Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions

Preliminary Environmental Information Report

Volume 1

Chapter 28 - Landscape & Visual (LVIA)

April 2021

China Resources
Better Life Together

Masdar
A MUBADALA COMPANY

equinor

Title**:**
Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions **Preliminary Environmental Information Report** **Chapter 28 Landscape and Visual Impact Assessment**
Document no.: PB8164-RHD-ZZ-XX-RP-Z-0010

Date:	Classification
29th April 2021	**Final**

Prepared by:	
LDA	
Approved by:	Date:
Jo Rodriguez, Equinor	29th April 2021

Table of Contents

List of Tables

Volume 2

Volume 3

Glossary of Acronyms

AONB	Area of Outstanding Natural Beauty
BDC	Broadland District Council
CIA	Cumulative Impact Assessment
DCO	Development Consent Order
DECC	Department for Energy and Climate Change
DEFRA	Department for the Environment and Rural Affairs
DEP	Dudgeon Extension Project
DOW	Dudgeon Offshore Wind Farm
EC	European Commission
EIA	Environmental Impact Assessment
EPP	Evidence Plan Process
EPS	European Protected Species
EPUK	Environmental Protection United Kingdom
ES	Environmental Statement
ETG	Expert Topic Group
EU	European Union
GIS	Geographical Information System
IPC	Infrastructure Planning Commission
IPL	Institution of Lighting Professionals
km	Kilometre
LPA	Local Planning Authority
LCA	Landscape Character Area
LCT	Landscape Character Type
NNDC	North Norfolk District Council
NorCC	Norwich City Council
NP	National Park
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OLEMS	Outline Landscape and Ecological Management Strategy
OS	Ordnance Survey
OWF	Offshore Wind Farm

PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate for England and Wales
PPG	Planning Practice Guidance
PRoW	Public Right of Way
SEP	Sheringham Extension Project
SNC	South Norfolk Council
SNS	Southern North Sea
SoS	Secretary of State
UK	United Kingdom
WTG	Wind Turbine Generator

Glossary of Terms

The Applicant	Equinor New Energy Limited
Cumulative effects	The additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together
DCO boundary	The area subject to the application for development consent, including all permanent and temporary works for DEP and SEP. The DCO boundary will be subject to updated impact assessment and further development of mitigation proposals to inform the ES.
Dudgeon Offshore Wind Farm Extension site	The Dudgeon Offshore Wind Farm Extension lease area.
The Dudgeon Offshore Wind Farm Extension Project (DEP)	The Dudgeon Offshore Wind Farm Extension site as well as all onshore and offshore infrastructure.
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach, and information to support, the EIA and HRA for certain topics.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive. This includes candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas, and is defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017.
Horizontal directional drilling (HDD) zones	The areas within the landfall site and the onshore cable route that which would house HDD entry or exit points.
Infield cables	Cables linking the wind turbine generators in strings for connection to the offshore substation platforms. The last turbine in a string will either connect to the offshore substation via an Infield cable or via an Interlink cable depending on the scenario. Cables which link the wind turbine generators to the offshore substation platforms.
Interlink cables	Cables linking two separate project areas. This can be cables linking (1) DEP S and DEP N (2) DEP S and SEP (3) DEP N and SEP (1) is relevant if DEP is constructed alone or first in a phased development (2) and (3) are relevant in a tandem construction

Jointing bays	Underground structures constructed at regular intervals along the onshore cable corridor to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The point on the coastline at which the offshore export cables are brought onshore and connected to the onshore export cables.
Landfall search areas	The areas being considered within which the landfall would be located. A single landfall location will be identified prior to submission of the Preliminary Environmental Information Report (PEIR).
Landscape Character Areas	These are single unique areas which are the discrete geographical areas of a particular landscape character type. Each has its own individual character and identity, even though it shares the same generic characteristics with other types. (Natural England, 2014)
Landscape Character Type	These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation, historical land use, and settlement pattern. (Natural England, 2014)
Landscape effects	Effects on the landscape as a resource in its own right. (Landscape Institute and IEMA, 2013)
Landscape character	A distinct and recognisable pattern of elements in the landscape that makes one landscape different from another, rather than better or worse. (Natural England, 2014)
Landscape quality (or condition)	A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements. (Landscape Institute and IEMA, 2013)
Landscape receptor	Defined aspects of the landscape resource that have the potential to be affected by a proposal. (Landscape Institute and IEMA, 2013)
Landscape value	The relative value that is attached to different seascape and / or landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons. (Landscape Institute and IEMA, 2013)
Magnitude (of effect)	A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or

	irreversible and whether it is short or long term, in duration. (Landscape Institute and IEMA, 2013)
Mitigation	Measures which are proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible remedy identified effects). (Landscape Institute and IEMA, 2013)
PEIR boundary	The area subject to survey and preliminary impact assessment to inform the PEIR, including all permanent and temporary works for DEP and SEP. The PEIR boundary will be refined down to the final DCO boundary ahead of the application for development consent.
Onshore cable corridor	The area between the landfall and the onshore substation Sites, within which the onshore cable circuits will be installed along with other temporary works for construction.
Onshore cable route search area	The areas being considered within which the onshore cable route would be located. A single landfall location and onshore cable route will be identified prior to PEIR.
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substation. 220 – 230kV
Onshore scoping area	An area that encompasses all planned onshore infrastructure and allows sufficient room for receptor identification and environmental surveys. This will be refined following further site selection and consultation.
Onshore substation Sites	Parcels of land within onshore substation zones A and B, identified as the most suitable location for development of the onshore substation. Two sites have been identified for further assessment within the PEIR.
Onshore substation search area	An area within which the onshore substation is likely to be located. Further iterations of this area will be developed in 2020 following review of feedback from public drop-in exhibitions and other input from other stakeholders. An onshore project substation location will be defined prior to PEIR.
Onshore Substation Zone	Parcels of land within the wider onshore substation search area identified as suitable for development of the onshore substation. Two substation zones (A and B) have been identified as having the greatest potential to accommodate the onshore substation.
Sheringham Shoal Offshore Wind Farm Extension site	Sheringham Shoal Offshore Wind Farm Extension lease area.

The Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Shoal Offshore Wind Farm Extension site as well as all onshore and offshore infrastructure.
Seascape	Landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other. (HM Government, Northern Ireland Executive, Scottish Government and Welsh Assembly Government, 2011 and Marine Management Organisation, 2019A)
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor. (Landscape Institute and IEMA, 2013)
Study area	Area where potential impacts from the project could occur, as defined for each individual EIA topic.
Transition joint bay	Connects offshore and onshore export cables at the landfall. The transition joint bay will be located above mean high water
Visual amenity	The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of people living, working, recreating, visiting or travelling through an area. (Landscape Institute and IEMA, 2013)
Visual effect	Effects on specific views and on the general visual amenity experienced by people. (Landscape Institute and IEMA, 2013)
Visual receptor	Individuals and/or defined groups of people who have the potential to be affected by a proposal. (Landscape Institute and IEMA, 2013)
Zone of Theoretical Visibility (ZTV)	A map, usually digitally produced, showing areas of land within which a development is theoretically visible. (Landscape Institute and IEMA, 2013)

28 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

28.1 Introduction

1. This chapter of the Preliminary Environmental Information Report (PEIR) considers the potential impacts of the proposed Dudgeon Offshore Wind Farm Extension Project (DEP) and Sheringham Shoal Offshore Wind Farm Extension Project (SEP) on landscape and visual resources.
2. The chapter provides an overview of the existing environment for the proposed onshore development area, by defining the existing landscape and visual baseline environments; assessing their sensitivity to change; describing the key landscape and visual related aspects of the proposed developments; describing the nature of the anticipated change upon the landscape and visual environments; and assessing the magnitude and significance of the changes for the construction, operational and decommissioning stages of DEP and / or SEP. An assessment of the seascape, landscape and visual impacts of the offshore development areas is provided separately in **Chapter 27 Seascape and Visual Impact Assessment**.
3. This chapter has been written by LDA Design Consulting Ltd ('LDA Design'), with the landscape and visual impact assessment (LVIA) undertaken with specific reference to the relevant legislation and guidance, of which the primary sources are the National Policy Statements (NPS). Details of these and the methodology used for the Environmental Impact Assessment (EIA) and Cumulative Impact Assessment (CIA) are presented in **Section 28.4**.
4. This assessment should be read in conjunction with the following linked chapters:
   - **Chapter 22 Onshore Archaeology and Cultural Heritage**; and
   - **Chapter 27 Seascape and Visual Impact Assessment**.
5. Additional information to support the LVIA is included in **Appendix 28.1**:
   - **Annex 28.1 – Landscape and Visual Impact Assessment Methodology;**
   - **Annex 28.2 – Visualisations and ZTV Studies Methodologies;**
   - **Annex 28.3 – Extracts from relevant landscape character assessments;**
   - **Annex 28.4 – Viewpoint Descriptions;** and
   - **Annex 28.5 – Summary of Potential Impacts during the Construction and Decommissioning Phases – Onshore Substation Site Options**.

28.2 Consultation.

6. Consultation with regards to the LVIA has been undertaken in line with the general process described in **Chapter 6 EIA Methodology**. The key elements to date have included scoping and the ongoing Evidence Plan Process (EPP) via the DEP and SEP Landscape and Seascape Expert Topic Group (ETG) meetings on 23rd and 30th March 2020. Additional consultation with relevant stakeholders with respect to the LVIA's proposed representative viewpoints, study areas and approach to visualisations at both PEIR and Environmental Statement (ES) stages was also undertaken at the outset of the LVIA.
7. The feedback received has been considered in preparing the PEIR.

8. **Table 28-1** provides a summary of how the consultation responses received to date have influenced the approach that has been taken.

9. This chapter will be updated following the consultation on the PEIR in order to produce the final assessment that will be submitted with the Development Consent Order (DCO) application. Full details of the consultation process will also be presented in the Consultation Report alongside the DCO application.

Table 28-1: Consultation responses

Consultee	Date/ Document	Comment	Project Response
PINS	Scoping Opinion Nov 2019	ID 6.1.2. Visual effects from the onshore cable route (including the landfall) during operation are unlikely to be significant and can be scoped out of the assessment. However, the ES should assess any likely significant long-term landscape effects that could persist from landfall and cable construction activities; for example as a result of any vegetation clearance. This should take into account the effectiveness of any proposed mitigation measures.	Visual effects from the onshore cable corridor during operation are scoped out and not assessed in this chapter. Effects due to vegetation removal that may persist beyond the construction phase are assessed in **Section 28.6**.
PINS	Scoping Opinion Nov 2019	ID 6.1.3. The Inspectorate recommends that the Applicant makes efforts to agree representative receptors with relevant consultation bodies, including the local planning authorities. The locations of representative receptors should be depicted on a figure within the ES.	Relevant consultation bodies have been consulted to agree representative viewpoints and receptors as described in this table.
PINS	Scoping Opinion Nov 2019	ID 6.1.5. The ES should provide clear definitions of the terminology used in the assessment, for example ‘short-term’, ‘long-term’ and ‘temporary’.	These terms are defined in **Section 28.4.2**.

Consultee	Date/ Document	Comment	Project Response
PINS	Scoping Opinion Nov 2019	ID 6.1.7. The study areas should be clearly explained and justified within the ES.	The study areas have been agreed with relevant consultees as described in this table and **Section 28.3.1**.
PINS	Scoping Opinion Nov 2019	ID 6.1.8. The Inspectorate recommends that the ES should make use of photomontages to illustrate the … onshore substation. Views should be verified and visualisations should accord with industry standards.	At the PEIR stage, photomontages of the onshore substation Site options are provided from selected viewpoints for consultation purposes, not for the assessment of potential effects, and are included in **Volume 2**. At the ES stage, photomontages of the final substation option (to be submitted with the DCO submission) will be presented from selected viewpoints locations. Wireframes and photomontages presented in **Volume 2** of this chapter are verified and accord with industry standards.
PINS	Scoping Opinion Nov 2019	ID 6.1.9. The ES should identify any vegetation clearance that will be required for the Proposed Development. The assessment of effects should take into account the time taken for any proposed reinstatement or mitigation planting to establish and mature.	Potential vegetation clearance and time for reinstatement planting to mature is taken into account in **Section 28.6** within regards to the onshore cable corridor. Potential vegetation clearance within the substation Sites is also taken into account in **Section 28.6**. At PEIR stage, the substation Sites are indicative, and no mitigation planting design has been undertaken or accounted for in **Section 28.6**. Planting design will be undertaken when a final substation Site has

Consultee	Date/ Document	Comment	Project Response
			been selected and further substation design work undertaken. This will be presented in the DCO submission and accounted for within the LVIA submitted with the DCO ES.
PINS	Scoping Opinion Nov 2019	ID 6.1.10. The ES should describe any lighting that would be in place throughout the lifetime of the Proposed Development and assess any likely significant effects from light pollution, including on local amenity receptors.	Effects due to potential lighting are accounted for within **Section 28.6**. Lighting will be described in the ES supporting the DCO submission. .
Natural England South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	ETG agreed the following approach to visuals: Visuals will be produced from agreed representative viewpoints, in accordance with: • Landscape Institute Technical Guidance Note 06/19 Visual Representation of Development Proposals, September 2019. • Visual Representation of Wind Farms Version 2.2, Scottish Natural Heritage, February 2017. Wireframes for impact assessment will present the 'worst case' in accordance with the Rochdale Envelope approach. E.g. they will show the maximum outline development envelope.	Wireframes following this approach are presented in **Volume 2**. At the PEIR stage, photomontages of the onshore substation Site options are provided from selected viewpoints for consultation purposes, not for the assessment of potential effects, and are included in **Volume 2**. At the ES stage, photomontages of the final substation option (to be submitted with the DCO submission) will be presented from selected viewpoints locations. Wireframes and photomontages presented in **Volume 2** are, and visualisations that will be included in the LVIA for the DCO submission will be, in accordance with:

Consultee	Date/ Document	Comment	Project Response
		Illustrative photomontages showing potential scheme during operation will also be produced.	• Landscape Institute Technical Guidance Note 06/19 Visual Representation of Development Proposals, September 2019. • Visual Representation of Wind Farms Version 2.2, Scottish Natural Heritage, February 2017.
Natural England South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	ETG agreed with the following list of data sources: • National Landscape Character Area Profiles • North Norfolk Landscape Character Assessment DRAFT Supplementary Planning Document 2018 • North Norfolk Landscape Sensitivity Assessment DRAFT Supplementary Planning Document 2018 • Broadland District Landscape Character Assessment 2008 (updated 2013) • South Norfolk District Landscape Character Assessment 2001 (updated 2006 and 2008) • South Norfolk District Landscape Designations Review 2012 • Norfolk Coast Area of Outstanding Natural Beauty Management Plan Strategy 2014-2019.	These have been reviewed and, where relevant, referred to in this chapter.

