

Norfolk Boreas Offshore Wind Farm Written Summary of the Applicant's Oral Case at Issue Specific Hearing 3

Onshore effects including the draft Development Consent Order

Applicant: Norfolk Boreas Limited
Document Reference: ExA.ISH3.D4.V1
Deadline 4

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Photo: Ormonde Offshore Wind Farm

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
29/01/2020	01D	First draft for Deadline 4	JT	VR	JL
30/01/2020	01F	Final draft for Deadline 4	JT	VR	JL



Glossary of Acronyms

AEoI	Adverse Effect on Integrity
CIA	Cumulative Impact Assessment
CRM	Collision Risk Modelling
dDCO	Draft Development Consent Order
DCO	Development Consent Order
DML	Deemed Marine Licence
EA	Environment Agency
EIA	Environmental Impact Assessment
EIFCA	Eastern Inshore Fisheries and Conservation Authority
ES	Environmental Statement
ExA	Examining Authority
HDD	Horizontal Directional Drilling
HHW	Haisborough, Hammond and Winterton
HRA	Habitats Regulations Assessment
ISH	Issue Specific Hearing
MMO	Marine Management Organisation
OCoCP	Outline Code of Construction Practice
OLEMS	Outline Landscape and Ecological Management Strategy
OWF	Offshore Windfarm
PPG	Pollution Prevention Guidance
PVA	Population Viability Analysis
RR	Relevant Representations
RSPB	Royal Society for the Protection of Birds
sCRM	stochastic Collision Risk model
SAC	Special Area of Conservation
sCRM	Stochastic Collision Risk Modelling
SIP	Site Integrity Plan
SNS	Southern North Sea
SoCG	Statement of Common Ground
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

Written Summary of Oral Submissions: ISH 3 Onshore effects including the draft Development Consent Order

- 1.1 Issue Specific Hearing (**ISH**) 3 on Onshore effects including the draft Development Consent Order for Norfolk Boreas took place on 21 January 2020 at 10:00am at Blackfriars Hall, St Andrew’s Plain, Norwich NR3 1AU.
- 1.2 A list of the Applicant’s participants that engaged in the ISH can be located at Appendix 1 of this note.
- 1.3 The broad approach to the ISH followed the form of the agenda published by the Examining Authority (the **ExA**) on 14 January 2020 (the **Agenda**).
- 1.4 The ExA, the Applicant, and the stakeholders discussed the Agenda items which broadly covered the areas outlined below.

Item	ExA Question / Context for discussion	Applicant's Response
AGENDA ITEM 2 – Traffic and Transport		
a) Cawston		
i.	To understand the background to the matters raised in the Norfolk Vanguard letter [REP3-012]	<p>The Applicant explained the background to the letter from the Secretary of State (SoS) to the Norfolk Vanguard applicant dated 6 December 2019, which was submitted to the ExA at Deadline 3 [REP3-012]. The deadline for responses to the SoS letter on Norfolk Vanguard is Friday 28 February with comments then invited from interested parties within a further 28 days, if appropriate (paragraph 5). The SoS letter does not set a new deadline for a decision on the Norfolk Vanguard application (paragraph 7), and notification of a new deadline is still awaited.</p> <p>In relation to Hornsea Project Three (HP3), on 17 December 2019 the SoS agreed to a request from the HP3 applicant to extend the period for HP3 to respond to the SoS's letter dated 27 September 2019. Submissions were due by 31 December 2019 but are now due by 14 February 2020. The 31 March 2020 decision deadline will be reset, but no new date has yet been provided (paragraph 9).</p> <p>As the timing of both the Norfolk Vanguard and HP3 decisions is still unknown this is likely to prevent the ExA, the Applicant and the NB stakeholders from being able to focus on aspects which are particularly specific to the Norfolk Boreas Application.</p> <p>The information sought through the SoS letter to the Norfolk Vanguard applicant can broadly be divided into three categories:</p>

		<ul style="list-style-type: none"> (i) information on further mitigation to lessen or avoid any adverse effects on integrity of two SPAs, or alternatively evidence on alternatives, imperative reasons of overriding public interest and in-principle compensatory measures; (ii) further information on specific mitigation solutions to address potential effects of cable protection on SAC features or alternatively, in the absence of any identifiable mitigation measures, evidence on alternatives, imperative reasons of overriding public interest and in-principle compensatory measures; and (iii) certain specific questions on DML conditions, DCO requirements or DCO amendments for the Norfolk Vanguard DCO. <p>In the case of (i) and (ii), and noting in particular, in the case of (i) the request to do so "<i>in consultation with Natural England as necessary</i>" and in the case of (ii) the request to do so "<i>in consultation with the Marine Management Organisation and Natural England as necessary</i>" Norfolk Vanguard is currently engaging with both the MMO and Natural England primarily on possible further mitigation for Norfolk Vanguard. In responding to the SoS letter, Norfolk Vanguard will be maintaining its primary position that notwithstanding any further mitigation measures there would be no adverse effect on the integrity of either SPA under (i) above, or the SAC under (ii) above, and hence that issues of alternatives, IROPI and in-principle compensation do not therefore arise.</p> <p>In the case of (iii) the ExA has referred to specific questions throughout the Agenda – in particular regarding traffic and transport, construction effects, and landscape and visual impacts. The Applicant therefore proposes to inform the panel at the appropriate points in the Agenda of the likely line of approach being taken by the Norfolk Vanguard applicant.</p> <p>In relation to traffic, at the close of the Norfolk Vanguard Examination there was a Highways Intervention Scheme, proposed by HP3 and adopted by Norfolk Vanguard, for Link 34 in order to mitigate potential traffic and transport impact through Cawston. The Applicant's understanding is that Norfolk County Council indicated that, although the expectation was that an appropriate scheme could be successfully brought forward, there remained some concerns from Norfolk County Council in relation to the Road Safety Audit (RSA).</p>
ii.	To examine concerns relating to Link 34 (B1145 from the B1149 Holt Road junction, through Cawston village to the eastern town extents of Reepham) including the implications of the Norfolk Vanguard letter [REP3-012]	<p>Concerns have been raised over potential traffic and transport impacts from the use of Link 34 through Cawston particularly regarding the number of HGVs and associated impacts and potential cumulative impacts associated with HP3 and Norfolk Vanguard.</p> <p>Details of the Highways Intervention Scheme (as proposed by HP3 and Norfolk Vanguard) are detailed in Section 4.3.1 of the OTMP [REP1-022] and drawings of the scheme are provided in OTMP Appendix 6 [REP1-024]; the OTMP is secured through draft DCO Requirement 21.</p>

		<p>A Stage 1 Road Safety Audit was undertaken by HP3 for the proposed scheme of mitigation and NCC's own auditors have also reviewed the proposed scheme.</p> <p>A key issue raised during the Road Safety Audit was the width of the carriageway and the implications of the proposed footpath widening. In order to address this concern, topographical survey data has been obtained from Orsted (on behalf of HP3) and the Applicant has reviewed this in order to investigate the concerns raised and any potential implications for the scheme.</p> <p>Other matters raised by the Road Safety Audit were:</p> <ul style="list-style-type: none">• Signing details;• Drainage details;• Potential relocation of the bus stops;• Details of waiting restrictions; and• Clarification that individual parking bays will be marked on the carriageway. <p>It has been agreed with Norfolk Vanguard and HP3 that the Applicant would be taking forward the scheme design to address the concerns raised in the Safety Audit and by NCC.</p> <p>A meeting was held with NCC on the 4th November 2019 to inform officers of these plans and seek their view of potential options to amend the scheme. The Applicant noted the key areas of design focus as the feasibility of the footway widening and the configuration of on-street parking.</p> <p>Following this meeting, a meeting was held with Cawston Parish Council on the 22nd November 2019 to update members of the scheme progress and seek views on options for potential design revisions.</p> <p>A further meeting was held with Norfolk County Council on the 15th January 2020 to update officers on the emerging designs. The feedback received from Norfolk County Council officers was that they are close to 'broad agreement' on the scheme.</p> <p>Amendments to the Highways Intervention Scheme</p> <p>Following the engagement with Norfolk County Council and Cawston Parish Council, the Applicant has developed a revised scheme to be presented for independent Road Safety Audit and submitted to the Examination in accordance with the following timeframes:</p> <ul style="list-style-type: none">• Deadline 4 (30th January 2020) – submit revised scheme drawings to the Examination;• Deadline 5 (26th February 2020) - Independent Road Safety Audit submitted to the Examination. <p>The Applicant has since arranged a meeting with Broadland District Council, Cawston Parish Council and Norfolk County Council, due to take place in mid-February 2020, in order to discuss the amendments to</p>
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		the Highways Intervention Scheme further. The Applicant will then submit a position statement at Deadline 5 on the matters discussed and agreed at the meeting.
iii.	To consider proposals for alternative access arrangements to the cable corridor, including alternative haul route construction methods [REP2-067]	<p>By way of background, during the Norfolk Vanguard examination Cawston Parish Council proposed the use of an upgraded haul road along Vattenfall's cable route between Oulton and the west of Cawston beyond Salle Beck bridge.</p> <p>The Applicant's understanding is that Cawston Parish Council consider that their proposal was dismissed by the Applicant without full consideration.</p> <p>In summary the Applicant has considered the use of the running track for access to MA6, however, as detailed in the assessment of alternatives (Appendix 14.2 [REP2-026]), such an approach would result in a range of additional prolonged impacts. It is in the best interests of the Applicant to minimise the running track materials so far as possible at the time of construction and to do so would also result in a reduction of the currently assessed worst case movements along the B1145. However, at this time, a worst case assessment is required to ensure sufficient consideration of the full potential impacts and to secure associated mitigation.</p> <p>Some of the impacts of the alternatives proposed in more detail are:</p> <ol style="list-style-type: none"> 1. The majority of HGV deliveries along Link 34 to Mobilisation Area 6 are associated with the construction of the running track (delivery of roadstone). These deliveries will have to take place before the section of the running track between the B1149 and the B1145 (the proposed alternative HGV route) can be completed. Therefore, the alternative route proposal would not be available to use as an alternative construction route during the period of peak construction traffic. 2. To allow the alternative route to be available for construction, an approximate 3km running track would be required to be pre-constructed prior to MA6 and duct installation works and retained in situ for a period of up to 4 years if also used for Hornsea Project Three to mitigate cumulative impacts. The assessment in Appendix 14.2 identified a number of impacts and other considerations connected to this which have not been assessed including: <ul style="list-style-type: none"> • Requiring additional land outside of the Order limits; • Norfolk County Council previously indicated that they would not accept any proposal to introduce a new access into the B1149; • Running track would need a more substantial specification to ensure longevity (for example it would likely need to be an increased depth and width and would undoubtedly need to be constructed from aggregate rather than alternatives such as metalised trackway). This would require a greater volume of materials to be delivered and in turn an increase in the number of HGV movements for the purpose of running track construction; • Change in construction methodology with the running track having to be pre-constructed which would compromise the assessed impact on watercourses, flood risk, conservation, topsoil

