Peartree Hill Solar Farm

Environmental Statement

Volume 2

Chapter 14: Transport and Access

Revision 2 (tracked)

Planning Act 2008

Infrastructure Planning

(Applications: Prescribed Forms

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Contents

14 Transport and Access

14.1 Introduction

14.1.1 This chapter presents an assessment of likely significant effects arising from the construction, operation (including maintenance) and decommissioning of the Proposed Development upon transport and access. The full description of the Proposed Development is provided within **Environmental Statement (ES) Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**.

14.1.2 This chapter is supported by the following figures presented in **ES Volume 3 [EN010157/APP/6.3]**:

- **Figure 14.1: Study Area for Transport and Access**
- **Figure 14.2: Transport Routing and the Existing Highway Network**
- **Figure 14.3: Public Rights of Way and Long Distance Paths Within and Adjacent to the Proposed Development**
- **Figure 14.4: Link Sensitivity**

14.1.3 This chapter is supported by the following appendices presented in **ES Volume 4 [EN010157/APP/6.4]**:

- **Appendix 14.1: Transport Assessment**
- **Appendix 14.2: Traffic Flow Diagrams**
- **Appendix 14.3: Junction Modelling Output Files**
- **Appendix 14.4: STATS19 Personal Injury Collision Reports**
- **Appendix 14.5: Swept Path Analysis**

14.1.4 This chapter should be read in conjunction with the following assessment chapters:

- **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**
- **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]**
- **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**
- **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]**
- **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]**
- **ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2]**

14.1.5 This chapter should be read in conjunction with the following management plan documents, which are provided under separate cover:

- **Outline Construction Environment Management Plan (Outline CEMP) [EN010157/APP/7.2]**
- **Outline Operational Environment Management Plan (Outline OEMP) [EN010157/APP/7.3]**
- **Outline Decommissioning Environment Management Plan (Outline DEMP) [EN010157/APP/7.4]**
- **Outline Construction Traffic Management Plan (Outline CTMP) [EN010157/APP/7.7]**
- **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]**

14.2 Legislative framework, planning policy and guidance

14.2.1 This assessment has been undertaken in accordance with the following legislation, and with regard to the following planning policy and guidance.

14.2.2 It should be noted that this chapter does not assess the compliance of the Proposed Development against relevant planning policy. Such an assessment is presented in the **Planning Statement [EN010157/APP/5.5]**.

Legislation

- The Highways Act 1980 **[Ref. 14-1]**.

National planning policy

- Overarching National Policy Statement for Energy (NPS EN-1) (2023) (designated in January 2024) – Section 5.14 details the planning policy for traffic and transport, including guidance on undertaking the Environmental Impact Assessment (EIA) using the Department for Transport 'Transport Analysis Guidance'. NPS EN-1 also outlines the requirements for Nationally Significant Infrastructure Project (NSIP) applications where the development could result in effects upon the strategic or local road network that may require the development of a travel plan and mitigation measures; with a focus on appropriate demand management measures **[Ref. 14-2]**;
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2023) (designated in January 2024) – Section 2.10 considers

solar development including the assessment of traffic and transport impacts during construction, inclusive of traffic and transport noise and vibration and Large Loads. Paragraphs 2.10.120 to 2.10.126 refer to routing to sites and cumulative impact assessment requirements. Paragraphs 2.10.139 to 2.10.144 refer to mitigation measures and consultation requirements; consideration should also be given to cumulative transport assessment in line with NPS EN-3 **[Ref.14-3]**. Likewise, Paragraphs 2.10.161 to 2.10.162 note operational traffic is generally limited, and that the Secretary of State will place limited weight on traffic and transport noise and vibration operational impacts;

- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2023) (designated in January 2024), which details issues relating to underground cables, although predominantly dealing with overhead cables **[Ref. 14-4]**. Paragraphs 2.9.28 and 2.109 outlining accidental damage and quality assurance during installation; and
- National Planning Policy Framework (NPPF) (2024) – sets out the Government's planning policies for England, along with the expectations for how these policies are to be applied to new developments. This document is currently under review/consultation including aspects regarding traffic and transport. Section 9 outlines policies to ensure that appropriate measures are in place to support sustainable growth. Paragraph 11 makes note of the requirement of a proposed development to meet development needs of the area, improve the environment etc. Paragraphs 115 and 116 relate to promotion of sustainable transport and the importance of ensuring that and significant impacts from development on the transport network can be mitigated to an acceptable degree. **[Ref. 14-5]**.

Local planning policy

- East Riding Local Plan 2012 – 2029 (adopted April 2016) **[Ref. 14-6]**:
  - Policy S1: Presumption in favour of sustainable development
  - Policy S8: Connecting people and places
  - Policy EC4: Enhancing sustainable transport
  - Policy EC5: Supporting the energy sector
- East Riding Local Transport Plan (2021 - 2039) **[Ref. 14-7]**:
  - Objective 2 Support sustainable economic growth and regeneration
  - Objective 3 Reduce carbon emissions and encourage healthy lifestyles

- East Riding Sustainable Transport – ~~Draft~~ Supplementary Planning Document (~~January~~ December 2024) **[Ref. 14-8]**

Guidance

- The Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement (2023) **[Ref. 14-9]**
- National Highways - The Strategic Road Network and the Delivery of Sustainable Development (December 2022) **[Ref. 14-10]**.
- Planning Practice Guidance (Paragraph: 015 Reference ID: 42-015-20140306) - Travel Plans, Transport Assessments and Statements **[Ref. 14-11]**.
- Manual for Streets (Department for Transport, 2007) **[Ref. 14-12]**.
- Design Manual for Roads and Bridges, Standards for Highways **[Ref. 14-13]**.

14.3 Stakeholder engagement

14.3.1 **Table 14-1** provides a summary of the stakeholder engagement activities undertaken by the Applicant in relation to transport and access separately from the Environmental Impact Assessment (EIA) scoping, non-statutory consultation, statutory consultation and targeted consultation process in support of the preparation of this assessment, as well as detailing the matters raised, how such matters have been addressed, and where they have been addressed within the DCO Application documentation.

14.3.2 **ES Volume 4, Appendix 5.3: Scoping Opinion Response Matrix [EN010157/APP/6.4]** presents the responses received via the Scoping Opinion and the Applicant's response to each matter raised.

14.3.3 The **Consultation Report appendices [EN010157/APP/5.2]**, which is submitted in support of the DCO Application, sets out the feedback received during non-statutory, statutory and targeted consultation and how the Applicant has had regard to the matters raised by consultees.

Table 14-1: Summary of stakeholder engagement

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
East Riding of Yorkshire Council (Highways)	19 February 2024	Initial discussions were held regarding the proposed construction vehicle access locations, routes and indicative highway mitigation. It was agreed with East Riding of Yorkshire Council highway officers that the proposed access designs would be explored in greater detail with the relevant area engineers at East Riding of Yorkshire Council, who would be able to provide technical comments on the viability of locations such as proposed access locations and acceptability of proposed mitigation such as passing places. East Riding of Yorkshire Council highways officers indicated that temporary speed reductions on routes during the construction phase of the Proposed Development would be acceptable in order to ensure that visibility could be achieved without requiring the removal of hedges and trees.	Plans showing the proposed access locations, routes and highway mitigation were distributed to the Area Engineers at East Riding of Yorkshire Council via email on 02 August 2024. Written response (email dated 12 September 2024) was provided by East Riding of Yorkshire Council officers, indicating that they had no concerns regarding the draft designs and stating that the majority of the widening and new passing places that are constructed to East Riding of Yorkshire Council standards will likely be retained for adoption by the Highway Authority, following construction.	**Section 14.6** of **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**. The Access and Highway Mitigation Plans are presented in **Appendix G** in **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**. **Outline CTMP [EN010157/APP/7.7]**.
National Highways	25 March 2024	The Applicant provided a summary of the potential worst-case site traffic (Land Areas D and E being constructed simultaneously) and explained that	The design of the Proposed Development and trip generation/trip distribution	**Paragraph 14.4.5** of **ES Volume 2, Chapter 14:**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		only a small proportion of trips would be likely to use the Strategic Road Network and indicated that the parts of the Strategic Road Network closest to the Site would only be used by port traffic or long distance deliveries/employee trips. National Highways did not express any particular concerns about the likely impact of the Proposed Development and requested to be kept informed as the design was refined and the data is refined on trip generation and likely distribution to/from the Strategic Road Network. National Highways noted that it would be unlikely to request a Travel Plan, but would request the production of a Construction Traffic Management Plan through a requirement of the DCO.	numbers have been refined since the engagement and the outcome is the same. The ES demonstrates that there is no significant effect on the Strategic Road Network. National Highways has been kept informed as the pre-application phase has progressed. An Outline CTMP is submitted in support of the DCO Application, to which is appended an Outline Travel Plan. As set out in **Schedule 2** of the **Draft DCO [EN010157/APP/3.1]**, the Applicant must consult with Hull City Council and National Highways on any Construction Traffic Management Plan and seek approval from East Riding of Yorkshire Council.	**Transport and Access [EN010157/APP/6.2]**. **Outline CTMP [EN010157/APP/7.7]**. **Schedule 2** of the **Draft Development Consent Order (DCO) [EN010157/APP/3.1]**.

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
East Riding of Yorkshire Council (relating to the Transport Assessment Scope)	20 August 2024	A Transport Assessment Scoping Report was prepared by the Applicant, which set out the proposed approach to be undertaken for assessing the Proposed Development. This included the assessment years, committed developments to be included in the transport assessment, access arrangements, vehicle routing, trip generation, construction phasing, extent of the network to be assessed in the Transport Assessment and the locations and dates for traffic surveys undertaken. East Riding of Yorkshire Council responded with agreement to the suggested approach to the Transport Assessment (email dated 16 September 2024). This was preceded by a review of the Transport Assessment Scoping Report by AECOM on behalf of East Riding of Yorkshire Council (dated 06 September 2024), which concluded the following comments: • Continue engaging with East Riding of Yorkshire Council highways department and National Highways at the earliest opportunity for each stage of the design and its associated transport-	The Applicant has addressed the comments on Transport Assessment Scoping Report in the Transport Assessment and associated appendices. Since the Transport Assessment Scoping Report was issued, the construction programme has developed and it is noted that there may be approximately 10 HGV trips occurring during the AM peak hour for two weeks during the construction of each Land Area. The occurrence of these trips during the AM peak period will have no material impact on the local highway network operation and these trips are included in the anticipated construction phase trip generation Annual Average	**ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		related factors, such as routing and trip generation; • Refer to the IEMA Guidelines: Environmental Assessment of Traffic and Movement for any design changes that impact transport, such as the inclusion or exclusion of certain road links within the assessment; • Ensure that all traffic survey dates are outside of events such as school holidays when the level of traffic may be lower than normal; • Confirm that each element of the desktop studies has been verified on a site visit and that the conditions are representative; • Confirm whether sustainable transport options are viable for all Land Areas; • Any junctions or roads that are identified to have clusters of accidents should receive appropriate mitigation measures to ensure that the Proposed Development does not exacerbate this; • Any years impacted by COVID-19 should be excluded from the highway safety review; • Any reduction in Trip End Model Presentation Program (TEMPRo) is to be agreed with East	Daily Traffic flows in the assessment. From a driver delay perspective, it is not expected that 10 HGVs during the AM peak hour would breach the assessment parameters.	

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		Riding of Yorkshire Council and National Highways; • All changes to the highway, such as the implementation of passing places as a form of mitigation, are drawn and mapped, to ensure compliance with guidance; • The identification of the AM and PM network peak within the Transport Assessment, and the subsequent assessment of the impact of the construction traffic generation during these peaks (noting that Heavy Goods Vehicle (HGV) trips, will avoid the network peak hours; • The provision of a site masterplan and a detailed construction timeline of the phases on site with a breakdown of generated traffic from each phase, to be provided within the submitted Transport Assessment; • A robust method to calculate the distribution of trips, such as a gravity model, if the exact origin of each worker is unknown; and • All relevant organisations and bodies should be contacted prior to the decommissioning taking place.		

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
Hull City Council Highways	23 September 2024	The Applicant provided a summary of progress to date and details of the Proposed Development. Whilst the Proposed Development falls outside of the Hull City Council boundary, construction traffic will affect parts of the Hull City Council network. It was agreed between the Applicant and Hull City Council that the construction trip numbers would not be of concern. Hull City Council officers asked to be kept informed and to be consulted, along with National Highways, on the Construction Traffic Management Plan. This is to enable the Port Authority to be informed by Hull City Council and to plan accordingly for use of Hull Docks alongside a series of other large DCO schemes so they can plan for any cumulative impact.	Hull City Council and National Highways officers have been kept informed via meetings and email. Hull City Council and National Highways were contacted by email to confirm their acceptance of the proposed approach in November 2024 and both confirmed acceptance. As set out in **Schedule 2** of the **Draft DCO [EN010157/APP/3.1]**, the Applicant must consult with Hull City Council and National Highways on any Construction Traffic Management Plan and seek approval from East Riding of Yorkshire Council.	**Schedule 2** of the **Draft DCO [EN010157/APP/3.1]**. **Outline CTMP [EN010157/APP/7.7]**.
East Riding of Yorkshire Council (relating to	02 December 2024	The Applicant consulted East Riding of Yorkshire Council with regards to the requirement for two Large Loads to access the Site for transporting the two transformers to Site.	An Outline CTMP has been submitted in support of the DCO Application which sets out the proposed management of Large	**Outline CTMP [EN010157/APP/7.7]**.

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
Large Loads[1])		One of the Large Loads will access the Site from the A165 White Cross Road and Carr Lane (Long Riston). The other Large Load will access the Site via A1035 and Meaux Lane. It is anticipated that the Large Load vehicle will be approximately 19.9m long and 2.5m wide with rear-wheel steering. East Riding of Yorkshire Council confirmed that it does not anticipate any issues with the proposed routes, subject to the haulier checking the route is suitable before moving and an overnight road closure being enforced on Meaux Lane to facilitate the vehicle movements. Additionally, East Riding of Yorkshire Council requested that early engagement be undertaken with the relevant Parish Council(s) and affected business, alongside advanced signage and a point of contact for enquiries being included on the signage.	Loads accessing and egressing the Site, in line with the agreed approach with East Riding of Yorkshire Council.	

[1] Any load which cannot be broken down into smaller loads for the purposes of transportation, without undue expense or risk of damage

14.4 Approach to the assessment

Study area

14.4.1 The transport and access assessment has considered the impacts of traffic generated by the Proposed Development on the local highway network in the vicinity of the Site during the construction and decommissioning phases, and also considers the Order Limits in consideration of the local public right of way (PRoW) network. This has examined relevant junctions and connecting highway links primarily affected by construction related vehicular traffic, the latter being the primary consideration for the assessment of likely significant environmental effects.

14.4.2 The traffic generated by the Proposed Development during the operation (including maintenance) phase is considered to be less than during the construction phase. There will be a small number of vehicles required to access the Site for maintenance and other tasks, such as replacement of equipment, during the operation phase. Decommissioning will involve the dismantling of equipment and reinstating some of the infrastructure which will require slightly less time, and fewer staff and vehicles to undertake than the construction phase. The routes and accesses (during operation and decommissioning) will be as per the construction phase.

14.4.3 The study area was initially defined during the EIA Scoping stage (and presented in the **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**) but has subsequently been reduced following assessment of the initially proposed links during the Preliminary Environmental Information Report, which resulted in a number of potential access routes being excluded (and therefore these would be less affected by construction and decommissioning traffic). Following the completion of the Preliminary Environmental Information Report, the area within the previous Order Limits referred to as “Land Area A” has been removed, and as such the highway links which were used for vehicle routes to/from Land Area A have been removed from the study area. Additionally, the access route on Woodhouse Lane into Land Area C has been removed following refinement of route options.

14.4.4 Existing access junctions have subsequently been added since the Preliminary Environmental Information Report on A1174 Hull Road, Long Lane and Park Lane which will provide temporary access to land within the Order Limits for the grid connection cable route works to take place. These routes are not assessed because the daily trip generation will be no more than 10 Light Goods Vehicle (LGV) daily vehicle movements and 10 HGV daily vehicle movements for a short

period during the construction phase and therefore would not result in a significant effect.

14.4.5 The Strategic Road Network at the A63 and M62 will be utilised for routing vehicles, including HGVs, to and from the Site from a local port, anticipated at this stage to be Hull Port, and from the wider Strategic Road Network. Existing traffic volumes on the A63 and M62 are higher than the roads within the study area which will result in the impact of Proposed Development traffic being diluted. Therefore, the A63 and M62 have been excluded from the study area.

14.4.6 On the above basis, the study area includes the following links:

- A1035 (between A1174 roundabout and Leven Roundabout);
- A165 White Cross Road (south of White Cross roundabout);
- Meaux Lane/Meaux Road (between A1035 and access to Land Area F east of Meaux Road);
- Carr Lane, Long Riston (immediately west of the A165);
- Arnold Lane West, Arnold/Long Riston (between A165 and Black Tup Lane);
- Black Tup Lane, Arnold/Long Riston (between Arnold Lane West and Carr Lane (Arnold));
- National Cycle Network Route 1 along Park Lane;
- A1174 Hull Road;
- Long Lane; and
- Park Lane.

14.4.7 The assessment study area of highway links is shown on **ES Volume 3, Figure 14.1: Study Area for Transport and Access [EN010157/APP/6.3]**.

14.4.8 The highway links within the study area were identified based on the anticipated construction traffic routes to/from the Proposed Development (dictated by the location of vehicular construction accesses and likely routes taken by construction and worker trips). These routes are detailed in and secured by the **Outline CTMP [EN010157/APP/7.7]** which sets out how construction traffic would be managed and matters such as phasing of construction and the effect on construction traffic impacts. Details of the traffic routing to and from the Site are provided in **paragraphs 14.4.33** and **14.4.34** below and a plan showing the HGV and LGV routing is shown on **ES Volume 3, Figure 14.2: Transport Routing and the Existing Highway Network [EN010157/APP/6.3]**.

Scope of the assessment

14.4.9 The scope of this assessment has been established throughout the EIA process and design of the Proposed Development. Further information can be found in **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]**.

14.4.10 This section provides an update to the scope of the assessment from that presented in the EIA Scoping Report which is located in **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and re-iterates/updates the evidence base for scoping matters in or out following further iterative assessment.

Receptors/matters scoped into the assessment

14.4.11 **Table 14-2** presents the receptors/matters that are scoped into the assessment reported within this ES, together with appropriate justification.