Consultee	Date/ Document	Comment	Project Response
		• Norfolk Coast Area of Outstanding Natural Beauty Integrated Landscape Guidance.	
Natural England South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	The ETG agreed that the North Norfolk, Broadland and South Norfolk district landscape character assessments should be used as the baseline for assessing landscape effects, informed by other reports and assessments.	These landscape character assessments are used as the landscape baseline in this chapter, informed by other relevant reports and assessments.
Natural England South Norfolk and Broadland District Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	The ETG agreed with the following list of visual receptors for assessing visual effects: • Settlements • Public Rights of Way • Beach / coastal margin and other accessible landscapes • Key routes road and rail • Key routes recreational (long distance walking routes, cycle routes) • Specific viewpoints	Effects on these visual receptors are assessed in this chapter.

Consultee	Date/ Document	Comment	Project Response
North Norfolk District Council Norwich City Council			
Natural England South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	ETG agreed with the following list of landscape designations and areas or features protected by policy for consideration with regard to onshore landscape and visual impact assessment. • Norfolk Coast Area of Outstanding Natural Beauty (AONB). • Rural River Valleys and Valley Urban Fringe landscape character types (South Norfolk Local Plan DMPD Policy DM 4.5). • Norwich Southern Bypass Landscape Protection Zone (NSBLPZ), Key Viewing Cones and Undeveloped Approaches to Norwich (South Norfolk Local Plan DMPD Policy DM 4.6).	These are considered in this chapter and, where there is potential for effects to occur, these are assessed. Since this consultation the onshore cable corridor has been refined and the North Norfolk Heritage Coast (NNHC) now lies within the 1km study area of the onshore cable corridor, at the landfall. Heritage Coasts are 'defined' and not 'designated' as explained in **Section 28.5.5.1.7.2**. Effects on the NNHC are assessed in this chapter.
Natural England	23 March 2020 Landscape / Seascape Expert Topic	The ETG agreed that South Norfolk District Council and Norwich City Council will be consulted to agree representative viewpoints for the onshore substation.	South Norfolk District Council (SNDC) and Norwich City Council (NorCC) have been consulted to agree representative viewpoints

Consultee	Date/ Document	Comment	Project Response
South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	Group (ETG) meeting		for the onshore substation as described in this table below.
Natural England South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	The ETG agreed with the following list of potential impacts with regard to onshore cable corridor including landfall. • Temporary effects during construction. • No significant effects during decommissioning. • Effects due to removal and re-instatement of hedgerows and trees. • Effects during the first few years of operation as re-instated vegetation matures. (Noting that Planning Inspectorate for England and Wales (PINS) scoping opinion states that that visual effects from the onshore cable route (including the landfall) during operation are unlikely to be significant and can be scoped out of the	These potential impacts are addressed in this chapter.

Consultee	Date/ Document	Comment	Project Response
		assessment, but that landscape effects should be assessed (while planting matures)).	
Natural England South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	The ETG agreed with the following list of potential impacts with regard to the onshore substation. • Temporary effects during construction and decommissioning. • Long-term effects during operation, factoring in time taken for mitigation planting to mature. • Effects on landscape character. • Effects on visual receptors. • Effects on areas or features protected by local policy.	These potential impacts are addressed in this chapter.
Natural England South Norfolk and Broadland District Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	ETG agreed with the approach to the assessment of effects on residential visual amenity as the following summary: • Will be assessed for onshore substation only. • Assess to identify whether the substation would be sufficiently “oppressive” or “overbearing” that the residential property would be rendered an unattractive place in which to live (consistent with	Effects on residential visual amenity are addressed in **Section 28.4.2.2.2**

Consultee	Date/ Document	Comment	Project Response
North Norfolk District Council Norwich City Council		Landscape Institute Technical Guidance Note 2/19, Residential Visual Amenity Assessment (RVAA) 15 March 2019). (Landscape Institute 2019)	
Natural England South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	ETG agreed with the following approach to the assessment of effects on the Qualities of Natural Beauty of the AONB within the LVIA. • The LVIA will assess effects on the Qualities of Natural Beauty of the Norfolk Coast AONB that are relevant to seascape, landscape and visual.	This has been assessed in **Section 28.6.2.3**.
		Photography for the visuals for the PEIR would need to be taken in summer 2020 to ensure that the programme for PEIR submission is met. The ETG requested that winter photography is also taken and presented in the	The visuals supporting this chapter show photography taken in summer 2020. The visuals presented in the LVIA chapter of the ES for the DCO submission will include winter photography.

Consultee	Date/ Document	Comment	Project Response
		visuals within the LVIA chapter of the ES for the DCO submission.	
Natural England South Norfolk and Broadland District Council North Norfolk District Council Norwich City Council	23 March 2020 Landscape / Seascape Expert Topic Group (ETG) meeting	The ETG agreed with the presented approach to the tree and hedgerow assessment, but that further detail has yet to be defined by Equinor on matters such as replacement and 'no net loss' for trees that may need to be removed.	A preliminary 200m wide cable corridor is assessed in this chapter. This will be refined and narrowed down (to approximately 60m) prior to DCO submission and measures to avoid woodland removal considered further. A full hedgerow assessment has not been undertaken yet. An assessment of hedges identified as "important" in accordance with the Hedgerow Regulations 1997 will be submitted with the DCO. The value of hedgerows, trees and woodlands in the landscape have been considered in informing impact assessment in **Section 28.6**.
Norfolk County Council Norwich City Council South Norfolk	8 Sept 2020. Email consulting on LVIA: 1. study areas of 4km from the onshore substation Sites. 2. study area of 1km from the	Equinor proposed the following approach to visuals: <u>PEIR stage</u> Wireframes showing the existing view (baseline panoramic photograph) and a wireframe overlaid over a baseline panoramic photograph showing proposed substation during its operational phase. Substations presented as wirelines showing the maximum potential development areas (e.g. the full	The proposed study areas for the onshore development of DEP and SEP have been agreed with all of the consultees who responded on this matter and are used in this chapter. Wirelines have been provided in this chapter, including from Marston Marshes (see **Figures 28.18** to **28.35**). The exact location of some viewpoints has been moved slightly from that

Consultee	Date/ Document	Comment	Project Response
District Council	final cable corridor. 3. representative viewpoints for the onshore substation Sites. 4. visualisations to be produced for the PEIR and ES stages	potential footprint of each site and the maximum potential heights of buildings and external equipment across the full extent of each site). Photomontages will not be produced at PEIR stage. <u>ES stage</u> Wireframes and photomontages (daytime views) of the final selected substation location will be produced from representative viewpoints. Further photography will be taken in winter 2020 / 2021 while deciduous trees are not in leaf and used in the wireframes and photomontages for the ES. Night-time photomontages will not be produced. <u>Consultee responses</u> Norfolk County Council agreed to the proposals with no further comments. Norwich City Council agreed with proposed study areas and approach to the visualisations, and request one additional viewpoint from Marston Marshes.	consulted on, to use the best locations identified when undertaking detailed site work. Further to the consultation process, the originally proposed approach has been revised to include photomontage (daytime) at the PEIR stage from selected viewpoint locations for the purposes of consultation and are included in **Volume 2**. These are not used to inform the assessment of potential effects. At the ES stage, photomontages (daytime) of the final substation option (to be submitted with the DCO submission) will be presented from selected viewpoints locations, utilising winter photography. Wireframes presented in this chapter are, and visualisations that will be included in the LVIA for the DCO submission will be, verified and accord with industry standards.

Consultee	Date/ Document	Comment	Project Response
		South Norfolk District Council advised by phone to refer to the previous LVIA undertaken for the Hornsea 3 Substation in determining these matters. No written response has been received from South Norfolk District Council.	
North Norfolk District Council South Norfolk District Council / Broadland District Council Natural England Norfolk Coast Partner-ship	24 Nov 2020. Email consulting on LVIA study area of 1km from the final cable corridor.	Norfolk Coast Partnership and North Norfolk District Council stated that they had no comments. South Norfolk District Council / Broadland District Council and Natural England agreed with the study area.	A 1km study area from the draft onshore cable corridor PEIR boundary is used in this chapter.

28.3 Scope

28.3.1 Study Areas

10. The study areas for onshore development have been agreed with the relevant planning authorities and consultees as set out in **Table 28-1** as being appropriate to cover all potentially material landscape and visual significant impacts and have been informed by the extent of Zone of Theoretical Visibility (ZTV) studies, professional judgement and fieldwork.

11. The extents of these study areas are illustrated on **Figures 28.1** to **28.6** summarised below:

28.3.1.1 Onshore cable corridor

12. A 1km study area from the extents of the onshore cable corridor has been agreed, see **Figures 28.1** to **28.6**.

13. Fieldwork has identified that the propensity of vegetation, including hedgerows, trees, woodlands and scrub, within the landscape crossed by the cable corridor, combined with other features such as buildings, mean that views of the construction works would reduce rapidly with distance from the cable corridor. The scale of impacts would vary depending on the exact nature of views available, although beyond approximately 100 - 300m views of construction works would generally be limited or obscured. If views are possible beyond this distance, the potential for landscape or visual effects would be very limited. Therefore, a 1km study area is considered to be conservative.

28.3.1.2 Onshore substation Sites Option 1 and Option 2

14. Individual 4km study areas from each of the onshore substation Site options (sites 1 and 2) has been agreed to inform the LVIA, as shown on **Figure 28.6**.

15. The ZTV studies for the onshore substation Site options (shown on **Figures 28.15** and **28.16**) indicate that the two sites would theoretically be visible from extensive parts of both study areas, becoming more limited beyond approximately 4km from each onshore substation Site.

16. However, in reality, the actual visibility of either onshore substation Site that would be experienced by people would be influenced substantially by features within the landscape, including vegetation, landform and buildings, that is of a smaller scale than the main woodlands, settlements and landform modelled on the ZTVs. Fieldwork has identified that the visibility of either onshore substation Site would be substantially less than the extent of the theoretical visibility generated by the computer model, and effects beyond 4km are unlikely to occur.

17. Therefore, landscape and visual receptors are scoped out beyond 4km from the onshore substation sites.

28.3.2 Realistic Worst Case Scenario

28.3.2.1 General Approach

18. The final design of DEP and / or SEP will be confirmed through detailed engineering design studies that will be undertaken post-consent to enable the commencement of construction. In order to provide a precautionary but robust impact assessment at this stage of the development process, realistic worst case scenarios have been defined in terms of the potential effects that may arise. This approach to EIA, referred to as the Rochdale Envelope, is common practice for developments of this nature, as set out in Planning Inspectorate Advice Note Nine (2018). The Rochdale Envelope for a project outlines the realistic worst case scenarios for each individual impact, so that it can be safely assumed that all lesser options would not have greater impact. Further details are provided in **Chapter 6 EIA Methodology**.

19. The parameters of both the SEP and DEP are described in **Chapter 5 Project Description**, which provide further detail regarding specific activities and their durations. Consideration is also given to how SEP and / or DEP would be built out as described in **Sections 28.3.2.2** to **28.3.2.4**. This accounts for the fact whilst DEP and SEP are subject to one DCO application, it is possible that either one or both projects would be developed, and if both are developed, that construction may be undertaken either concurrently or sequentially.

