In your view, how should this application contribute to such activities?	The Applicant has responded to this point (1) in the TWT Relevant Representation (RR-047). The Applicant notes that this question is directed at TWT, however the Applicant confirms that the key uncertainty (within the marine mammal assessment) relates to the population level consequence of disturbance when considering cumulative level disturbance. It is well established that addressing such a high level uncertainty is best achieved through industry wide studies / initiatives that have the ability to tackle these population level cumulative concerns. It is possible therefore, that a commitment to contribute to any such industry wide studies would be the most pragmatic approach to monitoring for this topic. However, whilst it is recognised that monitoring at the individual project level is too small scale to address such population scale cumulative level uncertainty, consideration will be given to site-specific monitoring based on where it is established that there is a specific information gap within a wider strategic study that could be meaningfully filled at the individual project level.

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			The current proposed monitoring conditions in the draft DMLs (Conditions 18, 19 and 20 in each of Schedule 11 and 12 of the draft DCO [APP-027] (Version 1, as submitted for Deadline 1)) for marine mammals are linked to the production of a Plan for Marine Mammal Monitoring in line with the objectives as set out in the In-Principle Monitoring Plan (IPMP). The IPMP makes clear that any monitoring may be delivered via strategic or site specific means. The Applicant therefore, considers that its existing proposed commitments are appropriate to ensure the most pragmatic option can be developed once it is clear what the final scheme design equates to and what the key knowledge gaps are, at that pre-construction juncture.
Q1.2.113	NE	Paragraph 5.5.3 of NE's representation [RR-097] states that, in addition to a Marine Mammal Mitigation Protocol, there should be a Site Integrity Plan to mitigate the impact of the proposal on harbour porpoise. Please explain what you would expect to see covered by such a plan and what additional benefits it would offer?	The Applicant notes that this question is directed at Natural England, however the Applicant would highlight that the original proposed commitments made within the draft DCO (Application version [APP-027]) (Conditions 11(4), (5) and (6)of Schedule 11 (generation assets DML) and conditions 12 (4),(5)and (6) of Schedule 12 (transmission assets DMLs respectively) would effectively provide the same controls as a Site Integrity Plan (SIP). Furthermore, the Applicant confirms that it has agreed with Natural England and the MMO to commit to a SIP as part of the project mitigation (an outline version of which has been submitted at Appendix 15 to the Applicants response to Deadline I). This would be secured by proposed conditions of the DMLs (see condition 13(5) of Schedule 11 (generation assets) and condition 14(5) of Schedule 12 of the of the draft DCO (Version 1, as submitted for Deadline 1). Therefore, the Applicant considers that this matter is agreed with both Natural England and the MMO.
Q1.2.114	NE, MMO, TWT, Whale and Dolphin Conservation	Conditions 11(4) and 11(5) of the Generation Assets DML and 12(4) and 12(5) of the Transmission Assets DML [APP-027] seek to mitigate potential effects on marine mammals from piling operations. To what extent do you consider that this would be an effective approach?	The Applicant notes that this question is not to the Applicant but as stated above in the response to Q1.2.113, the Applicant confirms that it has agreed with Natural England that a Site Integrity Plan (SIP) will be produced and approved prior to construction works taking place.

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Q1.2.115	Applicant	Paragraph 5.2.10 of the NE's representation [RR-097] states that data relating to monthly age classes for breeding birds and the proportions of unaged birds were not provided. Please comment on NE's concerns and provide any additional data that may assist.	In December 2017, as part of Natural England's Discretionary Advice Service, Natural England requested a number of clarifications / additional information in relation to the age class data used to support the calculation of apportioning values for the breeding season for gannet, kittiwake and puffin in the draft Offshore Ornithology Environmental Statement for Hornsea Three. Specifically, these were: • *"Natural England seeks clarification as to whether the proportions presented of adults and immatures (e.g. Tables 1.4, 1.5 & 1.7 of Annex 3) are restricted to the breeding season.";* • *"…we [Natural England] request that age proportions are either presented per month, or as per the two breeding seasons in Table 2 above."* • *"We [Natural England] request that data regarding the proportion of 'unaged' and juvenile birds are presented."* Clarification in relation to the first of these points was added to the Report to Inform Appropriate Assessment (RIAA) Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA (APP_054 and discussion in relation to the proportion of birds that were unaged during both boat and aerial surveys was provided (see paragraphs 1.4.2.8, 1.4.2.9 and 1.4.3.10). Monthly age proportion data was not presented as part of the application. The Applicant has not previously provided data at such a resolution with the approach applied in Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA (APP-054) and accepted by Natural England during the examination of Hornsea Project Two. As part of their relevant representation Natural England requested the following: • *"…age class data month by month for the full breeding seasons as defined by Natural England…"* • *"…proportions of unaged birds are specifically presented (month by month) for each relevant data set for both boat based and (where appropriate) aerial survey data…"*

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			The Applicant presented data relating to the proportion of birds that were unaged during boat-based and aerial surveys as part of RIAA Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA (APP-054) in line with Natural England's previous request. A Clarification Note detailing Age class data has been provided to Natural England and is presented at Appendix 3 to the Applicants response to Deadline I
Q1.2.117	Applicant, NE	Paragraph 5.2.8 of NE's representation [RR-097] states that the use of population viability assessment from Hornsea Project Two was not suitable to determine the impacts on the Flamborough and Filey Coast pSPA. Please could NE provide further detail on this point and indicate how it considers that the long-term effects on bird populations associated with the pSPA should be assessed? Why is the population viability analysis for kittiwake and gannet for 25 years when the project would have a 35 year operational phase? Would the Applicant's approach lead to an underestimate of impact?	During consultation undertaken in connection with the preparation of the Evidence Plan, it was agreed with the Expert Working Group that PVA would be used to explore the implications of the additional mortality predicted for Hornsea Three, although the specifics of the methodology are still under discussion (see paragraph 4.3.3.10 in Consultation Report Annex 1 – Evidence Plan (APP-035)). The Applicant indicated that it would use the model produced for Hornsea Two as all input parameters for that model remained valid and appropriate for this assessment. Natural England raised two issues. First, that the model used for Hornsea Two did not used a 'matched pairs' approach, which involves conducting model runs for impact and unimpacted populations in parallel. And, second that the model had previously been run for 25 years whereas the proposed design life for Hornsea Three is 35 years. The Applicant sought advice from the author of the PVA model who indicated that for models the use of a matched pairs approach would not significantly alter model predictions, because, for each scenario modelled, very many runs are made (with and without the predicted additional mortality) and it is the average of these that is used. With respect to timeframe, the modeller also explained that, as the model does not include any density dependency, it is straightforward to extrapolate the outputs to 35 years. Nevertheless, to validate predictions, the model has been re-run for 35 years using a matched pairs and is presented at Appendix 9 to the Applicants response to Deadline I. As assumed, this model made predictions that are effectively the same as those predicted using the extrapolations of the Hornsea Two model and made no difference to the conclusions reached in the RIAA (APP-052).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.2.118	Applicant, NE	The European Court of Justice has made a recent ruling which may have implications for the assessment of the integrity of European sites (case C-164/17 - Reference for a preliminary ruling from Supreme Court (Ireland) made on 3 April 2017 — Edel Grace, Peter Sweetman v An Bord Pleanala). Please could the Applicant and NE comment on any implications they think this judgement has for the appropriate assessment of this application in relation to offshore European sites.	The Applicant does not consider that case C-164/17 has any implications for the appropriate assessment in this case (see response to Question 1.4.24) sites. The issue in C-164/17 concerned the distinction between protective measures (mitigation) and compensation; specifically what can properly be regarded mitigation for the purposes of appropriate assessment under article 6(3) and what are more properly compensatory measures which could only be relevant for the purposes of a derogation pursuant to article 6(4), if a project would adversely affect the integrity of a European site but is nevertheless to proceed because there are imperative reasons of overriding public interest and no alternatives. The Applicant's conclusions in the RIAA (that there are no adverse effects on the integrity of any European site) are not considered to depend on any compensatory measures, having regard to case C-164/17.

1.4 Written Question 1.3 Marine Processes

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
n/a	n/a	The ExA has no questions on this issue at this stage. Effects on receptors affected by marine processes are covered in other sections.	Noted

1.5 Written Question 1.4 Ecology - Onshore

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.4.1	Applicant	Paragraph 3.5.4.1 of the ES [APP-094] outlines a number of modifications, as defined in figure 3.22, that were made to the onshore export cable route (ECR). What field surveys have been undertaken since the application was submitted to determine the significance of any onshore ecological impacts in the re-route areas as well as any additional mitigation measures that may be necessary?	The Applicant can confirm that no further field surveys relating to onshore ecology have been undertaken since the application was submitted. It has not been considered necessary to undertake such further field surveys (post-application) in connection with the refinements made to the Order Limits following the PEIR but before the point of application. (1) In cases where refinements to the Order Limits were within the Phase 1 habitat survey boundary assessed at PEIR stage, additional field surveys were undertaken, where seasonal restrictions on species survey periods and access allowed. (2) In cases where refinements to the Order Limits fell outside the Phase 1 habitat survey boundary, additional Phase 1 habitat survey and species surveys were undertaken again where access and seasonal restrictions allowed. (3) For those remaining areas where access was not available, information gathered from the desktop survey, observations from Public Rights of Way and recent aerial photographs were considered adequate to identify habitats in the re-route areas. As stated in paragraph 3.3.1.7 of Volume 3 Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075], the surveys undertaken coupled with the desktop information is considered to provide sufficient information to enable baseline characterisation and to inform the assessment of effects including in respect of the re-routed sections. As stated in Table 3.2 of Volume 3 Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075] and the Outline Ecological Management Plan [APP-180], measures necessary to mitigate Hornsea Three's effects on ecology and nature conservation will be updated if necessary following pre-construction surveys.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.4.2	Applicant	Table 1.10 of the ES [APP-073] states that there would be up to 105 minor and 15 major locations where Horizontal Directional Drilling (HDD) would be deployed and that site investigations would be carried out at each location to confirm that the underlying geology is suitable. Have site investigations been carried out for all HDD crossings and, if so, what are the conclusions in terms of their suitability for HDD?	Whilst technical site visits have been undertaken along the route, in combination with desktop reviews of available information on ground conditions, the full site investigations consisting of borehole geotechnical and geophysical evaluations have not been carried out at the locations of all proposed HDD locations along the cable route, as they are not deemed necessary at this time. Paragraph 6.9.1.9 of the Outline CoCP (APP-179) has been updated to read (new text shown in underline) '*Site investigations will be undertaken ~~at each proposed HDD location~~ at regular intervals along the onshore cable corridor and/or at sensitive HDD locations during the detailed design stage to confirm local geological conditions. The Environment Agency will be consulted on the location and methodology of the site investigations."* HDD is a standard technology used on such projects for the installation of cables at particular locations where open cut trenching is not considered suitable, such as underground obstructions, water courses and such like. In line with experience from similar projects where HDD methods have been used, it is considered that due to the relatively short length of HDD drills required on this project and the relatively small drilling bore diameter, it is considered unlikely that HDD operations could not be carried out successfully at all locations, by utilising a combination of the suitable drilling equipment, appropriate drilling depth and suitable planning and execution of the works.
Q1.4.3	Applicant	Paragraph 1.11.1.22 of the ES [APP-073] states that direct impacts on the principal aquifer may occur from deeper ground workings associated with HDD whilst paragraph 1.11.1.23 goes on to state that the depth of the HDD is likely to be contained within superficial deposits with limited 'downward migration' potential. A) Please clarify these apparently contradictory statements.	A) The Applicant would clarify that there is the potential for direct impacts on the principal aquifer in the absence of mitigation and also if the principal aquifer is encountered close to the surface where superficial deposits are shallow in depth. Similarly, impacts may also occur where deeper workings are required, e.g. at major HDD locations or for piling works (potentially required at the onshore HVAC booster station or the HVDC converter/HVAC substation). However, for the majority of crossing locations, it is considered likely that the HDDs will be contained within the superficial deposits and this will be confirmed by the proposed site investigations. The mitigation measures (set out in Table 1.15 of Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement ([APP-073]) commit to undertake site investigations and hydrogeological risk assessments at specific HDD crossing locations and method statements for watercourse crossings which will be agreed with the Environment Agency. These measures will together ensure that there are no direct impacts on the principal aquifer, such that no significant effects are anticipated (Volume 3, Chapter 2: Hydrology and Flood Risk (APP-074)

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		B) Given the seemingly limited number of British Geological Survey boreholes, what level of confidence is there that there are impermeable superficial deposits at a thickness of 2m or more along the ECR? C) Which locations would require HDD at a depth greater than 2.5m?	B) The characterisation of the geology along the onshore cable corridor and at the onshore HVAC booster station and HVDC converter/HVAC substation is predominantly based on published 1:10,000 and 1:50,000 geological data from British Geological Survey (as set out section 1.7.3 of Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement [APP-073]. Where BGS borehole data is available, borehole logs have been used to confirm the local geological conditions. The Applicant acknowledges that the BGS boreholes are only available for a limited proportion of the onshore cable corridor, onshore HVAC booster station and HVDC converter/HVAC substation (see Volume 6, Annex 1.1: Borehole Logs of the Environmental Statement [APP-120]. As noted in paragraph 1.7.4.3 of Volume 3, Chapter 1: Geology and Ground Conditions [APP-073] of the Environmental Statement, the chalk aquifer is generally located at approximately 10 m Above Ordnance Datum along the Hornsea Three geology and ground conditions study area, indicating a significant depth (considerably more than 2 m) of superficial deposits along much of the corridor. The BGS descriptions of these superficial deposits are in paragraph 1.7.3.8 of APP-073, and the hydrogeology of these deposits is discussed in paragraphs 1.7.4.12-1.7.4.16. The depth of superficial deposits will be variable along the onshore cable corridor and at the onshore HVAC booster station and HVDC converter/HVAC substation. This has been taken into account in the assessment by identifying the potential for direct impacts on the principal aquifer to occur. The Applicant has updated the text of paragraph 6.9.1.9 of the Outline CoCP [APP-179] as follows: "Site investigations will be undertaken at regular intervals along the onshore cable corridor, likely at complex HDDs and/or sensitive locations during the detailed design stage to confirm local geological conditions ~~at each proposed HDD location during the detailed design phase to confirm local geological conditions~~. The Environment Agency will be consulted on the locations and methodology of the site investigations." C) The Applicant would refer the Examining Authority to Table 3.52 of Volume 1, Chapter 3: Project Description [APP-058] which identifies the minimum and maximum parameters for HDD burial depth, with the minimum depth being 5m. As such the Applicant can confirm that all HDD locations would be installed at a depth greater than 2.5 m. The text within paragraph 6.1.1.5 of Volume 6, Annex 1.4: Water Framework Directive Groundwater Assessment of the Environmental Statement [APP-123] refers to 2.5 m as the depth of excavated trenches, and states that HDD crossings would be deeper than these trenches.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.4.4	Applicant	Paragraph 6.1.1.5 of the ES [APP-123] states that any bentonite break-outs that might occur from deeper HDD would be contained and that there would be a short recovery time. A) How would any such pollution be recovered either from the principal aquifer or from superficial perched pockets of shallower groundwater? B) Please provide an outline Bentonite Break-Out Plan	A) The text within paragraph 6.1.1.5 of the ES [APP-123] is referring to all HDDs as deeper than trench excavations, and therefore the containment and recovery measures described in Annex C of the Outline CoCP [APP-179] are applicable. It is not expected that HDD operations will lead to pollution of the principle aquifer or smaller aquifers in the superficial deposits, because in areas identified as sensitive (paragraph 6.9.1.5 of the Outline CoCP), a prior hydrogeological risk assessment will inform a crossing method statement which will be agreed with the Environment Agency. As detailed in Table 1.15 of Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement, deep trenchless excavations (i.e for pile foundations, and where necessary at certain crossings) will be mitigated by casing off shallow groundwater units during construction works and sealing off once the casing is removed, based on guidance in: Piling and Penetrative Ground Improvement Methods on land Affected by Contamination: Guidance on Pollution Prevention (Environment Agency, 2001). In all cases, the objective of mitigation and designed in measures is to prevent pollution reaching any aquifer. B) The Applicant would direct the Examining Authority to Appendix C of the Outline Code of Construction Practice [APP-179] which provides an outline Bentonite Break-Out Plan. The plan sets out the risks associated with bentonite reaching the surface water environment; potential pathways and associated mitigation measures; geotechnical evaluations; and the location of drill entry and exits points. The outline Bentonite Break-Out Plan will be developed in consultation with the Environment Agency [paragraph 6.4.1.15 of the Outline CoCP] and forms part of the Outline Code of Construction Practice, and therefore will be agreed with the relevant local planning authority in consultation with the Environment Agency prior to works commencing.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.4.6	Applicant	Paragraph 5.6.8 of NE's representation [RR-097] states that a single flood event could overwhelm soil storage protection measures and deposit large amounts of sediment into watercourses. NE goes on to state that of the 11 intense rainfall events (>31 mm/day) in the last 26 years, 9 have been in the last 10 years. A) What run off control measures are envisaged to mitigate this type of event? B) How would this be secured through the dDCO?	A) Appropriate measures to control impacts associated with runoff from construction, including from the access tracks and compounds, are detailed in the Outline Code of Construction Practice (CoCP) [APP-179] and are in line with best practice (Table 2.17 of Volume 2, Chapter 2: Hydrology and Flood Risk of the Environmental Statement [APP-074]). On this basis, it has been agreed with Norfolk County Council (as documented in the Norfolk County Council SoCG submitted with the Applicant's Deadline I response), as Lead Local Flood Authority, that control measures identified in the application documents relating to run-off along the onshore cable corridor are appropriate, and that details on specific measures will be provided during detailed design once a contractor has been appointed. The measures will be in accordance with industry best practice guidance and will take into account extreme rainfall events. As documented in the Natural England SoCG submitted with the Applicant's Deadline I response, the following clarification text has been added to paragraph 6.4.1.13 of the outline CoCP: 'Measures to avoid or minimise sediment and potential contaminants from entering surface water will be designed to accommodate 1 in 100 year plus climate change worst case storm events.'. Issues relating to hydrology and hydrogeology have been agreed in Table 4.1 of the Natural England SoCG. B) These measures will be captured within the final Code of Construction Practice (CoCP) (which must accord with the Outline Code of Construction Practice APP-179), which will be agreed with the relevant local planning authority. This is stated in Schedule 1, Part 3, Requirement 17 of the draft Development Consent Order. It is additionally relevant to note that the Outline CoCP includes (final bullet at paragraph 6.4.1.17) a provision for ongoing consultation with the Environment Agency and Natural England during the construction period to promote best practice and to implement the proposed mitigation measures.
Q1.4.7	Applicant	Paragraph B.2.4.2 of the Outline Code of Construction Practice [APP-179] states that bentonite settling lagoons may be used to accommodate drill arisings and slurry from HDD operations. How would you ensure that extreme rainfall events do not lead to spillages from these	It is anticipated that bentonite settling lagoons would only be potentially required at major HDD crossings (i.e. typically greater than 200m) at either or both the entry and exit point locations. This includes HDD crossings located across the River Wensum SAC, Blackwater Drain (boundary of Norfolk Valley Fens SAC) and crossings close to Kelling Heath Site of Special Scientific Interest. Such settlement lagoons, if required, would be suitably sized to accommodate all the expected slurry arising with sufficient freeboard to accommodate rainfall events. Tankers would be used to remove materials from site for disposal to mitigate any potential for spillages; in normal weather conditions they would be used regularly to control the levels of slurry in the settlement lagoons, and in anticipation of more extreme weather events lagoons would be emptied. All

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		lagoons which may affect the River Wensum Special Area of Conservation (SAC), the Norfolk Valley Fens SAC and/or the Kelling Heath Site of Special Scientific Interest (SSSI)?	measures to avoid or minimise pollution of surface water will be designed to accommodate extreme rainfall events as detailed in the response to part A of this question.
Q1.4.8	Applicant	Paragraph 3.6.12.4 of the ES [APP-058] states that a landfall construction compound would be required. The approximate location is shown on Sheet 1 of the Works Plan - Onshore [APP-013]. Paragraphs 3.7.2.49 and 3.7.2.50 of the ES [APP-075] indicate that breeding populations of little ringed plover and Cetti's warbler are present in the vicinity. A) What would be the effect of the siting and operation of the landfall construction compound on little ringed plover and Cetti's warbler? B) How would such effects be mitigated and controlled through the dDCO?	A) The Applicant considers that the siting and operation of the landfall construction compound would not be expected to result in an effect on the Cetti's warbler or little ringed plover populations for the following reasons: i) The Cetti's warbler population (paragraph 3.4.1.1 of APP-138) is restricted to the wetland habitat west of the Weybourne Beach car park. This area lies over 200 metres from the Works No 7. Onshore connection works area within which the land fall construction is proposed (Sheet 1 of the Works Plan - Onshore [APP-013]), and therefore disturbance is unlikely. ii) As described in paragraph 3.7.2.49 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075]), a single little ringed plover adult was observed in breeding behaviour during baseline surveys. This behaviour occurred 150 metres south from Works No 7. Onshore connection works (Sheet 1 of the Works Plan - Onshore [APP-013]). It is pertinent to note that no breeding attempt has previously been recorded in the vicinity of the proposed landfall since regular monitoring of the bird community began in 1972 (Moss Taylor *in litt.*). The Applicant considers that should a pair of little ringed plover return to breed within the locality some level of disturbance can be expected in the absence of mitigation (outline in response to B below). B) The Applicant considers that as siting and operation of the landfall construction compound would not result in an significant effect on the Cetti's warbler , no mitigation with respect to this species is necessary. Pre-construction surveys for nesting little ringed plover, informed by the existing data for the species, will be undertaken where construction at the landfall overlaps with the breeding season.

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			As described in the Outline Ecological Management Plan [APP-180], no habitat containing an active nest will be removed or disturbed, and measures will be set in place to protect the nest until the Ecological Clerk of Works (ECoW) has confirmed young have fully fledged and left the nest. The final Ecological Management Plan (EMP) (which must accord with the Outline Ecological Management Plan APP-179) will be agreed with the relevant local planning authority and Natural England prior to commencement. This is secured in Schedule 1, Part 3, Requirement 10 of the draft Development Consent Order [APP-027].
Q1.4.11	Applicant	Paragraph 5.6.5 of NE's representation [RR-097] states that a significant bat population is present at the Alderford Common SSSI. A) To what extent would bat species associated with Alderford Common SSSI be affected by a loss of commuting and foraging routes? B) How would this affect the viability of the roost and the favourable conservation status of the species concerned?	A) The Applicant would direct the Examining Authority to Sheet 9 of the ecological constraints drawing (Figure 10.1 of the Outline Ecological Management Plan [APP-180] and Figure 3.2 of Volume 3 Chapter 3: Ecology and Nature Conservation [APP-075] of the Environmental Statement. The Applicant considered that there is no significant loss of likely bat foraging / commuting routes associated with Alderford Common. The onshore cable corridor passes west and south of the Common so any foraging routes to the north and east are not affected. As shown on the constraints plan and Volume 4 Annex 3.5: Onshore Crossing Schedule of the Environmental Statement [APP-089], Horizontal Directional Drilling (HDD) is proposed for approximately 200 m comprising two hedgerows and a stream (HDD45) which connects Alderford Common SSSI to Bush Meadow Plantation County Wildlife Site (CWS) to the south, and from there to the River Wensum SSSI / SAC and Marriotts Way CWS (both corridors also crossed by HDD43 and HDD44 respectively). This is the route most likely to be used by bats commuting from roosts in Alderford Common to reach foraging areas south of the SSSI, and therefore, the ability of bats roosting in Alderford Common to forage or commute in these areas would not be affected by habitat loss. B) The Applicant considers that for the reasons set out in response to A) above, there would be no adverse effect on the favourable conservation status of bat populations present at Alderford Common SSSI.

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Q1.4.12	Applicant	Paragraph 3.7.2.26 of the ES [APP-075] states that no reptile records were found in areas of permanent land take. A) Were there any records that coincided with the areas of temporary land take, including storage areas? B) If so, where were these located?	A) The Applicant can confirm that there were no reptile records received from the data search that were located within areas of temporary land take. The reptile field survey (Volume 6 Annex 3.6: Reptile Survey) recorded reptiles at 15 locations within the Order Limits in areas of temporary land-take (including storage areas). Of these, 10 are located on areas where HDD only is proposed and therefore no reptile mitigation measures should be required. Three are located on areas where HDD with haul road over is proposed, and two are located on areas proposed for HDD or open cut. In these locations, reptile habitat would be affected by habitat loss from temporary land-take and where mitigation measures are therefore likely to be required All reptile records from the survey are shown on Figure 3.2 of Volume 3 Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075]. In addition, a response received from Dr. Taylor (Honorary Warden of the Weybourne Camp Reserve) during the s42 consultation process indicated that there are adders present within the onshore cable corridor at Weybourne Camp (paragraph 3.7.2.17 of Volume 3, Chapter 3, Ecology and Nature Conservation [APP-075]). Access was not granted for a field survey. Whilst the precise location of this record is not known, for the purposes of the assessment and the identification of mitigation measures, it was assumed that this species is present within the Hornsea Three onshore cable corridor in the area identified as reptile habitat on Sheet 1 of Figure 3.2 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075]. Mitigation for these species is secured in Outline Ecological Management Plan [APP-180].

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			B) The three locations where reptiles were recorded in or adjacent to areas of reptile habitat within temporary land take areas which will be directly affected by habitat loss are on Sheets 13 and 14 of Figure 3.2 of Volume 3 Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075], south of Watton Road (614798 E 307601 N), south of Great Melton Road (615851E 306625 N) and south of Intwood Lane (619213 E 303642 N). These three records are all Grass Snake. The area of habitat where adders are reported to be present at Weybourne Camp is on Sheet 1 of Figure 3.2 of Volume 3 Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075] at 610583 E 343665 N.
Q1.4.13	Applicant	Paragraph 5.6.10 of Natural England's representation [RR-097] states that no draft European Protected Species (EPS) licences had been submitted prior to the application submission. If any draft EPS licences have been submitted since the submission of the application, please provide copies of any Letters of No Impediment which have been issued.	The applicant is developing the documentation required to secure the LONI. This will be submitted to Natural England shortly.
Q1.4.14	Applicant	Paragraph 3.11.1.104 of the ES [APP-075] states that artificial hedgerows would be provided in areas of high bat activity. A) Please show where these measures would be deployed.	A) Artificial hedgerows will be deployed where hedgerows with high or very high levels of bat activity recorded are removed. The exact number and locations of these will be finalised following pre-commencement surveys, although further clarification on the design of the artificial hedgerows is provided is updated paragraphs 5.4.5.2 and 5.4.5.3 of the Outline EMP (APP-180) as follows (new text shown in underline): *"5.4.5.2 Artificial hedges will comprise sections of fencing without gaps and at least 2 m high in order to retain bat flight paths. At locations where construction is ongoing, covered heras fencing (for example with brush retained from*

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		B) What scientific evidence do you have concerning the effectiveness of such measures in maintaining commuting routes for the affected species?	*hedgerow clearance or camouflage mesh) may be used to allow the artificial hedges to be removed during working hours.* *5.4.5.3 When construction is completed on a particular section, a more permanent artificial hedge will be installed until replacement planting creates a continuous connecting habitat. If construction is carried out in two phases, a more permanent artificial hedge will be installed after construction of the first phase, and removed prior to construction of the second phase. These fences would again be without gaps and at least 2 m and may include willow woven fencing, wooden or close-boarded fencing, heras fencing covered with brush, or panels of artificial foliage (or a combination of these).Artificial hedges will comprise sections of Heras fencing containing branches from cleared hedgerow sections which will be threaded along the fence sections so as to enhance the connective value of the fence and help provide some wind shelter effect.* ~~*5.4.5.3 If construction comprises two phases, a more permanent artificial hedge will be installed after construction of the first phase, and removed prior to construction of the second phase."*~~ The Applicant has updated Figure 10.1: Ecological Constraints Plan of the Outline EMP [APP-180] to identify all currently known locations where artificial hedgerows may be required under the maximum design scenario, the updated Outline EMP has been submitted as Appendix 46 to the Applicant's response to Deadline 1. All hedgerows will be retained where practicable. Areas of high bat activity were identified on the baseline surveys, and this was taken into account when assessing the sensitivity of the receptor. The overall magnitude of impact of the construction of Hornsea Three on bats is unchanged and the same mitigation (i.e replacement planting reinforced by artificial flightlines until new planting matures) will be applied in all locations where high activity flightlines are affected. The Applicant can confirm that the conclusion of the assessment on bats (as reported in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075]) has not changed.

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			B) Artificial hedgerows have been proposed as a temporary mitigation measure where hedgerows of high bat activity will be affected by clearance works. Further details are set out below but in summary this proposal is based on the consensus of expert opinion amongst bat ecologists, supported by scientific evidence, that it is best practice to maintain a linear feature where it is necessary to remove a hedgerow. Scientific literature concerning the effectiveness of replacement or artificial hedgerows for maintaining commuting routes for bats is mainly focused on examining whether they are an effective measure to direct bats away from attempting to cross roads and towards safer crossing points. In these situations, the intention of artificial hedgerows is often to divert bats from an existing flightline (where they might be exposed to risk by collision with vehicles) to a different but safer crossing point if they continued to use the existing flightline after road construction. **Evidence that bats are disturbed by the loss of a linear feature** There is a consensus opinion amongst bat ecologists that a gap as little as 10 m wide can be enough to impact on commuting routes (BCT, 2007) and if impacts on flightlines cannot be avoided, it is preferable to provide replacement artificial flightlines along existing flightlines (e.g. Brinkmann (2003) and Brinkmann et al (2008), cited in O'Connor & Green (2011), due to the preference of some bats to use consistent flightlines. **Evidence that bats will follow an artificial flightline when it diverts them from their original path:** Guiding fences or hedges were used by some of the monitored bats in two studies (Britschigi et al. 2004 and Koelman, 2008). Britschigi et al (2004) looked at the use of artificial hedgerows to connect Lesser Horseshoe bats to foraging habitat and found evidence of increasing levels of use of artificial hedgerows by the bats over the duration of the experiment, indicating that the species was adaptable and would use artificial flightlines. Two studies found evidence of guiding structures (a linear feature such as a fence) being successful in diverting bats from an existing flightline (where they would be at risk of collision mortality crossing operational roads at traffic height) towards a crossing point where bat mortality would be less likely (Fuhrmann & Kiefer, 1996 and Picard, 2014). In one study, efforts to divert bats to new mitigation measures by planting trees and shrubs leading to the crossing point seemed

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			unsuccessful (Berthinussen & Altringham, 2012). However, Lüttmann (2012 and 2013) found an increased movement of bats along fenced road stretches, particularly for Myotis, Plecotus and Pipistrellus species. While the evidence to prove that artificial flightlines are effective to divert bats from their pre-existing commuting route is mixed, this literature agrees that bats have strong fidelity to their commuting route, and also have a preference to stay within a hedgerow-like feature. The Applicant's proposal to maintain artificial hedgerows on existing flightlines is in line with both these points, as artificial hedgerows will not be used to divert bats from a pre-existing commuting route. The likely potential response of bats to artificial hedgerows could be summarised in three potential categories: I) The bats continue to use the artificial flightlines as a feature to guide their echolocation when traversing the onshore cable corridor, in which case no fragmentation effect would occur. II) The bats detect that the artificial hedgerow is different from the hedgerow that has been removed, but continue to use the flightline because of a preference to favoured foraging or commuting routes, in which case no fragmentation effect would occur; III) The presence of the artificial flightlines deters bats from crossing the onshore cable corridor, leading them to seek alternative flightpaths across the onshore cable corridor. It is considered that this reaction is the least likely to occur, given the consensus view that it is gaps in flightlines that can deter bats from commuting routes, not the construction of the flightlines themselves. However, if this reaction does occur, the bats have the option of flying across open ground (where there will be no permanent disturbance effect that might otherwise effect behaviour) or they can seek alternative routes via hedgerow crossings that are not affected by clearance works for onshore export cable installation. The frequency of HDDs means that alternative crossing points are available in fairly close proximity in the majority of cases. In this case the routes the bats might take across the landscape could be longer, but feasible.

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			The use of artificial hedgerows to close gaps created in flightlines by temporary works such as cable trenching is a commonly recommended mitigation measure. The measure has the best opportunity of being effective if it is installed along existing flightlines, to provide a feature that the bats can use to echolocate along while replacement planting matures. The Applicant considers that because there are no medium or long-term disturbance or mortality effects associated with the Hornsea Three onshore cable corridor that might reduce the effectiveness of artificial hedgerows, and given that the intention of the artificial hedgerows is to maintain existing flightlines rather than permanently divert them, it is reasonable to conclude that the use of artificial hedgerows will help maintain flightlines for bats in the short-medium term before hedgerow restoration planting matures. In the less likely scenario that the presence of artificial hedgerows actively deter bats, alternative flightlines are available which link likely roost areas to foraging areas. **Reports cited within O'Connor & Green (2011):** Brinkmann R., Bach L., Biedermann M., Dietz M., Dense C., Fiedler W., Fuhrmann M., Kiefer A., Limpens H., Niermann I., Schorcht W., Rahmel U., Reiter G., Simon M., Steck C. & Zahn A. (2003). Schadensbegrenzung bei der Lebensraumzerschneidung durch Verkehrsprojekte – Kenntnisstand-Untersuchungsbedarf im Einzelfall-fachliche Standards zur Ausführung. Positionspapier der Arbeitsgemeinschaft Querungshilfen. Brinkmann R., Biedermann M., Bontadina F., Dietz M., Hintemann G., Karst I., Schmidt C. & Schorcht W. (2008). Planung und Gestaltung von Querungshilfen für Fledermäuse. Ein Leitfaden für Straßenbauvorhaben im Freistaat Sachsen. Sächsisches Staatsministerium für Wirtschaft und Arbeit, 134 Seiten. **Reports cited within Møller et al (2016):** Britschgi A, Theiler A & Bontadina F 2004 Wirkungskontrolle von Verbindungsstrukturen. Teilbericht innerhalb der Sonderuntersuchung zur Wochenstube der Kleinen Hufeisennase in Friedrichswalde-Ottendorf / Sachsen. Unveröffentlichter Bericht, ausgeführt von BMS GbR, Erfurt & SWILD, Zürich im Auftrage der DEGES, Berlin. Koelman RM 2008. Vliegroute vleermuizen Noordelijke Hogeschool Leeuwarden. Beoordeling van de effectiviteit van een tijdelijke vliegroute voor vleermuizen in juli 2008. Rapport 2008.29. Zoogdiervereniging VZZ, Arnhem.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			Fuhrmann M & Kiefer A 1996. Fledermausschutz bei einer Strassenneubauplanung: Ergebnisse einer zweijährigen Untersuchung an einem Wochenstubenquartier von Grossen Mausohren (Myotis BORKHAUSEN, 1797). Fauna Flora Rheinland-Pfalz 21, pp. 133-140. Picard J 2014. Llanwnda to south of Llanllyfni Improvement—Assessment of Longer Term Implications on European Sites. Hyder Consulting (UK) Limited-2212959. Berthinussen A & Altringham J 2012. Do bat gantries and underpasses help bats cross roads safely? PloS One 7. e38775. doi:10.1371/journal.pone.0038775 Lüttmann J 2012. Are barrier fences effective mitigating measures to reduce road traffic bat mortality and movement barrier effects? Proceedings from the IENE 2012 International Conference, October 21 – 24, 2012, Berlin-Potsdam, Germany, p. 108. Lüttmann J 2013. Beeinflussen Querungshilfen und Schutzzäune das Querungsverhalten von Fledermäusen. Poster presented on FGSV-Landschaftstagung 2013.
Q1.4.15	Applicant	Paragraph 3.11.1.102 of the ES [APP-075] states that, in most cases, bats would be able to use alternative routes at 8 locations where important hedgerows would be lost. A) What scientific evidence do you have to support this assumption and how have you quantified the suitability of alternative routes? B) Given the proposed use of HDD at 37 hedgerow locations where bat activity is high, would it be appropriate to use the	A) As established in the response to Q1.4.14, the Applicant considers that bats are most likely to use the artificial flightlines for commuting across the onshore cable corridor in these locations, given that it is severance of flightlines by creation of gaps that is the key potential driver of an adverse effect. The Applicant acknowledges that there is variation within the bat population which may mean that some bats prefer to not use the artificial flightlines, but in that (less likely scenario) alternative flightlines along retained hedgerows or across open ground are available for bats and the availability of such alternative routes in the vicinity (up to c500m from the flightline) is itself a key mitigation measure. Artificial flightlines and alternative routes should be viewed in combination as a best practice solution to the short to medium term loss of hedgerows. For the purposes of the bat flightlines affected by the installation of the Hornsea Three onshore cable corridor, the mitigation proposed is considered to be an acceptable measure to minimise disruption to flightlines. The suitability of alternative routes was assessed by looking for the availability of suitable connective habitat such as hedgerows that provides a clear alternative uninterrupted flightline that enables bats to cross the onshore cable corridor within a reasonable distance of the potentially affected flightline (i.e. up to c500m from the flightline).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		same approach at the remaining 8 locations?	B) The Applicant has employed a robust process to decide which features will be crossed using HDD. Annex E to the updated Outline Code of Construction Practice [APP-179] shows the location of HDD only, HDD with haul road over and HDD with ducting laydown crossings which the Applicant is committing to. The decision regarding which crossing method to use at which location has involved a review of ecological, landscape and underground protected features, among other factors including commercial and planning considerations. The Applicant considers it is not appropriate to propose to HDD under all hedgerows with high bat activity as the mitigation measures proposed to maintain commuting paths for bats are considered to be effective (set out in part A of this question).
Q1.4.17	Applicant	Paragraph 6.5.1.19 of the Outline Code of Construction Practice [APP-179] states that the impact of vegetation clearance on reptiles would be mitigated by 'gradual strimming of above-ground vegetation'. A) What level of risk is there that this method could kill reptiles that have emerged from hibernation with restricted movement due to low body temperature? B) Please explain the apparent inconsistencies with paragraphs 4.3.3.5 and 4.3.3.7 of the Outline Ecological Management Plan [APP-180]. C) Why have these measures not been incorporated into the Outline Code of Construction Practice?	A) Gradual strimming refers to a technique whereby vegetation that might support active reptiles is progressively and carefully strimmed in phases in order to minimise the risk of mortality that might occur if the vegetation was cut down to ground level in one pass. Instead, an initial cut to 10 cm is undertaken, followed by a further cut to 5 cm. Reptiles would be encouraged to move out of the strimming area on the first pass but would not be at risk of injury from the strimming action. The second, lower cut, is intended to make the habitat unsuitable for reptiles so that they do not move back in to the cut area. This method would only be used where there is alternative habitat available. There are two potential causes of mortality resulting from the proposed mitigation method when reptiles emerge from hibernation with potentially restricted movement due to low body temperature. Firstly, that the reptiles are unable to move out of the way of the strimming operation in time and are killed. This risk is avoided by the two-phase cut, as the first cut is sufficiently high such that any reptiles that do not move away from the strimming operation will not be harmed. The time between the first and second cut, which would be advised by the ECoW, allows reptiles to move away before the second cut commences. The potential restricted movement due to lower body temperature immediately after hibernation should therefore not result in increased mortality from the strimming operation itself. The second potential cause of mortality is that reptiles emerging from hibernation in areas that have been completely cleared of vegetation are more at risk of predation and exposure to cold conditions if there is no suitable cover available to them. Edgar et al (2010) states that flailing vegetation to ground level in areas used for early spring basking (i.e. after emerging from hibernation) by reptiles can result in a 'moderate' impact on a population from increased predation. The Applicant does not consider that clearing trees and scrub to a height of 30 cm (as specified in in Paragraph 6.5.1.20 of the Outline Code of Construction Practice [APP-0179]) in areas where reptiles might be hibernating would

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			result in a significantly increased risk of mortality for reptiles emerging from hibernation provided that sufficient ground cover remains to give reptiles refuge from predation and cold temperatures on emergence from hibernation. Furthermore, measures (such as uprooting of vegetation of potential value to hibernating reptiles) would be taken prior to the start of the hibernation period to deter reptiles from hibernating in the area (Table 3.19 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075] and Paragraph 6.5.1.20 of the Outline Code of Construction Practice [APP-0179]. (Edgar, P., Foster, J. and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.)
			B) The Applicant has reviewed the Outline Ecological Management Plan [APP-180] as part of its Deadline I submission and has amended the wording of paragraph 4.3.3.5 as follows: *"If habitat is cleared during the reptile hibernation period (November until February inclusive, dependent on local weather conditions), trees and scrub will be cut using brushcutters or chainsaws, to a height of approximately 30 cm above ground level, so as to minimise the potential for disturbance to root balls where hibernating reptiles may be located."* The amended paragraph 4.3.3.5 relates to reptile habitat management that may have to be undertaken during the hibernation season, which may be required to deter breeding birds from nesting in the area. Paragraph 4.3.3.7 of the Outline Ecological Management Plan [APP-180] relates to operations undertaken in areas of reptile habitat during the reptile active season in order to encourage reptiles to move out of the works area and to deter reptiles from hibernating. This paragraph provides detail on the manner by which habitat clearance would be undertaken and is summarised in paragraph 6.5.1.20 of the Outline Code of Construction Practice [APP-179].

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			C)The purpose of the Outline Ecological Management Plan [APP-180] is to describe the ecology and nature conservation mitigation measures that will be implemented, whereas the Outline Code of Construction Practice [APP-179] sets out the management measures for all environmental topics. To avoid duplication of information, a summary of the ecology and nature conservation measures are included in the Outline Code of Construction Practice [APP-179] and further detail is provided in the Outline Ecological Management Plan [APP-180].
Q1.4.18	Applicant	Paragraph 4.3.6.6 of the Outline Ecological Management Plan [APP-180] states that all construction lighting in the vicinity of bat roosts should conform to guidelines produced by the Bat Conservation Trust. A) Should this be incorporated into the Outline Code of Construction Practice [APP-179]? B) Should this also be applied to key foraging and commuting routes?	A) The Applicant has reviewed the Outline Code of Construction Practice [APP-179] as part of its Deadline I submission and has amended the wording of paragraph 6.5.1.6 as follows: *"Night working will be avoided where practicable. Where night working is unavoidable, light fixtures will be directed away from habitat of value to protected or otherwise notable species including badgers, birds and bats, to minimise likely disturbance effects of light spillage. Lighting will be kept to an absolute practicable minimum where located nearby to any active badger setts. Construction lighting in the vicinity of bat roosts and hedgerows where high or very high levels of bat activity have been recorded will follow best practice guidelines produced by the BCT (BCT, 2011)".*
			B) In addition to the amendment to paragraph 6.5.1.6 of the Outline Code of Construction Practice (CoCP) [APP-179] above, the Applicant has reviewed the Outline Ecological Management Plan [APP-180] as part of its Deadline I submission and has amended the wording of paragraph 4.3.6.5 as follows: "*Hedgerow restoration will take place immediately following each cabling phase. However, replacement planting will take time to mature after each phase of construction. Therefore, artificial hedgerows will be provided in locations where hedgerows supporting high or very high levels of bat activity have been recorded in the locations shown on Figure 10.1. This will ensure that connectivity will be maintained across gaps created by the hedgerow until the second phase restoration planting matures. Construction lighting in the vicinity of hedgerows where high or very high levels of bat activity have been recorded will follow best practice guidelines produced by the BCT (BCT, 2011)".*
Q1.4.19	Applicant	Table 4.4 of the Report to Inform the Appropriate Assessment [APP-051] differs from the maximum design parameters	The Applicant acknowledges that the correct parameters for the maximum design scenario (MDS) are listed in Table 3.14 of the Environmental Statement [APP-075]. Full details of these parameters are included in Appendix 37 of the Applicant's response to Deadline I.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		listed in table 3.14 of the ES [APP-075]. Please explain which values are correct for the number of link boxes and the dimensions of the substations and booster station.	
Q1.4.20	Applicant	Paragraph 5.6.3 of NE's representation [RR-097] states that there is insufficient information to comment on the likely effectiveness of the pink-footed geese mitigation plan. A) Please explain what measures you are considering to reduce disturbance to pink-footed geese populations during the installation of the onshore cable connection. B) Would it be possible to avoid construction activities during the period when the geese are present?	A. As seasonal, spatial and economic (beet harvesting schedules) aspects affect the existence of useable foraging habitat within the onshore cable corridor, and construction timelines and processes will not be finally decided until the appointment of a contractor, there are variables as to whether an impact as a result of cable installation works will occur, and if so the scale of such an impact on pink-footed geese. Therefore, the Applicant has committed to the preparation of a Pink-footed Goose mitigation plan, the final version will form an appendix to the final CoCP (Requirement 17 of the dDCO), as stated in updated paragraph 6.5.1.40* of the Outline CoCP (APP-179) (new text shown in underline) *"6.5.1.40 If construction work on functionally linked sugar beet fields is likely to take place between November and January inclusive, a pink-footed goose mitigation plan will be formulated and submitted to Natural England for approval in the 12 months prior to construction. <u>The final version of this document will have as an appendix the approved Pink-footed Goose mitigation plan.</u> There would be two steps to the plan: …"* This plan will incorporate a decision tree process to promote adaptive management, incorporating all relevant variables and milestones in order to inform appropriate mitigation that is targeted and proportional in light of the circumstances at the time of construction. Should it be determined pursuant to the decision-tree process of the Pink-footed Goose mitigation plan that mitigation is necessary, options which would be considered include assigning an ECoW with experience working with pink-footed geese, toolbox talks with contractors to make them aware of disturbance pathways, and restricting the timing of works which involve a team of people and equipment working gradually along the cable corridor i.e. trench excavation and fencing. *It is noted that an error within the numbering of paragraphs 6.5.1.40 – 6.5.1.42 of the Outline CoCP (as submitted) has also been corrected within the updated Outline CoCP (APP-179) provided as Appendix 44 to the Applicant's response to Deadline I.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			B. The Applicant does not consider it feasible or necessary to stop all construction while geese are present. Should mitigation be deemed necessary following the decision tree process described above, an appropriate level of mitigation (which could include the measures listed in the Applicant's response to part A of this question) will be agreed through the approval process of the Pink-footed Goose mitigation plan.
Q1.4.23	Applicant	Screening and integrity matrices have been submitted in response to s51 advice from the Inspectorate [PD-003]. Please provide updated versions of the Stage 2 matrices to deal with the following points: Footnote 'd' is missing from the Stage 2 Matrix for the Southern North Sea candidate SAC. Matrix 3.17 for the Norfolk Valley Fens SAC only lists one feature - this does not match the list of features for which likely significant effects were identified in the Report to Inform Appropriate Assessment. All the features which were assessed for effects on integrity should be included in the matrix. The footnotes for the North Norfolk Coast Ramsar site include footnote 'e' which does not appear in the matrix.	Please see Appendix 1 of the Applicant's response to Deadline I which provides an updated version of the HRA Screening and Integrity Matrices and addresses each of these points.

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Q1.4.24	Applicant, NE	The European Court of Justice has made a recent ruling which may have implications for the assessment of the integrity of European sites (case C-164/17 - Reference for a preliminary ruling from Supreme Court (Ireland) made on 3 April 2017 — Edel Grace, Peter Sweetman v An Bord Pleanala). A previous question seeks views on any implications this judgement may have for appropriate assessment in relation to offshore European sites. Do you have any further or different comments in relation to onshore European sites?	The implications of these recent rulings have been considered in relation to both offshore (see response to Question 1.2.118) and onshore European sites. There is no indication that screening of European sites or the Report to Inform Appropriate Assessment [APP- 051] require amendment in light of these rulings. We believe the implications of these rulings apply equally to both offshore and onshore sites.

1.6 Written Question 1.5 Navigation and other offshore operations

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.5.1	Applicant, Maritime and Coastguard Agency (MCA)	Section 18.2 of the Navigational Risk Assessment [APP-112] describes the collision risk modelling undertaken. The modelled vessel to vessel collision risk in the Hornsea Project Three array area is a major collision return period of 1 in 193 years. Following construction of the proposed array the risk would increase to 1 in 152 years. Paragraph 7.11.2.39 of the ES [APP-067] characterises this as a negligible effect. A) Please can the Applicant provide further explanation as to why this increase in collision risk should be regarded as negligible? B) Is the MCA in agreement with the approach to collision risk modelling and do you consider the outputs of the modelling to be realistic?	A) The annual vessel to vessel collision frequency following the installation of Hornsea Three was estimated to be 6.59×10-3, corresponding to a major collision return period of one in 152 years. This value was based on a precautionary vessel routeing assumption of vessels passing a minimum of 1 nm from any structure within Layout A (see Figure 9.1 of Volume 5, Annex 7.1: Navigational Risk Assessment [APP-112]). In reality vessels will likely pass at a more variable distance resulting in the potential for collision risk being reduced. It is also noted that the one in 152 years value is considering Hornsea Three in isolation. The presence of Hornsea Project One and Hornsea Project Two will displace traffic to the north from existing routes, further reducing the potential collision risk, prior to Hornsea Three becoming operational. Table 1.1 in Appendix 35 to the Applicants response to Deadline I presents the vessel to vessel collision return periods for the pre-wind farm and post-wind farm scenarios for a selection of other submitted and consented offshore wind farm projects. The increase in collision risk for Hornsea Three Offshore Wind Farm is 21%. As presented in Table 1.1 of Appendix 35 to the Applicants response to Deadline I, this increase, based on conservative routeing, is in line with that for Norfolk Vanguard and lower than that of Hornsea Project One and Hornsea Project Two. The increase in collision risk is therefore within As Low As Reasonably Practicable (ALARP) parameters when compared to increases associated with other consented wind farm projects. It is also noted that collision risk modelling is one of many inputs used to assign rankings to effects. Other inputs include lessons learnt, consultation and importantly the Hazard Workshop which all indicated increased collision risk to be a negligible risk.

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			B) This question is directed to the MCA but the Applicant would like to note that the method and modelling processes were agreed in advance of the Navigational Risk Assessment being undertaken with key consultees and Hazard Workshop attendees.
Q1.5.2	Applicant	Figure 16.1 in the Navigational Risk Assessment [APP-112] shows an adverse weather route for the Cuxhaven-Immingham ferry passing through the area of the proposed array. A)How does the availability of this route benefit the operation of the ferry at present? B)What would be the consequences for ferry operations of the loss of this route? C)Would there be an alternative adverse weather route or would ferries revert to one of the standard routes shown on Figure 16.1?	A-C) Adverse weather routes are assessed to be significant course adjustments to mitigate vessel movement in adverse weather conditions. For the purposes of the assessment into adverse weather, indicative transit routes were provided by the ferry operator. These routes are only potential routes the vessels may take and when considered against real time data were shown not to be frequently used. There are no fixed requirements to any route that a vessel may take. For the operation and maintenance phase, pre PEIR consultation with ferry operator DFDS Seaways identified that the Hornsea Three array area was intersected by one indicative adverse weather route for the Immingham to Cuxhaven route. However, analysis of vessel Automatic Identification System (AIS) survey data from 2016 undertaken as part of the Navigational Risk Assessment (NRA) (see Section 22.6 of Volume 5, Annex 7.1: NRA [APP-112]), identified eight potential adverse weather transits (transits that deviated from typical routes and therefore assumed to be adverse weather mitigation). When considered against the number of potential standard crossings recorded via AIS this equates to less than 2% of total transits (during the 2016 sample) using adverse weather routeing which is notably to the north of the Hornsea Three array area. The actual adverse weather tracks (as assumed) were also to the north of the Hornsea Three array area. It is also noted that the vessels on the Immingham to Cuxhaven route are commercial Ro Ro vessels that carry a limited number of passengers and are therefore more able to withstand adverse weather conditions than passenger ferries (due to health and safety risks to on-board passengers) however, there are still viable and safe options open to

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			them should conditions on their normal routes deteriorate as is shown in Figure 1.1 in Appendix 35 to the Applicants response to Deadline I. Therefore, given the limited use of indicative adverse weather routes that transit through the site and the potential for the vessel to utilise other viable and safe adverse weather route options, especially given the limited numbers of passengers carried, there are not expected to be any negative effects on the Immingham to Cuxhaven route. A representative from DFDS Seaways, who operate the Immingham to Cuxhaven route, did attend the Hazard Workshop for Hornsea Three and no response was received to the Section 42 consultation. It is also noted that DFDS Seaways have not submitted a relevant representation.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.5.3	Applicant	The ES [APP-067] discusses the vessel to subsea structure allision risk resulting from presence of subsea high voltage alternating current (HVAC) booster stations and cable protection. Section 18.4 of the Navigational Risk Assessment [APP-112] identifies a key area of risk approximately 5nm north of the landfall location, together with specific cable/pipeline crossings which may be of concern. A)Please provide further information about the existing depths of water, the likely reductions in depth due to subsea works and the range of draughts of vessels typically navigating through these areas of risk/concern. B) The ES refers to potential further mitigation being required should subsea offshore HVAC booster stations be utilised. Please give examples of what such further mitigation might be.	A) It is noted that the MCA accept up to a 5% reduction in water depth in surrounding charted depths referenced to Chart Datum (MGN 543 (Annex 1 (section 3d), MCA 2016), beyond which consultation must be undertaken with the MCA to evidence that any navigational risks to any vessel type are satisfactorily mitigated. Section 18.4 of Volume 5, Annex 7.1: Navigational Risk Assessment [APP-112] includes an initial assessment of under keel clearance associated with cable burial and protection that was undertaken post section 42 consultation to address concerns raised by the MCA with regard to reductions in water depth greater than 5%. As noted in the ExA's question, the NRA identified areas of potential risk approximately 5nm to the north of the export cable landfall where the cables cross shallow waters west of the Sheringham Shoal bank. Shallows above banks further offshore (the Leman Bank and the Ower Bank) were also identified as areas of potential under keel clearance impact, although it was noted that traffic was less dense within these areas and largely comprised of oil and gas related traffic. The crossings of the Dudgeon offshore wind farm export cable area, the Stratos 1 cable, and the Clipper to Galleon (all <25 m depth) and Clipper to Skiff pipelines (<35 m depth) were identified as specific areas of potential concern with regards to under keel clearance and the likely need for cable protection material at these points that would likely lie above the existing charted depths and therefore have the potential to reduce navigable depths. Additionally, the Applicant notes that pipeline and other crossing agreements will be required with various cable/pipeline owners for all assets crossing within 500m of Hornsea Three's export cables as discussed in paragraph 11.7.15.2 of Volume 2, Chapter 11: Infrastructure and Other Users [APP-071]. It is noted that, post consent and prior to construction, and once the detailed design of the Hornsea Three export cable route is finalised, a cable crossing agreement will need to be entered into with the relevant cable/pipeline operators; these agreements will set out the requirements for cable crossing design and installation methods. The Applicant proposes to control the risk relating to reductions in navigable depth through the 'industry standard' process and by consultation with the MCA during the post consent phase; the process is already secured by condition in the dMLs. The process post-consent will be as follows:

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			• Undertake a full detailed bathymetric survey will be undertaken prior to commencement of the works including areas where there is a risk that navigable depths will be reduced beyond the 5% MCA threshold (as detailed within the updated In Principle Monitoring Plan (IPMP) [APP-182] and secured via appropriate condition within the dMLs). • Complete commercial crossing agreements with other cable/pipeline operators (to define requirements relating to crossing design). • Finalise cable installation methodology and burial requirements, including identifying areas potentially requiring cable protection; including final cable/pipeline crossing designs identifying location and height of crossing infrastructure above prevailing charted depths (as confirmed by the bathymetric survey). • Set out the cable installation and design in the Cable Specification and Installation Plan (CSIP) under conditions 13(1)(h(ii) and 14(1)(h)(ii) in the dDCO [APP-027] for approval by the MMO in consultation with the MCA (the CSIP will identify reductions in navigable depth of >5%). Approval of this plan will be dependent on the MCA being satisfied that any risk arising from reductions in navigable depth are ALARP and by reference to the location of the cable protection/crossings and prevailing marine traffic type and density. Where necessary, and by consultation with the MCA on the CSIP, identify any further mitigation required to ensure the safety of navigation in the vicinity of cable protection/crossing infrastructure. Such further mitigation measures which could be employed to ensure safety of navigation in the vicinity of cable protection/crossing infrastructure include those outlined in Part B below for the subsea HVAC booster stations (e.g. promulgation of information, marking on admiralty charts and buoyage).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			B) The following mitigations are proposed to reduce the risk of allision for the subsea HVAC booster stations. • **Allision modelling** Under keel allision risk modelling will be undertaken post consent if the subsea option is selected and once number, location and size have been defined. This will be done in consultation with the MCA and Trinity House. • **Promulgation of information** Where water depths are reduced in the vicinity of regular traffic, the relevant vessel operators (identified via marine traffic analysis) should be made aware of reductions. • **Marking on Admiralty charts** All relevant details with regards to the HVAC booster stations will be provided to the UK Hydrographic Office (UKHO), who will mark this information on Admiralty charts as appropriate. The UKHO may consider adding notes to charts highlighting hazards arising from subsea infrastructure. • **Buoyage** Should subsurface HVAC booster stations be installed, it was recommended by Trinity House that their presence be indicated by permanent buoyage. • **Safety zones** Inclusion of operational safety zones around the subsurface HVAC booster stations in the Hornsea Three safety zone application may also be considered in conjunction with the Department for Business, Environment and Industrial Strategy.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.5.4	MCA	The MCA [RR-060] considers that the 150m tolerance referred to in Principle 8 of the Layout Development Principles [APP-091] is excessive and would impede search and rescue (SAR) coverage. What would the MCA regard as an acceptable tolerance?	The Applicant notes that this question is directed at the MCA but points out that the MCA's relevant representation stated that a 300 m Development Lane (± 150 m of the centreline) would result in 23% of the array not being searchable. In the Applicant's opinion the statement that a 300 m Development Lane (± 150 m of the centreline) would result in 23% of the array not being searchable is incorrect and takes neither account of the systems fitted to the MCA SAR helicopter nor the widely spaced infrastructure (spaced at least 1km apart) as required under condition 2(1)(c) of the dDCO [APP-027]. The Applicant's SAR specialist has provided information on the equipment available on SAR helicopters to allow a close approach and search of the area between the widely spaced turbines within the Development Lanes including: Star SAFIRE HD- The MCA SAR Helicopters use an Electro-Optical System made by FLIR Systems, the Star SAFIRE HD. Unlike previous systems, this product can combine visual and IR imagery onto a single screen which optimises the search in difficult conditions. This would permit a search of the Development Lanes from the SAR Lanes in all but the poorest visibility. The system can use Merlin software which cues the operator to possible survivors and so enhances the search capability. Radar Honeywell Primus 701A - The S92 is equipped with the Primus 701 radar which has a minimum range of 137m (450 ft). This system enables ground/sea mapping and weather detection optimised for SAR operations. The Primus 701A has a variable pulse width that is automatically optimised for range and mode setting. The system also includes selectable sea clutter reduction and operator modified gain and tilt thereby allowing for optimum search capability. The radar is capable of discriminating between individual turbines and mapping an obstacle free track between turbines. Automatic Identification System - The MCA SAR helicopters are equipped with AIS which will allow them to identify any equipped vessels or turbines fitted with AIS. Navigation systems - The MCA SAR helicopters are equipped with integrated navigation and display systems which will show the crew all obstacles held in the database. As the turbines will be accurately mapped, the system will provide a clear display of the obstacles. There is the ability to add the turbines to the EGPWS database giving

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			approximately 20 seconds of warning before an obstacle, but this should be balanced against the frequency of nuisance alerts.
Q1.5.5	Applicant, MCA	The MCA [RR-060] considers that, in the interests of SAR capability, an assessment should be made of the feasibility of providing a helicopter refuge area perpendicular to the turbine development corridors. A)What would be the advantages and disadvantages of incorporating a helicopter refuge area as suggested by the MCA? B)Are there examples of offshore windfarms with turbine development corridors of a length comparable to this proposal? C)If there are, what approach was taken to	A) For arrays comprised of tightly spaced turbines, a dedicated helicopter refuge area may allow an area for the SAR helicopter to manoeuvre in poor weather or when faced with an emergency. It is noted that this is not the case for Hornsea Three or other current Round Three projects where turbine spacing is at least 1 km in all directions. The turbine spacing in Hornsea Three of at least 1km gives the helicopters sufficient space to manoeuvre within SAR lanes or between lanes. It has been suggested to the MCA that the conspicuity of some turning points could be enhanced by installing AIS on key turbines as SAR helicopters are equipped with AIS. It is believed that the widely spaced turbines on Hornsea Three combined with the SAR helicopter equipment, which includes radar, AIS, moving maps, electro-optical sensors and a Terrain (and obstacle) Awareness Warning System will allow the SAR helicopters to clearly identify obstacles without the need for a refuge area. Critically, to be effective a helicopter refuge area would have to be located where the SAR operation was being conducted and/or where the emergency occurred, which is unlikely and not predictable. Although the MCA Guidance mentions refuge areas, this requirement does not appear to be necessary in the case of Hornsea Three due to the spacing of turbines.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		maintaining SAR capability in those examples?	B) Of publicly available projects only the in-construction Hornsea Project One have SAR lanes of around 10 nm in length.
			C) Given the shape of Hornsea One only two lanes are near this 10nm length and no additional mitigations were included (outside of those mentioned in MGN 543 i.e., turbine ID marking).
Q1.5.6	Neptune E&P UK Limited (Neptune)	Neptune [RR-063] considers that Hornsea Project Three, in combination with Hornsea Projects One and Two, would create a barrier to helicopters flying between Norwich and the Cygnus gas field, thereby increasing flight times. A safe corridor for helicopters between Hornsea Projects Two and Three is suggested. Please illustrate, in plan form, the dimensions and approximate location of the suggested safe corridor. Please quantify any impacts on flight times, payload, fuel usage and emergency response times resulting from Hornsea Project Three (on the assumption that Hornsea Projects One and Two are constructed). How would the resulting flight times compare with the range of flight times currently experienced between oil and gas	The Applicant refers the Ex.A to the Applicant's response to Neptune Energy's Relevant Representations (RR-063) submitted to Deadline I. The Applicant and Neptune are in ongoing dialogue regarding the necessary mitigation measures to address concerns raised in the Neptune Relevant Representation. A summary of these discussions and the proposed mitigation measures are outlined in a Letter of Comfort between the Applicant and Neptune which is presented in the Applicants response to Deadline I.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		installations in the North Sea generally and the UK?	
Q1.5.7	Spirit Energy Nederland BV, Spirit Energy North Sea Limited and Spirit Energy Resources Limited (Spirit Energy)	Spirit Energy [RR-107, RR-108, RR-109] is concerned about a range of effects on its Greater Markham Area operations. A) Please provide further detail about the specific assets which are of concern and their respective distances from the proposed windfarm. B) How do those distances compare with other installations operated by Spirit Energy in the vicinity of offshore windfarms? C) What further mitigation measures do you consider to be necessary?	Hornsea Three is engaged in ongoing discussions with Spirit Energy in relation to concerns raised in their Relevant Representations (RR-107, RR-108, RR-109). The Applicant would also refer the Ex.A to the Applicant's response to the Spirit Energy Relevant Representations submitted to Deadline I. A) With regard to Spirit Energy's concerns in relation to the proximity of Hornsea Three to Spirit Energy infrastructure, these fall into two categories, (i) those concerned with helicopter access and (ii) those concerned with vessel access and available sea room. These are discussed in further detail in the Applicant's response to the Spirit Energy Relevant Representation submitted to Deadline I. B) The Applicant notes that, due to the spatial coverage of UK oil and gas licensing, many UK offshore wind farm developments coexist with the oil and gas sector to some degree. There are examples of offshore wind farms which are operating in similar proximity to oil and gas assets as compared to the Spirit Energy platforms and Hornsea Three. The examples listed below involve oil and gas infrastructure that is currently listed as operational on the OGA website. • The Perenco operated Waveney platform is 2.6 nm from the operational Dudgeon wind farm; • The Eni operated Douglas group of platforms are 2.8 nm from the operational Gwynt y Mor wind farm; and • The Amethyst B1D platform is 1.4 nm from the consented Triton Knoll wind farm. The Applicant notes that the Spirit Energy operated Millom West platform is 3.7 nm from the operational Walney Extension wind farm.