		<p>management and noise. Such impacts are associated with having to pre-construct the running track and retain it for 3-4 years, such as temporary culverts being installed for a greater period (3-4 years).</p> <p>3. The Cawston Parish Council's alternative route proposal is not consistent with the Applicant's proposed construction method and particularly does not align with the duct installation construction method proposed along the cable route, including the establishment of the running track in 150m sections as the duct installation progresses from MA6 in parallel workfronts to the east and west. This concept is one which was adopted following consultation and provides a form of embedded mitigation.</p> <p>The Applicant has not discounted the use of other construction methods for the creation of the running track which includes temporary trackway, or if ground conditions allow, running on subsoil, which would be the preferred approach.</p> <p>The appropriate running track construction will be determined by ground conditions at the time of construction at the particular location, noting that for a long-standing running track the requirements would have to take into account all potential weather conditions over the extended period. A worst case of 0.3m x 6m fully aggregated track has been accounted for at this time for the purposes of the environmental impact assessment as it is possible that such a method may be required if ground conditions are exceptionally poor. It is in the Applicant's interest to minimise the materials required for the running track whilst maintaining its fitness for purpose. Any reduction in the materials required for the running track, such as use of trackway would have a direct reduction on the number of vehicle movements through Cawston.</p> <p>Over the entire onshore cable route length, it is likely that a mix of running track solutions will be utilised dependent on the local ground conditions at the time that the particular works are planned. Working from a single end along the running track would be contrary to the embedded mitigation construction approach of shortening the time in which the MA is in place and duct installation works are conducted in this area which minimises impact to land. Reducing the timescale and impact to land was a key and early feedback from consultation, following recent experiences with other underground linear schemes in the area.</p>
iv.	To examine in detail the Highway Intervention Scheme referred to by the Applicant [REP1-024, Appendix 6] in relation to mitigation of construction traffic impacts of Hornsea Three and cumulative impacts with Norfolk Vanguard and Norfolk Boreas, including road safety issues and footpath widening	The Applicant notes that this Agenda item was partially covered during the discussions under Agenda Item 2(a)(ii). An Action Point has also been raised for the Applicant to submit the revised Highways Intervention Scheme at Deadline 4. The Applicant has therefore included the Revised Cawston Intervention Scheme with the Deadline 4 submissions (document reference: ExA.AS-2.D4.V1), which addresses Action Point 1 of the list published on 22 January 2020.

v.	To consider further the in combination and cumulative traffic effects should Norfolk Vanguard and Hornsea Three receive development consent. This to include the relevance to the Norfolk Boreas application of the proposed amendment set out in paragraph 16 of the Norfolk Vanguard letter [REP3-012]	<p>In the Norfolk Vanguard letter the Secretary of State is considering whether it would be necessary to introduce an amendment to Requirement 21 to provide mitigation for cumulative impacts that might arise on Link 34 in the event that both the Norfolk Vanguard project and Hornsea Project three developments are granted consent.</p> <p>The Applicant would be content to accept within its dDCO the additional wording proposed for Requirement 21 which requires revised details of the scheme of mitigation on Link 34 to be included in the final Traffic Management Plan submitted to and approved by the relevant planning authority in consultation with Norfolk County Council.</p> <p>The Applicant has subsequently updated the dDCO (document reference 3.1) at Requirement 21 accordingly.</p>
vi.	To consider the approach to assessment of noise and vibration including structural surveys;	<p>The Applicant confirmed its position on undertaking structural surveys and explained that the Noise and Vibration Assessment for Cawston Village was undertaken by Orsted Hornsea Project Three Offshore Wind Farm (HP3) (HP3 Document REP7-046, included as Appendix 2). The assessment considered the potential cumulative impacts with the Norfolk Vanguard project and is therefore also relevant to the Norfolk Boreas project. The assessment concluded that there were no significant vibration impacts associated with cumulative traffic using Link 34 and that based on the results for HP3 alone, as well as under the cumulative scenario, the increase in vibration levels is far less than that which would generate cosmetic or structural damage to properties adjacent to the highway. Therefore the Applicant considers that structural surveys are not necessary.</p> <p>The Applicant explained the approach to classification of Link 34 through Cawston as 'medium sensitivity':</p> <ul style="list-style-type: none"> • The sensitivity of Cawston High Street (Link 34) was assessed in accordance with national guidelines¹ and adopted criteria are set out in Table 24.7 of Chapter 24 of the Environmental Statement (APP 237). • Based on the criteria outlined, and noting that Link 34 is a Main Distributor road with no HGV restrictions, the link was assigned a 'medium' sensitivity value. The effect of the construction traffic demand was assessed to be of a high magnitude, thus when the impact significance criteria is applied (as set out in Table 24.8. of Chapter 24 of the Environmental Statement (APP 237)) a 'major adverse' impact is identified. The Cawston Highways Intervention Scheme is, therefore, designed to mitigate that major adverse impact and ensure that residual impacts are not significant. • The impact significance criteria facilitate a screening exercise to quickly identify the potential of significant impacts within a vast highway study area. A major adverse impact is the highest category, therefore had Link 34 been assigned a 'high' sensitivity value, the outcome of the

¹ The Guidelines for the Assessment of Road Traffic, IEA (now IEMA) 1993.

		primary assessment would have remained the same, i.e. major adverse. It therefore follows that a high sensitivity value for Link 34 would not change the conclusions of the ES or the proposed mitigation strategy including the design of the Highways Intervention Scheme.
vii.	To gain clarity on the adverse heritage effects and their mitigation based on parties' (the Applicant and Broadland DC) seemingly different positions regarding the Heritage Statement in the Cawston Conservation Area Position Statement (for Norfolk Vanguard) [REP2-022, Appendices 1.1 and 1.2].	The Applicant notes that this Agenda item was not expressly covered at the hearing and, instead, this matter will be discussed at a post hearing meeting with Broadland District Council, Cawston Parish Council and Norfolk County Council which is due to take place in February 2020. This also addresses Action Point 2 from the list published on 22 January 2020.
b) Oulton		
i.	Link 68 – The Street. To understand in further detail the methodology used to determine baseline data for vehicle movement, including how events such as increased traffic over harvest periods from agricultural vehicles are taken into account	<p>Within the HP3 examination Orsted submitted Appendix 33 to Deadline 4 submission “Main Construction Compound Access Strategy VISSIM Modelling report”. The VISSIM modelling report summarised the approach to the VISSIM modelling and included the following traffic data:</p> <ul style="list-style-type: none"> • 2028 future year background traffic; • Proposed HP3 Compound construction traffic; • EF Harrold Potato Farm traffic; • Increased agricultural activity; and • The proposed Norfolk Vanguard construction traffic. <p>To inform baseline traffic, Orsted (on behalf of HP3) commissioned a number of new traffic surveys which were undertaken in October 2018. The surveyed flows were 'growthed' to the future assessment year of 2028 using industry standard TEMPro growth factors.</p> <p>Data was obtained for the EF Harrold Potato Farm indicating a demand for 22 Tractors and 10 HGVs per day. No feedback was obtained from the other agriculture industries utilising the Street, Oulton. To account for this data gap a (4x) factor was applied to the data collected from the EF Harrold Potato Farm.</p> <p>Norfolk Vanguard undertook a review of the VISSIM modelling report and found that the methodology and conclusions were appropriate; the traffic counts are in accordance with national standards; and the approach to forecasting additional demand is reasonable. The Applicant concurs with these findings.</p>