20. The realistic worst case scenario of the LVIA is summarised in

21. **Table 28-2**. The table presents the parameters (as described in **Chapter 5 Project Description**) that would result in the greatest potential effects on landscape and visual receptors.

22. The LVIA's approach is based on the assessment of the maximum parameters on landscape and visual receptors, which would occur as a result of the maximum land-take; longest durations of construction, operation, and decommissioning; and maximum height / size of development. Should smaller, shorter and / or lower parameters be built, landscape and visual receptors would be affected to a lesser degree, but not to such an extent that effects presented in **Section 28.6** would be materially different.

28.3.2.1.1 Onshore cable corridor

23. The greatest potential effects arising as a result of the onshore cable corridor would be experienced during the construction phase of DEP and / or SEP, albeit this period would be temporary in nature and of shorter duration than the operational phase. However, during this period, the visible nature of the construction activity would be experienced to a greater degree than the buried cable that would operate during the subsequent phase of DEP and SEP.

24. During operation the cables would be buried. Link boxes (which could be required up to a frequency of one every 500m along the onshore cable corridor) would either be buried to ground level with a secured access panel visible on the ground surface and with an above ground marker post to locate each link box or may be above ground in cabinets with a footprint of approximately 1m x 1.5m and up to 1.5m tall.

25. During decommissioning the cables would be removed without the need to re-excavate the onshore cable corridor trenches, and link boxes would be removed and ground reinstated, and effects would be short-term and very limited.

26. Therefore, the LVIA will only describe in detail the potential effects arising from this part of the onshore development during the construction phase in **Section 28.6**, but taking into account longer-term effects due to vegetation removal and reinstatement. This is in accordance with the agreements reached during consultation (see **Section 28.6**). The realistic worst case scenarios summarised in **Table 28-2** therefore only presents the construction phase in relation to the onshore cable corridor.

27. The PEIR onshore cable corridor is generally 200m wide, and wider at locations such as the landfall. The final cable corridor will be narrowed to 60m if both DEP and SEP are constructed or 45m if only one of the projects is constructed (but may be wider at certain locations such as trenchless crossings) and could occur in any part of the 200m wide PEIR onshore cable corridor. Therefore, the assessment of effects is based on the 60m or 45m wide onshore cable corridor being located within the 200m PEIR cable corridor where the greatest effects on each receptor is likely to arise.

28. Where hedgerows, trees and woodlands occur within the working area (and cables are not installed by trenchless techniques), they will be removed. Where the onshore cable corridor crosses through woodland and hedgerows, the working corridor width would be reduced to a typical working width of 20m for all scenarios, and woodland and hedgerows outside the narrower 20m working width would be retained. Trees and woodland would be replanted within the construction corridor (subject to landowner agreements) but outside the final cable easement of 20m width if both DEP and SEP are constructed and 12m if only DEP or SEP is constructed, where tree planting would be prohibited.

29. The realistic worst case scenarios would see onshore cable corridor construction activity with a typical works duration of four to eight weeks at any particular location, with approximately five months at the landfall for HDD and duct installation and a further six months for the cable pull.

30. For the purpose of this PEIR stage assessment, it is assumed that only main rivers, A-roads and railway lines would be crossed by trenchless techniques. It is assumed that outside these areas all vegetation would be removed within the final 60m wide cable corridor for both DEP and SEP, or 45m wide cable corridor for a single project (DEP or SEP), reduced to 20m at woodland and hedge crossings, with vegetation re-planted as described in **Section 28.3.3**.

28.3.2.1.2 Onshore substation

31. The greatest potential effects arising as a result of this part of the onshore substation development would occur during the operational phase of SEP and / or DEP. The construction and decommissioning phases would be shorter in duration and temporary in nature compared to the operational lifetime of SEP and / or DEP, and would affect receptors to a lesser degree. Therefore, in order to keep the LVIA proportionate, the chapter only describes in detail potential effects arising from the onshore substation Site during the operational phase in **Section 28.6**. A summary of the potential effects that would arise as a consequence of the construction and decommissioning phases are set out in **Annex 28.5**.

Table 28-2: Realistic Worst Case Scenario

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
Construction				
Impacts relating to the landfall	<u>Temporary HDD works</u> • HDD temporary works compound area = 5,750m^2 • Transition joint bay size = 10 x 15m. • Total construction space required = 30,000m^2	<u>Temporary HDD works</u> • HDD temporary works compound area = 5,750m^2 • Transition joint bay size = 15 x 15m. • Total construction space required = 30,000m^2	<u>Temporary HDD works</u> • HDD temporary works compound area = 5,750m^2 for each project (overlapping) • Transition joint bay size = 10 x 15m for each project • Total construction space required for each project = 30,000m^2 (overlapping)	The HDD works should not require any prolonged periods of restrictions or closures to the beach for public access, although it is possible that some work activities will be required to be performed on the beach that may require short periods of restricted access.
Impacts relating to the onshore cable corridor	<u>Temporary access</u> • Various from public highway (6m wide) to single tracks (3m wide). • Access haul road dimensions = 60km long by 6m wide.	<u>Temporary access</u> • Various from public highway (6m wide) to single tracks (3m wide). • Access haul road dimensions = 60km long by 6m wide.	<u>Temporary access</u> • Various from public highway (6m wide) to single tracks (3m wide). • Access haul road dimensions = 60km long by 6m wide.	The onshore cable duct will be installed in sections of up to 1km at a time, with a typical construction presence of up to four weeks along each 1km section.

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
	Duration • 24 months in total	Duration • 24 months in total	Duration • 24 months in total	The maximum land-take (60m x 60km) is assessed as the realistic worst case scenario. Working corridor reduced to 20m wide at woodland and hedgerow crossings. The maximum duration (7 years) in which DEP and SEP could be constructed and in which effects could occur, would represent the realistic worst case scenario. This assumes that DEP and SEP are constructed sequentially with the maximum period of inactivity between DEP and SEP.
	Material volumes • Width of top soil storage = 6m • Quantity of material excavated for cable trench = 180,000m^3 of which 36,000m^3 to be disposed of	Material volumes • Width of top soil storage = 6m • Quantity of material excavated for cable trench = 360,000m^3 of which 72,000m^3 to be disposed of	Material volumes • Width of top soil storage = 6m • Quantity of material excavated for cable trench = 360,000m^3 of which 72,000m^3 to be disposed of	
	Construction corridor • Total width = 45m • Total Length = 60km • Jointing bays = 120 (approximately every 500m) buried below ground • Jointing bay dimensions = 12m long by 4m wide by 2m deep within the working corridor • One trench, 1m wide by 1.75m deep.	Construction corridor • Total width = 60m • Total Length = 60km • Approximately 120 jointing bays (one every 500m) buried below ground • Jointing bay dimensions = 12m long by 4m wide by 2m deep within the working corridor. • Two trenches, each 1m wide by 1.75m deep.	Construction corridor • Total width = 60m • Total Length = 60km • Approximately 240 jointing bays (one every 500m) buried below ground along each cable trench • Jointing bay dimensions of 12m long by 4m wide by 2m deep within the working corridor. • Two trenches, each 1m wide by 1.75m deep.	

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
	• Minimum cable burial depth at 1.2m • Working corridor reduced to 20m wide at woodland and hedgerow crossings	• Minimum cable burial depth at 1.2m • Working corridor reduced to 20m wide at woodland and hedgerow crossings	• Minimum cable burial depth at 1.2m • Working corridor reduced to 20m wide at woodland and hedgerow crossings.	
	Construction compounds • Up to 2 main compounds of 60,000m^2 each • 8 secondary compounds of 2,500m^2 each • HDD compounds = 1,500m^2 - 4,500m^2	Construction compounds • Up to 2 main compounds of 60,000m^2 each • 8 secondary compounds of 2,500m^2 each • HDD compounds = 1,500m^2 - 4,500m^2	Construction compounds • Up to 2 main compounds for each project of 60,000m^2 each • 8 secondary compounds for each project of 2,500m^2 each • HDD compounds = 1,500m^2 - 4,500m^2	
Impacts relating to the onshore substation	Substation footprint • Permanent area = 3.25ha. • Temporary construction area = 1ha • Total construction area = 4.25ha	Substation footprint • Permanent area = 6.0ha • Additional construction area = 1ha • Total construction area = 7.0ha.	Substation footprint • Permanent area = 6.25ha • Additional construction area = 1ha • Total construction area = 7.25ha.	
	Platform ground level Platform ground level of each substation Site is modelled at the maximum	Platform ground level Platform ground level of each substation Site is modelled at the maximum	Platform ground level Platform ground level of each substation Site is modelled at the maximum	

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
	existing ground level within each site for the full site areas, and building and electrical equipment heights are projected above those levels for the ZTVs (**Figures 28.15** and **28.16**) and the wireframes (**Figures 28.18** to **28.35**). The final platform level(s) of the selected substation Site would be no higher than this and is likely to be lower.	existing ground level within each site for the full site areas, and building and electrical equipment heights are projected above those levels for the ZTVs (**Figures 28.15** and **28.16**) and the wireframes (**Figures 28.18** to **28.35**). The final platform level(s) of the selected substation Site would be no higher than this and is likely to be lower.	existing ground level within each site for the full site areas, and building and electrical equipment heights are projected above those levels for the ZTVs (**Figures 28.15** and **28.16**) and the wireframes (**Figures 28.18** to **28.35**). The final platform level(s) of the selected substation Site would be no higher than this and is likely to be lower.	
Operation				
Impacts relating to the onshore cable route	Link boxes • Below ground = 120 (up to 2m x 2m x 1.5m) plus an above ground marker post at each location • Above ground = 120 (up to 1.5m x 1m x 1.5m)	Link boxes • Below ground = 120 (up to 2m x 2m x 1.5m) plus an above ground marker post at each location • Above ground = 120 (up to 1.5m x 1m x 1.5m)	Link boxes • Below ground = 120 for each project (up to 2m x 2m x 1.5m) plus an above ground marker post at each location • Above ground = 120 for each project (up to 1.5m x 1m x 1.5m)	Link boxes are expected to be below ground. Alternatively link boxes may be above ground in cabinets.

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
Impacts relating to the onshore substation	Substation footprint • Operational area = 3.25ha	Substation footprint • Operational area = 6.0ha	Substation footprint • Operational area = 6.25ha	
	Substation buildings • Max building height = 15m • Max height of electrical equipment = 30m above platform level	Substation buildings • Max building height = 15m • Max height of electrical equipment = 30m above platform level	Substation buildings • Max building height = 15m • Max height of electrical equipment = 30m above platform level	
	Platform ground level Platform ground level of each substation site is modelled at the maximum existing ground level within each site for the full site areas and building and electrical equipment heights are projected above those levels for the ZTVs (**Figures 28.15** and **28.16**) and the wireframes (**Figures 28.18** to **28.35**). The final platform level(s) of the selected substation Site would be no higher than this and is likely to be lower.	Platform ground level Platform ground level of each substation site is modelled at the maximum existing ground level within each site for the full site areas and building and electrical equipment heights are projected above those levels for the ZTVs (**Figures 28.15** and **28.16**) and the wireframes (**Figures 28.18** to **28.35**). The final platform level(s) of the selected substation Site would be no higher than this and is likely to be lower.	Platform ground level Platform ground level of each substation site is modelled at the maximum existing ground level within each site for the full site areas and building and electrical equipment heights are projected above those levels for the ZTVs (**Figures 28.15** and **28.16**) and the wireframes (**Figures 28.18** to **28.35**). The final platform level(s) of the selected substation Site would be no higher than this and is likely to be lower.	

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
	Duration Maximum operational duration of each project 35 years.	Duration Maximum operational duration of each project 35 years. The substation could be in place for up to 38 years if the projects are built sequentially and the substation is removed and site reinstated at the end of the life of the second project.	Duration Maximum operational duration of each project 35 years. The substation could be in place for up to 38 years if the projects are built sequentially and the substation is removed and site reinstated at the end of the life of the second project.	
Decommissioning				
Removal of buildings/equipment across the permanent area of site. Decommissioned sequentially with the maximum period of inactivity between DEP and SEP. The maximum land-take, height parameters and duration in which DEP and SEP could be decommissioned.				

28.3.2.2 Construction Scenarios

32. The following principles set out the framework for how DEP and SEP may be constructed:
    - DEP and SEP may be constructed at the same time, or at different times;
    - If built at the same time both DEP and SEP could be constructed in four years;
    - If built at different times, either DEP or SEP could be built first;
    - If built at different times the first project would require a four-year period of construction, the second project a three-year period of construction;
    - If built at different times, the duration of the gap between end of onshore construction of the first project, and the start of onshore construction of the second project may vary from 0 to 1 year; and
    - Assuming maximum construction periods, and taking the above into account, the maximum period over which the construction of both projects could take place is 7 years.