<table>
<tr><th>PINS Question number:</th><th>Question is addressed to:</th><th>Question:</th><th>Applicant's Response:</th></tr>
<tr><td></td><td></td><td></td><td>The Applicant considers that the proximity of Hornsea Three to the Spirit Energy assets is not a significant impediment to operations.</td></tr>
<tr><td></td><td></td><td></td><td>C) The Applicant's position is that due to the absence of significant effects on Spirit Energy activities and assets (including within the Greater Markham Area), no further mitigation is required. However, the Applicant would note that discussions are ongoing with Spirit Energy on their concerns.</td></tr>
<tr><td>Q1.5.8</td><td>Conoco Phillips (UK) Limited</td><td>ConocoPhillips (UK) Limited [RR-036] is concerned about a range of effects on its onshore and offshore operations.

Please provide further detail about the specific assets which are of concern and their respective distances from the proposed development.

What further mitigation measures do you consider to be necessary?</td><td>The Applicant is responding in regard to ConocoPhillips (COP) offshore operations.
The Applicant has identified all the ConocoPhillips assets that have the potential to be affected by Hornsea Three, within Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement [APP-071].

The Applicant notes that there are no COP assets which are coincident with the Hornsea Three array area or within 1 km of the Hornsea Three array area and that there are no COP platforms within the helicopter 9 nm consultation zones, in line with latest Civil Aviation Authority (CAA) guidance (CAP 764) (see paragraph 8.7.4.10 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement [APP-068] or which overlap with the Hornsea Three array area.

There are two COP platforms, listed below, with Radar Early Warning Systems (REWS) which are just within the potential detection range of the Hornsea Three array area, both of which have been assessed within the Environmental Statement (see the Applicant's response to the COP Relevant Representation submitted to Deadline I).

<table><tr><th rowspan="2">Name of Platform</th><th colspan="2">Distance to Hornsea Three array area</th></tr><tr><th>nm</th><th>km</th></tr></table></td></tr>
</table>

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:

Murdoch	16.9	31.3
Saturn	17.7	32.7

The Murdoch platform is at the edge of potential detection and shares its REWS coverage with the Katy platform which is outside the range of the Hornsea Three array area (meaning overall REWS coverage would not be impacted) and so has not been considered further within the assessments.

Radar modelling was carried out in order to identify the impact of Hornsea Three on the Saturn platform REWS and is presented in Section 5.2 of Volume 5, Annex 11.1: Radar Early Warning Systems Technical Annex of the Environmental Statement [APP-119]. A summary of this modelling is provided in the Applicants response to the COP Relevant Representations submitted to Deadline I. On the basis of the outputs of this modelling, the effect on the Saturn platform REWS was predicted to be of negligible significance, which is not significant in EIA terms.

The Applicant notes that the following COP licences are coincident with the Hornsea Three offshore cable corridor.

Block	Licence	Type
49/11a	P28	Production
49/11b	P130	Production
48/15a	P130	Production

<table>
<tr><th>PINS Question number:</th><th>Question is addressed to:</th><th>Question:</th><th>Applicant's Response:</th></tr>
<tr><td></td><td></td><td></td><td>
The Applicant notes that since the Hornsea Three Development Consent Order (DCO) application, COP have surrendered licence P130 which was coincident with the Hornsea Three offshore cable corridor.

The Applicant notes the following licences are within 1 km of the Hornsea Three offshore cable corridor.

<table>
<tr><th>Block</th><th>Licence</th><th>Type</th></tr>
<tr><td>49/16a</td><td>P33</td><td>Production</td></tr>
</table>

The Applicant notes that COP have several platforms within the vicinity of the Hornsea Three offshore cable corridor, however only two of these platforms, listed below, are within licence blocks which are within 1 km of the Hornsea Three offshore cable corridor.

<table>
<tr><th>Platform</th><th>Distance from cable route</th><th>Block</th></tr>
<tr><td>Viscount VO platform,

Vampire OD platform</td><td>15.4 km

4.4 km</td><td>49/16a (within 1 km of the Hornsea Three offshore cable corridor).</td></tr>
</table>

The Applicant notes that the Viscount VO platform and the Vampire OD platform are due for decommissioning. COP have confirmed during post Application consultation that these two platforms, and associated pipelines and subsea infrastructure, have been given Decommissioning Programme Approval by the Secretary of State and will be
</td></tr>
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<tr><th>PINS Question number:</th><th>Question is addressed to:</th><th>Question:</th><th>Applicant's Response:</th></tr>
<tr><td></td><td></td><td></td><td>
decommissioned prior to the construction of Hornsea Three. These platforms were not considered further within the Environmental Statement.

The Applicant notes that there are no subsea facilities coincident or within 1 km of the Hornsea Three offshore cable corridor.

The Applicant notes that at the time of the Hornsea Three DCO application there were seven COP operated pipelines as listed below which cross the Hornsea Three offshore cable corridor. One of these pipelines (OID_38) has subsequently been transferred to another operator.

<table>
<tr><th>Crossing ID</th><th>Platform Source/Destination</th><th>Fluid</th></tr>
<tr><td>OID_21</td><td>LOGGS PP TO THEDDLETHORPE MEOH LINE</td><td>Methanol</td></tr>
<tr><td>OID_22</td><td>LOGGS PP TO THEDDLETHORPE GAS LINE</td><td>Gas</td></tr>
<tr><td>OID_26</td><td>Viking AR to Theddlethorpe Gas Line</td><td>Gas</td></tr>
<tr><td>OID_27</td><td>Viking AR to Theddlethorpe Meoh Line</td><td>Methanol</td></tr>
<tr><td>OID_38</td><td>Audrey XW to Alison KX</td><td>Unknown</td></tr>
<tr><td>OID_39</td><td>Saturn ND to Loggs PR</td><td>Gas</td></tr>
<tr><td>OID_40</td><td>Loggs PR to Saturn ND</td><td>Methanol</td></tr>
</table>
</td></tr>
</table>

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			The Applicant has consulted with COP since submission of the Application (24 October 2018) in regard to issues raised within their relevant representation (RR-036). COP and the Applicant are in ongoing discussion regarding the potential to prepare crossing and proximity agreements for all COP operated pipelines, as discussed in paragraph 11.7.15.2 of Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement [APP-071]. The Applicant understands from the consultation with COP on 24 October 2018 that COP remains concerned in regard to potential issues relating to decommissioning. The Applicant is aware of the decommissioning plans in the vicinity of the offshore cable route corridor and is in discussions with COP in regard to these or other plans that may overlap with the construction and operation and maintenance activities along the Hornsea Three offshore cable route corridor. The Applicant intends to continue discussions to resolve COP's outstanding concerns.

1.7 Written Question 1.6 Commercial fishing

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.6.1	Applicant	Paragraph 2.7.1.5 of the ES [APP-062] states that the arsenic levels at 24 sites exceeds the Cefas AL1 threshold of 20mg/kg with three of those sites being located in the cable corridor. Please explain why you consider that the disturbance and disposal of affected sediments near to their point of origin would not lead to significant bioaccumulation in commercially important species. How might this factor affect any dredging disposal licensing decision?	As outlined in section 2.6.1 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102), the Cefas Guideline Action Levels (AL) for the disposal of dredged material are not statutory contaminant standards for dredged material but are used as part of a weight of evidence approach to decision-making on the disposal of dredged material to sea. They are also used as a screening trigger for the assessment of marine dredging activities under the Water Framework Directive. Sediments with contamination levels below Cefas Action Level 1 (AL1) would be unlikely to be refused a sea disposal licence on the grounds of contamination. Materials with contamination levels above Cefas Action Level 2 (AL2) are likely to be deemed unacceptable for sea disposal. While arsenic levels exceeded the Cefas AL1 at three locations on the Hornsea Three Offshore Cable Corridor, all sites were well within the Cefas AL2 (i.e. 100 mg/kg). As noted in paragraph 2.7.1.6 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), arsenic concentrations within sediments in the Hornsea Three benthic ecology study area are similar to those reported by Whalley et al. (1999) and therefore are considered unlikely to represent excessive levels for the region.
			On the basis of the low levels of sediment contamination record within the Hornsea Three array area and offshore cable corridor, it was agreed during the Marine Processes, Benthic Ecology and Fish and Shellfish Ecology expert working group (EWG), that the effect of resuspension of contaminated sediments on marine ecological receptors (including benthic ecology and fish and shellfish ecology) could be scoped out of the impact assessment (see Appendices C.2 and C.7 of Consultation Report Annex 1 - Evidence Plan; [APP-035]; and section 3.8.2 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement; [APP-063]). Such effects would include bioaccumulation of contaminants (including arsenic) in fish and shellfish species, including those of commercial importance to the fishing industry. Volume 4, Annex 3.2: Dredging and Disposal: Site Characterisation of the Environmental Statement [App-086] provides a characterisation of the Hornsea Three Array Disposal Site and the Hornsea Three Offshore Cable Corridor

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			Disposal Site to support the application for licensing of marine disposal sites in relation to the offshore elements of Hornsea Three. Section 5 of Volume 4, Annex 3.2: Dredging and Disposal of the Environmental Statement provides an evaluation of potential adverse effects of in situ disposal of dredge/drill material, drawing on the findings of the topic specific chapters in Volume 2 of the Environmental Statement (Chapters 1 to 11). This concluded that all effects of dredging and disposal were not significant in Environmental Impact Assessment terms and that contaminant concentrations were below levels at which adverse biological effects on marine ecological receptors (including benthic ecology communities and fish and shellfish populations) are likely to occur.
Q1.6.3	Applicant	The EIFCA representation [RR-070] highlights concerns regarding the use of rock cable protection. Please comment on EIFCA's concerns.	The Applicant has responded to this point (1) in the TWT Relevant Representation (RR-70). Further clarification on the requirements for, and assessment of, cable protection in designated sites is provided in the Clarification Note on Cable Protection (As presented at Appendix 6 of the Applicant's Response to Deadline 1).
Q1.6.4	Applicant	Table 6.18 of the ES [APP-066] summarises the potential commercial fisheries impacts associated with the construction, operation and decommissioning phases of the proposal. What disruption of fishing activities would occur during pre-construction activities and how would this be controlled through the dDCO?	Pre-construction activities are considered within the maximum design scenario in Table 6.9 of Volume 2, Chapter 6: Commercial Fisheries of the Environmental Statement (APP-066). Disruption during these activities is therefore considered within the assessments presented in Section 6.11 of this chapter of the Environmental Statement. The requirement to produce a Fisheries Coexistence and Liaison Plan post-consent is proposed to be secured in the DMLs at condition 13(4), schedule 11 (generation assets DML) and condition 14(4) (transmission assets DML) of the draft DCO (Version 1, as submitted for Deadline 1). In the Outline Fisheries Coexistence and Liaison Plan (APP-183), Table 4.1 details the procedure the Applicant will follow for information distribution at different stages in the project, including pre-construction. The Outline Fisheries Coexistence and Liaison Plan has been updated to specifically refer to pre-construction activities (and is submitted at Appendix 36 to the Applicant's response to Deadline I.

1.8 Written Question 1.7 Landscape, seascape and visual impacts

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.7.1	Applicant	Table 1.10 of the ES [APP-073] states that there would be up to 15 major Horizontal Directional Drilling (HDD) locations with associated compounds measuring 60m x 60m. Please show the locations of the proposed major HDD compounds and provide further details of the likely structures, fencing, parking, materials and lighting that would characterise these facilities.	The location of major HDD compounds will be determined for each individual major HDD location once a contractor is appointed and the detailed design of the onshore cable corridor, including length of cables and cable trench location are known. Given the number of technological and environmental interactions it is not possible to confirm the major HDD compounds locations at this stage of the design as a range of factors will determine where these will be located. Notwithstanding this, Hornsea Three will seek to site major HDD compounds in areas which reduce interference with farming operations and minimise impacts to landowners' use of their land and ecological sensitive receptors. The Applicant has amended paragraph 4.1.7.14 of the Outline CoCP (APP-179) to secure this (see below). The Applicant would refer the Examining Authority to paragraphs 3.7.3.19 – 3.7.3.20 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058) where a description of the major HDD compounds is provided. The size and equipment needed at the major HDD compounds is, to some extent, dependent on the length and complexity of the HDD. However, to provide additional clarity, the Applicant can confirm that the major HDD compounds are likely to comprise: the HDD drilling rig, storage for associated materials and equipment, temporary welfare facilities, parking of contractor vehicles and potentially a bentonite settling lagoon (see related response to Q.1.4.7). Welfare facilities and any other structures would be no greater than one storey in height. Although portable task lighting would be required for any evening and night-time working, it is envisaged that lighting would not be required during normal daylight hours unless visibility is poor due to weather conditions or low light levels. Low levels of security lighting may be required at the HDD compounds, including located at the entrance to any portable welfare facilities and potentially around the perimeter of the compound. No lighting fixtures would be no greater than 4 m in height and will be directional, avoiding upward light spill and baffled to avoid spill towards sensitive receptors. The Applicant has amended the wording in paragraph 4.1.7.14 of the Outline CoCP to reflect these clarifications (new text underlined): *"4.1.7.14 It is envisaged that only the major HDDs (i.e. typically greater than 200 m in length) will require a compound, which will be used to contain the drilling rig, equipment and the drill entry and exit pit. <u>Any structures at the compounds will be no greater than one storey in height, whilst any portable task lighting or security lighting fixtures (used in times of low natural light) would be no greater than 4 m in height and directional to avoid light spill.</u> These*

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			compounds have all been provided for within the onshore cable corridor (i.e. within the Order Limits) and will where possible, be located in areas which reduce interference with farming operations and minimise impacts to residential properties, ecologically sensitive receptors and landowners use of their land. The size of the HDD compounds is dependent on the amount of equipment that is required to construct the crossing, which in turn is primarily governed by the length of the HDD or its complexity." The major HDD compound will also contain the drill entry and exit pits and depending on the location, may also provide sufficient working area to allow the presence of an HGV tanker to provide lubrication water and removal of liquid slurry arising from the drilling operation, and/or for excavators to remove slurry. Fencing would be provided around the major HDD compound, will lockable gates or equivalent, and on-site security may be deployed.

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Q1.7.2	Applicant	Paragraph 3.7.2.18 of the ES [APP-058] states that an 80m wide corridor of hedges and vegetation would be removed ahead of each working section of the cable corridor. A) Please explain how the visual impact of this clearance would be minimised, including the length of corridor cleared at any one time. B) How would this be controlled through the dDCO?"	A) During construction the onshore export cables would be installed as described in Section 3.4 of Volume 1, Chapter 3: Project Description of the Environmental Statement [APP-058] resulting in removal of landscape features and elements such as hedgerows and trees within this corridor. The Applicant has and will minimise this removal through route refinement in early design, the use of HDD to cross sensitive or valuable features as well as through implementation of mitigation measures as set out in the Outline CoCP (APP-179), for example, through the implementation of buffer zones. The Applicant has committed to using HDD to cross all public roads, all main and most ordinary rivers and rail routes, a number of woodlands and designated wildlife sites. This would ensure retention of vegetation associated with these features including roadside hedgerows which are a characteristic feature of the landscape at locations where a large proportion of people would have potential to see the cable installation works. Norfolk river valleys are recognised as being one of the more sensitive landscape types within the County and in South Norfolk are protected by Local Plan Development Management Policy DM 4.5 which states *"Particular regard will be had to protecting the distinctive characteristics, special qualities and geographical extents of the identified Rural River Valleys and Valley Urban Fringe landscape character types."* Trenchless crossing of the watercourses and areas of landscape either side would retain landscape features within the valleys, helping to protect their distinctive characteristics. A vegetated disused railway line containing Marriott's Way long distance walking route and National Cycle Route 1 would be crossed using HDD, retaining this landscape feature and minimising visual effects and disturbance to recreational receptors. Impacts on public rights of way as a result of visual effects are assessed in paragraph 4.11.1.46 and 4.11.1.47 of Volume 3, Chapter 4: Landscape and Visual Resources (APP-076) and the assessment concluded no significant effects. As set out at in Table 4.6 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Assessment [APP-076] the maximum design scenario was assessed, which comprises removal of all vegetation within the onshore cable corridor for the longest duration over which construction works on the onshore cable corridor could occur i.e. a 5.5 year duration comprising two phases with the maximum anticipated gap of three years in between. To minimize visual effects, the length of hedges removed across the width of the onshore cable corridor would be limited where possible – for example, where an HDD with a

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			haul road, or HDD with ducting laydown is proposed, the exact location of the haul road/ducting laydown within the Order Limits would optimised through agreement with a suitably qualified ecologist to further minimise hedgerow and tree removal (thus minimizing visual effects). This is secured through the Outline CoCP (APP-179) at amended paragraph 6.5.1.14 which itself must be abided by when the final CoCP is drafted under requirement 17 of the draft DCO (Version 1, as submitted for Deadline 1). Furthermore, if Hornsea Three is delivered in two phases the construction contractor may not need to remove the full width of the onshore cable corridor in each phase. Upon completion of cable installation on a working section, hedgerows would be fully reinstated during the next available planting season and the haul road removed where possible. Some haul roads may need to be retained for a limited duration to provide access; in this case, the corridor to either side would be reinstated when cable installation is completed with the haul road removed and reinstated when it is no longer required for access. If delivered in two phases, and there is a gap between them, restoration, including the re-planting of hedges would be undertaken during the first planting season after completion of each working section of the first phase unless agreed otherwise with the relevant local planning authority. During the second phase these would, where necessary, be removed and re-planted a second time, during the first planting season after completion of each working section of the second phase. Replacement planting would comprise native shallow-rooting hedgerow species typical of the area, planted as 40 – 60 cm high whips that would quickly establish to form dense hedgerows similar to those removed. The hedgerow structure would therefore be re-instated minimizing the long term visual effects of the authorized development. In addition to the reinstatement of hedgerows removed during construction of the onshore cable corridor, where practicable and where agreed with the landowner, hedgerow enhancement would be undertaken within a 100 m wide corridor that will contain the onshore cable corridor. The aim of enhancement would be to increase native species diversity and / or improve habitat structure and connectivity across the landscape. Where practical native broadleaf trees would also be planted within hedgerows within the enhancement area, albeit outside of the onshore cable corridor to protect the cables.
			B) The commitments noted above are secured through the Outline CoCP (APP-179), Outline EMP (APP-180) and Outline LMP (APP-181). Measures in each of these documents must be incorporated into the final

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			versions of the management plans to be developed and agreed with the relevant planning authority (in consultation with Natural England, Environment Agency and/or the MMO) as required by Requirements 17, Requirement 10 and Requirement 9 of the dDCO (Version 1, as submitted for Deadline 1).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.7.3	Applicant	"Paragraph 1.2.1.1 of the ES [APP-148] identifies two viewpoint locations from which the visual impact of the offshore high voltage alternating current (HVAC) booster station was considered. A) Would the station be illuminated by anything other than aviation warning lights during the hours of darkness? B) If this is the case, then how might this alter the findings of the ES and the effect of the proposal on the significance and special qualities of the Norfolk Coast Area of Outstanding Natural Beauty?"	A) Condition 8 of Schedule 11 (generation assets DML) and condition 9 of Schedule 12 (transmission assets) DML of the draft DCO (Version 1, as submitted for Deadline 1) mandate that the undertaker must exhibit such lights, marks, sounds, signals and other aids to navigation as required by Trinity House. Lighting and marking requirements of the offshore structure(s) will be discussed and designed in consultation with Civil Aviation Authority (CAA) as well as the Trinity House Lighthouse Services (TH) during detailed design. This will be necessary to mitigate any risk to aircraft and shipping. The marking will be based on the recommendations of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA, 2013). The maximum design height of offshore HVAC booster stations is provided in Table 3.42 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058) and comrpises: 1. Topside – height excluding helideck and lightning protection at LAT 70m and, 2. And height including lightning protection above topside at LAT 90 m. Based on experience from other offshore wind farms the following is provided as guidance to inform the findings of the Environmental Statement and the effect of the proposal on the significance and special qualities of the Norfolk Coast Area of Outstanding Natural Beauty (AONB) presented in Volume 6, Annex 4.7: Effects of the Offshore HVAC Booster Station (APP-148). With respect to navigation lighting requirements will be made in consultation with Trinity House, but based on other similar structures, is likely to be classified as an isolated structure, requiring a 15 nm white light. This was the case for the Hornsea One Offshore Wind Farm (HOW01) substation. With respect to aviation lighting, the HOW01 substation CAA consultation on Air Navigation Order 2009 (219) (Lighting of en-route obstacles) determined that no operational aviation warning lights were required to be installed on the main structure of the substation. Air Navigation Order 2009 (219) defines an "en-route obstacle" as any structure which is 150 m or above ground level.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			B) Navigation lights and, if required, aviation lights on the offshore HVAC booster station at closest 35km from the coast (if the offshore HVAC booster station is required) could potentially be visible from parts of the Norfolk Coast AONB in very clear conditions and would not be visible at other times due to atmospheric conditions reducing visibility. Furthermore, any lights would be seen as a very small feature in conjunction with other lighting from existing elements including shipping and offshore wind farms. Effects of such lighting would not change the landscape or visual effects, or effects on the Qualities of Natural Beauty of the Norfolk Coast AONB, from that presented in Volume 6, Annex 4.7: Effects of the Offshore HVAC Booster Station of the Environmental Statement (APP-148). This is further clarified in Appendix 23 Impacts on the Qualities of Natural Beauty of the Norfolk Coast AONB to the Applicant's response to Deadline 1. On the basis of this, the effects on the Norfolk Coast AONB from the offshore HVAC booster station remain negligible.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.7.4	Applicant	Paragraph 4.11.1.7 of the ES [APP-076] states that the visual impact of the cable corridor would be short term in duration. How has the assessment accounted for the cumulative impact with Norfolk Vanguard and Norfolk Boreas at the Reepham cable crossing?	Para 4.11.1.7 of the ES [APP-076] refers to landscape effects of Hornsea Three when considered individually and states that *"The impacts are predicted to be of local spatial extent, short term duration (two construction phases of three months at any particular location), small scale and reversible. It is predicted that the effects would affect landscape receptors directly. The magnitude of impact would be negligible."* Similarly, Para 4.11.1.13 of APP-076 refers to the short term duration of visual effects of Hornsea Three when considered individually. Section 4.13.2 of APP-076 provides a cumulative effect assessment. Within this assessment, Norfolk Vanguard and the associated elements of Norfolk Boreas are identified as a Tier 3 cumulative project, with potential to result in in-combination effects with the construction of the Hornsea Three onshore cable corridor (Table 4.16 of APP-076). In this regard, Section 4.13.2.3 of APP-076 considers the cumulative landscape and visual effects of the projects (Hornsea Three and Norfolk Vanguard) should they be constructed at the same time in the areas of overlap including north of Reepham. Construction activity in this location would increase if the projects were to be constructed at the same time. However, within this local area the combined duration is still likely to be short term and cumulative effects on landscape character and visual effects would not be significant.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.7.5	Applicant	Paragraph 3.7.3.13 of the ES [APP-058] states that the concrete link boxes would be likely to be completely buried. A) Can you confirm that this would be the case and that landscape impacts (during operation) would therefore be avoided? B) How would this be controlled through the dDCO?"	A) As set out in paragraph 3.7.3.14 of APP-058, link boxes along the onshore cable corridor will be buried, with land above re-instated; however, manhole covers will be required to provide access at all link boxes for the purpose of cable integrity testing during the operations and maintenance phase. The only exception is where it is only the fibre optic cables which are jointed which do not require regular operations and maintenance access and thus will not require manhole covers. As part of ongoing discussions with landowners, the Applicant has committed to placing marker posts on each corner of the surface feature, if requested by the landowner to do so as part of the option and lease agreements. Small marker posts and manhole covers are encountered in the existing landscape and neither are particularly unusual or obtrusive, thus where used, will have negligible effects on landscape and visual receptors. Therefore, the landscape and visual effects of link boxes within the onshore cable corridor would not be significant. This commitment is captured in updated paragraph 6.8.1.3 of the Outline CoCP (APP-179) (new text shown in underline): *"6.8.1.3 Appropriate fencing of the construction corridor will be provided per the nature of the individual farm holding affected. Where requested to do so by the landowner, markers posts will be placed on the corner of manhole covers associated with link boxes to clearly demarcate their location."* B) The draft DCO (Version 1, as submitted for Deadline 1) defines link boxes as being an "underground metal box". Therefore, in order to comply with the DCO, if this definition is retained in the final order, the boxes would have to be underground.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.7.6	Applicant	Paragraph 4.7.2.4 of the ES [APP-076] describes Zones of Visual Influence (ZVI) that take account of screening by local features. However, it is unclear how ZVIs were delineated. A) Please explain more fully the methodology used to define the ZVIs. B) Were the ZVI assessments made by the same person at all locations?	A) As defined in the Glossary of Volume 3, Chapter 4: Landscape and Visual Resources (APP-076), the ZVI is the *"Area within which a proposed development may have an influence or effect on visual amenity."* These areas were determined by field based assessment and desk based review of maps and aerial photographs, to identify the main areas within which visual effects are likely to occur. The process is described in paragraphs 4.7.2.4 to 4.7.2.8 of APP-076. B) In the case of Hornsea Three, the ZVIs were determined by a team of two people comprising the same two people in all locations.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.7.7	Applicant	Paragraph 4.9.3.2 of the ES [APP-076] states that effects of moderate significance were not considered significant. Please explain the apparent inconsistency in relation to other chapters of the ES where moderate impacts are considered significant. Would a more consistent approach alter the findings of the ES with regard to landscape impact?	The assessment methodology utilised in the assessment of landscape and visual effects in Volume 3, Chapter 4: Landscape Visual Resources of the Environmental Statement (APP-076) is set out in Volume 6, Annex 4.1 - Landscape and Visual Impact Assessment Methodology (APP-142). Both the PEIR and the Environmental Statement LVIA chapters use a significance threshold of major (i.e. major and above is 'significant') rather than moderate (PEIR Annex 4.1, paragraph 2.1.5.8 and Environmental Statement Volume 6, Annex 4.1, paragraph 2.1.4.2 (APP-142)). In practice the Environmental Statement LVIA (APP-076) identifies all effects of major-moderate (i.e. falling between major and moderate) and greater as significant. However, the generic Environmental Statement method uses moderate as the significant threshold stating "*In general, a significance of effect of moderate or greater is considered 'significant' in EIA terms. For each topic chapter, what is considered 'significant' will be clearly defined.*" (Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement, paragraph 5.3.5.15 (Document APP-060).) LDA Design authored APP-076, and co-authored with RPS APP-142 using significance threshold terminology that is consistent with the generic Environmental Statement method terminology (Substantial, Major, Moderate, Minor and Negligible). This terminology is slightly different to LDA Design's standard LVIA method terminology (e.g. the use of the term 'Major' rather than 'Substantial' to represent the most significant effects (see table below)). The significance terms used in LDA Design's standard methodology for LVIAs and those used in the LVIA of the Environmental Statement (Volume 3, Chapter 4 Landscape and Visual Resources (Document APP-076), and Volume 6, Annex 4.1 Landscape and Visual Impact Assessment Methodology (Document APP-142)) are set out below so that they can be compared. This illustrates that the threshold for identifying significant effects is consistent in relation to the five scale ratings.

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<tr><th>LDA Design's standard LVIA methodology</th><th>Environmental Statement LVIA methodology</th><th>Significant or not significant</th></tr>
<tr><td>Major</td><td>Substantial</td><td>Significant</td></tr>
<tr><td>Major-Moderate</td><td>Major</td><td>Significant</td></tr>
<tr><td>Moderate</td><td>Moderate</td><td>Not significant</td></tr>
<tr><td>Slight</td><td>Minor</td><td>Not significant</td></tr>
<tr><td>Negligible</td><td>Negligible</td><td>Not significant</td></tr>
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All LDA Design's team use their professional judgement in undertaking the assessment and would not permit an outcome where an effect which they judged to be significant was identified as not significant.
The Institute of Environmental Management & Assessment (IEMA) produced a report 'The State of EIA Practice in the UK (June 2011) which discussed the trending methods used by practitioners in EIA and how these relate (or don't relate) to the EIA Regulations and directives. Specifically, with regard to 'Significance' on page 5 of the aforementioned document, it states: "Effective EIA practice ensures that the methods used to evaluate significance can be readily understood by those reading the ES. An over-arching approach to the discussion of significance across all the topic specific assessments can be a useful tool to achieve this; however, the key is to ensure that where different methodologies are used they are clearly justified and explained in a simple manner"
It further states on page 60, section 6.3 Evaluating the Significance of Environmental Effects: "In reporting the EIA's findings, ESs often set out a generic methodology at the start of the document indicating that significance has been assessed using a standard matrix style approach, with magnitude on
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PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			one axis and receptor sensitivity on the other... Despite this, it remains relatively common for one or more ES chapters to use an alternative approach. This is not a legal concern, as there is *no regulatory requirement to apply the same methodological approach to significance evaluation across an EIA.."* This is important to note as it is commonly LDA Design's experience that LVIA necessarily follows a different approach to impact assessment and the identification of significant effects compared to many other of the EIA topics. This is substantially a reflection of the more detailed, nationally recognised and tested, guidance available through the Guidelines for Landscape and Visual Impact Assessment (GLVIA) and a desire for a consistent approach to be followed by the practice in all its LVIA work. Whilst there may be perceived benefits to some in maintaining a standard correlation matrix and 'Significance' threshold across the full spectrum of topics included within an Environmental Statement it is considered that this standard approach could impose an unhelpful and unreasonable constraint upon the implementation of tried and tested significance thresholds that have been honed over many years in order that best allow the assessment of landscape and visual impacts. It is also deemed unrealistic to expect that a topic such as LVIA, which relies upon considerable professional judgement, should be shoe-horned into an assessment framework that, being imposed by others, might well not be best suited to LVIA and, conversely, be more suited to other disciplines where, for example, measured readings are then taken and set against an established technical threshold in order to determine whether they are 'Significant 'or not under the terms of the EIA Regulations. In this regard, whilst it is important to understand the level of significance attributed to a receptor there are no specified legal thresholds. On page 61 of the IEMA report it states that the: *"EIA regulations do not set out terms for evaluating whether an assessment's findings are significant or not."* GLVIA states on page 40, paragraph 3.33 that: *"It is not essential to establish a series of thresholds for different levels of significance of landscape and visual effects, provided that it is made clear whether or not they are considered significant."*

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			In addition, in paragraph 3.35 it states: *"the main aim should be to draw out the key issues and ensure that the significance of effects and the scope for reducing any negative/adverse effects are properly understood by the public and the competent authority before it makes its decision."* Thus, to summarise, the assessment presented in Volume 3, Chapter 4: Landscape Visual Resources of the Environmental Statement (APP-076) identifies Substantial, Major and Major-Moderate effects as significant, whilst effects of Moderate or lesser significance are not considered significant. Although this is different from the thresholds applied in other topics of the Environmental Statement, this threshold is considered appropriate for the assessment of landscape and visual effects and is used by many other practitioners. A *"more consistent approach"* would not alter the findings of the ES with regard to landscape impacts in terms of identifying which effects are significant.
Q1.7.8	Applicant	"Paragraph 4.10.2.2 of the ES [APP-076] states that a two phase implementation may not require the full removal of vegetation within the 80m corridor. Please explain why this would be the case."	For a two-phase implementation, it would be expected that the corridor would be divided across the 80m dependent on the number of cable circuits in each phase. In this case, only the vegetation associated with a particular phase would be removed. As the maximum design scenario, Volume 3, Chapter 4: Landscape and Visual Resources (APP-076) assumes that the whole 80m width would be required to be removed for each phase.
Q1.7.9	Applicant	Paragraph 4.10.4.4 of the ES [APP-076] states that structures within the HVAC booster station and high voltage direct current (HVDC) converter/HVAC substation would not be a uniform height. However, only slab-like structures have been shown in the photomontage in the ES [APP-146]. Please provide a revised photomontage with more realistic indicative structures as	Volume 6, Annex 4.5: Photographic Panels, Wireframes and Photomontages of the Environmental Statement (APP-146) contains a series of visualisations illustrating the Hornsea Three onshore HVAC booster station and onshore HVDC converter/HVAC substation. These include wireframes illustrating the maximum design scenarios, and from some viewpoints photomontages of an illustrative design of the booster station and substation (as presented in Figure 3.34 and 3.37 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058)). The photomontages show the illustrative design at year 1 (after completion of construction before mitigation planting has matured) and at year 15 after mitigation planting has matured, showing how views will change as mitigation planting matures.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		presented in figures 3.34 and 3.37 of the ES [APP-058].	Where wirelines indicate that views of the onshore HVAC booster station or onshore HVDC converter/HVAC substation would be very limited, photomontages have not been produced. This approach was agreed with SNDC and NCC. The assessment presented in Volume 3, Chapter 4: Landscape and Visual Resources (APP-076) is based on the wirelines illustrating the maximum design scenario. This approach is appropriate as it ensures the assessment is undertaken on the maximum design scenario i.e. determines the maximum potential scale (height and breadth) of the intervention into the landscape which could occur and be visible, as a result of the onshore HVAC booster station and onshore HVDC converter/HVAC substation. The detailed design of the onshore HVAC booster station and HVDC converter/HVAC substation (Work Nos. 9 and 10 respectively) will be progressed post-consent, and construction of the connection works associated with Work Nos.9 and 10 shall not commence until details including the layout, scale, proposed finished ground levels, external appearance, hard surfacing materials, access and implementation timetables for all landscaping works have been submitted to and approved in writing by the relevant planning authority (Requirement 7 of the dDCO; APP-027). Thus, until these final design solutions have been determined and agreed post-consent, it is not possible to prepare photomontages of the design which will ultimately be delivered. In summary, the Applicant's position is that the use of the wireframes illustrating the maximum design scenario to inform the assessment of effects arising from the onshore HVAC booster station and onshore HVDC converter/HVAC substation on landscape and visual receptors, is appropriate. It is noted that the extent of actual visibility of the onshore HVAC booster station and onshore HVDC converter/HVAC substation may be less, either due to the buildings being smaller, or absent within the extent of the 'slab' which is illustrated in the wirelines. For example, buildings and equipment will not be a uniform height throughout the site, and as such much of the equipment could be lower and cover smaller footprints than the maximum design scenarios used in the assessment. However, the Applicant has demonstrated this in the illustrative photomontages which have been presented in Volume 6, Annex 4.5: Photographic Panels, Wireframes and Photomontages of the Environmental Statement (APP-147) which provide sufficient material for the reader and Examining Authority to understand the context and the indicative extent of the onshore HVAC booster station and onshore HVDC converter/HVAC substation.

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Q1.7.10	Applicant	The mitigation of the landscape and visual impacts of the HVAC booster station and HVDC converter/HVAC substation would rely on new woodland and scrub planting as well as the strengthening of existing hedgerows (for example at paragraph 4.10.4.7 of the ES [APP-076]). How effective is such planting likely to be, bearing in mind the likely use of deciduous species and the need for new planting to become established over time?	Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076) highlights the strong existing landscape structure around the HVAC booster station, including an area of woodland to the east (paragraph 4.7.2.5, 4.7.6.19 and section 4.10.4), and the onshore HVDC converter/HVAC substation (paragraph 4.7.2.7, 4.7.6.31 and section 4.10.4) which would assist in mitigating visual and landscape impacts by filtering and screening views of the developments and integrating them into their landscape contexts. To supplement this existing landscape screening, the Applicant has committed to providing mitigation planting in order to provide further screening, proposals for which are presented in the Outline LMP (APP-181). The planting will be mostly deciduous reflecting and respecting local character. As hedges and trees grow, their size and 'bulk' will increase, and during late spring to Autumn, leaf cover will screen or filter views. The extent of screening is a product of the height, density of leaf/branch/twig cover and how close the viewer is to the screening feature. During winter, tree belts or woodland areas between a viewer and the structure will filter views to a lesser or greater extent depending on the width of the belt or woodland and density of the tracery provided by twigs and branches. The assessment presented within Volume 3, Chapter 4: Landscape and Visual Resources (APP-076) takes account of the size of planting illustrated in the photomontages at the completion of construction (year 1) and year 15 scenario (based on the rates of growth as shown in Tables 2.2 and 3.2 in Volume 6, Annex 4.5 (APP-146). This approach is appropriate as it provides a transparent assessment of effects at different stages of planting maturity. The baseline photographs used in the wireframes and illustrative photomontages presented in Volume 6, Annex 4.5: Photograph Panels, Wirelines and Photomontages of the ES (APP-146) were taken between November 2017 to February 2018 and illustrate winter views. This demonstrates the effect of the tracery of intervening tree canopies during winter; summer views would demonstrate greater screening of filtering effects when deciduous trees were in full leaf.

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			In summary, although the level of screening and filtering of views of the onshore HVAC booster station and onshore HVDC converter/HVAC substation would vary over time, due to increasing maturity and seasonal variations, the assessment presented in APP-076 has been undertaken considering the maximum design scenario which includes year 1 scenario in winter views and the effect of maturing mitigation planting over time. The mitigation proposed is therefore sufficient to mitigate the identified landscape and visual effects such that no significant landscape effects are anticipated outside of the onshore HVAC booster station and onshore HVDC converter/HVAC substation sites, and the only significant visual effects identified during the operation and maintenance phase (effects due to the onshore HVDC converter/HVAC substation on users of Public Rights of Way between the B1113 and A140, north of Swainsthorpe on completion of development (i,e, Year 1)) would reduce and be 'not significant' as mitigation planting matures (APP-076 paragraphs 4.11.2.127 and 4.11.2.128) . Notwithstanding this, it is noted that since the point of application, the Applicant has committed to planting sections of the mitigation planting at the commencement of construction works at the onshore HVAC booster station, and onshore HVDC converter/HVAC substation which could be up to two years or three years (respectively) ahead of the planned completion of construction works. This commitment is provided in newly created paragraphs 3.1.2.3 and 3.1.3.4 in the Outline CoCP (APP-179, Version 2) and will be secured in the dDCO through Requirement 17.
Q1.7.11	Applicant	Paragraph 4.11.1.38 of the ES [APP-076] states that activities outside core working hours (which may have associated lighting impacts) would be agreed post-consent with the relevant Environmental Health Office. How would the impact of lighting on landscape be controlled through the dDCO?	Lighting during construction, including any requirement for lighting outside of the core working hours, will be controlled through design which will take into account relevant standards, guidance and requirements set out in BS EN 12464-2:2014 and GN01:2011 Guidance Notes for the reduction of obtrusive light (The Institute of Lighting Professionals). The design will seek to minimise illumination outside of the construction works areas through the use of directional, task orientated lighting. These commitments are set out in section 4.1.4 of the Outline CoCP and will be secured through the final CoCP which will be submitted for the approval of the local planning authority under DCO Schedule 1, Part 3, Requirement 17 Code of Construction Practice. As noted in Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076), where construction lighting is required outside of the core working hours (which is anticipated to be limited to periods where working hours extend beyond the hours of daylight e.g. during autumn and winter or during major HDDs), the activities would be agreed with the relevant Environmental Health Office and where necessary communicated to local sensitive receptors through the communication plan (details of which would also be developed as part of the CoCP).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			Details of the lighting design for during the operation and maintenance phase (i.e. permanent) will be submitted for the approval of the relevant local planning authorities under DCO Schedule 1, Part 3, Requirement 7 (Detailed design approval onshore). This design will seek to provide enough illumination to safely undertake required activities, whilst minimising potential impacts on nearby sensitive receptors, including landscape receptors.
Q1.7.12	Applicant	Paragraphs 5.7.1 and 5.7.2 of Natural England's representation [RR-097] outline concerns regarding the impact of the export cable corridor on the special qualities of the Norfolk Coast Area of Outstanding Natural Beauty and the impact of the landfall on the visual amenity of users of national trails. Please comment on the concerns raised by Natural England.	The first part of paragraph 5.7.1 of Natural England's representation [RR-097] states that it is their view that there is insufficient information in the application to determine impact from the onshore cable corridor on special qualities of the Norfolk Coast Area of Outstanding Natural Beauty (AONB) and that they would expect to see a detailed analysis of the impacts on key landscape elements within the AONB which contribute to biodiversity and landscape character, including loss of key landscape features, such as veteran trees and important hedgerows. It is considered that sufficient information is presented in Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076) to determine the impacts from the onshore works on the Norfolk Coast AONB. To reinforce this conclusion, clarification is provided in Appendix 23 Impacts on the Qualities of Natural Beauty of the Norfolk Coast AONB to the Applicant's response to Deadline I. As shown on Figure 4.3 of Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076), the onshore cable route does not pass through landscape character type Coastal Towns and Villages CTV1: Weybourne to Sheringham. A short section of access corridor would pass through CTV1 west of Weybourne and no hedgerow vegetation would be removed. The onshore cable corridor would not affect the character of landscape character type Coastal Towns and Villages CTV1: Weybourne to Sheringham. In respect to tree and hedgerow loss along the onshore cable corridor, details of the measures designed in to the project to minimise impacts are identified in Volume 1, Chapter 3: Project Description (APP-058), Volume 3, Chapter 3: Ecology and Nature Conservation (APP-075), Outline CoCP (APP-179), Outline EMP (APP-180) and Outline LMP (APP-181). These measures include the use of trenchless technology to avoid direct impacts on the features. Where works are required to hedgerows, these will be minimised, with the course of action for each hedgerow to have been pre-determined and outlined in the Outline EMP and Outline LMP. The potential for impacts on the landscape, including the removal of hedgerows has been taken into account in the assessment presented in Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076).

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			A clarification of the landscape effects associated with the removal of hedgerows and trees during construction of Hornsea Three, specifically within the AONB, is included in Appendix 23 Impacts on the Qualities of Natural Beauty of the Norfolk Coast AONB to the Applicant's response to Deadline 1. This confirms the conclusions on effects on the AONB presented in Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076), which applies to the construction, operational and decommissioning phases of Hornsea Three. This includes consideration of hedgerows which are Important Hedgerows under The Hedgerows Regulations (1997). Figures 1 to 3 of Appendix 38 Important Hedgerows to the Applicant's response to Deadline 1, that several 'Important Hedgerows' and some other hedgerows and areas of woodland within the AONB would be retained by HDD, and that no surveyed hedgerows identified as 'Important' within the AONB would be removed. The second part of paragraph 5.7.1 of Natural England's representation [RR-097] states: *"We understand that following completion of construction, there would be a period of a minimum of five years for the new hedgerow planting to fully mature. This means that the time for the landscape to recover is temporary long term."* Hedgerows will be re-planted during the first planting season following installation of each section of the onshore cable corridor works. New planting will have an instant effect in providing hedgerow continuity (resulting in short-term effects) and will mature over time. The third part of paragraph 5.7.1 of Natural England's representation [RR-097] states: *"In addition to the impact of the cable route, the construction impacts of any joint bays, link boxes, compounds etc. within the AONB should be assessed in full."* Construction impacts arising from all works within the onshore cable corridor, including joint bays, link boxes and compounds, are assessed within Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076). Paragraph 5.7.2 of Natural England's representation [RR-097] states that there is likely to be a significant impact on the visual amenity of users of the national trails, that construction activities would potentially require their temporary closure or diversion, and that they consider that the effect on them would be significant for the duration of the

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			construction. They also state that there are no details of what measures might be taken to mitigate for any adverse visual impacts and whether any footpath improvements might be required for the diversion. Potential impacts of the construction works along the onshore cable corridor, including landfall works, on visual receptors including users of local routes (roads and public rights of way), are assessed in Volume 3, chapter 4: Landscape and Visual Resources of the Environmental Statement (APP-076). Effects were not assessed to be significant. As set out in Table 4.7 of APP-076, impacts during construction associated with the offshore elements of Hornsea Three were scoped out of the assessment due to the short to medium term and temporary nature of the impacts. As a result of these conclusions, no mitigation measures beyond those designed-in to Hornsea Three (set out in Table 4.12 of Volume 3, Chapter 4: Landscape and Visual Resources (APP-076) and Table 6.28 of Volume 3, Chapter 6: Land Use and Recreation (APP-078)) are considered necessary. As noted in Table 6.35 of APP-078 in relation to the Peddars Way and Norfolk Coast Path at chainage 51.5: *"If HDD, the route remains open.* *If open cut trench, the route would be temporarily diverted for a maximum of 1 month on up to six occasions.* *A diversion route has been identified along existing tracks to the immediate south. This dedicated route, and access to it from the beach on either side, would be fenced and gated and managed in accordance with beach access measures as part of the PRoW Management Plan, as set out in the Outline CoCP* [APP-179]". Effects during decommissioning of the onshore cable corridor are addressed in: • Table 4.7 of Volume 3, Chapter 4: Landscape and Visual Resources (APP-076) which states *"The decommissioning requirements of the onshore cable route will not cause any changes to the landscape character or visual amenity of the onshore cable corridor study area due to the minimal activities (i.e. cables will be left in the ground, as described in volume 1, chapter 3: Project Description) . Decommissioning activities for the onshore cable corridor will not be likely to give rise to any adverse landscape or visual effects that could be considered significant."* • Table 6.24 of Volume 3, Chapter 6: Land Use and Recreation (APP-078) which states *"It is anticipated that the export cable would not be removed during decommissioning, instead it would remain buried in situ. Therefore, there would be no change to recreational resources including PRoWs within the Hornsea Three land use and recreation study area during or as a result of the decommissioning phase."*

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			Notwithstanding this, Public Rights of Way management measures are documented in the Outline CoCP (APP-179). Details of the mitigation measures to be taken in respect of Norfolk Coast Path/Peddars Way, comprising a local diversion during the construction phase, will be further developed post-consent in consultation with Norfolk County Council and captured in the Public Rights of Way Management Plan which will form part of the CoCP to be submitted for approval by the relevant local planning authorities under DCO Schedule 1, Part 3, Requirement 17.

1.10 Written Question 1.8 Historic environment

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.8.1	Applicant	The Planning Statement [APP-177] states that there is potential for conflict with Policy EN8 of the North Norfolk District Council Local Plan (paragraph 5.2.5.16) and South Norfolk Council's (SNC) Joint Core Strategy Policy 1 (paragraph 5.2.5.21). However, paragraph 5.2.5.27 states that the proposals are in accordance with the relevant policies regarding the historic environment. Please explain this apparent inconsistency.	Paragraph 5.2.5.16 and paragraph 5.2.5.21 of the Planning Statement [APP-177] identify potential for conflict with the objectives of Policy EN8 of the North Norfolk District Council Local Plan and South Norfolk Council's Joint Core Strategy Policy 1 respectively. In each case, it is concluded that where conflict might occur it is considered, on balance, that the significant benefits of the project in terms of the delivery of renewable energy is material to this application and would outweigh that conflict. The Applicant would clarify that paragraph 5.2.5.27 of the Planning Statement [APP-177] was not intended to supersede the conclusions in paragraph 5.2.5.16 and 5.2.5.21. It was established in the findings of the judge in the *Rochdale* case that a development proposal does not need to comply with each and every policy in, say, a local plan, for it to be concluded that the proposal generally complies with policy. That is all that is being said in para 5.2.5.27, i.e. on balance there is general compliance with historic environment policies.
Q1.8.2	Applicant	Table 1.2 of the Screening Assessments for both the onshore high voltage direct current (HVDC) convertor/high voltage alternating current (HVAC) substation [APP-152] and the onshore HVAC booster station [APP-153] sets out the listed buildings for which further assessment is said to be provided in the Historic Environment chapter of the ES [APP-077]. However, it is not clear where such an assessment has been provided for each relevant listed building. This is particularly in relation to the HVAC booster station for which only Salle Park appears to have been assessed in detail.	Volume 6, Annex 5.4: Screening Assessment – Onshore HVDC Converter/HVAC Substation [APP-152] and Annex 5.9: Screening Assessment – Onshore HVAC Booster Station [APP-153] of the Environmental Statement provides a screening assessment for each heritage asset and identifies where further assessment was undertaken in Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077]. The Applicant would clarify that listed buildings located within Conservation Areas (e.g. Church of St Peter) have been assessed as part of the Conservation Area assessment (e.g. Melton Constable Hall Conservation Area) and a separate assessment has not been undertaken. For some of listed buildings outside Conservation Areas (and also Mannington and Wolterton Conservation Area) the screening assessments state that further consideration is provided in Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077]. However, these heritage assets have been screened out as there will not be an impact on these assets or their settings and therefore, do not require further assessment. Appendix 28 Onshore HVDC Converter/HVAC Substation Screening Clarification and Appendix 27 Onshore HVAC Booster Station Screening Clarification to the Applicant's Response to Deadline 1 identifies these assets and the appropriate screening assessment.

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		Please provide an assessment for each listed building where the Screening Assessments indicate that a further assessment is provided in the ES.	The Applicant confirms that the conclusions of the assessment as reported in Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077] remains robust.
Q1.8.3	Applicant	Figure 3.37 of the ES [APP-058] provides an illustrative layout/design of the proposed onshore HVDC convertor/HVAC substation. Paragraph 5.8.13 of the Overarching National Policy Statement for Energy (EN-1) states that account should be taken of the desirability of new development making a positive contribution to character and local distinctiveness of the historic environment and that the consideration of design should include scale, height, massing, alignment, materials and use. A) Please explain how this illustrative layout/design along with the design parameters in table 3.63 of the ES [APP-058] have taken into account the desirability of sustaining the setting and significance of heritage assets in the vicinity of	A) The Applicant has had regard the desirability of sustaining the setting and significance of heritage assets in the vicinity of the onshore HVDC converter/HVAC substation. The decision process for selecting the site is described in paragraphs 4.11.5.1 to 4.11.5.3 of Volume 1, Chapter 4: Site Selection and Consideration of Alternatives [APP-059]. A screening exercise was undertaken including heritage assets. The best site was selected considering commercial, environmental (including heritage matters) and planning, and engineering/technical considerations. As Hornsea Three is a nationally significant infrastructure project in a constantly evolving industry, it is not possible to provide precise final design details a number of years ahead of the time it will be constructed. An assessment of the effects arising from the maximum design scenario at this site (as demonstrated in the wireframes shown in Volume 4, Annex 5.7: Historic Environment Visualisations, APP-155) is presented in Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077). This concludes that the significance of the effects of the onshore HVDC converter/HVAC substation on heritage assets during the construction phase varies from negligible to moderate adverse. The significance of effects during the operation and maintenance phase would range from minor to moderate adverse and decommissioning effects would be negligible to minor adverse. The final design will be secured through Requirement 7 of the dDCO [APP-027], which requires details including the layout, scale, finished ground levels, external appearance, materials, access and circulation areas, and timetables for the landscaping works at the HVDC converter/HVAC substation to be submitted to

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		the onshore HVDC convertor/HVAC substation. B) What would be the differences in layout and design, along with any difference in effects, between a HVDC convertor and a HVAC substation? C) What scope is there to refine the parameters of the HVDC convertor/HVAC substation in order to minimise as far as possible any adverse effects upon heritage assets?	and approved by the relevant planning authority prior to commencement of construction. In preparing those details the Applicant should have regard to relevant policies including EN-1, and when determining related applications, the LPA should also have regard to those policies. Therefore, the ExA can be confident that the final design will be taken into account the desirability of sustaining the setting and significance of heritage assets in the vicinity of the onshore HVDC convertor/HVAC substation. Furthermore, designed-in mitigation includes a landscape planting and management scheme around the onshore HVDC converter/HVAC substation (see Outline Landscape Management Plan [APP -181]) and existing hedgerows and trees will be retained where practicable. The Applicant has also committed to implementing sections of the mitigation planting at the commencement of works at the onshore HVDC converter/HVAC substation which could be up to three years ahead of the planned construction works, in order to maximise the screening provided in the shortest period of time. Together with sympathetic detailed design, this mitigation will also serve to sustain the setting and significance of heritage assets in the vicinity of the onshore HVDC convertor/HVAC substation. B) Differences in the parameters and design for the onshore HVDC converter/HVAC substation, as well as any differences in the likely effects, are provided within Appendix 22 to the Applicant's response to Deadline 1. C) Please see the response to (A) above – the Applicant does not consider it necessary to further refine the parameters of the HVDC convertor/HVAC substation because the Applicant and LPA are required to have regard to historic environment related policies and legislation when preparing and approving (respectively) the detailed design of the HVDC convertor/HVAC substation. If the LPA is not satisfied that the design respects nearby heritage assets then it may refuse approval.