Table 14-2: Receptors/matters scoped into the assessment

Receptor/ matter	Phase	Justification
A1035	Construction and decommissioning	These receptors are scoped into the assessment for the construction phase, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. It should be noted that **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** scoped out all receptors for the decommissioning phase. The justification given was the effects may be mitigated by the beginning of the phase (anticipated to be no earlier than the 2060s) as local and regional highway schemes will likely be brought forward during that period. Nonetheless, the effects are predicted to be less than the construction effects. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing insufficient justification has been provided. Accordingly, the ES should include an assessment of this matter or evidence demonstrating agreement with the
A165 White Cross Road	Construction and decommissioning	
Meaux Lane/ Meaux Road	Construction and decommissioning	
Carr Lane, Long Riston	Construction and decommissioning	
Arnold Lane West, Arnold	Construction and decommissioning	
Black Tup Lane, Arnold	Construction and decommissioning	

Receptor/ matter	Phase	Justification
		relevant consultation bodies and the absence of a likely significant effect. Therefore, these receptors are also scoped in for the decommissioning phase.
National Cycle Network Route 1 (on Park Lane)	Construction	This receptor was not specifically referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. However, it has been scoped into the assessment for the construction phase only due to the subsequent addition of the temporary construction vehicle route along Park Lane. The National Cycle Network Route 1 runs along Park Lane which is within the Order Limits) and which is proposed to provide access to the grid connection cable route works adjacent to the in situ National Grid Creyke Beck Substation. Parts of National Cycle Network Route 1 run along the public highway and parts form a PRoW. There is potential for construction vehicles on Park Lane to affect users of the National Cycle Network Route 1. Construction traffic has the potential to affect severance, non-motorised user delay, non-motorised user amenity, and fear and intimidation.
Park Lane	Construction	These receptors were not specifically referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. However, they have been scoped into the assessment for the construction phase only as they are anticipated to accommodate a small amount of construction traffic.
Long Lane	Construction	
A1174 Hull Road	Construction	
Impact of Large Loads to deliver transformers	Construction	This matter was not specifically referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. However, it has been scoped into the assessment for the construction phase as it is anticipated that Large Loads will be required to transport two transformers to the Site.

Receptors/matters scoped out of the assessment

14.4.12 **Table 14-3** presents the receptors/matters that are scoped out of the assessment that are therefore not considered as part of this ES, together with appropriate justification.

Table 14-3: Receptors/matters scoped out of the assessment

Receptor	Phase	Justification
A1035	Operation (including maintenance)	These receptors are scoped out of the assessment for the operation (including maintenance) phase, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, subject to confirmation in the ES that the frequency and type of maintenance visits and vehicles would not give rise to a significant effect. Such confirmation is provided in **paragraphs 14.4.47 and 14.4.48** below.
A165 White Cross Road	Operation (including maintenance)	
Meaux Lane/Meaux Road	Operation (including maintenance)	
Carr Lane, Long Riston	Operation (including maintenance)	
Arnold Lane West, Arnold	Operation (including maintenance)	
Black Tup Lane, Arnold	Operation (including maintenance)	
Strategic Road Network (A63 and M62)	Construction, operation (including maintenance) and decommissioning	This receptor was not specifically referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. During construction and decommissioning, there will be temporary impacts of construction deliveries and workers travelling to and from the Site. It is expected that the distribution of traffic will result in a low proportional change in traffic volumes on the Strategic Road Network, including during peak hours. Therefore, this receptor is scoped out of the assessment for the construction and decommissioning phases. Once the Proposed Development is operational, the effect of operational trips (occasional maintenance and servicing vehicles) on the Strategic Road Network is expected to be negligible. Therefore, this receptor is scoped out of the assessment for the operation (including maintenance) phase.
A165 (East of White Cross Roundabout)	Construction, operation (including	These receptors were scoped into the assessment for the construction phase, as detailed within **ES Volume 4, Appendix 5.1:**

Receptor	Phase	Justification
	maintenance) and decommissioning	**Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. However, the subsequent removal of Land Area A from the Order Limits results in a significant reduction in predicted traffic generation on these road links and no significant effects are anticipated during either construction, operation (including maintenance) or decommissioning. Therefore, these receptors are scoped out of the assessment.
New Road/Starcarr Lane, Brandesburton	Construction, operation (including maintenance) and decommissioning	
West Street, Leven	Construction, operation (including maintenance) and decommissioning	
East Street, Leven	Construction, operation (including maintenance) and decommissioning	
Hornsea Road, Leven	Construction, operation (including maintenance) and decommissioning	
Heigholme Lane	Construction, operation (including maintenance) and decommissioning	
Carr Lane, Leven (west of West Street & Heigholme Lane)	Construction, operation (including maintenance) and decommissioning	
Meaux Road/Wawne Road (south of Access to Land Area F to Bude Road roundabout)	Construction, operation (including maintenance) and decommissioning	This receptor was scoped into the assessment for the construction phase, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. However, this receptor has subsequently been removed from the study area following discussions with regards to HGV routing which ruled out the potential for HGVs routing to and from the Site via Wawne. Therefore, the trip generation via Wawne has significantly reduced and no significant effects are anticipated during either construction, operation (including maintenance) or decommissioning.

Receptor	Phase	Justification
		Therefore, this receptor is scoped out of the assessment.
Benningholme Lane, Skirlaugh	Construction, operation (including maintenance) and decommissioning	These receptors were scoped into the assessment for the construction phase, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. However, these receptors have subsequently been removed from the study area following engagement with local residents with regards to HGV routing which ruled out the potential for HGVs routing to and from the Site via Skirlaugh. Therefore, the trip generation via Skirlaugh is anticipated to be negligible and no significant effects are anticipated during either construction, operation (including maintenance) or decommissioning. Therefore, these receptors are scoped out of the assessment.
Ings Lane (West of Skirlaugh)	Construction, operation (including maintenance) and decommissioning	
Woodhouse Lane (West of Skirlaugh)	Construction, operation (including maintenance) and decommissioning	
Field House Farm (west side of Field House Farm)	Construction, operation (including maintenance) and decommissioning	This receptor was scoped into the assessment for the construction phase, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. However, this receptor has subsequently been removed from the study area following consideration of HGV routing options to and from the Site, the route via Field House Farm was not considered to be viable and was therefore excluded. Therefore, there will be no trips generated by the Proposed Development on the access track serving Field House Farm and no significant effects are anticipated during either construction, operation (including maintenance) or decommissioning. Therefore, this receptor is scoped out of the assessment.

Receptor	Phase	Justification
National Cycle Network Route 1 (on Park Lane)	Operation (including maintenance) and decommissioning	These receptors were not specifically referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The operation (including maintenance) phase will have a negligible effect on these receptors and the decommissioning phase will not generate trips along these receptors as the cable infrastructure (which access along Long Lane is required to construct) would be left in situ at decommissioning. Therefore, these receptors are scoped out of the assessment for the operation (including maintenance) and decommissioning phases.
Park Lane	Operation (including maintenance) and decommissioning	
Long Lane	Operation (including maintenance) and decommissioning	
A1174 Hull Road	Operation (including maintenance) and decommissioning	
Impact of Large Loads to deliver transformers	Operation (including maintenance) and decommissioning	This matter was not specifically referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. However, it has been scoped out of the assessment as a result of there being no anticipated requirement for Large Loads during the operation (including maintenance) or decommissioning phases.
Wilberforce Way Long Distance Path/Figham Common	Construction, operation (including maintenance) and decommissioning	This receptor was not specifically referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. Wilberforce Way is a long distance path and a short section (approximately 50m) runs alongside the A1174. Wilberforce Way is scoped out of the assessment on the basis that (i) the path does not cross the road and (ii) the construction traffic flows using the A1174 link to access the Site would be unlikely to result in a significant effect on users of Wilberforce Way. Whilst Wilberforce Way crosses the public highway further north (it crosses the A164 from the east to west side to join Hull Road to/from Beverley town centre), the A164 at this point is a dual carriageway which already carries significant traffic flows, including HGVs.

Receptor	Phase	Justification
		Management of the section of Wilberforce Way within the Order Limits is set out in the **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]** and secured through the requirements in **Schedule 2 of the Draft DCO [EN010157/APP/3.1]**.
All PRoW within or adjacent the Order Limits which are not on the public highway	Construction, operation (including maintenance) and decommissioning	These receptors were not specifically referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. All PRoW that are not connected directly to a public highway would not be affected by vehicles on the public highway. Management of PRoW within the Order Limits is set out in the **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]** and secured through the requirements in **Schedule 2** of the **Draft DCO [EN010157/APP/3.1].** Proposals to the PRoW within the Order Limits are set out in the **Draft DCO [EN010157/APP/3.1]** and presented on the **Streets, Rights of Way and Access Plans [EN010157/APP/2.3]**.

Establishing baseline conditions

14.4.13 The following data sources have been used to understand the existing transport and access baseline conditions:

- Google/Bing mapping data (aerial/satellite/street view imagery);
- Ordnance Survey mapping data & GIS data (such as East Riding of Yorkshire PRoW);
- Topographical survey data;
- Department for Transport's STATS19 database (collision data);
- Existing East Riding of Yorkshire Council traffic count data; and
- Traffic survey data provided by third party survey companies.

14.4.14 In addition to the desk-based studies, a series of traffic surveys were undertaken in order to establish existing baseline traffic flows on the local highway network.

14.4.15 The locations of traffic surveys were in line with **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and set out in detail in the Transport

Assessment Scoping Report which was agreed by East Riding of Yorkshire Council highways officers (refer to **Table 14-1** above). Data was collected from a combination of commissioned traffic counts and data obtained from East Riding of Yorkshire Council's permanent Automatic Traffic Counters. All surveys were undertaken in neutral conditions, i.e. during school term-time and without any temporary traffic restrictions in place, such as roadworks.

- East Riding of Yorkshire Council Automatic Traffic Counters of two-way vehicle movements on the following link (month of survey in brackets):
  - A165 Main Street, Skirlaugh (September 2023).
- Manually classified all-direction junction turning movement count surveys undertaken at the following locations (month survey was undertaken in brackets):
  - Brandesburton Roundabout (October 2023);
  - Leven Roundabout (October 2023);
  - White Cross Roundabout (October 2023);
  - A1035/Meaux Lane Priority (October 2023);
  - North Street/East Street/West Street/South Street Crossroads (October 2023);
  - A165/Arnold Lane West Priority (October 2023); and
  - Wawne Road/Cumbrian Way/Kesteven Way Roundabout (October 2023).
- Automatic Traffic Counter surveys (recording two-way movements on a link) by vehicle type on the following links (month survey was undertaken in brackets):
  - Carr Lane, Long Riston (October 2023);
  - A1035 (East of Swinemoor Lane Roundabout) (February 2024);
  - Meaux Road (south of Holderness Drain) (February 2024);
  - Black Tup Lane (south of Carr Lane) (February 2024);
  - West Street, Leven (February 2024); and
  - Heigholme Lane (February 2024).

14.4.16 Some of the data collected from the surveys has not been used in the assessments. This is due to the study area being refined since the time the survey data was obtained. The study area has been refined since it was presented in the Preliminary Environmental Information Report, comprising the removal of Land Area A and refinements of the trip generation as details of the construction have gained clarity.

14.4.17 **ES Volume 4, Appendix 14.2: Traffic Flow Diagrams, Figure 1 [EN010157/APP/6.4]** shows the 2023 traffic survey flows.

14.4.18 **ES Volume 4, Appendix 14.2: Traffic Flow Diagrams, Figure 23 [EN010157/APP/6.4]** shows the Annual Average Daily Traffic link flows on the local road network within the study area based on the Automatic Traffic Counter surveys undertaken with background traffic growth to 2026.

14.4.19 In addition to the above, a site visit was undertaken on 22 September 2023, which involved driving the potential access routes to review potential highway constraints and observe the existing operation of local roads.

14.4.20 Road traffic collisions recorded within the study area have been extracted from the Department for Transport's STATS19 database. The most recent five-year period available is 2018-2022 inclusive, Data for 2023 and 2024 was not available at the time of writing, although it is noted that this includes two years with COVID-19 restrictions (2020 and 2021). East Riding of Yorkshire Council had requested that collisions occurring during 2020 and 2021 should be excluded as these fall within periods of lockdown associated with the COVID-19 pandemic on the basis that they are considered to not represent typical road and driving conditions. However, the review of the statistics does not indicate any significant variation in trends and therefore, for the purposes of the assessment, they have been included to ensure a full five years of data is available.

Approach to design flexibility

14.4.21 The design parameters, as outlined in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** and **Design Parameters Document [EN010157/APP/5.8]**, set out the reasonable 'worst-case' parameters for the Proposed Development.

14.4.22 **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]** sets out those elements of the Proposed Development for which optionality is present within the design.

Assessment assumptions

14.4.23 The assessment is based on the design parameters, as outlined in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** and **Design Parameters Document [EN010157/APP/5.8]**.

Construction Phase

14.4.24 As outlined in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**, phasing is indicative at this stage. Details of phasing will be developed following procurement of the principal contractor. In order to undertake a robust assessment, indicative phasing has been set out which provides a worst-case scenario for the study area. The following phasing is assumed for assessment purposes only:

- Phase 1: Land Area B (months 1 to 4)
- Phase 2: Land Areas B & C (months 5 to 8)
- Phase 3: Land Areas C & D and commence grid connection cable route works (months 9 to 12)
- Phase 4: Land Areas D & E and continue grid connection cable route works (months 13 to 16)
- Phase 5: Land Areas E & F and continue grid connection cable route works (months 17 to 20)
- Phase 6: Land Area F and complete grid connection cable route works (months ~~22~~ 21 to 24)

14.4.25 The phasing of construction is indicative at the time of writing. On this basis, assumptions have been made with regards to the phasing of the construction in each Land Area and the undertaking of the grid connection cable route works (connecting the Proposed Development to the National Grid Creyke Beck Substation as described in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**).

14.4.26 It is anticipated that the construction phase will commence in quarter 3 of 2026 and take place over an anticipated 24-month period. Each Land Area is anticipated to be constructed over approximately 8-month periods. The grid connection cable route works are estimated to be carried out over a 10-month period (approximately). For the purpose of undertaking a worst-case assessment, it is assumed that two Land Areas are constructed simultaneously and some of the construction phases overlap with the grid connection cable route works.

14.4.27 The assessments are undertaken for the opening year of the construction phase, 2026, as set out in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**. The construction phase is anticipated to occur over 2026, 2027 and 2028. For the purposes of the assessment, 2026 is a robust assessment year as existing base traffic forecasted to 2026 will be lower compared to being forecasted to 2027 or 2028, based on TEMPRo forecasting. Lower base traffic will result in the Proposed Development generating a higher percentage impact compared to undertaking the assessment for later years (when base traffic flows are expected to be higher).

14.4.28 The future year baseline comprises the calculation of traffic flows using TEMPRo factors to determine the future year baseline flows.

14.4.29 TEMPRo is software that generates traffic growth factors based on changes in traffic usage as a result of expected changes in jobs and housing as well as other local factors. It therefore provides a robust basis for predicting future traffic levels.

14.4.30 In line with the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** discrete projects within the agreed study area that are existing, approved or likely to come forward have not been added to the baseline scenario. **ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2]** includes consideration of the cumulative effect of discrete projects on the study area for transport and access.

14.4.31 To assess a reasonable worst-case scenario within this chapter and **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**, the assumptions that have been used are outlined in **Table 14-4** below.

Table 14-4: Assumptions underlying the assessment of the construction phase

Construction assumption	Summary/justification
Construction working hours	Construction worker hours are 07:00 to 19:00 Monday to Friday and 07:00 to 12:00 Saturday. No construction work to take place on a Sunday unless otherwise agreed with East Riding of Yorkshire Council. Working days would comprise one 12 hour shift on Monday to Friday and one 5 hour shift on Saturday with workers travelling to/from the site before 07:00 and after 19:00 (or after 12:00 on a Saturday). It is anticipated that staff would be travelling to and from the construction site in the hours before and after the working day (i.e. before 07:00 and after 19:00. However, for the purposes of the assessment in the Transport Assessment, it is assumed as a worst-case that all staff trips to and from the Site occur during the weekday network AM and PM peak hours (surveyed AM and PM peak hours are defined as 07:15 to 08:15 and 16:30 to 17:30). The assessment is based on weekday peak hour traffic data which is an extremely robust assessment.
Construction vehicle arrival and departure times	For the construction phase, construction HGVs will be controlled to operate between the typical AM and PM network peak hours (between 09:00 and 16:00). It is anticipated that the vast majority of HGV arrivals and departures will be spread across the hours between the peaks, and this will be managed through the implementation of the **Outline CTMP [EN010157/APP/7.7]**.