28.3.2.3 Operation Scenarios

33. Operation scenarios are described in detail in **Chapter 5 Project Description**, and are as follows:
    - Only DEP in operation;
    - Only SEP in operation; and
    - DEP and SEP operating at the same time, with a gap of up to 3 years between each project commencing operation and up to three years between each project being decommissioned.

34. The operational lifetime of the onshore substation is expected to be 35 years for each project, but the substation could be in place for up to 38 years if the projects are built sequentially and the substation is removed and site reinstated at the end of the life of the second project.

35. It has been assessed in light of the various operation scenarios set out above, should either SEP or DEP operate in isolation or together, there would be little to no material difference in the greatest potential effects on landscape and visual receptors that could arise as a result of a single onshore substation Site.

36. Therefore, the LVIA assesses the realistic worst case scenario set out in **Table 28-2** and considers the potential effects on landscape and visual receptors that could arise as a result of either onshore substation Site option 1 or 2.

28.3.2.4 Decommissioning Scenarios

37. For the purpose of this assessment, it is assumed that decommissioning of SEP and DEP could be conducted separately, or at the same time, similar to the description of the construction phase in **Section 28.3.2.2**.

28.3.3 Summary of Mitigation Embedded in the Design

28.3.3.1 Introduction

38. The LVIA is based on a 'mitigation by design' approach, which means that during the course of the preliminary design development of the onshore components for SEP and / or DEP, landscape considerations have been taken into account as an integral part of the design process. These are described in so far as possible at this PEIR stage in **Chapter 5 Project Description** and will be described in further detail in the Outline Landscape and Ecological Management Plan which will be submitted as part of the final DCO application.

39. In accordance with this approach, the LVIA describes in the following sections the range of appropriate landscape mitigation measures to address the specific effects predicted to occur and is based upon the assumption that they would be implemented. These are an inherent part of DEP and SEP, and do not require additional action to be taken or further detail provided i.e. they will be embedded into and integral to the final design.

28.3.3.2 Onshore cable corridor

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

41. Where possible, the onshore cable corridor avoids areas of woodland and trees.

42. Where hedgerows, trees and woodlands occur within the working area (and cables are not installed by trenchless techniques), they will be removed. Where the onshore cable corridor crosses through woodland and hedgerows, the working corridor width would be reduced to a typical working width of 20m. This on the basis that a large part of the 45m (for a single project) or 60m (for both DEP and SEP together) corridor is for soil storage / management, and trees and hedgerows would not be removed for this purpose and would be retained outside the 20m working corridor. The reduced 20m working width at woodland and hedgerow crossings applies to all scenarios; in reality it is likely to be less for a single project but not for the purposes of the assessment. Hedges would be re-planted. Trees and woodland would be replanted within the construction corridor but outside the final cable easement of 20m width if both DEP and SEP are constructed and 12m if only DEP or SEP is constructed, where tree planting would be prohibited. Planting would be implemented during the first planting season following completion of construction of either DEP or SEP (subject to landowner agreements), whether constructed together or sequentially.

43. Further work will be carried out prior to the full DCO submission to identify further measures to minimise tree, woodland and hedgerow removal. Further details on hedgerow and tree removal, retention, replacement and management will be presented in an Outline Landscape and Ecological Management Strategy (OLEMS) submitted with the DCO.

28.3.3.3 Onshore substation site options

44. The two onshore substation site options have been selected following feasibility studies considering a number of potential sites, with the intention of including only one site for the DCO application, which would be suitable to accommodate either DEP or SEP alone or both projects together.

45. Landscape and visual considerations fed into the studies and site selection process. The final PEIR onshore substation site options 1 and 2 are considered to be the most suitable sites from a landscape and visual perspective for a number of reasons including:

- They lie within an area of arable fields enclosed by woodland, tree belts and hedgerows which restricts potential visibility and effects to a relatively small area of landscape.
- The existing woodlands and tree belts provide a context where further tree and woodland planting to integrate the final onshore substation site into the landscape and provide further screening would be appropriate if it is found to be necessary.
- The sites lie within an area already influenced by existing electrical infrastructure including the Norwich Main substation to the north, and lines of pylons and overhead wires, one of which crosses the fields between the onshore substation sites. Other existing infrastructure lies to the east – the Norwich-Stowmarket main railway line and A140. Grid and other infrastructure are already characteristic of this location.
- The sites lie west of landscape character area (LCA) A1 Tas Rural River Valley which is protected by Policy DM4.5 of the South Norfolk Development Management Development Document (adopted October 2015). Assessment identified that the sites would not affect this LCA due to the presence of existing tree and woodland vegetation that would largely screen the onshore substation options from the LCA.
- There are relatively few sensitive visual receptors within close proximity to the sites that have potential to have clear views of either onshore substation option, or to be significantly affected.
- There are no residential receptors that would have clear or close views of the onshore substation options.

46. Site selection is therefore a key part of the embedded mitigation proposals.

47. No planting around the onshore substation sites is proposed at the PEIR stage because the sites have yet to be designed. Planting and further design work will be undertaken post-PEIR submission as part of the next stage of design for the final selected onshore substation site, and this will be presented in the DCO submission. Details on landscape and planting proposals at the onshore substation site will be presented in an Outline Landscape and Ecological Management Plan submitted with the DCO.

28.4 Impact Assessment Methodology

28.4.1 Policy, Legislation and Guidance

28.4.1.1 National Policy Statements

48. The assessment of potential impacts upon landscape and visual receptors has been made with specific reference to the relevant National Policy Statements (NPS). These are the principal decision making documents for Nationally Significant Infrastructure Projects (NSIPs). Those relevant to DEP and SEP are:

- Overarching NPS for Energy (EN-1) (Department of Energy and Climate Change (DECC) 2011a);
- NPS for Renewable Energy Infrastructure (EN-3) (DECC 2011b); and
- NPS for Electricity Networks Infrastructure (EN-5) (DECC 2011c).

49. The specific assessment requirements for the LVIA, as detailed in the NPS, are summarised in **Table 28-3** together with an indication of the section of the PEIR chapter where each is addressed.

Table 28-3: NPS Assessment Requirements.

NPS Requirement	NPS Reference	Commentary
En-1 NPS for Energy (EN-1)		
"Where some details are still to be finalised the ES should set out, to the best of the applicant's knowledge, what the maximum extent of the proposed development may be in terms of site and plant specifications, and assess, on that basis, the effects which the project could have to ensure that the impacts of the project as it may be constructed have been properly assessed."	Paragraph 4.2.8	As set out in **Section 28.3.2**, the realistic worst case scenario has been assessed within this LVIA.
Paragraph 5.9.5 of EN-1 advises that the applicant should carry out a landscape and visual assessment and makes reference to the following documents: Guidelines for Landscape and Visual Impact Assessment, Second Edition (Landscape Institute and IEMA, 2002); and Landscape Character Assessment – Guidance for England and Scotland (Land Use Consultants, 2002).	Paragraph 5.9.5	'The Guidelines for Landscape and Visual Impact Assessment, Second Edition' (GLVIA) (Landscape Institute and IEMA, 2002) has been superseded by 'The Guidelines for Landscape and Visual Impact Assessment, Third Edition' (Landscape Institute and IEMA, 2013) (GLVIA3).

NPS Requirement	NPS Reference	Commentary
		'Landscape Character Assessment – Guidance for England and Scotland' (Land Use Consultants, 2002) has been superseded by 'An Approach to Landscape Character Assessment' (Natural England, 2014). This LVIA has been prepared following the updated versions of these documents and other recognised guidelines.
"The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England …."	Paragraph 5.9.5	Published landscape character assessments, and other associated studies, and relevant policies based on these assessments within the extent of the study areas, of onshore cable corridor and onshore substation Site options, are reviewed and considered as part of the baseline study contained within **Section 28.5**. Those that merit detailed consideration in the assessment of effects have been taken forward to **Section 28.6**.
"The applicant's assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character."	Paragraph 5.9.6	Effects on landscape character and visual amenity are assessed as described in **Sections 28.3.2.1** to **28.3.2.4**, as follows: • Onshore cable corridor – construction phase.
"The assessment should include the visibility and conspicuousness of the project during construction and of the	Paragraph 5.9.7	

NPS Requirement	NPS Reference	Commentary
presence and operation of the project and potential impacts on views and visual amenity."		• Onshore substation site – construction, operation and decommissioning phases.
"Landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change. All of these factors need to be considered in judging the impact of a project on landscape. Virtually all nationally significant energy infrastructure projects will have effects on the landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate."	Paragraph 5.9.8	The quality, value and capacity of the landscape to accommodate change are considerations of the LVIA. Analysis of options for the site of the onshore substation has included consideration of potential landscape and visual impacts and opportunities for mitigation. The two onshore substation site options considered at PEIR stage lie within an area of fields considered to be the best options from a landscape and visual perspective. The route of the onshore cable corridor has been designed to address a number of factors, including minimising harm to the landscape. The design of DEP and / or SEP will be considered further following PEIR submission to address potential landscape and visual impacts, and to minimise harm and provide mitigation where possible and appropriate.
"Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England has policies based on landscape	Paragraph 5.9.14	The value of the local landscape is considered as part of the baseline study contained within **Section 28.5**, and is informed by local landscape

NPS Requirement	NPS Reference	Commentary
character assessment, these should be paid particular attention. However, local landscape designations should not be used in themselves to refuse consent, as this may unduly restrict acceptable development."		designations identified in local development plans documents. Effects on landscape character are assessed in detail in **Section 28.6**.
"The IPC [now the Planning Inspectorate and the Secretary of State] should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation."	Paragraph 5.9.17	**Chapter 4 Site Selection and Alternatives** of the PEIR sets out the iterative process that has influenced the design of DEP and / or SEP. Analysis of options for the site of the onshore substation has included consideration of potential landscape and visual impacts and opportunities for mitigation. The two substation site options considered at PEIR stage lie within an area of fields considered to be the best options from a landscape and visual perspective. The route of the onshore cable corridor has been designed to address a number of factors, including minimising harm to the landscape. The design of DEP and / or SEP will be considered further following PEIR submission to address potential landscape and visual impacts, and to minimise harm and provide mitigation where possible and appropriate.
"Within a defined site, adverse landscape and visual effects may be minimised through appropriate siting of	Paragraph 5.9.22	The two onshore substation site options considered at PEIR stage lie within an area of fields

NPS Requirement	NPS Reference	Commentary
infrastructure within that site, design including colours and materials, and landscaping schemes, depending on the size and type of the proposed project. Materials and designs of buildings should always be given careful consideration."		considered to be the best options from a number considered, from a landscape and visual perspective. The design of the onshore substation and mitigation proposals within the final selected site will be considered further following PEIR submission, and proposals included in the DCO submission.
En-3 NPS for Energy (EN-3)		
"Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology."	Paragraph 2.4.2	An Outline Landscape Management Plan will be prepared during the course of DEP and / or SEP design and will be submitted as part of the final DCO application.
"In sites with nationally recognised designations (Sites of Special Scientific Interest, National Nature Reserves, National Parks, the Broads, Areas of Outstanding Natural Beauty and Registered Parks and Gardens), consent for renewable energy projects should only be granted where it can be demonstrated that the objectives of designation of the area will not be compromised by the development, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits."	Paragraph 2.5.33	The potential for DEP and / or SEP to affect nationally designated landscapes has been considered in **Section 28.5** and **Section 28.6**.
En-5 NPS for Energy (EN-5)		
"As well as having duties under section 9 of the Electricity Act 1989, (in relation to developing and maintaining an economical and efficient network), developers will be influenced by	Paragraph 2.2.6	DEP and / or SEP have been designed at PEIR stage to preserve natural beauty of the countryside and preserve features of

NPS Requirement	NPS Reference	Commentary
Schedule 9 to the Electricity Act 1989, which places a duty on all transmission and distribution licence holders, in formulating proposals for new electricity networks infrastructure, to "have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and … do what [they] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects."		special interest as reasonably possible. The design of DEP and / or SEP will be considered further following PEIR submission to address potential harm to the natural beaty of the countryside and features of special interest and provide mitigation where possible and appropriate.
"…when considering impacts for electricity networks infrastructure, all of the generic impacts covered in NPS EN-1 are likely to be relevant, even if they only apply during one phase of the development (such as construction)…".	Paragraph 2.6.1	The potential for the onshore components of DEP and / or SEP to affect landscape and visual receptors has been considered in **Section 28.5** and **Section 28.6**.
"…New substations, sealing end compounds and other above ground installations that form connection, switching and voltage transformation points on the electricity networks can also give rise to landscape and visual impacts. Cumulative landscape and visual impacts can arise where new overhead lines are required along with other related developments such as substations, wind farms and/or other new sources of power generation."	Paragraph 2.8.2	The potential for the onshore components of DEP and / or SEP to affect landscape and visual receptors has been considered in **Section 28.5** and **Section 28.6**. Cumulative effects with other projects are assessed in **Section 28.7**.

28.4.1.2 Other

50. In addition to the NPSs, there are a number of pieces of legislation, policy and guidance applicable to the assessment of potential effects on landscape character and visual amenity. Policies of relevance to this chapter are those related to design, the protection of landscape character and views, and those relating to valued landscape including the Norfolk Coast AONB, the NNHC and locally protected landscapes.

