East Anglia ONE North and East Anglia TWO Offshore Windfarms

Applicants' Responses to Hearings Action Points (ISH1, CAH1, ISH2)

Applicants: East Anglia TWO Limited and East Anglia ONE North Limited
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Applicable to East Anglia ONE North and East Anglia TWO

Revision Summary				
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Glossary of Acronyms

AC	Alternating Current
BGS	British Geological Survey
CAH	Compulsory Acquisition Hearings
CfD	Contracts for Difference
CIA	Cumulative Impact Assessment
CION	Connection and Infrastrucre Options Note
DCO	Development Consent Order
DML	Deemd Marine Licence
DTM	Digital Terrain Model
EA	Environmental Agency
EIA	Environemtnal Impact Assessment
ETG	Expert Topic Group
ES	Environmental Statement
ESO	Electricity Systems Operator
ExA	Examining Authority
GB	Great Britan
GIS	Graphic Information System
HDD	Horizontal Directional Drilling
HRA	Habitat Regulations Assessment
HVAC	High Voltage Alternating Current
IEMA	Institue of Environmental Management and Assessment
IROPI	Impreative Reasons of Overridng Public Interest
ISH	Issue Specific Hearings
kV	Kilovolts
LCA	Local Council Authority
LCT	Landscape Character Type
LPA	Local Planning Authority
LVIA	Landcsape and Visual Impact Assessment
NGET	National Grid Electricity Transmission
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OFTO	Offshore Transmission Owners
OLCMS	Outline Landfall Construction Method Statement
OLEMS	Outline Landscape and Ecological Management Strategy
OLMP	Outline Landscape Management Plan
PEMP	Project Environmental Management Plan
PRA	Preliminary Risk Assessment
PRoW	Public Right of Way
RAG	Red / Amber / Green
SASES	Substation Action Save East Suffolk
SNH	Scottish National Herritage
SSSI	Site of Special Scientific Interest
SPA	Special Protection Area
SoCG	Statement of Comment Ground
SZC	Sizewell C
TRL	Technology Readiness Levels

Glossary of Terminology

Applicants	East Anglia TWO Limited / East Anglia ONE North Limited
The Councils	East Suffolk Council and Suffolk County Council
Development area	The area comprising the onshore development area and the offshore development area (described as the 'order limits' within the Development Consent Order).
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
Generation Deemed Marine Licence (DML)	The deemed marine licence in respect of the generation assets set out within Schedule 13 of the draft DCO.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
Jointing bay	Underground structures constructed at intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
Link boxes	Underground chambers within the onshore cable route housing electrical earthing links.
National Grid substation	The substation (including all of the electrical equipment within it) necessary to connect the electricity generated by the proposed East Anglia TWO / East Anglia ONE North project to the national electricity grid which will be owned by National Grid but is being consented as part of the proposed East Anglia TWO / East Anglia ONE North project Development Consent Order.
National Grid substation location	The proposed location of the National Grid substation.
Onshore cable corridor	The corridor within which the onshore cable route will be located.
Onshore cable route	This is the construction swathe within the onshore cable corridor which would contain onshore cables as well as temporary ground required for construction which includes cable trenches, haul road and spoil storage areas.
Onshore cables	The cables which would bring electricity from landfall to the onshore substation. The onshore cable is comprised of up to six power cables (which may be laid directly within a trench, or laid in cable ducts or protective covers), up to two fibre optic cables and up to two distributed temperature sensing cables.
Onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, landscaping and ecological mitigation areas, temporary construction

	facilities (such as access roads and construction consolidation sites), and the National Grid Infrastructure will be located.
Onshore infrastructure	The combined name for all of the onshore infrastructure associated with the proposed East Anglia TWO / East Anglia ONE North project from landfall to the connection to the national electricity grid.
Onshore preparation works	Activities to be undertaken prior to formal commencement of onshore construction such as pre–planting of landscaping works, archaeological investigations, environmental and engineering surveys, diversion and laying of services, and highway alterations.
Onshore substation	The East Anglia TWO / East Anglia ONE North substation and all of the electrical equipment within the onshore substation and connecting to the National Grid infrastructure.
Onshore substation location	The proposed location of the onshore substation for the proposed East Anglia TWO / East Anglia ONE North project.
Transmission DML	The deemed marine licence in respect of the transmission assets set out within Schedule 14 of the draft DCO.

1 Applicants' Responses to Hearings Action Points

1.1 Introduction

1. This document has been prepared to address actions arising from the Compulsory Acquisition Hearings (CAH) held virtually on Tuesday 1st December 2020 and the Issue Specific Hearings (ISHs) held virtually on Tuesday 1st December, Wednesday 2nd December and Thursday 3rd December 2020. These actions are detailed in CAHs1: Hearings Action Points (EV-040), ISHs1: Hearings Action Points (EV-034a) and, ISHs2: Hearings Action Points (EV-034f) issued by the Examining Authority (ExA) on 2nd and 4th December 2020. Responses to actions addressed to the Applicants are provided in ***sections 1.2*** to ***1.4*** below.

2. This document is applicable to both the East Anglia ONE North and East Anglia TWO Development Consent Order (DCO) applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the ExA procedural decisions on document management of 23rd December 2019 (PD-004). Whilst this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it for the other project submission.

1.2 Applicants' Response to Issue Specific Hearing 1

3. ***Table 1*** responds to actions addressed to the Applicants in ISH1.

Table 1 Applicants' Response to ISH1 Actions

Number	Action	Applicants' Response
3	**'Without prejudice' HRA derogation case** The Applicants to submit at D3 a 'without prejudice' derogation case in respect of gannet, kittiwake, lesser black-backed gull and red-throated diver. Package to include the '2km buffer' introduced at ISH1.	The Applicants have prepared a 'without prejudice' draft derogation case which includes this information in the ***HRA Alternatives and IROPI Note*** (Document reference ExA.AS-7.D3.V1) with specific potential compensation options for these species presented in a ***Compensation Options Note*** (document reference ExA.AS-8.D3.V1). Both of these documents have been submitted at Deadline 3.
4	**Red-Throated Diver of the Outer Thames Estuary SPA: buffer** A monitoring report on the effects of the London Array has been published. Please submit the report.	The Applicants submitted this monitoring report at Deadline 2 as ***Appendix 2*** of ***Applicants' Responses to Natural England's Deadline 1 Submissions*** (REP2-004).
6	**Outer Thames Estuary SPA: Project Environmental Management Plan (PEMP) provisions for Red-Throated Diver** If the Applicants are relying on the best practice protocol for minimising Red Throated Diver disturbance, a draft should be submitted into the examinations. The Applicants should review the drafting of the relevant DML conditions to ensure that it is sufficiently clear and precise so as to secure their commitments to a 'best practice protocol' for minimizing disturbance to red-throated diver .	The Applicants have submitted a ***Best Practice Protocol for Minimising Disturbance to Red-Throated Diver*** at Deadline 3 (document reference ExA.AS-22.D3.V1). Condition 17(1)(e)(vi) of the generation deemed marine licence (DML) and condition 13(1)(e)(vi) of the transmission DML has been updated to make reference to the Best Practice Protocol for Minimising Disturbance to Red-Throated Diver and the Protocol will be listed in Article 36 of the ***draft DCO*** as a certified document.
9	**Terrestrial Ecology**	<u>Turtle Dove and Nightingale Mitigation</u> There are no further updates regarding this matter beyond what is included in the ***Outline Special Protection Area (SPA) Crossing***

Number	Action	Applicants' Response
	The Applicants to respond to matters raised under Agenda item 6b.	***Method Statement*** (REP1-043) submitted to the Examinations at Deadline 1. Hundred River Crossing An ***Outline Watercourse Crossing Method Statement*** (ExA.AS-3.D3.V1) has been submitted to the Examinations at Deadline 3.A draft ***Outline Watercourse Crossing Method Statement*** was provided to Natural England for comment. Leiston to Aldeburgh Site of Special Scientific Interest (SSSI) Regarding construction works at the landfall, an ***Outline Landfall Construction Method Statement*** (REP1-042) was submitted to the Examinations at Deadline 1. At this stage no stakeholder comments have been received on this document. The ***Outline Watercourse Crossing Method Statement*** (ExA.AS-3.D3.V1) submitted to the Examinations at Deadline 3 includes mitigation measures proposed to protect the Leiston – Aldeburgh Site SSSI downstream of the crossing point. An ***Air Quality Deadline 3 Clarification Note*** (ExA.AS-15.D3.V1) and ***Onshore Ecology Deadline 3 Clarification Note*** (ExA.AS-14.D3.V1) have been submitted to the Examinations at Deadline 3. These include a quantitative assessment of non-road mobile machinery emissions on designated sites and conclude that impacts will be not significant. Protected Species Through the Statement of Comment Ground (SoCG) process, Natural England has stated that until the necessary Letters of No Impediment have been issued it is unable to agree the appropriateness of the Projects' embedded mitigation measures for legally protected and notable species. Based on the findings of the onshore ecological surveys

