East Anglia ONE North and East Anglia TWO Offshore Windfarms

Applicants' Responses to Examining Authority's Written Questions

Volume 6 – 1.4 Construction

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

Revision Summary				
Rev	**Date**	**Prepared by**	**Checked by**	**Approved by**
001	02/11/2020	Paolo Pizzolla	Lesley Jamieson / Ian Mackay	Rich Morris

Description of Revisions			
Rev	**Page**	**Section**	**Description**
001	n/a	n/a	Final for Deadline 1

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Glossary of Acronyms

AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
ADD	Acoustic Deterrent Devices
AEOI	Adverse Effect on Integrity
AIL	Abnormal Indivisible Load
AIS	Air Insulated Switchgear
ALC	Agricultural Land Classification
ALO	Agricultural Liaison Officer
ANO	Air and Navigation Order
AONB	Area of Outstanding Natural Beauty
APP	Application Document
AST	Assured Shorthold Tenancies
ATC	Automatic Traffic Counts
BCT	Bat Conservation Trust
BEIS	Department of Business Energy and Industrial Strategy
BMV	Best and Most Versatile
BoR	Book of Reference
BT	British Telecom
CA	Compulsory Acquisition
CCS	Construction Consolidation Sites
Cd	Candela
CfD	Contract for Difference
CIA	Cumulative Impact Assessment
CIEEM	Chartered Institute of Ecology and Environmental Management
CION	Connection and Infrastructure Options Note
COCP	Code of Construction Practice
dB	Decibels
DCO	Development Consent Order
DML	Deemed Marine Licence
DMO	Destination Management Organisation
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
EIA	Environmental Impact Assessment
EM	Explanatory Memorandum
EMP	Ecological Management Plan
ES	Environmental Statement
ESC	East Suffolk Council
ESCA	European Subsea Cables Association
ESDAL	Electronic Service Delivery for Abnormal Loads
ETG	Expert Topic Group
ExA	Examining Authority
ExQs	Examining Authorities First Written Questions
FID	Final Investment Decision
FRA	Flood Risk Assessment
GEART	Guidelines for the Environmental Assessment of Road Traffic
GIS	Gas Insulated Switchgear
GLVIA	Guidelines for Landscape and Visual Impact Assessment
Ha	Hectares
HDD	Horizontal Directional Drilling
HE	Historic England
HGV	Heavy Goods Vehicle

HRA	Habitats Regulations Assessment
ICPC	International Cable Protection Committee
IPSIP	In Principle Site Integrity Plan
Km	Kilometres
kV	Kilovolt
LAT	Lowest Astronomical Tide
LCA	Landscape Character Assessment
LCT	Landscape Character Type
LiDAR	Light Detection and Ranging
LIQ	Land Interest Questionnaire
LLFA	Lead Local Flood Authority
LMP	Landscape Management Plan
LPA	Local Planning Authority
LSE	Likely Significant Effects
LVIA	Landscape and Visual Impact Assessment
M	Metres
MCA	Marine Coastguard Agency
MCTC	Manual Classified Turning Counts
MHWS	Mean High Water Sprints
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MoD	Ministry of Defence
MoU	Memorandum of Understanding
MW	Megawatt
MWh	Megawatt Hours
NALEP	The New Anglia Local Enterprise Partnership
NATS	National Air Traffic Service
NCTA	National Coastal Tourism Academy
NE	Natural England
NGET	National Grid Electricity Transmission
Nm	Nautical Miles
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OAMP	Outline Access Management Plan
OCTMP	Outline Construction Traffic Management Plan
OFTO	Offshore Transmission Owner
OLEMS	Outline Landscape and Ecological Management Strategy
OMLP	Outline Management and Landscape Plan
ORJIP	Offshore Renewables Joint Industry Programme
OTP	Outline Travel Plan
PD	Procedural Decision
PEIR	Preliminary Environmental Impact Report
PEMP	Project Environmental Management Plan
PIL	Persons with an interest in Land
PPG	Planning Practice Guidance
PRoW	Public Right of Way
PS	Policy Statements
PTP	Port Travel plan
PVA	Population Viability Analysis
RAG	Red Amber Green
RLoS	Radar Line of Sight
RR	Relevant Representation

RSPB	Royal Society for the Protection of Birds
RTD	Red Throated Diver
RWS	Rijkswaterstaat
SAC	Special Area of Conservation
SCC	Suffolk County Council
SCCAS	Suffolk County Council Archaeology Service
SCHAONB	Suffolk Coats and Heaths Area of Outstanding Natural Beauty
SLVIA	Seascape, Landscape and Visual Impact Assessment
SMP	Shoreline Management Plan
SNS	Southern North Sea
SoCG	Statement of Common Ground
SoS	Secretary of State
SPA	Special protected Area
SPR	ScottishPower Renewables
SSSI	Site of Special Scientific Interest
STEM	Science, Technology and Engineering and Mathematics
SuDS	Sustainable Urban Drainage System
SZC	Sizewell C
TCE	The Crown Estate
TH	Trinity House
TMZ	Transponder Mandatory Zone
TP	Temporary Purchase
TPO	Tree Purchase Order
TWT	The Wildlife Trust
UK	United Kingdom
UKCP	United Kingdom Climate Projections
UXO	Unexploded Ordinance
VP	Viewpoint
WQ	Written Question
WR	Written Representation
WSI	Written Scheme of Investigation
ZTV	Zone of Theoretical Visibility

Glossary of Terminology

Applicants	East Anglia TWO Limited / East Anglia ONE North Limited
Cable sealing end compound	A compound which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Cable sealing end (with circuit breaker) compound	A compound (which includes a circuit breaker) which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Construction consolidation sites	Compounds associated with the onshore works which may include elements such as hard standings, lay down and storage areas for construction materials and equipment, areas for vehicular parking, welfare facilities, wheel washing facilities, workshop facilities and temporary fencing or other means of enclosure.
Construction operation and maintenance platform	A fixed offshore structure required for construction, operation, and maintenance personnel and activities.
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.
East Anglia TWO windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
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.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.

Inter-array cables	Offshore cables which link the wind turbines to each other and the offshore electrical platforms, these cables will include fibre optic cables.
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.
Meteorological mast	An offshore structure which contains metrological instruments used for wind data acquisition.
Mitigation areas	Areas captured within the onshore development area specifically for mitigating expected or anticipated impacts.
Marking buoys	Buoys to delineate spatial features / restrictions within the offshore development area.
Monitoring buoys	Buoys to monitor *in situ* condition within the windfarm, for example wave and metocean conditions.
National electricity grid	The high voltage electricity transmission network in England and Wales owned and maintained by National Grid Electricity Transmission
National Grid infrastructure	A National Grid substation, cable sealing end compounds, cable sealing end (with circuit breaker) compound, underground cabling and National Grid overhead line realignment works to facilitate connection to the national electricity grid, all of which will be consented as part of the proposed East Anglia TWO / East Anglia ONE North project Development Consent Order but will be National Grid owned assets.
National Grid overhead line realignment works	Works required to upgrade the existing electricity pylons and overhead lines (including cable sealing end compounds and cable sealing end (with circuit breaker) compound) to transport electricity from the National Grid substation to the national electricity grid.
National Grid overhead line realignment works area	The proposed area for National Grid overhead line realignment works.
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.
Natura 2000 site	A site forming part of the network of sites made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive.
Offshore cable corridor	This is the area which will contain the offshore export cables between offshore electrical platforms and landfall.
Offshore development area	The East Anglia TWO / East Anglia ONE North windfarm site and offshore cable corridor (up to Mean High Water Springs).