		<p>It should be noted that the VISSIM model was developed by Orsted to illustrative how the preferred scheme agreed with NCC would work in practice. It was not a design tool and the Applicant concurs with Norfolk County Council that the modelling is not something that is usually requested but, rather, a measure to facilitate the understanding of other traffic movements around the network. The Applicant's scheme, and related traffic movements, is controlled through the (Outline) Traffic Management Plan which is secured under Requirement 21 of the dDCO and is to be approved by the relevant planning authority and Norfolk County Council prior to commencement of the onshore transmission works.</p>												
ii.	<p>Link 68 – The Street. To understand the mitigation proposed for Link 68 including the effectiveness of the pilot vehicle mitigation method to alleviate the effect of HGV and Abnormal Indivisible Load (AIL) movement in both directions on Link 68 when considered cumulatively with for Hornsea Project Three</p>	<p>The AILs which are required on Link 68 are for HP3 only, associated with HP3's cable drum deliveries. The Applicant does not require any AILs along Link 68 or for the onshore duct or cable installation works, as the Applicant is proposing to use smaller cable drums which will be standard HGV deliveries.</p> <p>Link 68 within the Norfolk Boreas application consists of approximately 960m of The Street from its junction with the B1149 to the junction with Heydon Road. Link 68 continues east along Heydon Road for a distance of 1.5km. Heydon Road does not allow for full two-way vehicle traffic along the entire length of the link. Table 4.1 of the Outline Traffic Management Plan [REP1-022] submitted at Deadline 1 (November 2019) details proposed mobile traffic management (i.e. pilot vehicle manoeuvres) for the Heydon Road section of Link 68 only.</p> <p>The Street will not require pilot vehicle management as a preferred scheme of alternative highway mitigation (in the form of passing places) has been agreed with Norfolk County Council.</p> <p>Norfolk Boreas Limited is committed to adopting the preferred Highways Intervention Scheme option for Norfolk Boreas under both scenarios, to ameliorate the potential traffic impacts. In effect this scheme of mitigation, on the shared part of Link 68 would be sufficient to mitigate impacts for Norfolk Boreas alone (Scenario 2), HP3 alone, or for both projects together. For Scenario 1 (where Norfolk Vanguard has commenced), Norfolk Vanguard will implement the scheme.</p> <p>Table 1 below reproduces the construction HGV peaks for Heydon Road (Link 68) under Scenario 2, as detailed in Chapter 24 of the Environmental Statement (APP 237). This shows that the maximum hourly HGV movements will be 8 HGVs comprising of a maximum 4 HGV arrivals and departures per hour for a consecutive period of 6 weeks.</p> <p>Table 1: Predicted HGV movements and Programme Durations</p> <table border="1" data-bbox="734 1168 1951 1356"> <thead> <tr> <th data-bbox="734 1168 994 1294"></th> <th data-bbox="994 1168 1182 1294">Total Weeks</th> <th data-bbox="1182 1168 1375 1294">Daily HGV movements</th> <th data-bbox="1375 1168 1574 1294">Hourly HGVs movements</th> <th data-bbox="1574 1168 1760 1294">Hourly Arrivals</th> <th data-bbox="1760 1168 1951 1294">Hourly Departures</th> </tr> </thead> <tbody> <tr> <td data-bbox="734 1294 994 1356">Primary Peak</td> <td data-bbox="994 1294 1182 1356">6</td> <td data-bbox="1182 1294 1375 1356">80</td> <td data-bbox="1375 1294 1574 1356">8</td> <td data-bbox="1574 1294 1760 1356">4</td> <td data-bbox="1760 1294 1951 1356">4</td> </tr> </tbody> </table>		Total Weeks	Daily HGV movements	Hourly HGVs movements	Hourly Arrivals	Hourly Departures	Primary Peak	6	80	8	4	4
	Total Weeks	Daily HGV movements	Hourly HGVs movements	Hourly Arrivals	Hourly Departures									
Primary Peak	6	80	8	4	4									

		Secondary Peak	16	61	6	3	3
		Third Peak	17	*36	~4	~2	~2
		Fourth Peak	16	9	1	1	1
		Total Programme Duration	55				
		*	Average of 36 HGV movements range between 31 and 40 actual movements.				
		Proposed Mobile Traffic Management Strategy					
		<p>A temporary layby required for the safe and efficient use of a mobile traffic management strategy would be constructed within the highway boundary at the western end of Heydon Road adjacent to the existing hard standing area. The temporary layby would increase the road width to 6m allowing the two way movement of vehicles, and also allowing for a maximum waiting area for two Articulated HGVs. This would enable HGV's to wait in the layby to be called up to MA7 (via two-way radio) while a pilot vehicle holds back opposing vehicle streams east of MA7. Leaving MA7 the HGV would wait for the pilot vehicle to hold up opposing vehicle streams east of the layby and then would be called to leave the site.</p> <p>The distance a HGV would be required to travel under pilot vehicle on Heydon Road would be 1,500m. At a speed of 32km/hr (20mph), this would mean a delay to waiting vehicles on Heydon Road of up to 3 minutes.</p> <p>. The OCoCP [REP1-018] makes a commitment to ensure communication between the respective projects. This will ensure that as construction programmes are refined post-consent this information is regularly shared between parties, particularly traffic demand on shared road links and that commitments to manage cumulative construction traffic demand are fully delivered.</p>					
iii.	To understand the purpose of the Cable Logistics Area in Oulton and what it would be used for	<p>The Applicant provided a Clarification Note on the Cable Logistics Area (CLA) in Oulton at Deadline 2 [REP2-027] and the Applicant summarised the points within the note and explained the following:</p> <ul style="list-style-type: none"> The CLA is a single location of existing hardstanding to allow the temporary storage of cable drums and associated cable jointing and pulling materials (e.g. pre-moulded joints, winches, cable runners) close to the cable route. Given that the Mobilisation Areas are only utilised during the duct installation period, a site office at the CLA will be required. The CLA may also accommodate welfare facilities and associated temporary infrastructure to support the cable pulling works. 					

		<ul style="list-style-type: none"> • The associated materials to be stored at the CLA are materials associated with cable pulling and jointing activities such as joint kits (pre-moulded joints etc.), cable runners, Cement Bound Sand storage (for backfilling joint bays). • Traffic and use of the cable logistics area is limited to the purposes described in the clarification note [REP2-027] and HGV movements to the CLA are limited to 5 arrivals and 5 departures per day. • The CLA has storage capacity for a maximum of 20 cable drums in comparison to the approximate total of 360 cable drums required for the entire Boreas project (not including Norfolk Vanguard). The cable drums stored at the CLA are to be used as buffer stock to cover emergency situations of supply; not all cable drums will pass through the CLA as most materials will transit directly to the work front. • Therefore, the CLA is only required during the cable pulling works under either scenario and the number of traffic movements and cable drums is the same for Norfolk Boreas in Scenario 1 and Scenario 2. • Norfolk Boreas cables are HVDC and therefore the numbers of cables have been minimised. • Norfolk Boreas will not be using Abnormal Indivisible Loads (AILs) for cable deliveries. • Any out of normal hours HGV or cable deliveries are covered by the requirements of the dDCO (namely Requirement 26) and the Applicant notes Action Point 6 for Deadline 5 to include in the OTMP these restrictions for out of hours delivery.
iv.	To understand the traffic management proposals in relation to the Cable Logistics Area	No specific traffic management proposals are provided for the CLA. However, access to the CLA is via Link 68, The Street. This will be subject to the mitigation measures detailed in section 4.3.3 of the Outline Traffic Management Plan [REP1-022] and includes a proposed Highways Mitigation Scheme which will be in place during duct installation and retained for the cable pulling works.
v.	To understand the reasons for the increase in cumulative daily HGV movements over a 3 year period on Link 68 (from 118 to 183) and whether these would be spread out evenly across the year or concentrated at certain times during harvest for example [REP2-027]	The Cable Logistics Area Clarification Note [REP2-027], at Table 1, provides a summary of the peak HGV numbers for the CLA as well as the total HGV movements on Link 68 during the cable pulling works and the cumulative HGV movements on Link 68 with HP3.

Table 1. Anticipated traffic numbers for the cable logistics area which have been accounted for in the worst case scenario for the affected link (Link 68)

Cable Pulling Stage of Works	Scenario 1	Scenario 2
Cable drum movements to Cable Logistics Area	4	4
Associated material movements to Cable Logistics Area	6	6
Link 68 peak daily HGV movements during cable pulling works (including movements to cable logistics area)	65	65
Hornsea Project Three peak daily HGV movements	118	118
Cumulative link 68 peak daily HGV movements	183	183*

*Not explicitly assessed under scenario 2 as duct installation stage of works presents the worst-case traffic flows.

The peak HGV movements on Link 68 for Norfolk Boreas alone during the cable pulling works is 65, which includes the 10 HGV movements for the CLA (and 55 for cable pulling works on the onshore cable route which also use Link 68).

In terms of cumulative movements Hornsea Project Three could have 118 peak HGV movements, resulting in a cumulative total of 183 peak HGV movements on Link 68 (118 + 65), in the event that the Norfolk Boreas cable pulling coincide with works for Hornsea Project Three works.

The Applicant clarified that there is not an increase in cumulative flows; the cumulative peak HGV flow for Norfolk Boreas cable pulling and HP3 183 peak HGV movements of which 118 movements are for HP3 and 65 are for Norfolk Boreas, including the small amount of movements to the CLA.

vi. To understand whether the change in cumulative HGV movements at the CLA would influence the outcome of the ES cumulative assessment

As the Applicant explained under Agenda item 2b)(v), there is no change in the cumulative HGV movements as a result of the CLA or on Link 68. The HGV numbers presented in the Clarification Note are those which have already been considered in the Environmental Statement and are presented in the Appendix 1 of the Outline Traffic Management Plan [REP2-026] (Link 68 maximum HGV Scenario 1 is 65).

Within the Environmental Statement (ES), Chapter 24 Traffic and Transport, the Applicant has undertaken a worst case assessment of cumulative HGV movements on Link 68 with HP3, which arises during the duct installation works for Scenario 2 (maximum 80 HGV movements for Norfolk Boreas, and 198 cumulatively with Hornsea Project Three).