Number	Action	Applicants' Response
		undertaken in support of the Applications, the Applicants are now seeking Letters of No Impediment for badgers and great crested newt; draft licence applications for both these species are being prepared for submission to Natural England. Where practicable, hazel hurdles or similar methods to maintain links between hedgerow gaps to enable foraging, maintain commuting routes for bat species and encourage insects as a food source. Measures have been captured within an updated ***Outline Landscape and Ecological Management Strategy*** (OLEMS) submitted to the Examinations at Deadline 3 (document reference 8.7) and the Applicants will continue to explore this further with the Councils through the SoCG process. The Applicants are currently undertaking additional noise modelling to be submitted at Deadline 4. This will be reviewed and an assessment of the potential for impacts on sensitive ecological receptors arising from predicted day-time and night-time operational noise levels will be undertaken. This will take account of the changes to the onshore substations (footprints and equipment heights) described in the ***Project Update Note*** submitted at Deadline 2 (REP2-007) and the Deadline Project Update Note (ExA.AS-6.D3.V1). It is envisaged that this review and assessment will also be submitted to the Examinations at Deadline 4. <u>Trees and Woodlands</u> The Applicants are reviewing the management period for Work No. 24 and will continue to consult the Councils through the SoCG process on this matter. The Applicants are exploring additional dynamic landscape management measures at the onshore substation locations to assist in promoting growth of the landscape planting.

Number	Action	Applicants' Response
		The Applicants have identified additional areas of planting for inclusion in the updated ***OLEMS*** submitted to the Examinations at Deadline 3 (document reference 8.7). Ecological Enhancement As stated in the ***Project Update Note*** (REP2-007) submitted to the Examinations at Deadline 2, the footprints of the onshore substations have been reduced. This will negate the need for some woodland removal and allow for further woodland planting. Additional areas of planting have also been identified for inclusion in the updated ***OLEMS*** submitted to the Examinations at Deadline 3 (document reference 8.7). The Applicants will continue to seek and deliver opportunities for ecological enhancement through development of the Landscape Management Plans and Ecological Management Plans post-consent. Pre-Construction Surveys Through the SoCG process with the Councils agreement has been reached on the pre-construction surveys proposed within the ***OLEMS*** (document reference 8.7). Through the SoCG process with the Environment Agency the Applicants have agreed to undertake eel, fish, otter and water vole surveys in support of the Hundred River crossing. Sizewell C Cumulative Impact Assessment As noted in the ***Applicants' Response to Procedural Deadline 18*** (PDA-001), the Applicants reviewed the Sizewell C DCO application materials to identify any additional information that might require updates to the Cumulative Impact Assessment (CIA). The Order limits of Sizewell C and the Projects do not overlap. As such, there is no pathway for direct cumulative impacts upon ecological receptors and any additional

Number	Action	Applicants' Response
		or supplementary terrestrial ecology assessment of cumulative impacts with Sizewell C is not required. The Sizewell C CIA does not consider nitrogen deposition impacts. However, for the construction traffic air quality assessment, the Projects have been included in the baseline for the Sizewell C project alone assessment, which concluded that impacts would be not significant.

1.3 Applicants' Response to Compulsory Acquisition Hearing 1

4. ***Table 2*** responds to actions addressed to the Applicants in CAH1.

Table 2 Applicants' Response to CAH1 Actions

Number	Action	Applicants' Response
3	**Compulsory Acquisition of land for mitigation works** The Applicants are asked to provide examples of other cases in which compulsory acquisition (as opposed to permanent acquisition of rights or private agreement) of land for ecological mitigation or landscaping works has been included.	Amongst other DCOs, those granted for Galloper, Hornsea Two; East Anglia Three and Norfolk Vanguard all include provisions enabling compulsory acquisition of land for landscaping works (variously referred to in the context of ecological mitigation). It is appropriate to seek powers of compulsory acquisition for land when the land will be used for purposes which amount to a permanent change of use, both to enable future maintenance of the mitigation or landscaping area and to provide appropriate compensation for owners who will be permanently deprived of use of the land. The Applicants have agreed terms for voluntary agreements in respect of most areas of land required for landscaping and mitigation works but powers of compulsory acquisition are sought in case the agreements are not concluded or third parties claim rights over the land which then require to be extinguished.
4	**Rationale for the extent of land sought along the onshore cable alignment** The Applicants are asked to submit a summary rationale document that draws together arguments for their approach to land acquisition for the onshore cable alignments for the two projects and specifically why it is not considered necessary to include powers within both DCOs to allow one project to lay ducting for both projects. Alternatively, if the Applicant considers that it could include powers within both	At Deadline 2 in the ***Project Update Note*** (REP2-007), the Applicants made the commitment that, where the East Anglia TWO and the East Anglia ONE North projects are constructed sequentially, when the first project goes into construction, the ducting for the second project will be installed along the whole of the onshore cable route in parallel with the installation of the onshore cables for the first project. This is secured in a new requirement 42 in each of the draft DCOs which prevents, in a sequential construction scenario, the second project from proceeding unless the cable ducts were installed in parallel with the construction of the cable works for the first project.

Number	Action	Applicants' Response
	DCOs to allow one project to lay ducting for both projects, it is requested to provide drafting that would achieve that end.	The cable ducts would be installed using the powers of the DCO for the project to which they relate. Each DCO has been drafted in a way which facilitates this by allowing requirements to be discharged in stages which enables the requirements relating to the ducting stage to be discharged ahead of the main construction works and this is supported by requirement 11 which requires the undertaker to submit details of the stages of the project to the LPA for approval prior to commencement. The Applicants do not consider it appropriate or necessary to include powers within the DCOs to allow each project to lay the ducting for the other. This is because the projects are distinct from one another and are the subject of a separate DCO and DCO Application. Furthermore, the commitment can be secured within each respective DCO without the need to include powers to lay ducts within the other DCO. In light of the regulatory regime in which the projects are being developed and will operate in, it is considered necessary for all of the works associated with each generating station NSIP to be contained within one DCO. This will assist each project in competing in the CfD auctions and will facilitate the future Offshore Transmission Owners (OFTO) divestment process. Ofgem have considered the issue of generator focused anticipatory investment and have made it clear that the developer will only be able to recover costs in the cost assessment process directly applicable to the specific project being considered. The Applicants acknowledge that the East Anglia ONE Order included the power to install the ducts for the East Anglia THREE project however lessons learned from those projects have resulted in the Applicants taking the approach outlined above. It is considered that this is the most appropriate way to deliver the projects whilst securing the commitment to install ducting in parallel.

Number	Action	Applicants' Response
5	**'Falling away' provisions for alternatives that require land** The Applicants are asked to respond in writing to the question of the need for 'falling away provisions' for unused alternatives in the Development Consent Orders, in circumstances where, following a decision not to use or construct an alternative/ option, some land is no longer required.	The Applicants are considering this question and will provide a detailed response at Deadline 4.
6	**Statutory Undertakers Planning Act 2008 s127 and s138** The Applicants are asked to provide a written submission detailing the current position in relation to individual statutory undertakers' protective provisions, land and rights that were made orally at CAH1 together with those that were not made orally, ensuring an up-to date response to ExQ1.3.4 is provided at D3.	An updated version of ExQ1.3.4 ***PA2008 s127 Statutory Undertakers'*** Land or Rights has been submitted at Deadline 3.
7	**Crown land** The Applicants are requested to provide written evidence that the Crown has consented under s135. This consent is required for Crown interests at sea (in addition to any on land that might be discovered).	The Applicants engaged specialist chartered surveyors, Dalcour Maclaren, to undertake extensive land referencing and title diligence. Dalcour Maclaren concluded, in relation to registered land, the title due diligence process did not highlight any land within the Order Limits that is registered to the Crown or any variations thereof. In respect to unregistered land, no responses to any of the unregistered land notices were in relation to the Crown having interest in the land nor was there any reason to suspect any of the unregistered land was Crown Land. The exception to this was Plot 1 at the foreshore, where plans and GIS files were sent to the Crown Estate to which they confirmed it was not Crown Land. Please see ***Appendix 1: Crown Estate Land Ownership***. Based on this evidence, the Applicants removed any reference to the

Number	Action	Applicants' Response
		Crown Estate from the land ownership records and therefore Crown Land does not appear in the Book of Reference. With reference to the Crown land at sea, the Applicants can confirm Agreements for Lease have been entered into with The Crown Estate for the Windfarm Sites (dated 15th February 2016) and for the Offshore Substation Site and Offshore Export Cable Corridor (dated 1st March 2019) for both Projects.
8	**Public Sector Equality Duty** The Applicants are requested to provide a written statement addressing how the SoS can discharge the Public Sector Equality Duty in respect of the compulsory acquisition and temporary possession requests in these applications.	The Applicants are preparing and intend to submit at Deadline 4 a Public Sector Equality Statement in respect of compulsory acquisition and temporary possession requests to assist the Secretary of State in complying with its Public Sector Equality Duty.