Offshore electrical infrastructure	The transmission assets required to export generated electricity to shore. This includes inter-array cables from the wind turbines to the offshore electrical platforms, offshore electrical platforms, platform link cables and export cables from the offshore electrical platforms to the landfall.
Offshore electrical platform	A fixed structure located within the windfarm area, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which would bring electricity from the offshore electrical platforms to the landfall. These cables will include fibre optic cables.
Offshore infrastructure	All of the offshore infrastructure including wind turbines, platforms, and cables.
Offshore platform	A collective term for the construction, operation and maintenance platform and the offshore electrical platforms.
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.
Platform link cable	Electrical cable which links one or more offshore platforms. These cables will include fibre optic cables.
Safety zones	A marine area declared for the purposes of safety around a renewable energy installation or works / construction area under the Energy Act 2004.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
Transition bay	Underground structures at the landfall that house the joints between the offshore export cables and the onshore cables.
Transmission DML	The deemed marine licence in respect of the transmission assets set out within Schedule 14 of the draft DCO.

ExA. Question Ref.	Question addressed to			ExA. Question	Applicants' Response
1.4 Construction					
1.4.1	The Applicant	1	2	**Timelines** The ES states that 3 years is assumed for onshore construction, with 2 years for construction and 1 year for commissioning. The assessment for cumulative effects states that onshore construction would occur sequentially, with the duration doubling. a) Does this mean that construction of the two projects could take 6 years sequentially? b) Please confirm (with reference to relevant Application Documents) the worst-case construction assumption. Do the application documents reflect this worst-case assumption?	a) An initial high-level indicative programme was developed for the ES and presented in ***Section 6.9*** of ***Chapter 6 Project Description*** (APP-054). This highlight the durations of construction for individual parts of each Project. Activities in different parts of the onshore development area will run in parallel with the longest period required for construction of the substation (30 months). In all, it is expected that the total duration of construction will be three years for one Project. It should be noted that the works for the National Grid substation is expected to be up to 48 months, although this would include works for both Projects. If the Projects were constructed sequentially, back to back, construction would take 6 years. b) For the worst case, each onshore assessment chapter (Chapters 18 – 26 (APP-066 – 074, Chapter 27 (APP-075) and Chapters 29 (APP-077) all have a stand-alone appendix (Appendix X.2 in each case – e.g. 18.2, 19.2 etc) which considers the two potential cumulative scenarios for the Projects on an impact by impact basis for construction. This justifies in each case the worst case for each impact which is then carried across to the impact assessment within the relevant chapter. In many cases the worst case is the same for either scenario. However, for some receptors having multiple disturbance events (i.e. sequential construction) represents the worst case (for example see ***table A22.3 in Appendix 22.2*** (APP-502).

ExA. Question Ref.	Question addressed to			ExA. Question	Applicants' Response
Project Description [APP-054]					
1.4.2	The Applicant	1	2	Paragraph 15 says that *"cables will be routed underground to an onshore substation which will in turn connect into the national electricity grid via a National Grid substation, cable sealing end compounds and a cable sealing end (with circuit breaker) compound to be owned and operated by National Grid. In addition, there will be a requirement to undertake upgrades to the existing pylons within the National Grid overhead line realignment works area. This will require the installation of one additional pylon to allow connection to the national electricity grid via new cable sealing ends."* OWF projects usually plug in to an existing NG substation. To help us understand what is to be constructed at the interface between the proposed onshore underground electrical supply cables (work number 26) and the existing National Grid overhead electricity supply cables, by whom and for whom, please explain a) With reference to	a) The Applicants are seeking consent for all of the works set out in the ***draft DCO*** (APP-023). Thereafter, it is anticipated that the Applicants or a related OFTO would operate all of the works, with the exception of the following works, which it is anticipated will be owned and operated by National Grid: Work No. 38, Work No 39, Work No. 40, Work No. 41, Work No. 42, Work No. 43, and associated development, all as provided for in paragraph 2 of Schedule 1 Part 1 of the draft DCO. b) Each Project consists of two linked NSIPs, namely (i) an offshore generating station; and (ii) overhead line realignment works. The proposed offshore generating station is expected to have a capacity of over 100 MW, and it therefore an NSIP under section 14(1)(a) and 15(3) of the 2008 Act. The overhead line realignment works are an installation of an electric line above ground, and are also therefore an NSIP under sections 14(1)(b) and 16 of the 2008 Act. Works Nos. 38 to 40 provide for overhead line realignment works and are an NSIP. Works Nos. 40 to 43 and 34 are associated development, associated with that NSIP. c) The extent of Work No. 43 has been based on preliminary design works undertaken by NGET. Given the linear nature of overhead lines, sufficient access to the entirety of the temporary realignment and permanent realignment areas are required during construction to facilitate their construction. In addition, final detail design has not yet been undertaken, therefore it is necessary to retain flexibiltiy in the siting of the temporary and permanent overhead line realignment works and the cable sealing end compounds. It is noted that the Applicants have reduced the boundary of Work No. 43 by 21.7 hectares as a result of further preliminary design works undertaken by NGET as detailed in the Notice

ExA. Question Ref.	Question addressed to	ExA. Question	Applicants' Response
		sheets 7 through 7l of the Works Plan [AS-003], which works will be owned and operated by this project and which works will be owned and operated by National Grid; b) With reference to sheets 7g through 7l of the Works Plan [AS-003] and to paragraph 2 of Schedule 1 Part 1 of the dDCO [APP-023], why the works numbered 34 and 38 through 43 constitute a separate NSIP; c) With reference to sheets 7l, 8 and 9 of the Works Plan [AS-003] and to paragraph 2 of Schedule 1 Part 1 of the dDCO [APP-023], why the work numbered 43 (temporary working areas for the temporary and permanent realignment works) is the size that it is; d) Why work number 34 has been included in both	of Intent to make any ***Non Material Changes or or Material Changes*** (ExA.AS-1.D1.V1) which has been submitted at Deadline 1. d) Work No. 34 has been included in both paragraph 1 and paragraph 2 of Schedule 1 Part 1 of the ***draft DCO*** as this permanent access road is associated development required for both the offshore generating station NSIP provided for in paragraph 1 of Schedule 1 Part 1, and the overhead line realignment works NSIP provided for in paragraph 2 of Schedule 1 Part 1. e) It is anticipated that National Grid will construct the National Grid Infrastructure. Article 5 of the ***draft DCO*** provides a process whereby the undertaker may transfer any or all of the benefit of the provisions of the DCO to another person. The Applicants intend to use this as the transfer mechanism.