51. National, regional and local planning policy relevant to this chapter are set out below and considered where appropriate in **Sections 28.5** and **28.6**.

28.4.1.2.1 National Planning Policy Framework (February 2019)

52. The National Planning Policy Framework (NPPF, February 2019) makes clear that the purpose of planning is to help achieve sustainable development (Section 2), and that design (Section 12), and effects on the natural environment (Section 15) are important components of this.

53. Paragraph 127 of the NPPF indicates that decisions should ensure that developments:

"a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;

b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;

c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities); …"

54. Paragraph 170 requires that decisions should contribute by:

"a) protecting and enhancing valued landscapes, … (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; …"

55. In respect of valued landscapes, paragraph 171 notes that planning policy should *"distinguish between the hierarchy of international, national and locally designated sites"*. Paragraphs 172 and 173 require that *"Great weight should be given to conserving and enhancing landscape and scenic beauty in … Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. …"*.

56. Paragraph 180 requires decisions to ensure that *"new development is appropriate for its location"* including by limiting the impact of light pollution on local amenity and *"intrinsically dark landscapes"*.

57. DEP and SEP have been designed to minimise harm to landscape character and visual amenity, and designated and valued landscapes, and further design will be undertaken following submission of the PEIR to minimise harm further, and to create a development that responds positively to its landscape and environmental context.

28.4.1.2.2 Planning Practice Guidance for Natural Environment, July 2019

58. This document is intended to explain the key issues in implementing policy to protect biodiversity, enhance green infrastructure and also contains a section on landscape which reiterates the policy set out in the NPPF, highlights the importance of identifying the special characteristics of locally valued landscapes and recommends the use of landscape character assessments.

59. With regards to National Parks, the Broads and AONBs, the guidance states that:

> *"Section 11A(2) of the National Parks and Access to the Countryside Act 1949, section 17A of the Norfolk and Suffolk Broads Act 1988 and section 85 of the Countryside and Rights of Way Act 2000 require that 'in exercising or performing any functions in relation to, or so as to affect, land' in National Parks and Areas of Outstanding Natural Beauty, relevant authorities 'shall have regard' to their purposes for which these areas are designated" (para 039). The same paragraph also requires consideration of the effects of development on the setting of AONBs.*

60. The potential for the onshore components of DEP and SEP to affect the Norfolk Coast AONB has been considered in **Section 28.5** and **Section 28.6**.

28.4.1.2.3 Planning Practice Guidance for Design: process and tools, October 2019

61. The guidance should be read alongside the National Design Guide and sets out the characteristics of well-designed places and demonstrates what good design means in practice. The guidance indicates that good design relates to 10 characteristics: context; identity; built form; movement; nature; public spaces; uses; homes and buildings; resources; and lifespan.

62. In respect of the determining applications and the relationship between a proposal and the surrounding context, the guidance notes that:

> *"permission should be refused for development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions …"*

28.4.1.2.4 National Design Guide, October 2019

63. The guidance sets out characteristics of *'beautiful, enduring and successful places'* that reflect the *'Government's priorities and a common overarching framework'* and provides cross references to the National Planning Policy Framework.

64. The guidance indicates that *'context, history and the cultural characteristics of a site, neighbourhood and region influences the location, siting and design of new developments'*.

65. The guidance indicates that identity *'or character of a place comes from the way that buildings, streets and spaces, landscape and infrastructure combine together… Local character makes places distinctive.'*

66. DEP and SEP have been designed through measures including site selection, to minimise harm to landscape character. The sites lie within an area of landscape where there is good opportunity to respond to the local context through further design following submission of the PEIR, to create a development that responds positively to its landscape and environmental context.

28.4.1.2.5 Regional and Local Planning Policy

67. Regional and local planning policy relevant to this chapter are set out in **Table 28-4** below.

Table 28-4. Summary of relevant regional and local policies

Summary of relevant policies	Commentary
Joint Core Strategy for Broadland, Norwich and South Norfolk (2014)	
Policy 2 – Promoting Good Design This policy states [inter alia]: *"All development will be designed to the highest possible standards, creating a strong sense of place. In particular development proposals will respect local distinctiveness including as appropriate:* • *the landscape setting of settlements including the urban/rural transition and the treatment of 'gateways'* • *the landscape character and historic environment, taking account of conservation area appraisals and including the wider countryside and the Broads area* • *townscape, including the city and the varied character of our market towns and villages"*	Good design has been considered at PEIR stage through measures including cable corridor route selection and substation site selection. Further opportunities to implement good design will be explored following PEIR submission and included in the DCO application.
North Norfolk Core Strategy: Incorporating Development Control Policies (2008)	
Policy EN1 – Norfolk Coast Area of Outstanding Natural Beauty and The Broads This policy sets out the protection of the Norfolk Coast AONB and The Broads. It states [inter alia]: *"…Development will be permitted where it:* • *is appropriate to the economic, social and environmental well-being of the area or is desirable* • *for the understanding and enjoyment of the area;*	Minimising adverse impacts on the Norfolk Coast AONB has been considered as part of the onshore cable corridor design at PEIR stage. Further opportunities to minimise potential adverse impacts on the Norfolk Coast AONB will be explored following PEIR submission and included in the DCO application. Effects due to the construction of the onshore cable corridor on

Summary of relevant policies	Commentary
• *does not detract from the special qualities of the Norfolk Coast AONB or The Broads; and* • *seeks to facilitate delivery of the Norfolk Coast AONB management plan objectives.* *Proposals that have an adverse effect will not be permitted unless it can be demonstrated that they cannot be located on alternative sites that would cause less harm and the benefits of the development clearly outweigh any adverse impacts…Development proposals that would be significantly detrimental to the special qualities of the Norfolk Coast AONB or The Broads and their settings will not be permitted."*	the Norfolk Coast AONB are assessed in **Section 28.6.2.3**.
Policy EN2 – Protection and Enhancement of Landscape and Settlement Character This policy states [inter alia]: *"Proposals for development should be informed by, and be sympathetic to, the distinctive character areas identified in the North Norfolk Landscape Character Assessment and features identified in relevant settlement character studies. Development proposals should demonstrate that their location, scale, design and materials will protect, conserve and, where possible, enhance:* • *the special qualities and local distinctiveness of the area (including its historical, biodiversity and cultural character) …* • *the pattern of distinctive landscape features, such as watercourses, woodland, trees and field boundaries, and their function as ecological corridors for dispersal of wildlife* • *visually sensitive skylines, hillsides, seascapes, valley sides and geological features* • *nocturnal character…"*	Landscape character has been considered at PEIR stage through measures including onshore cable corridor route selection and measures to minimise loss of landscape features such as hedgerows and trees, and to replace them following completion of construction where possible. Further opportunities will be explored following PEIR submission and included in the DCO application.
Policy EN3 - Undeveloped Coast This policy states [inter alia]: *"In the Undeveloped Coast only development that can be demonstrated to require a coastal*	The landfall and onshore cable corridor have to pass through a coastal location. Construction works would be short term and

Summary of relevant policies	Commentary
location and that will not be significantly detrimental to the open coastal character will be permitted. …"	temporary and would have very limited potential to affect the open coastal character. During operation the onshore cable corridor would be underground and there would be no potential to affect the open coastal character.
Broadland District Council Development Management DPD (2015)	
Policy GC4 – Design This policy states [inter alia]: *"Development will be expected to achieve a high standard of design and avoid and any significant impact. … Proposals should pay adequate regards to:* • *The environment, character and appearance of an area;* • *Reinforcing local distinctiveness through the careful consideration of the treatment of space through the development, the appearance of new development, the scale of new development and landscape.* • *Considering the impact upon the amenity of existing properties; …"*	Design to avoid significant impacts and having regard to environment, character and appearance of an area, local distinctiveness and impact on the amenity of existing properties have been considered at PEIR stage through measures including onshore cable corridor route selection and measures to minimise loss of landscape features such as hedgerows and trees, and to replace them following completion of construction where possible. Further opportunities will be explored following PEIR submission and included in the DCO application. Effects on residential visual amenity are considered in **Section 28.4.2.2.2.**
Policy EN2 – Landscape This policy states [inter alia]: *"In order to protect the character of the area, development proposals should have regards to the Landscape Character Assessment SPD, and in particular, consider any impact upon as well as seek to protect and enhance where appropriate:* • *Gaps between settlements* • *Visually sensitive skylines, hillsides and valley sides and important views including the setting of the Broads Area;*	Landscape character has been considered at PEIR stage through measures including onshore cable corridor route selection and measures to minimise loss of landscape features such as hedgerows and trees, and to replace them following completion of construction where possible. Further opportunities will be explored following PEIR

Summary of relevant policies	Commentary
• *Nocturnal character: …* • *Green spaces including natural and semi-natural features as well as geological / geomorphological features which make a significant contribution towards defining the character of an area."*	submission and included in the DCO application. The potential for the onshore components of DEP and SEP to affect landscape character and views, with reference to the Broadland District Landscape Character Assessment 2008 (updated 2013) (Chris Blandford Associates 2008) is considered in **Sections 28.5** and **28.6**.
South Norfolk Development Management Development Document (2015)	

Policy DM1.4 – Environmental Quality and Local Distinctiveness
This policy states [inter alia]:
• *"a) The Council will work with developers to promote and achieve high quality and positive environmental improvement from all development. All development proposals must demonstrate an understanding and evaluation of the important environmental assets including locally distinctive characteristics, and justify the design approach. …*
• *d) All development should take all reasonable opportunities to:*
  ○ *Make a positive contribution to local character and distinctiveness; …*
  ○ *Work with the characteristics of the location to ensure that the necessary mitigation measures are not disproportionate to the benefits of the scale of development proposed."*
	Design to avoid significant impacts and having regard to environmental assets and local character has been considered at PEIR stage through measures including onshore cable corridor route selection and substation site selection, and measures to minimise loss of landscape features such as hedgerows and trees, and to replace them following completion of construction where possible. Further opportunities, including design of the selected substation site and mitigation planting to integrate the proposed substation into the landscape context, will be explored following PEIR submission and included in the DCO application.

Policy DM3.8 – Design Principles This policy states [inter alia]: *"The Council will work with applicants to achieve high quality design and positive improvement from all development, protect and enhance the environment and existing locally distinctive character and encourage innovation; the Council*	

Summary of relevant policies	Commentary
will refuse development that fails to take the opportunities for improving the character and quality of an area and the way the area functions."	

Policy DM 4.1 – Renewable Energy
This policy states [inter alia]:
"Proposals for renewable energy generating development requiring planning permission other than for proposals for wind energy development will be supported and considered (taking account of the impact of relevant ancillary equipment) in the context of sustainable development and climate change on the wider environmental, social and economic benefits of maximising use of renewable energy. …
• *(1) The effect of the proposal will be considered on:*
  ○ *The effect on the character and appearance of the landscape; …*
  ○ *The amenities and living conditions of nearby residents by way of …, outlook, and overbearing effect ….*
  ○ *Permission will be granted where there are no significant adverse effects or where any adverse effects are outweighed by the benefits. When attributing weight to any harm, … regard will be given to national policy and guidance, statutory duty and legislation, and other policies in the Local Plan including Policy DM4.10;*
• *(2) Where appropriate planning conditions will be imposed requiring the decommissioning and removal / dismantling of all plant and ancillary equipment, and if necessary the restoration of land, on the cessation of use."*
	The potential for the onshore components of DEP and SEP to affect landscape and visual receptors has been considered in **Sections 28.5** and **28.6**. Effects on residential visual amenity are considered in **Section 28.4.2.2.2.**

Summary of relevant policies	Commentary
Policy DM4.5 – Landscape Character and River Valleys This policy states [inter alia]: *All development should respect, conserve and where possible, enhance the landscape character of its immediate and wider environment. Development proposals that would cause significant adverse impact on the distinctive landscape characteristics of an area will be refused.* *All development proposals will be expected to demonstrate how they have taken the following elements (from the 2001 South Norfolk Landscape Assessment as updated by the 2012 review) into account:* • *The key characteristics, assets, sensitivities and vulnerabilities;* • *The landscape strategy; and* • *Development considerations.* *Particular regard will be had to protecting the distinctive characteristics, special qualities and geographical extents of the identified Rural River Valleys and Valley Urban Fringe landscape character types."*	The selection of the onshore cable corridor route and onshore substation sites has considered the key characteristics, assets, sensitivities and vulnerabilities of the LCAs they lie within or may affect indirectly. The potential for the onshore components of DEP and SEP to affect landscape character and the Rural River Valleys and Valley Urban Fringe landscape character types is considered in **Sections 28.5.**
Policy DM4.6 – Landscape Setting of Norwich This policy states [inter alia]: *"All development proposals will not harm and where possible should enhance the landscape setting of Norwich with regard to the following considerations:* *NSBLPZ* *All development proposals within the Norwich Southern Bypass Landscape Protection Zone (NSBLPZ), as shown on the Policies Map, should have regard to protecting the openness of the Zone and, where possible, enhancing the landscape setting of the southern bypass, including the practice of wild flower planting and management regimes.* *Key Views* *All development proposals located within the Key Views 'cones' shown on the Policies Map should ensure they do not obstruct the long distance views to and from the City.*	These elements of the setting of Norwich have been considered in the selection of the onshore substation site options. Effects on them are considered in **Section 28.5.6**.