1.4 Applicants' Response to Issue Specific Hearing 2

5. ***Table 3*** responds to actions addressed to the Applicants in ISH2.

Table 3 Applicants' Response to ISH2 Actions

Number	Action	Applicants' Response
1	**Submissions in relation to onshore substations** Updated details of finished ground levels and reductions in equipment height within the proposed substation development site at Friston will now be provided at D3 and D4. The ExAs formally invite and agree to accept an outline submission at D3 and detailed proposals, including mitigation plans, at D4 on the basis that the amendments introduced do not amount to a material change.	The Applicants refer to the ***Deadline 3 Project Update Note*** (ExA.AS-6.D3.V1).
4	**Updated in-combination collision risk assessments in the light of information from the Hornsea Project Three position** Updated in-combination collision assessments and additional survey data have been submitted to the Secretary of State (SoS) BEIS to support the Hornsea Project Three position but in the most part have not as yet been placed into the public domain. Should that material become publicly available at the time of the SoS decision in respect of Hornsea Project Three, the Applicants are requested to submit it into these examinations and to provide an update to the in-combination collision assessments for East Anglia ONE North and East Anglia TWO projects.	Once the Hornsea Project Three collision risk assessment becomes publicly available the Applicants will update the Projects' in-combination collision risk assessments and submit these as soon as possible into the Examinations.
5	**Status of HRA compensation sites for kittiwake: Lowestoft - Aldeburgh coast**	1. The Applicants' Habitat Regulations Assessment (HRA) is based upon the current populations and distributions of birds. Logically, if Orsted's proposals function they will either maintain or increase the population

Number	Action	Applicants' Response
	The hearings were informed that the Lowestoft to Aldeburgh coastline has been identified by the promoter of Hornsea Project Three as one of two areas of search for the siting of proposed kittiwake compensation measures associated with effects on the Flamborough and Filey Coast SPA. Should a site/ sites within that search area be confirmed and secured as a compensation site/sites for kittiwake of the Flamborough and Filey Coast SPA, what are the Applicants' views and NE's views and advice as to how any compensation site should be treated in the HRA for the East Anglia ONE North and East Anglia TWO applications?	which the Applicants have assessed. The Orsted proposals would therefore be neutral with regard to the project alone effect and would remove Hornsea Project Three from the in-combination case. (Orsted 2020a)[1] state (paragraph 4.4) *It is expected that the majority of young produced at these artificial nesting structures* ***will be recruited into the southern North Sea population (a sub-population of the East Atlantic kittiwake population) of kittiwakes which in turn provides the breeding adult birds for colonies on the east coast of England.*** *By encouraging sufficient additional breeding, the overall breeding population will increase by at least the same amount as that predicted to be lost through collision mortality.* The Applicants note that Orsted's proposals aim to provide supporting habitat for four times the number of birds lost annually. 2. It is for Orsted to propose compensation in a suitable location and through monitoring and adaptive management ensure that this is successful. Orsted (2020b)[2] states that:

[1] Orsted (2020a) Response to the Secretary of State's Minded to Approve Letter Appendix 2: Kittiwake Compensation Plan (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003246-HOW03-30Sep_Appendix%202%20Kittiwake%20Compensation%20Plan%20(06543754_A).pdf

[2] Orsted (2020b) ***Response to the Secretary of State's Minded to Approve Letter Annex 2 to Appendix 2: Kittiwake Artificial Nest Provisioning: Ecological Evidence***
https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003241-HOW03_30Sep_Appendix_2_Annex_2%20Ecological%20Evidence%20(06543000_A)%20combined%20(06543760_A).pdf

Number	Action	Applicants' Response
		The positioning of any artificial nest sites offshore needs to avoid or minimise inadvertently increasing the collision risk of kittiwake with existing, consented and, more problematically to define ***with a high degree of spatial resolution, areas proposed for offshore wind farms****.* ***This process needs to consider changes that may increase the cumulative impact on kittiwake populations at Natura 2000 sites.*** 3. The Applicants do not consider that the areas which are chosen to house the Hornsea Three compensation, by virtue of being used as such, automatically benefit from any increased status within the habitat protection regime. For a site to be classified as a Special Protection Area, a process has to be completed which considers whether that site meets certain SPA designation criteria – put simply this requires a Member State to identify and designate areas within their territory which are, at the time, most suitable for the protection of the bird species of concern based on a range of factors including (among others) the percentage of the population present in that area, population size and density, breeding success, naturalness, severe weather refuges. Given points (1) to (3) the Applicants do not believe that the location of the Hornsea Project Three proposals are relevant to the HRA. The Applicants will follow the progress of the Hornsea Project Three consent to understand any implications for the HRA in-combination totals and the without prejudice HRA derogation case and potential compensation measures.
6	**Additional information in relation to cumulative/in-combination impact on traffic and transport with Sizewell A, B and C**	The Applicants note an error in their oral submission regarding further updates in relation to cumulative/in-combination impact on traffic and transport with Sizewell A, B and C.

Number	Action	Applicants' Response
	The Sizewell C project has now applied for a Development Consent Order and more detailed traffic and transport data is now available. The Applicants are now working on the implications of Sizewell C following the submission of this application. Reference to the Sizewell data should be made by the Applicants and relevant cumulative/ incombination assessment references to that data should be updated by D4. If opportunities to refine transport and traffic proposals further to respond better to spatial, volume and temporal effects arising then these should be taken, and the results	The Applicants have used the most up to date detailed traffic and transport data regarding Sizewell C and Sizewell B and provided an updated Cumulative Impact Assessment (CIA) at Deadline 2 in the ***Sizewell C CIA Note (Traffic and Transport)*** REP2-009). No further information regarding cumulative traffic and transports impacts with Sizewell C is proposed.
11	**Decision not to locate the transmission connection substation /converter stations for each project at Broom Covert** 1. The Applicants are asked to explain: (a) why this site (referred to as reserved for reptile mitigation) in the ownership of NNB Generation Company (SZC) Limited was viewed as constrained or not available and so was not selected as the preferred location; (b) what factors were taken into account in reaching the conclusion to cease consideration of this site; (c) was an assessment of effects after mitigation carried out; and (d) was there any attempt to locate an alternative reptile mitigation site? 2. NNB Generation Company (SZC) Limited is asked to provide a commentary on the above questions in light of their oral response that they did not see the existing or proposed use of the Broom Covert land to have been an insuperable barrier to availability for additional substation development.	The Applicants refer to ***Sizewell Mitigation Land Clarification Note*** (ExA.AS-24.D3.V1) submitted at Deadline 3.

Number	Action	Applicants' Response
	It should be noted that whilst this action point arises from ISHs2 relating to siting and design, responses should be formed having regard to the fact that they are prospectively of relevance to the ExAs consideration of the Compulsory Acquisition and Temporary Possession requests by the Applicants.	
14	**Weighting in relation to the CION / RAG assessment of potential substation sites** At slide 16 of the Applicants' 'Onshore Strategic Site Selection Presentation' on site selection, it was stated that: 'no weighting was attached to criteria in the RAG assessment'. This implies that what amounts to a relatively minor weight factor can by the operation of a simple model outweigh or exclude what might qualitatively have been considered to be a weightier consideration. Explain how this outcome was avoided.	As described in section 4.9.1.3.1 of ***Chapter 4 Site Selection and Assessment of Alternatives*** (APP-052), the methodology for the Red / Amber / Green (RAG) assessment identified receptor categories equally, i.e. there was no weighting of different receptor categories applied relatively to each other so as not to prioritise particular environmental receptor categories and to consider all as equally important at the outset. This therefore flagged key issues for a receptor category and did not prejudice the process by screening issues out prematurely. Once the RAG was completed, professional judgement and feedback through the consultation process on the RAG scoring was taken into consideration to inform the site selection.
16	**Electricity Act duties** Reference was made in the hearings (by Counsel for SASES) to the duties on licensed bodies under s9 and Sch 9 of the Electricity Act 1989 (as amended). Please set out your response to these duties in terms of their applicability and (where applicable) your siting and design response to them when making siting and design decisions relating to onshore infrastructure. Specifically provide your response to Sch 1 (1) and to equivalent policies in NPS EN-5.	The Applicants have set out below the terms of each relevant part of Section 9, Schedule 9 and NPS EN-5, together with an explanation of if and how each applies to the Applicants and the Applications. The Applicants have also previously set out the legal regime governing the electricity transmission industry and how that has incorporated various statutory and policy obligations (see ***Regulatory Context Note*** (REP2-003) for further detail). **The Statutory Provisions** *Section 9*