ExA. Question Ref.	Question addressed to			ExA. Question	Applicants' Response
				paragraph 1 and paragraph 2 of Schedule 1 Part 1 of the dDCO [APP-023]? And e) What the transfer mechanism is for works constructed by you but owned and operated by National Grid?	
1.4.3	The Applicant	1	2	Paragraph 17 refers to two cumulative assessment scenarios which are described briefly in paragraph 18. • How are overlapping programmes covered by these two scenarios?	Paragraph 18 introduces the two scenarios. In terms of how these are reflected in the project description, ***Appendix 6.4 Cumulative Project Description*** (APP-453) provides a full comparison of infrastructure footprints etc. The tables from ***Appendix 6.4*** (APP-453) are then used to inform the cumulative worst case for each receptor topic. Each receptor topic chapter has a stand-alone appendix (Appendix X.2 in each case – e.g. 18.2, 19.2 etc) which considers the two potential cumulative scenarios for the Projects on an impact by impact basis for construction. The two scenarios presented cover the two extremes of construction scenarios possible. Temporally – Parallel construction results in the shortest possible duration. This can either result in a best case (e.g. in relation to the shortest overall duration of an effect) or a worst case (e.g. in relation to traffic the worst case is a result of having the most vehicles in the shortest time). Sequential construction results in the longest possible duration (whether construction is back to back or there is a gap). This can either result in a worst case (e.g. overall duration of disturbance to residents) or a best case (e.g. in

ExA. Question Ref.	Question addressed to			ExA. Question	Applicants' Response
					relation to traffic the vehicle numbers are spread over a greater time, reducing daily peaks). For the two examples given above, any scenario in between parallel of sequential construction (i.e. partial overlap) remains with the assessment envelop (i.e. partial parallel and partial sequential construction). In some cases the assumptions used in the project alone assessment are so precautionary that cumulative impacts can be no worse than project alone under either scenario. For example (***Appendix 22.2 Onshore Ecology CIA*** (APP-502) ***section 22.3.3, para 20*** *"The assessment for proposed East Anglia TWO project alone assumes that all the improved grassland (6.4ha) and all the semi-improved grassland habitat (9.4ha) within the onshore development area could be temporarily impacted by the construction of a single project (with a footprint of 77ha) as the worst case scenario. The addition of the proposed East Anglia ONE North project cannot increase the total area of grassland within the onshore development area therefore the project alone worst case cannot be exceeded."* The Applicants are confident that, given that there are no blanket assumptions over the worst case and each impact in each receptor topic has been considered individually, that the worst case has been assessed in every case. The Applicants recognise that some clarification may be useful regarding ***Appendix 6.4*** and a revised version will be submitted at Deadline 3.
1.4.4	The Applicant	1	2	Paragraph 18 states that "for the onshore infrastructure Scenario 2 assumes construction of the first project and full reinstatement … followed by construction of the	No. There is no such consideration of scenarios for the offshore receptors. It is assumed that the Projects could be constructed sequentially or in parallel. However, there are certain exceptions to activities which would be undertaken in parallel. For example, the Applicants have committed to no concurrent piling or unexploded ordinance (UXO) detonation between the Projects if both are

ExA. Question Ref.	Question addressed to			ExA. Question	Applicants' Response
				second project." • Does the same apply to the offshore assessment?	constructed at the same time. The underwater noise impacts assessed for marine mammals therefore include consideration of all other noise sources from construction from East Anglia ONE North whilst East Anglia TWO is piling (or clearing UXO) – see ***Information to Support Appropriate assessment*** (APP-043) ***Table 5.43*** Quantified In-Combination Assessment for the Maximum Potential Disturbance of Harbour Porpoise in the North Sea MU and SNS SAC Summer and Winter Areas from Underwater Noise during Construction at East Anglia TWO.
1.4.5	The Applicant	1	2	Paragraph 21 states that there will be "the addition of up to one new pylon in close proximity to existing overhead pylons." a) Please confirm that this additional pylon is permanent and state where within work number 41 it will be located; b) Given that there are to be temporary realignment works, will an additional temporary pylon or pylons be required? c) If so, where within work number 40 will such additional temporary pylon or	***a)*** ***Section 6.7.9.1.2 - National Grid Overhead Line Realignment Works*** **of *Chapter 6 Project Description*** (APP-054) describes the National Grid works to be undertaken. ***Table 6.30*** of ***Chapter 6 Project Description*** refers to one additional pylon. This is one new permanent additional pylon which will be positioned within Work No. 39. ***Table 6.30*** also refers to up to three reconstructed and/or relocated pylons which will also be located within Work No. 39. Work No. 39 is defined within the ***draft DCO*** (APP-023) as *"replacement, upgrade and realignment works to the overhead line pylons in the vicinity of Work No. 38 together with up to one new additional overhead line pylon to the north west of the national grid substation comprised within Work No. 41".* ***b)*** The precise location of the new permanent pylon will be established during the detail design stage and will be influenced by the final footprint of the National Grid substation, overhead line alignment design, clearance distances required from other equipment such as cable sealing end compounds; and constructability assessments to ensure safe construction of the new pylon. owever, ***Figure 29.11a - Outline Landscape Mitigation Plan (OLMP) General Arrangement*** (APP-401) of the Applications provides a

ExA. Question Ref.	Question addressed to	ExA. Question	Applicants' Response
		pylons be located? And d) has this been included in the assessment?	reasonable assumption as to the location of these permanent pylons, with the new pylon located adjacent to the cable sealing end (with circuit breaker) compound on the northern overhead line; one reconstructed and/or relocated pylon located on the northern overhead line to the south west; one reconstructed and/or relocated pylon located on the northern overhead line to the east; and one reconstructed and/or relocated pylon located on the southern overhead line at the approximate mid-point of the National Grid substation. ***c)*** ***Table 6.30* of *Chapter 6 – Project Description*** (APP-054) refers to the maximum number of temporary masts or pylons (being four, with up to two in place at any time). ***Section 6.7.9.1.2.2 - Construction of Temporary Diversion for Northern Overhead Line Circuit and Section 6.7.9.1.2.4 - Temporary Diversion and Works on the Southern Overhead Line of Chapter 6 – Project Description*** (APP-054) describes the temporary diversion works. ***Paragraphs 493 and 510*** of ***Chapter 6– Project Description*** also note that there is the potential for the use of an existing pylon, although this will only be determined at the detailed design stage. The precise location of the temporary permanent pylons will be established during the detail design stage and will be influenced by the final footprint of the National Grid substation, overhead line alignment design, clearance distances required from other equipment such as cable sealing end compounds; and constructability assessments to ensure safe construction of the new pylon. Permanent and temporary pylons have been included in the assessment. In particular, please note ***Table 29.2 - Realistic Worst Case Scenarios* of *Chapter 29 Lqandscape And Visual Impact Assessment*** (APP-077).

ExA. Question Ref.	Question addressed to			ExA. Question	Applicants' Response
1.4.6	The Applicant	1	2	Table 6.2 shows the various wind turbine and met mast foundation type options. Please a) confirm that paragraph 36 also refers to met masts; b) summarise the advantages and disadvantages of each foundation type; and c) explain which of the five is/are your preferred option(s) for this project and why.	a) Paragraph 36 refers to the wind turbine layout used in the SLVIA and therefore does not refer to met masts. b) Through the Rochdale Envelope approach the Applicants have assessed the worst case aspect of each foundation typology relevant to each respective impact for each respective receptor. Could the ExA clarify in what context advantages and disadvantages applies? c) At this stage, the Applicants are not able to commit to a preferred foundation type as this is something that is determined during detailed design and procurement. If this situation changes during the examination, the Applicants will update the ExA.
1.4.7	The Applicant	1	2	Table 6.2 shows the windfarm site area as 208km2 with one met mast, and paragraph 113 says that *"there is the potential for one meteorological mast… to be installed …"*. Please explain a) why one meteorological mast is sufficient; b) how you will ensure that the performance of any associated equipment is not affected	a) A single met mast is considered sufficient to support wind and metocean measuring equipment to inform operational logistics. b) There are no anticipated interference issues. c) The met mast would be incorporated in the windfarm layout, respecting the same separation distances as the wind turbines, the minimum of which are set out in the ***Chapter 6 – Project Description*** (APP-054) as: • in-row spacing – 800m; and • inter-row spacing – 1,200m.