		Sections 24.8.1.3 ES Chapter 24 (APP-237) identified that the Hornsea Project Three peak construction activity could coincide with Norfolk Boreas Scenario 2 peak construction activities on the cable route (duct installation) and this was subject to further detailed cumulative assessment as presented in Section 24.8.2 of ES Chapter 24 (APP-237). This identified a potential moderate adverse cumulative impact prior to mitigation and the proposed mitigation for Link 68 (detailed in Section 4.3.3 of the OTMP [REP1-022]) would ameliorate the potential cumulative traffic impacts.
vii.	To consider whether there are any other implications in relation to Oulton arising from the Norfolk Vanguard letter [REP3-012]	The Applicant notes that this Agenda item was not expressly discussed. The Applicant will, however, respond to any further written questions on this matter.
c) Link 69 – North Walsham, Little London Road from the B1145 Lyngate Road junction to an access point approximately 210m east		
i.	To understand the effects of street closures 8a-8b, 8c-8d, 8e-8f and 8g-8h on residents and local traffic movements	The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter.
ii.	To consider the proposals for a Communications Plan in greater detail [REP2-021, Table 14], including who will be consulted and when? How would the implementation of a Communications Plan reduce pedestrian severance and amenity in relation to Link 69?	The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter.
d) Additions to Trenchless crossings		
i.	Given paragraph 20 and 21 of the Norfolk Vanguard letter [REP3-012], to understand whether there are any unresolved matters in relation to the B1149 or other locations that should be added to the list of trenchless crossings set out in Requirement 16 (13) of the dDCO.	<p>B1149</p> <p>The Applicant explained the background to the crossing of the B1149. Norfolk County Council (NCC) initially raised two concerns with regard to open cut trenching on the B1149:</p> <ol style="list-style-type: none"> 1) Would the traffic management work (i.e. single lane closures)?; and 2) Could an appropriate reinstatement be implemented (noting the trench depth of 1.5m). <p>An investigation was undertaken in response to the concerns raised by NCC on the potential impacts of open cut trenching on the B1149 and the results of this were submitted as part of the Norfolk Vanguard examination at Deadline 7.5 (included as Appendix 2 of NCC SoCG submitted at Deadline 2 [REP2-050]).</p> <p>The findings are summarised as follows:</p>

		<ul style="list-style-type: none"> • Forecast cumulative traffic flows were examined and would fall well below the total vehicles per hour level at which single lane traffic management would lead to network disruption. • Norfolk Partnership Laboratory (NPL) investigated ground conditions at the B1149 to ascertain if an appropriate road reinstatement specification would be feasible. The testing indicates that the road subsurface has good load bearing properties and a specification was identified for the reinstatement that addresses long term maintenance liability concerns. <p>NCC confirmed that their concerns relating to these two matters had been addressed.</p> <p>The outstanding matters between the Applicant and NCC for the crossing of the B1149 relate to safety concerns of the proposed traffic management measures to accommodate an open cut trench solution for crossing the B1149.</p> <p>NCC raised concerns regarding the need for a 1.2m wide safety zone to be included within the proposed traffic management design, which had not been previously supplied. A revised traffic management design for open cut trenching was tabled with NCC at a meeting on the 4 November 2019 and this roadwork design was subsequently submitted as Appendix 5 of the updated OTMP (Version 2) submitted at Deadline 1 [REP1-024].</p> <p>A further updated traffic management design has been developed to incorporate revisions requested by NCC. The updated design:</p> <ul style="list-style-type: none"> • incorporates a separation distance of 1.5m (therefore facilitating the required 1.2m safe working distance); • includes designs for both sides of the carriage way; • can also accommodate HP3 cumulative traffic (including AILs) - demonstrated with Swept Path Analysis drawings; and • is entirely within the current Norfolk Boreas DCO Order limits and is fully compliant with Chapter 8 of the Traffic Signs Manual. <p>The updated traffic management design was shared with NCC at a meeting on the 15th January 2020 and it was confirmed that officers had “no technical objection” to the proposal.</p> <p>The Applicant can also confirm that the decision whether or not to use trenchless installation is not primarily based on financial imperative or implication for the Applicant. The decision to use trenchless techniques is based on thorough investigation and assessments relating to environmental considerations. For example, trenchless techniques lead to associated environmental implications including the need for further land-take either side of the crossing together with increased levels of HGV movements to deliver materials to the compounds.</p>
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		<p>Church Road, Colby, north of Bannigham</p> <p>In order to facilitate a trenchless crossing of Church Road, Colby, access to land either side of Church Road, would be required directly from the road. In order to provide a suitable access, an opening in the hedgerow either side of the road would be required; allowing for a bellmouth with appropriate visibility for safe access and egress represents a gap of approximately 15m in the hedgerows either side of the road. As such, a trenchless crossing in this location would not remove the necessity to open a gap in the hedgerow and therefore would not mitigate the need for tree removal.</p> <p>Further details are provided in the Post Hearing Note ‘Clarification Note Trenchless Crossings B1149 and Church Road, Colby ExA.AS-3.D4.V1’ submitted at Deadline 4, which also addresses Action Point 7.</p>
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e) Timing of traffic management measures

i.	To consider the relevance to the Norfolk Boreas application of the proposed amendment set out in paragraph 24 of the Norfolk Vanguard letter [REP3-012].	<p>In the Norfolk Vanguard letter the Secretary of State is considering amending Requirement 21(2) of the development consent order such that the approved traffic related management plans are implemented prior to commencement.</p> <p>The approved plans referred to under paragraph (1) of Requirement 21(2) are the construction traffic plans that detail the active traffic management measures that will be implemented during the works, including activities such as avoiding school pick up and drop off times on certain routes, ensuring that peak construction traffic numbers do not exceed agreed thresholds and the timing of deliveries. On this basis it would not be accurate to state that these measures could be implemented prior to works commencing. The Applicant therefore proposes to retain the original wording for Requirement 21(2).</p> <p>In any event, in response to ExA Written Questions Q14.0.4 [REP2-021], the Applicant has committed to updating the OTMP [REP2-022] at Section 3.7 to commit to implementation of mitigation measures specifically related to road safety (detailed in Table 3.6) - such as introducing high friction surfacing - prior to commencement of construction.</p>
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f) Outline Traffic Management Plan

i.	To consider whether the Outline Traffic Management Plan should be further updated given discussions in relation to 2a) – e) above.	<p>The Applicant notes that this Agenda item was not expressly discussed. The Applicant will, however, respond to any further written questions on this matter. In the meantime, the following updates are proposed to the Outline Traffic Management Plan:</p> <ul style="list-style-type: none"> • An update to Section 3.7 as outlined under Agenda Item 2e) to commit to installation prior to commencement of specific road safety measures; • An update to Appendix 5 Traffic Management Drawings for the B1149 (section 2d); and
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		<ul style="list-style-type: none"> • An update to Appendix 6 Cawston Highways Intervention Scheme drawings (section 2a). • An update to include consultation on residents of Oulton on our of hours movements to/from the cable logistics area (Action Point 7). <p>The Applicant will provide an updated OTMP incorporating these changes at Deadline 5.</p>
AGENDA ITEM 3 – Construction Effects		
a) Construction Hours		
i.	To understand the reasoning for the types of locations that are considered sensitive receptors when determining construction hours;	The Applicant confirmed that it would consider the type of receptors listed by North Norfolk District Council as sensitive receptors when considering mitigation for non-standard working hours pursuant to Requirement 26 of the dDCO.
ii.	To explain the provisions made for the mitigation for impacts arising from non-standard construction hours;	The Secretary of State's letter for Norfolk Vanguard proposes an amendment to DCO Requirement 26 to state that ' <i>full details, including but not limited to type of activity, vehicle movements and type, timing and duration and any proposed mitigation</i> ' of all works undertaken outside of standard working hours must be agreed with the relevant planning authority in advance of the works.
iii.	To consider the relevance to the Norfolk Boreas application of the proposed amendment set out in paragraph 26 of the Norfolk Vanguard letter [REP3-012].	The Applicant confirms that any mitigation required as a result of non-standard working hours will be agreed with the relevant planning authority pursuant to Requirement 26 of the dDCO, and the Applicant is content to accept the proposed change from the Secretary of State's letter within the dDCO for Norfolk Boreas.
b) Cable duct installation		
b)	i. To understand the exclusions that might apply in the Outline Landscape and Ecological Management Scheme (OLEMS), which would only secure 150m workfronts " <i>where possible</i> " in the onshore cable duct installation. How could a stronger commitment to the duct installation strategy be secured, or an indicative alternative strategy, should the proposed strategy not be viable in certain locations.	The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter.
c) Noise and Vibration		

i.	To consider the relevance to the Norfolk Boreas application of the proposed amendment set out in paragraph 28 of the Norfolk Vanguard letter [REP3-012].	<p>The Secretary of State is considering whether an amendment to the Norfolk Vanguard DCO at Requirement 27 should be made to cover maintenance activities (during operation) for the purposes of noise rating levels, together with a compliance report and a procedure to be followed in the event that agreed noise levels have been breached.</p> <p>The Applicant is content to make these changes in the Norfolk Boreas dDCO.</p>
d) Landfall at Happisburgh		
i.	To consider further the concerns that Horizontal Directional Drilling (HDD) is most high risk at Happisburgh, could lead to mud breakout at landfall, and requires 24hour working to maintain the tunnel. This to include consideration of the wider context of the benefits and disbenefits of long HDD as opposed to other methods such as Direct Pipe or Micro Tunnelling mentioned in the submission [REP1-045]	<p>The Applicant provided a detailed note covering this topic at Deadline 2 'Clarification Note Landfall' [REP2-029] which included a description of a number of potential construction methods at landfall including Horizontal Directional Drilling (HDD) and Direct Pipe/micro tunnelling. The Applicant's position is that HDD is a proven construction method, however alternative methods such as Direct Pipe are not precluded as they fit within the design envelope and the dDCO wording.</p> <p>In response to concerns regarding mud breakout, the Applicant explained that mud breakout could occur on any of the proposed tunnelling methods, as drilling mud is required to lubricate the drilling head and suspend the cuttings. Requirements and risks associated with mud breakout differ between techniques and have to be considered in detail.</p> <p>Prevention and mitigation measures with respect to directional drilling are included in the trenchless crossing Clarification Note [REP1-039].</p> <p>24 hour working for HDD may not be required and many HDDs are conducted without 24 hour working. However, it should be noted that 24 hour working for HDD installation can provide benefits, particularly by shortening the installation time. The duration of the landfall works was a particular point raised during the course of consultation and the local community had a desire to limit the duration of any perceived impacts. Therefore, when considering whether 24 hour working is appropriate, there needs to be a balance between these different considerations.</p> <p>The Applicant needs to make sure that the method chosen is appropriate. The specific method of drilling will be defined post-consent following further site investigation, detailed design and contractor engagement. The Applicant is committed to providing a landfall method statement under dDCO Requirement 17 post-consent to be approved by North Norfolk District Council.</p>
ii.	To consider whether the HDD entry provides adequate protection for the drilled cable or transition pits from natural coastal erosion (predicted to be between 50m to 110m by 2065).	The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter.