Number	Action	Applicants' Response
		Section 9 of the Electricity Act 1989 imposes certain general duties on certain licence holders. Relevant excerpts are set out below: **"*9.— General duties of licence holders.*** *(1) It shall be the duty of an electricity distributor–* *(a) to develop and maintain an efficient, co-ordinated and economical system of electricity distribution;* *(b) to facilitate competition in the supply and generation of electricity.* *(2) It shall be the duty of the holder of a licence authorising him to participate in the transmission of electricity—* *(a) to develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and* *(b) to facilitate competition in the supply and generation of electricity."* … These general duties therefore apply to electricity distributors and transmission licence holders in terms of Section 6 of the Electricity Act 1989. In terms of the current process the Applicants have applied to National Grid Electricity Systems Operator (ESO) for a grid connection, and the Applicants and National Grid ESO have in turn undertaken a CION process along with National Grid Electricity Transmission (NGET). This has resulted in grid connection agreements being entered into. As part of the agreement process it was agreed that the Applicants would in addition to seeking consent for their own connection infrastructure also seek consent for the enabling works required to connect the Projects to

Number	Action	Applicants' Response
		the electricity transmission system but which would ultimately be constructed and owned by NGET. This is a standard process and further ensures that there is co-ordination in the delivery of the infrastructure required to connect the Projects. As part of that process the Applicants have regularly liaised with NGET to facilitate the refinement of proposed works and to explain the intended approach to mitigation, whilst always ensuring that NGET requirements are understood and accounted for in the Applications. Neither Applicant is an electricity distributor, nor does it hold a licence authorising it to participate in the transmission of electricity. Neither Applicant is therefore bound by the general duties in Section 9 of the Electricity Act 1989. It should also be noted that the transmission assets will ultimately require to be transferred by the Applicants. In terms of the OFTO regime, the Applicants are under a legal requirement to transfer the transmission assets comprised in the Projects (other than the NGET infrastructure) to a licensed Offshore Transmission Owner (OFTO) as part of a regulated competition. Ofgem are obliged to calculate the economic and efficient costs that have been or ought to have been incurred and the Applicants will only recover those costs of developing and constructing the assets that Ofgem assess as having been incurred economically and efficiently – this test exists to protect the UK electricity consumer from over paying for transmission infrastructure. At no stage in the connection agreement process or development of the Projects have the Applicants been requested to include wider network benefit investment. *Schedule 9 paragraph 1* Schedule 9 of the Electricity Act 1989 (brought into effect by Section 38) places certain environmental duties on certain categories of person. Relevant excerpts are set out below:

Number	Action	Applicants' Response
		"*1.—* *(1) In formulating any relevant proposals, a licence holder or a person authorised by exemption to generate, distribute, supply or participate in the transmission of electricity* *(a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and* *(b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.* *(2) In considering any relevant proposals for which its consent is required under section 36 or 37 of this Act, the appropriate authority shall have regard to—* *(a) the desirability of the matters mentioned in paragraph (a) of sub-paragraph (1) above; and* *(b) the extent to which the person by whom the proposals were formulated has complied with his duty under paragraph (b) of that sub-paragraph.* *(3) In this paragraph—*

Number	Action	Applicants' Response
		…… *"relevant proposals" means any proposals—* *(a) for the construction or extension of a generating station of a capacity not less than 10 megawatts, or for the operation of such a station in a different manner;* *(b) for the installation (whether above or below ground) of an electric line; or* *(c) for the execution of any other works for or in connection with the transmission or supply of electricity.* *….."* Taking each subsection in turn: • In terms of Schedule 9, Paragraph 1(1) of the Electricity Act 1989 obligations are imposed on a Section 6 licence holder (which includes, amongst others, the holder of an electricity generation, transmission, distribution or supply licence) or a person authorised by exemption to generate, distribute, supply or participate in the transmission of electricity who are formulating relevant proposals; • In terms of Schedule 9, Paragraph 1(2) obligations apply to a limited category of decision maker, namely the Secretary of State when deciding an application for consent under Section 36 or Section 37 of the Electricity Act 1989. Such duties have not been carried across to decision making under the Planning Act 2008 and so, for the avoidance of doubt, Schedule 9, Paragraph 1(2) is not relevant to the current Examination and is not considered further in this response. At the time of formulating the Applications the Applicants did not hold generation licences under Section 6 of the Electricity Act 1989 however

Number	Action	Applicants' Response
		they now do so (each granted on 3 December 2020). Notwithstanding that the Applicants were not directly bound by the terms of Schedule 9 at that time, given the nature of the works proposed (electricity transmission lines and substations), the Applicants chose to apply the Schedule 9, Paragraph 1(1) approach when formulating the proposals. As fully explained in the Environmental Statement (see in particular ***Environmental Statement - Chapter 4 Site Selection and Assessment of Alternatives*** (APP-052) and ***Environmental Statement - Chapter 6 Project Description*** (APP-054)) site selection and consideration of alternatives were informed by extensive consultation (with the expert topic group and others), application of the Horlock Rules (which set out NGET's approach to substation siting and design in the context of their duties under Schedule 9) and RAG assessments. Likely effects, including in terms of all of the Schedule 9 priorities, were fully tested through a thorough Environmental Impact Assessment process and consideration of appropriate mitigation. In relation to policies in NPS EN-5, paragraph 2.2 sets out a number of factors which may have influenced an applicant's site selection, including reference to duties under schedule 9. The NPS makes clear however that these factors are not a statement of Government policy, "*but are included to provide the IPC and others with background information on the criteria that applicants consider when choosing a site or route*".

Number	Action	Applicants' Response
19	**Proposed trenchless technique(s) at landfall** The Applicants have committed to Horizontal Directional Drilling (HDD) in multiple ES references (e.g. [APP-054], [APP-055], [APP-057]) and to this technique forming part of embedded mitigation. In oral submissions for the Applicants, reference was made to other possible techniques being used in circumstances assessed as being carried out by HDD. The Applicants are asked to confirm the proposed methodologies for landfall techniques including: • Setting out the range of potential techniques that could be used (including but not limited to Horizontal Directional Drilling (HDD); • Providing evidence that where ES assessments refer to HDD, that any alternative techniques have been properly assessed in the ES and are within the Rochdale envelope; • Providing evidence that: (a) HDD (or another equivalent technique) is or may be limited to 2km maximum[3]; (b) HDD (or another equivalent technique) can be undertaken up to 2km. • Providing timelines in respect of geophysical survey work and subsequent decision-making; and	At the time of application, the Applicants were considering different types of trenchless techniques at the landfall. All techniques involved the drilling or boring under the cliffs, beach and intertidal area, although the available options use variations on the technique. HDD was presented within the Environmental Statement (ES) as the Rochdale envelope technique, with any other technique under consideration falling within the same assessment envelope as considered for the HDD technique. The Environemtnal Impact Assessment (EIA) assesses the worst-case parameters of the entry and exit footprints for the areas where trenchless techniques will be employed. The EIA also establishes that there would be no interaction with the cliffs or the intertidal. Any alternative trenchless technique must therefore fall within the parameters asssessed and would deliver the same result (i.e. avoiding interaction with the intertidal and Sizewell cliffs) as HDD methods. The Applicants also refer to section 2 of ***East Suffolk Council's Response to Additional Information Submitted by Applicants at Deadline 1*** (REP2-029) where they have stated that: "*ESC is satisfied that the Outline Landfall Construction Method Statement (OLCMS) Rev 01 submitted at Deadline 1 covers Coralline Crag impact avoidance, management of cliff destabilisation by vibration risk and other matters relating to the planning of works with regard to potential coastal change, to an acceptable standard*" The Applicants can however confirm that an HDD technique will be adopted at the landfall.

[3] This relates to a request from the ExAs for the Applicants to provide evidence in relation to NE's comment in Appendix C3 at D1 [REP1-154] that documentation and evidence presented for other offshore wind farm developments along the east coast of the UK has identified that horizontal directional drilling (HDD) over 2km range or greater is not viable.

Number	Action	Applicants' Response
	• Recording how landfall works methods, including the selected approach, will be secured satisfactorily in the DCOs.	A desktop study was recently undertaken by the Applicants which generally considered the following: • Environment Agency, Land contamination: risk management (2019). This report forms the Preliminary Risk Assessment (PRA), as provided in Appendix 18.3 (APP-489) • BS EN 1997-2:2007 Eurocode 7 – Geotechnical design – Part 2: Ground investigation and testing • Geospatial (GIS) datasets • Landmark Envirocheck Report for the site (containing current and historic Ordnance Survey Maps dating back to 1882). • Geological and Hydrogeological Information for the area, from the British Geological Survey (BGS) and the Environmental Agency (EA). • LiDAR digital terrain model (DTM) information from Defra • Previous ground investigation information made publicly available by the BGS. • Search of online databases (Defra MAGIC Map, Marine Management Organisation, and Historic England). The length of the HDD will be influenced by the offshore export cable design, ground conditions, and the HDD drill profile (i.e. the angle of the ore). It is envisaged that the length of the HDD would not exceed 2km. It is noted that the 2km is an upper range only for the purpose of conceptual design, and compatible with other HDD projects such as the Texel Island water pipeline (a 4.6km intercept HDD). The final length of the HDD will be determined during the detailed design process based on geology, drill profile and punchout seabed conditions.