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Q1.8.4	Applicant	The photomontages relating to Gowthorpe Manor and Mangreen Hall [APP-155] are taken from viewpoints close to existing and/or proposed landscaping. Please provide additional photomontages relating to these heritage assets.	The Applicant notes that while the current photomontages of Gowthorpe Manor and Mangreen Hall as shown in Volume 6, Annex 5.7: Historic Environment Visualisations of the Environmental Statement [APP-155] may be close to existing/proposed landscaping, they represent the maximum design scenario views of the proposed onshore HVDC converter/HVAC substation. Visualisations to illustrate the impact of Hornsea Three on the settings of Gowthorpe Manor and Mangreen Hall were requested by Historic England (HIE) in their Section 42 response. Further consultation on this issue was undertaken with Historic England during a meeting held on 6 November 2017. The exact locations of viewpoint photography were finalised on site based on the professional judgement of the Hornsea Three landscape architect and historic environment specialist. Ventus Augmented Reality software was used to produce an approximation of the location and of the structures. The viewpoints presented within Volume 6, Annex 5.7 – Historic Environment Visualisations [APP-155] are therefore considered to be representative. It is noted that in the case of each designated asset, from most if not all nearby viewpoints the onshore HVDC converter/HVAC substation would not be visible. In this area, the roads are characterised by tall hedgerows with trees. On this basis it is not proposed to provide further photomontages relating to these heritage assets as these would present unrealistic viewpoints. The ExA may of course consider the viewpoints and local context further when undertaking site visits.
Q1.8.5	Applicant	The photomontages from the Keswick Hall viewpoint [APP-155] show the proposed HVDC convertor/HVAC substation to be clearly visible. Representations have been made in this regard by South Norfolk	The impact of the onshore HVDC converter/HVAC substation on Keswick Hall and its parkland setting is assessed in paragraphs 5.11.1.92 to 5.11.1.99 of Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP_077], which concluded that the magnitude of impact on the setting of Keswick Hall would be minor (i.e. there would be no physical impact on the designated asset) and that the significance of the effect would be minor adverse.

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		Council (SNC) [RR-054] and Historic England (HE) [RR-078]. Please provide a more detailed assessment of the effect upon the setting of Keswick Hall, taking account of these representations.	Representations from Historic England [RR-078] state that the visualisations provided in Volume 6, Annex 5.7: Historic Environmental Visualisations of the Environmental Statement [APP-155] have "*indicated that the development would erode the rural setting of a number of other highly graded heritage assets, which would result in a high degree of harm to their significance….We also have concerns about the impact of the development on a number of Grade II listed buildings such as Keswick Hall*". Representations from South Norfolk Council [RR-054] confirm their agreement with the sensitivity assigned to Keswick Hall in the Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077], referring specifically to the parkland. However, they suggest that the magnitude of impact should be increased to moderate as the views from Keswick Hall across the parkland of the onshore HVDC converter/HVAC substation would result in "*a change within the setting leading to some loss of significance of the asset*". The annex to South Norfolk Council's Representation notes that Historic England *Historic Environment Good Practice Advice* in Planning Note 3 "The Setting of Heritage Assets" advises that "*many heritage assets have settings that have been designed to enhance their presence and visual interest or to create experiences of drama or surprise. In these special circumstances, these designed settings may be regarded as heritage assets in their own right, for instance the designed landscape around a country house. Furthermore, they may, themselves, have a wider setting: a park may form the immediate surroundings of a great house, while having its own setting that includes lines-of-sight to more distant heritage assets or natural features beyond the park boundary.*" In addition the annex notes that "*Keswick Hall is grade II listed with the attached designed parkland undesignated*" and considers that "*the impact on the parkland as a designed landscape garden of some significance requires a separate assessment as a undesignated heritage asset*" The Applicant has reconsidered its assessment in detail and in light of those representations, and notes the following: (i) the parkland at Keswick Hall does not have lines of sight to the more distant heritage assets beyond the park boundary (e.g. Intwood Hall); (ii) Keswick Hall's setting is limited in extent, being severed from the wider area by the A47 road; (iii) the park and its setting are seriously compromised by modern development within it;

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			(iv) the Applicant considers the park an example of a Robust Undesignated Historic Landscape and that the parkland is of low significance; and (v), the setting of the parkland is of very limited significance because it has been severed from the surrounding area by the A47. Furthermore, the Applicant considers that regardless of the sensitivity and magnitude attributed, there would be no substantial harm to Keswick Hall and its parkland setting, and the proposed mitigation would remain the same. In view of the above the above the Applicant's conclusions in respect of Keswick Hall and its setting remain the same as set out in Volume 3, Chapter 5: Historic Environment of the Environmental Statement and having regard to the representations of Historic England and SNC.
Q1.8.6	Applicant	What effects would any external lighting at the onshore HVDC converter/HVAC substation and onshore HVAC booster station have on the setting of heritage assets?	Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077] concludes , with respect to the onshore HVAC booster station, that significant effects on heritage assets are unlikely. Impacts from permanent lighting at the onshore HVDC converter/HVAC substation (such as security lighting during operation and task lighting to ensure a safe working environment), would be minimised through design, in particular through the use of directional lighting. The detailed lighting strategy for the operation and maintenance phase (i.e. permanent) will be submitted for the approval of the relevant local planning authorities under DCO Requirement 7 Detailed design approval onshore. Based on the mitigation and management measures proposed, no significant light spill is anticipated during construction or operation that would affect the setting of heritage assets.
Q1.8.7	Applicant	"Paragraph 3.8.1.2 of the ES [APP-058] states that Hornsea Project Three may be constructed in two phases.	The Applicant has committed to the reinstatement of land along the onshore cable corridor and at the onshore HVDC converter/HVAC substation (including replanting of damaged or cleared vegetation) as soon as practicable on the completion of each construction phase, which would minimise the impact of Hornsea Three between phases. The commitment to reinstate the temporary construction compound at the onshore HVDC converter/HVAC substation is

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		Under a two phase scenario, what effects upon the setting of heritage assets would arise in terms of the visual appearance of the cable corridor when left between phases (for example where the cable route adjoins Baconsthorpe Castle or in the vicinity of the onshore HVDC convertor/HVAC substation)? How could any adverse impacts be mitigated?"	captured in paragraph 4.1.6.1 and updated paragraph 4.1.6.2 of the Outline CoCP (APP-179) (new text shown in underline): *Paragraph 4.1.6.2 "If works are delivered in phases, temporary construction compounds and accesses will be removed and the land reinstated on completion of construction work associated with that phase unless otherwise approved by the Local Planning Authority."* The commitment to reinstate the onshore cable corridor is captured in updated paragraph 4.1.6.3 of the Outline CoCP (APP-179) as follows (new text shown in underline): Paragraph 4.1.6.3 *"Following completion of the onshore cable installation, the working area will be reinstated to a state commensurate with condition prior to the commencement of works. If works are delivered in phases, the working area will be reinstated on completion of construction work associated with that phase unless otherwise agreed by the local planning authority. This will include:* *• Reinstatement of topsoil and subsoil, including loosening or ripping of compacted soil;* *• Reinstatement of land drainage systems, where necessary post construction drains may be installed, typically parallel to the cable corridor;* *• Reseeding of any fields of grassland, grass margins and ditch banks;* *Reconstruction of any drains, ditches or roads crossed using an open cut method;* *• Replanting of any hedgerows or felled shrubs as detailed in the Landscape Management Plan (approved by the Local Planning Authority in accordance with the principles established in the Outline Landscape Management Plan (document reference A8.7);* *• Restoration or repair of fences, gates, tracks or hard standing; and* *• Reinstatement of PRoW where temporary diversions have been put in place during construction."* On this basis, the impacts between phases would be comparable to the operational impacts caused by the onshore cable corridor. Operational impacts from the onshore cable corridor were scoped out of the assessment reported in Volume 3, Chapter 5: Historic Environment [APP-077], because the onshore cable corridor will be buried underground

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			and there are no routine operation and maintenance activities which would cause an impact to the setting of heritage assets or the overall historic landscape. Impacts upon the setting of heritage assets, in terms of the visual appearance of the cable corridor when left between phases (for example where the onshore cable route passes Baconsthorpe Castle or in the vicinity of the onshore HVDC convertor/HVAC substation), would be as those operational impacts described above. Since the submission of the DCO application, the Applicant has committed to implementing sections of mitigation planting at the commencement of works at the onshore HVDC converter/HVAC substation, which could be up to three years ahead of the planned completion of construction works, in order to maximise the screening provided in the shortest period of time. This commitment is captured in the SOCG with South Norfolk Council and the Outline LMP [APP-181].
Q1.8.8	Applicant, The National Trust (NT)	The NT [RR-056] refers to Oulton Airfield as a non-designated heritage asset. Does the Applicant agree that Oulton Airfield is a non-designated heritage asset? Please can the Applicant and NT provide their respective assessments of the heritage significance of Oulton Airfield (including its association with the Grade I listed Blickling Hall) and the effects of the proposed construction compound on that significance.	The Applicant would refer the Examining Authority to the Historic Environment section of Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1.
Q1.8.9	Applicant, Broadland District	NT [RR-056] and BDC [RR-057] refer to the impact of the main construction compound on the Blickling Conservation Area.	The Applicant would refer the Examining Authority to the Historic Environment section of Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1.

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	Council (BDC), NT	The applicant, NT and BDC are requested to provide their respective assessments of the impact of the construction compound proposals on the setting and significance of the Blickling Conservation Area. Please can BDC also provide a plan showing the boundary of the conservation area.	
Q1.8.10	Applicant	Paragraph 5.11.1.143 of the ES [APP-077] states that there are no registered parks and gardens requiring assessment in relation to the onshore HVAC booster station. However, paragraphs 5.11.1.39 to 5.11.1.48 include such an assessment of Salle Park. Please explain this apparent inconsistency.	To add clarity, what is meant by paragraph 5.11.1.143 is there are no other registered parks and gardens located within the Hornsea three historic environment study area, that fall within the ZTV of the onshore HVAC booster station and which require further assessment.
Q1.8.11	Applicant	The assessments of the effects upon the settings of heritage assets in the ES [APP-077] appear to be largely focused on visual considerations. What other factors, including for example other environmental factors and the historic relationships between places, have been	The assessment of the effects upon settings of heritage assets as reported in Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077] has been undertaken in accordance with the guidance from Historic England 'Historic Environment Good Practice Advice' in 'Planning Note 3: The Settings of Heritage Assets' (Historic England, 2017). The guidance states that assessments of changes within the settings of heritage assets "*can involve non-visual issues such as noise* [however] *it is more often the visual aspects of a development that form the major part of the assessment*". The Applicant confirms that where there is potential for changes within the setting of heritage assets due to non-visual factors (including noise and vibration, air quality (particularly dust) and traffic) have been considered in the

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		taken into account in assessing the effects upon the settings of heritage assets?	assessment. For example, the assessment for Keswick Hall at paragraph 5.11.1.98 of Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077] notes the intrusiveness of traffic noise. The historic relationship between places has also been taken into account in assessing the effects upon the settings of heritage assets; e.g. paragraph 5.11.1.59 of Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077] considers the setting of Gowthorpe Manor and concludes that it is the relationship between the elements of the surrounding landscape which form the setting of the listed building. A similar setting is considered at Mangreen Hall at paragraph 5.11.1.68 [APP-077]. Paragraphs 1.7.1.8 to 1.1.1.51 of Volume 6, Annex 5.1: Desk Based Assessment of the Environmental Statement [APP-149] examines the setting baseline for Keswick Hall and parkland, including its design by national architect William Wilkins.
Q1.8.12	Applicant	Have the assessments of the effects upon the setting of heritage assets in the ES [APP-077] been made solely on the basis of the maximum design parameters or have they been influenced by the indicative layouts provided in the ES [APP-058] (Figures 3.34 and 3.37)?	The Applicant confirms that the assessment of effects on the settings of heritage assets in Volume 3, Chapter 5: Historic Environment of the Environmental Statement [APP-077] is based solely on the maximum design parameters as set out in Volume 1, Chapter 3: Project Description of the Environmental Statement [APP-058] and shown in the wirelines in Volume 6, Annex 5.7: Historic Environment Visualisations [APP-155]. The Historic Environment Visualisations [APP-155] document contains, for those viewpoints with a relatively clear view of the onshore HVAC booster station or HVDC converter/HVAC substation, illustrative photomontages which were produced using the indicative layouts provided in the Project Description [APP-058]. These are for illustrative purposes only and were not used in the assessment of effects.
Q1.8.13	Applicant	South Norfolk Council's representation [RR-054] states that there is an absence of information on important hedgerows as defined under the Hedgerows Regulations 1997.	Paragraph 5.11.1.166 et seq of Volume 3, Chapter 5: Historic Environment [APP-077] assesses the effect of construction works throughout the Order Limits on the overall historic landscape. Whilst hedgerows of historical importance have not been specifically referenced in the baseline characterisation, field enclosures have been taken into consideration. Following the submission of the draft DCO, the Applicant has undertaken a desktop review of important hedgerows as defined under the Hedgerows Regulations 1997 (see Appendix 38 Important Hedgerows to the Applicant's response to Deadline 1), which identifies hedgerows of historical interest (see Figure 2 of Appendix 38 Important Hedgerows to

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		Would any hedgerows of historical importance be lost or their original course altered by the proposal?	the Applicant's Deadline 1 submission). This information will be transposed onto the Tree Preservation and Hedgerow Plan (APP-021) and submitted at Deadline 1. Clarification of the criteria which informs the identification of Important Hedgerows has also been provided in paragraph 2.2.7.1 of the Outline EMP (APP-180): *"2.2.7.1 The Hedgerow Regulations 1997 protect hedgerows from removal, with particular protection for 'important' hedgerows. A hedgerow is 'important' if it is at least 30 years old and meets at least one of the eight archaeology, history, wildlife or landscape criteria defined in the Regulations. ~~'Important' hedgerows are defined in the Regulations. A hedgerows is 'protected' if it is~~ ~~The Regulations apply to any hedgerow~~ growing in, or adjacent to, any common land, protected land (Local Nature Reserves (LNRs) and SSSIs), or land used for agriculture (including dairy farming and the breeding and keeping of livestock), forestry or the breeding or keeping of horses, ponies or donkeys, if it: (a) has a continuous length of, or exceeding, 20 m; or (b) it has a continuous length of less than 20 m and, at each end, meets another hedgerow."* Based on this desktop review, the Applicant can confirm that there are 13 hedgerows within the Order Limits which have been identified as important for historic environment reasons, of which: (i) one is crossed by HDD only, (ii) five are HDD with haul road over, (iii) five are on the boundary of the Order Limits and therefore will be retained where practicable, and (iv) two will likely be removed where they cross the Order Limits. That means that there is the potential for removal of seven hedgerows identified as Important Hedgerows for historic environment reasons may need to be removed. A further five hedgerows may be partially removed due to the need to install a 6 m wide haul road within the onshore cable corridor. However, as noted in paragraph 6.5.1.14 of the Outline CoCP (APP-179), the length of hedgerow to be removed will be reduced as far as practicable. The Applicant would refer the Examining Authority to the updated Outline Code of Construction Practice [APP-179] and Outline Landscape Management Plan [APP-181] for further details of mitigation, reinstatement and management measures which apply to all hedgerows.

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			The likely loss (and reinstatement) of seven hedgerows classified as important under Criteria 1 of the Hedgerow Regulations 1997 (56a-56b, 120a-120b), with a partial loss of an additional five hedgerows, is not considered to affect the historic landscape. No hedgerows important for historic environment reasons will have their original course altered by the authorized development.
Q1.8.14	Applicant, NT	The NT [RR-056] outlines what it considers to be the archaeological interest of the North Norfolk coast in the area of the proposed cable landfall. The applicant and NT are requested to provide further assessments of such archaeological interest together with further details of any mitigation that would be required in this regard.	The Applicant has reconsidered its assessment in detail and in light of those representations, and notes the following: • Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement [APP-069] sets out the assessment of the heritage interest below Mean High Water Springs (MHWS). Coastal geology deposits and their associated archaeological remains are set out in Volume 5, Annex 9.1: Marine Archaeological Technical Report of the Environmental Statement [APP-114]. The presence of material possibly associated with Second World War Coastal Defenses is described in paragraph 3.7.3.2. • Mitigation measures are summarised in Volume 2, Chapter 9: Marine Archaeology [APP-069] and described in more detailed in the Outline Written Scheme of Investigation (WSI) for Marine Archaeology (Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement [APP-115]). Mitigation measures include a protocol for archaeological discoveries during construction works and procedures for recording and reporting finds. • Volume 3, Chapter 5, Historic Environment of the Environmental Statement [APP-077] sets out the assessment of the heritage interest above MHWS. Coastal geology deposits and their associated archaeological remains are set out in Volume 6, Annex 5.1: Desk Based Assessment [APP-149]. The annex also notes the likely presence of Roman remains in the vicinity of Weybourne at paragraph 1.6.2.28 and military remains in the coastal area and beyond are described in 1.6.2.49. Whilst these resources are not been specifically referenced, they have been considered in the assessment of construction of Hornsea Three on buried archaeology which concludes that the effects would be of minor adverse significance.

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			• Volume 3, Chapter 5, Historic Environment [APP-077] provides mitigation measures for archaeological remains above MHWS and includes a programme of advance archaeological investigation post consent focusing on identified sites. An Outline WSI will be agreed with the relevant authorities prior to commencement of the consented works. This makes provision for a suite of mitigation techniques including geophysical survey, trial trenching, watching brief, strip map and assessment and a methodology for addressing unexpected archaeological remains. On this basis an appropriate level of mitigation can be achieved for any remains encountered during construction. In view of the above the above the Applicant's conclusions in respect of archaeological interest of the North Norfolk coast in the area of the proposed cable landfall remain the same as set out in Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement and Volume 3, Chapter 5: Historic Environment of the Environmental Statement and having regard to the representations of NE.
Q1.8.15	Marine Management Organisation (MMO), Historic England (HE)	The applicant has provided an Outline Written Scheme of Investigation (OWSI) [APP-115] in relation to marine archaeology. Are you in agreement with the OWSI? If not, what amendments would you suggest?	While this is not directed to the Applicant, the Applicant would note that Volume 5, Annex 9.2: Outline Written Scheme of Investigation (APP-115) was informed by pre-application consultation with Historic England (see section 9.5 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069) for a summary of consultation). This included specific comment and discussion regarding the content of the Outline Written Scheme of Investigation, most notably during Section 42 consultation. Comments provided by Historic England have been taken on board and the Outline Written Scheme of Investigation updated to reflect these discussions.
Q1.8.16	Applicant, MMO, HE	Section 9.11.1 of the ES [APP-069] sets out an assessment of significance for the effects of the construction phase on marine archaeology. The magnitude of impacts is assessed as being negligible. A) Whilst impacts are predicted to be localised, given the total maximum area of	A) As outlined in section 9.11.1 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069), the magnitude of impact for construction phase impacts is considered to be negligible for effects on palaeo-channels, due to the widespread extent of these features. The total area of seabed affected by Hornsea Three construction represents a very small proportion of the overall extent of these features. For more discrete archaeological features (e.g. shipwrecks, aircraft wrecks), the measures adopted in accordance with the Outline Written Scheme of Investigation of the project will ensure direct impacts on features of archaeological importance are avoided (see section 9.10.2 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement).

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		proposed disturbance, what confidence is there that the magnitude of impacts would remain as being negligible? B) Do the MMO and HE agree with the applicant's assessment of magnitude of impact on marine archaeology?	The assessment considers the maximum design scenario for each identified potential impact from the range of relevant design parameters outlined in the Project Description (Volume 1, Chapter 3: Project Description of the Environmental Statement; (APP-058)) for Hornsea Three alone and cumulatively with other activities, plans and projects. Effects of greater adverse significance are not predicted should any other development scenario be taken forward in the final design scheme and as such the Applicant is confident that the magnitude of impact would remain as negligible and not significant in EIA terms. B) No issues regarding the Applicant's assessment of magnitude of impact on marine archaeology have been raised by the MMO or Historic England within consultation either during pre-application or post-application
Q1.8.17	Applicant	The OWSI [APP-115] refers to the role of the Archaeological Curator. Please provide further details of this role including how and by whom they would be appointed. A) What would be the process by which matters would be determined where the approval of the Archaeological Curator was required? B) What consultations would the Archaeological Curator carry out?	A) Volume 5, Annex 9.2: Outline Written Scheme of Investigation (APP-115) defines the Archaeological Curator as a: "Public sector archaeologist retained to advise the determining authority". The Historic England Marine Planning Unit is the Archaeological Curator responsible for providing advice to the determining authority on heritage matters offshore . The Archaeological Curator will be responsible for the approval of various requirements specified in the Outline Written Scheme of Investigation. Contact with the Archaeological Curator will be administered by Hornsea Three under advice from a suitably qualified and experience archaeological contractor (the Retained Archaeologist). The Archaeological Curator will be responsible for the approval of method statements relating to geophysical and geotechnical surveys, agreeing the scope of assessment required of archaeological material encountered during obstruction clearance and survey work (alongside any appropriate mitigation measure, as required), considering the need for (and details of) any new Archaeological Exclusion Zones (AEZs), agreeing the frequency and timing of monitoring relating to AEZs, agreeing the requirements for archaeological review of geotechnical logs and agreeing the protocol for archaeological discoveries. Hornsea Three will employ the services of a Retained Archaeologist (archaeological contractor) as set out in Section 6, Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement. This role will be

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			responsible for ensuring the effective implementation of the Written Scheme of Investigation, along with other matters related to archaeology. Amongst the Retained Archaeologist's responsibilities will be support to Hornsea Three with respect to appropriate liaison with the Archaeological Curator. Where approvals by the Archaeological Curator are required, it will be the Retained Archaeologist's responsibility to support Hornsea Three to provide the required information to the Archaeological Curator and liaise with the Curator to reach agreement on all required matters. Hornsea Three will engage with the Archaeological Curator to ensure the WSI is enacted as appropriate. B) The marine archaeology key consultees and contacts are outlined in Section 6, Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement and it is likely that any additional consultation carried out by the Archaeological Curator may include these organisations (e.g. Norfolk County Council Archaeology, Historic England Inspectors and Science Advisors etc.). However, the Applicant would expect that good lines of communication between key consultees, will mean that further consultation would not be required.
Q1.8.18	Applicant	Table 7.1 of the OWSI [APP-115] indicates that further surveys are expected in 2018. A) Have any further surveys taken place and, if so, what are the results? B) What are the implications of any such results for the assessments in the ES?	A) Further geophysical and geotechnical surveys along the Hornsea Three offshore cable corridor have been undertaken since the submission of the Hornsea Three DCO application, primarily focussed around the Hornsea Three offshore cable corridor re-routes. These have been informed by advice from the Hornsea Three archaeology consultant to ensure the results are appropriate for the purposes of the Written Scheme of Investigation. The data acquired from these surveys are currently being processed and analysed and once available, the data will be provided to the retained archaeologist to be fed into the WSI as detailed below. B) Once available, the results of the surveys will be fed into, and inform, the Written Scheme of Investigation in an iterative process, as outlined in Section 7 of Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement (APP-115). All required control measures are detailed in the outline Written Scheme of Investigation. The survey results will not alter the impact assessment conclusions in Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069), instead they will inform the implementation of the specified control measures.
Q1.8.19	Applicant	The OWSI [APP-115] provides for the potential creation of Archaeological Exclusion Zones.	A) Volume 5, Annex 9.2: Outline Written Scheme of Investigation APP-115) outlines the process for establishing new AEZs. New AEZs would be created as a result of any unexpected discoveries made following completion and interpretation of further pre-construction geophysical and geotechnical surveys (see the Applicant's Response to Ex.A

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		A) Please provide clarification of the process for the establishment of new Archaeological Exclusion Zones (including Temporary Zones). B) How would these be safeguarded through the dDCO when the detailed siting of the offshore infrastructure is finalised?	Question Q1.8.18 above). The purpose of these pre-construction surveys is to ensure all AEZs are established prior to commencement of construction activities, minimising the risk of any new AEZs being established during the construction phase. More specifically, if new finds of archaeological importance are made before or during the construction phase, these will be reported to the Retained Archaeologist, and in turn to the Archaeological Curator. This will comply with the agreed Protocol for Archaeological Discoveries (see section 15 of Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement). Where such finds are of archaeological importance, they may result in the designation of additional AEZs. When finds are made during construction, activities will cease until archaeological advice is sought. The Archaeological Curator and the Retained Archaeologist will liaise on the need for any new AEZs. It is not anticipated that additional Temporary AEZs (TAEZs) will be established for Hornsea Three. As outlined in section 12 of Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement, TAEZs have been identified to ensure adequate protection of wrecks and obstructions identified in UKHO desktop records, where site specific survey data within the Hornsea Three array area and offshore cable corridor were not available at the time of the application. As further, high resolution survey data become available, the TAEZs identified during the pre-application phase (which were precautionary in extent) may be adjusted to a less precautionary size, while ensuring robust mitigation for the relevant archaeological feature. The TAEZs will remain in place until alterations have been formally agreed with the Archaeological Curator. B) All control measures to minimise the risks to archaeological features are secured in Schedule 11, Part 2, Condition 11(2) and Schedule 12, Part 2, Condition 12(2) of the draft DCO (APP-027) which specifies that a Written Scheme of Investigation must be submitted to and approved by the MMO, in consultation with the statutory historic body prior to commencement of licensed activities. These conditions include specific reference to identification and modification of AEZs and monitoring of AEZs during and post construction, and details of further site investigations (including geophysical and geotechnical survey and analysis) to allow for any additional features of archaeological importance to be identified and protected as required.

1.11 Written Question 1.9 Land use and recreation

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Q1.9.1	Applicant, South Norfolk Council (SNC)	Representations have been made regarding the potential implications of the on-shore cable route for future housing development sites [including RR-051, RR-067 and RR-147]. The Applicant and SNC are both requested to provide details of the location of potential housing sites, the stage they have reached in the planning process, the effects the proposal would be likely to have upon them and any appropriate mitigation measures that may be required.	The Applicant has consulted South Norfolk Council (SNC) on potential housing sites in their administrative boundary. The Applicant understands that SNC's response to WQ 1.9.1 which will be submitted for Deadline 1) will set out development proposals under consideration or granted permission but not yet completed, plus a number of sites put forward as part of the Greater Norwich Local Plan which are potentially affected by the onshore cable corridor. The Greater Norwich Local Plan (GNLP) is presently in the Regulation 18 consultation stage, which runs until 14 December 2018. This consultation follows an earlier consultation (January to March 2018) and includes newly submitted sites, revisions to some sites already consulted on and small sites not previously covered. These sites have no status in planning terms as as they have been submitted under the call for sites and the initial regulation 18 stage, which are the first stages of the Local plan process. The sites have been subject to a high-level desk-top assessment in the Housing and Economic Land Availability Assessment (HELLA). Sites identified as *potentially* suitable in the HELLA are still subject to a full site assessment before a draft Regulation 18 is consulted on in autumn 2019. The Applicant's response to the specific sites identified in RR-051, RR-067, and RR-147 is set out below: • RR-057: the land holding is not identified in the GNLP and there are no South Norfolk Council land allocations for the area where the onshore cable corridor crosses the holding. The Applicant considers that any development plans the landowner currently has are aspirational and, therefore, no mitigation measures are required; • RR-067: the Hornsea Three onshore cable passes through two "call for sites" areas identified in the GNLP: these are GNLP0177-A (housing, associated commercial/employment development) and GNLP1023-B (food-led business hub). There are no current planning applications for either GNL0177-A and GNLP1023-B

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			and the GNLP currently has no status in planning policy terms. Due to the status of the sites, the Applicant considers that it is not appropriate to assess the impact Hornsea Three could potentially have on any future development and, therefore, the Applicant considers that mitigation is not required. • RR-147: refers to a reserved matters planning application 2017/0151 that was consented in May 2017. This consent and the original outline planning application (2011/1804/O) are not located within the boundary of the Hornsea Three onshore cable corridor. This development has been included in the cumulative assessment (as reported in Volume 4: Annex 5.2: Cumulative Effects Screening Matrix of the Environmental Statement [APP-097]) and no mitigation is required. Where possible, Hornsea Three has sought to minimise impacts to landowners including those who have identified potential development proposals through site selection/route refinement. Where it has not been possible to avoid such sites, the Applicant has sought to engage with the relevant landowners to discuss a voluntary agreement. In the event that it is not possible to enter into a voluntary agreement with relevant landowners, compensation will be payable in accordance with the statutory compensation code. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032].
Q1.9.2	Applicant	Paragraph 6.11.1.39 of the ES [APP-078] indicates that there may be the possibility of using Horizontal Directional Drilling (HDD) technology for crossing public rights of way. What are the factors that will determine whether or not HDD technology is used in these circumstances?	With reference to Peddars Way/ Norfolk Coast Path at landfall, both HDD and open cut trenching is retained as options for cable installation at landfall. Based on the initial high level investigative works (in the form of preliminary nearshore geotechnical surveys) the Applicant considers that trenchless techniques may be feasible through the intertidal and therefore, has sought to include this option in the consent envelope. The specific approach taken forward (as part of the final scheme design) will be informed by HDD feasibility to be informed by detailed site investigation work undertaken post consent, as well as other construction logistics. In respect to these other construction logistics, open cut remains the Applicant's preferred approach to cable installation at landfall as it is less technically complex approach, utilising simpler construction methods as well as decoupling time critical construction activities, providing greater certainty in construction and installation programmes at reduced costs. Open cut works also reduces the marine interface, with no need for offshore HDD exit pits and associated dredge and backfill operations. Onshore, open cut activities typically entail less onshore traffic (with no HDD drill rigs required for example, or bentonite deliveries to site) and typically entail a smaller associated construction compound than those required to support HDD operations. Finally, open cut works can also be undertaken over a shorter time period when

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			compared with HDD, with typical works per cable taking 1 month (Paragraph 3.6.12.23 of Volume 1, Chapter 3: Project Description of the Environmental Statement, APP-058) over 4 months for each HDD operation (Table 3.51: Maximum design parameters for TJBs and landfall work of APP-058). The assessment of impacts on PRoW within Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement (APP-078) has considered the maximum design scenario (which in this instance comprises the impact on PRoW resulting from the use of open cut technology).
Q1.9.3	Applicant	Section 6.8 of the Outline Code of Construction Practice [APP-179] sets out proposed management measures regarding public rights of way. A) Are there any footpaths or other public rights of way that would be temporarily stopped up without diversion?	A) The Applicant does not anticipate temporarily stopping up any footpaths or other public rights of way without diversion. As set out in paragraph 6.8.10 of the Outline Code of Construction Practice [APP-179] the contractor must either seek to maintain pedestrian access or provide a localised diversion.

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		B) Where footpaths and public rights of way would need to be diverted, please explain the procedure for agreeing how this would be done. C) In the case of the Norfolk Coast Path National Trail, please provide details of the diverted route that would be sought in the event that a diversion is required. D) Please provide an update on the progress of discussions with Norfolk County Council (NCC) regarding the implications for the Norfolk Coast Path National Trail and any additional management measures that may be required.	B) As set out in paragraph 6.8.7 of the Outline Code of Construction Practice [APP-179], prior to any stopping up or localised diversion the contractor must agree the management measures with the relevant PRoW officer at Norfolk County Council. This will be achieved through the development of a PRoW Management Plan post-consent, to form part of the detailed CoCP (Requirement 17 of the DCO). The Applicant has clarified this through amending paragraph 6.8.1.7 of the Outline CoCP, APP-179 as follows (new text shown in underline): *Paragraph 6.8.1.7 "Several PRoW and areas of land with informal public access will potentially be affected by the construction of the onshore elements of the Hornsea Three. Prior to the any stopping up or localised diversion of a PRoW, the principal contractor will agree measures, in accordance with the measures established in this Outline CoCP, to manage the interface between the works and PRoW with the relevant PRoW officer at Norfolk County Council. <u>These measures, along with timeframes for reinstatement, will be set out in a PRoW Management Plan to be approved by Norfolk County Council."</u>* All Public Rights of Way that are crossed by open-cut methodology will be diverted within the Order limits as the works proceed i.e. they will generally be retained on their existing alignment and only diverted as the works proceed over that alignment. Temporary fencing and signage will also be employed at these crossing points. This proposed procedure has been discussed with Norfolk County Council who have raised no objections although discussions continue in respect to the detailed management of these diversions (see the Norfolk County Council SoCG). Details of the reinstatement of the PRoW is clarified in updated paragraph 6.8.1.17 of the Outline CoCP (APP-179) (new text shown in underline): *"6.8.1.17 Following completion of construction activities <u>for a given phase</u>, all public access within the working area (PRoWs) will be <u>returned to their original alignment (if appropriate) and/or</u> reinstated with a standard commensurate to that existing prior to the commencement of construction works <u>unless otherwise agreed with the local planning authority. As noted in paragraph 1.1.1.6 of the Outline CoCP, if construction is to be undertaken in two phases, the works in the first phase will be left in a safe state as agreed with relevant local authorities</u>."*

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			C) The proposed diversion from the Norfolk Coast Path runs along existing tracks and is shown as plots 1-005, 1-009, 1-010 and 1-011 on the Land Plan – Onshore [APP-011] within the Muckleburgh Collection. Within the landfall construction area and indicative alignment along existing tracks (as shown in the Annex to Ex. A WQ 1.9.3) has been identified but this may change as landfall works and discussions with the landowner proceed.
			D) Several meetings have been held with Norfolk County Council (NCC) to discuss impacts from Hornsea Three. A meeting was held with NCC in August 2018 to discuss PRoW matters specifically including the potential impact on the Norfolk Coast Path. At this meeting, NCC noted that the proposed diversion would be acceptable in planning terms subject to reinstatement to at least the same condition as pre-construction. NCC requested further detail regarding the proposed management of the diversion, with specific consideration given to the potential interactions with Path users and night fishermen, and indicated that they would be looking for a commitment to undertake a condition survey of the Norfolk Coast Path prior to the commencement of open cut landfall works. Further details pertaining to the management of a diversion to the Norfolk Coast Path will be provided within a section of the PRoW Management Plan, as set out in the amended paragraph 6.8.1.22 of the Outline Code of Construction Practice [APP-179] (new text shown in underline): Paragraph 6.8.1.22 *"The Undertaker recognises the sensitive nature and high usage of the beach and the coastal footpath. In the event that access along the beach is to be restricted or the coastal path needs to be temporarily diverted, the Undertaker or principal contractor for the landfall works will submit ~~a~~ details within the PRoW Management Plan to be approved by North Norfolk District Council and Norfolk County Council as the relevant planning ~~authority~~ authorities~~, developed in consultation with Norfolk County Council~~."* To help inform ongoing discussions and future development of a PRoW Management Plan, which will ultimately form part of the final CoCP (Requirement 17), the Applicant has also requested feedback from the Norfolk National Trail Partnership, which comprises representatives from North Norfolk District Council, NCC, Environment Agency, Norfolk Coast Partnership, Natural England and various other organisations. Feedback has not yet been received, but will

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			upon receipt be used to help inform the ongoing discussions with NCC and NNDC through the relevant SoCG process.
Q1.9.4	Applicant	"The Outline Code of Construction Practice [APP-179] indicates that public accesses and routes would be reinstated. A) What measures would be required to ensure that these footpaths and routes are reinstated following closure or diversion, including any parts outside of the dDCO limits which may have become overgrown? B) How would such measures, including appropriate timescales for completion, be secured in the dDCO?"	A) The Applicant has made a commitment to reinstate all Public Rights of Way (PRoW) affected by the construction of Hornsea Three to a state commensurate with condition prior to the commencement of works (see paragraph 4.1.6.3, 6.8.1.17 and 6.8.1.20 of the Outline CoCP [APP-179]). In response to discussions with NCC, the Applicant has amended paragraph 6.8.1.8 of the Outline CoCP [APP-179] as follows (new text shown in underline): *Paragraph 6.8.1.8 "Prior to commencement of works at each PRoW or area of land with informal public access, specific measures will be adopted to mitigate the impacts of construction works. A condition survey of all affected routes will be undertaken during the pre-construction period to inform the reinstatement works."* The reinstatement of PRoW is secured through Requirement 17 which requires that a CoCP (which must accord with the outline CoCP, APP-179) is submitted to and approved by the relevant planning authority, in consultation with the relevant highway authority and, if applicable, the MMO. Appropriate timescales for reinstatement would be agreed through the PRoW Management Plan which will form part of the final CoCP (as noted in amended paragraph 6.8.1.7 above). B) As stated in the response to Q1.9.4(A), the commitment to reinstate any affected PRoWs is set out in the Outline CoCP [APP-179] which is secured through Requirement 17 of the draft DCO (submitted for Deadline 1). Appropriate timescales for reinstatement would be agreed through the PRoW Management Plan which will form part of the final CoCP (as noted in amended paragraph 6.8.1.7 above).

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Q1.9.5	Applicant	"Table 6.26 of the ES [APP-078] sets out the criteria for defining the magnitude of an impact upon land use receptors and recreational resources. A) Please provide a more detailed explanation of how the magnitude of impacts relating to the loss of the best and most versatile agricultural land has been determined. For example, how has it been determined that the loss of more than 50ha is major and the loss of more than 20ha is moderate? B) Please explain what bearing the size of a particular agricultural holding has on the assessment of the impacts upon agricultural land and operations?"	A) As set out in Table 6.26 of Volume 3 Chapter 6: Land Use and Recreation of the Environmental Statement [APP-078] the thresholds of 20 ha and 50 ha have been used to determine the magnitude of impact. A moderate adverse impact is used for the loss of 20 ha of best and most versatile (BMV) land as this is the threshold for when statutory consultation is required with local authorities and Natural England. The approach behind calculating this threshold is to relate the area of BMV land lost to an equivalent size of farm holding based on the published DEFRA statistical farming dataset (i.e. 20-50 ha are smaller holdings). Whilst there is no clear guidance for assigning a magnitude of impact to the loss of 50 ha of BMV land, the same approach has been applied whereby the area of land lost is equivalent to a moderate size of farm holding (50 -100ha) which is considered to be a major impact. B)The size of the holding is one of the key considerations in assessing the potential impact of land take, both during construction and operation, on the ability of predominantly arable holdings to continue in operation, without threatening the future of the farm business as a whole. Larger arable farms have a greater degree of flexibility in being able to adapt their operations to the changing circumstances and ensure that the continuation of the enterprise is not compromised.
Q1.9.6	Applicant	Paragraph 5.10.8 of the Overarching National Policy Statement for Energy (EN-1) requires that the applicant seeks to minimise the impacts on the best and most versatile agricultural land.	Volume 1, Chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement (APP-059) provides a description of the site selection and route refinement process undertaken in respect to Hornsea Three. In respect to onshore route refinement, this is supported by Volume 4, Annex 4.3: Refinement of the Onshore Cable Corridor and Associated Infrastructure (Stages 5-7 Scoping to PEIR) (APP-094) and Annex 4.4: Post-PEIR changes (Stages 8-9) (APP-095).

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		Please explain how this has been achieved for Hornsea Project Three in respect of the choice of the onshore cable route and location of onshore infrastructure?	It is important to note that, due to the geographic location of the AFL area and the grid connection location offered to Hornsea Three (Norwich Main National Grid Substation), the onshore cable corridor route was, by necessity, routed through areas utilised for agriculture. Notwithstanding this, impacts on the best and most versatile land have been minimised through design to limit any permanent losses of the best and most versatile agricultural land through permanent land take and a commitment pursuant to Requirements 17 and 20 of the draft DCO (Version 1, Deadline 1) and paragraph 4.1.6.3 of the Outline Code of Construction Practice [APP-179] to restore areas which are required temporarily during the construction phase of Hornsea Three, in accordance with recognised best practice. The location of the onshore cable route and onshore infrastructure has been designed so as to not impact on any Grade 1 land. Table 6.29 and paragraph 6.11.1.4 of the ES [APP-078] sets out the amount of Grade 2 and Grade 3a land that will be permanently lost. Examples of where impacts on the lesser categories of best and most versatile agricultural land (i.e. Grade 2 and 3a) have been minimised are set out below: • Avoidance of the best and most versatile agricultural land was a key consideration in the evaluation of potential landfall locations (see paragraph 3.1.2.2 of Annex 4.3: Refinement of the Onshore Cable Corridor and Associated Infrastructure (Stages 5-7 Scoping to PEIR) [APP-094). As a result, the area chosen for landfall is characterised primarily by Grade 3 and 4 land; • During the onshore cable corridor refinement, a number of conflicting constraints were identified in multiple locations and were evaluated and prioritised in order to identify the optimal onshore cable corridor route. Where possible, the best and most versatile agricultural land has been avoided, with the results of targeted surveys indicating the route to be characterised primarily by Grade 3 land (APP-158); • The permanent and temporary footprint of the onshore HVAC booster station and onshore HVDC converter/HVAC substation was reduced between PEIR and the application as part of design refinement. This minimised the areas of Grade 2 and 3a land which was impacted either permanently or temporarily during the construction phase;

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			• One of the key criteria used to identify the location of the main construction compound was the presence of existing hardstanding, which avoided all impacts on the best and most versatile agricultural land (paragraph 4.12.5.2 of APP-059); • Although the precise location of some components of Hornsea Three are not yet known i.e. link boxes, joint bays and HDD compounds, these will be determined during detailed design once a contractor is appointed, and where possible, will seek to avoid the best and most versatile agricultural land wherever possible; and • After construction has been completed on a length of the Hornsea Three onshore cable corridor, or alternatively at the end of each phase of construction, the associated construction compounds and site accesses will be promptly dismantled and the land restored. As such, the land will be capable of being returned to its former agricultural use, as far as possible. In addition to the above, the Applicant has committed to preparing a Soil Management Strategy, as part of the final CoCP to minimise impacts during the construction phase on the best and most versatile agricultural land which lies within the Order Limits. Details of the soil management strategy are set out in paragraph 6.8.1.1 of the Outline CoCP (APP-179) with further clarification provided in response to Q.1.9.11. As demonstrated above, Hornsea Three has sought to minimise the impacts on the best and most versatile agricultural land in accordance with paragraph 5.10.8 of the Overarching National Policy Statement for Energy (EN-1).

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Q1.9.7	Applicant	"The ES [APP-078] assesses the impact upon agricultural land and operations in terms of the maximum design scenario. In comparison with the maximum design scenario, please set out the effects on agricultural land and operations that would result from: A) the use of high voltage direct current (HVDC) rather than high voltage alternating current (HVAC); B) the use of ducting for cable installation across agricultural land; and C) the completion of the onshore cable route construction works in a single phase.	A) Please refer to Appendix 22 to the Applicant's response to Deadline 1 which refer to the transmission systems. B)As noted in response to the Applicant's response to Relevant Representation RR-006, since the point of application, the Applicant has committed to installing the cables for Hornsea Three by ducting rather than direct lay secured by means of a newly created paragraph 1.1.1.7 of the Outline CoCP (APP-179) (new text shown in underline): *Paragraph 1.1.1.7 "Hornsea Three will install all cables by ducting, rather than direct lay, with ducts installed in the trenches which would then be backfilled and at a later date, the cables will be pulled through the ducts from one joint bay to the next. Any works completed during the trenching and ducting works, would be left in a safe state, as agreed with the relevant authorities, to await the cable installation works. "* This approach means that trenching and cable installation can be de-coupled and will provide more flexibility for the installation process facilitating an improved ability to optimise works and delivery of components. Typically, this will result in the trenches being open for a shorter duration, which reduces the length of time subsoil is stored in stockpiles and allows the reinstatement of the subsoil and field drainage to begin earlier. The reinstatement of topsoil may also take place in between the joint bays, however the cable pulling activities would still require the use of the haul road. The construction programme is unlikely to change significantly to that used within the maximum design scenario presented within Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement, however, reinstatement of subsoil may be achieved sooner. In the event that Hornsea Three is to be delivered in two phases, the Applicant recognises the potential to further minimise impacts and disruption to the local community through pre-ducting for the second phase during the first phase of works. Therefore, assuming a CFD (or alternative financial mechanism) for both phases is awarded in the same auction round), the Applicant will carry out pre-ducting for the second phase at the same time as installing the

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			ducts for the first phase. It is noted that should pre-ducting for the second phase be carried out during the first phase construction, these works would be left in a safe state, as agreed with the relevant authorities, to await the completion in the second phase (as set out paragraph 3.8.1.3 of Volume 1, Chapter 3: Project Description of the Environmental Statement). As noted in response to Applicant's response to Relevant Representation RR-006, this commitment is secured by means of an amended paragraph 1.1.1.6 the Outline CoCP (APP-179) (new text shown in underline): Paragraph 1.1.1.6 *"Construction work is currently planned to commence in 2021, however the surveys and enabling works could start as early as 2020. Hornsea Three could be built in a single phase of construction or two phases, with the potential for an overlap or a gap of up to three years between the completion of construction activities in one phase and the start of the same construction activity in the second phase. It is also possible that some activities may be carried out during an earlier phase for the benefit of a later one. <u>In this regard, should the project be delivered in two phases, Hornsea Three will install ducts for the second phase as part of the first phase of works should both phases be awarded a Contract for Difference in the same auction round.</u> However, any works completed for a later phase(s) would be left in a safe state, as agreed with the relevant authorities, to await the appropriate phase for completion."* It is emphasised that the project will only commit to pre-ducting for the second phase if a CFD (or alternative financial mechanism) for both phases is secured in the same CfD auction. Without certainty as to the timing or capacity of the second phase, the pre-installation of ducts for this phase could cause greater disruption than is necessary to the communities along the onshore cable corridor and a greater environmental impact should the final design for the second phase be of a different specification and therefore not be suitable for the installed ducts. Should the ducting for the second phase be installed, disturbance to agricultural land across the full width of the onshore cable corridor would only happen on one occassion; subsoil would only have to be excavated and reinstated once, and the reinstatement of field drainage and topsoil across the majority of land between joint bays could begin earlier. Land would still be required in the second phase to facilitate the cable pulling activities at the joint bays and also sections of the haul road would still be required. However, this would be an improvement to the maximum design scenario as assessed in Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement [APP-078].

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			C) A one phase construction programme would require agricultural land being taken out of production on one occasion. This would allow the reinstatement of subsoils, field drainage and topsoils to begin earlier and bring land back into agricultural use within a shorter time frame. This would be an improvement to the maximum design scenario as assessed in Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement [APP-078].
Q1.9.8	Applicant	"Paragraph 3.7.3.13 of the ES [APP-058] states that the concrete link boxes would be likely to be completely buried. Representations from the Land Interest Group [for example RR-147 and RR-148] have referred to the potential effects of link boxes upon agricultural operations. A) Would the need for link boxes be affected by the choice of HVAC or HVDC technology? B) If link boxes were sited completely underground would there be some surface construction such as manhole covers or fencing? C) How would the link boxes affect farming operations (for example	A)Link boxes would be required regardless of the choice of HVAC or HVDC transmission, however the number of link boxes would be affected. Please refer to Appendix 22 of the Applicant's response to Deadline 1 which relates to the transmission systems within the project envelope. B) See response to Q1.7.5 (A). C) As noted in the response to Q1.7.5, manhole covers are required to provide access at all link boxes. During discussion with landowners, it was identified that certain farming operations, for example ploughing, would need to avoid these areas to prevent damage to the link box. As part of these ongoing discussions with landowners, the Applicant has committed to placing marker posts on each corner of the surface feature, if requested by the landowner to do so as part of the Option and Lease agreement. In the event that compulsory acquisition powers are used, the compensation payable will take into account any impact on the value of the land or injurious affection caused as a result of any restrictions on farming operations due to the location of the link boxes. Link box locations will be determined by the specifications of the cables used for Hornsea Three, when a cable contractor is appointed and the detailed design of the cable specifications, including length of cables per cable drum are known. More detailed cable design is wholly reliant on refined understanding of the scale of the generation assets being connected in that phase and the capacity of cables required, transmission technology to be deployed and appointed contractors cable design. Once detailed design for Hornsea Project Three has commenced it may be possible to site and design link boxes in areas which reduce interference with farming operations, noting that the cable corridor has been defined to follow field boundaries etc. where possible in order to minimise any impacts to landowners' use of their land. However, given the number of technological and environmental constraints it is not practicable to confirm the exact link box locations at this stage or to commit to only locating the link boxes in field

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		ploughing)? What would be the criteria for deciding the location and design of link boxes? How would the design and location of link boxes be controlled through the dDCO?"	boundaries. As such there is no provision in the Hornsea Project Three Order restricting their location save that these will be within the Order Limits. The location and design of link boxes are dictated by the location of the associated joint bays at some or all of the joint bay locations dependant on the electrical screen earthing design associated with the overall cable system design. The link boxes are designed to maintain the level of screen earth losses and maintain the voltage appearing on the earth screen to a safe level. Link boxes are also used to allow regular testing of the integrity of the outer cable sheath which protects the cable. Link boxes are required to be no more than 10m from the centre of the associated joint bay, which therefore restricts the location accordingly.
Q1.9.9	Applicant	Paragraph 3.7.3.13 of the ES [APP-058] states that joint bays will be likely to be completely buried. A) Please explain the circumstances in which joint bays would not be completely buried. B) What would the implications be for agricultural operations should the joint bays not be completely buried? C) What would be the criteria for deciding the location and design of joint bays? How would the design and location of joint bays be controlled through the dDCO?"	A) As set out in paragraph 3.7.3.13 of Volume 1, Chapter 3: Project Description (APP-058), joint bays along the onshore cable corridor will be buried, with land above re-instated. There are no circumstances in which joint bays would not be completely buried. B)As joint bays would be completely buried at all locations there would be no implications for agricultural operations at joint bay locations. However, at certain joint bay locations, cable link boxes would be installed within an underground chamber with a surface mounted access lid such as a manhole cover (see response to Q1.9.8). C) Similar to link boxes (see response to Q1.9.8), joint bay locations will be determined by the specifications of the cables used for Hornsea Three, when a cable contractor is appointed and the detailed design of the cable specifications, including length of cables per cable drum are known. More detailed cable design is wholly reliant on refined understanding of the scale of the generation assets being connected in that phase and the capacity of cables required, transmission technology to be deployed and appointed contractors cable design. Once detailed design for Hornsea Project Three has commenced it may be possible to site and design joint bays in areas which reduce interference with farming operations, noting that the cable corridor has been defined to follow field boundaries etc. where possible in order to minimise any impacts to landowners' use of their land. However, given the number of technological and environmental constraints it is not practicable to confirm the joint bay locations at this stage or to commit to only locating the link boxes in field boundaries. As such there is no provision in the Hornsea Project Three Order restricting their location save that these will be within the Order Limits.