AGENDA ITEM 4 – Landscape and Visual Effects (Including Hedgerows)

a) Trees and hedgerows, Outline Landscape and Ecological Management Strategy (OLEMS)

i.	To clarify that Q9.3.1 does not refer only to the substations site. To establish the possible timescale for the Applicant to prepare the requested plan(s) for tree removal for Scenario 2	<p>The Applicant explained that there are nine maps submitted under Appendix 9.2 (Figures showing areas of hedgerow and tree removal where potential significant effects identified under Scenario 2) [REP2-025] six of which show the locations where hedgerow and/or hedgetree removal has potential to give rise to a localised significant effect and three of which show the locations where tree removal has potential to give rise to a localised significant effect.</p> <p>The onshore cable route has been carefully sited to ensure that no woodland areas will be affected by removals and no other trees will be removed other than a small number contained within field boundaries. The onshore cable route passes through cultivated farmland where there is no natural vegetation and therefore the only vegetation which will be affected will occur within field boundaries. Along a 60km length of onshore cable route, there are very few incidences of tree removal and only three with potential to give rise to localised significant effects; namely, Colby Road north of Banningham, Norwich Road Swanton Morley, and the Minor Road near Hackford Hall. The Applicant agrees that the plans showing the areas with the tree, hedgetree and hedgerow removals with potential to give rise to significant effects will be updated to show more clearly the context and sections to be removed by adding annotations. The Applicant will submit these annotated drawings at Deadline 5 in accordance with Action Point 10.</p>
ii.	To establish if local authorities and other parties are content with the Applicant's response to Q9.5.5 regarding the terminology in the current OLEMS lacking certainty, and that this certainty would be provided in the Landscape Management Scheme because another level of design at a more detailed scale is required to consolidate the design principles to deliver the mitigation [REP2-021].	The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter.

b) Substations at Necton

i.	To understand from the Applicant the maximum extent height controls in Requirement 16 of the dDCO, together with heights mentioned in the	The Applicant produced new annotated slides to show the 3D Model Used within the visualisations for the onshore project substation (provided as Appendix 2). The Applicant explained that:
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<p>Design and Access Statement (DAS) and ES secured through the Outline Plans with reference to the Applicant's response to Necton PC's response to Q5.3.3 [REP3-003]. Is it that buildings housing "principal electrical equipment" differ from "other electrical equipment" in terms of the height limitations? Is any of the "other electrical equipment" contained in buildings, or is it all external? It may be helpful for the Applicant to use some of the visualisations/ photomontages to assist the explanation.</p>	<p>Slide 1 shows the main components of the onshore project substation, Work No 8A, as outlined in the Design and Access Statement [REP2-007] Section 5.3.2:</p> <ul style="list-style-type: none"> • 2x converter buildings; • 2x outdoor HVAC compounds; • Control buildings; and • Access roads – for operation and maintenance access to equipment. <p>Slide 2 explains the terminology used within the dDCO and the Design and Access Statement (DAS):</p> <ul style="list-style-type: none"> • "Principal electrical equipment" is referring to the electrical equipment housed inside the converter buildings. The maximum parameters for this element are defined in dDCO Requirement 16: <p><i>16.—(1) The total number of buildings housing the principal electrical equipment for the onshore project substation comprised in Work No. 8A must not exceed two.</i></p> <p>...</p> <p><i>(5) Buildings comprised in Work No. 8A must not exceed a height of 19 metres above existing ground level...</i></p> <p><i>6) The total footprint of each building housing the principal electrical equipment for the onshore project substation comprised in Work No. 8A must not exceed 110 metres by 70 metres.</i></p> <ul style="list-style-type: none"> • "External electrical equipment" refers to the electrical equipment which is outside in the HVAC compounds, such as transformers, filters, switch gear and lightning protection masts. The maximum height of the external electrical equipment is defined in dDCO Requirement 16(5) and is driven by maximum height of the lightning protection masts, of 25m, which is the tallest external electrical equipment. <p><i>(5) Buildings comprised in Work No. 8A must not exceed a height of 19 metres above existing ground level and external electrical equipment comprised in Work No. 8A must not exceed a height of 25 metres above existing ground level.</i></p> <p>The DAS makes an additional commitment with respect to the "external electrical equipment" by stating that 'All other electrical equipment will not exceed a height of 13m - namely other external electrical equipment with the exception of the lightning protection masts e.g. the transformers, filters and switchgear will not exceed 13m.</p>
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		<p>The DAS also makes a commitment on the height of the fencing, 2.4m palisade fencing plus a further 1m of electrical pulse fencing.</p> <p>Slide 3 Shows the substation 3D Model in context using an extract from of the Visualisation VP5 Spicers Corner. This is for Scenario 1 and Scenario 2 and when the visualisation is enlarged the main elements of the substation can be seen, including:</p> <ul style="list-style-type: none"> • The buildings housing the principal electrical equipment which must not exceed 19m; • The lightning protection masts which are the tallest external electrical equipment and must not exceed 25m; and • The other external electrical equipment which must not exceed 13m. <p>Slide 4 includes a summary table of the parameters defined in Requirement 16 and the DAS.</p> <p>As discussed during the hearing, the Applicant notes that Action Point 11 requires the Applicant to consider an amendment to the dDCO to clarify that "Principal Electrical Equipment" is contained within converter buildings. The Applicant has updated the dDCO accordingly which is contained within the version submitted at Deadline 4.</p>
ii.	<p>If Mr King or Ms Lockwood is present, to have the differences of opinion regarding the landform in the visualisation for VP3 [APP-511] and/ or [APP-523] explained using the visualisations and an OS map (Applicant to make available on screen) firstly by Mr King/ Ms Lockwood and then by the Applicant [REP3-007].</p>	<p>The Applicant explained that the OS map shows Viewpoint 3; this is located on Lodge Lane which extends north from Ivy Todd village to the south of the proposed onshore project substation. The OS map has been coloured to highlight the changes in level (provided as Appendix 3). This shows that Viewpoint 3 is located at the base of the rising slope. The proximity of the viewpoint to the slope means that the intervening landform partly screens visibility of the onshore project substation. The visualisations show the photomontage of the onshore project substation and how, when seen from this viewpoint, the intervening landform would reduce the extent to which the onshore project substation would be visible.</p> <p>At previous Environment Topic Group Meetings with representatives of the local authorities, the preference of the consultees was not to have large bunds around the onshore project substation as it was considered that this would appear incongruous with the local landscape character. Some subtle earthwork bunds that are of more modest height at around 1 to 2.5m have been considered as part of the propose landscaping planting at the onshore project substation (Section 6.5.1.1 and 6.5.2.1 of OLEMS [REP1-020]).</p>
iii.	<p>For the Applicant to provide clarity on Work 10A – would this external electrical equipment be housed in a building or would it all be of the type of external (fenced but not enclosed in a building) electrical equipment which</p>	<p>The Applicant explained that Work No 10A refers to the extension to the existing Necton National Grid substation, which under Scenario 1 would be in an easterly direction and under Scenario 2 would be in a westerly direction.</p>

	can currently be seen on the Necton site?	The photograph presented (Appendix 9.4 of the Applicant's Responses to ExA Questions [REP2-025]) shows the existing NG equipment at Necton. The external equipment which can be seen is predominantly steel supports, porcelain insulation and aluminium busbars.
iv.	To seek views on whether this Work should be controlled further, if so in what way, as referred to in the Norfolk Vanguard letter as set out in paragraph 18 [REP3-012]. Whether the design approach and Design Guide could be a suitable way.	<p>The Applicant confirmed that the extension works will comprise the same type of external electrical equipment similar to that currently seen at the existing Necton National Grid substation, which is shown in the visualisation (ES Figure 29.27b and 29.27c). These visualisations show the existing substation in the centre with the westerly extension to the left to the maximum extent of approximately 200m.</p> <p>The design and requirements of this equipment is pre-determined by international electro-technical standards, and by National Grid's own technical specifications. The materials used for this electrical equipment, primarily aluminium, steel and ceramics/polymers, is dictated by the technical performance characteristics required to safely and efficiently operate the equipment at 400 kV and it not possible to alter the appearance and finishes of this electrical equipment. Accordingly, the appearance of the equipment comprised in Work No. 10A will be very similar to that of the equipment in the existing Necton National Grid substation. The busbars will be aluminium and their appearance will be natural although over time the appearance will weather with a build-up of aluminium oxide, the rate of which will be determined by the local atmospheric conditions.</p> <p>On this technical basis the Applicant would not be able to accommodate the suggested changes to the wording of Requirement 16(9) as proposed by the Secretary of State.</p>
v.	To understand further from the Applicant how the design approach and Design Guide (now described in the DAS [REP2-010, para 5.3.6]) which would be prepared post consent, and its approval process would take place. To understand what aspects "could be influenced" and who the key stakeholders would be as set out in the SoCG with Breckland C [REP2-039, Table 8]. To understand if the design approach and Design Guide would cover all substations' works.	<p>To fulfil DCO Requirement 16(2) the Applicant proposes to follow the design process outlined in Section 5.3.6 of the DAS [REP2-010] to enable Breckland Council to approve the layout, scale and external appearance of the onshore project substation once the details are available. The design process and Design Guide are for the onshore project substation - Work No 8 - and associated mitigation planting - Work No 8B.</p> <p>The final design of the onshore project substation will largely be dictated by the technical requirements of the equipment which will include aspects such as the necessary physical separation of equipment for electrical clearance, accessibility for installation and maintenance and the necessary materials to construct and support the equipment such as concrete, steel and aluminium. Some aspects of the onshore project substation may have the opportunity for influence on the design appearance once technical requirements have been fully accounted for. Those are the elements which are not defined by technical requirements, namely the building and perimeter fencing and include different colour and colourisation options such as two-tone or single colour block.</p> <p>Design Process and Design Guide</p>