Number	Action	Applicants' Response
		The length of HDD would be restricted to only what is required depending on the site specific conditions. The ground investigation campaign for the Projects will be undertaken in 2021 to inform the HDD profile and the equipment specification required to complete the HDD works subject to soil properties. The purpose of this testing is to establish the geological characteristics of the various soil types anticipated to be encountered in order to design the HDD works. Tests include compressive strength, shear strength, infiltration, permeability, abrasion as well as other environmental checks to ensure the HDD can be carried out safely. The ***Outline Landfall Construction Method Statement*** (REP1-042) was submitted at Deadline 1. The final Landfall Construction Method Statement (which must be in accordance with the Outline Landfall Construction Method Statement) will identify the final HDD design, including length of HDD, based on pre-construction ground investigations, and this will be submitted to the relevant planning authority for approval prior to construction in accordance with Requirement 13 of the draft DCO.
20	**Use of 275kV AC export cable technology** The Applicants are asked to provide evidence that the feasibility of using the 275kV AC export cable technology proposed for the projects has been assessed for other potential onshore transmission system connection points, (including Bawdsey) as part of the CION assessment. If this technology is unique then please provide a confidence assessment of its deployability	For the CION processes in 2017, cost estimates for AC solutions were based on a two-circuit HVAC system 220kV as this was the lowest cost technology option. The conclusion of CION process was for an HVAC technology solution. The subsequent Connection agreements reflected the base 220kV HVAC technology. The Applicants are part of a Company with wider interests and the ScottishPower Offshore Engineering Department have experience in formulating projects in the UK, Europe USA and other markets. Part of the role of the Department is to evaluate Technology Readiness Levels (TRL) when developing solutions for projects in the future. In this case it is predicted that the projects could be delivered at the earliest just prior

Number	Action	Applicants' Response
		to 2025. Innovation is a key part of developing competitive CfD projects. This process identifies that even where the technology is not widely and typically used it can be predicted that there will be future supply chain and technological innovations. The Applicants would work with the supply chain to ensure these technologies are developed and certified within the project time frame. This allows the Applicants to utilise the latest relevant technological innovations and meet the requirements for an economic and efficient design. In GB the transmission network operates generally at 400kV and 275kV (in Scotland 132kV is also part of the transmission network). There is therefore a lot experience of designing, commissioning and operating at 275kV. At an early stage of project development, the Engineering Department have identified through option appraisals that there would be certain advantages in developing the export cables at 275kV. These advantages, subject to detailed power systems analysis and design that is to be conducted together with the selected supply chain, would result in: ▪ a more efficient transmission system in terms of electrical losses, since higher voltage transmission minimises the amount of power lost as power flows from the wind farm to the Grid; ▪ a more optimised transmission system overall, since the higher voltage would allow for more thermal capacity to be utilised in the export cable conductors The 275kV concept was further developed through undertaking a technology review of what the supply chain could offer. The key technology development in the deployment of 275kV relates to the export cables. The Applicants are engaged directly with potential manufacturers in this part of the supply chain. This gave the Applicants confidence that the technology is ready and available. As a consequence

Number	Action	Applicants' Response
		the Applicants developed the preliminary design of the export cabling and onshore substation utilising this innovation. The engagement with the supply chain has confirmed that a 275kV solution is viable and the impact on the CION cost assumptions are within the errors of margin, and there is, therefore, no material change to the CION connections options assumptions. The Grid Connection process is dynamic and East Anglia TWO has already sought and obtained a modification to its Connection Agreement utilising the updated voltage levels and a revised Effective From date of November 2024. This did not trigger a CION review on the basis that it did not result in a material change in the base costs assumptions. In a similar manner East Anglia ONE North has also applied for a modification of its Grid Connection Agreement.
21	**Development of approach to good design** The Applicants are asked to respond to: (a) the in-examination work on the Design and Access Statement (DAS) for the Norfolk Boreas NSIP application; (b) the notion of appointing an independent design champion to oversee the project as a whole; and (c) whether their DAS will be a certified document and an outline of its anticipated contents; to be provided in outline at D3 with a detailed response at D4.	The Applicants are reviewing the structure for taking forward the design process. This has not been possible to complete for Deadline 3 but will be provided for Deadline 4.
23	**Comparative examples of NG substations** The Applicants are asked to provide information on the Moray East NG substation currently under construction and an explanation of how the proposal at Friston differs from it.	The Applicants' note that discussion during the Issue Specific Hearing 2 on 2 and 3 December regarding the Moray East Offshore Windfarm was in relation to the Projects' onshore substations and the Moray East onshore substation, rather than a comparison of the Projects' National Grid substation and the Moray East project's SHE-T substation.

Number	Action	Applicants' Response
		The Applicants have drawn comparisons of the Projects' onshore substations with that of Moray East, a 950MW offshore wind farm located in the Northern North Sea, that won a CfD auction in 2017 and is currently under construction. With regards to Moray East's grid connection works, the power will arrive at the new substation from the wind farm by means of three new underground cable circuits (each at an export cable voltage of 220kV), and will leave the onshore substation on the existing 275kV overhead lines for onward transmission. The new infrastructure is formed of two discreet substations, connected to each other within one site: (1) The part of the new infrastructure associated with the existing transmission infrastructure (the New Deer Substation), owned by SHE-T, (i.e. the equivalent to the Projects' National Grid substation), and (2) The part of the infrastructure associated with the new wind farm (the Moray East Substation), which for regulatory purposes will be a separately owned asset (i.e. the equivalent to the Projects' onshore substations). Electricity will arrive from the offshore windfarm at the Moray East substation at 220kV and will then (through appropriate voltage step up transformation from 220kV to 275kV) be passed to the New Deer Substation, and then to the wider national electricity transmission system, all within the one new site. The Moray East offshore project shares many similarities with each of the Projects: • Similar wind farm installed capacity • Same transmission technology, that of HVAC • Similar export cable length (55-60km from offshore to onshore substations)

Number	Action	Applicants' Response
		• Same type of electrical equipment infrastructure in the Moray East voltage step-up substation (STATCOM's, transformers, reactors, harmonic filters and GIS Building) • Similar substation arrangement to delivering power to the Grid, i.e. a new voltage step up substation (Moray East substation, belonging to the Generator) connecting to a new Grid Substation (New Deer substation, belonging to the Transmission System Owner) However, there is a key difference between the projects: • The Moray East uses a transmission system voltage of 220kV, hence requiring three circuits to transmit the wind farm power to the Grid, each of the EA1N and EA2 projects will be exporting at a higher voltage of 275kV, hence reducing the circuits down to two (per project). This reduction means: o A reduced cable corridor width per project o A reduced landfall area per project, hence less landfall works, less circuits to bring onshore and a lower risk of drill failure o An onshore substation compound reduction in footprint of approx 62% (the Moray East substation measures 52,731m^2, as opposed to the proposed footprint of the Projects' onshore substations, that measure 32,300m^2 each) The Applicants refer to ***Appendix 2*** for details of the onshore transmission infrastructure proposals for installation for Moray East Offshore Windfarm.

Number	Action	Applicants' Response
24	**'Suburban features' suggested as being relevant to the Friston site** The Applicants are asked to provide a landscape assessment clarification note identifying and where necessary providing photographic references to and locations of the suburban features of the Friston transmission system connection location on which they have relied as 'detracting' features for CION/ RAG and/ or landscape assessment purposes. (This should be sufficiently specific to support an unaccompanied site inspection of these features by the ExAs.)	Friston was not considered directly in the CION process, therefore the 'suburban features' were not relevant to that process. The Applicants' RAG assessment identified that the character of the Ancient Estate Claylands Landscape Character Type (LCT) (within which the Friston transmission system connection is located) has been subject to change, partly due to its relationship with the A12 and the intrusion of suburbanisation and industrial agricultural buildings. The Applicants note the description of this provided for the Ancient Estate Clayland LCT in the Suffolk County Landscape Character Assessment (Suffolk County Council, 2011): *"These landscapes (the Ancient Estate Claylands) are subject to considerable change which is promoted by their relationship to the A12 trunk road and the creation of airfields in the 1940's. There is considerable intrusion of suburbanisation with horse paddocks, barn conversions and ranch-style fencing. As on other parts of the plateau claylands, industrial agricultural buildings make a significant impact, especially where there is inadequate screening".* In the local context of the Friston transmission system connection location, the Applicants accept that the A12 does not exert a local influence on the character of the site, it is not described in the Applicants subsequent local level assessment in the LVIA (Chapter 29) (APP-077), however it was noted in the RAG for the Ancient Estate Claylands LCT based on the Suffolk LCA description, which notes this LCT has been subject to change more widely because of its relationship with the A12. The Applicant notes that the features of the Friston transmission system connection location on which they have relied as 'detracting' features are primarily the double row of overhead pylons and electrical lines crossing the landscape between the village of Friston and Fristonmoor, which