Construction assumption	Summary/justification
	The number of daily construction vehicles predicted to be generated during the peak of the construction phase trips for each Land Area and the grid connection cable route works for light and heavy vehicles is summarised in **Table 14-5**. Notwithstanding the above, there will be a short period during the construction phase on each Land Area of approximately 2 weeks in duration when it will be necessary for approximately 10 daily HGV trips (20 HGV two-way movements) to travel to and from the Site which may occur during the AM peak period (between 07:15 and 08:15). The occurrence of these trips on the local highway network during the AM peak period are included in the anticipated construction phase trip generation.
Construction workers mode share	50% of staff per Land Area/grid connection cable route works are to be picked up and dropped off from nearby towns by 14-person shuttle buses. The remaining 50% of staff will travel by car or van share at a ratio of 1 vehicle per 3 staff, based on experience of other projects developed by the Applicant. In both cases, this will be arranged prior to commencement of construction on each Land Area. It will be managed through the delivery of the **Outline CTMP [EN010157/APP/7.7]** and the appended **Outline Travel Plan**. The number of shuttle buses and car/van sharing required will depend on the number of staff required on site at any one time for the construction of each Land Area and the grid connection cable route works. For the purposes of the assessment, it is assumed that each Land Area has the maximum staff that will be required and therefore the highest number of vehicles.
Distribution of Delivery LGVs and HGVs	For the purposes of this assessment, it has been assumed that HGVs and LGVs will access the Site either from Strategic Road Network at Hull Docks or the A1(M)/M62. For local road assessment within the study area, it has been assumed that 50% of delivery vehicles will access the Site via the A165 and 50% will access via the A1035 at Beverley.
Distribution of construction staff trips	Distribution of construction staff trips has been predicted using the Census journey to work data (contained within the Office for National Statistics' 'Nomis' database) which provides an indication of where the usual place of residence is for potential workers in an area. At this

Construction assumption	Summary/justification
	stage, the "usual" place of residence for workers is not known, therefore the Census data is used to predict potential place of residence for workers and the resultant routes to and from the Site. Mapping data and local knowledge/professional judgement has been used to determine likely vehicle routes between the places of residence and the staff parking at each site construction compound (the destination). Staff associated with the construction Land Areas may drive to and park at one of the Main Compounds. In the case of staff being transported to the Site by minibus they would travel to off-site locations, such as town centre car parks or public transport terminals, which are to be agreed and secured through the Construction Traffic Management Plan once the principal contractor is appointed. Staff associated with the grid connection cable route works are to be instructed to park at the nearest Main Compound in the Land Areas to avoid the need to provide a separate Main Compound and parking where the grid connection cable route works will take place. Staff will then be transported to the required area by shuttle bus from the nearest Main Compound.
Swept path analysis	Swept path analysis was undertaken using the worst-case vehicle that also represents the majority of HGVs proposed to be using the Site in order to assess whether access arrangements, vehicle routing and highway mitigation works were suitable to enable safe and efficient access and egress. This is assumed to be a standard length (16.5m) articulated lorry. The swept path analysis is included in **ES Volume 4, Appendix 14.5: Swept Path Analysis [EN010157/APP/6.4]**. It is assumed that any works suitable to provide access and egress for the worst-case vehicle will ensure that other vehicles using the Site (such as minibuses, staff cars and vans, and LGVs) will be able to do so safely and efficiently. Two Large Loads will be required to access Land Areas C and E to transport transformers (two in total) to each of these Land Areas. This may require four Large Load vehicle movements comprising arrivals and departures for two pieces of equipment. East Riding of Yorkshire Council Highways has been informed and has confirmed that it does not anticipate any significant effects and would expect a road closure to be put in place to enable the Large Load to access the Site via Meaux

Construction assumption	Summary/justification
	Lane. The timings of the Large Load movements will be discussed and agreed with East Riding of Yorkshire Council Highways, its Abnormal Loads team (for Large Loads) and the Area Engineers and this is set out in the **Outline CTMP [EN010157/APP/7.7]**. Additionally, the relevant Parish Council(s), affected local residents and businesses will be informed about any closure and associated arrangements and diversions. The swept path analysis of the anticipated Large Load vehicle is included in **ES Volume 4, Appendix 14.5: Swept Path Analysis [EN010157/APP/6.4]**, which demonstrates that the vehicle is able to access and egress the Site via Meaux Lane and Carr Lane without the need for any additional mitigation.

Traffic distribution and routing

14.4.32 All construction traffic will use the existing local highway network, with HGVs limited to specific designated routes as will be set out in the Construction Traffic Management Plan. These routes have been identified through the principle of using A-class roads, first and minor roads where necessary for access to particular Land Areas required to construct the Proposed Development. Measures to enforce adherence to these routes is set out in the same document.

14.4.33 With the exception of the two Large Loads, the majority of HGVs and LGVs will be of standard size. HGVs and LGVs associated with each Land Area and the cable grid connection cable route works have been assigned to the local road network and will route to the Site using the following roads:

- A1035;
- A165 White Cross Road;
- Meaux Lane/Meaux Road (to/from the north only; HGVs are restricted from accessing Meaux Lane/Meaux Road from the south through Wawne);
- Carr Lane, Long Riston;
- Arnold Lane West;
- Black Tup Lane;
- Carr Lane, Arnold;
- Park Lane;
- Long Lane; and
- A1174 Hull Road.

14.4.34 LGVs associated with construction workers and light deliveries for each Land Area and the cable grid connection cable route works have been assigned to the same routes as LGVs and HGVs, as well as the following additional routes which are restricted for access by HGVs:

- Meaux Road (to/from the south via Wawne).

14.4.35 A plan showing the anticipated LGV and HGV routing to and from the Site is shown at **ES Volume 3, Figure 14.2: Transport Routing and the Existing Highway Network [EN010157/APP/6.3]** and the LGV and HGV routing will be confirmed in the Construction Traffic Management Plan, in accordance with the **Outline CTMP [EN010157/APP/7.7]**.

14.4.36 In total, there are nine vehicular accesses to the Land Areas (six on Meaux Lane/Meaux Road, one each at the A165 White Cross Road/Land Area B access, Carr Lane (Long Riston) and Carr Lane (Arnold)) and five accesses to the land required for the grid connection cable route works (one at Park Lane, two at Long Lane and two at A1174 Hull Road).

14.4.37 HGVs and LGVs (for transportation of goods) will access the Site using all of the vehicular accesses.

14.4.38 Staff will access the Site via six of the vehicular accesses to the Land Areas, these accesses are those which are located closest to the Main Compounds where it is anticipated that staff will park.

14.4.39 The traffic flow diagrams which show the distribution of staff trips, LGV and HGV trips to each Land Area and for the grid connection cable route works, based on the assumptions outlined in **Table 14-4**, are shown in **ES Volume 4, Appendix 14.2: Traffic Flow Diagrams, Figures 3, 5, 7, 9, 11, 13, 24, 28, 32, 36 and 40 [EN010157/APP/6.4]**.

Construction phase vehicular trip generation

14.4.40 Data on the number of vehicles and staff anticipated to be required for the peak construction of each Land Area and the grid connection cable route works is based on the Applicant's experience of constructing other solar farm sites.

14.4.41 Vehicles and staff have been allocated to each Land Area and the grid connection cable route works based on the type and volume of construction required. It is noted that throughout the construction phase for each Land Area and the grid connection cable route works, the profile of construction activities will be a bell curve, i.e. parts of the construction phase for each Land Area and the grid connection cable route works will have less intensive activities (requiring fewer vehicles and fewer workers) and other parts of the construction phase will have more intensive activities (requiring more vehicle and more workers).

14.4.42 The numbers of workers and vehicles used in the assessment, and outlined in **Table 14-5** below, are representative of the peak, i.e. parts of the construction phase with the most intense construction activities.

14.4.43 Based on the Applicant's experience of constructing other solar farm sites, it is anticipated that workers are likely to car or van share at 3 workers per vehicle. This workers to vehicle ratio has been applied to the staff numbers to predict peak daily worker vehicles. Additionally, it is proposed to provide shuttle buses in order to reduce the number of worker vehicles travelling to and from the Site. Each shuttle bus will be able to accommodate 14 workers. The details of the shuttle bus procedures, for example pick up and drop off locations, will be secured through the delivery of the Construction Traffic Management Plan which is to be substantially in accordance with the **Outline CTMP [EN010157/APP/7.7]**.

14.4.44 **Table 14-5** presents the predicted peak daily vehicle trip generation for each Land Area and the grid connection cable route works.

Table 14-5: Predicted peak daily vehicle trip generation for each works area

Works area	Direction	Delivery vehicles		Staff vehicles	
		HGVs	LGVs	Cars/vans	Shuttle buses
Land Area B	Arrivals	15	13	21	4
	Departures	15	13	21	4
	Two-Way	30	26	42	8
Land Area C	Arrivals	20	16	21	5
	Departures	20	16	21	5
	Two-Way	40	32	42	10
Land Area D	Arrivals	31	31	41	9
	Departures	31	31	41	9
	Two-Way	62	62	82	18
Land Area E	Arrivals	15	13	21	4
	Departures	15	13	21	4
	Two-Way	30	26	42	8
Land Area F	Arrivals	12	12	16	3
	Departures	12	12	16	3
	Two-Way	24	24	32	6
Grid Connection cable route works	Arrivals	5	5	4	1
	Departures	5	5	4	1
	Two-Way	10	10	8	2

14.4.45 Based on the indicative phasing plan described above and the predicted peak trip generation for each works area, **Table 14-6** below sets out the predicted daily trip generation for each of the indicative construction phases.

Table 14-6: Construction phases – daily trip generation

Construction phase	Direction	HGVs	LGVs	Light vehicles (workers cars, vans and shuttle buses)	Total vehicles
Phase 1 (Land Area B - months 1-4)	Arrivals	15	13	25	**53**
	Departures	15	13	25	**53**
	Two-Way	**30**	**26**	**50**	**106**
Phase 2 (Land Area B & C - months 5-8)	Arrivals	35	29	51	**115**
	Departures	35	29	51	**115**
	Two-Way	**70**	**58**	**102**	**230**
Phase 3 (Land Area C & D and grid connection cable route works - months 9-12~~13~~)	Arrivals	56	52	81	**189**
	Departures	56	52	81	**189**
	Two-Way	**112**	**104**	**162**	**378**
Phase 4 (Land Area D & E and grid connection cable route works - months ~~14-17~~13-16)	Arrivals	51	49	80	**180**
	Departures	51	49	80	**180**
	Two-Way	**102**	**98**	**160**	**360**
Phase 5 (Land Area E & F and grid connection cable route works - months ~~18-21~~17-20)	Arrivals	32	30	49	**111**
	Departures	32	30	49	**111**
	Two-Way	**64**	**60**	**98**	**222**
Phase 6 (Land Area F and grid connection cable route works - months 21~~22~~-24)	Arrivals	17	17	24	**58**
	Departures	17	17	24	**58**
	Two-Way	**34**	**34**	**48**	**116**

14.4.46 The traffic distribution, the traffic diagrams associated with each phase are shown in **ES Volume 4, Appendix 14.2: Traffic Flow Diagrams, Figures 45, 46, 47 and 48 [EN010157/APP/6.4]**.

Operation (including maintenance) phase vehicular trip generation

14.4.47 As outlined above, it is anticipated that a small number of vehicles will access the Site during the operation (including maintenance) phase of the Proposed Development. Access will be required from time to time for routine maintenance, and less frequently for major maintenance and upgrades.

14.4.48 As well as routine maintenance, there may also be a requirement to repair and replace components on Site as part of maintaining the Proposed Development during the operation (including maintenance) phase. This could require the use of HGVs. The number of HGVs required for these works is not known, given the extent of any repair and replacement works is unknown. However, traffic flows are not expected to exceed the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** Rule 1 criteria *"Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)"* and so an operational traffic assessment is not required (as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**). In addition, such works will not be undertaken frequently and highway works delivered for construction accesses will be retained permanently during operation, as set out in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**.

Decommissioning phase vehicular trip generation

14.4.49 The decommissioning phase is anticipated to take place 40 years from the start of the operation (including maintenance) phase of the Proposed Development.

14.4.50 As with the construction phase, the movement of workers, materials and plant are likely to generate trips on the local highway network. Any permanent mitigation delivered for the construction phase or highway enhancements implemented for the Proposed Development will be in place at the start of the decommissioning phase, including accesses from the local road network and junction improvements/widening. Therefore, it is not anticipated that further highway works will be required to facilitate the decommissioning of the Proposed Development.

14.4.51 The decommissioning phase is anticipated to take place 40 years from the start of the operation (including maintenance) phase of the Proposed Development, which is considered to be too far into the future to be able to accurately predict baseline traffic flows or road/junction layouts at that time. It is therefore considered reasonable to assume that the impacts during the decommissioning phase will be the same as, or less than, the construction phase.

14.4.52 The management of movement of decommissioning traffic will be detailed in the Decommissioning Traffic Management Plan and secured by the **Outline DEMP [EN010157/APP/7.4]**. Transport and access associated impacts are expected to

be equal to or less than those occurring during construction in respect to traffic movements.

14.4.53 During the decommissioning phase, it is anticipated that all large materials, equipment and other items will be delivered by HGVs no larger than a standard sized articulated lorry (16.5m length). The two on-site substations are to be left in-situ subject to agreement with Distribution Network Operator, so no further Large Loads are anticipated to be required to remove or replace the transformers during the decommissioning phase.

Assessment methodology and criteria

14.4.54 The relevant elements for the ES in terms of assessment transport and access impact are the magnitude and significance of consequences on the assessed links within the study area as a result of the additional trips during the construction phase of the Proposed Development.

14.4.55 The significance of an effect is determined based on the magnitude of an impact and the deemed sensitivity of the affected receptor. This section describes the criteria applied in this chapter to characterise the sensitivity of receptors and magnitude of potential impacts of Proposed Development traffic.

14.4.56 The impacts assessed as part of the transport and access assessment are as follows:

- Severance of communities
- Road vehicle driver and passenger delay
- Non-motorised user delay
- Non-motorised user amenity
- Fear and intimidation on and by road users
- Road user and pedestrian safety
- Hazardous/Large Loads

14.4.57 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** provides the assessor with two rules to be considered as screening thresholds when assessing the impact of development traffic on a highway link as follows:

- ***Rule 1****: Include highway links where traffic flow will increase by more than 30% (or the number of HGVs will increase by more than 30%); and*
- ***Rule 2****: Include highway links of high sensitivity where traffic flows have increased by 10% or more.*

14.4.58 Rules 1 and 2 have been used to determine the spatial scope of the transport and access assessment based on the geographical extent of the study area. It is considered that any increase in total traffic of less than 30% is indiscernible. Furthermore, forecast increases in total traffic of less than 10% result in no discernible environmental effect, hence the sensitivity threshold set in Rule 2.

14.4.59 On links where the forecast change in total traffic exceeds that which is outlined in Rule 1 or Rule 2 above, a detailed assessment has been carried out based on the assessment criteria.

14.4.60 The assessment criteria used to assess the potential effects associated with the Proposed Development on transport and access are outlined below.

14.4.61 Traffic-related air quality, climate and noise and vibration assessments have been informed by the traffic data outlined in this chapter. These effects are assessed in **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**, **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]** and **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** respectively.

14.4.62 The baseline traffic survey data, outlined in **paragraph 14.4.15**, has been assigned to different links and junctions and appropriate TEMPRo traffic growth factors applied to generate future baseline assessments, in line with the industry standard approach.

14.4.63 Traffic associated with the Proposed Development during the construction phase has been assigned using the Census Journey to work data (contained within the Office for National Statistics' 'Nomis' database) to distribute staff vehicle trips, information on staff numbers, predicted staff mode share and likely construction traffic routes for both staff and deliveries (these would be secured for deliveries through the Construction Traffic Management Plan, to be substantially in accordance with the **Outline CTMP [EN010157/APP/7.7]**).

14.4.64 It was agreed during scoping with East Riding of Yorkshire Council highways officers that it may be appropriate to assess the impact of the Proposed Development on certain links using absolute values rather than percentage increases in instances where existing traffic volumes are extremely low (e.g. Carr Lane and Arnold Lane West). In these locations a small number of Proposed Development generated vehicles would result in excessively high percentage increases although the absolute change is small.

Sensitivity of the receptor

14.4.65 The levels of sensitivity for the assessment of receptors related to transport and access impacts are defined within **Table 14-7** and are based upon reasonable

application of professional judgement and experience in line with the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**.

Table 14-7: Receptor sensitivity

Sensitivity level	Criteria
High	The receptor has little ability to absorb change without fundamentally altering its present characteristics or is of national or international importance.
Medium	The receptor has moderate ability to absorb change without fundamentally altering its present characteristics.
Low	The receptor is tolerant of change without detriment to its present characteristics.
Negligible	The receptor can fully absorb change without any change to its present characteristics.

14.4.66 It is necessary to identify user groups ('receptors') and associated locations ('links'), which may be sensitive to changes in the transport and access network conditions. A sensitive area may be where pedestrian activity is high such as a school or town centre.

14.4.67 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** sets out that particular user groups that may be sensitive to changes in traffic conditions should be identified as a starting point for the assessment of receptor sensitivity; these groups are:

- Non-motorised users
- PRoW users
- Motorists and freight vehicles
- Public transport
- Emergency services

14.4.68 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** also set out a list of potentially sensitive receptor geographic locations. These sensitive locations and receptors within these locations have been considered and have informed the assessment of significance when traffic associated with the Proposed Development is assigned to the road network:

- People at home
- People at work
- Sensitive and/or vulnerable groups (including children, youth, elderly, income, persons with disabilities, ethnic and racial minorities, people with social disadvantages, and access/geographic factors)
- Locations with concentrations of vulnerable groups (e.g. hospitals, places of worship, schools etc)
- Retail areas

- Recreational areas
- Tourist attractions
- Collision clusters and routes with road safety concerns
- Junctions and highway links at (or over) capacity

14.4.69 For transport and access, the receptors are the users of the road, PRoW, and communities through which construction and decommissioning traffic may travel.

14.4.70 The sensitivity of receptors has been identified for each link and has been completed through a combination of a site visit and desktop-based review. In the absence of numerical thresholds and guidelines to determine the sensitivity level of a receptor, the sensitivity of receptors has been identified using the assessor's professional judgement based on a range of factors including but not limited to density of properties along link, length of link and footpath provision.

14.4.71 **Table 14-8** below provides a more detailed criteria for the assessment of receptor sensitivity and sets out the different types of sensitive receptors relevant to transport and access.

Table 14-8: Receptor sensitivity to transport and access

Sensitive receptor	Built environment indicator on link	Receptor sensitivity
People at home	Residential properties	• Negligible: No properties with direct frontage. • Low: Few properties (e.g. one side of the link) with direct highway frontage on construction traffic routes. • Medium: A number of properties with direct highway frontage (e.g. two sides of the link – low density) on construction traffic routes. • High: A large number of properties with direct frontage (e.g. two sides of the link – higher density)
People at work	Employment uses (Offices, industrial units etc)	Negligible/Low: People are not adversely impacted when at work.

Sensitive receptor	Built environment indicator on link	Receptor sensitivity
Sensitive groups (children; youth; elderly; income; persons with disabilities; ethnic and racial minorities; people with social disadvantages; and access/geographic factors)	Disabled parking bays, retirement/care centres, playgrounds/centres and schools	• Negligible: No indication of sensitive groups present. • Low: At least one indicator of sensitive groups present, with direct highway frontage. • Medium: Low number of sensitive groups present, with direct highway frontage. • High: Multiple indicators of sensitive groups present, with direct highway frontage.
Sensitive Locations	Hospitals, schools, historic buildings, places of worship	• Negligible: No indication of sensitive groups present. • Low: At least one indicator of sensitive groups present, with direct highway frontage. • Medium: Low number of sensitive groups present, with direct highway frontage. • High: Multiple indicators of sensitive groups present, with direct highway frontage.
Users walking	Crossing points, PRoW, footways	• Negligible: No indication of sensitive groups present. • Low: At least one indicator of sensitive groups present. • Medium: Medium use by receptor group – footways present. • High: High receptor use with no footways.
Users cycling/scooting	On/off-road routes, designated routes or infrastructure	• Negligible: No indication of sensitive groups present. • Low: At least one indicator of sensitive groups present e.g. off-road cycle route.