ExA. Question Ref.	Question addressed to			ExA. Question	Applicants' Response
				by electrical interference; and c) what will be its separation distance.	
1.4.8	The Applicant	1	2	Plate 6.1 shows the key dimensions of the proposed offshore wind turbines. a) What is the difference in depth between Lowest Astronomical Tide and Mean High Water Spring? b) How does this vary across the array area? And c) How is it expected to vary over the life of the project?	a) Lowest Astronomical Tide is up to 1.5m lower than Mean High Water Springs (MHWS) in the East Anglia TWO windfarm site and up to 0.93m lower than MHWS in the East Anglia ONE North windfarm site b) There is anticipated to be little variation (<0.5m) in lowest astronomical tide (LAT) or MHWS across the array areas. c) There is anticipated to be little variation in LAT or MHWS over the life of the Projects.
1.4.9	The Applicant	1	2	Paragraph 35 states that the worst case layout is that with fewer larger turbines, and that for tip heights between 250m and the 300m maximum the number of turbines could vary between the maximum number stated in the DCO and the lower number stated for the 300m maximum tip height. • Explain how you would	The worst case varies between receptor topics and sometimes within topics for different impacts. The example cited of fewer and larger was determined to be the worst case for seascape effects whereas for shipping and navigation risk the largest number of structures is the worst case (irrespective of size). The approach taken is therefore to look at each impact individually and determine the worst case for that assessment. For example, the worst-case footprint on the seabed for turbines is determined by a combination of the number of turbines and largest of each potential foundation type. In this example, the largest footprint for a foundation type is the gravity base structure. The footprints are scaled up to the maximum number of each

ExA. Question Ref.	Question addressed to			ExA. Question	Applicants' Response
				calculate the number of turbines so as to ensure that it lies within the Rochdale Envelope.	indicative models (250m and 300m) to determine which is the worst and the impact assessment done on that footprint. Assuming that the impact is not significant (and would require mitigation), this provides an allowable threshold for impact for that parameter. In the procurement process, the potential project designs are judged against each of these parameters and must fit within the assessed envelope. The Design Plan provides the detail of each parameter and must be approved by the Marine Management Organisation (MMO) in consultation with Trinity House and the Maritime and Coastal Agency (MCA) as secured under Conditions 17(1) of the Generation Deemed Marine Licence (DML) and 13(1) of the Transmission DML respectively.
1.4.10	The Applicant	1	2	Paragraph 49 describes the overall installation methodology for pre-piled jackets and paragraph 50 describes the sequence for post-piled jackets: bullet point 7 of paragraph 50 says *"Pin piles driven to depth using pilling hammer"* (sic). Paragraph 101 lists the key stages of steel monopile installation. • What happens if a pile cannot be driven to the target depth?	If a pile is not driven fully to target depth, a thorough assessment would be undertaken before deciding on the next course of action. This would consider the level difference, the actual ground conditions encountered and the possibility of problems with the piling equipment. The assessment might conclude a shorter piling depth is acceptable if actual ground conditions are more favourable than assumed in the original foundation design. However, if the pile needs to be driven further, driving would be attempted again and if necessary a drill may be deployed to drill through the harder geology. In an extreme event the piling location would be abandoned and the pile extracted or cut below seabed level. However, this is considered an extremely low likelihood event at this site because ground conditions are considered favourable for pile driving and there is the contingency available to drill/drive.
1.4.11	The Applicant	1	2	In paragraph 51 you give values of hammer energy considered necessary for pile installation including a maximum value of	a) To date no windfarm developer has installed a 15m diameter monopile. Most information on monopiles comes from early projects where the diameter of piles is significantly smaller than those assessed for the

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				2,400kJ for a 4.6m diameter pin pile. Paragraph 102 states that 4,000kJ would be required for a 15m diameter monopile. In paragraph 52 you quote lower figures relating to the East Anglia ONE OWF. a) Are there any actual values available for monopiles? b) Why are these figures significantly higher than the figures obtained on the East Anglia ONE OWF?	Projects. Dudgeon Offshore Windfarm for example had piles of 7.6m and used a maximum hammer energy of 2,843kJ during installation. The worst case scenario assessed in the Dudgeon ES was 3,000kJ. b) The figures are higher than those obtained at East Anglia ONE for two reasons: • The worst case diameter of pin piles assessed for the Projects are 4.6m, 2.1m larger than those used at East Anglia ONE. • Flexibility within the consent is required in the event that certain areas of the Projects' windfarm sites have ground conditions which require a higher energy to enable pile installation. However, as is demonstrated in paragraph 102, it is highly unlikely that the maximum hammer energy would be required for each foundation.
1.4.12	The Applicant	1	2	Paragraph 60 says that *"There are many possible shapes and sizes being proposed by manufacturers for gravity base structures."*. • Given that new ideas are under development, and that the final form may differ from what is currently proposed, explain how you can be sure that what is actually constructed will be within the Rochdale envelope in respect of environmental assessment.	In the procurement process, the potential project designs are judged against each of the parameters assessed in the EIA, and must fit within the envelope. The Design Plan provides the detail of each parameter and must be approved by the MMO in consultation with Trinity House and the MCA as secured under Conditions 17(1) of the Generation and 13(1) of the Transmission DML respectively.

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1.4.13	The Applicant	1	2	Paragraph 134 mentions a pre-lay grapnel run. a) Is this the offshore equivalent of onshore site clearance? b) Is this before or after commencement as defined in the DCO? And c) Do Tables 6.16 and 6.18 show all known assets to be crossed, and whether each is in service or out of service?	a) This is a useful comparison. The pre-lay grapnel is a large dredge type device that will ensure that cable corridors are free from obstructions. b) This is a post-commencement activity that is undertaken just before cable installation c) Yes, this is correct although now both East Anglia ONE export cables are installed and in service.
1.4.14	The Applicant	1	2	Paragraph 162 refers to cable crossing agreements. How will you proceed in the event that an agreement cannot be reached?	Early engagement with all known offshore cable owners has taken place from Submission of the Preliminary Environmental Information Report (PEIR) in accordance with Section 42 of the Planning Act 2008 from the 11th February 2019. Subsequent engagement with all known offshore cable owners has followed pre-application to confirm the future intent of the Applicants to enter into crossing agreements with these parties. In addition, the Applicants have progressed draft SoCGs to confirm the intent to enter into a future crossing agreement and agree cooperation with those offshore cable owners identified as Energy Undertakers in accordance with Procedural Decision 7 (PD-006). These parties are as follows: • East Anglia ONE Limited (SoCG to be submitted at later dealdine) • East Anglia THREE Limited (ExA.SoCG-34.D1.V1) • Interconnector UK Limited (ExA.SoCG-29.D1.V1 for the East Anglia ONE North project only)

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					• Greater Gabbard OFTO (ExA.SoCG-31.D1.V1) • Diamond Transmission Partners Galloper Limited (ExA.SoCG-12.D1.V2) Offshore telecommunications cable owners are not identified as requiring a SoCG, however have benefited from early engagement from the Applicants including the future intent of the Applicants to enter into crossing agreements with these parties. These parties are as follows: • Interoute Communications Limited • Verizon Communications Inc • BT Group Plc • Centurylink Inc The offshore cable owner cannot be identified for the Hermes North (Aldeburgh to Zandvoort) Telecoms cable (out of service) which is located within the East Anglia TWO order limits. The Applicants completed an investigation into this ownership and submitted the findings that no identifiable ownership could be traced to The Crown Estate (TCE) on the 16th October 2019 and that subsequently, consultation towards a crossing agreement could not be carried out. TCE confirmed that East Anglia TWO could proceed as it saw fit in this instance. In the event that agreement cannot be reached between the Applicants and an offshore cable owner to allow for a signed crossing agreement, the Applicant will look to comply with guidance specified in European Subsea Cables Association (ESCA) Guideline No. 6; The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK

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					Waters[1]. The Applicants will also consult with TCE to confirm that any crossings would be designed and carried out in accordance with International Cable Protection Committee (ICPC) Recommendation 2 (Recommended Routing and Reporting Criteria for Cables in Proximity to Others)[2] and Recommendation 3 (Criteria to be applied to Proposed Crossings between Submarine Telecommunications Cables and Pipelines / Power Cables)[3] to demonstrate commitment to best practice and to seek permission to proceed.
1.4.15	The Applicant	1	2	Paragraph 310 says that *"Cables will be placed directly underground without ducting, although ducting may be used in some or all of the route."*. a) Bearing in mind that there are two projects proceeding side by side onshore, should the onshore cables be laid in ducts throughout, with a view to reducing the construction impacts in the event that the projects are constructed consecutively rather than concurrently? . b) What would be the advantages and	a) The scenario described would reduce impacts, as per the rationale applied to East Anglia ONE and East Anglia THREE. The determining factor in terms of which construction scenario is adopted will be the outcome of the Contract for Difference (CfD) auction, scheduled to be held by the UK Government in 2021 and every two years thereafter. Depending on the auction prices achieved, the auctions could see 1 to 2 gigawatts of new offshore wind being deployed every year in the 2020s. Whilst the precise level of Government funding for each round of future CfD auctions is yet to be announced, it is clear that the Government is continuing to drive the offshore wind sector to reduce costs. Recent CfD auctions have seen significant reductions in the cost of offshore wind projects. In 2015, CfD Round 1 (in which East Anglia ONE successfully secured its CfD), achieved an average clearing price of approximately £117/MWh. In 2017, CfD Round 2 achieved prices as low

[1] European Subsea Cables Association (ESCA) (2016). Guidelines. Available at: http://www.escaeu.org/guidelines/
[2] International Cable Protection Committee. ICPC Recommendation #2, Recommended Routing and Reporting Criteria for Cables in Proximity to Others, Issue 11, 3 November 2015
[3] International Cable Protection Committee. ICPC Recommendation #3, Criteria to be Applied to Proposed Crossings of Submarine Cables and/or Pipelines, Issue 10A, 12 February 2014.

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		c) disadvantages of installing ducts for the second project at the same time as installing the ducts and cables for the first project? And if the onshore works were carried out separately for each project, is it intended that the haul road would remain in place between the construction of the first and second projects?	as £58/MWh. The offshore wind CfD prices for CfD Round 3 in 2019 were lower still at around £40/MWh. All indications are that this downward pressure will continue into the 2021 CfD auction, when the Projects are expected to enter the Round 4 CfD auction. This reduction in CfD strike price represents a significant challenge for the offshore wind sector to reduce construction costs, and is likely to result in only the most competitive projects receiving CfD support and therefore proceeding to construction. Acknowledging the extremely competitive market, in order to ensure the capital cost of both Projects are as competitive as possible, each project must bear its own construction cost. Should only East Anglia TWO be successful in the 2021 CfD auction for example, that project may not be able to carry the significant cost of the duct installation for the East Anglia ONE North project as it would increase the East Anglia TWO construction costs, making the East Anglia TWO project less competitive and potentially jeopardising its ability to secure a CfD in its own right (and vice versa if only East Anglia ONE North was successful in the 2021 auction). In that case, both Projects would progress sequentially (construction scenario 2), with the project that was not successful in the 2021 auction proceeding to construction at a later date once it secures a CfD. The Applicants are currently investigating the possibility of installing ducts for both projects in parallel should the Projects be built sequentially. An update will be provided at Deadline 2. b) If ducts were used for the second project: • Cables would be installed in sections between jointing bays, the worst case assumes 19 jointing bays along the onshore cable route.

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					• The jointing bays would need to be accessed via a haul road. Cables would be pulled through the ducts across the full-length of the onshore cable route. • The advantage would be to reduce the intrusiveness of the cable pulling when compared to open trenching for the second project. The footprint for impacts would be the same as per parallel construction, however some repeated impacts would be avoided or reduced in magnitude for the second project. • There are no disadvantages from this approach in terms of environmental impact. c) Requirement 29 of the ***draft DCO*** (APP-023) requires that any land which is used temporarily for construction of the onshore works and not ultimately incorporated into permanent works or approved landscaping must be reinstated within twelve months of completion of the relevant stage of the works or such other period as the relevant planning authority may approve. The assumption would therefore be that the haul road will be removed and the land reinstated where there is a gap between the construction of the first project and the second project. However, there is scope for agreeing with the relevant planning authority that works are not to be reinstated within the twelve month period. This flexibility is intended to cover the situation where it would make sense (for example, from an environmental perspective) for temporary works to remain in place between the construction of one project and the construction of the second (i.e. where removal and reconstruction of the temporary works may give rise to more impacts than leaving them in place between the construction of the first and second projects might).
1.4.16	The Applicant	1	2	Paragraph 313 says that "The precise location of the jointing bays will be determined during detailed design … at a minimum	a) 55m was calculated as the minimum acceptable distance from residences for the avoidance of construction activities relating to jointing bays. The calculations were based upon a residential property within

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				of 55m from residential dwellings." a) What factors govern the choice of 55m as a minimum distance? b) Will any part of a bay be at or close to ground level, such as to impede or damage agricultural plant or equipment? c) Will there be any infrastructure associated with the joint bays (e.g. link boxes or location markers) which will be at or close to ground level? d) If so, will such infrastructure be clustered so as to minimise the impact on the use of the land?	Category A (as set out within BS5228:2009 +A1:2014 Part 1, ABC Method) at night being exposed to noise levels no greater than 45dB. In addition to the plant, the use of mitigation in the form of temporary or movable acoustic barriers that could achieve a reduction of 10dB was also incorporated in the calculation of the setback distance. b) The jointing bays will be buried with a depth of cover of approximately 1.2m. Adjacent to each jointing bay will be two link boxes. The link boxes will also be buried, but will require surface level access covers to provide for maintenance and testing. Factors such as ease of access from the road network and current land uses will influence the final location of each jointing bay; they will be located adjacent to roads and field boundaries as far as is practicable. Reinstatement of original land uses along the onshore cable route will be undertaken as far as is practicable. c) The jointing bays will be buried with a depth of cover of approximately 1.2m. Adjacent to each jointing bay will be two link boxes. The link boxes will also be buried, but will require surface level access covers to provide for maintenance and testing. d) The link boxes and access covers will be the only near surface / ground level infrastructure at each joint bay. As noted in paragraph 314, the worst case assumption for jointing bays is 19 in total, each located at 500m intervals. The exact locations are yet to be determined.
1.4.17	The Applicant	1	2	Paragraph 329 states that *"Post construction, a permanent cable corridor easement of approximately 20m in width is anticipated …"* except for where a wider corridor is needed, for example where HDD is used, and Plate 6.20 shows an	a) Within the permanent cable corridor easement there is space for spoil storage where any digging is required to access the cable for maintenance. b) The same permanent easement width is required if the cables are laid directly or in ducts and what is being sought is comparable with similar schemes.