Number	Action	Applicants' Response
		form notable visual elements in the local setting; and a number large-scale modern agricultural buildings and influences in the local landscape, particularly those at Redhouse Farm. The influence of transmission infrastructure is also further reinforced by local electrical distribution lines crossing the site. The following examples of agricultural 'suburbanisation' and 'industrial agricultural buildings' (terms defined in the Suffolk LCA description above) are noted in the local landscape context of the onshore substations site: **Redhouse Farm** – located at grid reference E640366, N261609 approximately 750m to the north-west of the National Grid substation location, as shown in ***Figure 2*** (Baseline Site Context) of the ***OLEMS*** (APP-584). Photographs are provided in Plate 1-1 and Plate 1-2 of this Applicants' response at the end of this table. Comprises six 'industrial' agricultural buildings, consisting two large barns occupying a footprint of approximately 60m x 65m; and four larger agricultural buildings occupying a footprint of approximately 90m x 140m. **Manor Farm** – located at grid reference E642219 N261299, comprising large/tall barn buildings as evident in Viewpoint 11 (***Figure 29.23a***) (APP-414) and Viewpoint 12 (***Figure 29.24b***) (APP-415). Horse paddocks and ranch style fencing. **Agricultural reservoir at Friston Hall** – located at grid reference E640268 N260342, approximately 1km to the south-west of the project substations. The Applicant notes the presence of a large agricultural reservoir at Friston Hall, approximately 150m x 210m. There are also a number of large agricultural buildings in the vicinity at this location. **Moor Farm, Saxmundham Road** – located at grid reference E640324 N260887, to the west of the substation site. Example of agricultural

Number	Action	Applicants' Response
		'suburbanisation' with ranch style-fencing, barn conversions, tennis courts etc. **Moor Farm, Fristonmoor** – located at grid reference E641010 N261695, example of agricultural 'suburbanisation' with ranch style-fencing, barn conversions, swimming pool etc, CHVP3 Figure 8a Appendix 24.7 (APP-519). **Agricultural buildings, Grove Road, Friston** – located at grid reference E641531 N260488, comprising large agricultural buildings on Grove Road, approximately 45m x 30m in size.
25	**SASES written representations and oral comments on LVIA** The Applicants are asked to respond at D3 to matters where oral responses in the hearing could not be provided.	The Applicants are preparing comprehensive responses to SASES written representations on landscape and visual matters for Deadline 4. In outline, and in response to the oral comments provided at Issue Specific Hearing 2, the critical points are noted as follows: **1. Landscape and Visual Impact Assessment (LVIA) of 'significant' or 'not significant' effects.** The Applicants would refer to paragraph 53 of ES ***Appendix 29.2*** (APP-566): *'The objective of the assessment is to predict the likely significant effects … on the landscape and visual resource. In accordance with the EIA Regulations, the landscape and visual effects are assessed to be either significant or not significant. The LVIA does not define intermediate levels of significance as the EIA Regulations do not provide for these'.* The Applicants note that the assessments of magnitude of change provide an assessment of the size or scale of landscape and visual effects, on a scale of high to negligible. **2. Short-term effects / construction effects**

Number	Action	Applicants' Response
		The Applicants note that short-term effects are defined as effects of 1 to 4 years and this was agreed with stakeholders as part of the ETG consultation process. Construction of the East Anglia TWO onshore substation alone (and East Anglia ONE North substation alone) would be up to 30 months, i.e. short-term, as assessed in the ***Chapter 29*** (APP-077). Construction of the National Grid substation is expected to be up to 48 months, i.e. short-term, as assessed in the ***Chapter 29*** (APP-077). Cumulative effects of Scenario 2 (the East Anglia TWO project is built entirely and land is re-instated, then East Anglia ONE North is constructed) are assessed as being medium-term (5-10 years) in the cumulative LVIA, due to the longer construction period assessed in this scenario. **4. Lack of viewpoints from Public Right of Way (PRoW) looking towards Friston** The Applicants note that viewpoints for the LVIA were agreed in consultation with the Councils and relevant stakeholders. With reference to the PRoW shown in ***Figure 29.4*** (APP-394), effects on views experienced by users of the local PRoW network are assessed from a number of representative viewpoints: Viewpoints 1, 2, 3, 5 and 7. Viewpoint 5 (APP-408) is located on the PRoW near Moor Farm looking towards Friston. The Applicants also note the inclusion of cultural heritage viewpoints on PRoW looking towards Friston, namely CHVP3 PRoW between Moor Farm and Little Moor Farm; and CHVP 4 on the PRoW near Little Moor Farm, both contained in ***Appendix 24.7*** (APP-519).

Number	Action	Applicants' Response
		5. Lack of direct comparison between baseline view and photomontage view in substation visualisations The Applicants note the oral comments regarding the lack of direct comparison between the baseline photograph (90° field of view) and photomontage (53.5° field of view) at the same size to allow direct comparison. The ES visualisations were produced in 2019 for submission in October 2019 prior to the publication of the current Landscape Institute Technical Guidance Note 06/19 (published in September 2019). The relevant guidance at the time of the photomontage production was contained within Visual representation of development proposals Technical Guidance Note 02/17 (Landscape Institute, 31st March 2017) and Visual Representation of Wind Farms (SNH, 2017), both of which are referred to in the LVIA methodology and were the relevant guidance at the time on which the photomontages are based. The Applicants accept that the guidance for the visual representation of development proposals has moved on with publication of Landscape Institute's Technical Guidance Note 06/19 and that this recommends imagery to be typically presented as baseline photograph and photomontage presented at the same size to allow direct comparison. The Applicants are producing updated photomontages of the onshore substations to show changes in substation footprint, ground levels, heights of infrastructure and updates to the OLMP. These will be presented with a baseline photograph at the same size as the photomontage to allow direct comparison. The Applicants consider that the 90° field of view baseline photograph presented in the LVIA visualisations remains important to understanding the wider view context of the proposal.

Number	Action	Applicants' Response
		The Applicants noted comments with regards Viewpoint 5, in terms of the horizontal field of view, and will provide two x 53.5° photomontages to illustrate a wider field of view from this viewpoint. **6. Assessment of woodland screening as negligible effect** The Applicants' LVIA focused on the effects of the onshore substations. A number of viewpoints, such as Viewpoint 1, are located at very close range to proposed woodland planting, which is considered to reduce the assessed visual effect of the substations at 15 years, where woodland provides screening of the substations. **7. Finished floor levels** Updated details of finished ground levels and reductions in equipment height within the proposed substation development site are provided in the ***Substations Update Document*** (document reference ExA.AS-11.D3.V1) submitted at Deadline 3. The Applicants are producing updated photomontages of the onshore substations based on these finished ground levels to be submitted at Deadline 4. **8. Institute of Environmental Management and Assessment (IEMA) Quality Mark Article** A copy of the IEMA (2019) Quality Mark Article – 'Predicting the growth of tree and hedge planting when determining the effectiveness of mitigation' is provided in ***Appendix 3***. **9. Specific RAG assessments for Zone 7 and other zones** Response to oral comments on the Applicants' RAG assessments for Zone 7 and other zones will be provided in the Applicants' responses to SASES written representations for Deadline 4.
26	**Strategic siting – approach**	Please see the Applicants' ***Written Summary of Oral Case ISH 2*** submitted at deadline 3 (document reference ExA.SN3.D3.V1).This

Number	Action	Applicants' Response
	The Applicants are asked to respond to a range of submissions on strategic siting made by IPs at the hearing to which a full oral reply could not be provided.	provides further information regarding the approach to siting and in particular the CION process.
27	**Heritage matters** The Applicants are asked to respond to a range of submissions on heritage made by IPs at the hearing and in earlier written submissions to which a full oral reply could not be provided.	The Applicants recognise that various parties, including East Suffolk Council, Historic England, SASES and Suffolk Preservation Society made a number of points on cultural heritage matters that the Applicants did not respond to immediately in ISH2, given the time constraints for Agenda Item 4. Having reviewed what was said during the hearing, the Applicants consider that no new substantive points on cultural heritage matters were made, with the other parties tending to rehearse arguments that had already been set out in their Written Representations. As a result, the Applicants do not wish to respond here on any specific points and refer the ExA to the following responses, already submitted: • Applicants' response to the Local Impact Report (REP1-132) • Archaeology and Cultural Heritage clarification Note (REP1-021) • Applicants' responses to other parties (REP1-016) • Applicant's replies to ExA Questions (REP1-113) The Applicants' detailed response to the Written Representation from SASES on cultural heritage matters has been submitted at deadline 3 as part of the ***Applicants' Response to SASES Deadline 1 Submissions*** (ExA.AS-20.D3.V1).

Plate 1-1: Photograph of Redhouse Farm

Plate 1-2: Photograph of Redhouse Farm

Appendix 1: Crown Estate Land Ownership

From: Stuart Curry
Sent: 16 April 2019 12:11
To: Morris, Richard
Subject: EXTERNAL: RE: EA1N & EA2 - Crown Estate Land Ownership

Richard

The green hatched area is non Crown foreshore. Is that sufficient?