Summary of relevant policies	Commentary
Undeveloped Approaches *All development proposals within the visual zone of influence viewed from the identified Undeveloped Approaches to Norwich should reinforce and avoid undermining the rural character of the Undeveloped Approaches to Norwich.…"*	
Policy DM 4.8 – Protection of Trees and Hedgerows This policy states [inter alia]: *"The Council will promote the retention and conservation of significant trees, woodlands and traditional orchards and will serve Tree Preservation Orders where necessary.* *The Council will presume in favour of the retention of 'important' hedgerows as defined by the Hedgerows Regulations 1997. The Council will safeguard and promote the appropriate management of protected and other significant trees and hedgerows, unless the need for, and benefits of, a development clearly outweigh their loss."*	Retention of trees and woodlands has been one of the factors addressed in selecting the preliminary onshore cable corridor route and onshore substation sites presented in the PEIR. This will be considered further following PEIR submission and measures for retention and protection set out in more detail in the DCO submission. An indicative landscape scheme will be prepared for the selected substation site and presented in the DCO submission.
Policy DM4.9 – Incorporating Landscape into Design This policy states [inter alia]: *"Where appropriate, detailed development proposals must demonstrate a high quality of landscape design, implementation and management as an integral part of the new development.* *The provision for new planted features (such as tree belts, hedgerows, wild flowers and specimen trees) is expected to form part of development proposals from their outset and should provide an appropriate landscape setting for the scheme. … Landscape schemes will be required to respect the character and distinctiveness of the local landscape and should ensure that any land remodelling respects the local topographic character in terms of height, slope, angle and character. Landscape schemes should be clearly and properly specified."*	

28.4.1.3 Data and Information Sources

68. Data has been gathered from official, reliable and the most up-to-date sources. This includes Ordnance Survey map-based data, as well as data on landscape character, landscape designations and other Governmental and Local Planning Authority data of relevance.

28.4.2 Impact Assessment Methodology

69. **Chapter 6 EIA Methodology** provides a summary of the general impact assessment methodology applied to DEP and SEP. This section describes the methodology used for the LVIA.

70. For each effect, the assessment identifies receptors sensitive to that effect and implements a systematic approach to understanding the impact pathways and the level of impacts on given receptors. The definitions of sensitivity and magnitude for the purpose of the LVIA are provided in this section.

71. *"Landscape and Visual Impact Assessment is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and people's views and visual amenity."* (Guidelines for Landscape and Visual Impact Assessment, Third Edition para. 1.1 (Landscape Institute and IEMA, 2013) (GLVIA3).

72. Paras. 2.20-2.22 of GLVIA3 (Landscape Institute and IEMA, 2013) indicate that the two components (assessment of landscape effects, and assessment of visual effects) are *"related but very different considerations"*.

73. Para. 2.6 of GLVIA3 (Landscape Institute and IEMA, 2013) states that "This guidance is equally applicable to all forms of landscape and does not separate townscape and seascape out for special treatment."

74. GLVIA3 (Landscape Institute and IEMA, 2013) explains how to assess the landscape and visual baseline, the sensitivity of landscape and visual receptors, and the magnitude of impact and significance of effect that would be caused by a development.

75. The assessment method for this LVIA draws upon the established GLVIA3; An Approach to Landscape Character Assessment (Natural England, 2014), Landscape Institute Technical Information Note (LI TIN) 05/2017 regarding townscape character; and LI TIN 02/17, Visual Representation, and other recognised guidelines.

76. The methodology is described in more detail in **Annex 28.1**.

28.4.2.1 Assessment Terminology and Judgements

77. A full glossary is provided at the beginning of this chapter. The key terms used within this assessment are:

- Susceptibility and Value – which contribute to Sensitivity of the receptor;
- Scale, Duration and Extent - which contribute to the Magnitude of effect; and
- Significance.

78. These terms are described in more detail below.

28.4.2.1.1 Assessing the sensitivity of landscape and visual receptors and designated landscapes

79. This section applies to landscape character, visual receptors and designated landscapes (which only occur onshore in England and Wales except for Heritage Coasts (a non-statutory landscape) which lie onshore and extend offshore).

80. **Susceptibility** indicates the ability of a landscape or visual receptor to accommodate the proposed development *"without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies."* (GLVIA3 (Landscape Institute and IEMA, 2013), para. 5.40).

Table 28-5: Landscape and visual receptor susceptibility

Susceptibility	Definition
High	Undue consequences are likely to arise from the proposed development.
Medium	Undue consequences may arise from the proposed development.
Low	Undue consequences are unlikely to arise from the proposed development.

81. Susceptibility of LCAs is influenced by their characteristics and is frequently considered (though often recorded as 'sensitivity' rather than susceptibility) within documented landscape character assessments and capacity studies.

82. Susceptibility of designated landscapes is influenced by the nature of the special qualities and purposes of designation and/or the valued elements, qualities or characteristics, indicating the degree to which these may be unduly affected by the development proposed.

83. Susceptibility of accessible or recreational landscapes or seascapes is influenced by the nature of the landscape / seascape involved; the likely activities and expectations of people within that landscape / seascape and the degree to which those activities and expectations may be unduly affected by the development proposed.

84. Susceptibility of visual receptors is primarily a function of the expectations and occupation or activity of the receptors (GLVIA3 (Landscape Institute and IEMA, 2013), para 6.32).

85. **Landscape Value** is *"the relative value that is attached to different landscapes by society"* (GLVIA3 (Landscape Institute and IEMA, 2013), page 157).

Table 28-6: Landscape value

Value	Definition
National / International	Designated landscapes which are nationally or internationally designated for their landscape value.
Local / District	Locally or regionally designated landscapes; also areas which documentary evidence and/or site observation indicates as being more valued than the surrounding area.

Value	Definition
Community	'Everyday' landscape which is appreciated by the local community but has little or no wider recognition of its value.
Limited	Despoiled or degraded landscape with little or no evidence of being valued by the community.

86. **Sensitivity** is assessed by combining the considerations of susceptibility and value described above. The differences in the tables below reflect a slightly greater emphasis on value in considering landscape receptors, and a greater emphasis on susceptibility in considering visual receptors.

Table 28-7: Landscape sensitivity

		Susceptibility		
		High	**Medium**	**Low**
Value	**National / International**	High	High-Medium	Medium
	Local / District	High-Medium	Medium	Medium-Low
	Community	Medium	Medium-Low	Low
	Limited	Low	Low-Negligible	Negligible

Table 28-8: Visual receptor sensitivity

		Susceptibility		
		High	**Medium**	**Low**
Value	**National / International**	High	High-Medium	Medium
	Local / District	High-Medium	High-Medium	Medium
	Community	High-Medium	Medium	Medium-Low
	Limited	Medium	Medium-Low	Low

87. For visual receptors; susceptibility and value are closely linked - the most valued views are also likely to be those where viewer's expectations will be highest. The value attributed relates to the value of the view, e.g. a National Trail is nationally valued for access, not necessarily for the available views. Typical examples of visual receptor sensitivity are plotted in a diagram in **Annex 28.1**.

28.4.2.1.2 Magnitude of Effect

88. **Scale of effect** is assessed for all landscape and visual receptors and identifies the degree of change which would arise from the development.

Table 28-9: Definition of Scale of effect

Scale of effect	Definition
Large	Total or major alteration to key elements, features, qualities or characteristics, such that post development the baseline will be fundamentally changed.
Medium	Partial alteration to key elements, features, qualities or characteristics, such that post development the baseline will be noticeably changed.
Small	Minor alteration to key elements, features, qualities or characteristics, such that post development the baseline will be largely unchanged despite discernible differences.
Negligible	Very minor alteration to key elements, features, qualities or characteristics, such that post development the baseline will be fundamentally unchanged with barely perceptible differences.

89. **Duration of effect** is assessed for all landscape and visual receptors and identifies the time period over which the change to the receptor as a result of the development would arise.

Table 28-10: Definition of Durations of effect

Duration	Definition
Permanent	The change is expected to be permanent and there is no intention for it to be reversed. Or where it is expected to be in place more than 25 years and will be reversed.
Long-term	The change is expected to be in place for 10-25 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.
Medium-term	The change is expected to be in place for 2-10 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.
Short-term	The change is expected to be in place for 0-2 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.

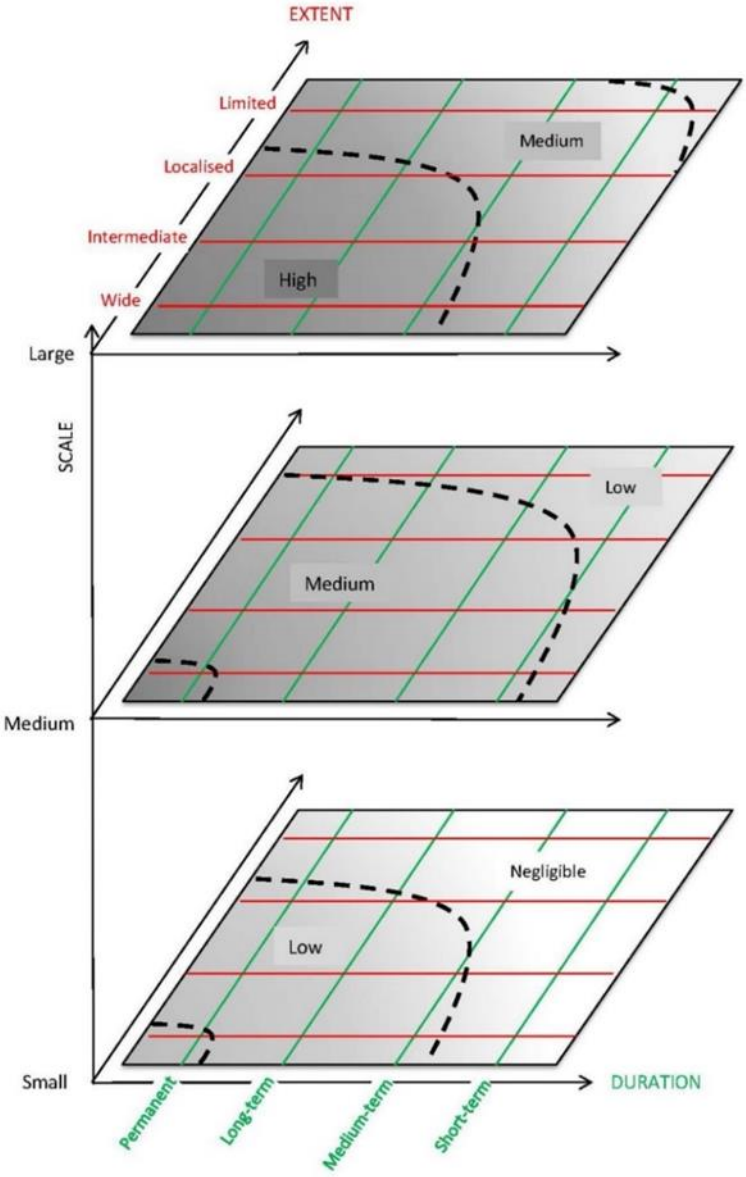
90. Effects arising from the onshore components of the operational SEP and / or DEP are defined as permanent for the purpose of impact assessment, although DEP and / or SEP are likely to be removed after 35 years in operation. Effects arising from the construction of the wind farm sites will be medium-term.