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				indicative arrangement. Please explain a) whether the space for spoil storage is still required in case a cable has to be dug up and replaced in service; and b) whether 20m is still necessary if ducting were to be used.	
1.4.18	The Applicant	1	2	Table 6.25 lists all the locations where the onshore cable route crosses the public highway and paragraph 366 says that *"some crossing locations will require … special crossing techniques …"*. Paragraph 368 says that *"the use of an onshore HDD … is only for consideration … where the onshore cable route crosses the Leiston- Aldeburgh SSSI/Sandlings SPA. However, an open-cut crossing technique is … preferred"* a) Please provide an onshore crossing schedule and plan giving, for each obstacle to be crossed by the cables, an ID, sheet number, type	a) The Onshore Crossing Schedule can be found in Appendix 7 of this document. b) It is intended that open trenching be used in all cases where the cable route crosses the public highway. The process for open trenching for road crossings, which will maintain traffic use at all times, is described in ***Chapter 6 Project Description*** (APP-054) sections **6.7.3.10.4** & **6.7.3.10.5**. The Applicants therefore do not consider that trenchless techniques are necessary to cross these roads in this instance. c) The EIA and ***draft DCO*** provide for either a trenchless and open-trench solution at the SPA crossing. The ***Outline SPA Crossing Method Statement*** (ExA.AS-3.D1.V1) which has been submitted at Deadline 1, provides more information. This crossing is the subject of ongoing discussion with the LPAs, Natural England and the RSPB. *d)* The ***Outline SPA Crossing Method Statement*** presents and justifies the Applicants' preferred solution for crossing the SPA, which is the open trench technique.

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				and description of obstacle (eg woodland, hedgerow, highway, public right of way, footpath, river, utility) and your proposed crossing method. b) Is it intended that trenchless techniques be used where the onshore cable route crosses the public highway to minimise impacts on traffic and access to property? c) Is it intended that trenchless techniques be used where the onshore cable route crosses the Leiston-Aldeburgh SSSI/Sandlings SPA? d) If not, please explain what technique you intend to use and why.	
1.4.19	The Applicant	1	2	Paragraph 343 mentions structural works to accommodate Abnormal Indivisible Loads" at Marlesford Bridge. a) What works are intended? b) How will the works be	a) Abnormal indivisible load movements associated with delivery of the Projects' transformers will come from either Felixstowe port or Lowestoft port. If the movements originate from Felixstowe, it may be necessary to undertake works to strengthen the A12 River Ore crossing. The need to strengthen the crossing would be further investigated once the chosen port is adopted. These investigations would consider if the crossing could accommodate the load (once the final loading is known) or if accommodation works will be required. Should accommodation works be

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				undertaken safely and without disrupting traffic on the A12? And c) will the works be temporary or permanent?	required, the form of works would need to be agreed with SCC. It is likely that there will be potential for less disruptive mitigation (e.g. overbridging) that will not require substantial works durations. b) As the scope of works is unknown at this stage and the scale of traffic management is to be determined, is it proposed that the ***Construction Traffic Management Plan*** (secured by Requirement 28 of the ***draft DCO*** (APP-023)) includes a commitment to consider the traffic delay as part of the detailed design work, including any required mitigation measures. As part of this process there will also be a requirement to agree the form of traffic management measures and satisfy SCC in their duty under the Traffic Management Act 2004 to ensure traffic moves freely and quickly on their roads. c) As their scope is unknown at this stage, it is not possible to assert how permanent any works may need to be.
1.4.20	The Applicant	1	2	Paragraphs 464 and 465 describe the construction of the foundations for the onshore substation, noting that dewatering of excavations may be required. • Please explain how your proposals will not impact on water quality or water supply, or cause or exacerbate flooding.	With regards to impacting on water quality and supply, construction of the onshore substation (including foundations) will be in accordance with the Applicants' final Code of Construction Practice (CoCP). This must be provided by the Applicants and approved by the relevant planning authority under Requirement 22 of the ***draft DCO*** (APP-023). Outline measures with regards to water quality and supply are provided in ***section 11*** of the ***Outline Code of Construction Practice*** (APP-578). Embedded mitigation in relation to surface water runoff and flood risk is presented within ***section 20.3.3*** and ***Table 20.3*** of ***Chapter 20 Water Resources and Flood Risk*** (APP-068). Issues pertinent to construction phase drainage, including consideration of surface water runoff, will be managed through the development and implementation of a Surface Water and Drainage Management Plan to be submitted post-consent as part of the CoCP, as secured under the requirements of the ***draft DCO*** (APP-023). This

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					must be approved by the relevant planning authority before works can commence. The Surface Water and Drainage Management Plan will secure measures which limit discharges to a controlled rate (equivalent to the greenfield runoff rate) and ensure that any redirected overland flow routes do not cause an increase in offsite flood risk. The CoCP will also include silt control measures (e.g. silt fences at soil storage areas) to intercept sediment runoff and prevent it from entering the water environment.
1.4.21	The Applicant	1	2	Section 6.7.9 describes the National Grid Infrastructure as *"A new National Grid substation and National Grid overhead line realignment works …"* and paragraph 482 says that the substation may be either AIS or GIS. In respect of the East Anglia onshore substation, paragraph 428 states that *"The onshore substation will be … gas insulated switchgear (GIS)."* and Table 6.27 indicates a maximum building height of 15m. Furthermore, item 5 of Table 4.1 of chapter 4 of the ES [APP-052] says that the decision to use GIS rather than AIS *"is that it allows for a lower building height*	NGET is subject to a duty under section 9(2)(a) of the Electricity Act 1989 "to develop and maintain an efficient, co-ordinated and economical system of electricity transmission." NGET have developed internal processes and controls, including design reviews and approval processes, in order to satisify this duty and provide an auditable process for Ofgem. NGET will progress their design options post consent in order to determine the final technology to be used, and will incorporate any constraints within the Projects' DCOs in this decision making process.

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				…minimising the visual impacts.". Given that you have clearly opted for GIS for the East Anglia onshore substation, please explain why the type for the National Grid substation is not decided.	
Outline Code of Construction Practice [APP-578]					
1.4.22	The Applicant	1	2	Table 1.1 states that a Watercourse Crossing Method Statement will be produced as part of the final Code of Construction Practice secured through the DCO. Please explain whether a) watercourses will be crossed using HDD or other trenchless technique to minimise the risk of pollution; and b) the relevant parts of this Method Statement will apply to all crossings and not just watercourses.	a) The Applicants will submit an Outline Watercourse Crossing Method Statement at Deadline 3. This will provide indicative information on the watercourses to be crossed, the different types of crossing that will be used as part of the onshore construction works and details of proposed methods of crossing. The method statement will also detail indicative control measures which will be implemented to safeguard surface water quality and ensure no adverse impacts occurs on local drainage, flood risk or fisheries. b) This method statement will apply to the Hundred River and other watercourses only.
1.4.23	The Applicant	1	2	Bullet point 3 of paragraph 11 mentions *"potential HDD"*. With reference to the crossing schedule requested in an earlier question, at crossing points where HDD is not proposed,	An Onshore Crossing Schedule can be found in Appendix 7 of this document. Note that all crossings within this are open-trench with the exception of the Leiston-Aldeburgh SSSI/Sandlings SPA. Bullet point 3 refers to the Leiston-Aldeburgh SSSI/Sandlings SPA crossing.