Kind regards.

Stuart

Stuart Curry | Development Manager (Offshore Wind)

1 St James's Market, London, SW1Y 4AH

thecrownestate.co.uk

From: Morris, Richard
Sent: Tuesday, April 16, 2019 11:14 AM
To: Stuart Curry
Subject: RE: EA1N & EA2 - Crown Estate Land Ownership

Hi Stuart,

No problem. Let me know if you need anything else.

Thanks,

Rich

From: Stuart Curry
Sent: 16 April 2019 11:11
To: Morris, Richard
Subject: EXTERNAL: RE: EA1N & EA2 - Crown Estate Land Ownership

Rich
I'll have a my GIS colleagues load up these shapefiles and we'll take a look at the ownership.

I'm offsite this week so remote access to our mapping system is a bit more difficult but will see what I can do.

Kind regards.

Stuart

Stuart Curry | Development Manager (Offshore Wind)

1 St James's Market, London, SW1Y 4AH
thecrownestate.co.uk

From: Morris, Richard
Sent: Tuesday, April 16, 2019 10:46 AM
To: Stuart Curry
Subject: EA1N & EA2 - Crown Estate Land Ownership

Hi Stuart,

As discussed, our land team have some queries over land within our red line boundary that may be owned by The Crown Estate. I have attached a copy of the shapefiles for reference. Are you able to

check with your team and confirm whether or not The Crown Estate has any interests over land within these areas?

Any questions, please let me know.

Thanks,

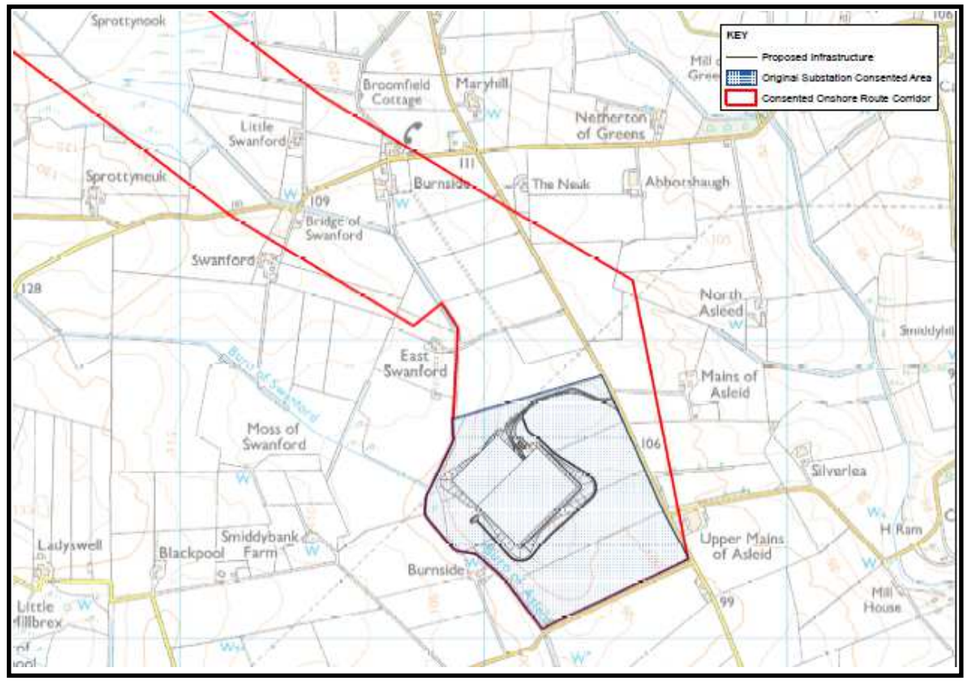
Rich

Rich Morris
Head of Offshore Development - UK

Offshore Development
8th Floor, ScottishPower House, 320 St Vincent Street, Glasgow, G2 5AD

Appendix 2: Onshore Transmission Infrastructure Proposals for Installation for Moray East Offshore Windfarm

Substation Location



Overview of Infrastructure

Moray East was allocated a grid connection point on the existing two circuit 275kV overhead electricity line south-west of New Deer. This allocation was made following a process run by the electricity transmission system operator (National Grid plc) together with the owners and operators of the local electricity transmission infrastructure, (SHE-T) and Moray East. The power will arrive at the new substation from the wind farm by means of three new underground cable circuits, and will leave the substation on the existing overhead lines for onward transmission to homes and industry.

The new infrastructure is formed of two discreet substations, connected to each other within one site. (1) The part of the new infrastructure associated with the existing transmission infrastructure (the New Deer Substation), owned by SHE-T, and (2) The part of the infrastructure associated with the new wind farm (the Moray East Substation) which for regulatory purposes will be a separately owned asset.

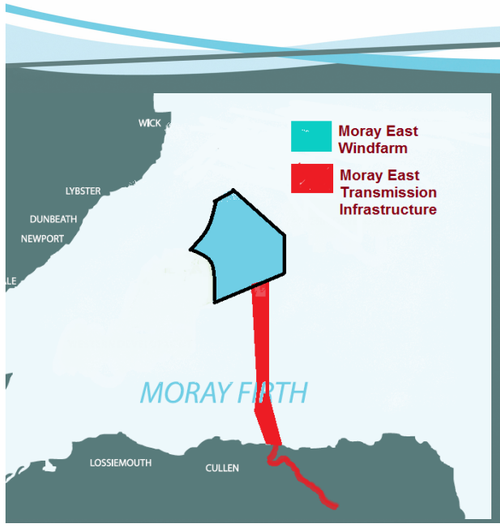
Electricity will arrive from the offshore windfarm at the Moray East substation, and will then be passed to the New Deer Substation, and then to the wider national electricity transmission system, all within the one new site.

Installation Works

Construction of the substation will commence with enabling works that include: establishing access from the public road network, stripping topsoil, building temporary storage landscape bunds, establishing temporary construction compound areas and then constructing a level platform onto which the substation equipment will be installed. Once enabling works are complete then the equipment and control building foundations will be installed. Equipment including switchgear and transformers will then be delivered to site and subsequently installed onto the foundations. Construction of the GIS switchgear and control building will include the erection of structural steel and cladding that has been designed to minimise the contrast with the electrical infrastructure and backdrop. A commissioning phase shall be undertaken to ensure that all the plant and equipment is functional and capable of transmitting power from the wind farm onto the national grid via the SHE-T New Deer substation.

During construction, the site will include temporary construction compounds and topsoil storage. After construction, the construction compounds will be removed, reinstatement undertaken and soft landscaping established.

MORAY EAST
OFFSHORE WINDFARM



Onshore Transmission Infrastructure Proposals For Installation

(Substation)

Moray East is a 950MW offshore wind farm which began development in 2010, was awarded planning consent in 2014 and won a contract to supply electricity in 2017. Construction will commence in 2018 and when complete it will be capable of meeting the electricity requirements of at least 950,000 average UK homes.

The offshore wind farm will be connected to the national grid at a new electricity substation south of New Deer. This leaflet details the main aspects of the works associated with the new substation.

Progress To Date

In 2014 Moray Offshore Windfarm (East) Limited, known as Moray East, was granted planning permission in principle for the onshore infrastructure which will take the electricity generated by offshore turbines (located more than 22km from shore at the closest point) to the national grid for onward transmission to homes and industry.

This infrastructure includes three underground cable circuits, coming ashore through buried ducts near Inverboyndie and continuing underground to a new substation south of New Deer.

Since being granted planning permission in principle, considerable work has been done to develop the engineering solution for bringing the cable ashore, to define the onshore underground cable route and to develop the design of the onshore substation.

Land Rights

Following positive engagement and dialogue with numerous different landowners, the necessary land rights have been secured and associated conditions agreed with all of the known private landowners along the route.