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Q1.9.10	Applicant	Paragraph 6.4.1.14 of the Outline Code of Construction Practice [APP-179] briefly outlines field drainage measures (paragraph 6.4.1.14). A) Please provide further details of the measures for reinstating field drainage following the installation of the cables. B) Would any additional measures be required under a two phase scenario? C) What would be the process for approval of such measures?	A) The Applicant refers to paragraphs 3.7.2.10 and 3.7.2.11 of Volume 1, Chapter 3: Project Description of the Environmental Statement [APP-058] which sets out details of drainage management, including impacts on existing field drainage. The drainage strategy would include a pre-construction survey of existing field drainage systems. Any field drainage intercepted during the installation of the onshore cable corridor will either be reinstated following the installation of the cable or diverted to a secondary channel. Any works undertaken will be in agreement with the appropriate stakeholders taking into consideration any representations made by the relevant landowner. This is known as post -construction drainage design and consists of reinstating any existing drainage affected by the installation works and tieing into the pre-construction drainage installed prior to the start of construction works to ensure that the existing drainage system is maintained and generally enhanced from before the start of the construction works. This is reflected in updated paragraphs 6.4.1.9 and 6.4.1.14 of the Outline COCP (APP-179) which would be secured through Requirement 17 of the draft DCO (new text shown in underline): *"6.4.1.9 Where the Hornsea Three onshore cable corridor crosses smaller watercourses and land drainage ditches measures would be discussed and agreed with the relevant stakeholders (e.g. for temporary culvert crossings, appropriately sized flume pipes, equal to or greater than the diameter of the flume upstream and to an agreed length, will be placed on or below the hard bed of the watercourse) taking into consideration any agreements with, or representations made by, the relevant landowner.* *6.4.1.14 Any field drainage intercepted during the cable installation will either be reinstated following the installation of the cable or diverted to a secondary channel. Any works undertaken will be in agreement with the appropriate stakeholders taking into consideration any agreements with, or representations made by, the relevant landowner."*
			B) In a two phase scenario it is anticipated that field drainage systems would be re-instated following completion of the first phase of construction. No additional mitigation measures are envisaged in a two phase scenario as typically the pre and post construction drainage works would be installed separately in each phase.
			C) The commitment to implement a drainage strategy is contained within the Outline CoCP [APP-179]. The process for approving the measures to reinstate field drainage will approved through the final CoCP pursuant to Requirement 17. Both Pre and Post Construction drainage design and construction works will take into account representations

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			made by the affected landowners to ensure that the land drainage associated with their land is not adversely affected by the construction works.
Q1.9.11	Applicant	Table 6.28 of the ES [APP-058] sets out brief details of the proposed soil management strategy. Please provide further details of this strategy. What would be the process for the approval of such a strategy?	The Soil Management Strategy will be contained within the final CoCP and will set out the measures proposed to manage the soil resources associated with agricultural land impacted by the temporary and permanent onshore infrastructure of Hornsea Three (landward of Mean High Water Springs (MHWS)). It will be based on recognised best practice guidance provided in the Department for Environment, Food and Rural Affairs (Defra) Code for the Sustainable Use of Soils on Construction Site (Defra, 2011) and the Ministry of Agriculture, Fisheries and Food (MAFF) MAFF Soil Handling Guide (MAFF, 2000). The MAFF guide is currently being updated and the latest guidance will be incorporated into the strategy. The principle objectives of the strategy are to: • Conserve soil resources; • Avoid damage to soil structure; • Maintain soil drainage; and • Identify principles for the reinstatement of the soil profile. In order to achieve the above, the Soil Management Strategy will provide: • details of management and supervision of soil handling processes, as well as the interaction with the Agricultural Liaison Officer and Ecological Clerk of Works; • the methodology and protocol for soil stripping (top soil and subsoil); • the protocol for soil storage, including methods of storage which will be accordance with that described for a single tier mound in Sheet 2 (Building Soil Storage Mounds with Excavators and Dump Trucks) of the Good Practice Guide for Handling Soils (MAFF, 2000); • the methodology to be applied in respect of ground preparation (to loosen any compacted soil) and soil replacement; and

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			• aftercare provisions. The strategy will also provide general housekeeping and soil handling protocols in order to minimise impacts on soil resources as far as practicable. A commitment to prepare a Soil Management Strategy is set out in paragraph 6.8.1.1 of the Outline CoCP [APP-179] and is secured through Requirement 17 of the dDCO. Details of the strategy would be prepared post-consent, once an earthworks contractor has been appointed and detailed earthworks phasing information is available and would be submitted to approval by the Environment Agency.
Q1.9.12	Applicant	Table 6.28 of the ES [APP-058] sets out brief details of a farming framework including matters such as farm accesses, timing of construction works and the spread of diseases. A) Please provide further details for each part of the farming framework, including the criteria that would be taken into account in making a decision for each of the subjects covered and the process for consultation with relevant stakeholders. B) What would be the process for approval of the farming	A) Farming framework refers to the overall potential of Hornsea Three to affect the operation and agricultural productivity of farm holdings in the local or regional area, not only individually. The measures referred to in Table 6.28 of Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement [APP-078] the under the heading "Farming Framework" form part of the Outline CoCP (see paragraphs 6.8.1.2 to 6.8.1.6, Appendix and Appendix D) and would be used to develop the final CoCP. The measures would also be taken into account when working with landowners and their representatives to ensure that the individual plans for each owner are suitable, but do not have a detrimental effect on surrounding holdings. This is captured in updated paragraph 6.8.1.6 of the Outline CoCP (new text shown in underline): *"6.8.1.6 Existing water supplies and drainage systems will be maintained and reinstated wherever reasonably practicable during the construction process. Details of the irrigation system on each land holding will be gathered during the detailed design stage and irrigation plans will be developed. The Agricultural Liaison Officer will consult with each individual landowner to obtain the relevant information and to be a point of contact to report concerns regarding irrigation systems during construction. The plans will include the following information:* • *Location of boreholes and water supplies used by each farmer;* • *Irrigation or impoundment licence granted by the EA; and* • *System of irrigation applied and the location of irrigation network for each field."*

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		framework? How should such matters be dealt with in the Outline Code of Construction Practice [APP-179]?	B) As described in the response above, the process would be to agree individual arrangements, covering paragraphs 6.8.1.2 to 6.8.1.6, Appendix A and Appendix D of the Outline CoCP [APP-179] with landowners and their agents but ensuring that arrangements do not have a detrimental effect on surrounding holdings. The Applicant has been involved in ongoing negotiations with relevant landowners, lessees, tenants and occupiers regarding Heads of Terms for voluntary agreements for the necessary rights to construct, use and maintain the onshore cable corridor. The measures within Table 6.28 of Volume 3, Chapter 6: Land Use and Recreation of Environmental Statement [APP-078] form part of these discussions with individual landowners and their representatives (where relevant and appropriate).
Q1.9.13	Applicant	"The farming framework in Table 6.28 of the ES [APP-058] states that accesses across individual fields and between fields within a farm holding would be maintained where reasonably practicable. A) Under what circumstances is it expected that maintaining access would not be practicable and what would the resulting effects be? B) Provide examples of where this is expected to be the case. C) What mitigation is proposed in these cases?"	A) Severed land will be made accessible to landowners, lessees, tenants and occupiers by the installation of access points by the Applicant at practical locations along the onshore cable corridor. In limited circumstances it may not be possible to maintain access where such access would represent a health and safety risk or where in agreement with landowners, farming that section of land would not be practicable predominantly because of its small size or irregular shape. If it is not feasible or safe to maintain access and land is severed and inaccessible, the resulting effects would be temporary, and likely to be for a duration of no more than a few days. As such, no different, or greater magnitude of effects than those assessed in Volume 3, Chapter 6: Land Use and Recreation would occur. Alternatively access may not be provided where it has been agreed with the landowner or occupier that farming the section of severed land would not be practicable predominantly because of its small size or irregular shape. B) Locations where access may be temporarily restricted due to impracticalities of farming (to be confirmed by discussion with landowners) the associated piece of the severed land include: • Sheet 11 of 35 of the Onshore Land Plan (APP-011), a small triangular plot of land immediately to the north of the proposed storage area (land parcel 11-012), and immediately to the west of the onshore cable corridor at land parcel 11-011;

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			• Sheet 18 of 35 of the Onshore Land Plan (APP-011) the long sliver of land between the cable works and Reepham Road immediately to the east of the onshore cable corridor at land parcels 18-004 and 18-005; • Sheet 29 of 35 of the Onshore Land Plan (APP-011), a small triangular plot of land immediately to the north-east of the onshore cable corridor at land parcel 29-004 and bound to the north and east by Little Melton Road and Burnthouse Lane. However, access points can be provided to the above parcels of land if required by the landowner or occupier.
			C) Should it not be possible to maintain access and land is severed and inaccessible, then compensation is payable for any losses or damage pursuant to Article 25(5) of the draft DCO [APP-027]. Advance notice would be given of any construction works in the vicinity of works which could restrict access. This is captured in the updated paragraph A1.1.3 of the Communications Framework provided as Appendix A the Outline CoCP (APP-179): Paragraph A1.1.3 " *Advance notice would be given of any construction works in the vicinity of works which could restrict access and if required an alternative crossing location, if available, would be established prior to works commencing*."
Q1.9.14	Applicant	The ES [APP-078] provides a brief assessment of the cumulative impacts of the proposal in cmbination with the proposed Norfolk Vanguard scheme which may be constructed concurrently with Hornsea Project Three. Please provide a more detailed cumulative assessment of the impacts of the proposal on agricultural land and operations in combination with the Norfolk Vanguard scheme.	The Norfolk Vanguard Scheme intersects with Hornsea Three within a substantial sized estate. During the construction period, this would lead to the additional loss of approximately 13 ha of land from this holding that comprises a farmed area of approximately 1,700 ha. The loss of additional land would have two effects: 1) there would be an additional temporary loss of agricultural land quality arising from both schemes, during the construction period, but following restoration, applying best practice measures, the agricultural land would be returned to its former productive use. 2) There could be additional effects on the single arable field where the two schemes cross, including effects from severance and potential disruption of drainage facilities (if installed). These would have a temporary additional effect on this substantial estate within this limited area, which would be restored following the construction period. The Applicant would direct the Examining Authority to Appendix 16 to the Applicant's response to Deadline 1, which provides a detailed response. This includes an explanation of the effect of the recent changes in status of the Norfolk

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			Vanguard and Thanet Extension projects on the Hornsea Three Cumulative Effects Assessment (CEA). This also includes an explanation of the effect of the recent changes in status of the Norfolk Vanguard and provides an updated CEA Screening Matrix for the identified projects to show which of the onshore and offshore topics had the potential to be affected by these updates and changes.

1.13 Written Question 1.10 Socio-economic

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Q1.10.1	Applicant	The ES [APP-082] explains that the selection of ports for use during construction and operation/maintenance has yet to be determined [APP-082]. A) Please provide an update on the progress made towards the selection of a port or ports for construction and operation/maintenance. B) What are the factors that would be taken into account in determining where the construction base port(s) and the operation and maintenance base port(s) would be?"	(A&B) The Applicant has not selected the ports that it will use for construction, operation and maintenance (O&M) and decommissioning of Hornsea Three and does not intend to make a decision during the Examination period. The selection of ports for construction and operation/maintenance of the project will occur in parallel with the detailed design process, undertaken post award of consent. Ports used for construction activities are highly dependent on the appointment of construction contractors, appointment of suppliers and their supply chains, in particular in relation to the large components such as foundations, turbines, cables and substations. Further, a port's availability also varies over time and whether or not they have capacity depends on other contracts they have at that time of demand. As the precise construction period is not known it is not possible to confirm a preferred port which may or may not have capacity in the future. O&M strategy is highly dependent on the final design, known phasing of the project and the makeup of O&M strategies deployed for the wider portfolio of projects operated by Ørsted. When these are known (post consent), the Applicant will then need to reach commercial arrangements with the operator of the selected port(s) for any O&M facilities and port use. If new O&M facilities are required these will be consented separately by grant of planning permission under the Town and Country Planning Act 1990 (or other statutory consents such as a harbour revision order), with the assessment of the impacts of the port use taking place at that stage. The selection of ports for construction, O&M and decommissioning activities will be undertaken based on a number of objectives, which can be categorised as technical and commercial respectively. These include: - distance to windfarm site (including vessel routing); - location of component delivery ports (including vessel routing), with turbine, turbine foundations, offshore substation, cables etc potentially each making use different port facilities for construction; - Port facilities and capabilities, including:- water depths (relating to vessel draft), length of quay (number of vessels that can berth simultaneously), size of area accessible for storing and assembling components, port

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			area characteristics, including load bearing capacity, seabed conditions and suitability for jacking up crane vessels at the quayside. - Port vessel access restrictions including locks, and any tidal restrictions (both within the port and along the route to the open sea). In addition, there will be commercial considerations including: - enthusiasm from the port to attract offshore wind energy work and Ørsted's experience from other projects within its portfolio of working with that port; and - willingness to negotiate balanced commercial terms (balanced against installation vessels costs and port efficiency (minimising delay in port usage, imposition of time usage restrictions). For O&M facilities, factors include: - existing Ørsted O&M facilities (and their capacity to include additional operations requirements); - travel time between port and the array; and space requirements for spare parts and maintenance workshop only.

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Q1.10.2	Applicant	Different impact scenarios are set out in table 10.37 of the ES [APP-082]. Using a ranked order, which of the construction and operation/maintenance impact scenarios are the most likely to occur and why?	The scale of impacts which could occur in the local economic development study areas is presently unknown. However, given Ørsted's track record of delivering offshore wind projects in the UK and commitment to developing and deepening the UK's supply chain offer, it is considered unlikely that either the Low Impact Construction or Low Impact O&M UK scenarios would occur. The Medium and High Construction Scenarios could both be realised, however this is highly dependent on the selection of the supplier and where they are located. For example, the Medium Construction Scenario for the Humber LEP assumes that turbine blades are sourced from within the local economic development area. Ørsted is committed to working closely with the relevant Local Enterprise Partnerships (LEPs) and business networks in the local economic development areas to understand what can be supplied locally and to maximise any opportunities. The Applicant has not selected the port from which it will operate and maintain Hornsea Three and will not make a decision on which port to use until detailed studies and commercial negotiations with the port owner are undertaken (i.e. post consent). The High Impact O&M Scenario is most likely to occur; however, it should be noted that High Impact O&M Scenario for the Humber LEP and New Anglia LEP are mutually exclusive. It is not envisaged that the Applicant would operate Hornsea Three from an overseas base or one outside of either the Humber LEP or New Anglia LEP.

		Notwithstanding these scenarios, what weight can be given to the socio-economic benefits that might arise from the proposal, having regard to current uncertainties regarding the location of the port(s) to be used for construction and operation/maintenance and the sourcing of goods and services?"	The most tangible measure of the potential local economic benefits is the employment which will be supported, the nature and earnings associated with them, as well as the scope for residents, both currently employed and unemployed, to access these jobs. Volume 3 Chapter 10: Socio-economics of the Environmental Statement (APP-082) estimated the employment which could be supported by the construction and operation of Hornsea Three under a range of scenarios. If construction ports local to the two local study areas were selected then an estimated 880 direct and indirect jobs would be supported in the New Anglia area on average throughout the construction phase, whilst between 2,140 and 4,060 direct and indirect jobs could be supported in the Humber study area. However, it should be borne in mind these scenarios are mutually exclusive between the two local study areas. Although mostly not significant in EIA terms (with the exception of the high impact scenario in the Humber LEP study area), this employment nevertheless is an important benefit for the local economies. Whilst it is not appropriate to quantitatively forecast the extent to which local residents might be able to access these jobs, the qualitative analysis of the type of employment opportunities supported and the match with the local labour market suggests that this will provide good opportunities for these residents (with the exception of the scenarios in both local study areas in which a local port is not used). In practical terms, this will include opportunities for both the unemployed to enter jobs mainly with training opportunities and the currently employed to progress into higher skilled and better paying jobs (enabling others to access the freed-up jobs). Similar conclusions apply to the O&M period for Hornsea Three. Although the injection of additional expenditure and the employment this supports in the two local economies is lower compared to the construction phase, it would be sustained over a much longer period and provide more solid foundations for the growth of the sector locally. It is worth noting the assessment of the employment and GVA benefits set out in Volume 3 Chapter 10 [Socio-economics] of the Environmental Statement (APP-082) only includes direct and indirect benefits (that is, the benefits associated with the main construction and O&M contracts and the associated supply chains). It does not quantify the personal expenditure effects (also known as induced effects) associated with the expenditure of employment incomes by the workforce those jobs are supported directly or indirectly by Hornsea Three. This will support further large-scale employment locally across a range of mainly service sectors including hospitality, restaurants, and the retail sector.

			In addition to seeing Hornsea Three as a major investment into the local economies which supports a large number of jobs, it also provides wider benefits in terms of stimulating the growth of the renewables sector, the growth and diversification of the associated supply chains and the development of the skills which these businesses need to flourish. The Local Enterprise Partnerships (LEPs) in both local study areas have prioritised the renewables energy sector and the associated supply chains and have put in place a range of economic development measures to support their growth. The LEPs are committed to working with offshore developers and a range of other partners to deliver these benefits. The Applicant will support this through the Skills and Employment Plan for Hornsea Three which is secured by Requirement 22 of the draft DCO (submitted for Deadline 1) and must be approved by the relevant planning authority in consultation with New Anglia LEP and the Humber LEP. In 2015, Ørsted commissioned a socioeconomic study of the impact of its offshore wind farm projects in the Humber over the period 2013 to 2019. The report showed that over the period of 2010 to 2030, £1.2 billion of Potential Gross Value Added (GVA) could be secured by the Humber as a result of Ørsted's investments. This study did not include Hornsea Project Two, which is currently under construction and expected to be commissioned in 2022 or Hornsea Project Three, so the potential for further economic benefits is vast. This report, documented at Appendix Z to the Response, was submitted for Deadline V to Hornsea Two examination (Application Reference: EN010053). The Applicant is committed to helping to develop and grow a competitive UK supply chain by supporting the development of existing suppliers and helping to attract high-value business into the offshore wind supply chain. Whilst the Applicant cannot guarantee that suppliers from the local economic development areas will be successful in future tenders for Hornsea Three, the Applicant will work with the LEPs and local business groups to ensure that the local supply chain has good visibility of potential opportunities and this will form part of the Skills and Employment Plan. Ørsted already has a strong track record of working with suppliers in the two local economic development areas on its existing projects. For example, in the New Anglia LEP Ørsted has awarded multi-million-pound contracts to several local suppliers, including CWind, Gardline and Seajacks. In the Humber LEP, Ørsted was instrumental in working with Siemens Gamesa to bring forward the Siemens facility in Hull to supply blades and electrical equipment for Race Bank and Hornsea Project One Offshore Wind Farms. This was significant for creating a new UK manufacturing facility and creating major new employment opportunities.
Q1.10.3	The Applicant	"The ES [APP-082] sets out details of the economic characteristics for the New Anglia	Whilst there is reasonable data on the employed and unemployed workforces, there is limited detailed information on the occupations, skills and intentions of the labour markets groups within the study areas. Additionally, there is

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		and Humber local economic development study areas. Please provide further details of how the labour market and skills in the study areas would match the construction and the operation/maintenance needs of the project.	uncertainty about both the scale of local employment and the types of jobs, which will be dependent on the type of contracts which are secured by local and non-local companies (and how they source their workers). The socio-economic baseline analysis describes the labour markets in each Local Study Area. They are both large labour markets. New Anglia has around 728,000 people in employment and 33,000 unemployed people, whilst the Humber has 414,000 people in employment and 24,000 unemployed. Both areas have a strong presence in sectors which could supply goods and services, as well as helping to ensure a good stock of the types of skills amongst jobs seekers which may be needed by contractors supporting the construction and operation of Hornsea Three. This includes manufacturing, engineering, construction land and marine transport, business and professional services, and hospitality related sectors. The ability to match the skills needed for the construction and operation of Hornsea Three to the available local labour skills will be a consideration for the Skills and Employment Plan for Hornsea Three which is secured by Requirement 22 of the draft DCO (submitted for Deadline 1) and must be approved by the relevant planning authority in consultation with New Anglia LEP and the Humber LEP.
		Based upon the existing labour market and availability of skills in the study areas, would any specific training be required and how could this be implemented?"	Ørsted is committed to helping develop people with the right skills required to deliver the UK's offshore wind ambitions, specifically in the regions in which we operate. The Applicant has committed to develop and implement a Skills and Employment Plan for Hornsea Three which is secured by Requirement 22 of the draft DCO (submitted for Deadline 1) and must be approved by the relevant planning authority in consultation with New Anglia LEP and the Humber LEP. The Skills and Employment Plan must identify opportunities for individuals and businesses based in the regions of East Anglia and the Humber to access employment and training opportunities. On other projects, in recognition of the importance of skills and training and following consultation with local communities, Ørsted has supported skills initiatives by assigning funds from Ørsted's Community Benefit Funds

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			(CBFs). CBFs are voluntary initiatives designed to provide funding to communities located close to the wind farms and other infrastructure. Any such funding scheme would be subject to Ørsted making a positive Financial Investment Decision (FID) and therefore would be put in place post consent. But by way of example, Ørsted's Walney Extension CBF and East Coast Fund have ring-fenced £100,000 and £75,000 per annum respectively for exclusive use on skills and training initiatives. The Skills Funds are divided up into different strands, providing hardship loans, financing for STEM Engineering Courses and supporting the development and delivery of a STEM training and/or education courses. The Applicant could seek to support skills initiatives through a similar mechanism for Hornsea Three.
Q1.10.4	The Applicant	"The ES [APP-082] sets out an assessment of the socio-economic impacts of the proposed development upon the Humber Local Enterprise Partnership (LEP) area. The Humber LEP is not registered as an Interested Party in this examination. However, the Examining Authority would like to receive Humber LEP's views on this assessment. As such, the applicant is requested to seek the views of the Humber LEP and submit them in response to this question."	The Applicant has sought the views of the Humber LEP on the socioeconomic assessment for Hornsea Three and presented these below: • Humber LEP supports Hornsea Project Three and recognises the potential benefits this will have for the area and wish to see the project proceed. • P12 of the document [APP-082] cites documentation which has since been superseded (e.g. by the Humber LEP's Strategic Economic Plan 2014-2020, the final/updated European Structural Investment Fund (ESIF) strategy). While it would be better to reference these, it's not really a material issue as our focus has remained the same. • The Humber LEP is preparing its Local Industrial Strategy and recently published its initial Blueprint for this in June 2018, which recognises clean energy as one of the Humber LEP's priority areas. • The general analysis of the Humber economy looks to correspond with ours. • Obviously, the Humber LEP would be very supportive of the high impact scenarios for the Humber, and keen to assist if required. • On the measures adopted, the Humber LEP confirms it would welcome the opportunity to work with Ørsted on these. This would be a continuation of our existing good relationship and previous work together. • The Humber LEP is unable to comment on the detail of the impact arising from the different scenarios, but a key priority for the Humber LEP is pursuing the development of its cluster – currently the largest in the UK – to ensure it is internationally significant and competitive. This in turn is important for the UK and fits with the

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			national industrial strategy. Each investment like this supports that aim and has a cumulative impact on the growth of our economy. • The local economy is certainly seeing the benefits of Ørsted's existing investments in the East Coast Hub, so anything that adds to this would be welcome. Involvement in initiatives like the Ron Dearing UTC and the British Science Festival, held in Hull & Humber this year, have helped to extend and embed this impact. Finally, the Humber LEP welcomes the work done to understand the potential impact on our area and look forward to continuing to work together to bring this to fruition.
Q1.10.5	Applicant, North Norfolk District Council (NNDC)	"NNDC [RR-133] refers to potential community benefits being put forward by the applicant. What community benefits are envisaged? How would they be secured?"	Ørsted has a strong track record for establishing voluntary Community Benefit Funds (CBFs) as part of its community engagement programme for its latest offshore wind farm projects in the UK. These funds can make a valuable contribution to the local area by supporting projects such as community building improvements and recreation facilities, to conservation and wildlife projects. Any such funding scheme would be subject to Ørsted making a positive Financial Investment Decision (FID) and therefore would be put in place post consent. These funds are voluntary and are not therefore intended to be secured through the DCO. The Applicant will continue to develop its local engagement strategy for Hornsea Three and will consider an appropriate way to feed benefits back into the local community. The Applicant recognises the importance of community involvement in shaping any funds to ensure that they are appropriate for the local areas. Prior to allocating funds from Ørsted's existing CBFs, a comprehensive local consultation was undertaken to seek local views from all stakeholders on how the fund should be set up. This ensures that local communities are able to influence the fund; including the funding area, the types of initiatives that would be eligible for support and the size of the grants. The funds are managed by an independent not-for-profit organisation, Grantscape and are reviewed on an annual basis. The Applicant does not consider a need to secure these community benefits in the DCO as they are voluntary. As mentioned above, such benefits are typically put in place after receipt of consent and once FID has been made.

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Q1.10.6	Applicant	The ES [APP-078] assesses the implications for farm holdings from the construction and operation/maintenance of the development. A) In economic terms, what short and long term impacts would be likely to arise for farm holdings, including but not limited to impacts from crop loss, during construction, operation, maintenance and decommissioning? B) What would the likely aggregate economic impact be for agriculture in Norfolk, taking account of the combined effects upon all affected farm holdings?	A&B) Losses suffered by farm holdings directly as a result of the construction, operation, maintenance or decommissioning of Hornsea Three will be compensated. Losses associated with construction and maintenance are likely to include crop loss, loss of shooting income, costs incurred in relocating livestock and loss of subsidies. Compensation for any short term losses will be agreed either through voluntary agreement or, if compulsory acquisition powers have been exercised, determined pursuant to the compensation code. The measures set out in paragraph 6.11.1.20 and Table 6.28 of Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement (APP-078), the agricultural land temporarily affected by the construction of Hornsea Three would be reinstated to its former use. As such, the Applicant considers that there are no short or long term economic impacts likely to arise for farm holdings, nor aggregate economic impact for agriculture in Norfolk. C) The Applicant has incorporated a number of different measures to minimise economic impacts upon agriculture, these are set out in Table 6.38 of the Environmental Statement [APP-077] and the Outline CoCP [APP-179] and include: • Timing of construction works, where feasible to minimise disruption to landowners/farming practice, through agreement with landowner; • Implementation of a soil management strategy to minimise impacts on the soil and agricultural land quality; • Maintenance of farm accesses wherever reasonably practicable between fields within a farm holding; and • Maintenance and reinstatement, where reasonably practicable, of existing water supplies, irrigation facilities and drainage systems. Furthermore, following discussions with the Land Interest Group, the Applicant has now committed to additional measures to mitigate potential effects on agriculture: • installing the onshore cables using ducting as opposed to direct lay (see Applicant's response to Relevant Representation RR-006which sets out how this is secured), which reduces the time soil would be stored on the side of the trenches and allows additional flexibility such that works would seek to be undertaken in periods of drier weather; and

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		C) How could measures such as the timing of works, phasing, the use of ducting and the choice of HVAC/HVDC technology mitigate any economic impacts upon agriculture? D) What other measures could be proposed to mitigate any economic impacts?	• in the event the project is to be delivered in phases, installing the onshore cables for the second phase at the same time as the first phase (assuming a CFD (or alternative financial mechanism) for both phases is awarded in the same auction round) (see Applicant's response to Relevant Representation RR-006 which sets out how this is secured). This would result in sections of affected agricultural land only being disturbed once, although access to junction bays for the cable installation phase of phase two would still be required. In view of the above, the Applicant considers that reasonable measures to mitigate economic impacts upon agriculture have fed into the design of the authorised development. Furthermore, compensation will be issued to all landowners directly affected by Hornsea Three. This will be agreed either through voluntary agreement or compulsory acquisition powers. An update on the status of discussions with landowners is provided in the Applicant's Compulsory Acquisition (CA) Schedule which provides an updated to Appendix B of the Statement of Reasons (APP-032) (submitted for Deadline 1). Commentary on the potential effects of HVDC compared to HVAC is provided in Appendix 22 of the Applicant's response to Deadline 1. Although this notes that HVDC technology would result in less land take, as there would be a narrower onshore cable corridor, and no long-term loss of agricultural land at the onshore HVAC booster station, the Applicant would note that, as stated above, compensation will be paid to the landowners directly affected by Hornsea Three so there would be no difference in terms of economic impact upon agriculture dependent upon choice of technology.
			D) In view of (C) above, the Applicant considers that reasonable measures to mitigate economic impacts upon agriculture have fed into the design of the authorised development. Furthermore, compensation will be paid to all landowners directly affected by Hornsea Three.
Q1.10.7	Applicant, Broadland District Council, North	The ES [APP-082] concludes that there would be a minor adverse effect on tourism.	A) The assessment of the significance of the effects of construction and O&M activity on the tourism sector considers two receptors: • The impact on (access and amenity of) local tourism and recreational resources, including public rights of way; and • The impact on offshore and coastal tourism and recreation activity, and associated economic value.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
	Norfolk District Council, South Norfolk Council	A) Please provide further details of the economic effects on the tourist industry in Norfolk, including from: i) seasonal traffic impacts; ii) impacts on public rights of way (including the Norfolk Coast Path National Trail); iii) the demand for accommodation; and iv) the implications of the proposed phasing options. B) Are there any local areas where economic effects would be concentrated? C) What measures could be proposed to mitigate any such impacts?	Volume 3 Chapter 10: [Socio-economics] of the Environmental Statement [APP-082] considers the range of potential effects on the access to and amenity of tourism and recreational resources and hence the value of the tourism sector through considering the following factors where relevant: • Visual impacts associated with the construction and operation of onshore and offshore infrastructure; • Noise and vibration impacts associated with the construction and operation of the onshore and offshore infrastructure; • The obstructions and disruptions to the access to onshore and offshore recreational resources occurring as a result of construction or operational activities; and • Disruptions to transport routes affecting accessibility for visitors and other users of local recreational resources. In assessing these effects, the Applicant drew on the results of assessment from Volume 3 Chapter 4: Landscape and Visual Resources [APP-076], Chapter 6: Land Use and Recreation [APP-078], Chapter 7: Traffic and Transport [APP-079] and Chapter 8: Noise and Vibration [APP-080] of the Environmental Statement. The results therefore reflect the post-mitigation effects, taking account of the Outline Code of Construction Practice [APP-179], Outline Landscape Management Plan [APP-181], and the Outline Construction Traffic Management Plan [APP-176] which have been adopted as part of Hornsea Three. Volume 3, Chapter 7: Traffic and Transport Assessment of the Environmental Statement [APP-079] considers the potential effect of the construction of onshore infrastructure on traffic volumes and flows, including the consideration of visitor traffic (paragraphs 7.7.3.8, 7.7.4.1 and 7.8.3.33). The assessment, drawing on the available data, takes account of the main locations, routes and nature (including seasonality) of the visitor traffic. It concludes that the significance of the effects, when considering the built-in mitigation (such as avoidance of key tourist routes by HGVs where possible during peak holiday season), will be negligible in terms of driver delays and severance of routes, and negligible to minor adverse for pedestrian amenity. Whilst the minor adverse effects are most likely to occur in the more populated settlements, some of which could attract larger numbers of visitors due to their urban nature, the

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			effects are temporary. On this basis, the socio-economic assessment concluded the potential disruption and discouragement of tourism visitors, and the associate economic value, would be negligible. Volume 3 Chapter 6: Land Use and Recreation of the Environmental Statement [APP-078] considers the potential effect of the construction and operation of onshore infrastructure on access to and the amenity of recreational and visitor resources, including Public Rights of Way (Paragraphs 6.11.1.37 and 6.11.1.44). The assessment concluded that construction activity could have minor adverse effects on a number of PRoWs and some other recreational resources which may have relatively higher use amongst visitors. However, the concentration of visitor activity in particular locations and its seasonal character, the temporary nature of the construction activity and the measures to minimise disruption at key locations is expected to result in the impacts on recreational resources having only minor adverse effects (and not significant in EIA terms). In respect of Peddars Way/Norfolk Coast Path, a PRoW of national significance, the provision and length of a temporary diversion should open cut techniques be utilised at landfall would result in a moderate adverse effect. Impacts on recreational use of this PRoW would be minimised through the implementation of a Communication Plan in accordance with the framework provided in Appendix A of the Outline CoCP (APP-179). This commits the Applicant to erecting notices in public areas and on PRoW crossed by Hornsea Three and regularly updating them with information where a workfront is active in the locality and therefore disruption anticipated. Additional demand for accommodation could arise, primarily, from both the offshore and onshore development construction workforces. The extent of this additional demand is subject to various sources of uncertainty and hence the socio-economic assessment concluded it is challenging to robustly quantify the scale of this demand at this stage (as set out in paragraphs 10.11.1.81 – 10.11.1.88): • The choice of a local construction port to support offshore activity is not yet known – this will have a bearing on the location in which extra demand for accommodation could be focused; and

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			• The geographical origin of key contractors for offshore and onshore works, and the extent to which contractors from outside the local area will be able to recruit locally, is not yet known - this has implications for the scale of demand for accommodation. The socio-economic assessment went on to conclude that this additional demand, subject to its broad location and scale, could probably be easily accommodated in all circumstances. The location of the onshore infrastructure means that construction workers would be in reasonable travel times of Cromer, Fakenham and Norwich, with Norwich in particular having a large supply of serviced and non-serviced accommodation. The ports of Great Yarmouth and Lowestoft, potential construction port locations, have a reasonable supply of accommodation in their own right, but also have good accessibility to Norwich with its wider range of accommodation. Besides the available capacity of the local hospitality sector to meet the additional demand for accommodation from the on and offshore construction workforces (and hence the potential for displacement of other visitors), it is also important to bear in mind the benefits from this additional expenditure in local businesses associated with this demand. The longer, two phase, sequential phasing option will result in the effects on the tourism sector being spread over a longer period of time, as such this is considered the maximum design scenario in respect to impacts on tourism and recreational resources (as set out in Volume 3, Chapter 4: Landscape and Visual Resources, Volume 3, Chapter 6: Land Use and Recreation and Volume 3, Chapter 7: Traffic and Transport). The assessment presented within Volume 3, Chapter 10: Socio-Economics of the Environmental Statement (APP-082) concludes that the potential for adverse effects on recreational resources and the tourism sector as a whole is considered to be minor adverse (and not significant in EIA terms). Thus, delivery of the project in a single phase would also result in effects which were not significant.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			B) Day and holiday tourism activity in the local tourism related study area (incorporating North Norfolk, Broadlands and South Norfolk) is concentrated on the northern coastal area around and to the west of Cromer, including a mix of informal recreation resources (such as nature reserves) and holiday parks. Outside of this area it is much lower and dispersed, typically focused on historic properties, walking or cycling routes of local significance, and rural accommodation. However, the assessment presented within Volume 3, Chapter 10: Socio-Economics of the Environmental Statement (APP-082) concludes that the potential for adverse effects on recreational resources and the tourism sector as a whole is considered to be minor adverse (and not significant in EIA terms). As noted in response to Q1.10.7(A) above, the increase in demand for serviced and potentially non-serviced accommodation is also likely to be concentrated in the area around the northern sections of the onshore cable corridor, as well as the city of Norwich (i.e. the main locations of accommodation). In addition, if a Norfolk port is selected either for construction or on-going O&M activity, this will provide an increase in demand for the hospitality (i.e. accommodation providers, bars and restaurants) and retail sectors in the local area.
			C) Given the conclusions of the assessment of the effects on the tourism sector in the local tourism and recreation study area, no specific mitigation measures are proposed. However, specific built-in measures are proposed for PRoWs, other recreational resources and transport routes as set out in paragraphs 4.1.10, 4.2.5.1, 6.1.1.4, 6.1.1.25, 6.8 and Appendix A of the Outline CoCP [APP-179] and paragraph 2.1.4.4 of the Outline Construction Traffic Management Plan [APP-176]. These measures will minimise the effects on these recreational resources during construction and reinstatement where appropriate.

1.14 Written Question 1.11 Transport and highway safety

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.11.2	Applicant	Table 7.12 of the ES [APP-079] sets out daily construction vehicle movements for different links. A) For each of the links in the table, please provide an estimate of how vehicle movements would be spread throughout the day. B) For each of the links in the table, please comment on any fluctuations that would occur throughout the period(s) of construction works. C) Why are links which have no construction traffic flows included? D) How have the average vehicle movements in paragraph 7.8.3.43 of the ES [APP-079] been calculated? E) What measures (for example, relating to the timing of works and routing) could be introduced to minimise impacts from heavy goods vehicle (HGV) movements during the peak tourist season?	A)The Applicant is undertaking the profiling of traffic flows through the construction period and will present this at Deadline 3. B) The Applicant is undertaking the profiling of traffic flows through the construction period and will present this at Deadline 3. C) Table 7.12 of Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement [APP-079] shows all links for which traffic data is available within the initial study area. The initial study area is the area which is considered before the screening assessments are undertaken, as described in paragraphs 7.9.1.7 to 7.9.1.9 of Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement [APP-079]. Some of these links do not have any construction traffic flows generated along them and these links are retained within the table to illustrate this. D) Paragraph 7.8.3.42 of Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement [APP-079] introduces Table 7.12 which presents the culmination of the trip generation, distribution and assignment process and shows the daily number of HGV movements on each of the highway links. Paragraph 7.8.3.43 then makes a statement that relates to the maximum number of HGV movements generated by the construction of each of the cable sections (the derivation of cable sections is described in paragraphs 7.8.3.3 to 7.8.3.15 of Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement [APP-079]). The value was calculated from the distribution and assignment of construction HGV movements as described in Appendix B of Volume 6, Annex 6.1: Transport Assessment [APP-159] (cable section 21) generates a maximum of 140 HGV movements per day, approximately 13 per hour, whilst the other cable sections all generate less than this). As the numbers in paragraph 7.8.3.43 relate to each cable section, they only represent a proportion of the total traffic flows associated with Hornsea Three and therefore they are not directly comparable to the contents of Table 7.12 or the traffic flows on the highway links.

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			The assessment presented within Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement [APP-079] have been undertaken on the basis of the maximum traffic flows contained within Table 7.12.
			E) As noted in paragraph 7.7.4.1, the Norfolk County Council Route Hierarchy map outlines several roads which are listed as tourist routes. The likely HGV routes are identified in Figure 1.2 of Annex 7.8: Traffic and Transport Figures of the Environmental Statement (APP-166). The tourist routes within the traffic and transport study area are located on Blickling Road north-west of Aylsham, and The Street and Wall Road northwest of Ingworth. Neither of these tourist routes will carry any HGV construction traffic and they have not been assessed as part of Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement (APP-079). One of the special routes within the Hornsea Three traffic and transport study area is the A149, commonly known as 'The Coastal Road'. The follows the North Norfolk coast between King's Lynn and Cromer and then routes southeast to Great Yarmouth. The Outline CTMP (APP-176), paragraph 2.1.4.4, notes that during peak holiday seasons (considered to be mid-July to September) the approved routing of HGVs documented in final CTMPs, if practical, may need to avoid routes marked on the Norfolk County Council Route Hierarchy Map. However, it is considered premature to establish site specific mitigation measures along these routes until further certainty as to the construction programme, and ultimately the likely traffic flows along potential tourist routes during the peak tourist season have been determined. This will be determined during detailed design and therefore the need for and nature of measures to mitigate impacts from HGVs during the peak tourist seasons would be developed as part of the final CTMP.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.11.3	Applicant	Table 1.8 of the ES [APP-159] sets out the impact of construction traffic during peak hours. This table does not include HGV movements which would be permitted between 0700 and 0800 under the terms of the Outline Code of Construction Practice [APP-179]. A) Why are HGV movements not included? B) Please provide an updated table including HGV movements.	Table 1.8 of the Volume 6, Annex 7.1: Transport Assessment of the Environmental Statement [APP-159] sets out the peak hourly impacts of the construction traffic flows from a highway capacity perspective. Highway capacity is based upon total volumes of vehicle movements and the peak hourly construction traffic flows occur during the periods when construction staff arrive (07:00 to 08:00) and then depart (18:00 to 19:00), as explained in paragraph 1.6.4.13. Volume 6, Annex 6.1: Transport Assessment of the Environmental Statement focuses on highway capacity and therefore focusses on total traffic volumes, as set out in Table 1.8. The construction staff column of Table 1.8 refers to total construction traffic flows (i.e. staff traffic plus HGV construction traffic), where construction HGV movements form only a part of the total construction traffic flows. On this basis HGV movements are included within the figures shown at Table 1.8.and the table wording should state total construction traffic. However, from a traffic impact perspective, the assessment must consider the total construction traffic volumes as shown. Hence, separate construction HGV movements have not identified separately. Notwithstanding this, the Applicant continues to develop CTMP measures which may be necessary to limit HGV activity on critical links during the commuter peak periods. The baseline traffic data used to assess the percentage effects will be expanded to allow the Applicant to present HGV fluctuation levels to define the peak and average flows and percentage impacts over the construction period per link. This information will be presented at Deadline 3.
			B) Please see response to Q1.11.3 (A). The figures listed in Table 1.8 include HGV movements, although the impact assessment utilizes total construction traffic volumes.
Q1.11.4	Applicant	The use of haul roads, which are intended to reduce the impact of construction traffic on the public highway, is proposed in section 4.3 of the ES [APP-176]. However, it is not clear how they would be secured.	A) The use of the haul road, within the onshore cable corridor, is secured in section 1.2.3 and section 4.3 of the Outline CTMP [APP-176].

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		Paragraph 1.4.1.44 of the ES [APP-159] indicates the possible use of a construction access corridor as an alternative to a haul road. A) How would the use of haul roads be secured by the dDCO? B) Please provide further details of what a construction access corridor would be. C) How would the effects assessed in the ES be altered by use of a construction access corridor?	B) A construction access corridor refers to sections of access road (Work No. 14) which are proposed adjacent to the onshore cable corridor to provide access around a proposed HDD location. The corridors are designed to provide, as far as is possible, a continuation of access along the onshore cable corridor, without the need for vehicles to utilise the wider local road network. An example can be seen on Sheet 19 of 35 of the Works Plan – Onshore (APP-013), crossing Church Farm Lane. C) The assessment presented in Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement takes into consideration the use of the construction access corridor, as described above. As such there would no such alteration to the effects as reported within the Environmental Statement.
Q1.11.5	Applicant	Figure 1.2 of the ES [APP-166] shows the proposed access roads for the onshore cable construction. A) Please explain the factors that have determined the choice of construction access points. B) What scope is there to reduce the number of construction access points in order to ensure the fuller use of the haul roads and to reduce local impacts?	A) The Applicant would refer the Examining Authority to the Access to Works Plan (APP-013) which shows all proposed accesses to the works. The construction access points shown on Figure 1.2 of Volume 6, Annex 7.8: Traffic and Transport Figures show the locations where existing road networks intersect with the onshore cable corridor and construction traffic would take access directly from the road network onto the haul road (i.e. without the need for an access road (work No. 14)). This allows greater flexibility in accessing the cable corridor close to where access is required, provides additional access to areas where the haul road may not be continuous, and reduces the number of access roads required. Factors which have determined the choice of construction access points include: • presence of local roads which cross the onshore cable corridor; • proximity to other access roads proposed as part of Hornsea three; • location of HDDs along the onshore cable corridor, which determines where there is a non-continuous section of haul road which requires an access point; • avoidance of access points which would interfere with access to existing residential properties;

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			• preference for utilising existing field entrances or access points at a given location; • presence of other obstructions (e.g. construction access points have sought to avoid utilities and trees as well as maximise the use of natural breaks in hedgerows); and highways safety (e.g. avoiding points which would be close to existing junctions).
			B) It is considered that the construction access points identified in Figure 1.2 of Volume 6 (APP-166) as well as in Access to Works Plan (APP-014) are required for the construction of Hornsea Three. A reduction in the number of construction access points would have the potential reduce the use of the haul road in locations where it is discontinuous, as construction vehicles would not have an access point. It is noted however that following completion of the works being served by that access point, the access and haul road will be removed and the land reinstated, unless otherwise agreed with the local planning authority. This is secured through updated paragraph 1.2.3.1 of the Outline CTMP (APP-176) which states (new text shown in underline): *1.2.3.1 "…The haul road, 6 m wide, and extending up to the full length of the onshore cable corridor (less sections where a HDD only passes through) provides vehicular access along the cable easement off the public highway. Following completion of the works being served by that access point, the haul road will be removed and the land reinstated, unless otherwise agreed with the local planning authority. The access point would also be removed and/or no longer utilised unless otherwise agreed with the local planning authority…."*
Q1.11.6	Applicant	NCC [RR-035] has expressed concern regarding the safety of the permanent vehicular access points to the onshore high voltage alternating current (HVAC) booster station and high voltage direct current (HVDC) convertor/HVAC substation. Please provide an indicative layout demonstrating the feasibility of these	The Applicant has provided drawings of the permanent access to the onshore HVAC Booster station and HVDC converter/HVAC substation as Appendix 29 Permanent Access note for the HVDC converter/HVAC substation and 30 Permanent Access Notes for the onshore HVAC booster station to the Applicant's response to Deadline I. Revision A of drawing 03_202 to the Applicant's response to Deadline I, was considered acceptable by NCC in principle (See NCC SoCG), although this was prior to the conclusions of the Stage 1 Road Safety Audit which have fed into the development of Revision B as shown in Appendix 29 to the Applicant's response to Deadline I.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		permanent access points, including a Stage 1 Safety Audit.	The Applicant received comments from NCC on revision A to drawing JNY8772-81 and has submitted Revision B as Appendix 30 to the Applicant's response to Deadline I in response, which also takes into consideration the conclusions of the Stage 1 Road Safety Audit. Given the school holiday period the traffic / speed surveys associated with the Stage 1 Road Audit will be submitted at Deadline 2.
Q1.11.7	Applicant	Paragraph 2.1.4.4 of the Outline Construction Traffic Management Plan [APP-176] states that during peak holiday seasons the routing of HGVs may need to avoid routes marked on the Norfolk County Council Route Hierarchy Map. A) Under what particular circumstances and at what times would such re-routing of HGVs take place? B) Which are the routes which would be likely to be avoided and what alternative routes would be used? C) Could this result in impacts arising from the use of alternative routes which have not been reported in the ES?	A) Please see the Applicant's response Q1.11.1(E). B) Although consideration will be given to avoidance of tourist routes (as marked on the Norfolk County Council Route Hierarchy Map) during the preparation of the final CTMP, to transfer construction traffic away from such "A" roads would result in increased use of less suitable local roads. As such, it is considered premature to identify particular circumstances and timings for such re-routes until further certainty as to the construction programme, and ultimately the likely traffic flows along potential alternative routes has been determined. This will be determined during detailed design and therefore the need for and nature of measures to mitigate impacts from HGVs during the peak tourist seasons would be developed as part of the final CTMP. C) It is considered premature to assess site specific impacts along these routes until further certainty as to the construction programme, and ultimately the likely traffic flows along potential alternative routes. This will be determined during detailed design and therefore the need for and nature of measures to mitigate impacts from HGVs during the peak tourist seasons would be developed as part of the final CTMP.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.11.8	Applicant	Paragraph 7.8.3.44 of the ES [APP-079] provides an estimate of the potential vehicle movements at the main construction compound at Oulton Street. A) Please provide further details of the proposed use of the main construction compound at Oulton Street including: the types, quantities and intended use of materials to be stored; B) the calculations of the potential traffic movements in connection with the use of the compound; and C) the hours of operation and the expected times/frequency of particular traffic movements.	A) Details of the proposed use of the main construction compound, as far as is possible to identify at this stage of the project, is provided within Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1. B) Details of the peak traffic generation associated with the use of the main construction compound is provided within Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1. The Applicant is undertaking the profiling of traffic flows through the construction period and will present this at Deadline 3. C) Details of the hours of operation and the expected times/frequency associated with the use of the main construction compound is provided within Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1.
Q1.11.9	Applicant, Norfolk Vanguard	The main construction compound at Oulton Street would be located close to some construction and storage components of the proposed Norfolk Vanguard/Norfolk Boreas scheme. Please provide an assessment of the potential in-combination traffic and transport effects of the proposal in the locality of Oulton Street, including details of likely construction timetables for all projects	There may be cumulative impacts on a small number of shared road links during construction of the two projects and relevant discussions between Hornsea Three and Norfolk Vanguard are ongoing. Both parties continue to work together to ensure alignment of highway threshold levels applied by each project, i.e. traffic capacity of each road link before significant impacts are expected, and alignment as to the scope of appropriate traffic management measures that may be required as thresholds are reached – i.e. confirming:- • Thresholds on each street (or part of street) where no or limited ("soft") traffic management measures would be required, such as controls on daily traffic demand, driver induction, community liaison; • Thresholds on each street (or part of street) which would trigger further "soft" traffic management measures, such as timing of deliveries, hazard signage, restricted periods, and temporary speed restrictions; and

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		and proposed measures to minimise any impacts.	• Thresholds on each street (or part of street) which would trigger further "harder" traffic management measures -such as flow control, pedestrian crossing points, parking restrictions and other traffic management measures, in some instances physical interventions such as localised widening or passing places. Any mitigation measures identified for these shared links would be secured through each project's final Construction Traffic Management Plans to be developed post-consent. These would be developed with, and approved by, Norfolk County Council as Highways Authority. Whilst these workstreams are ongoing, the locations which require further consideration due to the potential cumulative impact of both projects is limited to:- • The Street (linking B1149 with Oulton Street); • Along B1149, in particular through the settlement of Horsford; and • Along B1145, in particular through the settlement of Cawston. If CTMP measures are required along these stretches of road, these measures will be captured in a revised Outline CTMP to be submitted in due course into the Hornsea Three examination. Hornsea Three and Norfolk Vanguard will be looking to reach an agreement on these matters and engage with Norfolk County Council as the highways authority to reach a shared common point of agreement. This workstream is ongoing and for the purposes of this SoCG submitted at Deadline 1, the cumulative impact on traffic and transport therefore remains not agreed, but material headway has been made and both projects are confident that agreement can be reached in the short term. To date Hornsea Three and Norfolk Vanguard have held a number of meetings on these matters:- • 09/08/2018 Meeting with Norfolk Vanguard to discuss traffic and transport assessment. • 11/09/2018 Meeting with Norfolk Vanguard to discuss traffic and transport assessments. • 26/09/2018 Email correspondence from Hornsea Three to Norfolk Vanguard to advise of the updated TA, TA Clarification Note and Main construction compound traffic survey results.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			16/10/2018 Meeting with Norfolk Vanguard to discuss traffic and transport assessments. 16/10/2018 Email correspondence from Hornsea Three to Norfolk Vanguard issuing the Main Construction Compound Access Strategy.
Q1.11.10	Applicant	Paragraph 1.5.3.6 of the ES [APP-159] states that traffic management measures are to be designed post-submission which might include a diversion route for the main compound at Oulton Street. A)Please provide details of what such measures might be, including any measures to manage HGV movements. B)How they would be secured in the dDCO?	A) Details of the proposed use of the main construction compound, as far as is possible to identify at this stage of the project, is provided within Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1. Annex A and B of Appendix 20 addresses the measures which are to be included to manage HGV movements. B) The final agreed access strategy to the main construction compound will ultimately feed into the Outline CTMP (APP-176) and as such will be secured through the CTMP (Requirement 18) of the dDCO.
Q1.11.11	Applicant	Oulton Parish Council [RR-034] raises a concern that the traffic surveys that have been carried are not representative of agricultural activity. What account has been made in the ES [APP-159] of the variations in agricultural vehicle movements throughout the year?	It is not practical to undertake multiple surveys throughout the course of the year to fully capture each seasonal event and variation on the road network due to, e.g. Easter and Summer holiday season traffic, summer agricultural conditions (e.g. grain harvest), autumn agricultural conditions (e.g. potato and beat harvest) and traffic surveys are typically undertaken in what are termed as "neutral" conditions. The traffic counts undertaken are considered to account for typical conditions on the road network. In respect to the concern raised in RR-034 in particular, the upgrades proposed along The Street and at the junction with the B1149 (see Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1) have been designed to provide ample geometry for use by agricultural vehicles alongside the construction traffic. A

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			VISSIM model is currently being prepared which will assess the agricultural fluctuations of traffic with the peak construction traffic activities, the Applicant will submit this at Deadline 3.
Q1.11.12	Applicant, Norfolk Vanguard	The on-shore cable route would cross with the proposed Norfolk Vanguard/Norfolk Boreas cable route to the north of Reepham. Please provide an assessment of the potential traffic and highway impacts arising from the construction of both projects and outline any measures that may be required to mitigate any impacts.	See response to Q1.11.9
Q1.11.13	Applicant	Paragraph 3.5.1.7 of the ES [APP-058] states that a construction base (port facility) may be used to stockpile some components. A) Please provide an update on the likely necessity for this facility, the likely location and an assessment of any potential traffic and highway impacts. B) Given that the location of the facility would not be within the Order limits, what mechanisms would be available to secure	The Applicants response to Question 1.10.1 details the status of the selection of ports for use during construction, operation and maintenance and decommissioning activities, noting that the Applicant has not selected the ports that it will use and does not intend to make a decision during the Examination period. This includes the likely necessity for a construction facility to support the construction of the offshore works. Unlike the onshore works where it is has been identified that a main construction compound should be used for the onshore export cable (and separate construction compounds at landfall and at each substation site), the need for and use of an offshore construction base has not been determined at this time and is reliant upon a number of factors (detailed further in response to Question 1.10.1). This includes the location of component delivery ports (including vessel routing), with turbine, turbine foundations, offshore substation, cables etc. potentially each making use different port facilities for construction.

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		any mitigation measures that may be required?	It is noted that many key suppliers have established manufacturing and assembly facilities with direct, or limited distance to port facilities, and therefore significant component parts do not necessarily need to rely upon the highway network to get from their point of manufacture.
			B) If a new offshore construction base is required then this will either utilise existing consents secured by the Port operator, or if necessary consented separately by grant of planning permission under the Town and Country Planning Act 1990 (or other statutory consents such as a harbour revision order). With the assessment of the impacts of the port use taking place at that stage. Mitigation would be secured through the same mechanism.
Q1.11.14	Applicant, NCC	Section 1.6.6 of the ES [APP-159] (Section 1.6.6) states that the A140/B1113 signalised junction already operates in excess of capacity during peak hours and this will be exacerbated during construction works. A) How will the performance of this junction be monitored and what traffic management measures are likely to be appropriate? B) How would such measures be secured?	A) Please refer to Appendix 33 A140/B1113 Junction Technical Note of the Applicant's response to Deadline 1. This confirms that no traffic management measures are necessary, and the construction traffic flow will be monitored and managed as set out in the Outline CTMP [APP-176].
			B) As noted above, the construction traffic flow will be monitored and managed as set out in the Outline CTMP [APP-176]. Thus will be further secured through Requirement 18 of the dDCO which requires a Construction Traffic Management Plan to be submitted and agreed prior to commencement.
Q1.11.15	Applicant	The ES [APP-079] assesses the potential impacts on traffic and transport on the basis of the maximum design scenario which includes the use of HVAC technology. What would be the main differences for traffic generation during construction between the use of HVAC and HVDC technology?	The likely effects on traffic and transport receptors during the construction phase under the HVDC scenario are provided within Appendix 22 Transmission System (HVAC/HVDC) Briefing Note to the Applicant's response to Deadline 1.

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Q1.11.16	Applicant	The ES [APP-079] states that in certain circumstances onshore works may have to be undertaken on a continuous basis. A) Please provide further details on the need for and the likely frequency of continuous working hours, together with the locations where it is likely to occur. B) What would be the process for the prior approval of works outside of the core working hours (including consultation with stakeholders) and does this process need to be set out more clearly in the Outline Code of Construction Practice [APP-179]? C) What would be the implications of continuous working for HGV movements?	A)Please see Applicants response to Q1.12.7.
			B) Please see Applicants response to Q1.12.7.
			C)Continuous working would increase the number of working hours (for HGV movement) within the day and spread the HGV movements over the course of a day. This would result in fewer hourly HGV movements to those that are reported in Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement [APP-079] and Volume 6, Annex 7.1: Transport Assessment of the Environmental Statement [APP-159]. This would therefore reduce the impacts that are reported in APP-079 and APP-159 and reduce the effects that are reported in APP-079. In particular, construction HGV movements would be reduced during the AM and PM network peaks, which are the periods most sensitive to changes in traffic flows from a highway capacity perspective. The implications of continuous working for HGV movements would result in reduced impacts and effects to those reported in Volume 3, Chapter 7: Traffic and Transport of the Environmental Statement [APP-079] and Volume 6, Annex 7.1: Transport Assessment of the Environmental Statement [APP-159].
Q1.11.17	Applicant	Paragraph 7.8.3.19 of the ES [APP-079] sets out an estimated distribution of HGVs. Please provide further justification for the estimated distribution of HGVs.	Para 7.8.3.16 onwards recognises that distribution is difficult to estimate and 7.8.3.19 assigns a majority to the key routes into the study area of the A47W and A11 with a broadly similar split to the other routes into the study area. This was using judgement only. 7.8.3.24 recognises this further and seeks to allow for day-to-day variances in the supply chain by increasing the proportions from each entry to the study area. An estimate of distribution using judgement and professional experience gained working on similar schemes has been applied, as well as utilising the experience Orsted have gained through delivering comparable projects. However, to

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			produce a robust maximum design scenario assessment the distribution figures have been increased at every entry point to the study area.
Q1.11.18	Applicant	Paragraph 2.1.4.3 of the Outline Construction Traffic Management Plan [APP-176] states that some limited further restrictions may be placed on the timing of HGV movements though locations with sensitive receptors, such as during school opening and closing hours. A) Please provide a list of these locations. B) What are the further restrictions that would be placed on the timing of HGV movements and how would they be secured?	A) The Applicant is undertaking the profiling of traffic flows through the construction period (to be provided at Deadline 3) which will influence the measures to be adopted at locations with sensitive receptors. As such the locations considered to require limited further restrictions will be presented in an updated CTMP as part of a future deadline. B) See Applicant's response to (A)
Q1.11.19	Applicant	Paragraph 4.1.1.1 of the Outline Construction Traffic Management Plan [APP-176] states that it is envisaged that all cable crossings of the public highway will be undertaken by horizontal directional drilling (HDD). A) Are there any public highway cable crossings that would not utilise HDD?	A) The Applicant has committed to crossing all public highways utilizing HDD techniques. The full list of onshore crossings is included in Volume 4, Annex 3.5: Onshore Crossing Schedule (APP-089) and secured through the newly created Annex E to the Outline CoCP which identifies locations where HDD is committed (APP-179). B) It is anticipated that HDD techniques would be used at all public highway locations, however, in the event that HDD is deemed unsuitable at any location, it would be expected that the road crossing would be undertaken by open cut methods. Should this be required, suitable measures to manage impacts would be identified in the final CTMP and agreed with the local highway authority.

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		B) If there are, which are these and why would HDD not be used? C) What would the implications for the ES be should HDD not be used for public highway crossings?	B) If HDD methods were not to be used at public highway crossings, it would be expected that any road crossing would be undertaken utilizing suitable traffic management arrangements to ensure that the highway would, where practicable, remain open to traffic. These measures would be developed in the final CTMP (secured by means of Requirement 18 of the dDCO, APP-027). In the event that such traffic management methods (such as lane closures with temporary traffic lights and one way working) were not suitable at any specific location, temporary road closures would be utlilised. In the event road closures are required the final CTMP will set out specific guidelines as to where the traffic would be diverted and the temporary impact of diverting this traffic onto the surrounding road network. The final CTMP will also outline any mitigation measurements which may be required to enable the temporary diversion of traffic during required road closures. On the basis of these measures, the Applicant considers that the conclusions as reported within the Volume 3, Chapter 7: Traffic and Transport (APP-079) is considered to remain accurate.
Q1.11.20	Applicant	Article 10 of the dDCO provides for the temporary stopping up of streets, including use as temporary work sites. Paragraph 1.8.1.1 of the Transport Assessment [APP-150] states that the dDCO would secure temporary road closures and stopping up of highways at road crossings. A) Please set out the reasons why temporary road closures and the stopping up of highways would be required, given the expectation that all cable crossings of the public highway would be undertaken by HDD. B) Please explain the need for temporary work sites on highways.	A) Temporary road closures may be required at certain locations for the installation and removal of access points to the onshore cable corridor from the highway where normal traffic management arrangements are deemed insufficient to ensure the safety of site personnel and road users. These potential locations are shown on the Access to Works Plan (Onshore) (APP-014). Measures which seek to avoid stopping up highways will be developed as part of the final CTMP (secured by means of Requirement 18 of the dDCO, APP-027). However, the principle has been established in paragraph 3.2.1.7 of the Outline CTMP (APP-176) which states that *"Whilst the project provides for HDD under all public highways, if works are required on the public highway (such as to identify local utilities) the project will make use of shuttle working arrangements. Shuttle working is where one direction of travel receives priority over the other. This could be via traffic signals or via give way signs."* Temporary road closures may also be required at HDD locations in the event of an unexpected bentonite breakout or should there be a need for repair works if any underground utilities are damaged by the HDD works, or for repairs to the highways associated with the HDD works.
			B) Temporary work sites on highways may be required to allow access to, or facilitate the activities identified in (A). The Applicant would seek to minimise the use of highways as temporary work sites, such that they can remain open where possible.

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		C) Would there be any other circumstances where the temporary stopping up of any highway would be required? D) For what periods of time would temporary stopping up of highways occur? E) Please explain the procedures that would be required to secure the temporary stopping up of highways.	C) There should be no other circumstances for stopping up of the highways other than for the possible construction and removal of access points and any possible emergency repair works to utilities or the roadway and HDD road crossing locations
			D) Any road closures associated with the formation or removal of construction accesses to the cable corridor from the highway would be expected to take up to a maximum of one week at each location and would require approval from the local highways authority. Any temporary closures associated with emergency repairs would be dependent of the extent and nature of the repair works to be undertaken but would be minimised as far as possible.
			E) Article 10 of the dDCO makes provision for the power to temporarily stop up streets (which includes highways). Article 10 (5)(a)_would require the Undertaker to consult the street authority before closing the streets in Schedule 4, and in respect of the closure of any other street (5)(b) requires the Undertaker to obtain the street authority's consent to such closure, which may be granted subject to conditions. Furthermore, the details of proposed highway accesses (which may necessitate a temporary street closure) would require the approval of the relevant planning authority, following consultation with the highway authority (Requirement 11 of the dDCO).
Q1.11.21	Applicant	Section 1.6.11 of the ES [APP-159] describes the use of abnormal indivisible loads. Paragraph 1.6.11.3 refers to the use of the existing Norwich Main Substation access junction to accommodate abnormal loads. A) Which parts of the works are likely to require abnormal indivisible loads?	A) Abnormal indivisible loads would be expected to be required for parts of the onshore cable installation works, in particular the delivery of cable drums to the main compound storage area and the subsequent delivery to the cable installation locations and for the delivery to site of excavation machinery associated with the main trench excavation works. If HDD is installed at the landfall, the delivery and removal of the HDD drill rig and associated equipment may require abnormal indivisible loads, depending on the type and nature of the HDD equipment required. Dividable Abnormal loads would also be required along the B1149 to gain access to the proposed HVAC Booster Station and the B1113 for access to the proposed HVDC converter/ HVAC Substation.