Sensitive receptor	Built environment indicator on link	Receptor sensitivity
		• Medium: On-road cycle route present with segregation. • High: On-road cycle route present with no segregation.
Recreational areas/open spaces	Parks, playgrounds/areas, shopping and community centres	• Negligible: No indication of sensitive groups present (unlikely usage) • Low: At least one indicator of sensitive groups present. • Medium: Low number of sensitive groups present. • High: Multiple indicators of sensitive groups present e.g. children present.
Road users	Road links/junctions, baseline traffic volume, existing signage/infrastructure	• Presence of affected parties outlined in this table determine the sensitivity. • For driver delay assessment (motorists at junctions): ➢ Negligible: No indication of delay present (unlikely usage) ➢ Low: Less than 0.3 ratio of flow to capacity. ➢ Medium: 0.3 to 0.5 ratio of flow to capacity. ➢ High: 0.5 to 0.85 ratio of flow to capacity.

14.4.72 The sensitivity of receptors within the study area varies depending on where the study area road links travel through. Receptor sensitivity within residential areas where there are numerous direct frontage accesses to the road, for example, is generally considered to be medium or high, as the receptors may be less able to accommodate change.

14.4.73 Owing to the length of some road links and the varying road conditions of the link travelling through rural areas or communities, the sensitivity of receptors may vary along different sections of the same road link. The sensitivity of road users in the countryside may vary from that of road users in a residential area along the same link.

14.4.74 The assessment of receptor sensitivity on road links within the study area has subsequently been split into multiple sections of road and are referred to in the assessment as 'links'.

14.4.75 In relation specifically to driver delay assessments, road user sensitivity is determined using ratio of flow to capacity values as determined using junction modelling software, in line with industry standard practice. Ratio of flow to capacity values lower than 0.85 are generally considered to be operating 'under capacity', whilst values above 1.00 indicate that the junction will operate 'over capacity'. Between these two ratios of flow to capacity figures (0.85 - 1.00), a junction is considered to be 'approaching capacity'. The Junctions 10 PICADY modelling software module also reports predicted queue length in Passenger Car Units and predicted delay in seconds.

14.4.76 Average ratio of flow to capacity values at each modelled junction for the AM and PM peak periods have been used to identify the sensitivity of receptors in close proximity to the assessed junctions. These are motorists and passengers and the road/junction these user groups are travelling through. The receptor sensitivity thresholds are presented below in **Table 14-9**.

Table 14-9: Driver delay: receptor sensitivity thresholds based on average ratio of flow to capacity values

Sensitivity	Threshold (average junction ratio of flow to capacity)
High	0.85 to 1
Medium	0.5 to 0.85
Low	0.3 to 0.5
Negligible	Less than 0.3

Severance of communities

14.4.77 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** considers severance to be the perceived division that can occur within a community when it becomes separated by major transport infrastructure. The guidance notes that severance is affected by changes in total traffic flow and should pay attention to local conditions. The thresholds used in the assessment of severance are presented in **Table 14-14**.

Road vehicle driver and passenger delay

14.4.78 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** notes that driver delay is likely to be significant if there are already delays on the existing road network. In this assessment, driver delay has been assessed based on traffic modelling work carried out in **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]** which focuses on conditions in the network peak periods with and without the Proposed Development as agreed with the Local Highway Authority.

14.4.79 Driver delay can develop at several points on the road network surrounding a development owing to the addition of traffic associated with the development in question. Additionally, the existing traffic on the road network may also be reaching or already at maximum capacity which can contribute to driver delay related to the proposed development.

14.4.80 The assessments consider the effect on driver delay by comparing differences in delay between the '2026 future baseline' scenario and the 'construction' scenario for the AM and PM peak periods at identified key junctions.

14.4.81 Detailed junction modelling of typical network peak periods has been undertaken within the **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]** utilising the trip generation estimates anticipated for worker travel as this represents a robust assessment of network capacity and therefore, driver delay potential (noting that staff movements in practice are likely to take place between 06:00 – 07:00 and 19:00 – 20:00 as outlined in **Table 14-4**.

14.4.82 The junction capacity assessments carried out in **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]** focus on the conditions in the observed survey identified network peak periods (AM peak: 07:15 – 08:15; PM peak: 16:30 – 17:30). Analysis was conducted in the industry standard Junctions 10 PICADY and ARCADY modelling software module.

14.4.83 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** does not set assessment thresholds for driver delay. The assessment of the effect on driver delay has therefore been based on the traffic modelling results from **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**. The change in delay with and without the Proposed Development is therefore primarily based on notable changes to delay using modelling results e.g., ratio of flow to capacity and change in driver delay in seconds. The modelling results have been assessed using the thresholds defined in **Table 14-14**.

Non-motorised user delay

14.4.84 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** does not provide a specific methodology to assess the effect on non-motorised user delay. As a result, changes to the volume, composition or speed of traffic on a road link can influence non-motorised user delay.

14.4.85 In the absence of set thresholds, non-motorised user delay can be calculated by determining when the traffic on the network surrounding the Proposed Development is already at, or close to, capacity. An increase in total traffic of approximately 30% can double the delay experienced by pedestrians attempting to cross the road and would be considered major.

14.4.86 It should however be noted that the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** does not recommend making use of definitive thresholds owing to the range of local factors and conditions that can influence non-motorised user delay. The guidance recommends that the competent traffic and movement expert uses their judgment to determine whether non-motorised user delay constitutes a significant effect.

14.4.87 Whether or not the increase in traffic results in a significant effect has been determined within this chapter using professional judgement.

Non-motorised user amenity

14.4.88 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** defines non-motorised user amenity as the relative pleasantness of a journey, and is affected by traffic flow, traffic composition and pavement widths/separation from traffic. The effect on non-motorised user amenity has been determined by first identifying locations where the traffic flow or HGV flow is halved or doubled.

14.4.89 **Section 4** of the **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]** examines non-motorised user amenity in terms of PRoW users. Within this chapter of the ES, existing infrastructure will form the basis of the environmental assessment of traffic impacts in terms of non-motorised user amenity. A detailed desktop review has also been carried out to take account of and pay full regard to specific local conditions. Professional judgement and experience have been used to determine the magnitude of impact on non-motorised users in the absence of established thresholds.

Fear and intimidation on and by road users

14.4.90 The assessment of effects on fear and intimidation has been based on the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** and is a three-step process undertaken to calculate a degree of hazard score, comprised of three elements:

- Calculating the Annual Average Daily Traffic over an 18-hour day (all vehicles per hour, two-way)
- Calculating the total 18-hour HGV flow; and
- Calculating the average vehicle speed.

14.4.91 The assessment follows the 'degree of hazard' thresholds set out in the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** and these have been set out below in **Table 14-10**.

Table 14-10: Fear and intimidation: degree of hazard

Average traffic flow over 18-hour day – all vehicles/hour two-way (a)	Total 18-hour heavy vehicle flow (b)	Average vehicle speed (c)	Degree of hazard score
>1,800	>3,000	->40	30
1,200-1,800	2,000-3,000	30-40	20
600-1,200	1,000-2,000	20-30	10
<600	<1,000	<20	0

14.4.92 The total degree of hazard score is calculated by summing the score for each element (a, b and c) from **Table 14-10** and a level of fear and intimidation is determined, which is set out in **Table 14-11**.

Table 14-11: Level of fear and intimidation

Level of fear and intimidation	Total hazard score (sum of a, b and c from Table 14-7)
Extreme	71+
Great	41-70
Moderate	21-40
Small	0-20

14.4.93 The assessment of the magnitude of impact on fear and intimidation is based on the change in total degree of hazard score from baseline conditions. The assessment has followed the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** and is outlined in **Table 14-12**.

Table 14-12: Fear and intimidation: magnitude of impact

Magnitude of impact	Changes in step/traffic flows (Annual Average Daily Traffic) from baseline conditions
High	Two step changes in level.
Medium	One step change in level, but with: >400 vehicle increase in average 18-hour all vehicles two-way all vehicle flow; and/or >500 heavy vehicle increase in total 18-hour heavy vehicle flow.
Low	One step change in level, with: <400 vehicle increase in average 18 hour all vehicle two-way all vehicle flow; and/or <500 heavy vehicle increase in total 18-hour heavy vehicle flow.
Negligible	No change in step changes

Road user and pedestrian safety

14.4.94 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** references the use of a collision cluster assessment to identify potential impacts at a more detailed level. A collision cluster assessment has been completed in this ES chapter as detailed in **Section 14.10**.

14.4.95 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** sets out the use of the 'Safe System' best practice approach, broadly comprised of three stages:

- Identify the study area using historic crash data;
- Undertake evidence-led, objective modelling techniques to establish a baseline road safety level for the roads within the study area on which impact thresholds are exceeded in relation to either non-motorised users or motorised user traffic. This analysis can be carried out using tools such as the International Road Assessment Programme Star Ratings protocols or similar tools produced by individual highways authorities; and
- Assess the effects of additional developments traffic for all users (including vulnerable groups) across the whole width of the highway

corridor. This model should also assess the effect of any changes to the baseline road network, such as the provision of access junctions.

14.4.96 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** also recommends the production of standard and prescribed Road Safety Audits to review the road safety attributes of any proposed engineering changes in the adopted highway. Road Safety Audits will be undertaken for any new or amended junctions, passing places and carriageway widening, as was set out in **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. Road Safety Audits will be delivered through the detailed design technical approval process with the approving authority (East Riding of Yorkshire Council).

Magnitude of impact

14.4.97 **Table 14-14** provides a summary of the magnitude thresholds adopted from the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**. The thresholds are only a starting point for the assessment, and in the assessment of specific effects, are accompanied by a desktop review and professional judgement.

Table 14-14: Magnitude of impact criteria

Impact	Magnitude of impact			
	Negligible	**Low**	**Medium**	**High**
Severance	Changes in total traffic flow of less than 30%.	Changes in total traffic flow of 30%-60%.	Changes in total traffic flow of 60%-90%.	Change in total traffic flow over 90%.
Driver delay	Vehicle delay changes are less than 30 seconds as a result of the Proposed Development	Vehicle delay changes are between 31 and 40 seconds as a result of the Proposed Development	Vehicle delay changes are between 41 and 60 seconds as a result of the Proposed Development	Vehicle delay changes are between 61 and 90 seconds as a result of the Proposed Development
Non-motorised user delay	Assessment of this effect is based on a desktop review of non-motorised user facilities on links and on the change in total traffic in construction.			
Non-motorised user amenity	Assessment of this link is based on a desktop review of non-motorised user facilities on links used by construction traffic.			

Impact	Magnitude of impact			
	Negligible	Low	Medium	High
Fear and intimidation	No change in step changes.	One step change in level, with: <400 vehicle increase in average 18 hour all vehicle two-way all vehicle flow' and/or <500 heavy vehicle increase in total 18-hour heavy vehicle flow.	One step change in level, but with: >400 vehicle increase in average 18-hour all vehicles two-way all vehicle flow; and or >500 heavy vehicle increase in total 18-hour heavy vehicle flow.	Two step changes in level
Hazardous/Large Loads	<30% increase in traffic	Quantitative assessment of road capacity based on existing traffic flows and predicted future levels.		

Significance of effect

14.4.98 The significance of the effect upon identified receptors is determined by combining the assessed magnitude of impact and the sensitivity of the receptor.

14.4.99 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** establish thresholds in respect to changes in the volumes and composition of traffic to facilitate a subjective judgement of traffic impacts and significance. However, the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** note that there is no clear definition of a significant effect in the EIA Regulations which state:

"For many effects, there are no simple rules or formulae that define appropriate assessment thresholds and therefore there is a need for interpretation and judgement on the part of the competent traffic and movement expert, backed up by data or quantified information where possible […]. The competent traffic and movement expert will need to make it clear how they have defined whether a change (and the resultant effect) is considered significant or not".

14.4.100 A quantitative approach to the assessment of transport and access related effects has been used, in accordance with the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**. This relies on percentage changes in daily traffic movements along road links, which determine the significance of effect. However, some transport and access related effects, for example non-motorised user amenity and road safety, cannot be assessed using changes in traffic movements associated with the Proposed Development. To that end, the assessment carried out within this chapter will equally need to rely on other assessment criteria as set out in the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**, alongside professional judgement.

14.4.101 **Table 14-15** sets out the significance of effect matrix used to determine significant effects. The shaded boxes indicate those significance ratings are deemed to be 'significant' effects ('major' or 'moderate'). For this assessment, any effects with a significance level of minor or less are considered to be not significant. It should also be noted that any impacts may be temporary (such as construction traffic) or permanent; and that effects may be positive (beneficial) or negative (adverse).

Table 14-15: Significance of effect matrix

Sensitivity	Magnitude of impact			
	Negligible	**Low**	**Medium**	**High**
Negligible	Negligible	Negligible	Negligible	Minor
Low	Negligible	Negligible	Minor	**Moderate**
Medium	Negligible	Minor	**Moderate**	**Major**
High	Minor	**Moderate**	**Major**	**Major**

14.4.102 The significance of effects terms presented in **Table 14-15** are defined in **Table 14-16** below.

Table 14-16: Significance of effect definitions

Significance of effect	Definition
Major	Changes which are likely to be perceptible and which would significantly change conditions which would otherwise prevail to the extent that it would significantly affect travel behaviour.
Moderate	Changes which are likely to be perceptible and which materially change conditions which would otherwise prevail to the extent that it may affect travel behaviour to a measurable degree.
Minor	Changes which are likely to be perceptible but not to the extent that they would materially change conditions which would otherwise prevail.
Negligible	Changes which are only just perceptible.

14.5 Environmental baseline

Existing baseline

14.5.1 The following section presents a summary of the baseline conditions for the receptors scoped into further assessment, as detailed within the **Table 14-2** above. The full details of the baseline conditions are presented in **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.

Local highway network

14.5.2 The local highway network surrounding the Site, encompassing the study area, is presented in **ES Volume 3, Figure 14.1: Study Area for Transport and Access [EN010157/APP/6.3]**. The study area comprises local roads which will be used for direct access to the Proposed Development. Consideration of this is made in the **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.

14.5.3 The A1035, A165 and minor roads listed above are located within a rural setting, connecting small settlements to the wider network. The settlements local to the Site have potentially sensitive receptors, such as residential areas and community facilities. The road links are commensurate with a rural character, with often limited and/or narrow footway provision, limited street lighting and speed limits of 60 miles per hour (mph) outside of built-up areas.

14.5.4 Analysis of the traffic survey data collected across the study area identified the following peak network times (times identified based on analysis of the traffic data collected/counts undertaken):

- Weekday AM Peak: 07:15 – 08:15; and
- Weekday PM Peak: 16:30 – 17:30.

14.5.5 These periods were used to inform the baseline traffic flows on the network where peak hour data is relevant.

Public rights of way

14.5.6 A section of National Cycle Network Route 1 is within the Order Limits along Park Lane. Park Lane is proposed to provide vehicular access for a section of the grid connection cable route works. This route also is included within East Riding of Yorkshire Council's PRoW network as public footpath Skidby Footpath No. 17, which is outlined in **Table 14-18** ~~**14-12**~~ below.

Receptor sensitivity

14.5.7 A level of sensitivity based on the criteria set out in **Section 14.4** has been allocated to the receptors scoped into the assessment, typically taking into account multiple influences such as adjoining land uses (such as residential areas), presence of PRoW, proximity to impact, vulnerability of population etc) and road traffic collision data. These are summarised in **Table 14-18**. A plan showing the location and sensitivity of each of the links is shown at **ES Volume 3, Figure 14.4: Link Sensitivity [EN010157/APP/6.3]**.

14.5.8 Owing to the length of some road links (e.g. A1035 and A165) and their vicinity to settlements, a number of road links have been divided into sections in order to more accurately reflect the change in the types of receptors likely to use the road links.

Table 14-18: Link sensitivity

Link	Section	Section Description	Sensitivity	Justification
1	1	**A1035** Swinemoor Roundabout to Meaux Lane	Medium	Several properties directly fronting on one side for a section of the link. Off-road shared footway/cycleway. 17 collisions in 5 years across the full length of the link.
	2	**A1035** Meaux Lane to White Cross Roundabout	Low	No properties fronting, off-road shared footway/cycleway and 4 collisions.
2	1	**A165 White Cross Road** White Cross Roundabout to Carr Lane (Long Riston)	Negligible	No properties fronting and no access to PRoW. 6 collisions in 5 years, including on the A165 approach to the roundabout at the north end of the link.
	2	**A165 White Cross Road** Carr Lane (Long Riston) to Arnold Lane West	Negligible	One property (small farm shop) fronting. One collision at both junctions at the end of the link.

Link	Section	Section Description	Sensitivity	Justification
	3	**A165 White Cross Road** Arnold Lane West to Balk Lane	Negligible	One residential property and one retail unit (fuel filling station) which is accessed by pedestrians segregated from A165. Two collisions on this link in 5 years.
3	1	**Meaux Lane** A1035 to Land Area D/E Access on west of Meaux Lane	High	A small number of properties, low density. On-road cycle route, with no segregation. 6 collisions in 5 years on this section of the road, including 1 at the junction with A1035.
	2	**Meaux Lane/Meaux Road** Land Area D/E Access on west of Meaux Lane to Land Area F Access	High	A small number of properties, low density. On-road cycle route, with no segregation. 6 collisions in 5 years on this section of the road.
4	Whole Link	**Carr Lane (Long Riston)**	Negligible	One property (farm) and no access to PRoW. One collision at junction with A165 and Dancing Lane.
5	Whole Link	**Arnold Lane West**	Medium	Several properties along one side, relatively set back from highway. No footway. Public house at the end of the link. One collision at junction with A165.
6	Whole Link	**Black Tup Lane**	Low	No property frontage or PRoW and no collisions. Car dealership accessed off the link and public house at the end of the link.
National Cycle Network Route 1	Whole Link	**Park Lane**	High	National cycle route along existing road without segregation.

Future baseline in the absence of the Proposed Development

14.5.9 In the absence of the Proposed Development, the future baseline of the study area will be influenced by planned changes in land use across a wide area and any road infrastructure schemes that are already under construction or are brought forward in the future. In such a scenario, the Site itself is expected to remain for agriculture use and therefore not change its traffic generating potential.