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				please a) state the method you intend to use; b) explain why you have selected that particular method; and c) explain what happens post consent if the method you have selected proves to be unsuitable.	a) The EIA and DCO provide for both a trenchless and open-trench solution at the SPA crossing. ***Outline SPA Crossing Method Statement*** (ExA.AS-3.D1.V1) which has been submitted at Deadline 1, provides more information. This crossing is the subject of ongoing discussion with the LPAs, Natural England and the RSPB. b) Both methods have been put forward. **Chapter 6 Project Description** (APP-054) section 6.7.3.10 describes the two methods as does the ***Outline SPA Crossing Method Statemen*** submitted at Deadline 1. Although it avoids direct impact upon the designated site, the Applicants believe that HDD is more impactful overall and is a less practical solution (in terms of plant required, duration of works, delivery risk etc) hence the Applicants' preference for open trench. c) There is no indication that either method would be problematic at this location
1.4.24	The Applicant	1	2	With reference to oral submissions at OFHs 1 – 3 (7 – 9 October) raising concerns about the extent of road closures and diversions likely to be caused by cable trenching, the Applicant is requested to respond to these points, and comment on the possible use of HDD to mitigate this particular construction effect. Can HDD be used to further limit the extent of diversions due to road crossings?	Within ***Table 26.4, Chapter 26 Traffic and Transport*** of the ES (APP-074), the Applicant has committed to no roads being fully closed to install the Projects' cables under the public highway. The Applicant will therefore ensure that the B1122 Aldeburgh Road will remain open at all times and minimise disruption by implementing the following measures (if required): • The road crossings will be completed in two stages maintaining one traffic lane in each direction; • Traffic will be controlled through temporary traffic signals; • A safe route will be maintained for pedestrians through the works area along the B1122l. • The Applicant will consult with the relevant highway authority and local stakeholders to develop a final Travel Plan as part of the

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					discharge of requirements process. This will accord with the ***Outline Travel Plan*** (APP-588) in line with Requirement 28 of the draft DCO. • Advanced signing will be implemented to assist drivers in finding alternative routes; and • The works will be staggered (i.e. not closing a lane on the B1122 at the same time as the B1069). The Applicants note that the onshore cable route does not cross Sizewell Gap and therefore this road will not be affected as a result of trenching works. As per their response to question 1.2.66, the Applicants consider that there is insufficient lateral space to accommodate a trenchless crossing methodology at the B1122 crossing.
1.4.25	The Applicant	1	2	Paragraph 17 mentions stages of construction works. a) What stages are envisaged? And b) how and where are these defined in the DCO?	The Applicant has not yet defined the stages of construction works. This will be undertaken post-consent in order to discharge Requirement 11 of the ***draft DCO*** (APP-023), which requires a written scheme setting out the stages of the respective onshore works to be submitted to, and approved by the relevant planning authority before the onshore transmission works or grid connection works can be commenced.
1.4.26	The Applicant	1	2	In the seventh bullet point of paragraph 19 you state that *"parties involved… have, where appropriate, a … Preconstruction Information document and Health and Safety Plan …"* a) Please clarify what you mean by "where appropriate": are there instances where	In compliance with the Construction (Design and Management) Regulations 2015, pre-construction information will be provided by the Applicants to each designer and contractor appointed to the Projects for onshore or offshore works. The information provided will be relevant to the particular element and stage of the Projects in which they are involved. For design services in early phases of the Projects, all relevant project/task information, including health and safety, will be provided. A "Health and Safety Plan" may not be relevant for early design activities.

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				parties will not have a Preconstruction Information document and/or a Health and Safety Plan? b) If so please explain why.	For all construction activities, a Construction Phase Plan will be developed by the Principal Contractor before construction begins to address how Health and Safety will be managed for the works.
1.4.27	The Applicant	1	2	In the eighth bullet point of paragraph 19 you state that *"upon completion of construction a suitable and sufficient Health and Safety File is completed and transferred, where appropriate, to the Applicant …"*. a) Is this completion of a stage of construction? b) Does it apply offshore as well as onshore? c) Please clarify what you mean by "where appropriate": are there instances where the Health and Safety File will not be transferred to the Applicant? And d) If so please explain why and what will happen to the Health and Safety File.	In compliance with the Construction (Design and Management) Regulations 2015, a suite of Healthy Safety Files will be produced as the design and construction progresses, to cover all main construction elements of the Projects, both offshore and onshore. When such works are completed, the relevant Health and Safety File will be finalised by the relevant duty holders and returned to the Applicants. The Health and Safety Files will then be used during operation of the Projects to assist in the management of health and safety risks during operation and decommissioning. The Health and Safety File would be prepared, reviewed, maintained and passed to the client all in accordance with Regulation 12 of the 2015 Regulations.
1.4.28	The Applicant	1	2	Paragraph 29 gives information boards and parish council meetings as	The East Anglia TWO and ONE North project website pages are regularly kept up-to-date with information on the projects and the examination and include links through to the Planning Inspectorate website for further detail.

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				examples of communication channels for local community liaison. • Will you also have a regularly updated dedicated website and make use of social media channels?	The Latest News and Press Release area on the websites is also updated with additional news stories about the Projects and ScottishPower Renewables. East Anglia ONE North: https://www.scottishpowerrenewables.com/pages/east_anglia_one_north.aspx East Anglia TWO: https://www.scottishpowerrenewables.com/pages/east_anglia_two.aspx "The East Angle" is a bi-annual newsletter published by ScottishPower Renewables which includes updates and news across the Projects, East Anglia ONE and East Anglia THREE and includes details in relation to local issues such as skills, employment and economy. It is held on the website below in electronic form and publication emails are sent to the distribution lists as well as printed and stocked in public locations (libraries, council offices, shops etc.) across the development area and wider for people to access a copy. https://www.scottishpowerrenewables.com/pages/newsletters.aspx The company social media channels are focused on companywide news and information and are therefore not available for project updates.
1.4.29	The Applicant	1	2	Paragraph 40 says that *"Wherever practicable, appropriate planning and timing of works will be agreed with landowners and occupiers, subject to individual agreements."* a) Will others with an interest	a) This will wholly depend on the nature of the interest, the nature of the works and whether it is appropriate for those parties to be consulted. b) The Applicants would always seek to agree planning and timing of works with the relevant parties where those parties engage on these matters. c) Appropriate planning activities potentially include examples such as the diversion of irrigation mains and pipes or where practical, crop rotation.

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				in the relevant land also be consulted? b) In what instances will it not be practicable to agree planning and timing of works? c) What constitutes appropriate planning?	
1.4.30	The Applicant	1	2	In paragraph 55 you acknowledge that *"some topsoil will have to be reserved for re-covering … at the end of construction."*. a) By "the end of construction", do you mean the end of a stage of construction in the area in question, or the end of the construction of the entire project? b) What measures do you propose to ensure that the soil in question is kept in good condition?	a) The topsoil reserved for re-covering will be when the haul road in the area in question is removed and not the end of the entire project. b) Requirement 22 of the ***draft DCO*** ensures that no stage of the onshore works may commence until for that stage a CoCP has been submitted to and approved by the relevant planning authority. That CoCP must include a soil management plan, which the planning authority would have to approve as part of the CoCP before onshore works could commence. The soil management plan will be developed and will require the production of Method Statements for soil handling. Any soil handling, storage and reinstatement would be undertaken by a competent contractor under Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites
1.4.31	The Applicant	1	2	Paragraph 72 sets out waste management measures as a list of bullet points. The final bullet point says that *"The appointed contractors should identify*	To clarify, this text should read as follows: *'The appointed contractors <u>will</u> identify appropriate staff that are responsible for waste management…'*

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				appropriate staff that are responsible for waste management …". • Surely the appointed contractors will be required to identify competent staff to be responsible for waste management?	The Applicant will ensure this sentence is amended in the updated ***Outline Code of Construction Practice*** (CoCP) (APP-578) to be submitted at Deadline 3.
1.4.32	The Applicant	1	2	Paragraph 76 says that *"A pre-construction land survey would be undertaken by a qualified Agricultural Liaison Officer (ALO) …"* a) Should the land survey be undertaken before site clearance starts? And b) what are the other duties of the ALO before, during and after construction?	a) A land survey should be undertaken at the appropriate time to establish the baseline condition before works such as site clearance commence. b) The main role an ALO would perform is to act as the liaison between the construction contractors and the landowners or occupiers to keep the landowners abreast of project programme, key activities they expect to be happening on sites; and ensure landowners or occupiers are aware of all health and safety procedures that may be relevant to them.
1.4.33	The Applicant	1	2	Paragraph 77 says that *"The contractor would be required to comply with the SMP"* (Soil Management Plan). The final bullet point says that *"In circumstances where construction has resulted in soil compaction, further*	The Applicants have been and continue to discuss practical site matters such as these with landowners, occupiers and their representatives. a) From the Applicants' practical experience of where soil compactions does occur, in some cases this can simply be determined and the remediation strategy agreed between the Applicants and the landowner or occupier. There are other occasions where the use of independent specialists and soil testing