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		B) For what purposes would abnormal loads be required to use the existing Norwich Main Substation access?	(B) Dividable abnormal loads would not require use of the existing Norwich Main Substation access and instead would make use of the proposed access off the B1113 or Mangreen Lane (as shown on shown on Access to Works Plan (Onshore) (APP-014). Access will be taken from Mangreen Hall Lane, using the existing Norwich Main Substation access, by construction vehicles to facilitate the delivery of the grid connection work (Work No. 12).
Q1.11.22	Applicant, NCC	Access to the landfall construction site would be via the existing access from the A149 to Foxhills Campsite and the Muckleburgh Museum (with an additional parallel access road). Given the limited visibility at the existing access onto the A149, please provide details of any traffic management measures that would be required to ensure the safety of this construction access point.	Both the Muckleburgh Collection Museum and Foxhills Campsite are established and operational sites, and attract large numbers of visitors particularly in the summer holiday season. The Applicant has reviewed this location and notes that while visibility at this junction arrangement is indeed limited to/from the east, Crashmap indicates there to be no recorded incidents at this location for the five year period to end of 2017, suggesting there to be in practical terms no particular safety issue at this location. Notwithstanding this, the Applicant agrees that this location would benefit from a number of traffic management measures. These measures have been captured in newly added paragraph 2.1.3.7 of the Outline CTMP (APP-176) (new text shown in underline): Paragraph "2.1.3.7 *Given the limited visibility at the existing access onto the A149, specific traffic management measures will be required. These have been identified as follows, and would be developed in further detail within the detailed CTMP (under Requirement 18 of the dDCO):* • *Signage would be provided on the A149 approaches to this access to forewarn drivers of slow moving, turning HGVs;* • *The existing hedge line to the east of this access (on the north side of the A149) would be maintained, to trim back as far as is achievable within the highway verge, with a view to improving visibility to/from the east."*
Q1.11.23	Applicant	Representations have been made [such as RR-033] regarding pedestrian safety on the A149 between Foxhills and Weybourne.	Please see Applicant's response to Relevant Representation RR-033.

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		Please outline any mitigation measures that may be required.	
Q1.11.24	Applicant	A representation has been made [RR-061] objecting to the proposed location of a construction storage compound at Marl Hill. Please comment on the concerns raised. What mitigation measures may be required at this location?	Please see Applicant's response to Relevant Representation RR-061.

1.15 Written Question 1.12 Living conditions for local residents

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Q1.12.1	Applicant	Tables 8.7 and 8.8 of the ES [APP-080] set out baseline sound levels for the onshore high voltage direct current (HVDC) convertor/high voltage alternating current (HVAC) substation and HVAC booster station. A) Please provide further justification for the choice of baseline noise survey locations. B) Why was only one survey location chosen in relation to the HVDC convertor/HVAC substation? C) Are there likely to be any variations in baseline sound levels at other locations, such as the residential properties located to the south east of the proposed HVDC convertor/HVAC substation?	A) Details of the baseline noise surveys undertaken are provided in Volume 3, Chapter 8 – Noise and Vibration of the ES in Section 8.6.2 [APP-080] with further details including locations provided in Volume 6, Annex 8.1: Baseline Noise Survey of the Environmental Statement [APP-167]. Paragraph 8.6.2.2 describes that the surveys were undertaken at locations representative of the noise sensitive receptors (NSRs) with the greatest potential to be affected by the proposed onshore HVAC booster station and the HVDC converter/HVAC substation. Three survey locations were selected with two for the onshore HVAC booster station and one for the onshore HVDC converter/HVAC substation these locations are shown in Figures A.1 and A.2 of Volume 6, Annex 8.1 Baseline Noise Survey of the Environmental Statement [APP-167]. These locations were agreed with North Norfolk District Council and South Norfolk Council prior to deployment. When survey locations are selected, there are two primary objectives: 1) select locations where NSRs are likely to be most affected – these are usually the closest, in the quietest environment or downwind of the development – this is on the basis that if effects are acceptable at these NSRs, then they will be acceptable at others; 2) select locations which are representative of groups of dwellings – this is normal practice as it is not usual or necessary to carry out surveys at all NSRs potentially affected – as the levels gained from the surveys at representative NSRs can be used for others. Based upon the above process, the three survey locations were selected. B) Baseline noise data from one survey location at the onshore HVDC converter/HVAC substation was used in the operational noise model input as reported in Volume 6, Annex 8.3: Operational Noise Model Input of the Environmental Statement [APP-169]. An additional monitoring location had been proposed at Mangreen Hall Farm Cottages, however land access could not be agreed. As this proposed location was located at a similar distance from the A47 as the survey location used in the noise modelling, it is considered that baseline noise levels were adequately captured. Therefore, it is considered that the data collected at the one survey location is sufficient to allow a robust characterisation of the prevailing noise environment.

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			C) Baseline noise levels vary at any location and between locations. The general approach to this is to undertake baseline surveys, as described above, at the potentially most affected NSRs which may be those closest, or with the lowest baseline levels or both. On this basis, the NSRs with the most potentially significant adverse effects would have been assessed and baseline level variations at other locations would not result in more significant effects.
Q1.12.3	Applicant	Paragraph 8.12.2.5 of the ES [APP-080] sets an acceptable operational noise level of 34dB LAr,Tr. Please explain the justification for the use of the unit of measurement LAr,Tr for the setting of the noise level, including in comparison with other commonly used units of measurement."	The noise metric $L_{Ar,Tr}$ is the rating level as defined in BS 4142:2014 "Methods for rating and assessing industrial and commercial sound", defined as "specific sound level plus any adjustment for the characteristic features of the sound". The specific sound is the $L_{Aeq,t}$ arising from the operational plant under consideration, with the adjustment allowing for tonal or impulsive character. BS4142:2014 and consequently the LAr,Tr is considered the most appropriate method for assessing industrial noise, such as that arising from the operation of the onshore HVDC converter/HVAC substation. Other metrics considered include: the $L_{A10,t}$ which would be used to assess absolute construction or operational traffic levels, but would not be appropriate for fixed plant; and the $L_{Aeq,t}$, which would be appropriate for construction noise (following BS 5228) but does not include any allowance for the characteristics of the noise (which might affect community response) above that solely associated with the magnitude of the noise. Assessments based on the guidance in NANR45* or based on the BS 8233* "Noise Rating" (different from the BS 4142 'rating level') would be appropriate for assessment of noise levels within a particular residential property, where the performance of that particular property was a consideration in determining effect. These, however, would not generally be appropriate for a wider environmental assessment as undertaken in the Environmental Statement. * Defra. Contract NANR 45: Procedure for the assessment of low frequency noise complaints, Revision 1. December 2011.

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			*British Standards Institution. British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings
Q1.12.4	Applicant	"Paragraph 8.12.2.6 of the ES [APP-080] states that an overall noise level design reduction of at least 12dB is necessary to achieve the noise rating limit of 34dB LAr,Tr for the operation of the HVDC convertor/HVAC substation. A) Please provide further details of the noise mitigation measures that are envisaged to achieve this level of reduction. B) If a range of measures were to be employed, what would be the	A) As stated in Volume 6, Annex 8.4: Operational Noise Model Output of the Environmental Statement [APP-170] the type of mitigation that will be implemented to achieve the maximum of 34 dB $L_{Ar,Tr}$ at the nearest NSRs will be agreed during detailed design when the transmission technology and layout of the onshore HVDC converter/HVAC substation have been confirmed. Without confirmation of the final transmission option and layout, details of specific plant and therefore, final noise immissions and the specific mitigation measures cannot be defined. Notwithstanding this, mitigation measures are likely to include: the use of acoustic enclosures; placing equipment inside buildings; or other potential measures to be agreed prior to the commencement of works. The mitigation measures will be contained within a noise management plan that will be submitted to the relevant planning authority (Requirement 21 of the draft DCO [APP-027]). B) As stated in paragraph 1.3.2.1 of Volume 6, Annex 8.4: Operational Noise Model Output of the Environmental Statement [APP-170] mitigation would be provided to achieve a reduction in the region of -12 dB or a reduction determined as being necessary based on the likely noise imissions based on the final option and layout, such that the overall noise would not exceed 34 dB LAr,Tr. The specific reduction to be achieved by each measure cannot be determined at this stage as it would depend on the transmission system used, plant configuration and layout. However, the Applicant has committed that measures that would be implemented to result in a situation where noise immissions at any NSR would not exceed a noise level 34 dB $L_{Ar,Tr}$ would be confirmed once the transmission option and plant configuration had been finalised.

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		level of reduction secured by each individual measure? C) How could the layout of buildings and structures on the site influence the need for the particular noise mitigation measures required?"	C) The operational noise model (as set out in Volume 6, Annex 8.3: Operational Noise Model Input of the Environmental Statement [APP-169]) is based on an indicative layout of the HVDC converter/HVAC substation which includes a mixture of transformers, reactive plant coolers, Gas Insulated Switchgear (GIS) and filters. For the purpose of creating a maximum design scenario noise model, it has been assumed that most of the noisiest plant will be installed externally, with only the GIS proposed to be installed within a building hall. However, the commitment made by the Applicant is to not exceed the noise level of 34 dB $L_{Ar,Tr}$ at the nearest NSR. On this basis, any layout or mix of internal and external plant, could be acceptable providing that this noise level from the plant is not exceeded at the nearest NSR. It is likely that optimising the layout of the buildings could achieve part but not all of the –12dB reduction required. With all the noisier plant appropriately enclosed within buildings (where this is practicable, with consideration to landscape and other non-acoustic constraints), the committed target of 34 dB $L_{Ar,Tr}$ would likely be achieved without further mitigation measures.
Q1.12.5	Applicant	The ES [APP-080] states that no noise and vibration monitoring is considered necessary for either the construction or the operation phases. However, Requirement 21 of the dDCO [APP-027] includes the need for a scheme for monitoring attenuation and mitigation measures within the noise management plan. Why does the ES not include future monitoring? Please provide details of any monitoring that is likely to be required, including any measures to ensure that stated noise levels are not breached.	Monitoring of noise and vibration by itself is not considered to be a mitigation method as it does not achieve a reduction in noise and vibration levels. However, monitoring is a useful means of determining compliance with noise limits set by the Applicant (34dB LAr,Tr) and ensuring that noise mitigation measures and Best Practicable Means are effective in reducing noise levels. The mitigation measures for noise during construction are set out in paragraph 6.2 of the Outline CoCP [APP-179]. During construction, noise monitoring would be implemented in accordance with any agreement with the relevant local authority EHO officer in consultation with relevant planning authority (and the final CoCP approved for those works). Monitoring requirements for operational noise emissions would be agreed as part of the noise management plan and would be undertaken as part of the site commissioning tests or as adaptive management should feedback be received from the local community through the established communication framework (see paragraph A1.1.3 of Appendix A of the Outline CoCP (APP-179). A complaints procedure will also be incorporated into the Noise Management Plan (secured by Requirement 21 of the dDCO). It is not always possible or practicable to monitor noise emissions from

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			specific plant at the NSRs as levels may be below existing ambient levels or not sufficiently above them to be able to differentiate. When this situation occurs, an alternative location, usually closer to the plant or on the site boundary, is normally agreed with the relevant planning authority. The maximum noise level at the agreed monitoring location, to not exceed 34 dB $L_{Ar,Tr}$ at the nearest NSR, can be determined from the operational noise model.
Q1.12.6	Applicant, BDC, NNDC, SNC	Paragraph 4.1.1.1 of the Outline Code of Construction Practice [APP-179] sets out proposed core working hours for construction. These appear to extend beyond standard construction working hours, including starting at 07:00 on Mondays to Saturdays. A) Bearing in mind the proximity of some work sites to residential properties (and the period of construction of the HVDC convertor/HVAC substation), what is the justification for these working hours? Should provision be made for reduced hours or no working on Bank Holidays?	A) The purpose of the mobilisation period of one hour either side of the core working hours (i.e. from 06:00 to 07:00 and 18.00 to 19.00) is to permit limited activities that are not noise generating activities and would not cause any disturbance to residential properties. These activities are primarily focused around good site management – such as site inspections, safety checks (briefings and quiet inspections/walkovers), site clean-up that does not require the use of plant. To clarify this approach the Applicant has amended paragraphs 4.1.1.1 and 4.1.1.3 to Outline CoCP (Revision 1, submitted for Deadline 1). The mobilization period could also provide a mechanism for some of the workforce to travel outside the standard peak AM traffic movements, minimising impacts on the wider road network. *"4.1.1.1 Working hours for the construction of the onshore elements of Hornsea Three are as follows:* • *Core working hours: Monday to Friday: 07:00 - 18:00 hours (Excluding Bank Holidays) and* • *Saturday: 07:00 - 13:00 hours;* • *Up to one hour before and after core working hours for mobilisation ("mobilisation period"), i.e. 06:00 to 19:00 weekdays and 06:00 to 14:00 Saturdays; and* • *Maintenance period 13:00 to 17:00 Saturdays.* *4.1.1.3 Mobilisation does not include heavy good vehicle (HGV) movements into and out of construction areas (i.e. HGV movements should only occur at the construction areas during the core working hours unless otherwise agreed)*

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			but suppliers can make use of the wider highway network outside these hours to travel. The use of the mobilisation period will be agreed with the relevant local authority EHO officer in consultation with relevant planning authority on a case by case basis."
			B) The Applicant has amended the Outline CoCP (Revision 1, submitted at Deadline 1), see (A), to make it clear that the core working hours do not apply on Bank Holidays. As stated in paragraph 4.1.1.4 certain activities may require continuous working that could include Sundays and Bank Holidays. Except for the activities listed in paragraph 4.1.1.5, consent is required from the relevant authority EHO officer in consultation with relevant planning authority (see paragraph 4.1.16 of the Outline CoCP [APP-179].
Q1.12.7	Applicant, BDC, NNDC, SNC	The Outline Code of Construction Practice [APP-179] allows for continuous working hours in certain circumstances. A) Under a maximum design scenario for continuous working hours, what would be the effects on the living conditions of local residents? B) Are further mitigation measures required in the Outline Code of Construction Practice to manage and mitigate the effects of continuous working hours?"	A) Noise and Vibration Chapter of the ES [APP-080] recognises that whilst evening and night-time works would typically be of a lesser magnitude than during the day, the assessment criteria used are more stringent. Control of noise emissions to an acceptable level will be agreed with the with EHO in consultation with relevant planning authority and relevant stakeholders (e.g. third party asset owner) as required. Where possible night-time working / continuous working hours will be kept to a minimum – both in duration or frequency, but also geographically. All continuous works will be agreed with the relevant EHO officer. As noted at Section 8.9 of Noise and Vibration ES Chapter [APP-080] the magnitude of construction noise impacts has been determined in accordance with Annex E of BS 5228-1:2009+A1:2014. The criteria for assessing noise impact from construction works have been based on Example Method 2 contained within Annex E.3.3 of BS 5228-1:2009+A1:2014; this indicates that: *"Noise levels generated by site activities are deemed to be potentially significant if the total noise (pre-construction ambient plus site noise) exceeds the pre-construction ambient noise by 5 dB or more, subject to lower cut-off values of 65 dB, 55 dB and 45 dB LAeq, Period, from site noise alone, for the daytime, evening and night-time periods,*

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			respectively; and a duration of one month or more, unless works of a shorter duration are likely to result in significant effect." Notwithstanding these potentially significant thresholds, each location and proposed evening and night time noise events must be considered on a case by case basis as the effects on the living conditions of local residents will be subject to the proximity of the residents to the works, the level of noise generating activity, the duration of the event, and level of traffic and plant movements. At landfall for example, which is subject to the more complex works and therefore more likely to require continuous working, paragraph 8.12.1.22 of [APP 080] notes that given the likelihood of night-time working but of limited duration, the magnitude is considered to be minor for receptors within 211 m, and negligible beyond. Any impacts relating to noise on local residents would be weighed against the benefits of using HDD operations (such as keeping roads and PRoWs open to traffic and users during construction).
			B) As stated in paragraph 4.1.1.8 of the Outline Code of Construction Practice [APP-179], activities outside the core working hours would be agreed with relevant local authority Environmental Health Officer in consultation with relevant stakeholders as required. Any application would detail how noise is to be managed on-site and predicted noise levels at affected residential over the applied project (localised works) period. These predicted noise levels are calculated on the basis of the equipment being used, at any part of the project programme and the length of time the equipment is used during any given period.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.12.8	Applicant	Paragraph 4.1.1.2 of the Outline Code of Construction Practice states that the mobilisation period of up to one hour before and after core working hours would not include heavy goods vehicle (HGV) movements into and out of construction areas [APP-179]. A) What arrangements would be made for HGVs waiting to access construction sites in order to ensure that such vehicles would not adversely affect local residents? B) Would it be appropriate to include such measures in the Outline Code of Construction Practice?	A) No HGV movements into or out of construction site would be allowed outside of the agreed times and all HGV movements subject to abnormal loads movement orders would only be allowed to enter or leave any construction site within the times detailed in the order. All HGV movements which are not planned to arrive at site after any time restrictions would be required to park at an appropriate Approved Lorry Park, Motorway Services and other designated overnight parking locations. All construction sites shall be capable of accommodating multiple simultaneous HGV movements within the site such that no HGV vehicles would be required to wait outside or locally during the regulated delivery / outgoing movement times. All vehicle movements would be subject to a Traffic Management Plan produced by the Principal Contractor and adopted by all affected Contactors. B)The Applicant has considered and paragraph 6.1.1.5 of the Outline CoCP (APP-179) has been amended as follows (with new text shown in underline): *"6.1.1.5 The CTMP will ensure that all construction traffic follows pre-prescribed routing, to avoid impacts on the wider network and conflicts with local users, however some larger vehicles, such as cable drum deliveries may need to follow specially advised routes to avoid low bridges. <u>The CTMP is to ensure that HGVs delivery times are managed in accordance with approved Section 4.1.1. Working Hours."</u>* Furthermore, paragraph 2.1.4.1 of the Outline CTMP (APP-176) has been be amended to state:- *"… Mobilisation does not include heavy good vehicle (HGV) movements into and out of sites, but suppliers can make use of the wider highway network outside these hours to travel to site. In certain circumstances, specific works may have to be undertaken on a continuous working basis (00:00 to 00:00 Monday to Sunday). <u>All HGV movements which are not planned to arrive at site after any time restrictions would be required to park at an appropriate Approved Lorry Park, Motorway Services and other designated overnight parking locations."</u>*
Q1.12.9	Applicant	"Paragraphs 3.7.3.32 of the ES [APP -058] states that Oulton Airfield is proposed to be the main construction compound.	A) Please see Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline I which provides details of the hours of use of the main construction compound.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		A) What would be the hours of use of the construction compound, including for vehicles coming to and from the compound? B) Please provide an assessment of noise arising from the use of the compound, including from vehicle movements on Oulton Street. C) What noise mitigation measures may be required at this location?"	B and C) Please see Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline I which provides a summary of the assessment of noise arising from the use of the main construction compound (drawing from Volume 3, Chapter 8: Noise and Vibration from the Environmental Statement (APP-180), including access along The Street, is provided within the Main Construction Compound Position Paper. An update on the assessment and mitigation regarding noise from access along The Street is provided in Section 8 of Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline I.
Q1.12.10	Applicant and Norfolk Vanguard	Please provide a cumulative electromagnetic field assessment at the point where the onshore cable route would cross the proposed Norfolk Vanguard/Norfolk Boreas route.	Ørsted and Vattenfall have jointly commissioned an independent study and resulting report which explores the 'worst case' electric and magnetic fields (EMFs) which may result where it is proposed the power cables from the large wind farms will cross. Appendix 19 Vattenfall and Ørsted Circuit Crossings- EMF Information Sheet to the Applicant's response to Deadline 1. These assessments represent the worst-case scenario for two crossing points, one where both transmission systems use HVAC technology and the other where both use HVDC technology. It should be noted that this worst-case scenario was correct at the time of writing, however NV and NB have subsequently made the decision to deploy HVDC technology. The parameters modelled are included in the tables below and are conservative as maximum rating, minimum burial depth and most acute crossing angle (45°) were taken and the most highly loaded circuits were located on top which produced the highest magnetic fields. Summary of the cumulative impact of Hornsea Three, NV and NB found:-

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			• The study found that the maximum calculated AC magnetic fields were 50.7 µT, which is 14% of the UK exposure limit values; the maximum calculated DC magnetic fields were 60.8 µT which is less than 1% of the UK exposure limit. • All of the cable crossing scenarios irrespective of whether DC or AC cable connections are used will be compliant with the UK exposure limits set to protect the health of members of the public against electric and magnetic field exposure. • As the magnetic field is mainly dependant on cable rating, burial depth and phase separation, all cable crossings with similar or less onerous design parameters will also be compliant. The study advises that if both cable routes that cross use the same power transmission technology, i.e. AC and AC or DC and DC, the fields can combine to add or subtract from one another. However, if different technologies are used, i.e. AC and DC, the magnetic fields do not interact with one another. In that scenario, the installations of the HVAC and HVDC cables can be considered separately. It is noted that this summary report is available for download from both Orsted and Vattenfall corporate websites as well as being attached as Appendix 19 Vattenfall and Ørsted Circuit Crossings- EMF Information Sheet to the Applicant's response to Deadline 1.
Q1.12.12	Applicant	Table 8.16 of the ES [APP-080] appears to be missing some text. The rows for 'Minor' and 'Negligible' magnitude of impact of the 'BS 4142 Semantic Description' column appear to have been amalgamated.	The Applicant would clarify that the BS4142 Semantic Description "*Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the conte*xt" should apply to the negligibl**e** magnitude of impact alone. The Applicant notes that the text currently applied to the moderate magnitude of impact (i.e. "*A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context*.") should be applied to both moderate and minor magnitude of impacts. This error has been corrected in Annex to Ex. A WQ 1.12.12 and Appendix 18 to the Applicant's response to Deadline 1 which provides Errata to the Application.

1.16 Written Question 1.13 Content of the DCO

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.2	Applicant	The dDCO [APP-027] includes two Deemed Marine Licenses (DML), one for generation and one for transmission assets. Some previous DCOs for offshore windfarms where phased development was envisaged, (East Anglia Three for example), have included separate DMLs for each phase. What is the justification for taking a different approach here?	The Applicant is of the view that having separate licences can be beneficial where from the outset the NSIP is sub-divided into one or more projects, with more than one undertaker responsible for each project (for example on Hornsea Two Offshore Wind Farm Order 2016, where two undertakers are named). That approach can avoid the need for transfer of benefit in the future provided the number of undertakers and sub-division of projects doesn't change. However, for Hornsea Three it is proposed that there will be one undertaker responsible for the whole project and the phasing strategy will be determined closer to the point of construction (hence a single DML for each of the generation and transmission assets). If this changed, there is nothing in law to prevent the sub-division of the DMLs in accordance with Article 5 of the draft DCO (Benefit of the Order). There is no need to further sub-divide the DMLs at this stage.
Q1.13.3	Applicant, Norfolk Vanguard Limited	The onshore cable route proposed as part of the Norfolk Vanguard project would cross the Hornsea Project Three cable route near Reepham. A) What assessment has been carried out of the engineering requirements for the cable crossing, such as to demonstrate that the works could be carried out satisfactorily within the Order limits?	The Applicant is currently in on-going discussions with Norfolk Vanguard Limited, the applicant for the Norfolk Vanguard project, with the aim of reaching a commercial agreement to manage the co-existence of the projects. As part of this agreement, the parties will agree a mechanism to determine the method and design at the point of crossing incorporating the principle that one project would install using open cut, and one through HDD. Should Hornsea Three install using HDD, there is a need for a corridor wider than the typical 80m width provided for along the onshore export cable corridor at this location to accommodate the works. This accords with the approach adopted at some of the other technically complex HDD crossings along the Hornsea Three onshore cable corridor route. The width at this crossing point has been determined based on professional experience drawn from previous offshore wind export cable installation campaigns by the Applicant (Hornsea Three) and is reflected in the relevant Land Plan (onshore) (Sheet 16 of 35 of APP-011) and Work Plans (Sheet 16 of 35 of APP-013).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		B) How would the powers sought by Norfolk Vanguard Limited interact with those sought by the Applicant? C) Should the Order include protective provisions in respect of Norfolk Vanguard Limited?	As set out in Volume 1, Chapter 3: Project Description of the Environmental Statement [APP-058], detailed ground investigations will be undertaken should HDD be proposed to determine geotechnical data and thermal resistivity properties of the soil to assist with detailed cable route design. Notwithstanding this, the Applicant is confident the works can be carried out within the Order Limits as set out in the Order Limits and Grid Coordinates Plan (Onshore) [APP-010]. The Applicant and Norfolk Vanguard Limited consider that the powers sought by the Applicant and Norfolk Vanguard Limited in their respective DCOs can co-exist. The Applicant is currently in on-going discussions with Norfolk Vanguard Limited, the applicant for the Norfolk Vanguard project, with the aim of reaching a commercial agreement to manage the co-existence of the projects. The Applicant is engaging with Norfolk Vanguard to consider the approach to protective provisions for the Hornsea Three DCO.
Q1.13.4	Applicant	The second paragraph on page 3 of the dDCO [APP-027] includes the words 'which has made a report to the Secretary of State section 74(2) of the 2008'. Please review this sentence as it may have some words missing.	The Applicant has reviewed and in the draft DCO (Version 1, submitted for Deadline 1) the wording is amended as set out below (new words underlined): *The application was examined by the Examining Authority, which has made a report to the Secretary of State <u>under</u> section 74(2) of the 2008 <u>Act.</u>*

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.5	Applicant	The definition of 'commence' in Article 2 excludes offshore site preparation works. Consequently, boulder clearance and sandwave clearance would not amount to commencement. This is a broader definition than ones used in some recent orders, such as East Anglia Three and Dogger Bank Teeside A and B. The MMO and NE [RR- 085, RR-097] express concern that works with potentially significant environmental effects could be carried out in advance of pre-construction plans and any associated documentation being approved. Moreover, table 2.18 of the ES [APP-062] identifies the use of pre-construction surveys as a designed-in measure to reduce the impact of the proposal on benthic features. A) What is the justification for adopting a broader definition, (in relation to offshore works), than that used in comparable projects? B) How would pre-construction surveys be secured through the dDCO if boulder clearance and sandwave clearance would not amount to commencement?	A) The Applicant has considered the representations of the MMO and Natural England on this point has removed the wording "*offshore site preparation works*" from this definition in Article 2 the draft DCO (Version 1, submitted for Deadline 1). B) As per previous answer, the Applicant has removed reference to "offshore site preparation works" from this definition.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.6	Applicant	The Explanatory Memorandum [APP-028], commenting on the definition of 'commence', draws attention to a Correction Order made by the Secretary of State in relation to the A160 - A180 Port of Immingham Improvement Development Consent Order 2015. This Order gave consent for onshore highways works. What relevance does this have in relation to the offshore elements of the current application?	As stated in response to Q1.13.5, the Applicant has removed the "*offshore site preparation works*" from this definition.
Q1.13.7	Applicant	The definition of 'commence' in Article 2 refers to 'site preparation works' in respect of the onshore works. Should this refer to 'onshore site preparation works' as this is a defined term in the dDCO?	Yes. An appropriate amendment has been made to this definition in the draft DCO (Version 1, submitted for Deadline1)

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.8	Applicant, Broadland District Council (BDC), North Norfolk District Council (NNDC), South Norfolk Council (SNC)	The definition of 'onshore site preparation works' in Article 2 includes site clearance, demolition and archaeological investigations. It is noted that similar drafting has been adopted in some other projects. Nevertheless, these may well be substantial works in their own right, particularly in relation to the clearance of vegetation along the cable corridor. Vegetation clearance could take place in areas which have yet to be subject to ecological surveys. A) What is the justification for excluding site clearance and demolition from the definition of 'commence' in the particular circumstances of this application? B) How would pre-construction surveys be secured through the dDCO if site clearance would not amount to commencement? C) How would Requirement 16, relating to archaeological investigations, operate if those investigations were themselves excluded from the definition of commencement?	A) Site preparation works including site clearance and demolition will be required prior to the commencement of the works for multiple reasons including, but not limited to: Ahead of site clearance works, pre-construction surveys may need to be undertaken (as specified in the Outline Ecological Management Plan [APP-180]). These ecological surveys are required to be undertaken at specific times of year and therefore, to allow the commencement of construction works outside of this optimum 'survey period', the surveys and subsequent site clearance works may need to be undertaken in the preceding year. Specifically regarding demolition, the Applicant has reviewed the position and will remove this from the definition of onshore site preparation works in the draft DCO (Version 1, submitted for Deadline 1). B) The Applicant has amended requirement 10 of the draft DCO (Version 1, submitted for Deadline 1) so that a separate Ecological Management Plan is required ahead of site preparation works. C) The Applicant has reviewed and amended the wording of Requirement 16 and in the draft DCO (Version 1, submitted for Deadline 1) as set out below (new words underlined): *16(1) No phase of the connection works may commence until for that phase a written scheme of archaeological investigation for Work Nos. 6 to 15 has been submitted to and approved by the relevant planning authority.* *(2) The term commence as used in requirement 16(1) only shall include any onshore site preparation works.*

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.9	Applicant, BDC, NNDC, SNC	The definition of 'onshore site preparation works' in Article 2 appears to be broader than the equivalent wording within the definition of 'commence' in the Hornsea Two Offshore Wind Farm Order 2016. Specifically, it includes diversion and laying of services and the creation of site accesses. A) What is the justification for adopting a broader definition in this case? B) How would relevant mitigation measures be secured, such as those in the Outline Code of Construction Practice [APP-179], given that the detailed versions of mitigation documents may not be approved until after the 'onshore site preparation works' have taken place?	A) The Applicant considers that this approach provides more flexibility to undertake these activities without the need to trigger the various pre-commencement requirements in the DCO. Many of the activities in question will be undertaken in parallel with work to discharge these requirements, and as such this also helps the Applicant to shorten its timetable. Whilst the Applicant recognises that the Hornsea Two Offshore Wind Farm Order 2016 was more limited in this regard, since that DCO was granted, the Applicant has gained more experience of constructing offshore wind farms under DCOs (including the Hornsea One Offshore Wind Farm) and therefore has a better practical understanding of works that may be required in the pre-construction stage, Additionally, the Applicant notes that other offshore wind farm orders have adopted wording which mirrors that in the draft DCO, including the East Anglia Offshore Wind Farm Order 2017, the Dogger Bank Teesside A and B Offshore Wind Farm Order 2015, and the Dogger Bank Creyke Beck Order 2015. B) The Applicant has amended requirement 10 of the draft DCO (Version 1, submitted for Deadline 1) so that a separate Ecological Management Plan is required ahead of site preparation works.
Q1.13.10	Applicant	The definition of 'intrusive activities' in Article 2 includes the words 'but not limited to'. A) What other activities are envisaged? B) Have any other activities been assessed in the ES?	A) The draft DCO states under the definition of intrusive activities in Article 2 that "*intrusive activities means activities including but not limited to anchoring of vessels, jacking up of vessels, depositing soil and seabed clearance*". It is the Applicant's position that no intrusive activities in addition to those stated are envisaged. The language "but not limited to" is to provide for flexibility should any additional activities be required that are not listed in this definition. B) As stated above the Applicant's position is that no intrusive activities in addition to those stated are envisaged and therefore no additional intrusive activities have been assessed in the ES.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.11	Applicant	The term 'maintain' in Article 2 includes 'remove, reconstruct and replace'. Some previous orders have used similar wording but have been qualified to the effect that replacement would only be in relation to a component part of a wind turbine generator, offshore substation or accommodation platform. A) What is the justification for adopting a broader definition in this case? B) Please provide some illustrative examples of what 'remove, reconstruct and replace' might entail. C) What works might be included if 'repowering' became necessary?	A) The Applicant assumes that the Examining Authority's concern relates to the undertaker's ability to repower the project without a further consent. The Applicant would firstly highlight that the wording in the definition of "maintain" is constrained by the wording "*to the extent assessed in the environmental statement*". No such repowering is captured in the environmental statement. Therefore, wider activities such as wholesale replacement of the wind farm turbine array could not occur and no further qualification of the definition is necessary. B) The Applicant would advise that it is not intended that such wording would include replacement of the turbines and their foundations as a whole. C) See above.
Q1.13.12	Applicant	The definition of 'the Order limits' in Article 2 includes the words 'within which the authorised project may be carried out'. Planning Inspectorate Advice Note 3 advises that 'may' should be avoided in DCOs to avoid ambiguity. Please review the drafting of this definition.	The Applicant notes PINS Advice note 15 states that the term "may" could create ambiguity. However, the Applicant considers that this is not the case in the provision highlighted. The Applicant notes that this term is used regularly in previous granted DCOs and the model provisions, and considers this to be a legal term, not intended to give ambiguity, rather denoting that the undertaker has the power to undertake the act but not an obligation.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.13	Applicant	The definition of 'pontoon gravity base 1 foundation' in Article 2 includes the words 'and either'. These words seem unnecessary and inconsistent with the subsequent definition of 'pontoon gravity base 2 foundation'. Please review the drafting of this definition.	The Applicant notes this comment and has removed this wording from the draft DCO (Version 1, Deadline 1).
Q1.13.14	Applicant	The arrangements for seeking the consent of the Secretary of State to transfer the benefit of the Order include provision for arbitration (Article 5(6)). The Explanatory Memorandum [APP-028] states that this approach is unprecedented but has been developed on the basis of experience on other projects and is required to provide certainty. A) What is the evidential basis for the suggestion that arbitration is necessary? B) Please provide legal submissions on the lawfulness of seeking to impose an arbitration procedure which would appear to fetter the discretion of the Secretary of State.	A) The approach of prescribing the process for arbitration (see Schedule 13 dDCO) is novel, but the principle of the Secretary of State being subject to arbitration in the event of disagreement/dispute, as per other parties to a DCO, is not. The model provision, which has been adopted in other made DCOs applies to all parties and disputes. The Hornsea Three dDCO simply makes that clearer and has prescribed a process for parties to follow in the event of a dispute. With specific regard to the transfer of benefit (ToB) provisions, both PINS and BEIS will be aware that there is currently no statutory or other formal process in relation to an application to the Secretary of State to transfer the benefit of a DCO, nor is there any appeal mechanism. In the absence of such provision the only alternative would be judicial review, which for the reasons set out below, is unsatisfactory and could reasonably be expected to delay or otherwise prejudice an NSIP being realised. The Applicant is of the view that having the ability to defer either refusal of a transfer or non-determination to arbitration is in line with Planning Inspectorate Advice Note 15 Good Practice Note 3 which states: "*It is recommended that a mechanism for dealing with any disagreement between the Applicant and the discharging authority is defined and incorporated in a draft DCO Schedule. For example, including arrangements for when the*

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		C) Why it is considered necessary to apply an arbitration procedure when any decision of the Secretary of State could be challenged by way of Judicial Review? D) If an arbitration procedure were to apply, how could the Secretary of State be satisfied, at the time of making the Order, that the rights of those persons subject to Compulsory Acquisition would be sufficiently protected upon any transfer of the benefit of Compulsory Acquisition provisions?	*discharging authority refuse an application made pursuant to a DCO Requirement, or approve it subject to conditions or fail to issue a decision within a prescribed period*." B) Section 120 of the Planning Act 2008 prescribes what may be included in a DCO and includes those matters listed in Part 1 of Schedule 5. Paragraph 37 of Schedule 5 prescribes *"The submission of disputes to arbitration"*. That reference is not qualified at all. It does not limit or exclude any party to the dispute in question. There is nothing in the Planning Act 2008 or other legislation that has limited the application of para 37, or otherwise serves to exclude the SoS from arbitration. It is conceivable that, in general, a dispute arising from a DCO may include a dispute between the undertaker and SoS, for example, on a matter of a technical nature that is beyond the everyday expertise and experience of that regulator. In those circumstances it is entirely appropriate for the matter to be determined by an appropriately qualified expert arbitrator. There would be no fettering of the discretion of the SoS because the procedure set out in Schedule 13 of the draft DCO makes provision for all parties to the dispute to engage in the appointment of the arbitrator, make submissions to the arbitrator, and for the exchange of evidence. Therefore, the appointed arbitrator would necessarily have regard to the submissions and standing of the SoS when considering and determining the dispute. The possibility that the arbitrator may arrive at a different conclusion on the evidence than that of the SoS would not amount to fettering of discretion, but would provide swift and effective dispute resolution in accordance with well-established principles of natural justice, which does not exist in DCOs made to date. A typical example of arbitration provisions previously endorsed by the SoS can be found in Article 41 of the Hornsea Two Offshore Wind Order 2016, which states: *"Any difference under any provision of this Order, unless otherwise provided for, must be referred to and settled by a single arbitrator to be agreed between the parties or, failing*

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			agreement, to be appointed on the application of either party (after giving notice in writing to the other) by the Secretary of State". Identical provisions exist in other offshore wind farm DCOs granted since the PA08 came in to force. There is nothing in those provisions that limits or excludes any party to the dispute in question. In other words the SoS could well be a party to a dispute determined by arbitration under those made DCOs, if an undertaker or other party chose to take that action. The SoS has previously considered whether a public body, Natural England, should be a party to arbitration provisions in a DCO. In respect of both the Triton Knoll Offshore Wind Farm Order 2013 and the Burbo Bank Extension Offshore Wind Farm Order 2014, in relation to which Natural England submitted that it should be excluded from those provisions on the basis that the exercise of NE's statutory powers should not be subject to arbitration. In both cases, the SoS did not agree. At para 7.3 of the Triton Knoll decision letter the SoS states: *"The Panel also asked the Secretary of State to consider whether SNCBs should be removed from the provisions for arbitration covered by Article 12 of the draft Order at Appendix E (headed "Arbitration") [ER 5.11.20]. To maintain consistency with other offshore wind farms approved under the Planning Act 2008 since the close of the Panel's Examination, the Secretary of State has decided that the arbitration provisions should apply to SNCBs and has therefore modified the article in the Order accordingly."* The outcome in Triton Knoll was noted by the ExA in its report on Burbo (as noted in para 7.45 and 7.46 of the Report): *"This draft article provides for the appointment of an arbitrator if a dispute arises in respect of any provision of the DCO. Early draft DCOs excluded NE from the operation of the provision, pursuant to an opinion provided by NE to the Triton Knoll Offshore Wind Farm Examining Authority that the exercise of its statutory powers should not be subject to arbitration and should only be adjudicated upon by the court. However, the Secretary of State in the Triton Knoll decision decided not to exclude NE from the arbitration provision in that DCO, on the basis that all issues and parties should be equally subject to arbitration on the same basis. I proposed to delete the exclusion of NE from the arbitration provision in my draft DCO. The applicant and NE did not object to this revision which was sustained in the*

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			applicant's draft DCO Version 6 [APP-099]. I am content with the current drafting of this article." The SoS endorsed the ExA's conclusion in the made Order. Therefore, Examining Authorities and the SoS have already opined on this point as highlighted above and concluded that *"all issues and parties should be equally subject to arbitration on the same basis".* Those arbitration provisions in made DCOs are silent on how the arbitration should be put into effect. For example, no provision is made for the appointment of the arbitrator, the terms of reference for the arbitrator, the exchange of evidence, or a determination period. This means that if a party wished to refer a matter to arbitration under those existing DCOs, there is no procedure for doing so, which could render the provision ineffective. It is for the above reasons that the Applicant believes that the expanded arbitration provisions in the draft DCO would provide greater certainty to all parties potentially involved in a dispute under the DCO, not just in relation to the SoS in terms of Article 5. The Applicant has clarified that those parties may include the SoS and clearly set out a process for the arbitration to follow. Objectively, this clarity must be an improvement over the arbitration provisions included in DCOs to date. The applicant notes that the arbitration provisions in the Hornsea Three dDCO have been adopted in their entirety in Vattenfall Wind Power Limited's applications for DCOs in respect of the Norfolk Vanguard Offshore Wind Farm (PINS Ref: EN010079) and the Thanet Extension Offshore Wind Farm (PINS Ref: EN010084). The same provisions were also accepted (without challenge) into the Examination of The Millbrook Power (Gas Fired Power Station) Order which closed on 13 September 2018 (PINS Ref: EN010068).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			C) The Applicant considers that the option to resort to judicial review does not provide for an expeditious alternative mechanism for dispute resolution. Indeed, years can be consumed following that procedure, which an NSIP developer can ill-afford to follow, given the Agreement for Lease and Contract for Difference milestones it is subject to. There is also a substantial cost involved in pursuing litigation firstly in the High Court and potentially thereafter in an appeal. This would result in increased costs and prejudices the common objective of the industry and Government to reduce the cost of energy, whilst achieving decarbonisation and security of energy supply. The timescales referred to in the arbitration provisions (and the discharge of conditions in the DMLs) have been adopted from the Town and Country Planning Act 1990 (TCPA), e.g. determination in 8 weeks, and are designed to provide for an expeditious procedure in a regime which currently makes no provision for process, determination periods or appeal. The TCPA also provides for appeals for non-determination to be made after the statutory time limit has expired. The applicant considers that it is fair to have a similar provision in relation to DCO, with associated reference to arbitration.
			D) The requirements of Articles 5(8)(b) and 5(10) are relevant to this question: (a) pursuant to Article 5(8)(b) no SoS consent is required in the circumstances prescribed in (i)-(v), e.g. time limits for a CA claim have expired, no claim made, claim has been determined; or (b) when SoS consent is applied for, Article 5(10)(a)(v) requires confirmation of the availability and adequacy of funds for compensation associated with the compulsory acquisition of the Order land. If the SoS (or any other party) had concerns about the ability of the transferee to meet any CA compensation claim, or otherwise respect the rights of

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			affected parties, submissions could be made to the arbitrator. The arbitrator would have regard to those submissions and any evidence to support or counter them when determining the dispute under the provisions of Schedule 13.
Q1.13.15	Applicant	Should Article 5(2) be amended to include reference to 5(7) such that it would read: Where an agreement has been made in accordance with paragraph (1) references in this Order to the undertaker, except in paragraphs (5), (7) and (9), shall include references to the transferee or lessee?	The Applicant agrees and has amended the draft DCO (Version 1, submitted for Deadline 1) to reflect this change.
Q1.13.16	Applicant, MMO	Article 5(7) provides that, where the benefit of the order is transferred, no obligations remain with the undertaker. The MMO [RR-085] advises that DML conditions should remain effective against the undertaker should any assets be transferred. Would Article 5(7) provide adequate protection for the marine environment in the event that a transferee failed to carry out its obligations under the DML? Please can the MMO comment on the statement in the Explanatory Memorandum [APP-028] to the effect that this approach has been followed in the East Anglia Three Offshore Windfarm Order 2017.	The Applicant notes that it is common to many offshore wind DCOs for the transferee of a DML to have no ongoing obligations, such as the Walney Extension Offshore Wind Farm Order 2014 (as amended), the Hornsea Two Offshore Wind Order 2016 and the East Anglia Three Offshore Wind Farm Order 2017. Therefore, it has been accepted by several Examining Authorities and the SoS that once the ownership of the transmission assets has been transferred to an OFTO under the statutory regime, along with the related benefit of the DCO/DML, it is reasonable for liability for those assets to reside exclusively with the OFTO. This is reasonable because once ownership of those assets has transferred the generator no longer has control over them and so cannot and should not be liable for them. The balance of provisions in Article 5 state that the obligations under the DMLs transfer to the transferee and so the DML conditions would be enforceable by the MMO against the transferee as if it were the transferor. In addition, and without prejudice to that position, it should be noted that the MMO has a suite of enforcement powers under the MCAA 2009 available to it in respect of any unlawful activity carried out by the transferee. Therefore, as concluded by the ExAs and SoS in respect of the many offshore wind DCOs to date, the ExA here can be confident that the enforcement powers of the MMO are not prejudiced by Article 5(7). Given that this point, and related substantive legal submissions, that have been considered at length by several ExAs and the SoS, and DCOs have been granted making provision for the allocation of liability for enforcement, it is very

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			disappointing that the MMO has raised this point again. The ExA is asked whether it is reasonable for the MMO to do so having regard to this matter having been settled in the past. There is nothing to distinguish Hornsea Three from those past and very recent DCOs in this regard. Therefore, the Applicant submits that is would be unreasonable for it to have to incur costs responding to submissions in this regard.
Q1.13.17	Applicant	Where a transfer of the benefit of the Order takes place Article 5(11) provides for a notice period of 5 days. This seems to be a rather short period. What is the justification for the notice period proposed in Article 5(11)?	The Applicant considers five days' notice to be reasonable where the undertaker is notifying the SoS of the date on which a transfer is to take effect and this is based on discussions between the Applicant's legal advisers and BEIS in relation to the ToB of other DCOs. Article 5(9) relates to a situation either where the SoS has already consented to the transfer, or the undertaker does not require SoS consent (e.g. where the transferee is a licensee under the Electricity Act 1989). Therefore, the SoS does not have to take any action, and the notification is for information only. In answering this question, the Applicant has noticed the need for an amendment to Article 5(11) so that the five day notice does not apply to Article 5(3). Article 5(11) should be amended as follows: (11) The date specified under paragraph (10)(a)(ii) in respect of a notice served in respect of paragraph (3) must not be earlier than the expiry of five days from the date of the receipt of the notice.
Q1.13.18	Applicant	Article 6 would dis-apply provisions of the Neighbourhood Planning Act 2017 relating to the temporary possession of land which may come into force during the course of the examination. There are elements of the Neighbourhood Planning Act 2017 regime that are fixed by the statute itself, for	The Applicant's rationale for this is that the provisions relating to temporary possession in the Neighbourhood Planning Act 2017 have not yet come into force and that regulations required to provide more detail on the operation of the regime have not yet been made (or even consulted on). The Applicant is of the view that it is not currently possible to understand or reflect accurately the temporary possession provisions as intended by Government in respect of DCOs. For example, whilst the notice period is set out in section 20(3) of the Neighbourhood Planning Act 2017, it is not yet known whether this particular provision will apply to DCOs or whether there will be any transitional arrangements.

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		example a notice period before possession is taken and a requirement for notices to identify the period of temporary possession. Can the applicant justify why such elements are not appropriate in this case?	As such, it is considered appropriate to apply the 'tried and tested' temporary possession regime which has been included in numerous DCOs and Orders made under the Transport and Works Act 1992 to date until the relevant provisions in the Neighbourhood Planning Act 2017 come into force. A similar provision was included, for the reasons outlined above, in the Silvertown Tunnel Order 2018 (see Article 3(1)(p)), the Eggborough Gas Fired Generating Station Order 2018 (see Article 26(12)) and the A19/A184 Testo's Junction Alteration Development Consent Order 2018 (see Article 2(7)). The Applicant notes that there are no residential properties within the Order land and therefore considers that 14 day notice period set out in Article 25 of the draft DCO remains appropriate.
Q1.13.19	Applicant	Article 7, which would provide a defence to proceedings in respect of statutory nuisance, is a model provision. Nevertheless, National Policy Statement EN-1 states that the decision maker should have regard to whether any particular nuisance is an inevitable consequence of the project (paragraph 4.14.3). Having regard to the mitigation measures described in the ES, what is/are the potential nuisance(s) that would be an inevitable consequence of the construction, operation or decommissioning of the project?	As set out in the Statutory Nuisance Statement [APP-174] there is not predicted to be any statutory nuisance in accordance with section 79(1) of the Environmental Protection Act 1990 arising from the Hornsea Three project during the construction, operation or decommissioning phases of the project.

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Q1.13.20	Applicant	Article 10 distinguishes between 'any street' (at 10(1)) and the streets which are set out in Schedule 4 (at 10(4)). However, Schedule 4 appears to include all streets within the Order limits. Please provide further explanation of the drafting of Article 10, with particular regard to why it distinguishes between 'any street' and the streets set out in Schedule 4.	The wording highlighted by the Examining Authority permits the temporary stopping up of streets, as set out in Article 10(1), however, the effect of Article 10(4) is that for those streets where the Applicant is already aware that it will require to be temporarily stopped up, it is able to provide details of the extents of these for the benefit of relevant third parties by reference to the schedule and the Public Rights of Way Plan [APP-016]. The Applicant would point out that the clause as drafted features in previous offshore wind farm orders including: The Hornsea One Offshore Wind Farm Order 2014; Walney Extension Offshore Wind Farm Order 2014; The Dogger Bank Creyke Beck Offshore Wind Farm Order 2015; The Dogger Bank Teeside A and B Offshore Wind Farm Order 2015; and The Hornsea Two Offshore Wind Farm Order 2016. In addition, the wording highlighted by the Examining Authority matches that provided within the Model Provisions.
Q1.13.22	Applicant	Article 11 provides for the temporary stopping up of public rights of way. The ES [APP-058] states that there may be a gap in construction of up to 3 years. A) Is it envisaged that public rights of way would be reopened if there was a significant gap in construction? B) Does the drafting of this article adequately reflect the potential for phased implementation?	A) To provide context to the Applicant's response, the Applicant would note that the Outline Code of Construction Practice [APP-179] (paragraph 6.8.1.10) specifies that where a PRoW crosses the onshore cable corridor the contractor is to either: seek to maintain a pedestrian access or provide a localised diversion. In this regard it is envisaged that the temporary stopping up of public rights of way provided for in Article 11 would only be implemented in an unexpected event where to maintain access along the existing route, or diversion would present a health and safety concern. As such any stopping up of the public rights of way would be short term (days at most). The Applicant proposes the following change to paragraph 6.8.1.18 to clarify this point (new text show in underline): *Paragraph 6.8.1.18 – "PRoW affected during the construction phase of the works would be crossed by either HDD or by open trench. When HDD is utilised, the PRoW would remain open during the duration of construction. Where open trenching is used to cross PRoW, the routes would either be ~~temporarily stopped up/~~diverted or traffic management measures would be put in place in some locations to maintain access. Where such measures cross a bridleway, all material used would be suitable for use by horses. Temporary stopping up of PRoW would only occur in unexpected events where to maintain access along the existing route, or diversion would present a health and safety concern."* On the basis of the above, the Applicant would confirm that no PRoW will be stopped up for the duration of the onshore construction works, with temporary being a matter of days in this instance.

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			Notwithstanding this, the Applicant has amended paragraph 6.8.1.17 of the Outline CoCP to provide clarity on the management of PRoW should the project be construction in two phases (new text shown in underline): *Paragraph 6.8.1.17 "Following completion of construction activities for a given phase, all public access within the working area (PRoWs) will be returned to their original alignment (if appropriate) and/or reinstated with a standard commensurate to that existing prior to the commencement of construction works unless otherwise agreed with the local planning authority."* As noted in paragraph 1.1.1.6 of the Outline CoCP, if construction is to be undertaken in two phases, the works in the first phase will be left in a safe state as agreed with relevant local authorities.
			B) The Applicant considers the drafting of Article 11 of the draft DCO (APP-027) is adequate relating to phasing.
Q1.13.25	Applicant	Article 17(1) states that the undertaker 'may acquire compulsorily so much of the Order land as is required for the authorised project, or to facilitate, or is incidental, to it. Use of 'may' is discouraged in DCO drafting. Please review the drafting of this article.	As per the Applicant's answer to Q1.13.12, it is of the view that the language used here is appropriate. The Applicant would be happy to review this if the Examining Authority could provide the reference to the guidance referred to.

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Q1.13.26	Applicant	Article 18 provides for the time limit for the exercise of compulsory acquisition powers to be 7 years. The Explanatory Memorandum [APP-028] states that this period is necessary due to the complexity and scale of the project. Whilst there are examples of a period of 7 years (Dogger Bank Teeside A and B) other projects, such as Hornsea Project Two and East Anglia Three have a time limit of 5 years. Paragraph 3.8.1.1of the ES [APP-058] states that, in this case, construction is expected to begin in 2021. Please provide further justification for the proposed 7 year time limit.	Similar to Dogger Bank Teesside A and B DCO which has secured a seven year consent time limit, Hornsea Three is one of the largest, and furthest offshore Round 3 offshore windfarms to come forward through the consenting phase (and therefore one of the planned largest and further offshore wind farms to be promoted in the world). The application of a consent time limit is interlinked with the UK government's stated policy objective to support the development of a domestic offshore wind industry which delivers renewable energy at a reducing cost to the UK consumer through competitive market mechanisms. The applicant strongly supports this policy and recognises the value that vigorous competition between offshore developers and within the offshore supply chain brings to the wider industry and to the UK consumer. Within the Hornsea offshore wind zone alone, continual development of the supply and offshore construction industry, incentivised by the competitive allocation of price support contracts, has delivered reductions in the cost of energy from £140/MWh for Hornsea Project 1 to £57.50/MWh for Hornsea Project 2 between 2015 and 2017 respectively. Within this context, there are a number of benefits which an award of seven years consent would offer, including: - - maximising the ability to bring forward strong, viable projects; - broaden the ability for a wider WTG supplier offer. Currently two main WTG suppliers (Siemens and MHI Vestas) are prevalent in the UK offshore market, with the preceding years this may expand to include new widely large-scale commercially available suppliers into the market (such as GE and Samsung), helping to increase competition within the WTG market place, driving costs down and strengthening the ability for WTG suppliers to deliver up to 4GW over two CfD delivery years (or under a non-capped CfD scenario, delivery of a higher total capacity of consented projects further supported by additional generation capacity) potentially deliverable from Hornsea Project Three and other projects in the advanced stages of consenting. - broaden the ability for the supply chain to make use and drive the expansion of key supporting suppliers, this includes installation vessels, foundations suppliers, offshore substations, HVAC booster stations and turbine suppliers.

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			- broaden the ability for the supply chain to be able to draw on HVDC technology, utilise challenges faced through limited suppliers and longer lead in times. Since the DCO application was submitted, the CfD delivery mechanism has received further clarity in July 2018 from the Energy minister Claire Perry, who advised that: (a) the next CfD allocation round will be held in May 2019 (with successful auction round announcements anticipated to be made in summer 2019): (b) a subsequent allocation round in 2021; and (c) further auctions "around every two years". Nonetheless, their remain key elements of the CfD tender framework yet to be announced, including the total budget for each tender, with Central government noting that *"depending on the price achieved, these auctions will deliver between 1GW and 2GW of offshore wind each year in the 2020s"*. These elements have some influence over the optimum (in terms of cost and price of energy) time to develop the project. The Applicant remains confident of the viability and feasibility of Hornsea Three and the deliverability of it in good time. However, for the reasons set above, if the implementation period is set at 7 years, this would offer advantages to the energy consumer including development of increased clean generation cost efficiently and further progress towards subsidy free generation.

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Q1.13.27	Applicant	Schedule 6 of the dDCO gives details of the rights and covenants you seek for various plots of land. However, Article 19(1) as currently drafted would permit the creation of new rights and the imposition of restrictive covenants over all of the Order land, as shown on the Onshore Land Plan [APP-011] and described in the Book of Reference [APP-033]. A) If this is your intention, please provide details of the new rights and restrictive covenants you seek to compulsorily acquire in the rest of the Order land not already shown in Schedule 6. B) Article 19(1) would also permit the compulsory acquisition of existing rights. Do you intend to acquire any existing rights compulsorily?	A) The plots listed in Schedule 6 include land over which only new rights and restrictive covenants are being sought. Article 19(2) of the draft DCO does not permit the acquisition of the freehold of the plots listed in Schedule 6. Article 19(1) enables the Applicant to compulsorily acquire new rights (and impose restrictive covenants) over land where the freehold can be compulsorily acquired. Such land is shown coloured pink on the Land Plan – Onshore [APP-011]. The purpose of this provision is to enable the Applicant to take a right instead of freehold where appropriate to do so. This ensures that the minimum amount of land is acquired. For example, the final design of the onshore booster station may have a slightly smaller footprint than the maximum design parameters applied for. In this scenario, the Applicant would not need to compulsorily acquire the whole of plot 9-012 (as shown on the Land Plan – Onshore [APP-011] but would need to acquire new rights and impose restrictions over the remainder of plot 9-012 so as to be able to construct, use and maintain the onshore cables through that plot. The new rights and restrictive covenants must be required for the authorised project or to facilitate, or is incidental, to it (see Article 17(1)). B) The Applicant may need to acquire existing rights compulsorily in order to deliver Hornsea Three. The existing rights that the Applicant is aware of are listed in the Book of Reference [APP-033]. However, additional rights may be granted between the date of the submission of the Application and the commencement of the authorised project. In certain circumstances it may be more appropriate for the Applicant to acquire an existing right instead of imposing a new right.