Key Elements Of Substation

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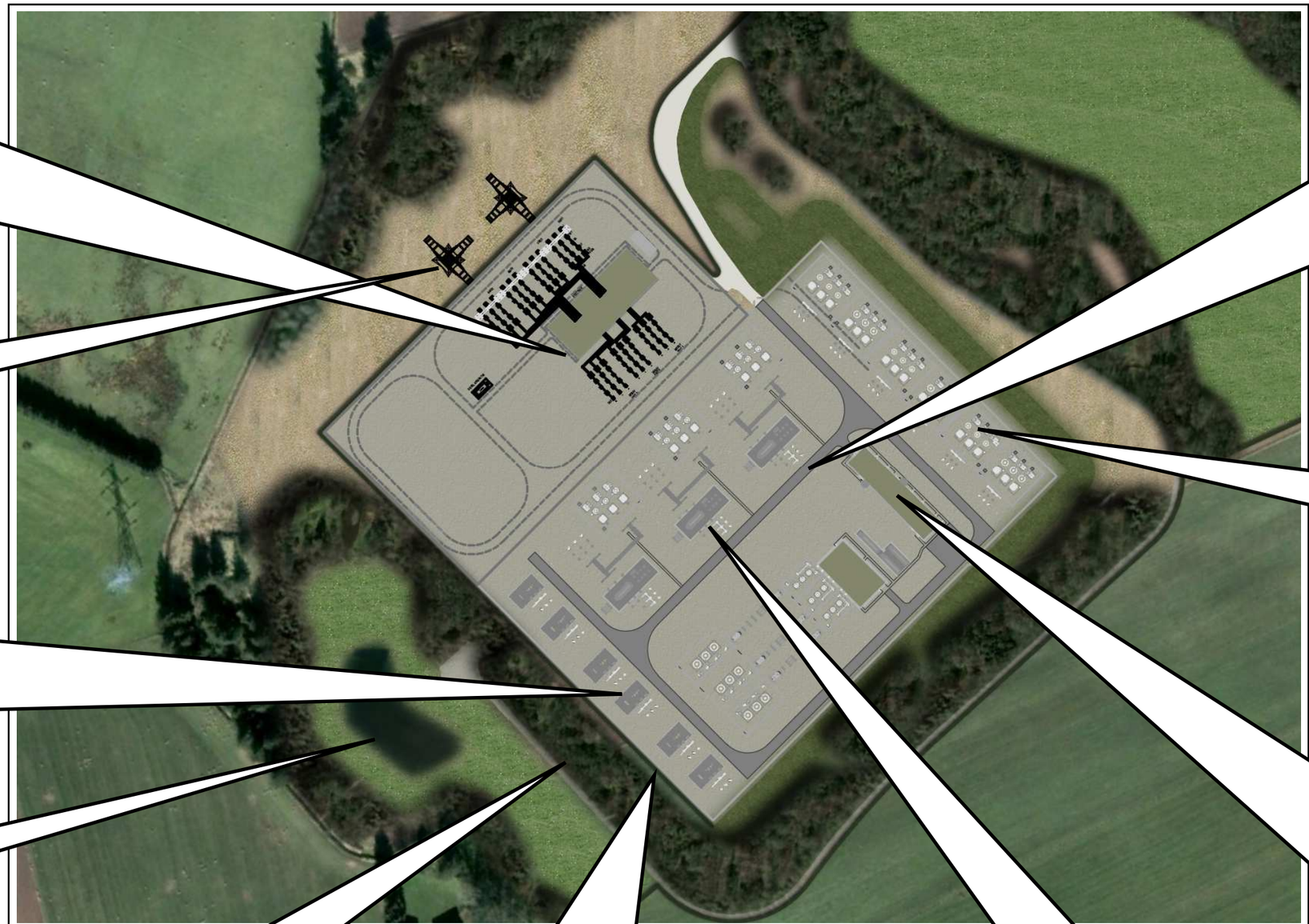
New Deer Substation - Scottish Hydro Electric Transmission Limited (SHE-T) Infrastructure
To connect the electricity from the new offshore wind farm into the grid, the conductors from the existing overhead line will require to be connected to new infrastructure on the ground. There, new switchgear will be installed to control power entering and leaving the substation via the existing lines. This part of the new substation will become part of SHE-T infrastructure.

Connection to Existing Overhead Lines
The existing two circuit overhead lines will be connected to new switchgear and a new SHE-T substation.

Reactive Compensation
Moray East’s connection will be designed to ensure stability of voltage levels on the UK national grid. The reactive compensation equipment will be used to regulate the amount of reactive power imported and exported onto the grid. All generators connected to the UK national grid operate in this way to ensure that the voltage on the grid stays within a safe operating range.

Drainage Attenuation Pond
A civil engineering feature which will manage drainage from the substation site.



Bunds
Earthen bunds which will provide visual screening. These will be constructed as a broader package of landscaping features including sympathetically selected mixed native trees and shrubs in a range of maturities appropriate to the Buchan region and sourced from local suppliers and nurseries.

Security Fencing
Standard 2.4m high security fencing will be provided for the safety and security of the public and the infrastructure. The fencing will enclose both the SHE-T and Moray East infrastructure as one site.

Transformers
These raise voltage from 220kV to 275kV to match the voltage used on the national transmission network.

Moray East Substation - Moray East Transmission Infrastructure
Electricity from the new offshore wind farm will arrive at the new substation by three underground cable circuits, operated at 220kV. It will then pass through transformers which will increase the voltage to 275kV to match the voltage level of the existing overhead lines. The power will then pass to the co-located adjacent new New Deer SHE-T substation. Switching and control equipment will be installed at the Moray East substation which will be in communication with the wind farm by dedicated fibre optic links.

Harmonic Filters
These ensure that the electricity supplied at the UK’s 50Hz standard has a harmonic distortion content that is within the standards of the UK electricity supply industry

Gas Insulated Switchgear (GIS)
By using modern equipment insulated by inert SF6 gas, high voltage switching can be undertaken by equipment which is much smaller than conventional air insulated switchgear. This enables a significant reduction in the land area required and a reduction in the substation’s footprint in comparison with conventional air insulated switchgear. Using GIS means that much of the equipment can be enclosed within a building, using typical agricultural building materials designed to integrate with the electrical infrastructure, reducing visual impact. These advantages mean that GIS is commonly used in modern electricity installations in towns and cities across the UK where space is limited.

Appendix 3: IEMA Quality Mark Article 'Predicting the growth of tree and hedge planting when determining the effectiveness of mitigation'

EIA Quality Mark Article

Predicting the growth of tree and hedge planting when determining the effectiveness of mitigation

Landscape mitigation for schemes in the UK is often provided in the form of native hedge and tree planting. It is usual practice to predict the effect of such mitigation after set periods, such as 5 and 15 years after planting. To do this, forecasting is required of the likely extent of growth, and particularly height, for these periods. This is particularly important if preparing photomontages to show the effectiveness of the mitigation over time.

The Guide for Landscape and Visual Impact Version 3 (paragraph 4.42) states "*Assumptions about plant growth or other changes over time should be realistic and not over optimistic. The design concept for the mitigation has to have a good chance of being achieved in practice to be taken seriously by the competent authority*." There are many variables active in achieving this, and this article explores the issues that must be considered.

Predicting plant growth and height over time

The growth of native trees and shrubs is influenced by many factors, such as soil type, climate, species, seasonal weather, maintenance and management. Much can be learnt from examining the conditions on a site. For example is the soil a lowland arable rich loam or a poor thin stony soil? Growth can be impeded if planting is to be on soils that have been compacted by construction activities – is amelioration possible? Is the site cold and exposed, or sheltered? Is the vegetation shaped by the wind? Are the leaves scorched by salt spray?

A good indication of likely annual growth at a site can be gained by examining the growth patterns of existing nearby vegetation. Annual extension growth is not difficult to measure on young trees or hedges in autumn when the fresh green or light brown shoots are easily distinguished from the older weathered bark of the previous season.

Certain species, such as willows, poplars and alders have a '*sustained* 'growth pattern and can grow continuously throughout the growing season, extending up to 200 cm if conditions are favourable. Other species, such as oak and conifers, have growth patterns which are '*preformed'* from bud development that has taken place in the previous year. They tend to put on a 20 – 60 cm growth surge in spring and then slow down.

Whilst it may be tempting to plant faster growing sustained growth species for quick effect, it is often preferable to plant species typical of the location or which support ecological objectives. While planting a solid line of willow or poplar will rarely be appropriate, temporary use of fast growing 'nurse species' (to be removed later) to provide shelter for slower species could be considered. Preformed growth species are usually longer lived and stronger than sustained growth species.

Extension growth also varies depending upon the maturity of the plant. Newly planted trees can require 2 -5 years to overcome the shock of being transplanted. Once established, however, they can go through a phase of maximum extension growth before slowing towards maturity. Browsing by deer, drought and disease can further limit growth. Good management is important. Grass growing around the base of new planting can restrict growth to a significant degree and, if plants are planted densely and not thinned, competition will reduce growth.

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Institute of Environmental Management & Assessment

To establish a good thick twiggy hedge it will be necessary to clip it annually and therefore increase height slowly. Since hedges often only need to be 2-3 m high (above head height) to provide effective mitigation, this is not necessarily problematic. Such a hedge can be achieved in 4 years in the right conditions, but 5-7 years is probably a good estimate.

Is there a rule of thumb with so many variables?

Newly planted stock is unlikely to have any significant screening effect in Year 1 since it is typically planted as 60-80 cm high transplants. It can be useful to include some feathered trees and standards 2-3 m in height for a more instant effect. Stakes and shelters could be considered to have a negative visual effect.

Given that most UK mitigation planting will be of mixed natives in largely unexposed conditions, an average annual growth of 30 cm/year in the first 5 years can normally be assumed. Once established, growth rate will increase and circa 50 cm/year for the next 10 years can be anticipated. If planted as transplants, this gives a height of 2-2.5 m in the first year and 7-7.5 m after 15 years. For more exposed locations it is recommended that annual growth is calculated by taking clues from the existing trees and hedges in the locality.

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