Table 28-11: Extent of effect

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

91. The Magnitude of effect is informed by combining the scale, duration and extent of effect. Diagram 1 below illustrates the judgement process:

Diagram 1: Magnitude of effect

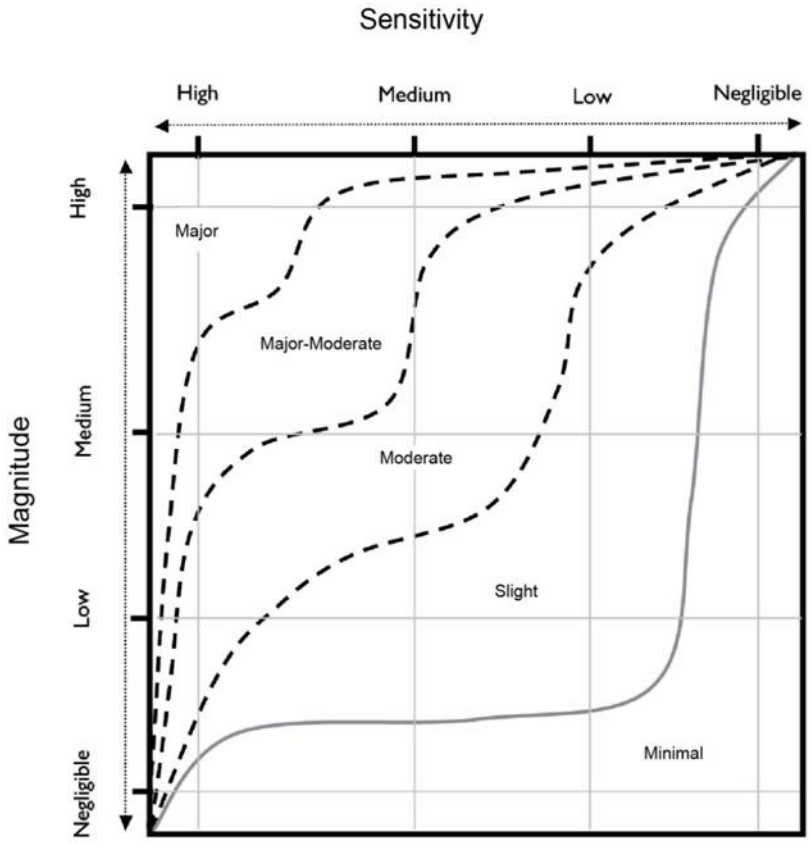


92. As can be seen from the illustration above, scale (shown as the layers of the diagram) is the primary factor in determining magnitude; most of each layer indicates that magnitude will typically be judged to be the same as scale, but may be higher if the effect is particularly widespread and long lasting, or lower if it is constrained in geographic extent or timescale. Where the scale of effect is judged to be negligible the magnitude is also assumed to be negligible and no further judgement is required.

28.4.2.2 Impact Significance

93. Significance indicates the importance or gravity of the effect. The process of forming a judgement as to the degree of significance of the effect is based upon the assessments of magnitude of effects and sensitivity of the receptor to come to a professional judgement of how important this effect is. This judgement is illustrated by the diagram below:

Diagram 2. Definition of impact significance



94. The significance ratings indicate a 'sliding scale' of the relative importance of the effect, with major being the most important and minimal being the least. Effects that are major-moderate or major are considered to be significant in EIA terms. Effects of moderate significance or less are *"of lesser concern"* (GLVIA3 (Landscape Institute and IEMA, 2013), para 3.35). It should also be noted that whilst an effect may be significant, that does not necessarily mean that such an impact would be unacceptable or should necessarily be regarded as an *"undue consequence"* (GLVIA3 (Landscape Institute and IEMA, 2013) para 5.40).

95. Where intermediate ratings are given, e.g. “moderate-slight”, this indicates an effect that is both less than moderate and more than slight, rather than one which varies across the range. In such cases, the higher rating will always be given first; this does not mean that the impact is closer to that higher rating but is done to facilitate the identification of the more significant impacts within tables. Intermediate judgements may also be used for judgements of magnitude.

28.4.2.2.1 Positive / Adverse / Neutral

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

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

98. Whether an effect is positive, neutral or adverse is identified based on professional judgement. GLVIA3 (Landscape Institute and IEMA, 2013) indicates at paragraph 2.15 that this is a *“particularly challenging”* aspect of assessment, particularly in the context of a changing landscape.

28.4.2.2.2 Residential Amenity

99. The closest residential property to either substation site option that has been identified lies west of Gowthorpe Lane, approximately 0.35km south west of site 2, and is separated from both sites by dense hedgerows and woodland, and is unlikely to have views of either substation site. Other residential properties lie further from the sites, and if views of either site 1 or 2 are possible they would be heavily filtered by existing hedges, trees and woodland. Effects resulting from the proposed development would fall below the threshold of being *“so unpleasant, overwhelming and oppressive that this would become an unattractive place to live”* (known as the Lavender Test) and *“would not feature in the planning balance, irrespective of how many dwellings were so affected”.*

28.4.3 Cumulative Impact Assessment Methodology

100. The cumulative impact assessment (CIA) considers other plans, projects and activities that may impact cumulatively with DEP and SEP. As part of this process, the assessment considers the following:

- which of the residual impacts assessed for DEP and/or SEP on their own have the potential to contribute to a cumulative impact; and
- The confidence in the data / information available at the time of assessment to inform the cumulative assessment.

101. **Chapter 6 EIA Methodology** provides further details of the general framework and approach to the CIA.

102. With respect to the LVIA and its CIA, cumulative assessment relates to the assessment of the effects of more than one development. Developments that are subject to a valid planning application are included where specific circumstances indicate there is potential for cumulative effects to occur, with progressively decreasing emphasis placed on those which are less certain to proceed.

103. Operational, and consented developments are treated as being part of the baseline i.e. it is assumed that consented schemes will be built except for occasional exceptions where there is good reason to assume that they will not be constructed.

104. There is the potential for the construction phase of the DEP and / or SEP onshore cable corridor to overlap with the construction of other nearby consented offshore wind farm onshore cable corridors. These schemes will also form part of the CIA.

105. Those cumulative schemes identified as being relevant to this assessment within the study areas of the onshore cable corridor and the onshore substation sites are set out in **28.7 Cumulative Impacts**.

28.4.4 Transboundary Impact Assessment Methodology

106. Transboundary effects have been scoped out of the LVIA since there is no potential for transboundary landscape and visual effects to arise as a result of the construction and operation of the onshore cable corridor or the onshore substation sites.

28.4.5 Assumptions and Limitations

28.4.5.1 Desk-study and Fieldwork

107. The baseline environment within the study areas of the onshore cable corridor and the substation options described in the subsequent sections has been informed by desk-study and fieldwork (undertaken between August to October 2020).

108. The ZTV studies (see **Figures 28.15** and **28.16**) have been produced and used as a tool to inform the professional judgements made in this LVIA and during the iterative design process. The ZTV studies have been modelled on the maximum development parameters available but do not take into account small scale, local screening features such as hedgerows, individual trees or micro topography.

28.4.5.2 Potential Night-time Effects and Lighting

109. Lighting during operation would take into account guidance from the Institute of Lighting Professionals – Guidance Note 01/20 for the reduction of obtrusive light (ILP, 2020). Lighting during the onshore construction phase would be temporary, used only when required (and generally limited to certain working hours) and designed to avoid unnecessary illumination. Light spill during out of hours working would be minimised through the use of task-orientated lighting. The operational onshore substation would operate as an unmanned facility, with security and temporary maintenance lighting only to ensure a safe and secure working environment. Light spill from these elements would be minimised through design, in particular the use of directional lighting. Potential night-time effects have been considered in reaching judgements throughout this assessment.

28.4.5.3 Distances

110. Where distances are given in the assessment, these are approximate distances between the nearest part of the site and the nearest part of the receptor in question, unless explicitly stated otherwise.

28.5 Existing Environment

28.5.1 Introduction

111. An overview of the baseline study results is provided in this section with the full baseline description of the individual landscape and visual receptors being provided alongside the assessment in **Section 28.6** for ease of reference.

112. This section identifies those landscape and visual receptors relevant to the onshore cable corridor and both onshore substation site options that merit detailed consideration in the assessment of effects, and those which are 'scoped out' from further assessment as effects *"have been judged unlikely to occur or so insignificant that it is not essential to consider them further"* (GLVIA3 (Landscape Institute and IEMA, 2013), para 3.19).

113. Both this baseline section and the effects section describe landscape character, and visual receptors before considering designated landscapes and landscapes protected by policy. It is common for designations and landscapes protected by policy to encompass both character and visual considerations within their special qualities or purposes of designation or protection. It therefore makes a more natural reading sequence to draw together those aspects of character and views which relate to the designation or protection if they have been described earlier in the chapter.

114. The onshore cable corridor and study area extends broadly south from the landfall at Weybourne beach for approximately 37km before turning southeast and continuing to where it joins one of the two onshore substation site options assessed within this chapter. The onshore cable corridor study area encompasses a primarily rural area incorporating the coast, and areas of farmland, woodland and small settlements.

115. The onshore substation site options lie within an area of arable fields enclosed by woodland belts, adjacent to the Norwich Main substation and existing electricity pylons and overhead cables (see **Figure 28.17**). The Norwich to Ipswich railway line runs east of the sites and contains electrical overhead power lines. The A140 lies to the east of the railway line. The sites lie within a larger area of arable farmland to the north, west and south, with fields typically enclosed by hedgerows, trees and woodland, interspersed with villages. **Figure 28.14 Topography** shows that the landform falls into the valley of the River Tas to the east, and further north into the valley of the River Yare south of Norwich. The sites are screened from the Tas valley by trees and woodland adjacent to the sites and east of the A140, and from the Yare valley.

28.5.2 Zone of Theoretical Visibility (ZTV) Studies – onshore substation site options

116. Preliminary ZTV studies were generated based the worst-case scenarios for both of the onshore substation site options. A ZTV for each substation site is presented in **Figures 28.15** (Site 1) and **28.16** (Site 2).

117. No ZTV has been produced for the onshore cable corridor. As set in **Section 28.3.2**, the greatest potential effects due to the onshore cable corridor on landscape and visual resources would occur during the construction phase of DEP and SEP, which would comprise the temporary activity including trenching and moving construction vehicles / equipment. Upon completion, link boxes would either be buried or above ground level as described in **Section 28.3.2**. There would be minimal infrastructure along the route of the onshore cable corridor, resulting in little visibility of this onshore component.

118. The ZTVs produced for the two onshore substation site options have been used as a tool to inform the professional judgements made in this LVIA. They have supported the assessment in determining which landscape and visual receptors have potential to be significantly affected, and merit further consideration in the assessment of effects in **Section 28.6**.

119. The ZTVs have been prepared in accordance with the realistic worst case scenario, details of which are set out in **Section 28.3.2**. In summary, the following parameters have been modelled for each ZTV:

- Platform ground level of each onshore substation site option is modelled at the maximum existing ground level within each site (taken from Environment Agency 2m LiDAR Digital Terrain Model data) for the full site areas and building and electrical equipment heights are projected above those levels. Site 1 platform level is modelled at 30.65m AOD, and Site 2 at 38.76m AOD. The actual existing levels from this LiDAR data across the sites range from approximately 22.67m to 30.65m AOD for Site 1, and 30.45m to 38.76m AOD for Site 2. The sites position in relation to broad landform is shown on **Figure 28.14**.
- Buildings modelled at 15m above these platform levels. The footprints of the sites modelled up to the maximum potential height of buildings.
- Electrical equipment modelled at 30m above these platform levels. The footprints of the sites modelled up to the maximum potential height of electrical equipment, which is reflective of the relatively slender profiled lighting protection rods. Most other electrical equipment would be below the heights the maximum potential building height.

120. The ZTVs shown on **Figures 28.15** and **28.16** indicate the areas of potential theoretical visibility for each of the parameters set out above, and was carried out using a topographic model that included principal woodland and settlements as visual barriers (derived from NEXTMAP 25 surface mapping data) in order to provide a more realistic indication of potential visibility.

121. The greatest extent of theoretical visibility for both onshore substation sites extend to the east, south and west up to approximately 4km. Beyond approximately 4km, visibility would become more intermittent where terrain, woodland and settlement influences theoretically visibility to a greater degree.

122. To the north of each onshore substation site option, theoretical visibility would be largely contained to an area that extends up to approximately 2km in the vicinity of the A47. Beyond 2km, visibility would become more intermittent as a result of the lower terrain within the Yare valley, woodland and built development. The ZTV indicates that there could be a degree of visibility available from the southern edge of Norwich, with little visibility from locations further within the City.

123. The theoretical visibility of onshore substation Site 2 extends to a greater area than onshore substation Site 1. Onshore substation Site 1 is modelled at a lower elevation than Site 2, due to the lower level of the existing landform within Site 1, leading to less extensive theoretical visibility.

124. The following points should be borne in mind in respect of the ZTVs:

- The ZTVs represent theoretical models of the potential visibility of each of the onshore substation sites. In reality, landscape features such as small woodlands, trees, hedgerows, embankments, landform and / or buildings found on-the-ground, but not accounted for within the digital model, are likely to combine to screen the onshore substation sites to a greater degree. As a result, the extent of actual visibility experienced on-the-ground would be less than suggested by the ZTV studies.
- The ZTVs have been modelled on the maximum height parameters across the maximum possible footprint of each onshore substation site. In reality, the finally selected onshore substation site would not be built out to the maximum height parameter across the entire site footprint, and actual visibility of the constructed scheme is likely to be less than indicated on the ZTVs.
- The ZTVs only model the highest points of potential electrical equipment and buildings and, as such, this may be all that is visible. This is particularly true of areas near the edges of potential visibility.

28.5.3 ZTV studies and Zone of Visual Influence – onshore substation site options

125. As noted above, the ZTVs presented are theoretical models of potential visibility which do not take into account all landscape features found on-the-ground at the time of the assessment. Fieldwork undertaken in October 2020 identified that a combination of vegetation, buildings and landform across the surrounding landscape of each onshore substation site option was significantly more prevalent than modelled in the ZTVs. As a consequence, the extent of actual visibility which would be experienced is far less than indicated on either ZTV. This was confirmed with a review of aerial photography and terrain data, which established in so far as possible, an understanding of where the main area of anticipated visibility would occur on the ground – the ‘Zone of Visual Influence’ (ZVI).