		<p>Once the onshore project substation designer and contractor have been appointed the provisional details on the layout, scale and design can be developed. This will then facilitate the development of a 'Design Guide'.</p> <p>The Design Guide has two key elements:</p> <ol style="list-style-type: none"> 1) to detail the steps which have been undertaken to minimise visual impacts, which will include presenting the layout and proposed landscaping mitigation; and 2) to present the aspects of the design which could be influenced. The elements that can be influenced are colour of building and fencing. <p>This Design Guide will then be shared with Breckland Council and other key stakeholders and interested parties such as Parish Councils, and will enable those parties to provide feedback on the options for those aspects of the design which can be influenced.</p> <p>The feedback on the Design Guide will then be considered and the final details of the design, layout, scale and approaches will be produced and submitted to Breckland Council for approval.</p> <p>Location of the Onshore Project Substation buildings (Micrositing / Zoning)</p> <p>The Applicant confirmed that the layout of the onshore project substation will be finalised once contractors are appointed. The exact landscape management measures will then be tailored around the final design of the onshore project substation.</p> <p>The Applicant confirmed that it is working with a range of potential contractors with respect to the onshore project substation. Although there are differences between the layouts being offered by different contractors, all options show the converter buildings being located to the northern end of the site (further away from Ivy Todd) with the outdoor electrical equipment located to the south of the site. The Applicant has not been in a position to refine the design or site layout further at this stage of the consent process. The Applicant is, however, willing to consider whether it would be possible to insert wording within the Design and Access Statement in relation to master-planning and zoning for the onshore project substation.</p>
vi.	<p>To invite views from Interested Parties (including NPC and other IPs such as Necton Substation Action Group with an interest in the appearance and visibility of the substations) as to whether they are content with the proposed addition to the DAS, or whether they think that more detail is required.</p>	<p>The Applicant notes that this question was not directed at the Applicant.</p>

vii.	To understand Breckland C's opinion and role in the proposed design approval process as mentioned in its Local Impact Report (LIR) [REP2-062].	The Applicant notes that this question was not directed at the Applicant.
AGENDA ITEM 5 – Other Matters		
i.	Explore concerns relating to the 1996 RDAF crash near the substation and potential Aquifer Contamination.	<p>The Applicant explained that a military jet crash occurred involving a Royal Danish Air Force F16, in December 1996 in one of the fields in proximity to the onshore 400kV cable route. This is considered in ES Chapter 19 Ground Conditions and Contamination [APP-232]. Potential contaminates associated with the plane crash included carbon fibre, hydrazine, oil products and fuel.</p> <p>A 1997 report by the public health medicine division of the Royal Airforce documents the remediation work which took place - including armament specialists and hydrazine safety experts. This included removal of debris and soil, the neutralisation of hydrazine and concludes that a 1,200m area was lightly contaminated by fuel and carbon composite fibres to varying depths. Both soil, gas and water samples were taken from the site to identify any contaminated soils. The pollution monitoring team returned to the site in January 1997 to confirm the amount of contaminated soil to be removed from the site.</p> <p>The Land Quality Phase 1 Preliminary Risk Assessment [APP-584], presented in ES Appendix 19.2, acknowledges the potential for residual contamination associated with the historic plane crash and post-consent ground investigations and further risk assessment will be undertaken to establish the presence of any pollutant linkage to human health or groundwater. The ground investigation is likely to include collecting soil and water samples and subsequent groundwater monitoring.</p> <p>The Applicant has discussed this matter with the Environment Agency and the agreed position is included in the Statement of Common Ground with the Environment Agency [REP2-044]. The Environment Agency have confirmed that the site is not designated as a contaminated site and the Environment Agency and are content with the Applicant's approach for a written scheme of investigations will be submitted and approved by the relevant planning authority in consultation with the Environment Agency.</p>

ii.	To update discussions regarding the impact of the cable corridor construction on local tourism and businesses. NNDC to give an overview of what would be expected in a tourism and associated business impact mitigation strategy to address the likely adverse impacts on the tourism sector within North Norfolk. The Applicant to respond.	The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter.
iii.	To provide an update on any proposal for a compensation fund for residents and businesses affected by constructio	The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter
AGENDA ITEM 6 – Draft Development Consent Order and Discharge of Post Consent Approvals		
a) Draft Development Consent Order		
i.	To consider further the Applicant's response to Q5.1.3 regarding the need for definitions for 'stage' (geographical only) and 'phase' (temporal only). To explore with the Applicant examples of how the works would be constructed once a main contractor was in place in relation to stages. To relate this to the approvals processes required for pre-commencement and commencement.	The Applicant notes that this Agenda item was not discussed. The Applicant has prepared a clarification note to explain the difference between 'stages' and 'phases' and the Applicant has submitted this at Deadline 4. This addresses Action Point 19.
ii.	To clarify whether there is any site preparation work that could take place pre-commencement, that would not be secured by Requirement 20(4). If so,	The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter.

	to consider how these works could be secured.	
iii.	<p>Following updates and responses regarding the dDCO and the OCoCP clarity is required regarding the relationships of the OCoCP with all the other Outline plans and how matters are secured. Other Outline plans are stated as secured as "<i>Separate requirements outwith the CoCP</i>". In places the OCoCP covers matters covered by other Outline plans. In places it appears that matters are split between the OCoCP and other Outline plans and therefore across different Requirements. Therefore, there is a power to install/ erect, but it is not compelled to consider in relation to the OCoCP. The Applicant will be requested to talk this through using the Relationship of Onshore Plans secured by the DCO diagram [APP-022, Annex 1]. Views will be sought from post consenting authorities.</p>	<p>The diagram of Onshore Plans which are secured by the DCO is explained in Annex 1 of document 3.3 Note on Requirements and Conditions in the DCO (APP-022). This document shows the relationship between the outline plans, final management plans and the DCO requirements.</p> <p>The Code of Construction Practice is secured through DCO Requirement 20 and will provide details which will be in accordance with the OCoCP, including on:</p> <ul style="list-style-type: none"> (a) relevant health, safety and environmental legislation and compliance; (b) local community liaison responsibilities; (c) artificial light emissions; (d) contaminated land and groundwater; (e) construction noise and vibration; (f) soil management; (g) construction method statements; (h) site and excavated waste management; (i) construction surface water and drainage; (j) materials management; (k) screening, fencing and site security; (l) air quality (m) invasive species management; and (n) proposals for managing public rights of way. <p>The diagram shows that other environmental topics are covered by separate requirements with specific management plans and outline plans, that is:</p> <ul style="list-style-type: none"> • Requirement 18 Provision and Landscaping and Requirement 19 Implementation and maintenance of landscaping – final Landscape Management Scheme - OLEMS • Requirement 22 Traffic – final TMP, AMP, TP – all with outline plans • Requirement 23 Archaeology - final Archaeology Written Scheme of Investigation – OWSI • Requirement 24 Ecology – final Ecological Management Plan - OLEMS <p>Table 2.1 in the OCoCP refers to 'Code of Construction Practice – subsidiary and related plans'; this table identifies the subsidiary plans which will be included as part of the final CoCP e.g. Materials Management Plan, Construction Noise Mitigation Plan, and Air Quality Management Plan.</p> <p>There is also a section on environmental matters covered by separate requirements and management plans, out-with the CoCP e.g. Archaeology Written Scheme of Investigation, OLEMS, Traffic Plans. These are</p>

		<p>included to provide a signpost to these documents and to highlight that these plans will also need to be adhered to during construction.</p> <p>One area of overlap is that the OCoCP 3.3.1 Woodland/Tree/Hedgerow Protection under Screening and Fencing, details the need for tree protection fencing during construction, which is also referenced in the relevant section in the OLEMS, and a cross reference to the OLEMS is included in the OCoCP. As the tree protection fencing is part of site fencing and ecological protection, it is considered appropriate to be covered in both documents.</p> <p>The Applicant has updated the Note on Requirements and submitted this with the Deadline 4 submissions.</p>
iv.	<p>Following the response to ExA's Written Questions [REP2-021, Q5.3.12], the Applicant to explain why NSRs should not be defined in the 'Interpretation' section in Part 1 of the dDCO to provide a link with the ES.</p>	<p>The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter.</p>
b) Discharge of post consent approvals		
i.	<p>i. For the Applicant and NCC to clarify the statement from NCC's LIR regarding planning performance agreement(s) (PPA) <i>"It is understood through discussions on the Norfolk Vanguard project DCO that each local authority discharges those requirements within their respective area/statutory remit, for consistency the Norfolk Boreas DCO should follow the same approach to the discharging of conditions. It is also understood that the applicant is prepared to fund the above "discharging" work given the significant resource implication. The discharge of requirements and their funding is expected to be covered through a Planning Performance Agreement (PPA)."</i> [REP2-085] and the Applicant's response <i>"The</i></p>	<p>The Applicant notes that this Agenda item was not discussed. The Applicant will, however, respond to any further written questions on this matter</p>

	<i>Applicant is also exploring the potential for a Planning Performance Agreement” [REP3-008, Section 5].</i>	
ii.	To understand from the local authorities how expertise of the kind necessary to assess post consent approval designs and details for discharging requirements would be accessed, secured and assured.	The Applicant notes that a full response to this question and the Agenda Item 6(b)(i) will be provided following the ExA's further written questions. The Applicant, however, explained that the Applicant is considering a Planning Performance Agreement (PPA) with the relevant local planning authorities. The Applicant considers that it is in the Applicant's interest to put a PPA in place to ensure the timely discharge of plans and documents. The Applicant, however, considers that it would be premature to enter into a PPA at this stage of the consenting process, but the Applicant notes the action to consider the ways in which the parties can secure a PPA outside of the DCO process.