14.5.10 Land use changes will be taken into account in the future baseline by applying traffic growth, allowed for in this assessment using TEMPRo to generate growth factors to estimate baseline traffic flows in a future year. These have been applied to the 2023 and 2024 baseline data, taking account of changes in traffic associated with future population, employment and housing from developments in the East Riding Local Plan 2012 – 2029 (adopted April 2016) **[Ref. 14-6]** along with changes in car ownership and other factors such as travel demand, economic factors and trip purpose.

14.5.11 The future baseline is considered to be 2026 as the assessed construction year. TEMPRo factors applied to the data sources identified are illustrated in **Table 14-19** for the 'construction' scenario.

Table 14-19: TEMPRo growth factors

Base year	Future year	AM Peak growth factor	PM peak growth factor	Annual Average Daily Traffic growth factor
2023	2026	1.0259	1.0252	1.0263
2024	2026	1.0095	1.0090	1.0089

14.5.12 For non-motorised users, material alterations to the pedestrian, cycle and PRoW networks within the timeframe of construction of the Proposed Development are not anticipated with the exception of the construction of the Beverley bypass scheme some miles from the Site which is described below.

14.5.13 In relation to road infrastructure, the Beverley bypass scheme, specifically focusing on the A164 and Jock's Lodge Junction improvement, is a major highway project for East Riding of Yorkshire Council; construction has started and is expected to be complete in 2026. The plan aims to alleviate significant congestion along two of the East Riding's busiest roads: the A164 (Hull to Beverley) and A1079 (Hull to York). The improvements will include replacing the existing Jock's Lodge junction with a new roundabout on the A1079 and connecting it with the Lincoln Way/Minster Way roundabout in Beverley. Additionally, the A164 will be widened into a dual carriageway between Coppleflat Lane and Harland Way. As the scheme hasn't been completed it has not been

taken into account in the assessments but will improve highway capacity in the area and therefore offers a beneficial effect to the future baseline.

14.5.14 These changes are expected to ease traffic flow, reduce bottlenecks, and enhance safety for all road users, including cyclists and pedestrians, by incorporating dedicated routes. Further details of the scheme are available at the A164 Jocks Lodge website **[Ref. 14-14]**. Once constructed the scheme would have a materially beneficial effect on the highway network local to Beverley.

14.5.15 Public transport networks are often subject to changes, particularly in rural areas. Bus services are susceptible to reductions in service due to the way they are funded and there is the potential for available services to be less frequent and/or less connected in 2026 than they are currently without maintaining or increasing funding.

14.6 Mitigation embedded into the design

14.6.1 This assessment has been based on the principle that measures have been 'embedded' into the design of the Proposed Development to remove potential significant effects as far as practicable, for example by the considered placement of infrastructure. The **Design Approach Document [EN010157/APP/5.7]** identifies the project design principles and design mitigation that has been embedded into the design of the Proposed Development. The embedded mitigation relevant to this assessment is detailed in **Table 14-20** below.

Table 14-20: Embedded mitigation relevant to transport and access

Embedded mitigation measure relevant to transport and access	Function	Securing mechanism
It is proposed to provide passing places along Meaux Lane for HGVs to pass. The phasing of constructing the Proposed Development is considered to be a form of mitigation as it means the impacts on Meaux Lane (between A1035 and access to Land Area D west of Meaux Lane) will be phased and therefore Meaux Lane will not be impacted for the full construction period.	To enable free flow of traffic.	**Works Plans [EN010157/APP/2.2]**

Embedded mitigation measure relevant to transport and access	Function	Securing mechanism
It is proposed to provide passing places along Meaux Road for HGVs to pass. The phasing of constructing the Proposed Development is considered to be a form of mitigation as it means the impacts on Meaux Road (between access to Land Area F west of Meaux Road and Access to Land Area F east of Meaux Lane) will be phased and therefore Meaux Road will not be impacted for the full construction period.	To enable free flow of traffic.	**Works Plans [EN010157/APP/2.2]**
It is proposed to provide passing places along Carr Lane (Long Riston) for HGVs to pass. The phasing of constructing the Proposed Development is considered to be a form of mitigation as it means the impacts on Carr Lane (Long Riston) will be phased and therefore Carr Lane (Long Riston) will not be impacted for the full construction period.	To enable free flow of traffic.	**Works Plans [EN010157/APP/2.2]**
It is proposed to provide passing places along Arnold Lane West for HGVs to pass. The phasing of constructing the Proposed Development is considered to be a form of mitigation as it means the impacts on Arnold Lane West will be phased and therefore Arnold Lane West will not be impacted for the full construction period.	To enable free flow of traffic.	**Works Plans [EN010157/APP/2.2]**
It is proposed to provide passing places along Carr Lane (Arnold) for HGVs to	To enable free flow of traffic.	**Works Plans [EN010157/APP/2.2]**

Embedded mitigation measure relevant to transport and access	Function	Securing mechanism
pass. The phasing of constructing the Proposed Development is considered to be a form of mitigation as it means the impacts on Carr Lane (Arnold) will be phased and therefore Carr Lane (Arnold) will not be impacted for the full construction period.		
Drilling launch/reception pits will not be located within 50m of railway infrastructure.	To avoid impact to existing rail infrastructure.	**Design Parameters Document [EN010157/APP/5.8]**
Drilling launch/reception pits will not be located within 10m of a highway verge.	To avoid impact to the adopted highway.	**Design Parameters Document [EN010157/APP/5.8]**
HDD will be a minimum depth of 7m below railway lines. HDD will be a minimum depth of 5m below any public highways.	To avoid impact to existing rail infrastructure and public highways.	**Design Parameters Document [EN010157/APP/5.8]**
Where passing places are proposed on public highways, these will be designed to provide a minimum total carriageway width of 5.5m and a maximum of 8.5m. Passing places will be 20m in length with the provision of 10m tapers at each end.	To enable free flow of traffic.	**Design Parameters Document [EN010157/APP/5.8]**
Provision of new access junction into Land Area B from A165 White Cross Road	New access junction to be constructed to enable access to the Site at Land Area B during construction, operation and decommissioning phases of suitable scale to accommodate HGVs accessing and egressing safely.	**Streets, Rights of Way and Access Plans [EN010157/APP/2.3]**
Widening of Carr Lane (Long Riston)/A165 White Cross Road junction bell mouth	Widening of existing junction to ensure there is sufficient width at the	**Works Plans [EN010157/APP/2.2]**

Embedded mitigation measure relevant to transport and access	Function	Securing mechanism
	access for two HGVs to pass to mitigate against the possibility of collision or HGVs waiting on the public highway.	
Widening of Black Tup Lane/Carr Lane (Arnold) junction bell mouth	Widening of existing junction to ensure there is sufficient width at the access for two HGVs to pass to mitigate against the possibility of collision or HGVs waiting on the public highway.	**Works Plans [EN010157/APP/2.2]**
Widening on bends in the carriageway on Meaux Lane/Meaux Road	Widening of the carriageway to approximately 8m in width at 4 no. bends on Meaux Lane/Meaux Road to accommodate HGVs passing on bends in the road.	**Works Plans [EN010157/APP/2.2]**
Provision of new access junctions into Land Areas B, D, E and F from Meaux Lane/Meaux Road	Provision of 6 no. new access junctions on Meaux Lane/Meaux Road to be constructed to enable access to the Site at Land Areas B, D, E and F during construction, operation and decommissioning phases of suitable scale to accommodate HGVs accessing and egressing safely.	**Streets, Rights of Way and Access Plans [EN010157/APP/2.3]**
Temporary speed reduction on Meaux Lane/Meaux Road between junction with A1035 and a point approximately 40m north of Tippet Lane as well as a second section on Meaux Road in the vicinity of the two proposed accesses to Land	Speed limit to be temporarily reduced from 40mph to 30mph during the construction phase. This will reduce vehicle speeds on Meaux Lane/Meaux Road, reduce the chance of	**Outline CTMP [EN010157/APP/7.7]**

Embedded mitigation measure relevant to transport and access	Function	Securing mechanism
Area F. The temporary speed reduction is set out in the **Traffic Measures Plan [EN010157/APP/2.9]**.	collisions occurring between oncoming vehicles and reduce stopping sight distance requirements (in line with Manual for Streets **[Ref. 14-12]**).	

14.7 Assessment of likely effects (without additional mitigation)

Construction

14.7.1 The construction phase is anticipated to be temporary across a 24-month period. However, construction-related traffic associated with the Proposed Development could have an effect on the following matters:

- Severance of communities;
- Road vehicle driver and passenger delay;
- Non-motorised user delay;
- Non-motorised user amenity;
- Fear and intimidation on and by road users; and
- Road user and pedestrian safety.

14.7.2 Construction activities that would potentially result in effects on receptors in the study area are listed below:

- Construction works within the highway (highway improvements and cable route crossings).
- Movement of the construction workforce to and from the Site.
- Movement of materials and construction equipment to and from the Site.
- Temporary closures of particular PRoW to facilitate movements of construction vehicles.

14.7.3 The approximate daily two-way construction trips for all Land Areas in the Site have been added to the '2026 future baseline' to create the 'with Proposed Development' scenario.

14.7.4 **Table 14-21** sets out the construction daily two-way trips by sensitivity assessed link section as outlined earlier in this chapter and the net and percentage change from the addition of construction flows. Based on this change, the table refers to whether the link is included or excluded from further assessment for environmental effects. It should be noted that 'All vehicles' in this table equates to LGVs and HGVs.

Table 14-21: Construction scenario daily vehicle movements (net and percentage change) on assessed links

Link & section No.	Section description	2026 future baseline		2026 future baseline + construction phase		% change: 2026 baseline v 2026 baseline + construction traffic		Included or excluded based on IEMA Rule 1 and Rule 2
		HGVs	All vehicles	HGVs	All vehicles	HGVs	All vehicles	
1-1	**A1035** Swinemoor Roundabout to Meaux Lane	247	19391	298	19547	21%	1%	Excluded
1-2	**A1035** Meaux Lane to White Cross Roundabout	247	19391	298	19571	21%	1%	Excluded
2-1	**A165 White Cross Road** White Cross Roundabout to Carr Lane (Long Riston)	806	8690	857	8852	6%	2%	Excluded
2-2	**A165 White Cross Road** Carr Lane (Long Riston) to Arnold Lane West	806	8690	857	8852	6%	2%	Excluded

Link & section No.	Section description	2026 future baseline		2026 future baseline + construction phase		% change: 2026 baseline v 2026 baseline + construction traffic		Included or excluded based on IEMA Rule 1 and Rule 2
		HGVs	All vehicles	HGVs	All vehicles	HGVs	All vehicles	
2-3	**A165 White Cross Road** Arnold Lane West to Balk Lane	806	8690	857	8852	6%	2%	Excluded
3-1	**Meaux Lane** A1035 to Land Area D/E Access on west of Meaux Lane	6	2244	98	2554	1533%	14%	Included
3-2	**Meaux Lane/Meaux Road** Land Area D/E Access on west of Meaux Lane to Land Area F Access	6	2244	36	2344	500%	4%	Included
4	**Carr Lane (Long Riston)**	0	31	10	66	Infinite (based on no existing HGVs)	113%	Included
5	**Arnold Lane West**	2	258	42	382	1982%	48%	Included
6	**Black Tup Lane**	2	258	42	382	1982%	48%	Included

14.7.5 The results in **Table 14-21** demonstrate that during the construction of the Proposed Development, the total vehicle movements are not predicted to increase by more than 10% on the A1035 and A165 links. On minor road links 4 to 6, it is demonstrated that the increase in all vehicles exceeds the 30% threshold for further assessment.

14.7.6 The HGV two-way trips are predicted to increase by more than 30% on minor road links 3-1 to 6 and while any effect would be temporary, potential effects are predicted to arise as a result. However, it is clear that when assessing the increase in HGVs based on absolute values that there is a small number of additional HGVs added to the link and the high percentages are predominantly as a result of very low baseline HGV traffic flows on these links.

14.7.7 In relation to the increase in number of HGVs and the associated potential effects, the following points should be taken into consideration:

- The assessed two-way trips represent the busiest days of construction for each Land Area (when construction and staff-related trips will be at their highest). These 'busiest days' in terms of trips have been combined for the Land Areas which may be constructed concurrently. The remainder of the construction phase will experience a lesser number of Annual Average Daily Traffic construction and staff-related trips.
- The percentage increase in traffic on some links is a daily increase in two-way trips and is a result of the low number of existing observed baseline trips. The increase in HGVs may not be as considerable as the percentages show. For example, the 1982% increase (or 40 additional two-way HGV movements) on Links 5 and 6 is equivalent to approximately 5-6 HGV movements per hour across the times when HGVs will run for the majority of the construction phase (09:00-16:00 in order to avoid the network peak hours) other than during the short period when some HGVs will travel to and from the Site during the AM peak hour.

14.7.8 The road links set out in **Table 14-21**, provide the vehicle routes to the Land Areas where the majority of works will be undertaken during the construction phase. There are additional existing accesses which will be utilised for accessing land associated with the grid connection cable route works. These additional accesses are located on the A1174 Hull Road, Long Lane and Park Lane.

14.7.9 The accesses for the grid connection cable route works will be used for a shorter period of time than the Land Area accesses. As is set out in **Table 14-5** above, the number of daily vehicle trips predicted to be generated by the grid connection

cable route works is 10 daily LGVs and 10 daily HGVs which is considered to be low.

14.7.10 On the basis that the number of vehicle trips is low and that each of the grid connection cable route works accesses on A1174 Hull Road, Long Lane and Park Lane are to be used for a short period of time, it is considered that there are unlikely to be any significant effects on these links.

14.7.11 The National Cycle Network Route 1 runs along Park Lane within the Order Limits. This section of Park Lane is proposed to be used for access for 10 daily LGVs and 10 daily HGVs for the grid connection cable route works which will be undertaken over a shorter period of time than the works on the Land Areas. The National Cycle Network Route 1 runs on the carriageway and is unsegregated from vehicular traffic. An assessment of the impact on this receptor for severance, non-motorised user delay, non-motorised user amenity and fear and intimidation is undertaken below.

14.7.12 As discussed in **paragraph 14.4.33**, it is expected that the majority of construction vehicles accessing Main Compounds would be of standard size (HGVs and LGVs). However, two Large Loads are anticipated to be required to transport the two transformers to the two on-site substations in Land Areas C and E (Project Substation East and Project Substation West, respectively). The Large Loads will consist of a total of four vehicle movements during the construction phase, comprising one arrival and one departure to both substations. The two on-site substations are to be left in-situ subject to agreement with Distribution Network Operator, so no further Large Loads are anticipated to be required to remove or replace the transformers during the decommissioning phase.

14.7.13 Project Substation East at Land Area C will be accessed via the A165 White Cross Road, Carr Lane (Long Riston) and along internal tracks. The junction of A165 White Cross Road and Carr Lane is to be widened to accommodate a standard length articulated HGV. The proposed access arrangement has been assessed for the anticipated Large Load vehicle and the swept path assessment demonstrates that the proposed arrangement is sufficient for safe and efficient access and egress. The swept path assessment is included in **ES Volume 4, Appendix 14.5: Swept Path Analysis [EN010157/APP/6.4]**.

14.7.14 Project Substation West at Land Area E will be accessed via the A1035, Meaux Lane and along internal tracks. Meaux Lane is proposed to be widened and passing places are provided at several locations in order to accommodate a standard length articulated HGV. A new access junction is proposed to facilitate HGV access to Land Area E via Land Area D on the west side of Meaux Lane. The route along Meaux Lane with the proposed highway mitigation has been assessed for the anticipated Large Load vehicle and the swept path assessment demonstrates that the proposed arrangement of Meaux Lane is sufficient for safe

and efficient access and egress, although a road closure will be required due to the narrow width of Meaux Lane which would not enable another vehicle to pass the Large Load. East Riding of Yorkshire Council Highways has confirmed that a road closure of Meaux Lane would be acceptable during the night-time (refer to **Table 14-1** above). The swept path assessment is included in **ES Volume 4, Appendix 14.5: Swept Path Analysis [EN010157/APP/6.4]**.

14.7.15 There is the possibility of heavy and high loads being transported to Site that would not be classified as Large Loads but would require specific routes. National Highways "Advice for Hauliers" **[Ref. 14-15]** sets out the available heavy and high load routes which connect to the Strategic Road Network.

14.7.16 High Route 41 connects the A63 to the A1035 at Beverley via the A1079 and the A165 and would therefore be a suitable route to provide high loads to the Site which is accessed off the A165.

14.7.17 Heavy Route 107 connects the A63 to Cottingham adjacent to National Grid Creyke Beck Substation and would therefore provide a suitable heavy load route to the Site.

14.7.18 Although based on the anticipated construction activities at this stage, vehicle trips associated with construction of the Proposed Development are not anticipated to include any loads of a dangerous nature based on the classification on loads from the Department for Transport **[Ref. 14-16]**. Should this change and it be necessary for the Proposed Development to include a number of dangerous load movements, this will be first discussed with the relevant local highway authority (Hull City Council, East Riding of Yorkshire Council and National Highways as necessary) and the required approvals will be obtained.

14.7.19 Mitigation measures for Large Loads are covered in further detail within the **Outline CTMP [EN010157/APP/7.7]**.

Decommissioning

14.7.20 The decommissioning phase is anticipated to broadly represent a reversal of the process of construction of the Proposed Development. Albeit it is likely to generate fewer vehicle movements as a result of slightly less work being required as described below.

14.7.21 Underground cables will be left in situ. On this basis, the grid connection cable route works accesses on A1174 Hull Road, Long Lane and Park Lane will not be required for access during the decommissioning phase. As a result, there will be no impact on these links or the National Cycle Network Route 1 on Park Lane during the decommissioning phase.

14.7.22 It is anticipated that the internal site access tracks (subject to discussions with relevant landowners), access junctions, passing places for users of the public highway, carriageway widening, two on-site substations (subject to agreement with the Distribution Network Operator) and environmental mitigation (subject to discussions with relevant landowners) will be permanently retained.

14.7.23 It is anticipated that the decommissioning phase will involve the removal of all above ground solar infrastructure comprising solar PV modules, inverters, BESS, DC-DC converters, switchgears, cabins and storage containers.

14.7.24 There is potential for the activities which comprise the decommissioning phase to result in effects on the highway links accessing the main Land Areas without additional mitigation.