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Q1.13.28	Applicant	Article 19(3) refers to paragraph 5 of Schedule 7. Please review and confirm whether this reference is correct.	This reference is incorrect and this reference has been removed from the draft DCO (Revision 1, submitted for Deadline 1).
Q1.13.29	Applicant	Article 21 applies the vesting procedures in the Compulsory Purchase (Vesting Declarations) Act 1981. Paragraph 5.39 of the Explanatory Memorandum [APP-028] states that the article has been updated to reflect changes brought about by the Housing and Planning Act 2016. Please explain the changes you propose in consequence of the Housing and Planning Act 2016.	Sections 182(2) and 202(2) of the Housing and Planning Act 2016 inserted new sections 5A and 5B in to the Compulsory Purchase (Vesting Declarations) Act 1981. These provisions relate to a time period of 3 years which is not consistent with the time period referred to in Article 18 of the draft DCO. Therefore there is a need to amend the Compulsory Purchase (Vesting Declarations) Act 1981 accordingly.
Q1.13.30	Applicant	Please explain how Article 23(4) would interact with the proposed amendments to the Compulsory Purchase Act 1965, as set out in Schedule 7.	The amendments set out in Schedule 7 specifically relate to the acquisition of new rights. Article 23(4) deals with the temporary possession of land and states that the provisions in Schedule 2A do not apply where entry onto to land is pursuant to Articles 25 or 26 of the draft DCO.

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Q1.13.31	Applicant	Article 25 provides for temporary use of land. The applicant has sought to retain the flexibility to construct the development in two phases with a gap in construction of up to 3 years. This may have implications for landowners in terms of the duration of any temporary possession. The drafting of Article 25(3) does not appear to address the potential for a gap in construction works. A) When would a decision on the approach to phasing be made and how would this be communicated to landowners? B) Is it envisaged that the undertaker would remain in possession of land used under Article 25 during any gap in construction? C) How would Article 25 (as drafted) limit any impacts on landowners in the event that the development was to be constructed in phases? D) Insofar as the design flexibility sought by the applicant has impacts on the use and enjoyment of land, how would those impacts be minimised and/or mitigated?	A) Requirement 6 of the draft DCO (Version 1, submitted for Deadline 1) requires a phasing scheme in relating to connection works to be submitted to the relevant planning authority prior to the commencement of the authorised development. This phasing scheme would set out whether a HVAC or HVDC transmission system would be used for each phase (if applicable). The Applicant will provide regular updates to landowners on the project generally, including on the HVAC or HVDC transmission decision and phasing, in accordance with the Communication Plan Framework at Appendix A of the Outline CoCP. Appendix (A1.1.3) will be amended to add: *"The Newsletters (or appropriate alternate form such as a letter) will be issued to landowners to advise of the proposed phasing of the authorised project, the use of HVAC or HVDC transmission system to be used for that phase, land take and period of construction works and the details of the body responsible for carrying out those works."* B) The Applicant does not anticipate remaining in temporary possession of the majority of the Order land during any "gap" in construction. However, this may be necessary in certain circumstances; for example, if the "gap" is likely to be a short timeframe or if mitigation measures need to be put in place. It may be less disruptive for the landowner for the Applicant to remain in possession than to remove all works and return a short period of time later. The Applicant refers to paragraph 4.1.6.2 of the Outline CoCP [APP-179] which states that if works are delivered in phases, temporary construction compounds and accesses will be removed on completion of construction work associated with that phase unless otherwise approved by the Local Planning Authority. Subsequently, this paragraph is proposed to be further amended to confirm that the land would be reinstated and so reading *"If works are delivered in phases, temporary construction compounds and accesses will be removed* ***and the land reinstated*** *on completion of construction work associated with that phase unless otherwise approved by the Local Planning Authority."* This is also be captured in the Construction Traffic Management Plan, the outline of which, as amended for Deadline 1 [APP-176], states at paragraph 3.2.1.4 that accesses must be removed within 28 days of no longer being required for construction of Hornsea Three. At the main compound it is possible that the Applicant will remain in possession during a gap in construction if reasonably necessary.

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			C) Article 25(3) states that the Applicant must not remain in possession of any land for longer than is reasonably necessary and what is necessary will depend on the approved phasing scheme. In the event that the Applicant does need to remain in temporary possession of part of the Order land then compensation is payable to the landowner pursuant to Article 25(5).
			D) The Applicant refers to section 6.8 of the Outline CoCP [APP-179] which sets out the measures that will be taken to minimise and/or mitigate any impacts on the use and enjoyment of land during construction.
Q1.13.32	Applicant	Article 34 would enable the removal of trees subject to tree preservation orders. Are there any trees subject to tree preservation orders within or adjacent to the Order limits and, if not, is this article necessary?	The Applicant would direct the Examining Authority towards the Tree Preservation Order and Hedgerow Plan [APP-021] which details the locations of Tree Preservation Orders near and within the Hornsea Three order limits. In particular, Sheets 3, 4 and 34 show overlaps with the order limits. Therefore, the Applicant considers that this article is necessary.
Q1.13.33	Applicant	Article 40, which deals with Crown rights, does not reflect recently approved drafting, for example in Article 37 of the East Anglia Three Offshore Wind Farm Order 2017. Please review this drafting in the light of recently approved examples.	The Applicant agrees with the ExA's observation. The drafting in the dDCO was specifically requested by TCE. Discussion between the Applicant and TCE is ongoing, but currently TCE has confirmed that Article 40 should remain as drafted.
Q1.13.34	Applicant	Article 42(4) would provide for a funding guarantee lasting for 15 years. An equivalent provision in the Hornsea Two Offshore Wind Farm Order 2016 provides for a period of 20 years.	The Applicant considers that 15 years is a sufficient period of time for an affected person to make a reference to the Upper Tribunal (Lands Chamber) in respect of a claim for compensation. The Applicant has taken into account the statutory limitation period for making such a reference of 6 years. This time period has been included in the Wrexham Gas Fired Generating Station Order 2017 and the Eggborough Gas Fired Generating Station Order 2018 where similar funding provisions were included.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		What is the justification for the period proposed in this application?	
Q1.13.35	Applicant	Part 1, paragraph 1(a) refers to an output of 'over 100 megawatts'. The MMO [RR-085] states that the dDCO should define an upper generating output limit as part of the 'Rochdale Envelope' approach. A) Please provide further justification for the suggested approach. B) How can it be demonstrated that the suggested approach could not allow an increase in the anticipated generating output and greater impacts than those assessed in the ES?	A) and B) The Applicant interpreted the MMO's comment to be that the MMO would normally expect to see an upper limit on capacity, rather than one should be required. Nonetheless, please see the Applicant's response to the MMO's relevant representation: "Paragraph 2.10 of the Explanatory Memorandum explains why: *"The description of Work No.1 does not refer to an upper limit on the capacity of the generating station that development consent is being sought for. It is not considered that imposing an upper limit is desirable or necessary. The DCO includes parameters in which the Authorised Project must be constructed and it is on this basis which the environmental impact assessment has been undertaken. There is no reason to limit the electrical output capacity of the Authorised Project provided the parameters of development are not exceeded. There are advantages in not imposing an upper limit so that the Undertaker can take advantage of technical advancements that emerge in the coming years in terms of wind turbine efficiency which would enable it to still construct the Authorised Project within the existing parameters but to increase capacity beyond that which is currently anticipated based on existing technology. It is currently anticipated, when completed, the Authorised Project will have a total capacity of approximately 2.4 GW. However, Orsted does not wish to limit the development to this capacity and this is the reason that the description of the NSIP in Schedule 1 has been adopted*." *The maximum output capacity of an offshore wind farm is irrelevant for the purposes of EIA and so does not need to be fixed or capped in the ES or draft Order*."

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			The approach taken accords with the Government's decarbonisation policy and objectives, by allowing capacity from this renewable energy project to be maximised by utilising new technology available at the time of construction, provided that falls within the parameters assessed in the ES. The parameters in the ES and captured in the Requirements and DML conditions are the appropriate means to control the environmental impacts of the project, not the maximum capacity. To achieve greater than the anticipated 2.4GW capacity would be a good thing and should not be prohibited by the DCO.
Q1.13.36	Applicant	Table 3.57 of the ES [APP-058] refers to 440 joint bays. These do not appear to be referred to in Part 1 of Schedule 1. Please review whether joint boxes ought to be included in Part 1.	The Applicant has reviewed and amended the draft DCO (Version 1, submitted for Deadline 1) to add to Part 1 of Schedule 1: *"d) up to 440 joint bays."* The following has also been added to Article 2, Interpretation: *"joint bay means the underground concrete pits in Work No 8 where the sections of onshore cable are jointed to one another"*
Q1.13.37	Applicant	Requirement 1 provides for the time limit for commencement to be 7 years. The Explanatory Memorandum [APP-028] states that this period is necessary due to the complexity and scale of the project. Whilst there is precedent for a period of 7 years (Dogger Bank Teeside A and B) other projects, such as Hornsea Project Two and East Anglia Three have a time limit of 5 years. Paragraph 3.8.1.1of the ES [APP-058] states that, in this case, construction is expected to begin in 2021.	Please see response to Q1.13.26 above.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		Please provide further justification for the proposed 7 year time limit.	
Q1.13.38	Applicant	The drafting of Requirement 2 assumes a scheme of either up to 160 wind turbine generators (WTG) or precisely 300 WTG. Does this drafting cover the range of possible combinations of WTG numbers, types and layouts that is contemplated in the application?	The Applicant agrees that Requirement 2 of the draft DCO needs to be amended and proposes the following revised draft Requirement: *"Detailed offshore design parameters* *2.—(1) The total number of wind turbine generators comprised in the authorised project must not exceed 300 and a total rotar swept area of 9km².* *(2) Subject to paragraph (3), each wind turbine generator forming part of the authorised project must not—* *a. exceed a height of 325 metres when measured from LAT to the tip of the vertical blade;* *b. exceed a rotor diameter of 265 metres;* *c. be less than 34.97 metres from LAT to the lowest point of the rotating blade; and* *d. be less than one kilometre from the nearest wind turbine generator in all directions.* *(3) The reference in sub-paragraph (2)(d) to the location of a wind turbine generator is a reference to the centre point of that wind turbine generator."* The limitations set out in this draft Requirement better reflect those parameters assessed in the ES. The Ornithology Chapter: Chapter 5 of the Environmental Statement (APP-065) assesses the potential collision risk on birds using a turbine scenario for which the parameters fall within the range proposed in the revised Requirement (See Table 5.8 (APP-065): the Maximum design scenario considered for the assessment of potential impacts on offshore ornithology).

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Q1.13.39	Applicant	Requirement 5 refers to 'cable systems'. Part 1 of Schedule 1 refers to 'cable circuits' which is a term defined in Article 2. Is the difference intentional and, if it is, why is different terminology used?	The Applicant advises that this should refer to cable circuits and has made the necessary amendment in the draft DCO (Version 1, as submitted for Deadline 1).
Q1.13.40	Applicant	Requirement 6 refers to a scheme of phasing to be approved by the relevant planning authority (onshore) and the MMO (offshore). The ES [APP-058] assumes a maximum of 2 phases. A) Does the drafting of this requirement adequately secure the approach to phasing assessed in the ES? B) How would any difference of view between the MMO and a relevant planning authority and/or between adjoining relevant planning authorities be resolved? C) How does this requirement take account of the needs of those whose land and rights are affected by the phasing of construction works?	A) The Applicant considers that the approach offers flexibility to the undertaker and the relevant planning authority, given that it has not determined presently whether it will construct the project in one or two phases. In addition, as details of the phasing will be set out in detail by way of a phasing plan, this also allows the undertaker to provide more explanation and detail, in dialogue with the relevant consultees on its proposals than would be possible with a simple DCO requirement to phase either one way or another. This approach has been approved on previous DCOs, including the Dogger Bank Teeside A and B Offshore Wind Farm Order 2015, and the Dogger Bank Creyke Beck Order 2015 and the East Anglia Three Offshore Wind Farm Order 2017. B) Established practice for previous offshore wind farms is that the MMO and LPAs are able to resolve any differences between them over time. However, the Applicant has included arbitration provisions in the draft DCO to assist in this regard. C) Detailed consideration is given to such interests across the application documents, in particular in the Environmental Statement. This is set out for example in the Outline Code of Construction Practice [APP-179] (paragraph 1.1.1.6) which specifies that if construction is to be undertaken in two phases, the works in the first phase will be left in a safe state as agreed with relevant local authorities

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		D)How would the scheme of phasing be communicated to those whose land and rights are affected by the phasing of construction works?	D) The Applicant has been, and remains in, regular contact with landowners to ensure that they are aware of how and when the authorised development would be anticipated to proceed, and the impact that this is likely to have on their property and rights. The Applicant refers to Appendix 22 Transmission System (HVAC/HVDC) Briefing Note in the Applicant's response to Deadline 1, which sets out when the Applicant anticipates making a decision on whether to use a HVAC or HVDC transmission system.
Q1.13.41	Applicant	Requirement 7(1) provides for design details relating to onshore booster/substations to be approved, including implementation timetables for all landscaping works. A) Does this drafting ensure that the details of the landscaping works would be subject to approval? B)Would 'relating to that work' provide greater certainty than 'relating to that element'?	A) The detail of landscaping works is secured by Requirement 8 of the draft DCO (Version1, as submitted for Deadline 1), which requires a landscape management plan for each phase to be provided for approval before works commence on the relevant phase. B) Agreed – this wording has been amended in the draft DCO (Version 1, as submitted for Deadline1).
Q1.13.42	Applicant	Requirement 8 provides for landscape management plans relating to phases of the connection works to be approved. A) Would it be appropriate to refer to the	A) The Applicant considers that the present wording on this requirement is correct. As set out in the ES Volume 3, Chapter 3 (Ecology and Nature Conservation) [APP-075], and the Outline Landscape Management Plan [APP-181] the intention is that not only would the onshore substation and booster station will be included in the find Landscaping Plan, but also areas of hedgerow along the cable corridor. Therefore, it is more efficient to refer to phases rather than the work numbers that make up the onshore cable route.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		relevant Work numbers, consistent with Requirement 7? B) Does this drafting ensure that the details of the landscaping works would be subject to approval? C)Are the phases referred to in this requirement the same as those to be approved under Requirement 6? If not, what is being referred to? D) Similar points in relation to references to phasing apply to Requirements 10, 12, 13, 16, 17, 18 and 19. Please comment in relation to those requirements as well.	B) The wording does allow for this, as it states that the works may not commence until the landscaping plan has "been submitted and approved by the relevant planning authority". C) Correct – for this and other requirements, the term "phase" is intended to refer to the phase of development approved as per Requirement 6. D) As per answer to C).
Q1.13.43	Applicant	Requirement 9 provides for implementation of landscaping. Would the drafting be more precise if the appropriate British Standards were referred to explicitly?	The Applicant has not referred to these so as to mitigate for the situation arising where the British Standard has, by the time of discharge of the requirement, changed or is no longer extant. The landscaping scheme is required to be approved by the relevant planning authority. The planning authority should have regard to relevant standards applicable at the time details are submitted for approval.
Q1.13.44	Applicant	Requirement 11 provides for details of accesses (including access management measures) to be approved although such approval would not be needed if there were no construction or modification of an	The Applicant has amended this requirement in the draft DCO (version1, as submitted for Deadline 1) so that approval is needed where there is no construction or modification to the access.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		existing access. Would this drafting adequately protect highway safety, for example if temporary traffic management were needed because construction traffic would be using an existing access with restricted visibility splays?	
Q1.13.45	Applicant	Requirement 15 provides for details of surface water drainage in relation to the HVAC booster station and HVDC/HVAC substation. Norfolk County Council (NCC) [RR-035] has proposed alternative, more detailed drafting. A) Please comment on the drafting suggested by NCC. B) In the Applicant's drafting, should 'and onshore HVAC booster station' be added after the second reference to HVDC/HVAC substation in (1) and the reference to HVDC/HVAC substation in (2)? C) Should 'and' be inserted after 'Environment Agency' in (1)?	A) NCC's proposed drafting differs in that it provides more detail on what should be in this scheme on the face of the requirement. The Applicant considers that the drafting of Requirement 15 is adequate as it provides a framework for agreement of detailed issues in a detailed surface water drainage scheme later, rather than limiting this to detail set out in the requirement. The Applicant can provide assurance of its intentions as it has engaged with NCC as lead local flood authority, and will continue to do so during the detailed design stage. Further, it has provided an outline Code of Construction Practice [APP-179] which provides that details of drainage to be secured under the final CoCP, and outline drainage strategies for the onshore HVAC booster substation and the onshore HVDC converter/HVAC substation have been prepared and are provided in Volume 6, Annex 2.1: Onshore Infrastructure FRAs [APP-124]. B) Yes, these have been added in the draft DCO (Version1, as submitted for Deadline 1). C) Yes, this has been added in the draft DCO (Version1, as submitted for Deadline 1).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.46	Applicant, NCC, BDC, NNDC, SNC	Requirement 16 provides for a scheme of archaeological investigation to be approved by the relevant planning authority (defined as district planning authority in Article 2). NCC [RR-035] has proposed alternative, more detailed drafting in which NCC would be the determining authority. A) Please can the applicant comment on the drafting suggested by NCC. B) Which authority (or authorities) should be responsible for approving the scheme?	A) The Applicant has reviewed the suggested drafting provided and would prefer the current version of Requirement 16. This represents wording used in past granted DCOs, and also, as per the answer to Q1.13.45, allows a measure of flexibility as details of the WSI are not as prescriptive on the face of the requirement. The Applicant is currently in discussions with NCC over these requirements and hopes it will be able to agree these in this manner. B) The Applicant believes this would be NCC.
Q1.13.47	Applicant	Requirement 17 provides for codes of construction practice to be approved for phases of the connection works by the relevant planning authority. A) Would this create practical problems if a phase were to fall within more than one planning authority area? B) Should the requirement include a clause to the effect that the works should be carried out in accordance with the approved codes of construction practice?	A) Should the CoCP relate to an area of more than one planning authority, the Applicant would seek approval of this document with both such authorities, with area specific points in a schedule to be approved by the respective authority. . It doesn't envisage practical problems in this regard. B) Yes. The Applicant has amended the draft DCO (Version 1, as submitted for Deadline 1) accordingly.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.48	Applicant	Requirement 18 provides for construction traffic management plans to be approved for phases of the connection works by the relevant planning authority. A) Would this create practical problems if a phase were to fall within more than one planning authority area? B) Should the requirement include a clause to the effect that the works should be carried out in accordance with the approved construction traffic management plans? C) The list of items in 18(2) appears to be more limited in scope that the Outline Construction Traffic Management Plan [APP-176] would suggest. Given that 18(1) requires accordance with the Outline Construction Traffic Management Plan in any event, is 18(2) necessary?	A) See answer for Q1.13.47. B) Yes. The Applicant has amended the draft DCO (Version 1, as submitted for Deadline 1) accordingly. C) The Applicant agrees and has amended the draft DCO (Version 1, as submitted for Deadline 1) accordingly to remove this.
Q1.13.49	Applicant	Requirement 19 relates to European Protected Species. Should 'has been' be inserted in (2) before 'granted by Natural England'?	The Applicant considers that the current wording is clear.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.50	Applicant	Requirement 20 relates to restoration of land used temporarily for construction. A) Would it be appropriate to have a positive requirement to submit a scheme of restoration? B) The drafting assumes that the details will be approved. How would restoration be secured if the details were not approved?	A) The Applicant would highlight that this is the intention of the Requirement, as it states that the land : "*must be reinstated in accordance with such details as the relevant planning authority in consultation with, where appropriate, the MMO, and the relevant highway authority, may approve*". B) It is reasonable to assume that the details would be approved. It would be in the interests of the LPA to grant approval in order to facilitate the restoration.
Q1.13.51	Applicant	Requirement 21 provides for the approval of a noise management plan for the HVAC/HVDC substation. The DCOs for some other projects (for example Hornsea Project Two and East Anglia Three) have included specific noise limits in relation to identified sensitive receptors. A) Would it be appropriate to identify specific noise limits at sensitive receptors in the locality of the proposed HVAC booster station (if any) and the HVAC/HVDC substation? B) If so, what should those limits be?	A and B) The Applicant considers that there is no need for set noise parameters as the Noise Management Plan secured by requirement 21 of the draft DCO would set out the proposed noise control measures (i.e. physical control measures as well as management measures such as regular maintenance of the plant) to achieve the rating levels as set out in Volume 3, Chapter 8: Noise and Vibration of the Environmental Statement [APP-080]. These rating levels are based on the predicted noise levels at the residential receptors in the vicinity. This approach is taken to ensure that appropriate mitigation for noise is secured, given that different mitigation would be needed depending on whether HVAC or HVDC transmission is used and other details that would not be known until the detailed design stage.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.52	Applicant	Requirement 22 relates to local skills and employment. Given the current uncertainty over the location of any onshore support activities, what confidence is there that this requirement would secure the economic benefits outlined in the ES?	As stated in Volume 3, Chapter 10: Socio economics of the ES [APP-082], the measures to be considered as part of the plan to discharge Requirement 22 are built in mitigation and as such would apply to any location. The benefit of the utilisation of a Skills and Employment Plan to be drawn up later is that this can be discussed with the relevant local authorities and Local Enterprise Partnership(s) (as provided for in the requirement) and tailored for a particular area, and therefore ensure that mitigation is appropriate and adequate. Notwithstanding this requirement, Ørsted believes that the Skills and Employment Plan will be of immense value to both Hornsea Three and the East Anglia and Humber regions.
Q1.13.53	Applicant	Requirement 23 refers to decommissioning. The drafting assumes that a scheme will be submitted to and approved by the relevant planning authority within three months of the cessation of commercial operation. A) How would this condition be enforced if no scheme were submitted? B) What would happen if the scheme were not approved? C) What examples are there of alternative mechanisms to secure	A) This requirement, along with all others in the DCO, are subject to the provisions of Part 8 of the Planning Act 2008, which govern enforcement of the terms of a DCO. Section 161(1)(b) of the Planning Act 2008 states that it is a criminal offence to, without reasonable excuse, fail to comply with the terms of a DCO. Enforcement is similar to that under the Town and Country Planning Act 1990, as it is undertaken by the relevant local planning authority, which has wide powers to investigate, prosecute, to seek an injunction, and require the breaching undertaker to remedy the breach of the DCO. In relation to this particular requirement, if the undertaker were to commence decommissioning without having had a plan approved, it would be committing a criminal offence. Along with the penalties under the Planning Act 2008, this would also create reputational damage. B) The wording of the requirement provides that the decommissioning plan must be approved by the relevant planning authority and then implemented as approved. If this is not complied with this would constitute a breach of the DCO and the consequences outlined above would apply.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		appropriate decommissioning of comparable onshore infrastructure?	C) The Applicant is unaware of any alternative mechanisms, and is of the view that this is the most appropriate means to provide decommissioning of the onshore elements of Hornsea Three. The Applicant understands that all previous offshore wind farm DCOs (or those for the onshore infrastructure of offshore wind farms) have a requirement identical or similar, with different timing requirements (e.g. that the plan must be submitted on commercial operation cessation, or six months before in one case). The only exception is Hornsea Project One, which had no such condition. DCOs for other energy related developments have a similar process with different timing, reflecting, presumably, that decommissioning would have a greater environmental impact. For example, the Wrexham Gas Fired Generating Station Order 2017 requires the undertaker to provide a decommissioning scheme in accordance with the environment management plan previously approved within 24 months of the power plant ceasing operation, with a requirement to undertake demolition in accordance with this scheme. This is also the case in the Eggborough Gas Fired Generating Station Order 2018, which requires within 12 months of the decision to decommission, a plan to be submitted for approval by the relevant planning authority. The Requirement specifies what matters are to be included in this plan, which must be implemented on decommissioning. The Applicant has also considered DCOs for non electricity generating infrastructure which will conceivably be decommissioned, such as the National Grid (Richborough Connection Project) Order 2017, which also requires a plan for approval by the local planning authority upon the decision to decommission the infrastructure. Again, this requirement states that the approved plan must be implemented. Similar wording is also contained in the North Wales Wind Farms Connection Order 2016.
Q1.13.54	Applicant	A) Would it be appropriate, in the interests of mitigating impacts on benthic ecology, to include a requirement limiting the footprint of foundations and scour protection for each type of	A) The draft DCO (Version 1, as submitted for Deadline 1) currently provides in Requirement 2(5)(a) and (b), 3(11)(a) and (b) and (12) (a) and (b) for an overall restriction on footprints of both the offshore infrastructure (i.e. the turbines, accommodation platforms, and substation and booster stations) itself, and scour protection for those elements of the project. This approach means that the project has flexibility over the number of turbines and other infrastructure it builds within the envelope, but it is limited in the overall scale of that, as it must stay within the envelope of the assessment of benthic ecology undertaken and presented in Volume 2, Chapter 2, Benthic Ecology of the ES [APP-062] secured in the DCO and which presented no significant effects of this worst case.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		foundation contemplated in the application? B) If so, should there be different limits for the differing sizes of WTG which are proposed?	B) The Applicant is content with the current approach. Notwithstanding our comments above on A), the reason for capturing a maximum area for the foundations in a global figure was that it would permit, in a simple manner, the Applicant to be able to choose the turbine type at detailed design stage whilst also securing a parameter that could otherwise have environmental effects. In other words, the current approach allows the maximum number of smaller turbines, or the smallest number of larger turbines or something in between but also ensures that the seabed area is kept within the assessed maximum envelope.
Q1.13.55	Applicant	The design parameters for the offshore accommodation platforms and substations would be secured through Requirement 3 and conditions on the DMLs. However there are no equivalent provisions in relation to the onshore HVAC booster station and the HVAC/HVDC substation. Would it be appropriate to include a requirement to secure the design parameters for the onshore HVAC booster station and the HVAC/HVDC substation as assessed in the ES?	The Applicant would highlight that Requirement 7 provides a process for approval of the final design of the HVAC booster station, with these details to be provided to and approved by the relevant local planning authority. Such approval would have to remain within the assessed envelope of the various ES chapters which relate to this element of the project. This provides both flexibility to the undertaker in settling the design later in the build process, but also allows a dialogue with the relevant local authorities. The final design must also accord with the limits documented on the Onshore Limits of Deviation Plan [APP-026].
Q1.13.56	Applicant	The ES makes extensive references to the use of horizontal directional drilling (HDD) as a form of mitigation in relation to impacts on ecology, landscape, recreation and highways. An onshore crossing schedule	A) The onshore crossing schedule is indicative, but its intent is to establish how an obstacle is to be crossed and the design envelope against which the project has been assessed in the ES. For example, where the onshore export cable corridor crosses a river, the design is limited to a "HDD only".

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		has been provided [APP-089]. A) Is the onshore crossing schedule to be regarded as indicative or definitive? B) Would it be appropriate to include a requirement to secure the extent of HDD set out in the onshore crossing schedule?	B) Rather than placing reliance on a definitive list in a crossing schedule, but to provide certainty of where the project has committed to HDD, HDD with a haul road or HDD with ducting, the Applicant has included a "Onshore Export Cable Prescribed Crossing Method plan", attached to the Outline CoCP (Appendix E) which establishes the definitive list of where "HDD Only", "HDD with Haul Road Over" or "HDD and ducting laydown" are to be provided for in accordance with the onshore crossing schedule.
Q1.13.57	Applicant	Articles 33 and 34 would permit the removal or lopping of trees and hedgerows which may be of landscape and ecological significance. Would it be appropriate to include a requirement to the effect that any works permitted under this article should not take place until relevant ecological surveys have been carried out and that any such works should be carried out in accordance with BS3998 2010 and BS5837 2012?	Articles 33 and 34 provide the power to remove such trees and hedgerows during construction, maintenance or operation. The Applicant has amended Articles 33 and 34 of the draft DCO (Version 1, as submitted for Deadline 1) to clarify that onshore site preparation works are included in this power. In response to this question, the Applicant has amended Requirement 10 so that it is clear that a separate Ecological Management Plan is needed for onshore site preparation works, as well as prior to construction. This will ensure that these are carried out in line with appropriate ecological requirements. In addition, any removal of trees or hedgerows would be undertaken outside the bird breeding season (14 February to 31 August inclusive). Where this is not practicable, the trees or hedgerows would be surveyed by an ecologist prior to clearance. Any trees identified as having potential to support bat roots in Volume 6, Annex 3.8: Bat Surveys of the Environmental Statement [APP-136] would be surveyed prior to removal.
Q1.13.58	Applicant	NCC [RR-035] has suggested a requirement to secure the removal of temporary construction accesses and reinstatement of highway verges.	Please see the Applicant's response to RR-035, which has also been agreed with NCC through the SoCG.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		Please comment on this suggested requirement.	
Q1.13.59	Applicant	Schedule 7 would modify Compulsory Acquisition enactments. A) In paragraph 2(2)(a) should the phrase to be substituted be 'land is acquired or taken from'? B) In paragraph 3 should sub-paragraphs (a), (b) and (c) of section 5A be substituted to maintain consistency within the section? (This would be to avoid a residual inappropriate reference in the un-amended part of the section to 'additional land') C) In paragraph 5 should the eighth line read 'are so modified as to secure...'? In relation to the 1965 Act, would it be appropriate to include wording to the effect that: References in the 1965 Act to land are, in the appropriate contexts, to be read (according to the requirements of the particular context) as referring to, or as including references to— (a)the right acquired or to be acquired, or the restriction imposed or to be imposed; or (b)the land over which the right is or is to be	A) The Applicant has made this amendment to the draft DCO (Revision 1, submitted for Deadline 1). B) The Applicant has made this amendment to the draft DCO (Revision 1, submitted for Deadline 1). C) The Applicant has made this amendment to the draft DCO (Revision 1, submitted for Deadline 1).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		exercisable, or the restriction is or is to be enforceable.	
Q1.13.60	Applicant	The definition of 'commence' includes offshore site preparation. A previous question regarding the definition of 'commence' in Article 2 of the dDCO also applies to this definition. Are there additional comments in relation to the definition in the Deemed Marine Licence (DML)?	See comments made by the Applicant in response to Q1.13.4.
Q1.13.61	Applicant	Paragraph 11 would require any differences relating to the provisions of the DML to be referred to arbitration. The MMO [RR-085] has suggested that this proposal would shift the responsibility of decision making from the hands of the regulator to an independent arbitrator, contrary to the intent of Parliament as set out in the Marine and Coastal Access Act 2009. A) Please comment on the MMO's view	A), B) and C) The Applicant would point to its response to Q1.13.14 above, which equally applies to the MMO as it does the Secretary of State.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		that this provision would be contrary to the intent of Parliament. B) What is the evidential basis for the suggestion that arbitration is necessary in relation to approvals required under the terms of the DML? C) Please provide legal submissions on the lawfulness of imposing an arbitration procedure on the MMO. D) Why would the procedures that would otherwise apply to decisions taken by the MMO be insufficient?	D) Along with the points raised in Q1.13.14, specifically in relation to this sub question, the Applicant would draw attention to its response to the MMO's relevant representation to answer this question as follows: "*It is for the above reasons that the applicant believes that the expanded arbitration provisions in the draft DCO would provide greater certainty to all parties potentially involved in a dispute under the DCO. The applicant has clarified that those parties may include the SoS/MMO and clearly set out a process for the arbitration to follow. Objectively, this clarity must be an improvement over the arbitration provisions included in DCOs to date. The alternative "appeal" routes mentioned by the MMO, i.e. the MMO's complaints procedure, Ombusman procedure and judicial review, do not provide for an expeditious alternative mechanism for dispute resolution*.
Q1.13.62	Applicant	The drafting of Condition 1 assumes a scheme of either up to 160 WTG or precisely 300 WTG. Does this drafting cover the range of possible combinations of WTG numbers, types and layouts that is contemplated in the application?	See answer to Q1.13.38, as the proposed wording will also be incorporated into condition 1 of the DML. The final number of turbines would be limited by the maximum total rotor swept area as given by the maximum design scenario, driven by the 300 WTG case. The total rotor swept area in this case is 9.0 km^2, and the environmental impacts of this have been assessed in the ES as a maximum design scenario.
Q1.13.63	Applicant	The definition of maintenance works set out in Condition 4 includes 'major wind turbine component or offshore accommodation platform replacement'.	A) Such maintenance for wind turbine generators would include replacement of blades, blade bearings, gearboxes, gearbox main bearings, transformers, hub generators, yaw rings or nacelles. For substations, this would include works requiring replacement of major components of substations including (but not limited to) transformers, reactors, filters, switchgear.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		A) Please provide some illustrative examples of the types of works envisaged. B) What works might be included if 'repowering' became necessary? C)Is this definition consistent with the equivalent definition in Article 2 of the DCO?	B) As stated within the definition of "Maintain" in Article 1 of each of the DMLs and Article 2 of the DCO, what can be undertaken as maintenance is limited to activities "*to the extent assessed in the environmental statement*". Repowering, i.e. renewing the life of the wind farm, is not envisaged to be undertaken under the DCO applied for. The DCO and supporting documents provide only for construction, operation, maintenance and decommissioning of the proposed offshore wind farm for a period of up to 35 years, with any repowering to be undertaken under a separate consent. Therefore the definition of Maintain in the DCO and DMLs cannot permit repowering. C) This condition of the deemed marine licences provides further detail on the works that are envisaged to be considered maintenance. The definitions in both DMLs mirror the DCO definition word for word.
Q1.13.65	Applicant	A) Condition C11(1)(a)(iii) provides for the length and arrangement of cable to be approved. Is this intended to include depth of burial? B) How does the approval required under this condition relate to the cable specification and installation plan?	A) This detail would be included within the cable specification and installation plan, as required under condition 13(1)(h) (as numbered in Version 1, submitted for Deadline 1). B) The approval required under this condition relates to the length of the cable, within the wider design of the project. However, the cable specification and installation plan relates to the technical design of the cable itself and how it would be laid, rather than where it will be located.
Q1.13.66	Applicant	Condition 11(1)(a) states that the approval of the MMO shall not be required where the proposed design is in accordance with the design principles. The MMO [RR-085] objects to that approach. Please comment on the MMO's objection to this aspect of the condition.	The Applicant has amended condition 13(1)(a) in the draft DCO (as numbered in Version 1, submitted for Deadline 1) so that a design plan is required to be submitted for approval by the MMO.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.67	Applicant	Condition 11(1)(a)(v) provides for the indicative layout of the WTGs to be approved. A) Why would the layout only be indicative? B) At what stage (if any) would the MMO approve the actual layout?	A) The Applicant has amended the draft DCO DMLs (Version 1, as submitted for Deadline 1) to remove this sub-condition. Instead, condition 13(1)(a)(i) will be more specific, as set out below. B) Condition 13(1)(a)(i) of the generation assets DML (Schedules 11 of the draft DCO, Version 1 as submitted for Deadline 1) has been amended to clarify the final layout to be approved by the MMO to provide: "(i) the proposed location, including grid co–ordinates grid co-ordinates of the centre point of the proposed location for each wind turbine generator and offshore accommodation platform, subject to any micro-siting required due to anthropological constraints, environmental constraints or difficult ground conditions. and choice of foundation types for all wind turbine generators and offshore accommodation platforms" Condition 14(1)(a)(i) of the transmission assets DML has been amended accordingly (changes underlined): (i)the proposed location, including grid co–ordinates of the centre point of the proposed location for each offshore electrical installations, subject to any micro-siting required due to anthropological constraints, environmental constraints or difficult ground conditions and choice of foundation of all offshore electrical installations;"
Q1.13.68	Applicant	Condition 11(1)(h) (ii) provides for a cable specification and installation plan to be approved. A) Is it intended that the MMO would approve the depth of burial of any given section of cable? B) Without knowing the depths of burial that will be achieved what level of confidence is there in the volumes of excavated material assumed in the ES?	A) Cable burial depth is specified as a parameter of the cable specification and installation plan as per condition 11(1)(h)(i). B) A target burial depth of 1-2 m has been assessed in the Environmental Statement. The ES has applied a sufficient level of precaution to adequately estimate the volumes of excavated materials assumed in the ES. It is unlikely cables will be buried deeper than the 2 meter target depth and as such excavated volumes are not expected to exceed those volumes provided for in the ES.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.69	Applicant	Condition 11(2) provides for a written scheme of archaeological investigation to be submitted. A) Does the drafting make clear that this scheme would be subject to the approval of the MMO? B) At what point would the decision be made to micro-site around a wreck? C) Is it intended that the actual siting would be subject to MMO approval?	A) The requirement for approval by the MMO has been added to this condition of both DMLs in the draft DCO (Version 1, submitted for Deadline 1). B) The Applicant will define the final Route Position List (RPL) within the DCO order limits during the detailed design phase, after consent has been granted. The final micro-sited RPL will be informed by detailed geophysical and geotechnical survey data, considering obstructions (such as wrecks), seabed features (such as sandwaves and boulders) and third-party infrastructure. C) With specific regard to marine archaeology outlined in 13(2)(d), Condition 12(1)(a)(v) requires the Applicant to provide evidence and receive approval from the MMO for micrositing requirements prior to the commencement of construction activities.
Q1.13.70	Applicant	Condition 12 sets a timetable of 8 weeks for the MMO to approve applications for consent under the DML. Is this a reasonable timetable having regard to the scale and complexity of the project?	The Applicant has considered the concerns of the MMO on this point, and this condition in both DMLs in the DCO (Version 1, submitted for Deadline 1) have been amended to make this period 4 months.
Q1.13.71	Applicant, MMO	A) Would it be appropriate, in the interests of mitigating impacts on benthic ecology, to include a condition limiting the footprint of foundations and scour protection for each type of foundation contemplated in the application?	A and B) Please see the applicant's response to Q1.13.54.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		B) If so, should there be different limits for the differing sizes of WTG which are proposed?	
Q1.13.72	Applicant, MMO	The MMO [RR-085] has suggested that the volume and footprint of sandwave clearance and the amount of boulder clearance should be limited by a condition. A) Please can the Applicant comment on this suggestion. B)Please can the MMO comment on what measure(s) should be used in relation to the amount of boulder clearance.	A) and B) The Applicant's position is set out in its response to the MMO's relevant representation: "The volume of sandwave and boulder clearance are included in the Draft DCO (Document 3.1) as follows: • Schedule 1, Part 1, Requirement 1(c) includes for the removal of material from the seabed for the construction of Work Nos 1 to 5 and the disposal of up to 3,563,133 cubic meters of inert material of natural origin within the Order limits produced during [...] cable installation preparation such as sandwave clearance, boulder clearance [...]. • Schedule 11, Part 1, Condition 2(f) includes for the disposal [...] of up to 1,344,318 cubic metres of inert material of natural origin produced within Work No. 1. • Schedule 12, Part 1, Condition 2(f) and (g) includes for the disposal [...] of up to 2,218,816 cubic metres of inert material of natural origin produced [...] within Work Nos. 2, 3, 4 and 5. The sandwave and boulder clearance material will be disposed of within the disposal site (specifically Works Nos. 1, 2, 3, 4 and 5) as outlined within the Draft DCO. The Applicant's response to the Planning Inspectorate on the 25 July 2018 provides further information on the relationship between the disposal volumes quoted in the Draft DCO and Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.73	Applicant, MMO	Paragraph 4.11.1.33 of the ES [APP-064] considers maximum hammer energy for piling operations. The MMO [RR-085] recommends that a condition is included to restrict the maximum hammer energy to the worst case scenario (5,000kJ), as assessed in the ES. However, that maximum relates to a WTG type which may not be used. There is an example (Dogger Bank Teesside A and B) of imposing limits relevant to the various foundation types under consideration. A) Would it be appropriate to include a condition restricting maximum hammer energy? B) If so, should any such restriction vary according to the foundation type being used?	A) The Applicant accepts this point and has added a new condition as requested by the MMO in both DMLs in the DCO (Version 1, submitted for Deadline 1). The Applicant does not consider this should become industry standard practice. B) The Applicant has included an appropriate condition as set out above. The Applicant considers this to be sufficient. If any alternative foundation type is deployed (to monopile) then the afore mentioned documents (MMMP and CMS) will provide adequate control for ensuring that hammer energies do not exceed that assessed within the ES. The Applicant considers that it is in agreement with the MMO on this matter.
Q1.13.74	Applicant, MMO	The MMO suggests that pre and post-construction surveys and monitoring should extend to benthic communities [RR-085]. Paragraph 2.11.1.14 of the ES [APP-062] addresses sandwave recovery but not the recoverability of benthic communities in any significant detail. Would it be appropriate to include a condition requiring the 'in-principle	The Applicant has updated the monitoring commitments for both benthic ecology and marine processes as detailed within the updated IPMP (Version 2.0) as submitted at Appendix 2 to the Applicants response to Deadline I, and also within the updated draft DCO (see Schedule 11, Part 2, Conditions 17 – 19 (generation assets) and Schedule 12, Part 2, conditions 18 – 20 (transmission assets) of the draft DCO (Version 1, as submitted for Deadline 1) as submitted at Appendix [APP-027] to the Applicants response to Deadline I. The Applicant considers that these updates should address the MMO's concerns on this matter.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		monitoring plan' to include pre and post-construction surveys and monitoring for benthic communities and geophysical features?	
Q1.13.75	Applicant	There are numerous provisions in transmission assets DML that mirror equivalent provisions in the DML for generation assets. Where questions have been asked above they are not repeated here. However, the applicant is invited to provide any additional comments in response to the above questions which are specific to this DML.	The Applicant notes this comment. The responses of the Applicant above equally reflect on both DMLs.
Q1.13.76	Applicant	Condition 5(2) limits maintenance works to those assessed in the ES. However, this is subject to a tailpiece 'unless otherwise approved by the MMO'. Is it appropriate to include a tailpiece which could enable works not assessed in the ES to be carried out?	Please note conditions 9 & 10 of both DMLs which state: *9. With respect to any condition which requires the licensed activities be carried out in accordance with the plans, protocols or statements approved under this Schedule, the approved details, plan or scheme are taken to include any amendments that may subsequently be approved in writing by the MMO.* *10. Any amendments to or variations from the approved details must be in accordance with the principles and assessments set out in the environmental statement. Such agreement may only be given in relation to immaterial changes where it has been demonstrated to the satisfaction of the MMO that the subject matter of the agreement*

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the environmental statement. This drafting was first adopted by the SoS in the Hinkley Point C (Nuclear Generating Station) Order 2013 and in offshore wind DCOs granted since then including the Walney Extension Offshore Wind Farm Order 2014, the Ramion Offshroe Wind Farm Order 2014, the Hornsea Two Offshore Wind Farm Order 2016, and the East Anglia THREE Offshore Wind Farm Order 2017. The ExA will note that the effect of this drafting is to limit the extent to which subsequent approvals by the MMO may vary from details in the ES. Subject to the inclusion of the above conditions, the tailpiece wording in condition 5(2) and eslewhere in the DCO and DMLs is appropriate as upheld by the SoS in respect of other DCOs.
Q1.13.77	Applicant	Condition 16 requires a pre-construction survey to identify Annex I reefs. A) How would the results of such surveys inform the micro-siting of the cables? B) Would detailed siting around Annex I reefs be subject to the approval of the MMO?	A) The Applicant notes that the Conditions relating to monitoring have been updated (as reflected in the Applicants response to Q1.13.74). The commitment to undertake pre-construction surveys to inform micrositing remains in place (see Schedule 11, Part 2, condition 13(2)(a)(v) (generation assets) and Schedule 12, Part 2, condition 14(1)(a)(v) of the draft DCO (Version 1, as submitted for Deadline 1)). Geophysical surveys (with ground-truthing where appropriate) will identify any Annex I features (amongst other constraints, such as archaeological features and or magnetic contacts) within the proposed cable corridor. These surveys will ensure that any areas where constraints to installation are identified that a buffer around these (within the Order Limits) will be surveyed (where appropriate) to ensure that the undertaker can identify appropriate "unconstrained" seabed. The outputs of these surveys will then be reviewed by the design team to re-route around any constraints as appropriate. With specific regard to Annex I reef features this process would be undertaken in consultation with the relevant SNCB.
			B) Yes. As would be required by Condition 13 (1) (a) (v) of the generation assets DML and Condition 14(1)(a)(vi) of the transmission assets DML (Schedules 11 and 12 respectively of the draft DCO (Version , as submitted for Deadline 1)) the Applicant is required to evidence and secure approval for any micrositing.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.78	Applicant	Paragraph 5.62 of the Explanatory Memorandum [APP-028] states that the suggested approach will provide greater certainty to all parties involved in the process. A)Who are those other parties likely to be? B)Has the applicant sought the views of those other parties on the suggested approach? C) Please provide further justification for the bespoke procedure set out in Schedule 13. D) Why do you consider that it is preferable to the arbitration procedure that would otherwise apply?	A) The main parties will be parties that are involved in the approval of applications to discharge requirements in the DCO, and conditions in the DML. This would therefore include the MMO, Natural England, Environment Agency and local authorities. B) Other parties have provided feedback through their relevant representations, which the Applicant has considered and responded to accordingly. C) The Applicant sets out the main points in relation to Arbitration at Q1.13.61 above. In summary, as set out in the Explanatory Memorandum [APP-028], this schedule is aimed to provide certainty to the parties involved in the process. The Applicant would highlight that the use of arbitration itself is not a new concept in DCOs, and in fact is in the model provisions. The difference is that there was no procedure laid out for how this arbitration would be undertaken, which is the uncertainty the Applicant is seeking to address and remove. D) Please see the Applicant's responses to arbitration related questions above. In addition, the drafting of previous DCOs were to be adopted, there would be no equivalent of this procedure. Hence, there would be no clarity for any party as to the process and timescales should any differences arise under the DCO.
Q1.13.79	Applicant	Paragraph 6(4) of schedule 13 provides for costs to follow the event. What is the justification for imposing costs on regulatory bodies who may be acting reasonably in relation to their statutory functions?	The Applicant has amended Paragraph 6(4) of Schedule 13 so that each party pays its own costs unless it is unreasonable to do so.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.13.80	Applicant	Paragraph 7 of Schedule 13 provides for confidentiality. What is the justification for seeking confidentiality where matters of public interest and environmental protection are involved?	The Applicant included this provision as it is standard in arbitration for the parties to be able to conduct matters without concern for outside parties becoming aware of sensitive commercial information. The Applicant acknowledges that should the counterparty to an arbitration dispute be a public body that has duties under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, that this should not apply, and as such the Application has made an appropriate change to Rule 7 of Schedule 13 in the DCO (Version 1, submitted for Deadline 1).

1.18 Written Question 1.14 Compulsory Acquisition

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.1	Applicant	Please provide updated information in relation to all outstanding objections to Compulsory Acquisition or temporary use of land in the form attached at Annex A to this document. Please ensure that this document is kept up to date as the Examination progresses.	Please see Annex A to the Applicant's Compulsory Acquisition (CA) Schedule. The Applicant will keep this document up to date as requested.
Q1.14.2	Applicant	Paragraph 1.1.3.1 of the Statement of Reasons [APP-032] states that it has not yet been possible to acquire all of the land, the temporary use of land and the rights required by agreement. Negotiations are said to be ongoing. Paragraph 7.4.1.7 and Appendices A to D of the Statement of Reasons give further baseline information at the time that the application was submitted. Please give an update on the current position in respect of: •access to land; •the status of negotiations with landowners and others affected by the project; and •the current position in respect of the acquisition of the necessary land, rights over land and temporary use of land, either by agreement or otherwise.	Please see Applicant's Compulsory Acquisition (CA) Schedule which includes an updated version of Appendices B, C and D to the Statement of Reasons [APP-032].

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.3	Applicant	Section 135 of PA2008 only permits the compulsory acquisition of interests held otherwise than by or on behalf of the Crown. It does not permit the compulsory acquisition of any interests owned by or on behalf of the Crown. However, paragraph 9.2.1.2 of the Statement of Reasons [APP-032] states that 'Section 135 of the PA 2008 provides that a DCO may include provisions authorising the compulsory acquisition of an interest in Crown Land or any other provisions relating to the Crown Land only if the Crown consents to the inclusion of the provisions.' A)Please review the wording of paragraph 9.2.1.2 of the Statement of Reasons. B) Please confirm that you have excluded all interests owned by the Crown from the scope of Compulsory Acquisition by excluding them from the description of land in the Book of Reference.	A) The Applicant clarifies that paragraph 9.2.1.2 of the Statement of Reasons [APP-032] was intended to refer to the compulsory acquisition of an interest in Crown Land which is for the time being held otherwise than by or on behalf of the Crown in accordance with s135(1) of the PA 2008. This is reflected in the wording of Article 40(1)(b) of the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1). B) The Applicant confirms that all of the Crown interests within the Order land (identified in Part 4 of the Book of Reference [APP-033]) have been excluded from the description of land in the Book of Reference.
Q1.14.4	Applicant	Paragraph 9.2.1.3 of the Statement of Reasons [APP-032] refers to Crown land discussions. Please give an update on the current position.	Discussions with The Crown Estate Commissioners are ongoing regarding consent pursuant to s135 of the PA 2008 and the wording of Article 40 of the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.5	Applicant	Paragraphs 5.3.1.4 and 6.2.1.3 of the Statement of Reasons [APP-032] refer to the need (or otherwise) for an onshore booster station at Little Barningham (sheet 9 of the onshore land plans [APP-011]) and paragraph 6.2.1.5 of the Statement of Reasons refers to the maximum permanent land take. A)If the onshore booster station is not required, what would the extent of compulsory acquisition be? B) Depending on whether or not the onshore booster station is required, how and when would landowners know the extent of compulsory acquisition of their land and/or interests? C) Would the uncertainty imposed upon the landowners in question be justified and proportionate?	A) If the onshore booster station is not required then New Connection Works Rights (as defined in the Book of Reference [APP-033]) would be required over plot 9-012 (as shown on the Land Plan – Onshore [APP-011]) for the onshore cables. The New Landscaping Rights over plots 9-002, 9-004, 9-011, 9-020, 9-023 would not be required. The New Access Rights over plots 9-017, 9-024, 9-025 would not be required. Article 19(1) of the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1) enables the acquisition of new rights and the imposition of restrictions over any of the land shown coloured pink on the onshore land plan, including plot 9-012.
			B) The Applicant refers to Appendix 22 Transmission System (HVAC/HVDC) Briefing Note in the Applicant's response to Deadline 1, which sets out when the Applicant anticipates making a decision on whether to use a HVAC or HVDC transmission system. Requirement 6 of the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1) requires a phasing scheme in relating to connection works to be submitted to the relevant planning authority prior to the commencement of the authorised development. This phasing scheme would set out whether a HVAC or HVDC transmission system would be used for each phase (if applicable).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		D) To the extent that there is land that would not be required if there were no onshore booster station, how can the compulsory acquisition of such land be justified given the availability of alternative transmission technology?	C) The Applicant considers that no greater uncertainty is imposed on the relevant landowners than on all landowners affected by compulsory acquisition powers. The Applicant must exercise the compulsory acquisition powers within the timeframe specified in Article 18 of the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1). However, there is no obligation on the Applicant to proceed with the authorised development and/or use its compulsory acquisition powers. The Applicant continues to discuss the terms of a voluntary agreement with the landowner for the acquisition of the land required for the onshore booster station and notes that the landowner has not submitted a relevant representation that specifically objects to the extent of the land.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			D) The Applicant refers to Appendix 22 Transmission System (HVAC/HVDC) Briefing Note in the Applicant's response to Deadline 1, which sets out the reasons why the Applicant is seeking consent for both HVAC and HVDC transmission systems. The Applicant also refers to paragraph 8 of the Communities and Local Government Guidance 'Planning Act 2008: Guidance related to procedures for compulsory acquisition' which states that the Applicant must demonstrate that all reasonable alternatives to compulsory acquisition (including modifications to the scheme) have been explored. The Applicant has considered carefully the need for the onshore booster station and concluded that circumstances exist where an onshore booster station will be necessary to deliver Hornsea Three in the event that the HVAC transmission system is selected. As set out in section 7.2 of the Statement of Reasons [APP-032], the Applicant's justification for seeking compulsory acquisition powers is to enable the Applicant to construct, operate and maintain Hornsea Three within a reasonable commercial timeframe. As Hornsea Three is a NSIP, the Applicant considers that there is a compelling case in the public interest for the power to compulsorily acquire land and rights over land (together with the imposition of restrictions) required for the onshore booster station to be included in the Order. The extent of the Order Land is no more than is reasonably necessary for the construction and operation of Hornsea Three should a HVAC transmission system with an onshore booster station be selected and is therefore proportionate and necessary. Compensation is payable to all affected landowners and occupiers.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.6	Applicant	Paragraph 5.3.1.5 of the Statement of Reasons [APP-032] refers to the outstanding choice between a HVDC converter station and a HVAC substation close to the existing Norwich Main substation at Mangreen. Paragraph 6.2.2.5 of the Statement of Reasons implies that the area required for the HVDC converter station is less than that required for the HVAC substation. A)If the HVDC option is selected, what would the extent of compulsory acquisition be? B) Depending on whether or not the HVDC is selected, how and when would landowners know the extent of compulsory acquisition of their land and/or interests? C) Would the uncertainty imposed upon the landowners in question be justified and proportionate?	A) Paragraph 6.2.2.5 states that onshore HVDC converter/HVAC substation will require a "*maximum permanent land take of 149,302 m2 in area and a maximum temporary land take of 91,000 m2 in area. The main building will be up to 25 m high (excluding lightning protection). If the substation uses HVAC technology there will be up to three main buildings. If the substation uses HVDC technology there will be up to two main buildings*." Table 3.63 of Chapter 3 of the ES: Project Description [APP-058] sets out the maximum design parameters for the HVDC converter/HVAC substation. The maximum permanent land take is approximately the same for the HVAC and HVDC options. Although the HVAC scenario may have more buildings, each building will be smaller than the two buildings required for the HVDC scenario. The Applicant therefore anticipates requiring the whole of plot 33-014 (as shown on the Land Plan - Onshore [APP-011]) regardless of whether the HVAC or HVDC option is selected.
			B) As mentioned above, the Applicant anticipates requiring the whole of plot 33-014 (as shown on the Land Plan - Onshore [APP-011]) regardless of whether the HVAC or HVDC option is selected. As stated in Appendix B of the Statement of Reasons [APP-032], the Applicant entered into an Option Agreement to acquire plot 33-014 in April 2018.
			C) The Applicant does not consider that there is any uncertainty as the Applicant anticipates requiring the whole of plot 33-014 (as shown on the Land Plan - Onshore [APP-011]) regardless of whether the HVAC or HVDC option is selected