APPENDIX 1: THE APPLICANT'S LIST OF APPEARANCES

1. **John Houghton**, Senior Counsel, **Womble Bond Dickinson**; and **Victoria Redman**, Partner, **Womble Bond Dickinson**
Speaking on behalf of Norfolk Boreas Limited:
 - In response to the Examining Authority's questions and for general advocacy
2. **Claire Davies**, Senior Environmental Consultant, Industry and Buildings Europe, Royal HaskoningDHV (**RHDHV**)
Speaking on behalf of Norfolk Boreas Limited on
 - Onshore environmental matters
 - Mitigation plans
 - Cumulative impacts (where relevant)
3. **Andrew Ross**, Technical Director Transport Planning, **RHDHV**
Speaking on behalf of Norfolk Boreas Limited on:
 - Traffic and Transport
 - Transport and highway safety
 - Crossing arrangements
4. **Robert Driver**, Technical Project Manager, **Vattenfall**
Speaking on behalf of Norfolk Boreas Limited on:
Engineering, design and physical processes
5. **Chris Jones**, Technical Leader, **GHD**
Speaking on behalf of Norfolk Boreas Limited on:
 - Onshore construction
6. **Jo Phillips**, Associate Landscape Architect, **Optimised Environments**
Speaking on behalf of Norfolk Boreas Limited on:
 - Landscape and Visual effects
7. **Jake Laws**, Consents Manager, **Vattenfall**
Speaking on behalf of Norfolk Boreas Limited on:
 - Any other matters including project updates (if necessary).

**APPENDIX 2: SLIDES SHOWING ONSHORE PROJECT SUBSTATION
INFRASTRUCTURE (AGENDA ITEM 4 (b) I)**

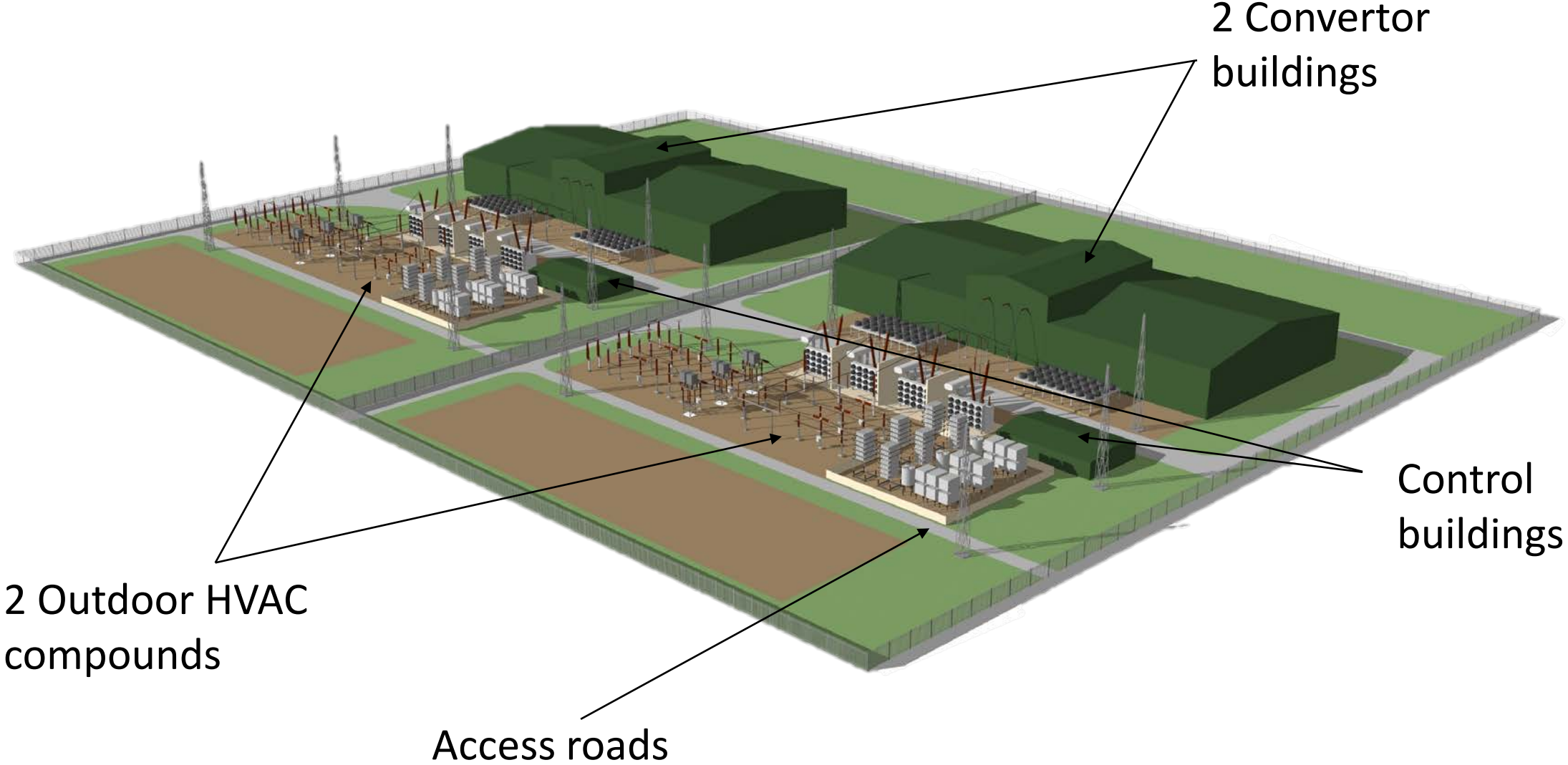
Norfolk Boreas Issue Specific Hearing 3 Onshore effects including the draft Development Consent Order

Agenda Item

4 Landscape and Visual Effects, b) Substation Necton (I)

3D Model of Onshore Project Substation Works No. 8A used within the visualisations

Main Components



Terminology and Defined Maximum Height Controls

“Principal electrical equipment” refers to the electrical equipment which is housed inside the converter buildings

Requirement 16 (5)
Buildings must not exceed 19m

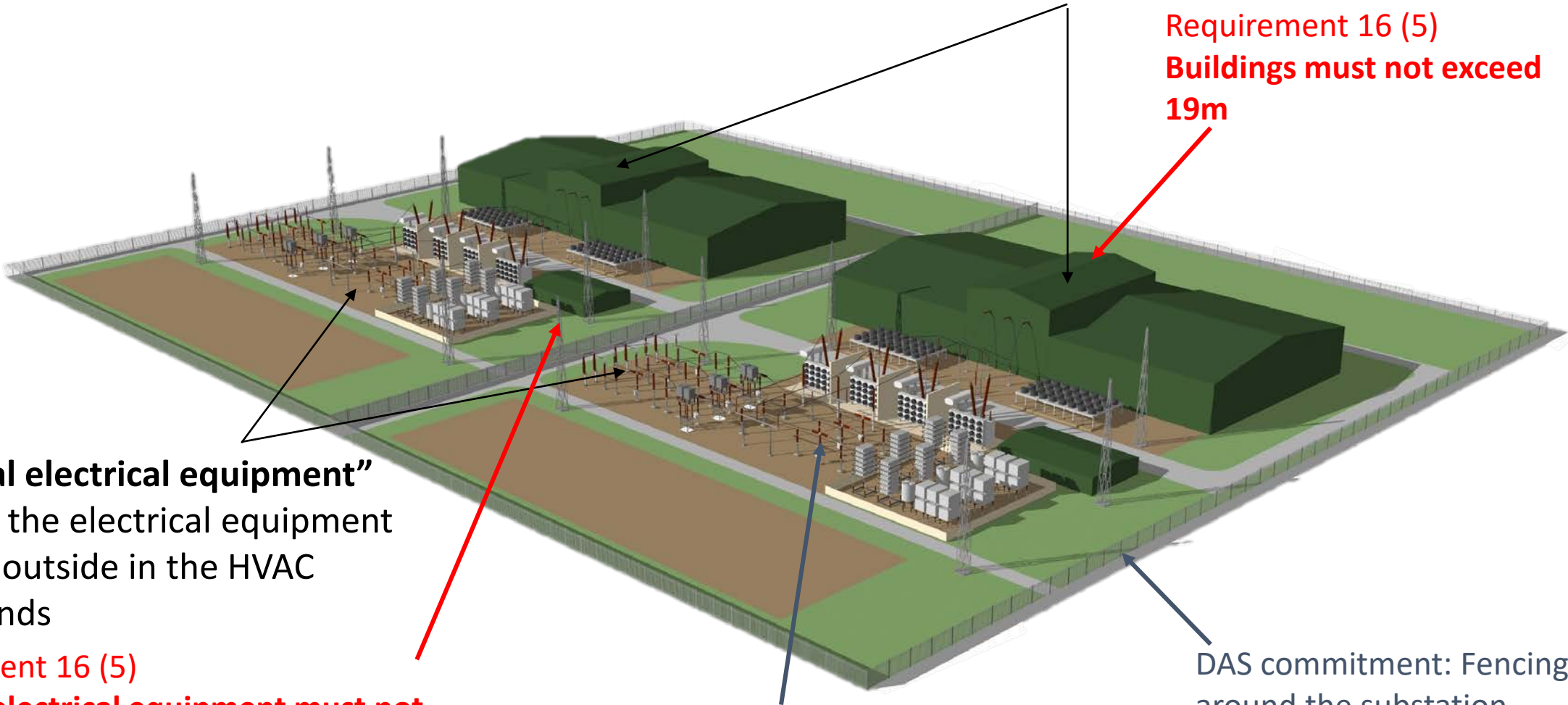
“External electrical equipment” refers to the electrical equipment which is outside in the HVAC compounds

Requirement 16 (5)
External electrical equipment must not exceed 25m

This is to account for height of the lightning protection masts.

DAS commitment: **other external electrical equipment (excluding the lightning protection masts) will not exceed 13m**

DAS commitment: Fencing around the substation compounds will be 2.4m height with 1m additional electrical fencing





The buildings housing the principal electrical equipment which must not exceed **19m**

The other external electrical equipment which must not exceed **13m**.

The lightning protection masts, which are the tallest external electrical equipment and element, must not exceed **25m**

This is an extract from the Environmental Statement, ES Figure 29.27c (1 of 2) [APP-513]. This extract shows a zoomed in view of the planned substations for both the Norfolk Boreas and Norfolk Vanguard developments from Viewpoint 5 – Spicer’s Corner.