14.8 Additional mitigation

Construction

14.8.1 The **Outline CTMP [EN010157/APP/7.7]** details and secures a framework for the construction traffic routing, site access, delivery of materials, construction working hours and management and monitoring measures. A Construction Traffic Management Plan will be developed in consultation with Hull City Council and National Highways and approved by East Riding of Yorkshire Council.

14.8.2 The Construction Traffic Management Plan will be implemented and managed by the principal contractor undertaking the construction works and sets out measures to avoid, prevent, reduce and/or offset the environmental effects of traffic during construction, and will limit the impact on existing users of the public highway network or those located close to it.

14.8.3 The aim of the **Outline CTMP [EN010157/APP/7.7]** is to provide a framework for addressing these impacts. The **Outline CTMP [EN010157/APP/7.7]** only considers the construction phase of the Proposed Development and has been prepared to ensure that the construction process, and management and mitigation measures, including traffic management and construction vehicle management, minimise the impact on existing users of the public highway network. Measures may also include traffic, conditions survey requirements and onsite construction activities (wheel washing etc).

14.8.4 The **Outline Travel Plan** has been prepared as an appendix to the **Outline CTMP [EN010157/APP/7.7]** document. The **Outline Travel Plan** sets out strategies to encourage the use of sustainable transport for the construction workforce to travel to/from the site. This includes details on initiatives to encourage a mode shift away from private car use and minimising the number of

single occupancy private car trips through use of minibuses operated by the contractor.

14.8.5 The **Outline Travel Plan** includes a number of measures such as shuttle buses to transport construction workers from the satellite compounds to the Site and promotion of car sharing.

14.8.6 Where National Cycle Network Route 1 interacts with construction traffic routes, this would be managed by the measures detailed in and secured by the **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]**.

Decommissioning

14.8.7 It is not considered that any additional mitigation proposals are required as part of the decommissioning compared to those implemented during the construction phase; the **Outline DEMP [EN010157/APP/7.4]** secures measures with respect to vehicular routing and PRoW management for this phase which are expected to replicate those adopted for the construction phase. Highway mitigation works implemented for the construction phase, including passing bays, junction improvements and site accesses, will be retained permanently and therefore able to be used during the decommissioning phase. Site access junctions will be constructed to adoptable standards.

14.8.8 The **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]** sets out how interactions with construction traffic routes would be managed, including the provision of fencing to segregate routes from construction areas to ensure the retention of existing PRoW during the decommissioning phase.

14.9 Assessment of residual effects (with additional mitigation)

Construction

Severance of communities

14.9.1 The likely effect on severance on links 3-1 to 6 has been assessed based on the magnitude of impact and receptor sensitivity in line with the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**.

14.9.2 For severance, the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** states that any change in all vehicles between 0-30% is of negligible magnitude. In regard to HGVs, the IEMA Guidelines: Environmental

Assessment of Traffic and Movement **[Ref. 14-9]** acknowledges that changes in the composition of traffic can affect severance. **Table 14-21** above sets out the percentage increases of HGVs and total vehicles generated by the Proposed Development on each link.

14.9.3 Owing to the low number of existing HGV trips contained in the '2026 future baseline' on particular links, the percentage change is more pronounced than when it is compared to the net change in HGV vehicle movements on other links. However, the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** recognises at paragraph 3.16 that:

"Caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic" **[Ref. 14-9]**.

14.9.4 It is noted therefore that the percentage increase is likely to overestimate the magnitude of impact owing to the assessment's use of the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** traffic change thresholds.

14.9.5 Due to the distribution of vehicles throughout the day, the absolute increase in vehicles is not considered to have an impact on severance. For example, the 40 additional two-way HGV movements on Links 5 and 6 is equivalent to approximately 5-6 HGVs per hour across the full day between peak hours (between 09:00 and 16:00) during the majority of the construction phase, other than the short period when approximately 10 HGVs are anticipated to travel to and from the Site during the AM peak hour.

14.9.6 On all of the affected links, mitigation is required to accommodate HGVs in the form of passing places which ensure that HGVs and other road users are able to travel along each link safely.

14.9.7 Links 3-1 and 3-2 on Meaux Lane are predicted to experience as a worst-case scenario an increase of 14% of total vehicles and 1520% increase in HGVs from the addition of construction traffic to the '2026 future baseline'. Based on the percentage increase in total vehicles, this would be a low magnitude of change. Based on absolute values, the increase in traffic is considered to be negligible. Both links are considered to have a high sensitivity, however, it is unlikely that many non-motorised users will use these links due to the fact that there is no footway provision or segregated cycle route which would indicate that severance is unlikely to occur. On this basis, the magnitude of impact on severance is considered to be **negligible** and the sensitivity is **high** which results in a direct, temporary, medium-term **minor adverse** residual effect on Link 4, following implementation of additional mitigation measures, which is considered to be **not significant**.

14.9.8 Link 4 (Carr Lane) is predicted to experience as a worst-case scenario an increase of 113% of total vehicles and an increase in HGVs from 0 to 10 daily HGV movements from the addition of construction traffic to the '2026 future baseline'. Based on the percentage increase in total vehicles, this would be a high magnitude of change, however this is overestimating the severance effects due to very low baseline traffic volumes (and zero existing HGV movements). Based on absolute values, the increase in traffic is considered to be negligible. Link 4 is unlikely to attract non-motorised users for severance effects to be experienced. On this basis, the magnitude of impact is considered to be **negligible** and the sensitivity is **negligible** which results in a direct, temporary, medium-term **negligible adverse** residual effect on users of Link 4, following implementation of additional mitigation measures, which is considered to be **not significant**.

14.9.9 Links 5 and 6 (Arnold Lane West and Black Tup Lane) are predicted to experience as a worst-case scenario an increase of 48% of total vehicles and 1982% HGVs from the addition of construction traffic in the '2026 future baseline'. Based on the percentage increase in total vehicles, this would be a low magnitude of change (within 30-60%), however this is overestimating the severance effects due to very low baseline traffic volumes and a negligible magnitude of impact is considered to be appropriate. Link 5 is considered to have a medium sensitivity and Link 6 a low sensitivity.

14.9.10 On this basis, for Link 5 the magnitude of impact is considered to be **negligible** and the sensitivity is **medium** which results in a direct, temporary, medium-term **negligible adverse** residual effect on users of Link 5, following implementation of additional mitigation measures, which is considered to be **not significant**.

14.9.11 For Link 6 the magnitude of impact is considered to be **negligible** and the sensitivity is **low** which results in a direct, temporary, medium-term **negligible adverse** residual effect on users of Link 5, following implementation of additional mitigation measures, which is considered to be **not significant**.For the National Cycle Network Route 1 on Park Lane, the Proposed Development is predicted to generate a maximum of 10 LGVs and 10 HGVs per day on this link. On this basis, the magnitude of impact is **negligible**, the sensitivity is **high**, which results in a direct, temporary, short-term **minor adverse** residual effect on users of the National Cycle Network Route 1, following implementation of additional mitigation measures, which is considered to be **not significant**.

Road vehicle driver and passenger delay

14.9.12 The effect on road vehicle driver and passenger delay (hereafter abbreviated to driver delay) has been assessed based on latest IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**. Driver delay is assessed using junction capacity assessments and the technical analysis carried

out in **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.

14.9.13 Driver delay can develop at several points on the road network surrounding a development owing to the addition of Proposed Development traffic. Additionally, the existing traffic on the road network may also be reaching or already at maximum capacity which can contribute to Proposed Development related driver delay.

14.9.14 The assessments consider the effect on driver delay by comparing differences in delay between the '2026 future baseline' and the 'construction' scenario for the AM and PM peak periods at identified key junctions noted below.

14.9.15 A total of six junctions within the study area have been assessed in detail based on the predicted vehicle trip generation exceeding 30 total vehicle movements during the AM or PM peak hour and this approach has been agreed with East Riding of Yorkshire Council Highways. The assessment of each junction is included within **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.

14.9.16 The junctions within the study area that are included in the assessment of driver delay are as follows:

- A1035/A1035 Grange Way/A1174 Hull Bridge Road/Swinemoor Lane roundabout (Swinemoor Roundabout)
- A165/A165 White Cross Road/A1035/Beverley Road roundabout (White Cross Roundabout)
- A1035/Meaux Lane priority junction
- A165 White Cross Road/Land Area B Access (East of A165) priority junction
- A165 White Cross Road/Carr Lane priority junction
- A165 White Cross Road/Arnold Lane West priority junction

14.9.17 Each of the six junctions has been assessed using Junctions10 software. The ARCADY10 programme was used to model the roundabout junctions and PICADY10 was used to model the priority junctions, in line with standard industry practice for undertaking assessments of these types of junction arrangements.

14.9.18 The scenarios assessed are the '2026 future baseline' and the '2026 future baseline plus construction phase development traffic'. Due to the distribution of construction traffic in each construction phase varying the impact at each junction, the worst-case for each of the six junctions was assessed. For example, the A165 White Cross Road/Arnold Lane West priority junction is more affected

by traffic associated with phases 2 and 3 (when Land Area C is anticipated to be constructed) due to Land Area C traffic being distributed along Arnold Lane West.

14.9.19 The ARCADY10 and PICADY10 modelling output files are included in full in **ES Volume 4: Appendix 14.3 Junction Modelling Output Files [EN010157/APP/6.4]**.

14.9.20 The change in delay in seconds experienced in the AM and PM peak hours during the 'construction' scenario compared to the '2026 future baseline' is presented in **Table 14-22** for each junction.

Table 14-22: Driver delay: change in delay (seconds) - construction (with Proposed Development) scenario minus 2026 future baseline

Junction	Average change in junction delay in AM Peak (seconds)	Magnitude of impact (AM Peak)	Average change in junction delay in PM Peak (seconds)	Magnitude of impact (PM Peak)
Swinemoor Roundabout	0	No change	0	No change
White Cross Roundabout	0	No change	0	No change
A1035/Meaux Lane	1	Negligible	2	Negligible
A165/Land Area B	2	Negligible	6	Negligible
A165/Carr Lane	3	Negligible	4	Negligible
A165/Arnold Lane West	0	No change	0	No change

14.9.21 As is shown in **Table 14-22**, the junction modelling predicts no change in delay in both peak hours at the Swinemoor Roundabout, White Cross Roundabout and A165/Arnold Lane West priority junction. At the A1035/Meaux Lane, A165/Land Area B and A165/Carr Lane priority junctions, a negligible increase in delay is predicted in both peak hours but this will be barely perceptible and is within the typical variation from day to day.

14.9.22 The ratio of flow to capacity determines how sensitive a junction is to changes in traffic. The ratio of flow to capacity in the AM and PM peak hours for the '2026 future baseline' and '2026 future baseline plus construction' scenarios for each junction is shown in **Table 14-23** below.

Table 14-23: Driver delay: sensitivity of receptors (drivers) and average ratio of flow to capacity

Junction	Time Period	Average Junction ratio of flow to capacity 2026 future baseline	Sensitivity	Average Junction ratio of flow to capacity 2026 future baseline plus construction (with Proposed Development)	Sensitivity
Swinemoor Roundabout	AM Peak	0.1275	**Negligible**	0.1325	**Negligible**
	PM Peak	0.115	**Negligible**	0.12	**Negligible**
White Cross Roundabout	AM Peak	0.395	**Low**	0.405	**Low**
	PM Peak	0.3875	**Low**	0.395	**Low**
A1035/ Meaux Lane	AM Peak	0.205	**Negligible**	0.245	**Negligible**
	PM Peak	0.165	**Negligible**	0.265	**Negligible**
A165/Land Area B	AM Peak	0	**Negligible**	0	**Negligible**
	PM Peak	0	**Negligible**	0.01	**Negligible**
A165/Carr Lane	AM Peak	0	**Negligible**	0.01	**Negligible**
	PM Peak	0.005	**Negligible**	0.02	**Negligible**
A165/Arnold Lane West	AM Peak	0.06	**Negligible**	0.085	**Negligible**
	PM Peak	0.05	**Negligible**	0.075	**Negligible**

14.9.23 Based on the modelled ratio of flow to capacities, all of the junctions are predicted to have a negligible sensitivity, except for the White Cross Roundabout which has a low sensitivity.

14.9.24 Referring to **Table 14-22**, the Swinemoor Roundabout, White Cross Roundabout and A165/Arnold Lane West priority junction which are predicted to experience **no change** in delay are considered to be **not significant**.

14.9.25 The A1035/Meaux Lane, A165/Land Area B and A165/Carr Lane priority junctions are predicted to experience a **negligible** increase in delay, all of the junctions have a **negligible** sensitivity, and therefore it is likely there will be a direct, temporary, medium-term **negligible adverse** residual effect on driver delay, which is considered to be **not significant**.

14.9.26 Temporary impacts on driver delay can also occur from development activities undertaken within the highway. A number of works will take place on the local road network, comprising construction of junction upgrades, new accesses to serve Land Areas and cable route crossings (refer to the **Streets, Rights of Way and Access Plans [EN010157/APP/2.3]**). These works will have a temporary impact and are expected to be of short duration.

14.9.27 Where works are proposed on the A road network (such as on the A165 White Cross Road), it is possible that any lane closures will need to be undertaken outside of peak hours and inter-peak periods due to the potential disruption to key routes, but this will be confirmed through discussion with East Riding of Yorkshire Council as highway authority and in line with the **Outline CTMP [EN010157/APP/7.7]**.

14.9.28 On B roads and minor roads (Meaux Lane, Meaux Road, Carr Lane, Arnold Lane West and Black Tup Lane), these works are likely to be undertaken using local traffic management (Traffic Signs Manual, Chapter 8, DfT) **[Ref. 14-17]** with the use of temporary traffic signals or similar methods to allow single lane closures with sufficient width for vehicles to pass. In some instances, such as on Meaux Lane, temporary traffic signals may be required during the construction of works on the local road network. All temporary works will be discussed with East Riding of Yorkshire Council as the highway authority and in line with the **Outline CTMP [EN010157/APP/7.7]**.

14.9.29 The sensitivity of road users travelling along the A165 White Cross Road where temporary traffic management may be required during these time periods is considered to be **low** and the magnitude of impact, following additional mitigation, is **low**. Therefore, there is likely to be a direct, temporary, short-term **negligible adverse** residual effect on road users following the implementation of additional mitigation measures, which is considered to be **not significant**.

14.9.30 The sensitivity of road users travelling along the links within the study which are B roads and minor roads (Meaux Lane, Meaux Road, Carr Lane, Arnold Lane West and Black Tup Lane), where temporary traffic management may be required during these time periods is considered to be **medium** and the magnitude of impact, following additional mitigation, is **low**. Therefore, there is likely to be a direct, temporary, short-term **minor adverse** residual effect on road users following the implementation of additional mitigation measures, which is considered to be **not significant**.

Non-motorised user delay

14.9.31 The effect on non-motorised user delay on links 3-1 to 6 has been assessed based on the magnitude of change and receptor sensitivity in line with the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**.

14.9.32 The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** does not recommend solely making use of definitive thresholds, and instead recommends that the competent traffic and movement expert use their judgment to determine whether non-motorised user delay constitutes a significant effect. The assessment has therefore taken a two-step approach to determine the effect on non-motorised user delay; first, by looking at the percentage change in traffic between the '2026 future baseline' and the 'construction' scenario, and second by a review of local site conditions. However, as is outlined in the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**, in instances where low baseline traffic volumes result in large percentage increases it may be more appropriate to determine magnitude of impact based on absolute values.

14.9.33 It should be noted that, from Site observations, the roads in the vicinity of the Proposed Development carry only very low numbers of pedestrians, cyclists and equestrians.

14.9.34 **Table 14-24** below provides an overview of the percentage change in total traffic and HGV traffic (Annual Average Daily Traffic).

Table 14-24: Non-motorised user delay: percentage change in daily total traffic (two-way trips)

Link No.	Percentage change in daily total traffic (two-way trips, all vehicles)	Percentage change in daily HGV traffic (two-way trips)	Sensitivity
3-1	14%	15320%	High
3-2	4%	496%	High
4	113%	N/A (as none in baseline)	Negligible
5	48%	1982%	Medium
6	48%	1982%	Low

14.9.35 The assessment, as shown in **Table 14-24**, shows that there is predicted to be an increase in daily total traffic of more than 30% on Links 4, 5 and 6. It is noted that the HGV component of construction traffic increases more in percentage terms in the 'construction' scenario compared to change in daily total traffic. The IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** note that changes in the composition of traffic can have as much of an impact on non-motorised user delay as overall increases in traffic. On all links, the absolute increases in total traffic and HGVs are considered to be negligible.

14.9.36 A review of local conditions has been conducted as the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** notes that definitive thresholds to determine the impact on non-motorised user delay may not be appropriate as there are too many factors that can affect non-motorised user delay.

14.9.37 The detailed review has only included links where the receptor sensitivity is noted to be medium or high to determine whether magnitude of potential impact could be greater than medium and significance ratings can be deemed as 'significant' (Major or Moderate), as outlined in **Table 14-24**. Low and negligible sensitivity receptors have not been assessed in detail based on this criterion.