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		D) To the extent that there is land that would not be required if the HVDC option is selected, how can the compulsory acquisition of such land be justified given the availability of alternative transmission technology?	D) As mentioned above, the Applicant anticipates requiring the whole of plot 33-014 (as shown on the Land Plan - Onshore [APP-011]) regardless of whether the HVAC or HVDC option is selected
Q1.14.7	Applicant	Paragraph 1.2.1.1 of the Funding Statement [APP-029] mentions 'a number of 100% owned subsidiary companies' and these are shown in Figure 1.1. An overall company overview is given in section 8.5 of Annex 2 to the Funding Statement [APP-031]. A) Explain the need for such a long chain of companies. B) What other companies are also owned in whole or in part by the various companies in the chain? C) What impact does this arrangement have on the likely funding for this project?	A) Ørsted operates in a number of different countries and chooses to set up special purpose vehicles (SPVs) to develop, construct and operate its projects. The country specific SPVs are then owned by the Danish companies. This list of companies therefore reflects the corporate reality of a multinational company and the way in which Ørsted has chosen to do business.
			B) Ørsted is comprised of a number of companies that are linked to each other all of the way to the parent company, Ørsted A/S. The Applicant is willing to provide a full overview of its overall legal structure on request.
			C) Given that the corporate structure is organised to deliver the most effective operating model from a financial/risk perspective, this arrangement has no negative impact on the likely funding of the project. The same corporate structure has had no material impact on the funding or divestment of past projects such as Walney Extension and Race Bank and the Applicant does not believe there will be any impact on the successful funding and construction of Hornsea Three.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.8	Applicant	Paragraph 1.3.1.4 of the Funding Statement [APP-029] states that the total contingent liability associated with the acquisition of land or interests in land is £28 million. A financial assessment is given in paragraphs 7 and 8 on page 2 of Annex 1 to the Funding Statement [APP-030]. Please give an update on this assessment, bearing in mind •the choice of transmission technology for the project; •the need (or otherwise) for an onshore booster station at Little Barningham (sheet 9 of the onshore land plans [APP-011]); and •the outstanding choice of alignment at Moor Farm (sheet 16 of the Onshore Land Plan [APP-011).	The assessment for the total contingent liability associated with the land acquisition or land interest has been revised and is now £43,621,027. The upward revision is due to the receipt of new information in respect of potential commercial and residential development land and mines and mineral developments and has been amended to reflect the anticipated maximum-case scenario for compensation relating to that land. The Revised Funding Statement (Revision A) is submitted at Appendix 51 to the Applicant's response to Deadline 1. Both the previous and the updated version cover the maximum parameters for the options currently being considered for development, including; HVAC & HVDC transmission, the requirement for an onshore HVAC Booster station and either route option at Moor Farm.
Q1.14.9	Applicant	Paragraph 1.3.1.4 of the Funding Statement [APP-029] states that the total contingent liability associated with the acquisition of land or interests in land is £28 million, with a financial assessment provided in Annex 1 to the Funding Statement [APP-030]. On what basis is the figure of 10% used as a contingency?	It is standard practice for linear project of this scale to forecast land compensation budgets and apply a contingency element that makes an allowance for costs which may be incurred as a result of unknown interests and other factors that may arise throughout the course of the project, that cannot reasonably be foreseen at such an early stage. 10% is a figure that has been utilised based on experience of other large scale linear underground cable projects, the contingency allowance is also for 10% of the deemed worst-case scenario in terms of land compensation costs to be incurred.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.10	Applicant	Paragraph 1.3.1.4 of the Funding Statement [APP-029] states that it is not expected that there will be any claims for blight. Please explain the basis for this statement.	The risk of receiving a valid blight notice has been assessed by the Applicant as being relatively low as the qualifying criteria are unlikely to be met. The reasons for this assessment are set out in Annex 1 to the Funding Statement [APP-030]. To date, no blight notices have been served in respect of Hornsea Three. Should any claims for blight arise as a consequence of the threat of compulsory acquisition of land or rights over land related to Hornsea Three, the costs of meeting any valid blight notice claim will be met by the Applicant.
Q1.14.11	Applicant	Paragraphs 8.3.2.5, 8.3.2.9 and 8.3.2.11 of the Statement of Reasons [APP-032] and paragraph 1.4.1.1 of the Funding Statement [APP-029] refer to the prospects for achieving a Contract for Difference and proceeding to a Final Investment Decision. A) When do you expect to conclude a Contract for Difference? B) Do you expect further reductions in the strike price? C) What (if any) impediments are there to the Final Investment Decision being taken?	A) The Applicant cannot commit to a fixed date for conclusion of a Contract for Difference (CfD) due to uncertainties surrounding the timing of future auctions. The UK Government has committed to an auction before May 2019, with a further auction in 2021. It has indicated that it would then hold further CfD allocation rounds every two years. The Applicant intends to bid in at least one of these auctions prior to the expiry of any DCO granted. This timing of CfD auctions is not anticipated to prevent successful funding of the project. B) The Applicant cannot confirm strike price levels for future auctions although there was a 50% drop in strike price levels from CfD Allocation Round 1 to Allocation Round 2. A key driver of this is a significant reduction in the Levelised Cost of Electricity. Over the past five years, the cost of offshore wind has been reduced by up to 60% in Northwestern Europe and there is still potential for further cost reductions. It is not anticipated that further reductions in strike price will affect the ability of the Applicant to fund Hornsea 3. C) One of the key impediments for Hornsea Three taking a Final Investment Decision would be receipt of a valid DCO, without which the project would be unable to move forward with any construction plans or bid in any future CfD auctions (or alternative financial mechanism).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.12	Applicant	In section 7.1 (page 131) of Annex 2 to the Funding Statement [APP-031], you state that your most significant market risks relate to: •energy prices; •foreign exchange rates; •inflation rates; and •interest rates. A) How do you see these factors manifesting themselves in the future? B) What effect are they likely to have on your ability to finance the project over its lifetime?	A) Ørsted's risk outlook diminished in 2017 after the divestment of its upstream oil and gas business, as the industry is generally characterised by a high level of inherent risk. Following this divestment, Ørsted's exposure to oil and gas prices therefore reduced. In contrast, its exposure to exchange rate fluctuations, primarily GBP, has increased, due to its large investments in offshore wind farms in the UK. This risk is mitigated through the implementation of currency hedging. There is also ongoing inflation risk related to fixed nominal earnings from offshore windfarms in Denmark, Germany and the Netherlands. This is mitigated through the issuance of debt with fixed nominal cashflows to match the original inflation risk. Energy price risk is also an ongoing future risk although Ørsted minimises this risk through obtaining fixed price offtake agreements (such as CfDs or alternative financial mechanism such as a fixed price Power Purchase Agreements) to reduce the impact of wholesale power price volatility. Ørsted also places hedges against energy price risk. Because of its risk management process and the implementation of mitigations, the Applicant does not anticipate these market risks to have any material impact on its ability to fund the project.
			B) Ørsted regards risks as a natural and integral part of its business activities. Through risk management, risks are reduced to an acceptable level. Managing risks is an important focus area for Ørsted, and the purpose of risk management is to identify the various risks to which it is exposed, and then decide how to manage them. Ørsted assesses the extent to which individual risks are acceptable, as well as the extent to which these risks can be reduced to ensure an optimum balance between risk and return. As has been indicated in the Applicant's response to Q1.14.12 part (A), risks are mitigated through hedging and strategic decision making which have led to a considerable reduction in Ørsted's overall exposure to key risks associated with currency and energy price fluctuations. As such, the Applicant does not think that these market risks pose any material threat to the successful funding of the project nor to the integrity of Ørsted as a company.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.13	Applicant	Article 42 of the dDCO refers to either a guarantee under 42(1)(a) or an alternative form of security under 42(1)(b). A) Please give examples of the alternative form(s) of security contemplated. B) What factors would lead the undertaker to choose either a guarantee or the alternative security?	A) A typical alternative form of security would be a bond or a letter of credit from a bank or other financial institution. The amount of the security and the bank or financial institution would be approved by the Secretary of State. Another option would be to set up an escrow account. An escrow account is an independently held account into which the Applicant would pay a sum of money approved by the Secretary of State to meet the anticipated compensation requirements. The Applicant would then draw on the account to finance any compensation claims. B) The Applicant anticipates providing a guarantee in the same form as was used to satisfy Article 4 of The Hornsea Two Offshore Wind Farm Order 2016 (which has been approved by the Secretary of State). However, in certain circumstances it may be more cost effective for the Applicant to put in place an alternative form of security instead of a guarantee.
Q1.14.14	Applicant	Article 42(3) states that 'a guarantee or alternative form of security ... is to be treated as enforceable against the guarantor or person providing the alternative form of security by any person to whom such compensation is payable and must be in such a form as to be capable of enforcement by such a person'. Paragraph 1.4.1.6 of the Funding Statement [APP-029] states that the 'guaranteed funding (for compulsory acquisition) will be held by a means that is directly accessible to persons entitled to compensation'. Please explain how such funding would be directly accessible to persons entitled to compensation.	The ability for funding to be directly accessible to persons entitled to compensation would be included as a term of the guarantee or alternative form of security. The Applicant will ensure that a copy of the approved guarantee (or alternative form of security) is made available to persons entitled to compensation by placing it on deposit with the documents certified in accordance with Article 35 of the draft DCO. The Applicant has amended the Explanatory Note accordingly in the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.16	Applicant	Paragraph 5.2.1.2 of the Statement of Reasons [APP-032] refers to the cable corridor width being 'typically 80m'. Paragraph 6.3.2.5 of the Statement of Reasons refers to a width of 80m. Paragraph 3 on page 2 of Annex 1 to the Funding Statement [APP-030] states that the onshore cable corridor will have a standard working width of 80m, wider at complex crossings, obstructions or storage areas and with a total area required for construction of 488 hectares including an allowance for severed areas. A) Does the 80m standard working width apply irrespective of which transmission technology is chosen? B) What level of confidence is there that all locations where extra width will be required have been identified? C) Is the extra width needed at complex crossings the same irrespective of which transmission technology is chosen?	A) Parameters for the onshore cable corridor under the HVDC scenario are provided within the Appendix 22 Transmission System (HVAC/HVDC) Briefing Note in the Applicant's response to Deadline 1. The 80m standard width is associated with the HVAC scenario and is primarily determined by the number of expected cable circuits. As the HVDC scenario would be expected to have a lesser number of circuits, the standard working width associated with the HVDC would be expected to be less.
			B) A high level of confidence as the route has been extensively planned and the Applicant has experience of constructing onshore cable routes across the UK.
			C) Extra width would be expected to be required regardless of the technology chosen, the extra width required for each would be commensurate with the number of circuits required for the chosen technology.
			D) Where extra width is required at horizontal bends it is identified on the Onshore Land Plans [APP-011]. There are only two locations where such extra width is anticipated; plot 16-002A where it is due to a sharp bend occurring immediately before a directional drill, entailing a requirement for additional land to straighten the cables before undertaking the drill; and at plot 26-010 where the cables emerge from a directional drill and then require extra horizontal extra width to allow the turn back to the 80m alignment.
			E) The extra width is identified in the two locations detailed above. This extra width is associated with the HVAC scenario and is primarily determined by the number of expected cable circuits. As the HVDC scenario would be expected to have a lesser number of circuits, the extra working width associated with the HVDC would be expected to be less.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		D) Is extra width also needed at horizontal bends in the alignment? E) If so, how much is required and is this extra width dependent on which transition technology is chosen? F) How have severed areas been assessed in order to arrive at the overall figure of 488 hectares?	F) Severed areas are expected to be minimal because crossing points can be provided in those areas where fields are severed by the works. Compensation will be payable for any losses arising for severance period.
Q1.14.17	Applicant	Paragraph 1.1.2.2 of the Statement of Reasons [APP-032] states that 'Hornsea Three may use HVAC or HVDC transmission, or could use a combination of both technologies in separate electrical systems'.	A) Parameters for the onshore cable corridor under the HVDC scenario are provided within Appendix 22 Transmission System (HVAC/HVDC) Briefing Note in the Applicant's response to Deadline 1.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		A) Please explain how the choice of HVAC, HVDC, or a combination of both technologies in separate electrical systems, would affect how much land would actually be required for the project. B) What would happen to any Order land found not to be required once the choice of transmission technologies had been made? C) How would the interests of those whose land may or may not be required, as a consequence of the choice of transmission technologies, be protected?	B) The Applicant will only exercise its compulsory acquisition powers over those parts of the Order land where new rights and restrictions are required to deliver Hornsea Three. In the event that the choice of transmission technology for each phase (if there are two phases) results in permanent rights and restrictions not being required over parts of the Order land then the Applicant will not exercise its compulsory acquisition powers over such parts of the Order land. If it is established that parts of the Order land are not required after new rights have been compulsorily acquired and restrictions imposed over the whole of the Order land then the Applicant will have paid compensation to the landowner for such rights and restrictions even if the rights are not then utilised. The Applicant may enter into an agreement with the landowner to surrender/release the rights and restrictions over such parts of the Order land. However, the Applicant cannot compel the landowner to enter into such an agreement. For onshore underground cables and pipes it is common for there to be areas of the Order land that are identified as not being required once further ground investigations have been undertaken and the detailed design has been fixed. It is for this reason that temporary use powers are often used to commence construction works so that permanent rights and restrictions are sought over the minimum amount of land required.
			C) Persons with an interest in land are entitled to compensation in the event that the compulsory acquisition powers are exercised within the time period referred to in Article 18 of the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1). If the compulsory acquisition powers are not exercised in respect of all or part of the Order land within the time period referred to in Article 18 then the compulsory acquisition powers fall away. This is no different to any landowner whose land is subject to compulsory acquisition powers and who must wait for the promoter to decide whether or not to proceed with the authorised development with the time period specified in the DCO.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.21	Applicant	Paragraph 1.1.3.7 of the Statement of Reasons [APP-032] makes reference to Articles 25 and 26 in respect of temporary use of Order land. Article 25(4) refers to: •serving notice of entry under the 1965 Act; •making a declaration under section 4 of the 1981 Act; and •otherwise acquiring the land or rights over land. Please explain the circumstances in which each of these would be used on the project.	The Applicant may utilise the temporary use powers under Article 25 to undertake enabling works for the onshore cable corridor prior to exercising its compulsory acquisition powers to acquire permanent rights to construct, use and maintain the cables. The Applicant will make a decision as to whether to use the Notice to Treat/Notice of Entry procedure pursuant to the 1965 Act or make a declaration under the 1981 Act at the time. There are advantages and disadvantages to each process. Article 25(4) also provides that the Applicant is not required to remove any temporary works in the event that the Applicant has entered into a voluntary agreement with the landowner.
Q1.14.22	Applicant	Paragraph 1.1.3.7 of the Statement of Reasons [APP-032] makes reference to Articles 25 and 26 in respect of temporary use of Order land. Article 26(1)(b) authorises the construction of temporary works and buildings. A) Bearing in mind the length of time during which such temporary works and buildings may be in place, do you envisage mitigation works being required in respect of temporary use of land for maintenance? B) If so, how would this be secured?	A) Article 26(4) states that the Applicant may only remain in possession for as long as may be reasonably necessary to carry out the maintenance of the part of the authorised project for which possession of the land was taken. The Applicant does not envisage any mitigation works being specifically required in respect of the temporary use of land for maintenance. B) Please see the Applicant's response to Q1.14.22(A).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.23	Applicant	Paragraph 1.1.3.9 of the Statement of Reasons [APP-032)] states that you have explored reasonable alternatives to compulsory acquisition and made reasonable attempts to acquire the land and rights over land by agreement. Please explain what reasonable alternatives to compulsory acquisition have been explored. What attempts have there been to secure the necessary land and rights by agreement?	The Applicant refers to paragraphs 6.3.2.8 to 6.3.2.10 of the Statement of Reasons [APP-032] which sets out the alternatives considered in more detail. The attempts made by the Applicant to secure the necessary land and rights by agreement prior to submission of the Application are set out in Appendices A and B to the Statement of Reasons (APP-032). Further attempts made since submission of the Application are set out in the Applicant's Compulsory Acquisition (CA) Schedule which provides an updated to Appendix B of the Statement of Reasons (submitted for Deadline 1). Discussions with landowners are ongoing.
Q1.14.24	Applicant	Paragraphs 5.2.2.1 to 5.2.2.5 of the Statement of Reasons [APP-032] refer to the outstanding choice of cable alignment at Moor Farm. Both alignments currently under consideration are shown on sheet 16 of the Onshore Land Plan [APP-011]. A) Should there be an open bracket before the word "plots" in paragraph 5.2.2.2? B) Please give an update on progress with negotiations on the alternative cable alignments and whether or not there is agreement with the land owner on a preferred alignment.	A) Yes. This typo will be corrected in the event that a revised version of the Statement of Reasons is submitted during the Examination. B) Negotiations with the landowner at this location are ongoing and a preferred alignment is likely to be confirmed ahead of Deadline 3.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.25	Applicant	Paragraphs 5.2.3.1 to 5.2.3.4 of the Statement of Reasons [APP-032] refer to the outstanding choice of cable corridor access routes north of Norwich Road. Both access routes currently under consideration are shown on sheet 30 of the Onshore Land Plan [APP-011]. Please give an update on progress with access for surveys and negotiations on the alternative cable corridor access routes and whether or not there is agreement with the landowner on which is preferred.	The landowner at this location is currently refusing to engage with the Applicant and the Applicant is therefore unable to reach an agreement at this stage. Efforts to engage with the landowner are ongoing.
Q1.14.26	Applicant	Paragraph 1.1.5.1 of the Statement of Reasons [APP-032] specifies those parts of the Order land which are public open space: •parts of the foreshore and beach north of Weybourne military camp; •part of a woodland known as Bodham Wood; and •parts of a heritage trail known as Marriott's Way. Paragraph 1.1.5.2 of the Statement of Reasons states that there will be temporary interference with the use of the open space	**Parts of the foreshore and beach north of Weybourne military camp:** The Applicant would refer to Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement [APP-078] where the impacts of an open cut technique at landfall, which represents the maximum design scenario, on the beach and Norfolk Coast Path are assessed. Should open cut techniques be used at landfall, a temporary beach closure will be required from mean low water springs (MLWS) to the landfall construction compound for security and health and safety. The beach closure will have a duration of up to one month per cable circuit (on up to six occasions). Details on the timing of such closures will be determined during detailed design, when further clarity on the construction programme is known. Should HDD be used, beach access will only be required if a mud return line is dug into the beach, in order to carry recovered cuttings and drilling fluid from the drilling hole back to shore for processing. In this case, a temporary beach closure of a maximum 24 hours duration may be required for pulling in the mud line over the beach and the same for the removal of the mud line. In addition, a short beach closure of up to 24 hours per circuit will be required if pulling onshore welded pipes offshore or as a result of an unplanned beach clean-up arising from a bentonite break out, for example.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		land during the construction period. A) For each of the above locations, please describe the nature of the temporary interference in terms of: •overall duration; •time of day/week/year; and •impact of construction activities on those using the open space. B) What alternative working methods have been considered in order to minimise the overall impact of construction on each site?	Beach access measures will be set out within a PRoW Management Plan, which will be developed as part of the Code of Construction Practice secured under Requirement 17. This commitment is captured in the Outline CoCP [APP-179]. The Applicant is in ongoing discussions with NCC in regard to the proposed diversion of the Norfolk Coast Path and beach as set out in the NCC Statement of Common Ground. Impacts of such beach closures have been assessed in paragraph 6.11.1.27 of the Environmental Statement [APP-078], and whilst public access may be partially restricted during Hornsea Three landfall area construction activities, there remains large areas to the east and west that would remain accessible for fishing and other beach-based activities during the construction phase. Furthermore, there would be no disruption to the use of the beach side car park. As such, it was concluded that no significant effects on the foreshore and beach would occur for either technology (open cut or HDD) at landfall. **Parts of a woodland known as Bodham Wood** The woodland at Bodham wood will be crossed using HDD and as such will not be directly impacted by Hornsea Three. The HDD works at this location are likely to take approximately 12 weeks, but there would be no restrictions to the use of Bodham Wood during this period. **Parts of Heritage Trail known as Marriott's Way** The Marriott's Way long distance route for pedestrians, cyclists and equestrians is crossed by the Hornsea Three onshore cable corridor to the east of Reepham using HDD; as such the alignment and use of this route will not be affected at this location. Furthermore, there would be no restrictions to the use of Marriott's Way. However, there will be an interface with construction traffic associated with Hornsea Three at the following locations which are functionally linked to Marriott's Way (please refer to Public Rights of Way Plan Sheet 16 of 35, [APP-016]): • To the north of Moor Farm a construction access will cross Marriott's Way at grade (i.e. at the same level) to access the onshore cable corridor to the south. This junction will be gated to the north of Marriott's Way to halt construction traffic and manned when construction traffic is crossing the route to ensure the safety of those traversing along it. Following the completion of construction access at this location the surface of Marriott's Way would be reinstated to its pre-existing condition.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			• To the north of Marriott's Way, a construction access is proposed running from the B1145 Cawston Road, along the field track and then to the north of the disused railway line. Reepham FP34 runs along the field track from Cawston Road and will remain on its existing alignment throughout the construction works. This route will be temporary fenced to separate it from the construction access, within the onshore cable corridor, for health and safety purposes. This segregation of people and plant will be monitored and construction traffic controlled by means of speed restrictions and signage. • The junction of Reepham FP34, Reepham FP18 and the construction access, together with the junction of the construction access at Cawston Road, will be managed and controlled to ensure the safe flow of construction traffic and pedestrians by the use of signage and speed restrictions. It may also be necessary to use a banksman when construction traffic is using this access. The HDD at Marriott's Way will have a duration of approximately 8 weeks. Traffic management measures will be in place at the locations above for approximately 3 months. The impacts on the uses of the Marriott's Way and associated footpaths are assessed in Volume 3, Chapter 6: Land Use and Recreation [APP-078] and concluded that no significant effects would occur. The measures as described above would be set out in the Public Right of Way Management Plan which will be developed as part of the Code of Construction Practice secured under Requirement 17. This commitment is captured in the Outline CoCP [APP-179]. The Applicant has prepared a Communication Plan Framework (Appendix A of the Outline CoCP [APP-179]]) which commits to the erection of notices in public area and on public rights of way crossed by Hornsea Three, and for these to be regularly updated with information where a workfront is active in the locality and disruption is anticipated. On the basis of the above, and as stated in the Statement of Reasons [APP-032], the Applicant therefore considers that the open space land when burdened with the rights sought in the Order will be no less advantageous to the public than it was before and therefore the test set out in s132(3) of the PA 2008 is satisfied.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
			B) The Applicant has chosen to HDD at Bodham Wood and Marriott's Way to minimise the impact on the open space. An alternative which was considered early in the design process was open cut technology at both locations; however, the environmental impact (loss of trees at Bodham Wood and impact to users of the public right of way at Marriott's Way) were considered too great. At the beach, the Applicant has retained both open cut and HDD within the envelope and as such no other construction methods have been considered. If a cable requires replacement in any of these locations then the old cable will be removed from the ducts and then re-pulled through the ducts, thus having a minimal impact upon the open space.
Q1.14.27	Applicant	Paragraph 1.1.5.1 of the Statement of Reasons [APP-032] specifies those parts of the Order land which are public open space: •parts of the foreshore and beach north of Weybourne military camp; •part of a woodland known as Bodham Wood; and •parts of a heritage trail known as Marriott's Way. Paragraph 1.1.5.3 of the Statement of Reasons states that there may be	A) Following the completion of the construction works, the open space at parts of the foreshore and beach, woodland known as Bodham Wood and Marriott's Way affected by the onshore works would be re-instated (where applicable) to their current condition and/or along their current alignments. Periodic maintenance operations are unlikely to impact on their ongoing use for public recreation. Generally, maintenance activities would be limited to a walkover survey such that any interference would also be temporary. On the basis of the above, and as stated in the Statement of Reasons [APP-032], the Applicant therefore considers that the open space land when burdened with the rights sought in the Order will be no less advantageous to the public than it was before and therefore the test set out in s132(3) of the PA 2008 is satisfied.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		occasional future maintenance activities and that any interference with public recreational use of the open space land as a result would be temporary in nature. A) For each of the above locations, please describe the nature of the temporary interference in terms of: •overall duration •time of day/week/year •impact of activities on those using the open space. B) What alternative working methods have been considered in order to minimise the overall impact of maintenance activities on each site?	B) The Applicant considers that the use of cable ducts is the most appropriate working method to minimise the overall impact of maintenance activities at each of these locations.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.28	Applicant	Paragraph 1.1.5.1 of the Statement of Reasons [APP-032] specifies those parts of the Order land which are public open space: •parts of the foreshore and beach north of Weybourne military camp; •part of a woodland known as Bodham Wood; and •parts of a heritage trail known as Marriott's Way. Paragraph 1.1.5.4 of the Statement of Reasons states that the open space land when burdened with the rights sought in the Order will be no less advantageous to the public than it was before. Please explain the basis for your conclusion for each of the above locations.	As stated in paragraph 9.1.1.6 of the Statement of Reasons [APP-032], no works are proposed which will permanently affect the public recreational use of the open space land or its physical appearance. The cables will be located underground and the open space land will be reinstated after construction of the onshore cable route. The only above ground infrastructure remaining in the open space land after construction (if any) will be marker posts. No permanent above ground infrastructure will be located on the beach. Paragraph 9.1.1.10 of the Statement of Reasons states that following completion of the construction of the onshore cable route, there may be occasional future maintenance activities associated with the onshore cable route. Any interference with public recreational use of the open space land as a result of such maintenance activities would be temporary in nature. The Applicant therefore considers that the open space land when burdened with the rights sought in the Order will be no less advantageous to the public than it was before for the reasons set out above and therefore the test set out in section 132(3) is satisfied.
Q1.14.29	Applicant	Paragraph 2.1.1.8 of the Statement of Reasons [APP-032] states that negotiations for the purchase of land, rights and interests are ongoing but that it is necessary to seek Compulsory Acquisition powers. Please explain why it is necessary to seek compulsory acquisition powers over land where agreement has been reached?	The Applicant refers to paragraph 7.4.1.2 of the Statement of Reasons which sets out the reasons why the Applicant is seeking compulsory acquisition powers over land where agreement has been already been reached. This is standard practice for DCO applications to ensure that there is no impediment to delivery of the NSIP.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.30	Applicant	Paragraph 5.2.1.4 of the Statement of Reasons [APP-032] states that the width of the permanent and/or temporary areas may change where obstacles are encountered. A) By how much might the width of the permanent and/or temporary areas change? B) Does this mean that it is possible to modify the cable spacing and/or working areas locally? C) To what extent and over what distance might such local modifications occur? D) Does this mean that there may be areas of land within the Order limits which are not required? E) If so, what would happen to such land? F) Can you confirm that any such modifications would be within the Order limits sought? G) How do you know that the land within	A) Any increase would depend on the width of the obstruction that is encountered and would only be sufficient for avoidance of the obstacle. As much as possible any obstacle would be managed within the anticipated permanent corridor (maximum of 60m), but dependant on the extent of the obstacle encountered, additional width may be required. The Applicant is confident that any obstacles can be managed within the limits of the Order land. B) Any amendments to cable spacing for obstacle avoidance are an exception and will have to be dealt with by exception to working and cable installation methods in that specific area. This will cause disruption to working methods and add risks due to potentially reduced cable spacing and is therefore not applicable to other working areas. The cables are designed to a minimum cable circuit separation which will be reflected in the cable corridor arrangement. Where the minimum circuit spacing is reduced due to obstructions, the cables may operate outside of their design parameters, leading to potential loss of performance and possible future failure. The minimum cable circuit spacing separation is therefore required to be maintained along the entire route unless reasonably unavoidable, such as at locations where obstacles are encountered. It would not be expected that cable spacing distance could be reduced as a result of any obstacle due to possible design limitations on the cable design, it would generally be expected that the cable spacing would increase if required to avoid the obstacle encountered, thus resulting in wider width being required. It may be possible to arrange for the temporary works, such as soil storage to be altered to allow for greater flexibility around obstacles, dependant on their nature. C) Again, this is dependent on the obstacle, but they would be over the minimum distance possible, due to the requirement to minimise the risks highlighted in the previous answer. D) Please see the Applicant's response to Q1.14.17B.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		the Order limits as applied for is the minimum necessary if the alignment is not fixed?	E) Please see the Applicant's response to Q1.14.17B.
			F) The Applicant is not seeking compulsory acquisition powers or temporary use powers outside of the Order land and therefore any modifications would need to be within the Order land.
			G) Please see the Applicant's response to Q1.14.17B. The land within the Order land is the minimum necessary to deliver Hornsea Three taking into account the flexibility required in respect of transmission technology and recognising that further ground investigations and other ecological surveys will be undertaken prior to the commencement of construction. It would not be proportionate for the Applicant to be required to undertake detailed ground investigations along the entire onshore cable corridor and finalise the detailed design prior to the making of the DCO. Additionally, some flexibility for micro siting is required in case the typography, ecological status or use of the land changes between submission of the Application and the commencement of construction. The alignment of the cables is generally considered to be fixed for the maximum number of cables expected. Such alignment does not take into account unforeseen obstacles that could restrict the installation of the cables at any particular location.
Q1.14.32	Applicant	Paragraph 7.3.1.1 of the Statement of Reasons [APP-032] refers to the continuation of private rights where this would not interfere with the construction or operation of the Hornsea Project Three. How and when would the undertaker decide whether existing private rights would continue?	Article 20(6) of the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1) sets out the procedure whereby the Applicant will notify the holder of a private right that the provisions in Article 20(1) to (3) (which provide for the right to cease to have effect or be suspended) do not apply to that right. The Applicant must serve the notice prior to the circumstances set out in Article 20(6)(a). Alternatively, the Applicant can enter into an agreement with the holder of a right at any time pursuant to Article 20(6)(b). A decision as to whether a right will interfere with the construction or operation of Hornsea Three cannot be made until the detailed design has been finalised. The Applicant will also need to assess the extent of private rights that exist at that point in time as further private rights may have been granted after the coming into force of the DCO.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.33	Applicant	Schedule 4 gives details of those public rights of way (PRoW) which it is proposed would be temporarily stopped up. These are shown on the Public Rights of Way Plan [APP-016]. Where diversions are to be put in place, how would the necessary rights be secured?	Temporary diversions would be located within the Order land and, if required, the Applicant could use the powers set out in Article 25(1)(f) to take possession of the land for this purpose.
Q1.14.34	Applicant	The Onshore Crossing Schedule [APP-089] states that the crossing of Footpath - Weybourne FP7 (OID 534) is to be by 'HDD with haul road over or Open Cut' and that prior to stopping up or localised diversion the Parish Council would agree measures in accordance with Outline Code of Construction Practice. A) Would it be appropriate to commit to horizontal directional drilling (HDD) at this location to minimise impacts on users of the footpath? B) Please explain what other measures might be used.	With reference to Weybourne FP7 (Peddars Way/ Norfolk Coast Path) at landfall, both HDD and open cut trenching is retained as options for cable installation at landfall. Based on the initial high level investigative works (in the form of preliminary nearshore geotechnical surveys) the Applicant considers that trenchless techniques may be feasible through the intertidal and therefore, has sought to include this option in the consent envelope. The specific approach taken forward (as part of the final scheme design) will be informed by HDD feasibility to be informed by detailed site investigation work undertaken post consent, as well as other construction logistics. In respect to these other construction logistics, open cut remains the Applicant's preferred approach to cable installation at landfall as it is less technically complex approach, utilising simpler construction methods as well as decoupling time critical construction activities, providing greater certainty in construction and installation programmes at reduced costs. Open cut works also reduces the marine interface, with no need for offshore HDD exit pits and associated dredge and backfill operations. Onshore, open cut activities typically entail less onshore traffic (with no HDD drill rigs required for example, or bentonite deliveries to site) and typically entail a smaller associated construction compound than those required to support HDD operations. Finally, open cut works can also be undertaken over a shorter time period when compared with HDD, with typical works per cable taking 1 month (Paragraph 3.6.12.23 of Volume 1, Chapter 3: Project Description of the Environmental Statement, APP-058) over 4 months for each HDD operation (Table 3.51: Maximum design parameters for TJBs and landfall work of APP-058). The assessment of impacts on PRoW within Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement (APP-078) has considered the maximum design scenario (which in this instance comprises the impact on PRoW resulting from the use of open cut technology).

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.35	Applicant	Given the standard cable corridor width of 80m, please explain why plots 1-001, 1-002, 1-003, 1-004, 1-006 and 1-008 as shown on sheet 1 of the Onshore Land Plan [APP-011] are the size they are.	Offshore cables at Plots 1-001,1-002.1-003 and 1-004 require a larger separation distance than onshore cables to accommodate the installation vessels and the agreed methodology for installing the cables at the beach location. As the methodology for the works at this location has not yet been finalised, it is not identified where exactly the cables will be installed at the plot numbers above. 1-006 and 1-008 are associated with the Transition joint bay locations and the indicated plot sizes reflect the requirement for the construction of a compound large enough to accommodate of the likely works and equipment at this location, including transition joint bays, HDD equipment, and offshore cable installation equipment. The exact size location and extent of these works has yet to be finalised.
Q1.14.36	Applicant	Should plot 1-023 as shown on sheet 1 of the Onshore Land Plan [APP-011] be contiguous with plot 1-022?	No, the reasoning behind the proposed arrangement of plots 1-023 and 1-022 is that there is a there a group of trees in the discontinued area between them and it not proposed that these trees will be affected by the works.
Q1.14.37	Applicant	Given the standard cable corridor width of 80m, please explain why plot 3-019 as shown on sheet 3 of the Onshore Land Plan [APP-011] appears to be up to around 120m wide.	Plot 3-019 is associated with the proposed HDD crossing of the North Norfolk Railway and in this regard in accordance with previous HDD crossings of railway crossings we have allowed for individual HDD crossings per cable phase rather than cable circuit, so this would result in up to 18 HDD crossings rather than 6 at the majority of other HDD locations. As such the wider corridor is required to accommodate all the HDD works associated with this crossing.
Q1.14.38	Applicant	In the Onshore Crossing Schedule [APP-089], OID 468 is shown as Cromer Road (A148). Should this read Kelling Road?	Correction made to Onshore Crossing Schedule [APP-089], OID 468, replacing ~~**Cromer Road (A148)**~~ with **Kelling Road**. An updated Onshore Crossing Schedule [APP-089] is provided at Appendix 24 to the Applicant's response to Deadline 1.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.38 (Duplicate numbering by ExA).	Applicant	In the Onshore Crossing Schedule [APP-089], OID 425 is shown as Little Barningham Road. Should this read Little Barningham Lane as shown on sheet 9 of the Onshore Land Plan [APP-011]?	Correction made to Onshore Crossing Schedule [APP-089], OID 425, replacing ~~**Little Barningham Road**~~ with **Little Barningham Lane**. An updated Onshore Crossing Schedule [APP-089] is provided at Appendix 24 to the Applicant's response to Deadline 1.
Q1.14.39	Applicant	Sheet 9 of the Onshore Crossing Schedule [APP-089] shows HDD 74a as 'Horizontal Directional Drilling with haul road over or Open Cut'. There does not appear to be a corresponding entry in the schedule itself. Please explain this apparent inconsistency.	Correction made in an updated Onshore Crossing Schedule [APP-089] which is provided at Appendix 24 to the Applicant's response to Deadline 1 submission. It is noted that the hedgerow at HDD73 (adjacent to OID423 has also been added).
Q1.14.40	Applicant	Should plots 11-007 and 11-008 as shown on sheet 11 of the Onshore Land Plan [APP-011] be contiguous with plots 11-005 and 11-006?	No, the intention at this location is to use an existing field entrance, rather than create a new one. The gap is intentional.
Q1.14.41	Applicant	Plot 13-006 as shown on sheet 14 of the Onshore Land Plan [APP-011] narrows locally to just over 60m wide at its southern end. Plot 32-004 as shown on sheet 32 of the Onshore Land Plan [APP-011] tapers over a distance of around 200m to around 60m wide.	Plot 13-006 narrows to a pinch point of 63m to avoid the need to HDD under or work through the established trees immediately to the east or west. Whilst this reduced with is not optimal and will require special working arrangements – the soil storage area proposed on the same plot just to north will assist in facilitating construction, by removing the need to provide for soil storage immediately next to the cable corridor as would typically be the case had the full 80m width been available. Plot 32-004 narrows to a pinch point of 64m. The cables at this location need to curve around to cross Intwood Lane by way of HDD. To ensure that the cables are aligned at this HDD point they will need to be "pushed" to the northern

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		Given the standard cable corridor width of 80m, please confirm that these widths are sufficient to enable the project to be constructed.	edge of the field. In doing so the full 80m width is not required on the southern part of the field. Whilst this reduced with is not optimal and will require special working arrangements – the soil storage area proposed on the same plot just to north will assist in facilitating construction, by removing the need to provide for soil storage immediately next to the cable corridor at this pinch point as would typically be the case had the full 80m width been available. In both these cases the corridor width at this location is suitable for the works to be constructed.
Q1.14.42	Applicant	Sheet 15 of the Onshore Land Plan [APP-011] and the Book of Reference [APP-033] both show plot 15-007 as Reepham Road and plot 15-009 as B1145 Cawston Road. However, they appear on sheet 15 of the Onshore Crossing Schedule [APP-089] where they are described as OID 359 (HDD_58) Wood Dalling Road and OID 351 (HDD_56) Anglian Water respectively. Please amend as necessary to ensure consistency.	Correction made to Onshore Crossing Schedule [APP-089], OID 359, replacing ~~**Wood Dalling Road**~~ with **Reepham Road.** Correction made to Onshore Crossing Schedule [APP-089], OID 351, replacing ~~**Anglian Water**~~ with **Cawston Road (B1145).** An updated Onshore Crossing Schedule [APP-089] is provided at Appendix 24 to the Applicant's response to Deadline 1.
Q1.14.43	Applicant	The Onshore Crossing Schedule [APP-089] states that the crossing of Footpath - Reepham FP18 (OID 346) is to be by 'HDD with haul road over or Open Cut' and that prior to stopping up or localised diversion the parish council would agree measures in accordance with the Outline Code of Construction Practice. A) Would it be appropriate to commit to HDD at this location to minimise impacts on users of the footpath?	A and B) No, the project requires the ability to HDD or open cut at this location. This location is associated with the crossing of the Norfolk Vanguard Offshore Windfarm export cables. One project (Hornsea Three or Norfolk Vanguard / Norfolk Boreas) at this location will need to install by way of open cut and the other company installing the cables by HDD. As the arrangement between Vattenfall and Orsted has still to conclude which cables will be installed to which method, it would not be appropriate to commit to one particular method.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		B) Please explain what other measures might be used.	
Q1.14.44	Applicant	Given the standard cable corridor width of 80m, please explain why plot 16-001 as shown on sheet 16 of the Onshore Land Plan [APP-011] appears to be up to around 120m wide.	Plot 16-001 is associated with the cable crossing with the Norfolk Vanguard Offshore Windfarm cables. Taking into consideration the potential technical difficulties associated with this crossing due to the electrical interaction of the two sets of cables, it is considered appropriate that additional space is allowed to ensure that the cables can be suitably separated either in open cut trenches or HDD to minimize the effects of the crossing of the cables.
Q1.14.45	Applicant	Should plots 19-002 and 19-004 as shown on sheet 19 of the Onshore Land Plan [APP-011] be contiguous with plots 19-001, 19-005, 19-006 and 19-007?	No, the intention at this location is to use an existing field entrance, rather than create a new one. The gap is intentional.
Q1.14.46	Applicant	In the Onshore Crossing Schedule [APP-089], OID 240 is shown as Ringland Lane (HDD_38). Is it actually the track leading to Field Farm as shown on sheet 22 of the Onshore Land Plan [APP-011]?	Amendment made to Onshore Crossing Schedule [APP-089], OID 240, replacing ~~**Ringland Lane**~~ with **Track leading to Field Farm.** An updated Onshore Crossing Schedule [APP-089] is provided at Appendix 24 to the Applicant's response to Deadline 1.
Q1.14.47	Applicant	Please explain the need for plots 23-006 and 23-007 as shown on sheet 23 of the Onshore Land Plan [APP-011].	These plots are required for an access track to allow access for the cable installation works.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.14.48	Applicant	There are some small areas of land which it appears would be landlocked for the duration of the works by land subject to temporary possession (for example plot 1-020 on sheet 1 of the Onshore Land Plan [APP-011]). Please confirm that all persons with interests in landlocked plots have been included as Category 3 persons in Part 2b of the Book of Reference [APP-033].	Part 2b of the Book of Reference [APP-033] includes persons with an interest in land outside of the Order limits who the Applicant considers would or might be entitled to make a relevant claim pursuant to s10 of the Compulsory Purchase Act 1965, Part 1 of the Land Compensation Act 1973 or s152(3) of the Planning Act 2008. For example, those properties that may be entitled to make a claim for a diminution in value caused by physical factors once Hornsea Three is in operation. Persons with an interest in land subject to temporary possession are listed as Category 1 or Category 2 persons in Parts 1, 2a and 3 of the Book of Reference (as appropriate). Depending on the circumstances, a person with an interest in a "landlocked plot" may be able to make a claim for compensation due to injurious affection or severance, make a claim pursuant to s10 of the Compulsory Purchase Act 1965, Part 1 of the Land Compensation Act 1973 or s152(3) of the Planning Act 2008 or be entitled to compensation pursuant to Article 25(5) and Article 26(6) of the Applicant's Revised draft DCO [APP-027] (Revision A, submitted for Deadline 1). It would not be appropriate to list all persons with interests in "landlocked plots" as Category 3 persons in Part 2b of the Book of Reference. In respect of the area of land to the east of plot 1-020 and the west of plot 1-019, this land would not be landlocked as the Applicant is only seeking a temporary right of access so as to avoid locating the haul road through an area of trees. The existing agricultural track would remain available for use to those currently entitled to use the track.

1.19 Written Question 1.15 General

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.15.1	Applicant	Please provide revised summary tables for all ES chapters showing the relevant National Planning Policy Framework 2018 policies and any revised Planning Policy Guidance extracts that you have relied upon.	Summary tables have been prepared for all the onshore chapters of the Environmental Statement showing the relevant National Planning Policy Framework (NPPF) 2018 policies and any revised Planning Policy Guidance (PPG) extracts. The tables are contained in Appendix 21 Revised National Planning Policy Framework to the Applicant's response to Deadline 1. Offshore chapters have not been included in the summary tables are there are no applicable policies in the NPPF or PPG.
Q1.15.2	Applicant	The Secretary of State will need to have regard to the Public Sector Equality Duty when determining this application. Please provide an assessment of any equalities impacts the project may have.	The Applicant proposes to submit an equalities statement in order to assist the Secretary of State with its regard to the Public Sector Equality Duty at Deadline 2.
Q1.15.3	Applicant	"The lists of other plans or projects and maximum design scenarios for the cumulative effect assessments of each principal ES chapter do not account for the change in status of more recent projects such as Norfolk Vanguard and Thanet Extension. Please provide updated tables and assessments that take into account all relevant plans and projects that have emerged since the application was submitted."	The Applicant refers the Ex.A to Appendix 16 to the Applicant's response to Deadline I, which provides a detailed response. This includes an explanation of the effect of the recent changes in status of the Norfolk Vanguard and Thanet Extension projects on the Hornsea Three Cumulative Effects Assessment (CEA). The response also includes consideration of recent updates (e.g. change in status and Non Material Changes) to other offshore wind projects considered within the original Hornsea Three CEA and new onshore planning applications on the Hornsea Three CEA. The response provides an updated CEA Screening Matrix for the identified projects to show which of the onshore and offshore topics had the potential to be affected by these updates and changes.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.15.4	Marine Management Organisation (MMO)	The MMO [RR-085] states that the assessment of significance of effect in the ES has not been undertaken in line with the Rochdale envelope approach in that the maximum potential effect has not been identified. Please provide specific examples where, in your view, the ES assessments are not in line with the Rochdale envelope approach.	Following receipt of the MMO's Relevant Representation, the Applicant has discussed this issue with them and provided further clarification on the matter in their response to the MMO's Relevant Representation (RR85) at points 1.5, 1.21, 1.24 and 1.25.
Q1.15.5	Applicant, Highways England	Highways England has drawn attention for the need to have regard to the delivery of improvement works to the A47 in the vicinity of the proposed cable crossing [RR-149]. A) What assessment has been carried out of the engineering requirements for the highway improvements and the cable crossing, such as to establish whether the two projects can co-exist satisfactorily?	A) A SoCG between the Applicant and Highways England is provided at Deadline 1, confirming that principal of the two assets crossing is not a material concern to either party. As referenced in paragraph 9.4.11.9 of the Consultation Report [APP-034] the Applicant met with Highways England during and post the statutory consultation (Phase 2.A) on the PEIR to discuss their plans to duel the A47 in more detail. In response to feedback, the Applicant slightly amended the locations at which Hornsea Three will HDD under the A47 and moved a temporary construction compound for the HDD works further north to ensure that both projects could continue to be delivered and not fetter each other. As part of detailed design, both projects will need to consider if any additional technical specifications will need to be applied at this location to ensure asset integrity is maintained. However the applicant is confident that all works can be captured within the Order Limits. Installation of crossing points with infrastructure such as larger roads is fairly common for high voltage export cable installation, with a similar construction method being utilised at the proposed A11 crossing, further south along the export cable corridor.

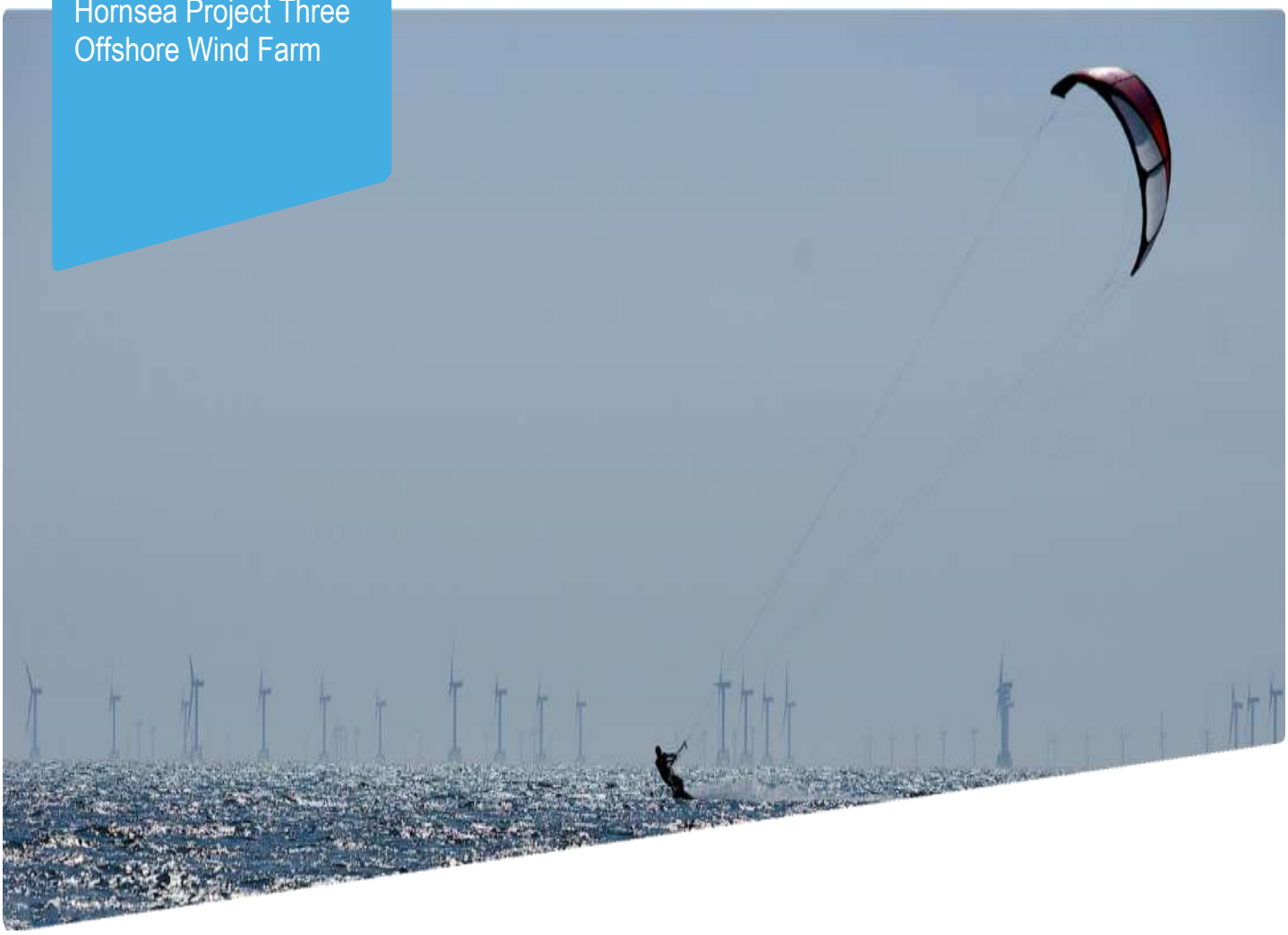
PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
		B) How would the powers sought by the applicant interact with those which may in due course be sought by Highways England? C) Should the Order include protective provisions in respect of Highways England?	B) The Applicant considers it unnecessary to include protective provisions in the Order in respect of Highways England's improvements works to the A47. Highways England's project will be subject to its own DCO consent which is currently estimated to be submitted in 2020. The Applicant and Highways England are in discussions about the protection of each other's assets and the inclusion of protective provisions will be discussed further once Highways England are in a position to submit its DCO application. See response to part B)
Q1.15.6	Applicant	Paragraph 1.2.1.5 of the Outline Code of Construction Practice [APP-179] states that it would be a 'living document' that would be updated post examination. How would adequate mitigation be delivered and the necessary framework for the production of detailed Codes of Construction Practice be secured if this document is not finalised by the end of the examination?	It is the applicant's expectation that by the end of examination that the Outline CoCP is finalised and then forms part of the approved project. The final Outline CoCP then establishes the principles by which any subsequent detailed CoCPs prepared post consent / pre-commencement of works will be developed and agreed with each respective local planning authorities. The Outline CoCP is secured by Requirements 12, 15 and 17 of the Draft DCO [APP-027]. The Outline CoCP is referenced as 'living' document post examination (pre-determination) in the event that, in determining the application the SoS may be minded to add additional obligations into the Outline CoCP (as opposed to adding in additional requirements in the DCO). At the point of determination of the DCO the Outline CoCP and the principles it establishes would be fixed and no longer 'living'. That final Outline CoCP would then form part of the certified document under Article 35 of the DCO.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.15.7	Applicant	Paragraph 1.2.1.2 of the Outline Ecological Management Plan [APP-180] states that it is a 'living document' that would be updated as required prior to implementation. How would adequate mitigation be secured if it is not finalised by the end of the examination and then used as the basis for detailed Ecological Management Plans approved pursuant to Requirement 10?	It is the applicant's expectation that by the end of examination that the Outline EMP is finalised and then forms part of the approved project. The final Outline EMP then establishes the principles by which any subsequent detailed EMPs prepared post consent / pre-commencement of works will be developed and agreed with each respective local planning authorities. The Outline EMP is secured by Requirements 8 and 10 of the Draft DCO [APP-027]. The Outline EMP is referenced as 'living' document post examination (pre-determination) in the event that, in determining the application the SoS may be minded adding additional obligations into the Outline EMP (as opposed to adding in additional requirements in the DCO). At the point of determination of the DCO the Outline EMP and the principles it establishes would be fixed and no longer 'living'. That final Outline EMP would then form part of the certified document under Article 35 of the DCO.
Q1.15.9	Applicant	Paragraph 1.3.1.2 of the Outline Code of Construction Practice [APP-179] states that local authorities, the highway authority and the MMO would agree or be consulted upon the content of any detailed Codes of Construction Practice. Would it be appropriate to include NE and the EA?	The detailed Code of Construction Practice for a given phase would be submitted and approved by the relevant planning authority, in consultation with the relevant highway authority and, if applicable, the MMO pursuant to Schedule 1, Part 3, Requirement 17 of the dDCO. The Applicant has amended the wording of this Requirement and paragraph 1.3.1.2 of the Outline CoCP [APP-179] to reflect the consultation of Natural England and the Environment Agency through the Discretionary Advice Service processes.
Q1.15.10	Applicant	Paragraph 4.1.7.7 of the Outline Code of Construction Practice [APP-179] states that secondary construction compounds may be required. Please specify where these are likely to be located.	A description of the secondary construction compounds is provided in paragraph 3.7.3.33 – 3.7.3.35 of Volume 1, Chapter 3: Project Description of the Environmental Statement [APP-058]. The location of the five secondary construction compounds at strategic points along the onshore cable corridor are identified in various topic chapters of the Environmental Statement, including Figure 1.1 of Volume 3, Chapter 1: Geology and Ground Conditions of the Environmental Statement [APP-073]. The secondary construction compound locations and soil storage locations are also identified on Works Plan (Onshore) [APP-013] labelled as Work No. 15 (storage areas). It is noted that separate, dedicated construction compounds are also provided in support of construction of landfall works, and at the HVAC Booster and HVDC converter/HVAC substation respectively.

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.15.13	Applicant	Paragraph 1.1.1.4 of the Outline Landscape Management Plan [APP-181] states that the final version would be agreed with local planning authorities. Is it intended that the final version would be agreed during the course of the examination?	It is the applicant's expectation that by the end of examination that the Outline LMP is finalised and then forms part of the approved project. The final Outline LMP then establishes the principles by which any subsequent detailed LMPs prepared post consent / pre-commencement of works will be developed and agreed with each respective local planning authorities. The Outline LMP is secured by Requirements 8 and 9 of the Draft DCO [APP-027]. The Outline LMP is referenced as 'living' document post examination (pre-determination) in the event that, in determining the application the SoS may be minded adding additional obligations into the Outline LMP (as opposed to adding in additional requirements in the DCO). At the point of determination of the DCO the Outline LMP and the principles it establishes would be fixed and no longer 'living'. That final Outline LMP would then form part of the certified document under Article 35 of the DCO.
Q1.15.15	Applicant	Paragraph 1.3.1.2 of the Outline Fisheries Coexistence and Liaison Plan [APP-183] states that it is a 'living document' that would be updated throughout the post consent process despite the preparation of a detailed Fisheries Coexistence and Liaison Plan. How would the production of an Outline Fisheries Coexistence and Liaison Plan be secured if it is not finalised by the end of the examination?	The Outline Fisheries Coexistence and Liaison Plan (FCLP) [APP-183] is an outline for the final FCLP which will be fully developed, post consent. As outlined in Schedule 11, Part 2, condition 13(4) and Schedule 12, Part 2, condition 14(4) of the draft DCO (Version 1, submitted for Deadline 1), the FCLP will be submitted and approved by the MMO prior to the commencement of licensed activities. The conditions to the DMLs also allow for subsequent approval of amendments to approved details. The Outline FCLP has been updated since submission of the Application for the project based on stakeholder feedback (and is submitted at Appendix 36 to the Applicant's response to Deadline I). If required, further amendments could be made during the examination and the final outline document submitted before the examination closes. So, in summary, what is meant by "living document" is that: (a) there is scope to refine the Outline FCLP during the examination, but it must be finalised by examination close; (b) any post-exam/consent additions/amendments could be adopted in to the FCLP secured and approved by condition; and (c) the FCLP approved by the MMO could in theory be further amended, subject to approval by the MMO

PINS Question number:	Question is addressed to:	Question:	Applicant's Response:
Q1.15.16	Applicant, BDC	Several interested parties, including BDC [RR-057], have drawn attention to a dismissed planning appeal in 2014 for an anaerobic digester plant at Oulton Airfield. Please comment on the relevance and implications of that appeal decision for Hornsea Project Three, particularly in relation to the appeal Inspector's conclusions regarding effects on local highway conditions, highway safety on Oulton Street and the living conditions of local residents.	Details of the relevance and implications of the appeal decision for the anaerobic digester plant at Oulton Airfield is provided within Annex B of Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1.

Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Statement of Common Ground between Hornsea Project Three (UK) Ltd and Norfolk Vanguard Ltd and Norfolk Boreas Ltd

Date: November 2018

Hornsea 3
Offshore Wind Farm

Ørsted

Statement of Common Ground between Orsted Hornsea Project Three (UK) Ltd and Norfolk Vanguard Ltd and Norfolk Boreas Ltd

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Ørsted

5 Howick Place,

London, SW1P 1WG

Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2018.

Revision History

Version	Date	Author	Context
1	8th October 2018	Ørsted	1st draft discussion
	23rd October 2018	Ørsted	2nd draft discussion
	01st November 2018	Ørsted	3rd draft approval
	05th November 2018	Ørsted	Submission for DL1

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Table of Contents

1. Introduction

Overview

1.1 This Statement of Common Ground (SoCG) has been prepared by Hornsea Project Three (UK) Ltd ('the Applicant'), Norfolk Vanguard Limited and Norfolk Boreas Limited (jointly), together 'the parties', as a means of clearly stating the areas of agreement, and any areas of disagreement, between the parties in relation to the proposed Development Consent Order (DCO) application for the Hornsea Project Three offshore wind farm ('the Project').

1.2 The Applicant is committed to working with Norfolk Vanguard Limited and Norfolk Boreas Limited and the parties are in regular contact at all levels of Hornsea Three. The parties have sought, and will continue to seek, to liaise on environmental matters both through the Examination of each project and as part of any future delivery of these nationally significant infrastructure projects.

Approach to SoCG

1.3 This SoCG has been developed based on the Relevant Representation submitted by Norfolk Vanguard Limited and Norfolk Boreas Limited [RR-102 and RR-100]. The structure of this SoCG is as follows:

- Section 1: Introduction;
- Section 2: Cumulative Impact (between Hornsea Three and the proposed Norfolk Vanguard offshore wind farm (NV) and between Hornsea Three and the proposed Norfolk Boreas offshore wind farm (NB) (where presented in the NV application); and
- Section 3: Electro-Magnetic Fields;
- Section 4: Design Interaction and Co-Operation Agreement; and
- Section 5: Compulsory Acquisition.

1.4 It is the intention that this document will help give the Examining Authority (Ex.A) an early sight of the level of common ground between both parties from the outset of the examination process.

Hornsea Three

1.5 Hornsea Three is a proposed offshore wind farm located in the southern North Sea and will include all associated offshore (including up to 300 turbines) and onshore infrastructure.

1.6 The key components of Hornsea Three include:

- Turbines and associated foundations;
- Turbine foundations;
- Array cables;
- Offshore substation(s), and platform(s) and associated foundations;
- Offshore accommodation platform/s and associated foundations;
- Offshore export cable/s;
- Offshore and/or onshore High Voltage Alternating Current (HVAC) booster station/s (HVAC transmission option only);
- Onshore export cables; and
- Onshore High Voltage Direct Current (HVDC) converter/HVAC substation.

1.7 The Hornsea Three array area (i.e. the area in which the turbines are located) is approximately 696 km^2 and is located approximately 121 km northeast off the Norfolk coast and 160 km east of the Yorkshire coast.

1.8 The Hornsea Three offshore cable corridor extends from the North Norfolk coast, offshore in a north-easterly direction to the western and southern boundary of the Hornsea Three array area. The Hornsea Three offshore cable corridor is approximately 163 km in length.

1.9 From the Norfolk coast, underground onshore cables will connect the offshore wind farm to an onshore HVDC converter/HVAC substation, which will in turn, connect to an existing National Grid substation. Hornsea Three will connect to the Norwich Main substation, located to the south of Norwich. The Hornsea Three onshore cable corridor is approximately 55 km in length at its fullest extent.

Norfolk Vanguard

1.10 NV is a proposed offshore wind farm located in the southern North Sea and will include all associated offshore (including up to 200 turbines) and onshore infrastructure.

The key offshore components of NV include:

- Wind turbines with an export capacity of up to 1800MW;
- Offshore electrical platforms;
- Accommodation platforms;
- Met masts;
- Measuring equipment (LiDAR and wave buoys);
- Array cables;
- Interconnector cables; and
- Export cables.

The key onshore components include:

- Landfall;
- Onshore cable route, accesses, trenchless crossing technique (e.g. Horizontal Directional Drilling (HDD)) zones and mobilisation areas;
- Onshore project substation; and
- Extension to the Necton National Grid substation and overhead line modifications.