Commitment	Secured in
The total number of buildings housing the principal electrical equipment must not exceed two	dDCO requirement 16. (1)
Buildings must not exceed 19 metres above existing ground level	dDCO requirement 16. (5)
Total footprint of the buildings housing the principal electrical equipment must not exceed 110 metres by 70 metres	dDCO requirement 16. (6)
External electrical equipment must not exceed a height of 25m above existing ground level	dDCO requirement 16. (5)
The fenced compound area for the onshore project substation must not exceed 250 metres by 300 metres	dDCO requirement 16. (7)
That outside electrical equipment, other than lightning protection masts, will not exceed 13m	Design and Access Statement
The permanent fencing around the substation will be up to height of 2.4m with an additional 1m of electrical fence	Design and Access Statement

The parameters which are secured in Requirement 16 reflect the ‘Rochdale Envelope’ series of maximum extents of the project which have been considered in the Environmental Impact Assessment to identify any potential significant effects.

The Design and Access Statement [REP2-007] secure further details on scale which is secured through dDCO Requirement 16 (4) and is certified under Article 37 and the final design of the onshore project substation must accord with the details provided within and will be further developed post-consent.

Norfolk Boreas Issue Specific Hearing 3 Onshore effects including the draft Development Consent Order

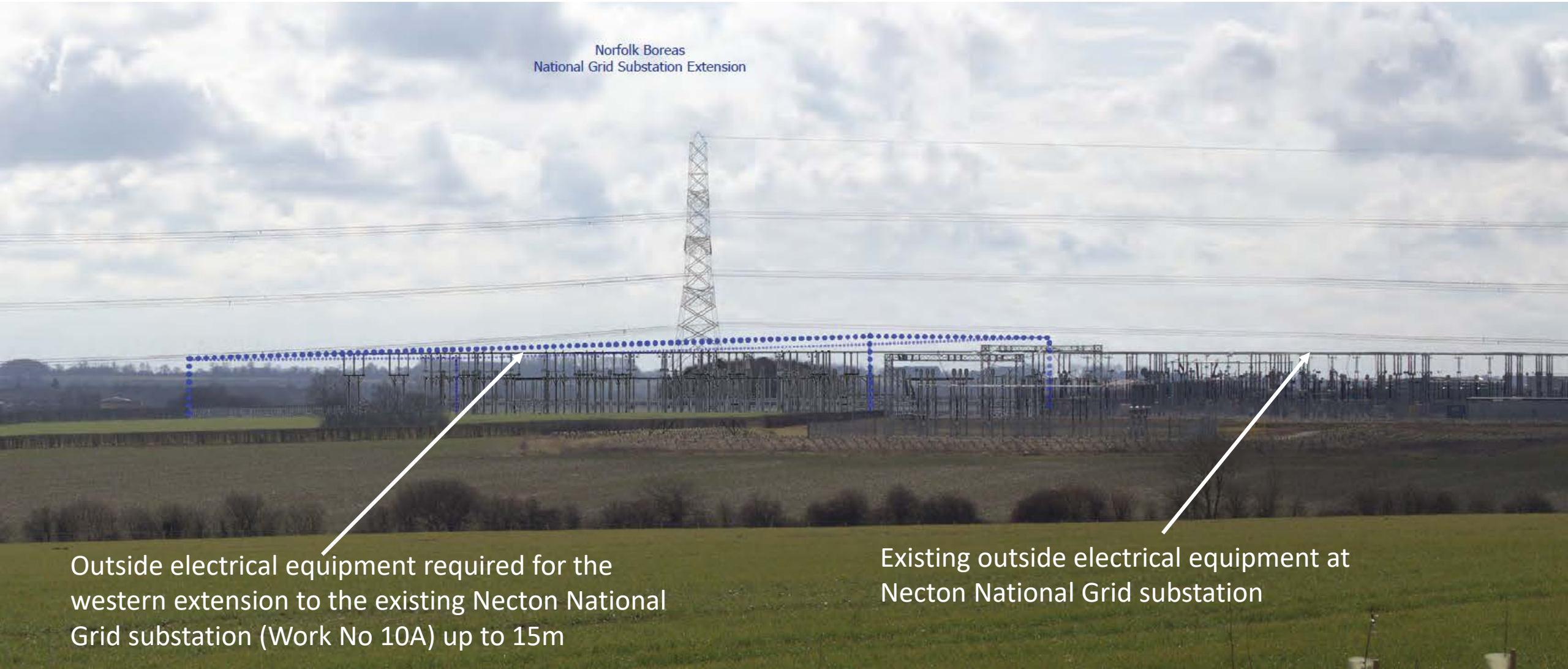
Agenda Item

4 Landscape and Visual Effects, b) Substation Necton (III)



Photograph of existing outside electrical equipment at Necton National Grid Substation.
Appendix 9.4 of the Applicant's Response to Written Question 9.4.6 [REP2-025].

Norfolk Boreas
National Grid Substation Extension

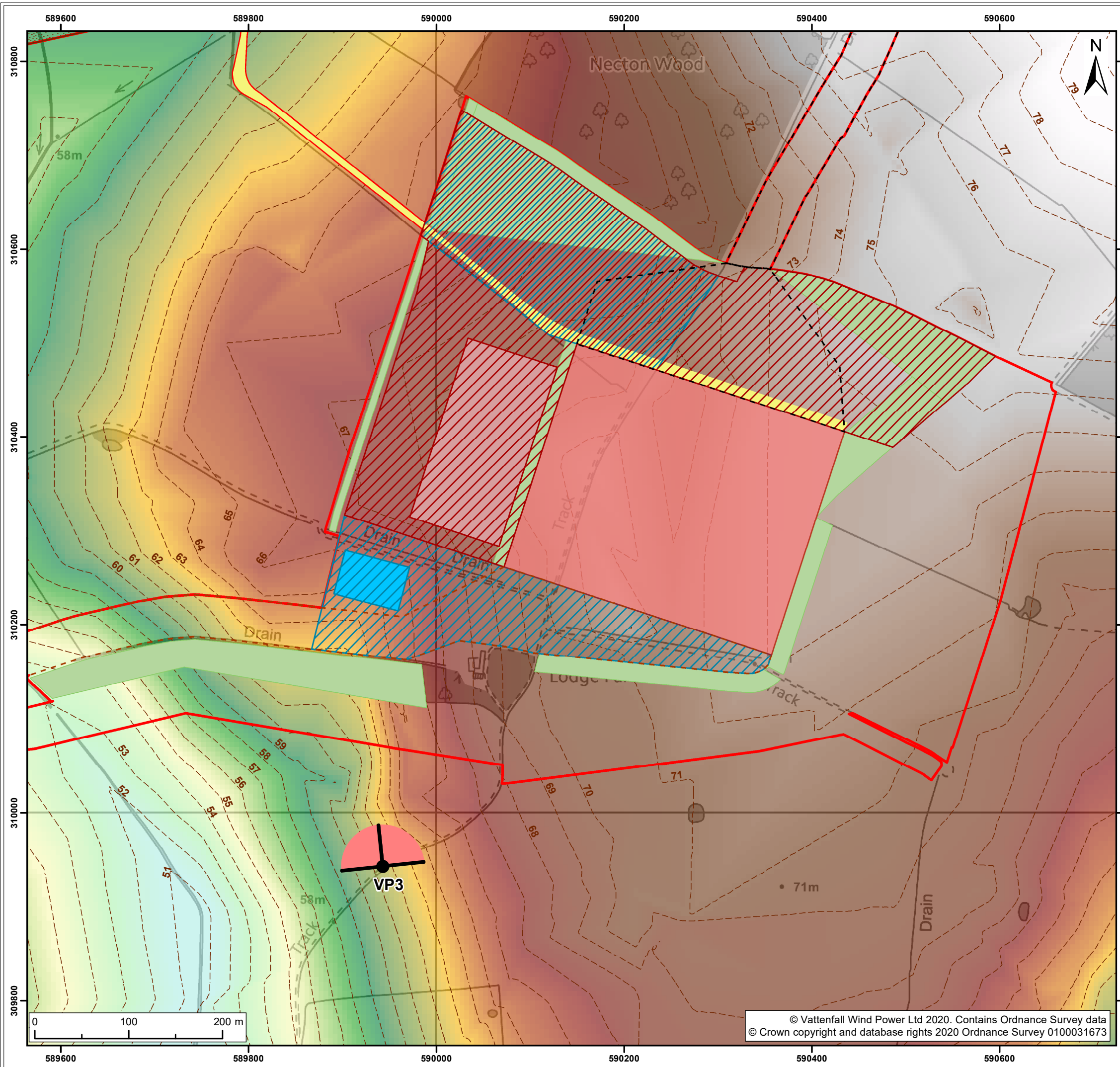


Outside electrical equipment required for the western extension to the existing Necton National Grid substation (Work No 10A) up to 15m

Existing outside electrical equipment at Necton National Grid substation

This is an extract from the Environmental Statement, ES Figure 29.27c (2 of 2)[APP-513]. This extract shows a zoomed in view of the existing National Grid Extension to the east under Norfolk Boreas Scenario 2 (Work No 10A) from Viewpoint 5 – Spicer’s Corner.

**APPENDIX 3: OS MAP SHOWING CHANGE IN LEVELS VP3 (AGENDA ITEM
4 (a) II)**



Legend:

- Norfolk Boreas onshore red line boundary
- Onshore cable route
- Onshore 400kV cable route
- Onshore project substation
- Onshore project substation temporary construction compound zone
- Indicative onshore project substation temporary construction compound
- Overhead line temporary works
- Mitigation areas: Attenuation pond zone
- Indicative attenuation pond
- Indicative mitigation planting
- Access: Permanent access
- Study area 500m
- OS Terrain 5 Contours - 1m Interval
- OS Terrain 5 DTM Elevation (m)
 - High : 80.35
 - Low : 50.38

Project:	Report:
Norfolk Boreas	Environmental Statement

Title:	Viewpoint 3 - Landform
--------	------------------------

Figure:	Drawing No:				
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	17/01/2020	LA	JP	A3	1:4,000

Co-ordinate system: British National Grid EPSG: 27700

VATTENFALL

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