Table 14-25: Non-motorised user delay: review of local site conditions

Link No.	Availability of non-motorised user infrastructure	Potential for non-motorised user delay
3-1	There is no footway on Meaux Lane and there are no pedestrian crossings. Any pedestrians would either walk on carriageway or in the verge. Meaux Lane is designated as an on-carriageway shared cycle and vehicle route. Any cyclists would use the carriageway. The road is not street-lit and is not conducive to pedestrian movements. The traffic survey undertaken on Meaux Lane indicated a low presence of cyclists using the road daily.	There is minimal demand for non-motorised user movements on Meaux Lane due to the fact that it is in a sparsely populated area, and it connects the A1035 to Wawne with a small number of residential properties and farms in between that would be accessed by vehicles. Due to the low pedestrian volumes there is little interaction between vehicles and non-motorised users on this link and the magnitude of impact on non-motorised user delay is considered to be **negligible**, the sensitivity is **high**, which results in a direct, temporary, medium-term **minor adverse** residual effect on non-motorised users following the implementation of additional mitigation measures, which is considered to be **not significant**.
3-2	There is no footway on Meaux Lane and there are no pedestrian crossings. Any pedestrians would either walk on carriageway or in the verge. Meaux Lane is designated as an on-carriageway shared cycle and vehicle route. Any cyclists would use the carriageway. It is not street-lit and is not conducive to pedestrian movements. The traffic survey undertaken on Meaux Lane indicated a low presence of cyclists using the road daily.	There is minimal demand for non-motorised user movements on Meaux Lane due to the fact that it is in a sparsely populated area, and it connects the A1035 to Wawne with a small number of residential properties and farms in between that would be accessed by vehicles. Due to the low pedestrian volumes there is little interaction between vehicles and non-motorised users on this link and the magnitude of impact on non-motorised user delay is considered to be **negligible**, the sensitivity is **high**, which results in a direct, temporary, medium-term **minor adverse** residual effect on non-

Link No.	Availability of non-motorised user infrastructure	Potential for non-motorised user delay
		motorised users following the implementation of additional mitigation measures, which is considered to be **not significant**.
5	There is no footway on Arnold Lane West and there are no pedestrian crossings. Any pedestrians or cyclists would use the carriageway and highway verge. It is not street-lit and is not conducive to pedestrian movements, albeit the low number of vehicle movements on this link mean that walking on carriageway is safe, particularly for access to facilities such as the dwellings and public house. There is only one dwelling on the north side of the road and therefore there is minimal demand for a crossing.	There is minimal demand for pedestrian movements on Arnold Lane West due to the fact it is located in a sparsely populated area and there is minimal need to cross the road. There is no footway connecting to the public house, however due to low vehicle volumes on the road it is not considered to be unsafe for pedestrians to walk on carriageway or in the verge as is common practice in rural settings. Due to the low pedestrian volumes, there is little interaction between vehicles and pedestrians on this link and the magnitude of impact on non-motorised user delay is considered to be **negligible**, the sensitivity is **medium**, which results in a direct, temporary, medium-term **negligible adverse** residual effect on non-motorised users following the implementation of additional mitigation measures, which is considered to be **not significant**.
National Cycle Network Route 1	National Cycle Network Route 1 passes along the carriageway of Park Lane, unsegregated from traffic, although Park Lane only serves a limited number of premises and therefore traffic volumes are anticipated to be very low.	Due to the low vehicle volumes, including construction traffic, there is little interaction between vehicles and non-motorised users on this link and the magnitude of impact on non-motorised user delay is considered to be **negligible**. The magnitude of impact is therefore **negligible**, the sensitivity is **high**, which results in a direct, temporary, short-term **minor adverse** residual effect on users of the National Cycle Network Route 1 following implementation of additional mitigation measures, which is considered to be **not significant**.

Non-motorised user amenity

14.9.38 The effect on non-motorised user amenity has been assessed based on the magnitude of change and receptor sensitivity in line with the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**. The effect on non-motorised user amenity has first been determined based on where the traffic two-way flow or HGV component is halved/doubled followed by a review to pay full regard to specific local conditions. It should be noted that, from Site observations, the roads in the vicinity of the Proposed Development carry only very low numbers of pedestrians, cyclists and equestrians.

14.9.39 As per **Table 14-21** above, although traffic is predicted to increase on all assessed links, the total traffic two-way flow only doubles on Link 4 (Carr Lane). However, the HGV component does increase by more than 100% on all links screened for further assessment (3-1 to 6), which have therefore been assessed for the effects on non-motorised user amenity.

14.9.40 The construction phase of the Proposed Development will add HGVs to the road network, and the HGV component of development traffic in particular could have an effect on the pleasantness of journeys for non-motorised users. However, as per the assessment of non-motorised user delay and the review summarised in **Table 14-25**, the number of HGV two-way trips being added to the road network and each link is not anticipated to be substantial enough to result in a perceptible change able to impact the pleasantness of journeys carried out by non-motorised users.

14.9.41 A further review of local conditions for links where the vehicle or HGV increase is doubled or more has been carried out. The review has shown that the overall level of provision for non-motorised users is low, as summarised in **Table 14-26**.

Table 14-26: Non-motorised user amenity – review of local conditions

Link No.	Link	Non-motorised user amenity link assessment
3-1	Meaux Lane	Meaux Lane is a rural road with no segregated non-motorised user provision. The carriageway is designated as a shared route for cyclists and vehicles. The Automatic Traffic Counters traffic survey undertaken on Meaux Road indicated that there was an average of 21 motorcycles or bicycles on Meaux Road/Meaux Lane each day. The survey did not distinguish between motorcycle and bicycles.

Link No.	Link	Non-motorised user amenity link assessment
		Despite the high percentage increase in vehicles and HGVs, the absolute increases on Meaux Lane are not anticipated to be substantial enough to impact on non-motorised user amenity. On this basis, it is considered that the magnitude of impact on this link is **negligible**, the sensitivity of the link is **high**, which results in a direct, temporary, medium-term **minor adverse** residual effect on non-motorised users following the implementation of additional mitigation measures, which is considered to be **not significant**.
3-2	Meaux Lane	Meaux Lane is a rural road with no segregated non-motorised user provision. The carriageway is designated as a shared route for cyclists and vehicles. The Automatic Traffic Counters traffic survey undertaken on Meaux Road indicated that there was an average of 21 motorcycles or bicycles on Meaux Road/Meaux Lane each day. The survey did not distinguish between motorcycle and bicycles. Despite the high percentage increase in vehicles and HGVs, the absolute increases on Meaux Lane are not anticipated to be substantial enough to impact on non-motorised user amenity. On this basis, it is considered that the magnitude of impact on this link is **negligible**, the sensitivity of the link is **high**, which results in a direct, temporary, medium-term **minor adverse** residual effect on non-motorised users following the implementation of additional mitigation measures, which is considered to be **not significant**.
4	Carr Lane	Carr Lane is a rural track which provides access to a farm and has no non-motorised user provision. The Automatic Traffic Counters traffic survey undertaken on Carr Lane showed that there were no cyclists on the link. Despite the high percentage increase in vehicles and HGVs, the absolute increases on Carr Lane are not anticipated to be substantial enough to impact on non-motorised user amenity. The link is not used by non-motorised users and they are therefore considered to not be impacted by the Proposed Development. On this basis, it is considered that the magnitude of impact on this link is **negligible**, the sensitivity of the link is **negligible**, which results in a direct, temporary, medium-term **negligible adverse** residual effect on

Link No.	Link	Non-motorised user amenity link assessment
		non-motorised users following the implementation of additional mitigation measures, which is considered to be **not significant**.
5	Arnold Lane West	Arnold Lane West is a rural road with no footway for provision. The Automatic Traffic Counters traffic survey undertaken on Black Tup Lane (which was used for data on Arnold Lane West) indicated that there was an average of 3 motorcycles or bicycles on Black Tup Lane/Arnold Lane West each day. The survey did not distinguish between motorcycle and bicycles. Despite the high percentage increase in vehicles and HGVs, the absolute increases on Arnold Lane West are not anticipated to be substantial enough to impact on non-motorised user amenity. There is a low number of non-motorised users on the link each day and it is therefore considered that non-motorised users would be not impacted by the Proposed Development. On this basis, it is considered that the magnitude of impact on this link is **negligible**, the sensitivity of the link is **medium**, which results in a direct, temporary, medium-term **negligible adverse** residual effect on non-motorised users following the implementation of additional mitigation measures, which is considered to be **not significant**.
6	Black Tup Lane	Black Tup Lane is a rural road with a narrow footway for a section of the link. The Automatic Traffic Counters traffic survey undertaken on Black Tup Lane indicated that there was an average of 3 motorcycles or bicycles on Black Tup Lane each day. The survey did not distinguish between motorcycle and cycles. Despite the high percentage increase in vehicles and HGVs, the absolute increases on Black Tup Lane are not anticipated to be substantial enough to impact on non-motorised user amenity. There is a low number of non-motorised users on the link each day and it is therefore considered that non-motorised users would be not impacted by the Proposed Development. On this basis, it is considered that the magnitude of impact on this link is **negligible**, the sensitivity of the link is **low**, which results in a direct, temporary, medium-term **negligible adverse** residual effect on non-

Link No.	Link	Non-motorised user amenity link assessment
		motorised users following the implementation of additional mitigation measures, which is considered to be **not significant**.
National Cycle Network Route 1		National Cycle Network Route 1 passes along the carriageway of Park Lane, unsegregated from traffic, although Park Lane only serves a limited number of premises and therefore traffic volumes are anticipated to be very low. On this basis, the magnitude of impact is considered to be **negligible**, the sensitivity is **high**, which results in a direct, temporary and short-term **minor adverse** residual effect on users of National Cycle Network Route 1 following the implementation of additional mitigation measures, which is considered to be **not significant**.

Fear and intimidation on and by road users

14.9.42 The likely effect on fear and intimidation has been assessed based on the magnitude of change and receptor sensitivity in line with the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**.

14.9.43 The assessment calculates a total degree of hazard score for the '2026 future baseline' and the 'construction' scenario and compares them to determine the change in degree of hazard score to identify the significance of effect.

14.9.44 In order to assess a worst-case scenario, the construction or 'with Proposed Development' scenario for each link is taken from the phase of development during construction which is predicted to have the greatest vehicle generation on that link.

14.9.45 **Table 14-27** below sets out the average traffic flow over an 18-hour day (all vehicles per hour two-way), the total 18-hour HGV two-way flow and the average vehicle speed in the '2026 future baseline' and the 'construction' scenario.

Table 14-27: Fear and intimidation – 2026 future baseline and construction scenario data

Link No.	Link	2026 future baseline			Construction scenario		
		Average traffic flow over 18-hr day - all vehicles/hr two-way (a)	Total 18-hr HGV flow (b)	Average vehicle speed (mph) (c)	Average traffic flow over 18-hr day - all vehicles/hr two-way (a)	Total 18-hr HGV flow (b)	Average vehicle speed (mph) (c)
3-1	Meaux Lane	121	5	45.3	139	9	45.3
3-2	Meaux Lane	121	5	45.3	127	35	45.3
4	Carr Lane	2	0	23.9	4	10	23.9
5	Arnold Lane West	14	2	32.7	21	42	32.7
6	Black Tup Lane	14	2	32.7	21	42	32.7

14.9.46 **Table 14-28** sets out the degree of hazard score based on the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]** thresholds.

Table 14-28: Fear and intimidation – 2026 future baseline degree of hazard score

Link No.	Link	2026 future baseline			Construction scenario		
		Average traffic flow over 18-hr day - all vehicles/hr two-way (a)	Total 18-hr HGV flow (b)	Average vehicle speed (mph) (c)	Average traffic flow over 18-hr day - all vehicles/hr two-way (a)	Total 18-hr HGV flow (b)	Average vehicle speed (mph) (c)
3-1	Meaux Lane	0	0	30	0	0	30
3-2	Meaux Lane	0	0	30	0	0	30
4	Carr Lane	0	0	10	0	0	10
5	Arnold Lane West	0	0	20	0	0	20
6	Black Tup Lane	0	0	20	0	0	20

14.9.47 The total hazard score and the level of fear and intimidation for the '2026 future baseline' is summarised in **Table 14-29**.

Table 14-29: Fear and intimidation – 2026 future baseline and construction scenario total hazard score and level of fear and intimidation

Link No.	Link	2026 future baseline		Construction scenario	
		Total hazard score	Level of fear and intimidation	Total hazard score	Level of fear and intimidation
3-1	Meaux Lane	30	Moderate	30	Moderate
3-2	Meaux Lane	30	Moderate	30	Moderate
4	Carr Lane	10	Small	10	Small
5	Arnold Lane West	10	Small	10	Small
6	Black Tup Lane	10	Small	10	Small

14.9.48 The assessment of fear and intimidation has shown that overall, there is no material change in the level of fear and intimidation between the '2026 future baseline' and the 'construction' scenario on any of the assessed links. As a result of there being no step change, the magnitude of impact on all links is negligible.

14.9.49 The magnitude of impact on fear and intimidation and the significance of effect is summarised in **Table 14-30** below.

Table 14-30: Fear and intimidation - significance of effect

Link No.	Link	Magnitude of impact	Sensitivity of receptors	Significance of effect
3-1	Meaux Lane	**Negligible**	**High**	**Minor**
3-2	Meaux Lane	**Negligible**	**High**	**Minor**
4	Carr Lane	**Negligible**	**Negligible**	**Negligible**
5	Arnold Lane West	**Negligible**	**Medium**	**Negligible**
6	Black Tup Lane	**Negligible**	**Low**	**Negligible**

14.9.50 The sensitivity of users of on links 3-1 and 3-2 on Meaux Lane is **high**, and the magnitude of impact, following additional mitigation, is **negligible**. Therefore, there is likely to be a direct, temporary, medium-term **minor adverse** residual effect on users of links following the implementation of additional mitigation measures, which is considered to be **not significant**.

14.9.51 The sensitivity of users of on link 4 on Carr Lane is **negligible**, and the magnitude of impact, following additional mitigation, is **negligible**. Therefore, there is likely to be a direct, temporary, medium-term **negligible adverse** residual effect on users of links following the implementation of additional mitigation measures, which is considered to be **not significant**.

14.9.52 The sensitivity of users of on link 5 on Arnold Lane West Lane is **medium**, and the magnitude of impact, following additional mitigation, is **negligible**. Therefore, there is likely to be a direct, temporary, medium-term **negligible adverse** residual effect on users of links following the implementation of additional mitigation measures, which is considered to be **not significant**.

14.9.53 The sensitivity of users of on link 6 on Black Tup Lane is **low**, and the magnitude of impact, following additional mitigation, is **negligible**. Therefore, there is likely to be a direct, temporary, medium-term **negligible adverse** residual effect on users of links following the implementation of additional mitigation measures, which is considered to be **not significant**.Non-motorised users of National Cycle Network Route 1 on Park Lane have the potential to experience fear and

intimidation effects due to the classified sensitivity, as outlined in **Table 14-8**. The Proposed Development is predicted to generate a maximum of 10 LGVs and 10 HGVs per day on this link and it will be effectively managed through the **Outline Rights of Way Management Plan [EN010157/APP/7.9]** and **Outline CTMP [EN010157/APP/7.7]**. Proposed temporary traffic signals or banksperson control areas (refer to the **Traffic Measures Plan [EN010157/APP/2.9]**) will be put in place which will manage the interaction between construction vehicles and other road users which will help to reduce the potential for fear and intimidation. On this basis, the magnitude of impact is **negligible**, the sensitivity is **high**, which results in a direct, temporary, short-term **minor adverse** residual effect on users of the National Cycle Network Route 1 following implementation of additional mitigation measures, which is considered to be **not significant**.

Road user and pedestrian safety

14.9.54 In order to assess road safety impact in the absence of International Road Assessment Programme (iRAP) ratings, road accident records based on the Department for Transport's STATS19 database **[Ref. 14-18]** (which holds the most up to date and accurate data on personal injury collisions which have been recorded by the police) have been used to consider road safety.

14.9.55 The Proposed Development will generate additional daily two-way construction vehicle trips, but this remains at less than 30% of all traffic on links 3-1 and 3-2 but exceeds 30% on links 4, 5, and 6 where the baseline traffic volumes are relatively low. The percentage increase in HGVs is therefore disproportionate in comparison and consideration of the absolute values and vehicle composition should be taken into account in line with the IEMA Guidelines: Environmental Assessment of Traffic and Movement **[Ref. 14-9]**.

14.9.56 HGVs present a higher road safety risk when turning into an access or at a junction compared to cars and LGVs. The junction improvements at the Carr Lane/A165 White Cross Road Junction and the Arnold Lane West/Carr Lane Junction as part of the embedded mitigation already minimise effects in these locations by providing wide accesses to accommodate the swept paths of HGVs without conflict with other vehicles. All Site accesses have been designed to meet adoptable highway design standards. Carr Lane, Arnold Lane West, Meaux Lane, and Meaux Road will also be improved to facilitate increased two-way movement of HGVs with the provision of passing places at regular intervals. The **Draft DCO [EN010157/APP/3.1]** provides for the introduction of a temporary speed limit reduction on Meaux Lane/Meaux Road (from 40mph to 30mph).

14.9.57 The embedded mitigation proposals outlined in **Table 14-20** above provide details of the improvements to be made to the Carr Lane/A165 White Cross Road and Arnold Lane West/Carr Lane junctions as part of the Proposed Development as a consequence of the assessments undertaken in this chapter. A Road Safety

Audit of wider junction improvements will be undertaken through the detailed design technical approval process with the approving authority (East Riding of Yorkshire Council Highways).

Personal injury collision review

14.9.58 Personal Injury Collision data has been obtained for the most recent six~~five~~-year period available (01/01/2018 to 31/12/2023~~2~~) using the Department for Transport's STATS19 database, a current and accurate record of road collisions in the locality. The STATS19 full detailed report is included at **ES Volume 4, Appendix 14.4: STATS19 Personal Injury Collision Reports [EN010157/APP/6.4]**.

14.9.59 East Riding of Yorkshire Council had requested that collisions occurring during 2020 and 2021 should be excluded as these fall within periods of lockdown associated with the COVID-19 pandemic on the basis that they are considered to not represent typical road and driving conditions. However, the review of the statistics does not indicate any significant variation in trends and therefore, for the purposes of the assessment for this study area, they have been included to ensure a full five years of data is available. Since the submission of the DCO, a request was made to include data from 2023. As part of the **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]** a review has been conducted across the study area and a cluster analysis has also been conducted.

14.9.60 This section provides a summary of the assessment and main conclusions, which are set out in full in the **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.

14.9.61 Personal Injury Collision severity can be classed as slight, serious, and fatal. Within this five-year period, a total of 62 collisions took place, resulting in 42 slight collisions (68%), 18 serious collisions (29%) and 2 fatal collisions (3%). **Table 14-31** summarises the Personal Injury Collision data for the most recent six~~five~~-year period available at the time of assessment.

~~14.9.61~~14.9.62 The addition of the 2023 collision data indicates a relative continuation in the overall frequency and severity of collisions within the study area, albeit with a slight reduction compared to previous years (except for 2019).

Table 14-31: Summary of collisions (1 January 2018 to 31 December 2023~~2~~)

Severity	Jan 2018 – Dec 2018	Jan 2019 – Dec 2019	Jan 2020 – Dec 2020	Jan 2021 – Dec 2021	Jan 2022 – Dec 2022	Jan 2023 – Dec 2023
Slight	8	7	10	6	11	10
Serious	5	2	2	8	1	0
Fatal	0	1	1	0	0	0
Total	**13**	**10**	**13**	**14**	**12**	**10**

Collision clusters

~~14.9.62~~14.9.63 For the purposes of the transport and access assessment, a collision cluster is defined as a 50m radius in which five or more collisions have occurred over a five-year period. On the basis that the data covers a six-year period, there are two five-year periods within this (2018 to 2022 and 2019 to 2023). ~~One~~ Two collision clusters ~~has~~ have been identified during the above 6~~5~~ year assessment period, located at the A165/A1035 roundabout and at the Swinemoor Lane Roundabout.