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				remediation may be provided, through an agreed remediation strategy". a) How and by whom will it be determined whether soil compaction has occurred? b) Surely remediation will be offered? And c) with whom will the remediation strategy be agreed?	may be required to determine the extent of any soils compaction and agree the remediation strategy. b) If remediation was practical and agreed between both parties then the Applicants would support this approach. c) The Applicants would agree the remediation with the landowner or occupier, their representatives and an independent specialist if one was required.
1.4.34	The Applicant	1	2	Paragraph 79 says in respect of noise and vibration management that *"a programme of monitoring may be required."* and paragraph 85 says that *"If it is deemed by the Local Planning Authority that during construction monitoring of construction noise is necessary, then the locations of such monitoring will be agreed in advance with the Local Planning Authority."*. a) Surely a programme will be required on a project of this scale in order to optimise mitigation? And b) should the programme start with baseline measurements taken	It is the Applicants' understanding that the monitoring methodology set out within the ***Outline CoCP*** (APP-578) will only be implemented where issues arise (i.e. in the event of the Project receiving a noise complaint) or where noisy construction activities are anticipated to be undertaken in close proximity to noise sensitive receptors. The measures in relation to noise set out within the final approved CoCP prepared post-consent and in accordance with the ***Outline CoCP*** (APP-578) will be based upon the detailed design of the Project and the construction methods to be employed by the appointed contractor. The Applicants do not consider it appropriate to commit to monitoring at this time, when the worst case construction noise assessed and presented within ***Chapter 25 Noise and Vibration*** of the ES (APP-073) may not materialise during construction. The Applicants will consult with the relevant planning authority through the post-consent stage when discharging requirements and throughout construction to establish the requirement for site-specific monitoring. Requirement 22 of the ***draft DCO*** (APP-023) includes the preparation of a construction phase noise and vibration management plan as part of the CoCP, which must be approved before works commence.

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				before site clearance starts?	
1.4.35	The Applicant	1	2	Paragraph 79 says in respect of noise and vibration management that *"a programme of monitoring may be required."* and paragraph 85 says that *"If it is deemed by the Local Planning Authority that during construction monitoring of construction noise is necessary, then the locations of such monitoring will be agreed in advance with the Local Planning Authority."*. a) Given the size and nature of the project, do you deem monitoring to be necessary? and, if so b) Should monitoring commence with baseline measurements; and, if so c) when should baseline measurements commence?	The Applicants reiterate that they deem construction noise monitoring to only be necessary should issues arise (i.e. in the event of the either Project receiving a noise complaint) or where noisy construction activities are anticipated to be undertaken in close proximity to noise sensitive receptors. The Applicant will consult with the relevant planning authority through the post-consent stage when discharging requirements and throughout construction to establish the requirement for site-specific monitoring. Requirement 22 of the ***draft DCO*** (APP-023) includes the preparation of a construction phase noise and vibration management plan as part of the CoCP, which must be approved before works commence. The Applicant considers that the baseline noise levels presented in ***Section 25.5, Chapter 25*** (APP-073) and ***Appendix 25.3*** (APP-524) represent an acceptable baseline for which construction phase noise monitoring would be compared with at the most representative noise sensitive receptor location in relation to the site subject to the issue identified.
1.4.36	The Applicant	1	2	Paragraph 104 says that the crossing of the Hundred River will be a trenched crossing, requiring a temporary bridge or culvert for the haul road, and temporary dams, flumes and pumps to minimise upstream impoundment	Please refer to the answers provided for question 1.2.66.

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				and maintain flows downstream, all with the attendant risk of flooding and surface water pollution. • Please explain why trenchless methods such as HDD are not proposed for this crossing.	
1.4.36	The Applicant	1	2	**Construction Consolidation Sites** The Design and Access Statements [APP-580] refer to the provision of Construction Consolidation Sites (CCS). Can the Applicants confirm: a) Would there be one CCS for both projects or one for each proposal? b) Would the proposed National Grid Substation require a separate CCS? c) Explain how CCS's will be provided under the following scenarios: (a) sequential delivery of the two projects; and (b) parallel delivery?	Each Project will have seven CCSs in total - one at the landfall, five along the onshore cable route and one at the onshore substation, which may be further split into smaller CCS footprints. The size of the CCSs must accord with the following criteria: • The footprint of each Project's landfall CCSs must not exceed 7,040m^2 under scenario 2 (i.e. sequential construction of the Projects) or 14,080m^2 under scenario 1 (simultaneous construction of the Projects); • The combined footprint of each Project's onshore cable route CCSs must not exceed 36,580m^2 under scenario 2 or 73,160m^2 under scenario 1; and • The combined footprint of each Project's onshore substation CCS must not exceed 17,100m^2 under scenario 2, or 34,200m^2 under scenario 1. The combined area of each Project's onshore cable route CCS's must not exceed 36,580m^2. The National Grid substation would have its own CCS, comprising an area not exceeding 23,350m^2.

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					Under scenario 2, the first Project's CCS will be located within the construction footprint of the other Project's onshore substation. The onshore substation CCS of the second Project being constructed will be located outside of the onshore substation footprints, in an illustrative location as shown on ***Figure 6.6i*** (APP-101). Two CCSs would be required under scenario 1 (one for each Project), which would be located outside of the onshore substation construction footprint but within the Order limits, in an illustrative location as shown on ***Figure 6.6i*** (APP-101). These CCS, may be split into smaller CCSs so long as the total footprint does not exceed 17,100m^2 per Project.
1.4.37	The Applicant	1	2	**Cable corridor widths onshore** ES Appendix 6.4 'Cumulative Project Description' [APP-453] states that the onshore cable route width would generally be no wider than 64m if the two projects were constructed concurrently i.e. 32m for each project. However, R12(14) refers to the following working widths: a) where the cables cross the Sandlings SPA the working width of the onshore cable route must not exceed— (i) 16.1 metres, in the event that open cut trenching is used; (ii) 90 metres, in the	All working widths listed in Requirement 12(14) are correct for a single project in either construction scenario. Further explanations for these working widths is set out in sections 6.7.3.1.1 and 6.7.3.1.2 of ES ***Chapter 6 Project Description*** (APP-054). How reduced working widths are applied in either construction scenario is set out in Table A6.1 in ES ***Appendix 6.4*** (APP-453). The Applicants recognise that some clarification may be useful regarding ***Appendix 6.4*** and a revised version will be submitted at Deadline 3.

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				event that a trenchless technique is used. b) where the cables cross the Hundred River the working width of the onshore cable route must not exceed 50 metres c) where the cables cross the woodland to the west of Aldeburgh Road the working width of the onshore cable route must not exceed 16.1 metres; d) where the cables cross an important hedgerow specified in Part 2 of Schedule 11 the working width of the onshore cable route must not exceed 16.1 metres; and e) where the cables are within 418 metres of a transition bay forming part of Work No. 8, the working width of the onshore cable route must not exceed 190 metres. f) Can the Applicant please confirm if the above	

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		maximum working widths apply to both concurrent and sequential construction scenarios? E.g. where cables cross the Hundred River would the working width be 50m in both scenarios or 100m if constructed concurrently. g) Please provide an updated Cumulative Project Description document to reflect your response.	