1.11 NV comprises two distinct areas, NV East and NV West, which are located in the southern North Sea, approximately, 70km and 47km from the coast of Norfolk respectively (at the nearest points).

1.12 NV East area is 297km^2 and 70km to shore (closest point of the site to the coast) and NV West area is 295km^2 and 47km to shore.

1.13 The offshore wind farm would be connected to the shore by offshore export cables installed within the offshore cable corridor from the wind farm to a landfall point at Happisburgh South, Norfolk. From there, onshore cables would transport power over approximately 60km to the onshore project substation near Necton, Norfolk.

1.14 As part of the NV DCO application, Norfolk Vanguard Limited is also seeking to obtain consent to undertake some works for the NB project, these include:

- Installation of ducts to house the NB cables along the entirety of the onshore cable route from the landward side of the transition pit at the landfall to the onshore project substation; and
- Overhead line modifications at the Necton National Grid substation for both projects.

1.15 NV will only deploy HVDC technology.

Norfolk Boreas

1.16 The development area for the 1.8GW Norfolk Boreas Offshore Wind Farm (NB) is located adjacent to the NV project area, it covers 725km^2 and is approximately 73km from shore at its nearest point. The timeline for NB is approximately one year behind NV and the aim is to share a common route for the underground electrical connection from landfall at Happisburgh to the National Grid substation near Necton.

1.17 Based on this, and as noted in paragraph 1.13 above, Norfolk Vanguard Limited is seeking to obtain consent to undertake some onshore works for NB within the NV DCO application (application reference no. EN010079). In this regard, NB could be delivered in two scenarios:

- Scenario 1: NV consents and constructs transmission infrastructure which would be used by NB. This includes, cable ducts and overhead line modification at the Necton National Grid substation; or
- Scenario 2: NV is not constructed and therefore NB consents and constructs all required project infrastructure including cable ducts, extension to the Necton National Grid Substation, overhead line modification and any landscape and planting schemes.

1.18 NB will also only deploy HVDC technology.

Physical Overlap between the Parties

1.19 Figure 1 shows the geographic extent of Hornsea Three, NV (EN010079) and NB, including the point of onshore cable overlap near Reepham as well as the access routes associated with the Main Construction Compound for Hornsea Three, and the cable logistics areas proposed by NV and NB at The Street, Oulton.

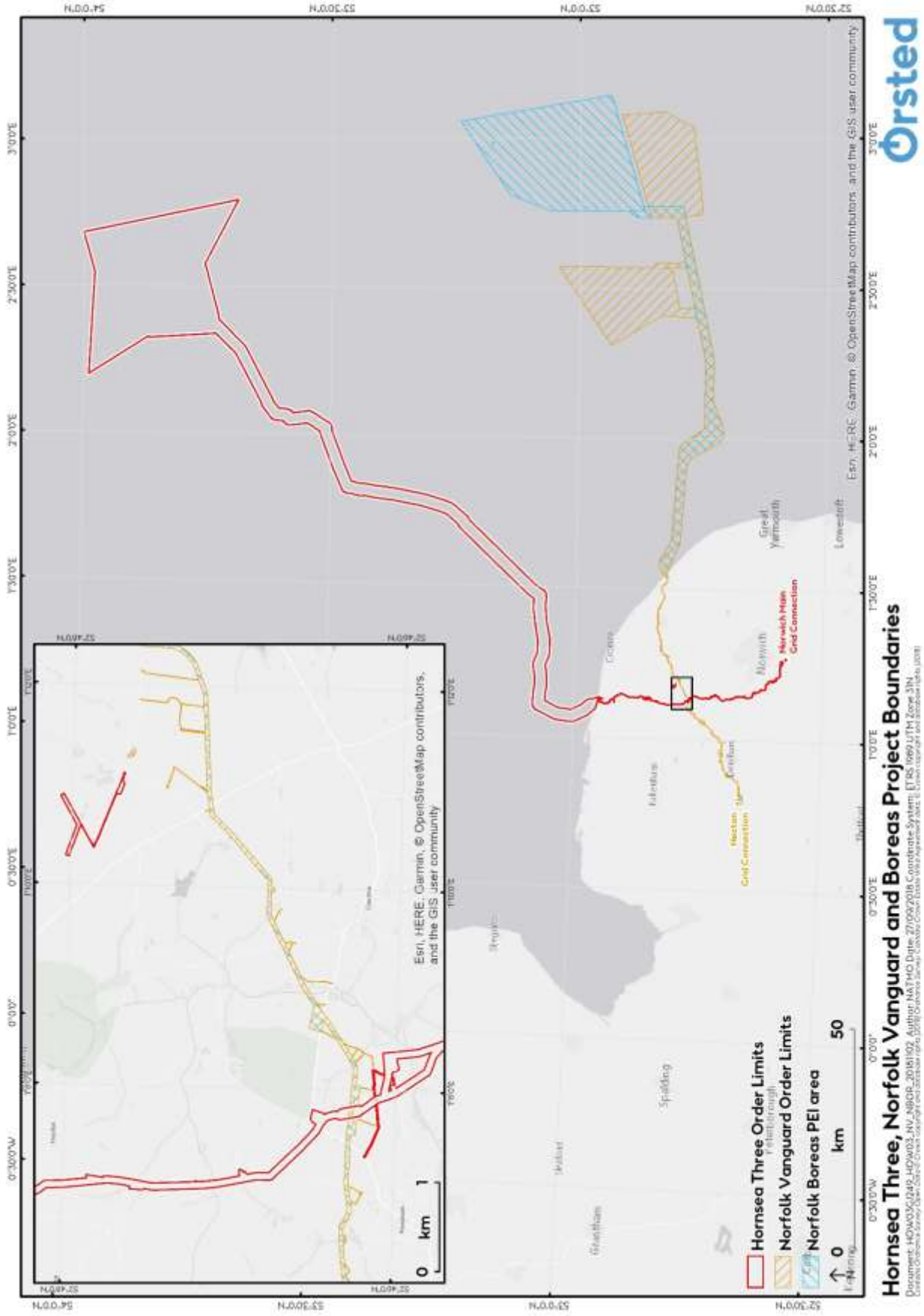


Figure 1 – Hornsea Three, NV and NB (PEI) Project Boundaries

2. Cumulative Assessment

2.1 Section 2 provides a summary of the cumulative assessment approach and conclusions as reported in the Hornsea Three and NV applications (application reference no. EN010079).

Cumulative Assessment Approach

Hornsea Three

2.2 Hornsea Three's approach to Cumulative effects assessment is documented in Volume 1, Chapter 5, Section 4 of the Environmental Impact Assessment Methodology [APP-060]. The Cumulative Effect Assessment (CEA) considers the likely effects arising from Hornsea Three alongside the likely effects of other development activities in the vicinity of Hornsea Three, based on the information available.

2.3 Hornsea Three adopted a tiered approach to its cumulative assessment in line with standard industry practice and in accordance with The Planning Inspectorate Advice Note Nine and its complementary guidance in Advice Note 17. In the case of NV (application reference EN010079), this has been included in the CEA (Tier 3 development) for Hornsea Three due to the fact that the project remained 'in planning', and at the time of writing the ES was typically reliant upon material presented during NV PEIR.

2.4 In line with the RenewableUK Cumulative Impact Assessment Guidelines for offshore wind farms (RenewableUK, 2013), the cumulative assessment of other North Sea Round 3 developments has taken an approach that attempts to incorporate an appropriate level of pragmatism. This is demonstrated in the confidence levels applied to various developments, particularly those that were known at the point of the submission of Hornsea Three but at that time lacked detailed project application documentation, such as NB, which at the time of preparation of the Hornsea Three application was at scoping stage. NB has only been considered for CEA only in those chapters where it is considered that the Scoping Reports contain sufficient detail with which to undertake a meaningful assessment.

2.5 Whilst the Tier 3 assessment presents information publicly available at the time of preparation of the Hornsea Three application, the data necessary to undertake a full assessment of impacts for some topics, taking into account NV, was not publicly available at the point of submission of the application for Hornsea Three. Since submission of the NV application, the Applicant has undertaken an assessment of in combination effects of the NV as submitted (as opposed to PEIR). This assessment does not form part of this SoCG (but will be made available to all Interested Parties as part of the Applicants response to Examiners First Written Question 1.15.3).

2.6 In addition, Hornsea Three has considered experience from other projects located within the former Hornsea Zone through work undertaken for Hornsea One, Hornsea Two, its other projects in operation, construction and development and those by other developers across the wider southern North Sea; and other UK projects.

Norfolk Vanguard (EN010079)

2.7 NV approach to cumulative effects assessment is documented in Chapter 32 Offshore Cumulative and Transboundary Impacts and Chapter 33 Onshore Cumulative Impacts.

2.8 Offshore, the scope of the CIA (in terms of relevant issues and projects) has been established with consultees (including through the Evidence Plan Process and liaison with other developers) as the EIA has progressed, this is also detailed in Chapter 6 EIA Methodology and in each offshore technical chapter (chapters 8-18). Norfolk Vanguard Limited has taken advice and guidance from various sources to inform the CIA. The CIA also draws from findings of earlier studies undertaken to inform the East Anglia Zonal Environmental Appraisal (ZEA) (EAOW, 2012a) which considered cumulative impacts arising from the development of the whole former East Anglia Zone.

2.9 In addition, Norfolk Vanguard Limited has considered experience from other projects located within the former East Anglia Zone through work undertaken for East Anglia ONE (EAOW, 2012b) and East Anglia THREE (EATL, 2015); the wider southern North Sea; and other UK projects.

2.10 In accordance with The Planning Inspectorate Advice Note Nine and its complementary guidance in Advice Note 17, Norfolk Vanguard Limited has considered plans and projects in the CIA based on a tiered approach, based on the development status of other projects and the availability of information for each project to enable further assessment.

2.11 In line with the RenewableUK Cumulative Impact Assessment Guidelines for offshore wind farms (RenewableUK, 2013), the cumulative assessment of other North Sea Round 3 developments has taken an approach that attempts to incorporate an appropriate level of pragmatism. This is demonstrated in the confidence levels applied to various developments, particularly those that are known but currently lack detailed project application documentation, such as those projects at the scoping stage only. These projects have been considered for CIA only in those chapters where it is considered that the Scoping Reports contain sufficient detail with which to undertake a meaningful assessment.

2.12 In the case of the Hornsea Three this has been included in the NV CIA as Tier 5 development, following the suggested approach in JNCC and Natural England (2013). At the time of the NV DCO submission, all the data necessary to undertake a CIA for some topics, taking into account Hornsea Three (and vice versa), was not publicly available (only that typically presented in the PEIR for the project), and assumptions had to be made, such as the approach Hornsea Three would take to mitigate certain impacts.

2.13 In response to the Section 51 Advice from The Planning Inspectorate, Norfolk Vanguard Ltd have submitted an updated Offshore Ornithology CIA in the Response to Section 51 Advice which was accepted by The Planning Inspectorate on 15 October 2018. This document provides a summary of the updated cumulative totals and impact significance reflecting the final DCO submissions for Hornsea Three and Thanet Extension Offshore Wind Farm.

2.14 Onshore, the key aim of the CIA for NV was to assess whether impacts on a receptor may occur on a cumulative basis between NV and other projects, activities and plans (either consented or forthcoming) in the onshore study area.

2.15 The scope of the CIA (in terms of relevant issues and projects) has been established with consultees (including other developers) as the EIA has progressed, this is also detailed in Chapter 6 EIA Methodology and in each onshore technical chapter (chapters 19-32) of the Environmental Statement. Norfolk Vanguard Limited has followed relevant advice and guidance from various sources to inform the CIA.

2.16 The final submissions of both Hornsea Three and Thanet Extension have been reviewed by Norfolk Vanguard Limited for all EIA topics to consider any differences to their PEIR, and potential implications on NV CIA assumptions. With the exception of potential cumulative traffic and transport impacts between Hornsea Three and NV (discussed in detail in Table 2) no other areas were identified that would require any further update by Norfolk Vanguard Limited.

Summary of Cumulative Assessment Conclusions

2.17 **Table 1** documents those topic chapters where the potential cumulative impact as a result of Hornsea Three, NV (EN010079) and NB in combination has been considered in the Hornsea Three application and the NV application.

Table 1 - Summary of Hornsea Three, NV and NB as they conclude on the other project

Assessment	Hornsea Three CEA of NV (EN010079)	NV (EN010079) CIA of Hornsea Three	Hornsea Three CEA of NB
Offshore			
Benthic Ecology	NV scoped out	HOW03 scoped out	CEA anticipated not to be required due to geographical difference
	No cumulative effects identified.	No long term cumulative effects identified.	
Marine Processes	NV scoped out	HOW03 scoped out	CEA anticipated not to be required due to geographical difference
	No cumulative effects identified.	No long term cumulative effects identified.	
Fish and Shellfish	NV scoped out	CEA considered.	CEA anticipated not to be required due to geographical difference
	Cumulative effects scoped out.	No significant cumulative effects identified.	No long term cumulative effects identified.
Marine Mammals	CEA considered.	CIA considered.	No long term cumulative effects identified.
	The main potential cumulative effects are predicted to occur during periods of overlapping piling where increased anthropogenic noise is highest, and these are the projects that are assessed quantitatively in the CEA, where possible and appropriate. CEA as a whole, it is predicted that the sensitivity of harbour porpoises to disturbance is considered to be medium and the magnitude of all Tier 1 disturbance is deemed to be low. The effect will, therefore, be of minor adverse significance, which is not significant in EIA terms.	The CIA considers potential cumulative effects of underwater noise, changes to prey availability and vessel collision risk. The Site Integrity Plan and Marine Mammal Mitigation Protocol will provide appropriate frameworks for agreeing mitigation measures with the relevant Statutory Nature Conservation Bodies (SNCBs) and the MMO post-consent to ensure the potential cumulative impacts of construction noise, including piling, are not significant (negligible or minor).	
Ornithology	CEA considered.	CIA considered.	CEA considered.

Assessment	Hornsea Three CEA of NV (EN010079)	NV (EN010079) CIA of Hornsea Three	Hornsea Three CEA of NB
	CEA as a whole - potential significant cumulative effects identified during O&M for displacement and collision of seabirds. No (potential) significant cumulative effects identified when just comparing Hornsea Three, NV or NB.	No significant cumulative effects identified. In response to the Section 51 Advice from The Planning Inspectorate, Norfolk Vanguard Limited has submitted an updated Offshore Ornithology CIA in the Response to s51 Advice. This document provides a summary of the updated cumulative totals and impact significance reflecting the final DCO submissions for Hornsea Three and Thanet Extension Offshore Wind Farm. While there have been minor changes to the cumulative totals due to differences in the predicted impacts presented in the ESs for both the Hornsea Three and Thanet Extension wind farms (compared with those in the project's PEIRs), overall these changes do not affect the cumulative impact significance presented in the NV ES.	No long term cumulative effects identified.
Commercial Fisheries	CEA considered.	CIA considered.	CEA considered.
	The plans and projects included in Tier 3 are not considered to raise the cumulative effect beyond that assessed for the Tier 2 assessment for all fishing fleets. The significance of effect is therefore moderate adverse for demersal trawling fleets, which is significant in EIA terms and minor for all other fleets, which is not significant in EIA terms.	No significant cumulative effects identified.	No long term significant cumulative effects identified.
Shipping and Navigation	CEA considered.	CIA considered.	CEA considered.
	No significant cumulative effects identified.	No long term significant cumulative effects identified.	
Aviation, Military and Communication	CEA considered.	CIA considered.	CEA considered.
	No significant cumulative effects identified.	No long term significant cumulative effects identified.	
Marine Archaeology	NV scoped out	CEA considered. (Note: differences due to assessment approach adopted by NV and the scoping in of all projects within 100km to allow the assessment of setting and the perceptual values associated with the historic seascape character).	CEA not considered to be required due to geographical difference.
	No significant cumulative effects identified.	No long term significant cumulative effects identified.	
Infrastructure and other users	CEA considered.	HOW03 scoped out	CEA considered.
	No significant cumulative effects identified.	Cumulative effects scoped out.	No long term significant cumulative effects identified.
Seascape and Visual Resources	CEA considered.	HOW03 scoped out	No long term significant cumulative effects identified.
	No significant cumulative effects identified.	Cumulative effects scoped out.	

Assessment	Hornsea Three CEA of NV (EN010079)	NV (EN010079) CIA of Hornsea Three	Hornsea Three CEA of NB
Onshore			
Geology and Ground conditions	CEA considered.	CEA considered.	CEA considered as part of NV (EN010079).
	No significant cumulative effects identified.		
Hydrology and Flood Risk	CEA considered.	CEA considered.	CEA considered as part of NV (EN010079).
	No significant cumulative effects during construction, operation and maintenance, or decommissioning as a result of Hornsea Three, NV and NB in-combination, due to limited land take at point of cross over.	Hornsea Three will result in the direct disturbance of surface watercourses in the Blackwater Drain, River Wensum and River Bure catchments, all of which will also be impacted by NV and NB. In addition, these projects could potentially alter surface runoff and groundwater flows where permanent infrastructure overlaps. Hornsea Three will adopt a similar suite of mitigation measures as NV and NB to minimise disturbance of the river channel, and maintain river flows, sediment transport, and minimise flood risk. This would limit further impacts to a negligible magnitude. As such, impacts will be no greater than those identified for each individual project. No significant cumulative effects identified.	See Hornsea Three CEA of NV (EN010079) column
Ecology and Nature Conservation	CEA considered.	CIA considered.	CEA considered as part of NV (EN010079).
	No significant cumulative effects during construction, operation and maintenance, or decommissioning as a result of Hornsea Three, NV and NB in-combination, due to limited land take at point of cross over.	Ecological features identified with potential cumulative effects where the projects overlap is limited to hedgerows and cereal field margins. The scale of these effects is no greater than each project alone and represents a negligible cumulative magnitude of effect. The hedgerows in this location were not identified as important bat foraging / commuting features. The River Wensum SAC will be crossed by all three projects, However, the crossing points on the Wensum are 10km apart and in addition the projects have committed to trenchless crossings. With these commitments in place cumulative impacts are unlikely to occur. No significant cumulative effects identified.	See Hornsea Three CEA of NV (EN010079) column
Landscape and Visual	CEA considered.	CIA considered.	CEA considered as part of NV (EN010079).
	No significant cumulative effects identified as a result of Hornsea Three, NV and NB in-combination, due to geographical separation and or the short-term duration.	The construction of the NV onshore cable route in addition to the Hornsea Three onshore cable route would have a short term significant cumulative effect on the views of walkers on an approximate 200m section of Marriott's Way, but would not have significant effects on the remaining parts of this route or on any other landscape or visual receptors. It is assumed that Hornsea Three would implement similar mitigation measures following construction of their onshore cable route and associated infrastructure, including re-establishment of hedgerows where removals had occurred and the reinstatement of the agricultural land. Overall, no significant cumulative effects identified.	See Hornsea Three CEA of NV (EN010079) column

Assessment	Hornsea Three CEA of NV (EN010079)	NV (EN010079) CIA of Hornsea Three	Hornsea Three CEA of NB
Historic Environment	CEA considered.	CIA considered.	CEA considered as part of NV (EN010079).
	Minor to Moderate Adverse effects from the construction phase due to potential for cumulative permanent loss of or damage to, buried archaeological remains result in temporary cumulative effects on the historic landscape or settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens. Minor to Moderate Adverse effects during the operation and maintenance phase due to potential for cumulative effects on the historic landscape or settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens. These cumulative effects are primarily as a result of Hornsea Three effects as opposed to the in combination effects of Hornsea Three, NV and NB. This is due to limited land take at the point of cross over and geographical separation of the above ground infrastructure. No significant cumulative effects during operation and maintenance, or decommissioning.	Due to the geographical overlap between the NV, NB and Hornsea Three projects, there is the potential for direct cumulative impacts upon both above ground and buried archaeological remains. Hornsea Three is anticipated to adopt similar mitigation strategies as NV which will seek to avoid, reduce or offset direct impacts upon both buried and above ground archaeological remains. Such strategies if implemented effectively are considered highly likely to reduce (or offset) the impact significance to a level(s) considered non-significant in EIA terms. No significant cumulative effects identified.	See Hornsea Three CEA of NV (EN010079) column
Land Use and Recreation	CEA considered.	CIA considered.	CEA considered as part of NV (EN010079).
	No significant cumulative effects on Agricultural Land Classification or PRoW and other linear routes during construction, operation and maintenance, or decommissioning due to limited land take at point of cross over and proposed mitigation measures.	Due to geographical overlap between the NV project and NB and Hornsea Three there is the potential for direct cumulative impacts upon drainage systems during construction. However, both NB and Hornsea Three are anticipated to adopt mitigation strategies which will seek to avoid, reduce or offset the effects of direct impacts upon drainage. For the NV project, these strategies include a specialist drainage contractor to locate and draw plans of drainage systems, pre-construction Drainage Plan, the temporary damming, culverting or diversion, and installing cables at a depth where they will be laid below the level of typical field drainage pipes to minimise impacts and interaction, which is expected will reduce cumulative impacts to non-significant. No significant cumulative effects identified.	See Hornsea Three CEA of NV (EN010079) column
Traffic and Transport	CEA considered.	CIA considered.	CEA considered as part of NV (EN010079).
	No significant cumulative effects as a result of Hornsea Three, NV and NB in-combination during construction, operation and maintenance, or decommissioning (based on PEIR traffic flows).	There are no significant traffic impacts associated with NV alone (or in combination with NB) on any of the road links that would be shared with Hornsea Three. However, NV has been unable to complete a cumulative impact assessment with Hornsea Three to date due to differences in the ways traffic has been distributed across the road network by both projects. NV anticipate that there may be cumulative impacts on a small number of shared road links and discussions between Hornsea Three and NV are progressing to allow NV to complete that exercise.	See Hornsea Three CEA of NV (EN010079) column
	Refer to subsequent commentary regarding traffic and transport generation in Table 2		

Assessment	Hornsea Three CEA of NV (EN010079)	NV (EN010079) CIA of Hornsea Three	Hornsea Three CEA of NB
Noise and Vibration	CEA considered.	CIA considered.	CEA considered as part of NV (EN010079).
	No significant cumulative effects as a result of Hornsea Three, NV and NB in-combination during construction, operation and maintenance, or decommissioning.	There is the potential for construction traffic across the three projects to lead to cumulative noise and vibration impacts where the same road links are used. NV anticipates that similar best practice mitigation measures will be implemented by Hornsea Three to reduce construction traffic noise and vibration impacts, and that there would be no additional construction noise impact (along shared road links) compared to NV alone. No significant cumulative effects identified.	See Hornsea Three CEA of NV (EN010079) column
Air Quality	CEA considered.	CIA considered.	CEA considered as part of NV (EN010079).
	No significant cumulative effects as a result of Hornsea Three, NV and NB in-combination during construction, operation and maintenance, decommissioning.	A number of shared road links are anticipated to experience cumulative construction traffic. However, pollutant concentrations at all receptors are below the relevant air quality objectives. Air quality impacts may also occur where the cable routes overlap. NV anticipates that similar best practice mitigation measures will be implemented by Hornsea Three to reduce construction air quality impacts, and that there will be no additional impacts compared to NV alone. No significant cumulative effects identified.	See Hornsea Three CEA of NV (EN010079) column
Socio economics	CEA considered.	CIA considered.	CEA considered as part of NV (EN010079).
	Significant beneficial cumulative effect from the cumulative impact of construction of Hornsea Three on access to construction-related employment and operations (across Greater Anglia and Humber regions) when considered together with the construction and operation of other planned nearby wind farm projects.	Assuming that the labour market develops following investment in response to the pipeline of projects, this may lead to minor to major cumulative beneficial impacts on the labour market associated with the construction and operation of multiple wind farms within the New Anglia LEP. Significant beneficial cumulative effect identified.	See Hornsea Three CEA of NV (EN010079) column

2.18 **Table 2** documents those chapters where the potential cumulative effects between Hornsea Three, NV and NB are being considered further by Hornsea Three and NV. Notwithstanding the position reached on these matters, the parties reserve the right to make further representations throughout the forthcoming examination period.

Table 2 – Status of further consideration between Hornsea Three and NV

Assessment	Further Consideration of Effects
Offshore	
Benthic Ecology	On the basis that cumulative effects have been scoped out, or where CEA has not identified any significant cumulative effects – it is agreed that no further consideration of these effects necessary at this time.
Marine Processes	
Fish and Shellfish	
Ornithology	
Commercial Fisheries	
Shipping and Navigation	

Assessment	Further Consideration of Effects
Aviation, Military and Communication	
Marine Archaeology	On the basis that cumulative effects have been scoped out, or where CEA has not identified any significant cumulative effects – it is agreed that no further consideration of these effects necessary at this time.
Infrastructure and other users	
Seascape and Visual Resources	
"In-combination" Report to Inform Appropriate Assessment	
Marine Mammals	NV's position is that cumulative effects would be reconsidered prior to construction to allow appropriate mitigation measures for underwater noise effects on the Southern North Sea cSAC to be agreed through the Site Integrity Plan. As noted in Table 1, the Site Integrity Plan and Marine Mammal Mitigation Protocol for NV will be updated post-consent in discussion with the relevant SNCBs and the MMO to reflect actual build-out scenarios and current best practice to ensure the potential cumulative impacts of construction noise, including piling, are not significant.
Onshore	
Geology and Ground conditions	On the basis that cumulative effects have been scoped out, or where CEA has not identified any significant cumulative effects – it is agreed that no further consideration of these effects is necessary at this time.
Hydrology and Flood Risk	
Ecology and Nature Conservation	
Landscape and Visual	
Historic Environment	For Hornsea Three, potential significant cumulative effects from construction works could result in cumulative permanent loss of or damage to, buried archaeological remains and result in temporary cumulative effects on the historic landscape, settings of heritage assets including Scheduled Monuments, listed buildings, Conservation Areas and Registered Parks and Gardens. These cumulative effects are primarily as a result of Hornsea Three effects as opposed to the in-combination effects of Hornsea Three, NV and NB. This is due to limited land take at the point of cross over and geographical separation of the above ground infrastructure. It is agreed that no further consideration of these effects is necessary at this time.
Land Use and Recreation	On the basis that CEA has not identified any significant cumulative effects – it is agreed that no further consideration of these effects is necessary at this time.

Assessment	Further Consideration of Effects
Traffic and Transport	There may be cumulative impacts on a small number of shared road links during construction of the two projects and relevant discussions between Hornsea Three and NV are ongoing.. Both parties continue to work together to ensure alignment of highway threshold levels applied by each project, i.e. traffic capacity of each road link before significant impacts are expected, and alignment as to the scope of appropriate traffic management measures that may be required as thresholds are reached – i.e. confirming:- • Thresholds on each street (or part of street) where no or limited ("soft") traffic management measures would be required, such as controls on daily traffic demand, driver induction, community liaison; • Thresholds on each street (or part of street) which would trigger further "soft" traffic management measures, such as timing of deliveries, hazard signage, restricted periods, and temporary speed restrictions; and • Thresholds on each street (or part of street) which would trigger further "harder" traffic management measures -such as flow control, pedestrian crossing points, parking restrictions and other traffic management measures, in some instances physical interventions such as localised widening or passing places. Any mitigation measures identified for these shared links would be secured through each project's final Construction Traffic Management Plans to be developed post-consent. These would be developed with, and approved by, Norfolk County Council as Highways Authority. Whilst these workstreams are ongoing, the locations which require further consideration due to the potential cumulative impact of both projects are limited to:- • The Street (linking B1149 with Oulton Street); • Along B1149, in particular through the settlement of Horsford; and • Along B1145, in particular through the settlement of Cawston. Hornsea Three and NV will be looking to reach an agreement on these matters and engage with Norfolk County Council as the highways authority to reach a shared common point of agreement. This workstream is ongoing and for the purposes of this SoCG submitted at Deadline 1, the cumulative impact on traffic and transport therefore remains not agreed, but material headway has been made and both projects are confident that agreement can be reached in the short term. If CTMP measures are required along these stretches of road, these measures will be captured in a revised Outline CTMP to be submitted in due course into the Hornsea Three examination. To date Hornsea Three and NV have held a number of meetings on these matters:- • 09/08/2018 Meeting with NV to discuss traffic and transport assessment. • 11/09/2018 Meeting with NV to discuss traffic and transport assessments. • 26/09/2018 Email correspondence from Hornsea Three to NV to advise of the updated TA, TA Clarification Note and Main construction compound traffic survey results. • 16/10/2018 Meeting with NV to discuss traffic and transport assessments. 16/10/2018 Email correspondence from Hornsea Three to NV issuing the Main Construction Compound Access Strategy.
Noise and Vibration	On the basis that CEA has not identified any significant cumulative effects – it is agreed that no further consideration of these effects necessary at this time.
Air Quality	
Socio economics	

Construction Management and Community Liaison

2.19 All projects are committed to community liaison through the construction phase.

2.20 Hornsea Three has submitted an Outline Code of Construction (Outline CoCP) [APP-179]. Appendix A (Communication Plan Framework) of the Outline CoCP notes that a Communication Plan will be developed, managed and implemented by the Stakeholder Manager for Hornsea Three. During the construction phase, a Community Liaison Officer (CLO) will be appointed prior to the commencement of onshore works. The CLO will attend public meetings including liaison with community groups and will manage all contacts with local resident groups, schools, emergency services and local businesses with regard to general construction works issues in accordance with the parameters established in the Communications Plan.

2.21 Similarly, NV has submitted an Outline Code of Construction. Section 2.4 of NV Outline CoCP notes that Norfolk Vanguard Limited will ensure effective and open communication with local residents and businesses that may be affected by noise or other amenity aspects caused by the construction works. A designated Norfolk Vanguard Limited local community liaison officer will respond to any public concerns, queries or complaints in a professional and diligent manner as set out by a project community and public relations procedure which will be submitted for comment to the Local Authorities. Parish Councils in the relevant area will be contacted (in writing) in advance of the proposed works and ahead of key milestones, with these measures being captured in a communications plan as part of the final CoCP.

3. Electro-Magnetic Fields

Hornsea Three

3.1 Hornsea Three Electro-Magnetic Fields compliance is documented in Environmental Statement Annex 3.3 – Electro-Magnetic Fields (EMF) Compliance Statement [APP-087].

3.2 For Hornsea Three, the EMF compliance statements confirms:-

- The maximum calculated power-frequency magnetic field from the HVAC underground cables is 55 microtesla (μT), well below (15% of) the Code of Practice 360 μT public exposure guideline limit set to protect health.
- The maximum calculated static magnetic field from the HVDC underground cables is 27 μT, well below (5% of) the 500 μT International Commission on Non-Ionizing Radiation Protection (ICNIRP) DC guideline exposure level[1].
- For Hornsea Three, on the basis of the guidance for EMFs from electricity infrastructure adopted in the UK and the published evidence to support that, it is considered that the levels of EMFs from the proposed development would be well below the guideline public exposure reference levels set to protect health.

Norfolk Vanguard

3.3 NV EMF compliance is documented in Environmental Statement Chapter 27 Human Health.

3.4 For NV, the ES confirms the maximum calculated static magnetic field from the HVDC underground cables is 33.7 μT; well below (<1%) the ICNIRP DC public exposure limit of 40,000 μT at a 25m perpendicular distance from the centreline of the onshore cable route), this value falls to 1.27 μT.

[1] ICNIRP public exposure limit for AC = 360 μT; ICNIRP public exposure limit for DC = 40,000 μT. ICNIRP advisory level for DC for protection of people with implanted medical devices = 500 μT. For DC fields, although the ICNIRP guideline level for magnetic field exposure is 40 mT (1994) or 400 mT (2009), ICNIRP discusses the need for "*practical policies… to prevent inadvertent harmful exposure of people with implanted electronic medical devices and implants containing ferromagnetic materials, and injuries due to flying ferromagnetic objects*" (ICNIRP, 2009) (page 511) and in that context makes reference to a lower restriction level of 0.5 mT suggested by the International Electrotechnical Commission (IEC) in 2002 (IEC, 2002).

3.5 For NV, on the basis of the Public Health England recommended limits for exposure to EMFs, based on those from the ICNIRP, and the published evidence to support that, it is considered that the levels of EMFs from the proposed development would be well below the guideline public exposure reference levels set to protect health against EMF exposure.

Cumulative Impact of Electro-Magnetic Fields at the crossing point of Hornsea Three and NV / NB

3.6 When considered cumulatively, as magnetic field strength decreases rapidly with distance from the source combined with the vector nature of electric and magnetic fields, the cumulative field strength from multiple sources would not typically be as great as the scalar sum of their maximum strength. In practice, this means that magnetic field strength at a given location tends to be dominated by one source (the largest and/or nearest) where several sources in the area are present.

3.7 As such, and considering the large margin of compliance with the public exposure guidelines, no significant cumulative impacts from other existing or proposed sources are anticipated.

3.8 In response to local concerns, Ørsted and Vattenfall jointly commissioned an independent study and resulting report which explores the 'worst case' EMFs which may result where it is proposed the power cables from Offshore wind farm projects will cross. The Vattenfall and Ørsted Circuit Crossings- EMF Information Sheet is attached to this SoCG at Appendix 19 to Deadline I submission.

3.9 These assessments represent the worst-case scenario for two crossing points, one where both transmission systems use HVAC technology and the other where both use HVDC technology. It should be noted that this worst case scenario was correct at the time of writing, however NV and NB have subsequently made the decision to deploy HVDC technology. The parameters modelled are included in the tables below and are conservative as maximum rating, minimum burial depth and most acute crossing angle (45°) were taken and the most highly loaded circuits were located on top which produced the highest magnetic fields.

3.10 Summary of the cumulative impact of Hornsea Three, NV and NB found:-

- The study found that the maximum calculated AC magnetic fields were 50.7 µT, which is 14% of the UK exposure limit values; the maximum calculated DC magnetic fields were 60.8 µT which is less than 1% of the UK exposure limit.
- All of the cable crossing scenarios irrespective of whether DC or AC cable connections are used will be compliant with the UK exposure limits set to protect the health of members of the public against electric and magnetic field exposure.
- As the magnetic field is mainly dependant on cable rating, burial depth and phase separation, all cable crossings with similar or less onerous design parameters will also be compliant.

3.11 The study advises that if both cable routes that cross use the same power transmission technology, i.e. AC and AC or DC and DC, the fields can combine to add or subtract from one another. However, if different technologies are used, i.e. AC and DC, the magnetic fields do not interact with one another. In that scenario, the installations of the HVAC and HVDC cables can be considered separately.

3.12 The Summary Report is attached as Appendix 19 to Deadline I submission. This is available for download from both Ørsted and Vattenfall corporate websites[2].

4. Design Interaction and Co-Operation Agreement

4.1 Hornsea Three, NV, and NB are in advanced stages of entering into a Co-operation Agreement. Whilst the terms of that agreement are confidential – those matters pertinent to construction management and implementation extend to:-

- The Parties agree that there should be no detrimental impact for either party to execute their statutory consents.
- The Parties agree to consult one another and keep each other reasonably appraised of key decisions and changes to programme, milestones and upcoming communication with any relevant regulatory body. Further, the Parties shall provide a rolling stakeholder engagement plan to ensure that each party is aware of ongoing engagement with the wider community. This will help ensure that all parties are aware of works ongoing in the area so as to assist with each project's own community liaison initiatives.
- The Parties will share all survey works at the point of crossing and/or shared access areas – this will help reduce the number of surveys undertaken and ensure consistency in base survey data utilised by all Parties.
- Both Parties will design the cable installation works so as to ensure that the other parties can still install their cables – for example, if the first project installs the cables by way of open cut trench, that section of trenching will include enhanced thermal conductivity backfill to reduce any potential future thermal interactions with the second project.
- Parties will share design specifications when known to help facilitate the design of the other party's cables at the point of crossing.
- The Parties will work together to share information and agree mitigation, such as traffic management measures and plans, with the collective aim of minimising the cumulative environmental impact of construction on the local road network, noise management and management of neighbouring Public Rights of Way.
- Each Party will grant the other Party rights of access in an emergency.

[2] https://corporate.vattenfall.co.uk/contentassets/bf0e5e31bbab467eaf02040c7b17513a/vattenfall-orsted-emf-information-sheet.pdf

5. Compulsory Acquisition Powers

5.1 It is agreed that all parties will seek to enter into a tri-partite Option Agreement with the relevant land owner to acquire the rights necessary to construct, use and maintain for Hornsea Three, NV and NB at the crossing point., The terms of the Option Agreement will provide for, amongst other items, crop loss and severance compensation where the accumulative impact of projects in construction at the same time have increased impact to the landowner when compared to separate construction periods.

5.2 In the event that a voluntary agreement cannot be entered into with the relevant landowner, it is agreed that the compulsory acquisition of new rights and imposition of restrictive covenants can co-exist for Hornsea Three, NV and NB. The Co-operation Agreement will regulate the exercise of compulsory acquisition and temporary use powers.

6. Response to ExA First Written Questions

6.1 Both the Applicant, Hornsea Three and NV have considered the ExAs first written questions and responses provided in **Table 5**.

Table 5 – Response to ExA First Written Questions

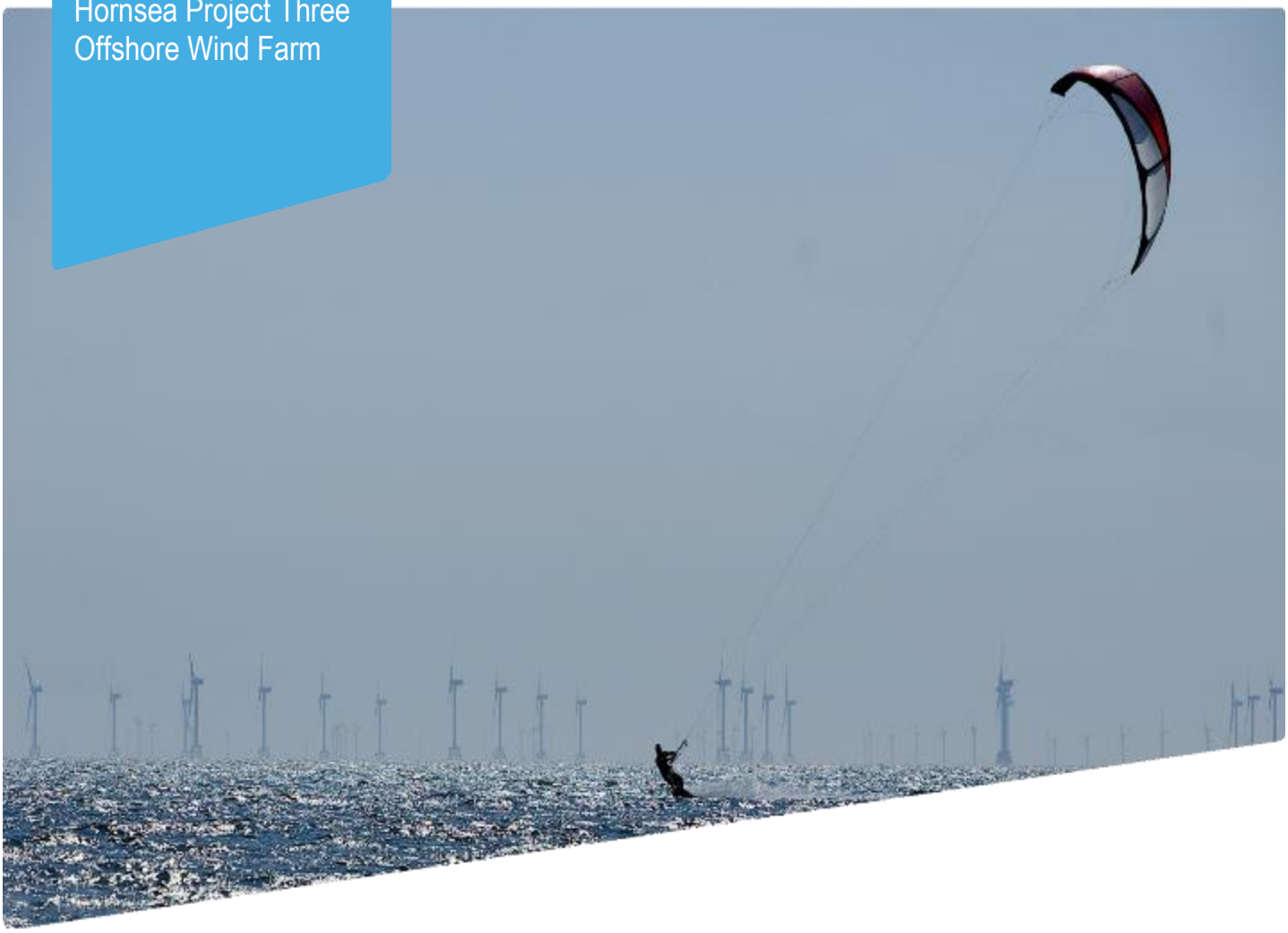
Q No.	Question	Hornsea Three & Norfolk Vanguard Joint Response
1.11.9	The main construction compound at Oulton Street would be located close to some construction and storage components of the proposed Norfolk Vanguard/Norfolk Boreas scheme. Please provide an assessment of the potential in-combination traffic and transport effects of the proposal in the locality of Oulton Street, including details of likely construction timetables for all projects and proposed measures to minimise any impacts.	There may be cumulative impacts on a small number of shared road links during construction of the two projects and relevant discussions between Hornsea Three and Norfolk Vanguard are ongoing. Both parties continue to work together to ensure alignment of highway threshold levels applied by each project, i.e. traffic capacity of each road link before significant impacts are expected, and alignment as to the scope of appropriate traffic management measures that may be required as thresholds are reached – i.e. confirming:- • Thresholds on each street (or part of street) where no or limited ("soft") traffic management measures would be required, such as controls on daily traffic demand, driver induction, community liaison; • Thresholds on each street (or part of street) which would trigger further "soft" traffic management measures, such as timing of deliveries, hazard signage, restricted periods, and temporary speed restrictions; and • Thresholds on each street (or part of street) which would trigger further "harder" traffic management measures -such as flow control, pedestrian crossing points, parking restrictions and other traffic management measures, in some instances physical interventions such as localised widening or passing places. Any mitigation measures identified for these shared links would be secured through each project's final Construction Traffic Management Plans to be developed post-consent. These would be developed with, and approved by, Norfolk County Council as Highways Authority. Whilst these workstreams are ongoing, the locations which require further consideration due to the potential cumulative impact of both projects is limited to:- • The Street (linking B1149 with Oulton Street); • Along B1149, in particular through the settlement of Horsford; and • Along B1145, in particular through the settlement of Cawston. If CTMP measures are required along these stretches of road, these measures will be captured in a revised Outline CTMP to be submitted in due course into the Hornsea Three examination. Hornsea Three and Norfolk Vanguard will be looking to reach an agreement on these matters and engage with Norfolk County Council as the highways authority to reach a shared common point of agreement. This workstream is ongoing and for the purposes of this SoCG submitted at Deadline 1, the cumulative impact on traffic and transport therefore remains not agreed, but material headway has been made and both projects are confident that agreement can be reached in the short term. To date Hornsea Three and Norfolk Vanguard have held a number of meetings on these matters:- • 09/08/2018 Meeting with Norfolk Vanguard to discuss traffic and transport assessment. • 11/09/2018 Meeting with Norfolk Vanguard to discuss traffic and transport assessments. • 26/09/2018 Email correspondence from Hornsea Three to Norfolk Vanguard to advise of the updated TA, TA Clarification Note and Main construction compound traffic survey results. • 16/10/2018 Meeting with Norfolk Vanguard to discuss traffic and transport assessments. 16/10/2018 Email correspondence from Hornsea Three to Norfolk Vanguard issuing the Main Construction Compound Access Strategy.
1.11.12	The on-shore cable route would cross with the proposed Norfolk Vanguard/Norfolk Boreas cable route to the north of Reepham. Please provide an assessment of the potential traffic and highway impacts arising from the construction of both projects and outline any measures that may be required to mitigate any impacts.	
1.12.10	Please provide a cumulative electromagnetic field assessment at the point where the onshore cable route would cross the proposed Norfolk Vanguard/Norfolk Boreas route.	Attached at the end of this SoCG (Appendix 19 to Deadline I submission)

Q No.	Question	**Hornsea Three & Norfolk Vanguard Joint Response**
1.13.3	The onshore cable route proposed as part of the Norfolk Vanguard project would cross the Hornsea Three cable route near Reepham. What assessment has been carried out of the engineering requirements for the cable crossing, such as to demonstrate that the works could be carried out satisfactorily within the Order limits? How would the powers sought by Norfolk Vanguard Limited interact with those sought by the Applicant? Should the Order include protective provisions in respect of Norfolk Vanguard Limited?	The Applicant is currently in on-going discussions with Norfolk Vanguard Limited, the applicant for the Norfolk Vanguard project, with the aim of reaching a commercial agreement to manage the co-existence of the projects. As part of this agreement, the parties will agree a mechanism to determine the method and design at the point of crossing incorporating the principle that one project would install using open cut, and one through HDD. Should Hornsea Three install using HDD, there is a need for a corridor wider than the typical 80m width provided for along the onshore export cable corridor at this location to accommodate the works. This accords with the approach adopted at some of the other technically complex HDD crossings along the Hornsea Three onshore cable corridor route. The width at this crossing point has been determined based on professional experience drawn from previous offshore wind export cable installation campaigns by the Applicant (Hornsea Three) and is reflected in the relevant Land Plan (onshore) (Sheet 16 of 35 of APP-011) and Work Plans (Sheet 16 of 35 of APP-013). As set out in Volume 1, Chapter 3: Project Description of the Environmental Statement [APP-058], detailed ground investigations will be undertaken should HDD be proposed to determine geotechnical data and thermal resistivity properties of the soil to assist with detailed cable route design. Notwithstanding this, the Applicant is confident the works can be carried out within the Order Limits as set out in the Order Limits and Grid Coordinates Plan (Onshore) [APP-010]. The Applicant and Norfolk Vanguard Limited consider that the powers sought by the Applicant and Norfolk Vanguard Limited in their respective DCOs can co-exist. The Applicant is currently in on-going discussions with Norfolk Vanguard Limited, the applicant for the Norfolk Vanguard project, with the aim of reaching a commercial agreement to manage the co-existence of the projects. The Applicant is engaging with Norfolk Vanguard to consider the approach to protective provisions for the Hornsea Three DCO.

Appendix 19 to Deadline I submission - Vattenfall and Ørsted Circuit Crossings- EMF Information Sheet

(Also available for download at from both Ørsted and Vattenfall corporate websites)

Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Appendix 19 to Deadline I submission – Vattenfall and Ørsted Circuit Crossing - EMF Information

Date: 7th November 2018

Hornsea 3
Offshore Wind Farm

Ørsted

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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2018.

National Grid has been engaged by Vattenfall and Ørsted to assess the EMF aspects of this case study, as described in this summary report. The projects as a whole and all other aspects of them remain the responsibility solely of Vattenfall and Ørsted.

Vattenfall and Ørsted Circuit Crossings- EMF Information

In response to local concerns, Ørsted and Vattenfall have jointly commissioned an independent study and resulting report which explores the 'worst case' electric and magnetic fields (EMFs) which may result where it is proposed the power cables from the large wind farms will cross.

Onshore, buried cables from offshore wind farms will necessarily cross other infrastructure, including other power cables. This summary report provides information on the electric and magnetic fields (EMFs) which could occur where power cable circuits cross, specifically assessing the crossing of Ørsted's Hornsea Project Three and Vattenfall's Norfolk Vanguard and Norfolk Boreas offshore wind farms, which are typical of the next generation of offshore wind projects in development by Vattenfall and Ørsted. It represents a conservative assessment of EMFs at such crossings, assessing the worse case parameters for this case study.

Summary of results

- The study found that the maximum calculated AC magnetic fields were 50.7 microtesla (µT) which is 14% of the UK exposure limit values; the maximum calculated DC magnetic fields were 60.8 µT which is less than 1% of the UK exposure limit.
- All of the cable crossing scenarios irrespective of whether DC or AC cable connections are used will be compliant with the UK exposure limits set to protect the health of members of the public against electric and magnetic field exposure.
- As the magnetic field is mainly dependant on cable rating, burial depth and phase separation, all cable crossings with similar or less onerous design parameters will also be compliant.

What are electric and magnetic fields and what policies and exposure limits apply?

EMFs are produced wherever electricity is used. Underground cables, irrespective of frequency, have an earthed metallic shield, which protects them from damage but also prevents electric fields escaping from the cable. Magnetic fields are not shielded in the same way as electric fields and will be produced outside the cables.

Electricity can be transmitted either via High Voltage Direct Current (HVDC) or High Voltage Alternating Current (HVAC) technology producing EMFs of the same frequency.

The UK has a carefully thought-out set of policies for managing EMFs, which includes numerical exposure limits to protect against established effects of EMFs. Public Health England (PHE), formerly the Health Protection Agency, (HPA) recommends limits for exposure to EMFs based on those from the International Commission on Non-Ionizing Radiation Protection (ICNIRP – 1994 & 1998)[1,2]. These guidelines are based on reviews of all the science regarding potential health effects of EMFs and provide limits for continuous public and occupational exposures. DC and AC EMFs have different effects on humans; therefore, each has a separate and distinct set of exposure limits to protect against exposure. PHE issued guidance on the application of exposure limits, which stated that the public exposure limit is 360 µT for 50 Hz AC magnetic fields, and 40,000 µT for DC magnetic fields[3]. In the UK the Earth's DC magnetic field measures around 50 µT, and the background AC magnetic field in a home ranges between 0.01- 0.2 µT.

More information on the science, exposure limits and policies can be found at www.emfs.info.

[1] https://www.icnirp.org/cms/upload/publications/ICNIRPstatic.pdf
[2] http://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf
[3] http://webarchive.nationalarchives.gov.uk/20140713082604/http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1502/

National Grid has been engaged by Vattenfall and Ørsted to assess the EMF aspects of this case study, as described in this summary report. The projects as a whole and all other aspects of them remain the responsibility solely of Vattenfall and Ørsted.

Where onshore wind farm circuits cross onshore, will these be compliant with exposure limits?

The electricity industry's policy is only to design and install equipment that is compliant with the relevant exposure limits. To ensure electricity Industry remain with the exposure limits the Government produced a Code of Practice on EMF compliance which sets out the approved calculation methodology for assessing compliance for new and existing electricity assets. This methodology takes account of maximum power flows and minimum burial depth to ensure that the calculated magnetic fields represent the maximum magnetic field that the electrical infrastructure could possibly produce.

There are multiple possibilities for cable crossing points i.e. AC or DC, which cables are on top, where they cross, the crossing angle – so the calculations in this summary report are the worst-case scenarios typical of the next generation of Vattenfall and Ørsted offshore wind projects in development in the UK.

If both cable routes that cross use the same power transmission technology, i.e. AC and AC or DC and DC, the fields can combine to add or subtract from one another. However, if different technologies are used, i.e. AC and DC, the magnetic fields do not interact with one another. In that scenario, the installations of the HVAC and HVDC cables can be considered separately.

These assessments represent the worst-case scenario for two crossing points, one where both transmission systems use HVAC technology and the other where both use HVDC technology. The parameters modelled are included in the tables below and are conservative as maximum rating, minimum burial depth and most acute crossing angle (45°) were taken and the most highly loaded circuits were located on top which produced the highest magnetic fields.

The calculated fields are shown below and are a small fraction of the AC and DC ICNIRP limits.

Cable design parameters

	2 x HVAC routes		2 x HVDC Routes	
	'On Top'	**'On Bottom'**	**'On Top'**	**'On Bottom'**
Number of circuits	6	12	2	4
Maximum load current per circuit	1620A	900A	2220A	1400A
Maximum circuit spacing at crossing	15.0m	10.0m	15.0m	10.0m
Spacing between phase centres	0.313m	0.25m	0.43m	0.25m
Cable formation in trench	Flat	Trefoil	Flat	Flat
Depth of burial, to circuit centres	0.8m	2.8m	0.8m	2.8m

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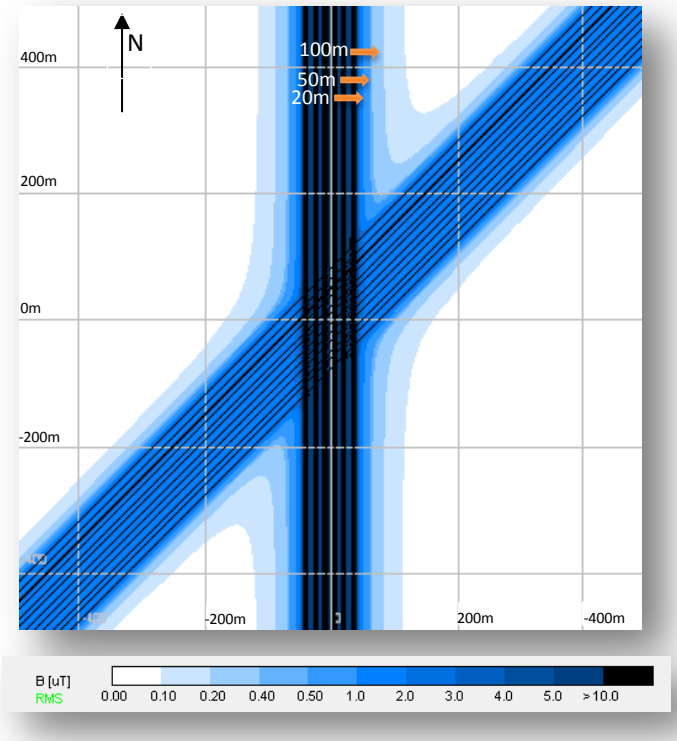
AC magnetic field calculations for HVAC cable crossings



Calculated worst-case AC Magnetic Fields

	Distance perpendicular from outer cable (m)			
	Peak	20m	50m	100m
Magnetic field (µT)	50.7	1.14	0.49	0.23
% ICNIRP exposure limit*	14%	<1%	<1%	<1%

*AC public exposure limit of 360µT

Worst-case calculated magnetic fields from AC circuits: The two cable routes modelled include 6 circuits running in a North-south direction with each circuit rated at 1620A; and 12 circuits which run underneath in a North East-South West direction with 900A rated circuits. Coloured bands represent magnetic field. Each square represents 200m distance. The orange arrows indicate the distance perpendicular from the outer cables that correspond to the table above.

The maximum calculated magnetic fields at various distances from the outer cable are included in the table and demonstrate that all AC magnetic fields are below the UK exposure limits

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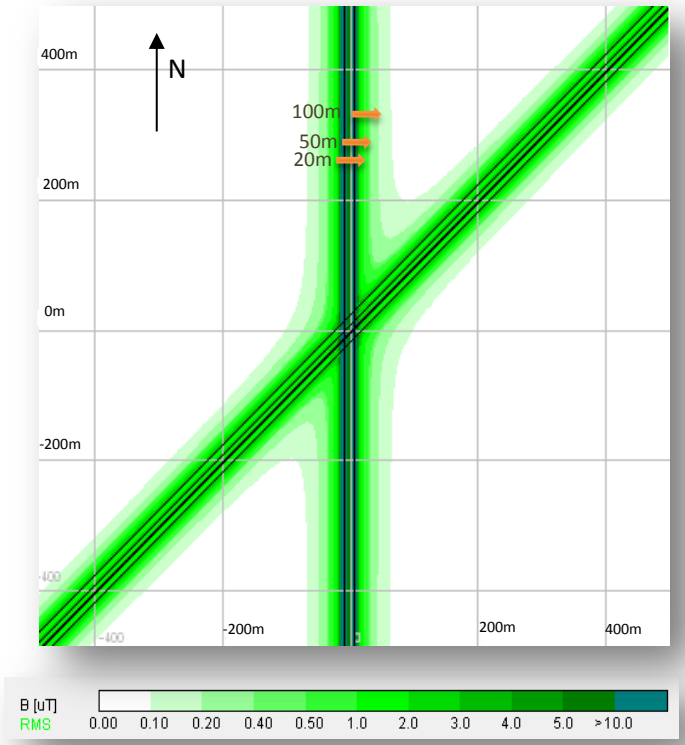
DC magnetic field calculations for HVDC cable crossings



Calculated worst-case DC Magnetic Fields

	Distance perpendicular from outer cable (m)			
	Peak	20m	50m	100m
Magnetic field (µT)	60.8	1.46	0.57	0.23
% ICNIRP exposure limit*	<1%	<1%	<1%	<1%

*DC public exposure limit 40,000µT

Worst-case calculated magnetic fields from DC circuits: The two cable routes modelled include 2 circuits running in a North-south direction with each circuit rated at 2220A; and 4 circuits which run underneath in a North East-South West direction with 1400A rated circuits. Coloured bands represent magnetic field. Each square represents 200m distance. The orange arrows indicate the distance perpendicular from the outer cables that correspond to the table above.

The maximum calculated magnetic fields at various distances from the outer cable are included in the table and demonstrate that all DC magnetic fields are below the UK exposure limits.

Where can I get further information?

More information is available from National Grid's website at www.emfs.info or from the EMF helpline on 0845 702 3270 or emfhelpline@nationalgrid.com.

Alternatively you can contact the Norfolk Vanguard project team directly on info@norfolkvanguard.co.uk or 01603 567995 or Hornsea Project Three on contact@hornsea-project-three.co.uk or 0800 0288 466.