~~14.9.63~~14.9.64 As ~~this~~ these clusters ~~has~~ have been identified at ~~a~~ junctions, for robustness, the junction has been assessed as a whole, including all collisions within and on approach to the junction – even if not within a 50m radius. The identified cluster is presented in **Table 14-32**.

Table 14-32: Collision cluster analysis

Cluster	Location	Personal injury collision summary
1	A165/A1035 roundabout	Five serious and ~~seven~~ 10 slight collisions were observed
2	Swinemoor Lane Roundabout	Two serious and three slight collisions were observed.

~~14.9.64~~14.9.65 A review of the Personal Injury Collisions at the clusters has been carried out to determine if there is a common contributory factor. A summary of this review is presented in **Table 14-33**.

Table 14-33: Cluster analysis – factors leading to collisions

Cluster	Location	Personal injury collision summary
1	A165/A1035 roundabout	Of the ~~1~~five~~52~~ collisions that have been reported at this junction, ~~five~~ six occurred between vehicles on the circulating carriageway, ~~three~~ five occurred on the approach to the roundabout, ~~two~~ three comprise rear-end shunts, and two comprise motorcycles skidding.
2	Swinemoor Lane Roundabout	Of the five collisions that have been reported at this junction, two occurred between vehicles on the circulating carriageway, four occurred on the approach to the roundabout.

14.9.66 The Personal Injury Collision and collision cluster review has concluded that there are no specific concerns in relation to the geometric design/road layout of the local highway network leading to safety issues that could be exacerbated by the Proposed Development. Furthermore, at an average rate of 2.5~~4~~ incidents per year, this is not considered to be particularly high when considered against existing traffic flows through the junction.

~~14.9.65~~

~~14.9.66~~14.9.67 The presence and intensity (the number of collisions contained within the cluster) of a cluster determines the sensitivity of road users at a given location. Whilst the identified cluster~~s~~ ~~does~~ do not have a high rate of annual collisions, it is still considered to be at a high sensitivity of road users, for the purposes of a robust assessment.

14.9.68 At the identified cluster at the ~~White Cross~~A165/A1035 roundabout, the sensitivity of road users is **high**, and the magnitude of impact is **negligible**, given that the additional daily two-way trips is at most 2% for all traffic at this location. Therefore, there is likely to be a direct, temporary, medium-term **minor adverse** effect on road users, which is considered to be **not significant**.

~~14.9.67~~14.9.69 At the identified cluster at the Swinemoor Lane roundabout, the sensitivity of road users is **high**, and the magnitude of impact is **negligible**, given that the additional daily two-way trips is at most 1% for all traffic at this location. Therefore, there is likely to be a direct, temporary, medium-term **minor adverse** effect on road users, which is considered to be **not significant**.

~~14.9.68~~14.9.70 At other locations to be used by HGVs which have not been identified to be within clusters, the sensitivity of road users is **low**, and the magnitude of impact is **medium**, given the low absolute increases in vehicle movements on these links. Therefore, there is likely to be a direct, temporary, medium-term **minor adverse** effect on road users, which is considered to be **not significant**.

~~14.9.69~~14.9.71 Overall, the effect on road safety is considered to be **not significant**.

Hazardous/Large Loads

~~14.9.70~~14.9.72 At this stage, no dangerous goods are anticipated to be delivered, based on the Department for Transport's classification of dangerous goods **[Ref. 14-16]**.

~~14.9.71~~14.9.73 Two Large Loads are anticipated to be required to transport the two transformers to the two on-site substations in Land Areas C and E (Project Substation East and Project Substation West, respectively). The Large Loads will consist of a total of four vehicle movements during the construction phase, comprising one arrival and one departure to both substations. The two on-site substations are to be left in-situ subject to agreement with Distribution Network Operator, so no further Large Loads are anticipated to be required to remove or replace the transformers during the decommissioning phase.

~~14.9.72~~14.9.74 The Large Load movements required for Project Substation East in Land Area C will route via the A165 White Cross Road, Carr Lane and along internal tracks in Land Area B. This will involve a total of two Large Load movements along these links. The A165 and other A roads are constructed to accommodate large vehicles and East Riding of Yorkshire Council Highways has been made aware of this requirement for Large Loads. Details of the management of the Large Load movements are presented in the **Outline CTMP [EN010157/APP/7.7]**. Carr Lane is proposed to be improved with the provision of a widened access and passing places which will be able to accommodate a Large Load. Carr Lane has a **negligible** sensitivity; with mitigation in place and considering the low number of vehicle movements, the magnitude of impact is considered to be **negligible**. Therefore, there is likely to be a direct, temporary, short-term **negligible adverse** effect on road users, which is considered to be **not significant**.

~~14.9.73~~14.9.75 The Large Load movements required for Project Substation West in Land Area E will route via the A1035 and Meaux Lane. This will involve a total of two Large Load movements along these links. The A1035 and other A roads are constructed to accommodate large vehicles and East Riding of Yorkshire Council Highways has been made aware of this requirement for Large Loads. Details of the management of the Large Load movements are presented in the **Outline CTMP [EN010157/APP/7.7]**. Meaux Lane is proposed to be improved with the provision of widening on the bends and passing places which will be able to accommodate a Large Load with additional mitigation of a road closure during the night-time for the duration required for the Large Load to access the Site. Meaux Lane has a **high** sensitivity; however, with the additional mitigation in place of a road closure, receptors on this link would be managed and considering the low number of vehicle movements, the magnitude of impact is considered to be **negligible**. Therefore, there is likely to be a direct, temporary, short-term **minor adverse** effect on road users, which is considered to be **not significant**.

Decommissioning

~~14.9.74~~14.9.76 The decommissioning phase is anticipated to broadly represent a reversal of the process of construction of the Proposed Development. However, it is likely to generate fewer vehicle movements as a result of less work being required due to the retention of various elements of the Proposed Development following the operation (including maintenance) phase, as set out below.

~~14.9.75~~14.9.77 Underground cables will be left in situ. On this basis, the grid connection cable route works accesses on A1174 Hull Road, Long Lane and Park Lane will not be required for access during the decommissioning phase. As a result, there will be no impact on these links or the National Cycle Network Rote 1 on Park Lane during the decommissioning phase.

~~14.9.76~~14.9.78 At this stage it is anticipated that the internal access tracks (subject to discussions with relevant landowners), access junctions, passing places, carriageway widening, two on-site substations (subject to agreement with the Distribution Network Operator) and environmental mitigation (subject to discussions with relevant landowners) will be permanently retained.

~~14.9.77~~14.9.79 It is anticipated that the decommissioning phase will involve the removal of all above ground solar infrastructure comprising solar PV modules, inverters, BESS, DC-DC converters, switchgears, cabins and storage containers. As a worst-case scenario, a similar level of traffic associated with each Land Area during the construction phase will be experienced during the decommissioning phase. As the assessment of the construction phase has not identified any significant effects, the same conclusion applies for the decommissioning phase.

~~14.9.78~~14.9.80 A lower number of vehicle movements than experienced during the construction phase are therefore expected to occur during the decommissioning phase, comprising worker travel and transportation of materials from the Site. It is also likely that some temporary closures of PRoW will be required as the Site is dismantled and removed. These activities have the potential to have an effect on severance, driver delay, non-motorised user delay, non-motorised user amenity, fear and intimidation, road safety and hazardous loads.

~~14.9.79~~14.9.81 Given that the number of activities and traffic volumes are anticipated to be lesser than that experienced during the construction phase, it is considered that the permanent mitigation implemented during the construction phase and the implementation of additional mitigation in the form of the **Outline DEMP [EN010157/APP/7.4]** and the **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]** will be adequate to mitigate the potential effects experienced during decommissioning and therefore, the effects on all road users will be no greater than those predicted for the construction phase.

~~14.9.80~~14.9.82 On this basis, the potential effects of the decommissioning phase on severance, driver delay, non-motorised user delay, non-motorised user amenity, fear and intimidation, road safety and hazardous loads are considered to be **not significant**.

14.10 Opportunities for enhancement

14.10.1 The anticipated retention of all highways works proposed to facilitate the construction, operation (including maintenance) and decommissioning of the Proposed Development e.g. passing places, carriageway widening, access junctions) following decommissioning will serve to enhance the local road network in perpetuity.

14.11 Monitoring requirements

14.11.1 As part of the **Outline Travel Plan,** which is an Appendix to the **Outline CTMP [EN010157/APP/7.7]**, it is proposed that the principal contractor will encourage and promote sustainable travel, where possible, to the Site. Supporting this are the monitoring and review of the procedures proposed within the **Outline CTMP [EN010157/APP/7.7]** that will be carried out at an appropriate frequency, to be agreed with the Local Highway Authority.

14.11.2 It is also anticipated that the principal contractor would manage the implementation of management measures on site such as interaction of construction operations and the existing PRoW and this would be monitored for the duration of the construction phase.

14.11.3 The Proposed Development includes embedded mitigation measures to provide safe and efficient access to each Land Area in the form of passing places, carriageway widening, a temporary speed limit reduction and provision of new access junctions. The mitigation works are all agreed with East Riding of Yorkshire Council and will be retained during the construction, operation (including maintenance) and decommissioning phases, with the exception of the temporary speed limit reduction which is only required for the construction of the Proposed Development. The mitigation works are detailed in and secured by the **Traffic Measures Plan [EN010157/APP/2.9]** and the **Streets, Rights of Way and Access Plans [EN010157/APP/2.3]**.

14.11.4 The measures outlined within **Outline CTMP [EN010157/APP/7.7**] are considered to address monitoring and management of these traffic management schemes following consultation with East Riding of Yorkshire Council, Hull City Council and National Highways. A Construction Traffic Management Plan will be developed in consultation with Hull City Council and National Highways and approved by East Riding of Yorkshire Council.

14.12 Difficulties and uncertainties

14.12.1 Traffic surveys record daily or weekly flows, rather than constant recording, as is standard practice for collating baseline traffic flows. Therefore, data are considered a snapshot of road network behaviour inclusive of flows, turning movements and speed. However, it is not considered that this impacted the assessment, or the conclusions of this assessment presented in this chapter. This has been addressed by ensuring data analysis is conducted as a robust assessment scenario, while surveys were undertaken within neutral periods of the year when traffic conditions are generally considered to be typical, as is standard practice, and without influence from local roadworks.

14.12.2 For the purposes of undertaking an assessment of the worst-case scenario, the phases assess the peak trip generation for the construction of two Land Areas and the grid connection cable route works occur simultaneously. In reality, the number of daily vehicle trips generated during the construction of each Land Area and the grid connection cable route works will vary and the peak for each Land Area and the grid connection cable route works would be unlikely to occur simultaneously. Details of the construction programme, such as phasing of construction of Land Areas, are indicative at this stage and therefore the assessment considers a reasonable worst-case.

14.13 Summary

14.13.1 A summary of this assessment is presented in **Table 14-34**. The sensitivity of each receptor is identified alongside any relevant embedded mitigation and the potential effects that could arise on those receptors. Any proposed additional mitigation measures are stated, and the magnitude of impact (change) and residual effects then assessed. Finally, any monitoring requirements are stated, where applicable.

Table 14-34: Assessment Summary

Receptor/ matter	Phase	Sensitivity of the receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Magnitude of impact	Residual effect (with additional mitigation)	Monitoring requirement
Key: + = positive, - = negative, D = direct, I = indirect, ST = short term, MT = medium term, LT = long-term, P = permanent, T = temporary								
Links								
2-1 A165 White Cross Road (between White Cross Roundabout and Carr Lane (Long Riston))	Construction	Negligible	N/A	Hazardous/Large Loads	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (ST) (T)** **Not significant**	Ongoing monitoring of construction traffic will be undertaken in accordance with the Construction Traffic Management Plan.
3-1 Meaux Lane (between A1035 and Land Area D/E Access on west of Meaux Lane)	Construction	High	Passing places and carriageway widening on bends to accommodate HGVs. New access junctions. Temporary speed reduction to 30mph during construction phase.	Severance	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Non-motorised user delay	**Outline CTMP [EN010157/APP/7.7]** **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan and Rights of Way and Access Management Plan.
				Non-motorised user amenity	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Fear & Intimidation	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Hazardous/Large Loads	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (ST) (T)** **Not significant**	Ongoing monitoring of construction traffic will be undertaken in accordance with the Construction Traffic Management Plan.

Receptor/ matter	Phase	Sensitivity of the receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Magnitude of impact	Residual effect (with additional mitigation)	Monitoring requirement
3-2 Meaux Road/Meaux Lane (between Land Area D/E Access on west of Meaux Lane and Land Area F Access)	Construction	High	Passing places and carriageway widening on bends to accommodate HGVs. New access junctions. Temporary speed reduction to 30mph during construction phase.	Severance	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Non-motorised user delay	**Outline CTMP [EN010157/APP/7.7]** **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan and Rights of Way and Access Management Plan.
				Non-motorised user amenity	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Fear & Intimidation	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
4 Carr Lane (Long Riston)	Construction	Negligible	Passing places. Widening of Carr Lane (Long Riston)/A165 White Cross Road junction bell mouth.	Severance	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Non-motorised user delay	**Outline CTMP [EN010157/APP/7.7]** **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan and Rights of Way and Access Management Plan.
				Non-motorised user amenity	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance

Receptor/ matter	Phase	Sensitivity of the receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Magnitude of impact	Residual effect (with additional mitigation)	Monitoring requirement
							Not significant	with the Construction Traffic Management Plan.
				Fear & Intimidation	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Hazardous/Large Loads	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (ST) (T)** **Not significant**	Ongoing monitoring of construction traffic will be undertaken pursuant to future iterations of the Construction Traffic Management Plan.
5 Arnold Lane West	Construction	Medium	Passing places.	Severance	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Non-motorised user delay	**Outline CTMP [EN010157/APP/7.7]** **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan and Rights of Way and Access Management Plan.
				Non-motorised user amenity	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Fear & Intimidation	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
6 Black Tup Lane	Construction	Low	Widening of Black Tup Lane/Carr Lane junction bell mouth.	Severance	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance

Receptor/ matter	Phase	Sensitivity of the receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Magnitude of impact	Residual effect (with additional mitigation)	Monitoring requirement
							Not significant	with the Construction Traffic Management Plan.
				Non-motorised user delay	**Outline CTMP [EN010157/APP/7.7]** **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan and Rights of Way and Access Management Plan.
				Non-motorised user amenity	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
				Fear & Intimidation	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
Junctions								
Swinemoor Roundabout	Construction	Negligible	-	Driver delay	**Outline CTMP [EN010157/APP/7.7]**	No change in delay	**Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
White Cross Roundabout	Construction	Low	-	Driver delay	**Outline CTMP [EN010157/APP/7.7]**	No change in delay	**Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
A1035/Meaux Lane	Construction	Negligible	-	Driver delay	**Outline CTMP [EN010157/APP/7.7]**	Negligible change in delay	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
A165/Land Area B	Construction	Negligible	New access junction.	Driver delay	**Outline CTMP [EN010157/APP/7.7]**	Negligible change in delay	**Negligible adverse**	Ongoing monitoring of construction traffic and staff travel matters will be

Receptor/ matter	Phase	Sensitivity of the receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Magnitude of impact	Residual effect (with additional mitigation)	Monitoring requirement
							(-) (D) (MT) (T) **Not significant**	undertaken in accordance with the Construction Traffic Management Plan.
A165/Carr Lane	Construction	Negligible	Widening of Carr Lane (Long Riston)/A165 White Cross Road junction bell mouth.	Driver delay	**Outline CTMP [EN010157/APP/7.7]**	Negligible change in delay	**Negligible adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
A165/Arnold Lane West	Construction	Negligible	-	Driver delay	**Outline CTMP [EN010157/APP/7.7]**	No change in delay	**Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
Collision clusters								
A165/A1035 Roundabout (White Cross Roundabout) – identified collision cluster	Construction	High	N/a	Road safety	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
Swinemoor Lane Roundabout	Construction	High	N/a	Road safety	**Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.
Other road links which will generate HGV movements at locations without identified collision clusters - Meaux Lane, Meaux Road, Carr Lane, Arnold Lane West and	Construction	Low	Passing places, carriageway widening and junction improvements.	Road safety	**Outline CTMP [EN010157/APP/7.7]**	Medium	**Minor adverse** **(-) (D) (MT) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan.

Receptor/ matter	Phase	Sensitivity of the receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Magnitude of impact	Residual effect (with additional mitigation)	Monitoring requirement
Black Tup Lane.								
Temporary works								
A165 White Cross Road with temporary traffic management during temporary works undertaken within the highway	Construction	Low	-	Driver delay	Local traffic management in line with Traffic Signs Manual (Ch. 8 DfT) **Outline CTMP [EN010157/APP/7.7]**	Low	**Negligible adverse** **(-) (D) (ST) (T)** **Not significant**	-
Meaux Lane, Meaux Road, Carr Lane, Arnold Lane West and Black Tup Lane with traffic management during temporary works undertaken within the highway	Construction	Medium	-	Driver delay	Local traffic management in line with Traffic Signs Manual (Ch. 8 DfT) **Outline CTMP [EN010157/APP/7.7]**	Low	**Minor adverse** **(-) (D) (ST) (T)** **Not significant**	-
National Cycle Route								
National Cycle Network Route 1	Construction	High	-	Severance, Non-motorised user delay, Non-motorised user amenity and Fear & Intimidation	Provision of management such as bankspeople and signage. Temporary short term closures. Local traffic management in line with Traffic Signs Manual (Ch. 8 DfT) **[Ref. 14-17]**. **Outline CTMP [EN010157/APP/7.7]**	Negligible	**Minor adverse** **(-) (D) (ST) (T)** **Not significant**	Ongoing monitoring of construction traffic and staff travel matters will be undertaken in accordance with the Construction Traffic Management Plan and Rights of Way and Access Management Plan.

Receptor/ matter	Phase	Sensitivity of the receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Magnitude of impact	Residual effect (with additional mitigation)	Monitoring requirement
					Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]			

14.14 References

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