126. This analysis has identified that the ZVIs of either onshore substation site option would be contained to their immediate contexts as set out below, covering a much smaller area than the ZTVs. The onshore substation site options are enclosed by belts of mature trees and woodlands which combine to limit the ZVI to the area shown on **Figures 28.15** and **28.16**; substantial areas of these tree belts are not included in the digital NEXTMAP 25 surface data that is used to generate the ZTVs because the data records surface levels at 25m centres, so misses many smaller objects. An aerial photograph with the onshore substation sites is shown on **Figure 28.17**, illustrating the extent of tree belts and woodlands surrounding the sites. Extensive sections of these are not included in the ZTVs, hence the much more extensive visibility suggested by the ZTVs than the actual ZVI recorded by site assessment. These tree belts and woodlands, combined with layers of other vegetation including scrub, individual trees and numerous hedgerows enclosing fields and roads, restrict the ZVI to this small area.

127. Areas outside of the ZVI would have limited or no visibility of the either of the onshore substation sites as described below.

28.5.3.1 Landscape to the north of the onshore substation site options

128. There is a tall belt of woodland along the northern edges of the fields within which the substation sites are located which would limit visibility from land north of this woodland. There is potential for some of this woodland to be removed during construction, either for the 400kV connection or to install a new access road, but this has yet to be confirmed. For this assessment it is assumed that approximately 20m width of woodland would be removed between the substation site and Norwich main substation but that the majority of the woodland would be retained. The existing Norwich Main substation and pylons and overhead wires lie within the fields immediately north of this woodland and are prominent in views from the north. Viewpoints 7, 8 and 9 (**Figure 28.30** to **28.35**) lie further away than land immediately north of the sites, but illustrate how intervening terrain and vegetation would combine to screen the majority of either onshore substation site, with at most, views of parts of the electrical equipment possible above the intervening vegetation. These components are likely to be barely perceptible within the context of the wider view.

129. Fieldwork has confirmed that the established woodland belts parallel to the PRoW (Swardeston BR12 and Stoke Holy Cross BR3) (see **Figure 28.17**) would visually contain both onshore substation site options from the landscape to the north, and would form the northern boundary of the ZVI. The existing Norwich Main substation and pylons and overhead wires would be visible in many views from the north, lessening the visual influence of the substation sites should they be partially visible from any locations north of this woodland.

28.5.3.2 Landscape to the east of the onshore substation site options

130. Fieldwork has shown that the established vegetation (comprising woodland, individual tress, and scrub) along the A140 (Ipswich Road) and within and in close proximity to Dunston Hall golf course (see **Figure 28.17**) would visually contain both onshore substation sites from the landscape to the east (including the Tas valley). The eastern side of the A140 forms the eastern boundary of the ZVI.

131. Viewpoints 6 and 7 (**Figures 28.28** to **28.31**) show that from locations on the eastern side of the Tas valley, there would be little or no visibility of the onshore substation sites a result of the screening provided by intervening vegetation. Views at most would be available to tops of the electrical equipment above the intervening vegetation, seen within the context of other (and taller) pylons. It is likely that visibility of these components would be barely perceptible within the context of the wider view.

28.5.3.3 Landscape to the south of the onshore substation site options

132. Fieldwork has shown that the belt of woodland along Hickling Lane / Swainsthorpe BOAT6 (see **Figure 28.17**) would limit visibility of either onshore substation site from further south, and forms the southern boundary of the ZVI. A line of pylons and overhead wires extends across the landscape and would be visible in many views from the south, lessening the visual influence of the substation sites should they be partially visible from any locations south of this woodland.

28.5.3.4 Landscape to the west of the onshore substation site options

133. Viewpoints 4 and 5 (**Figures 28.24** to **28.27**) illustrate that from these locations to the west, beyond the immediate context of the onshore substation sites, there would be little to no visibility of the substation on either site as a result of screening by intervening vegetation. Vegetation within the landscape east of Swardeston and Mulbarton is likely to obscure onshore substations on both sites from these settlements. If any electrical equipment is visible, it would be seen within the context of existing pylons and overhead wires. Additionally, given the anticipated slim profile, typical of lighting protection rods which is likely to constitute the highest electrical equipment, visibility of these components would be barely perceptible within the context of the wider view.

134. Fieldwork has identified that views to either onshore substation site would be largely contained to the field south of Gowthorpe Manor and east of Gowthorpe Lane. Gowthorpe Lane, which is lined with hedgerows, would form the western boundary of the ZVI.

135. Based on fieldwork observations, it is judged that the scale effects due to a substation on Site 1 or Site 2 on landscape and visual receptors outside the ZVI described above would be negligible scale and **minimal** significance. Receptors outside the ZVI are not assessed in further detail in relation to the onshore substation sites.

28.5.4 Landscape and Seascape Character

136. The onshore cable corridor has potential to affect seascape character at the landfall, and landscape character where it runs across Norfolk. The onshore substation only has the potential to affect landscape character.

28.5.4.1 National Seascape Character Areas

137. A seascape character assessment for the East Inshore and East Offshore Marine Plan areas was published by the Marine Management Organisation in July 2012 (MMO, 2012). Its purpose is to provide a strategic scale seascape character assessment to inform the marine planning process and is based upon an earlier pilot study seascape assessment commissioned by Natural England. The only National Seascape Character Areas (NSCA) that fall within the DEP and SEP's landscape and visual resources study areas are Norfolk Coastal Waters and East Midlands Coastal Waters, which fall within the onshore cable corridor study area, as illustrated on **Figures 28.7 and 28.8**. Given the short term and limited extent of the construction activities associated with the onshore cable corridor, there would be no significant effects on seascape character and so effects on these NSCAs are not considered further.

138. Landscape Character Map of England (National Character Areas (Natural England, various dates)) identifies broad overarching character at the national level. GLVIA3 (Landscape Institute and IEMA, 2013) notes the purpose of national character area profiles in LVIA is to *"set the scene"* with assessment of specific impacts to character undertaken using local character assessments.

139. **Figure 28.7** shows the National Character Areas (NCA) which are located within the study areas of the onshore cable corridor and the two onshore substation site options. The relevant NCAs which fall within the study areas are as follows:

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

140. Whilst these NCAs provide context to the assessment, given their scale and the presence of more detailed LCAs at a local level, effects on the NCAs are not assessed in further detail.

28.5.4.2 Regional Character Assessment

28.5.4.2.1 East of England Landscape Framework (2011)

141. The East of England Landscape Framework (The East of England Landscape Framework, 2011) (EELF) presents an integrated landscape assessment (covering a range of environment matters) across the East of England region. The typologies form a structured spatial framework from which consistent descriptions are documented, drawing from a range of data including local Landscape Character Assessments, Historic Landscape Characterisation, biodiversity, and rural settlement datasets as well as data generated through consultation. Its objective is to provide consistent information across the region to inform future planning application, climate change studies; biodiversity; land management work; and research studies, where mater related to the land / landscape are considered.

142. Whilst the EEFL provides context to the assessment, given its broad scale and the presence of more detailed character area assessments at a local level, effects on landscape character described in this regional character assessment are not assessed in further detail.

28.5.4.2.2 Norfolk Coast AONB Integrated Landscape Guidelines (2009)

143. The Norfolk Coast AONB Integrated Landscape Guidelines (Norfolk Coast Partnership, 2009) (AONB LCA) describes the distinctive character of the Norfolk Coast AONB; highlights those aspects of the landscape which are valued and particularly vulnerable to change; and provides guidance on appropriate measures and considerations that will help conserve and enhance them, whilst encouraging the sustainable development of the area.

144. The AONB LCA states that it *"…does not seek to override the detailed information contained in each of the district-based landscape character assessment reports; instead it summarises and presents information from the detailed reports in a consistent, user-friendly format which relates to the landscapes of the AONB."*

145. Whilst the AONB LCA provides relevant information about the landscape character with the study areas of the wind farm sites, the North Norfolk Landscape Character Assessment (Land Use Consultants, 2018) provides a more recent character assessment of the area where the two overlap and will be used as the landscape character assessment for impact assessment in **Section 28.6**. This was agreed with consultees at the Seascape and Landscape ETG meeting on 23 March 2020 as noted in **Table 28-1**.

28.5.4.2.3 Report on the Norfolk Historic Landscape Characterisation Project (2009)

146. The Norfolk Historic Landscape Characterisation Project was completed in 2008 (Norfolk Landscape Archaeology, 2009) and the overall mapped classification of broad historic landscape types, resulting in the identification of 22 major Broad Groups and over 60 detailed Historic Landscape Character (HLC) Types.

147. The Report on the Norfolk Historic Landscape Characterisation Project (Norfolk Landscape Archaeology, 2009) is a useful document from which to inform the baseline understanding of the historical context of the landscape within the study areas, and has formed part of the review of the existing landscape character throughout this assessment.

28.5.4.3 Local Character Assessment

28.5.4.3.1 Onshore cable corridor

148. Local landscape character and seascape character baseline within DEP and SEP's onshore cable corridor study areas are defined by the following assessments:

- Marine Management Organisation Seascape character area assessment: East Inshore and East Offshore marine plan areas (MMO, 2012);
- Norfolk Coast AONB Integrated Landscape Guidance (2009) (Norfolk Coast Partnership 2009);
- North Norfolk Landscape Character Assessment (Land Use Consultants 2018);

- Broadland District Landscape Character Assessment (Broadland District Council 2008);
- Breckland District Landscape Character Assessment (Land Use Consultants 2007); and
- South Norfolk District Landscape Character Assessment 2001 (updated 2006 and 2008) (Land Use Consultants 2001).

149. The North Norfolk Landscape Character Assessment extends to the low water mark. The boundary between seascape and landscape character assessments for the purpose of this LVIA is the low water mark.

150. Given the limited spatial extent of the onshore cable corridor in relation to individual LCA and the nature of potential effects (i.e. short-term construction activity followed by landscape reinstatement, except where trees and woodlands are removed and cannot be re-planted over the 20m wide cable easement for both projects or 12m for a single project (either DEP or SEP)) the only LCAs likely to experience notable effects as a result of the construction of the DEP and SEP onshore cable corridor are those that it passes through. LCAs that lie within the onshore cable corridor study area for the onshore cable corridor but outside of the corridor itself would experience no direct effects and are therefore excluded from detailed consideration.

151. The onshore cable corridor falls within the following further LCAs (listed in order from north to south) and are considered in further detail at **Section 28.6**. LCAs are illustrated on **Figures 28.8** to **28.13**.

28.5.4.3.1.1 North Norfolk Landscape Character Assessment

- CS1. Weybourne to Mundesley Coastal Shelf;
- DCM2. Blakeney, Wiveton, Cley and Salthouse Drained Marshes;
- RHA1. Blakeney, Salthouse & Kelling;
- WGR1. Wooded Glacial Cromer Ridge;
- TF1. North Norfolk Tributary Farmland; and
- RV2. River Bure and tributaries.

28.5.4.3.1.2 Broadland District Landscape Character Assessment

- E1. Blickling and Oulton Wooded Estatelands;
- D1. Cawston Tributary Farmland;
- B1. Horsford Woodland Heath Mosaic;
- A1. River Wensum River Valley; and
- D2. Weston Green Tributary Farmland.

28.5.4.3.1.3 South Norfolk District Landscape Character Assessment

- A3. Tud Rural River Valley;
- G1. Easton Fringe Farmland;
- A2. Yare/Tiffey Rural River Valley;

- B2. Tiffey Tributary Farmland;
- D1. Wymondham Settled Plateau Farmland;
- C1. Yare Tributary Farmland with Parkland;
- B1. Tas Tributary Farmland;
- A1. Tas Rural River Valley; and
- F1. Yare Valley Urban Fringe.

28.5.4.3.2 Onshore substation site options

152. The local landscape character baseline within the study areas for the two onshore substation site options is described within a series of reports that comprise the South Norfolk Landscape Assessment (SNLA) (Land Use Consultants 2001).

153. The first report – the South Norfolk Landscape Assessment Volume 1: Landscape Types of South Norfolk District – produced a framework study for the entire district, identifying seven generic landscape character types (LCT), reflecting the subtly varied landscape of the district ranging from the rural river valleys, to the plateau farmland.

154. A more detailed study was subsequently undertaken – South Norfolk Landscape Assessment Volume 2: Landscape Character Areas of the Norwich Policy Area – which identified and described the character areas falling within the northern part of the district closest to Norwich, within the policy area defined in the Norfolk Structure Plan 1999. This study subdivided the generic LCTs in unique LCAs.

155. South Norfolk Landscape Assessment Volume 4: Landscape Character Areas of the Rural Policy Area is the final volume of the series covering the remaining part of the district, i.e. the landscape falling within the Rural Policy Area, and complements the study undertaken for Volume 2.

156. The SNLA identifies, maps and describes the generic LCTs and unique LCA across the South Norfolk District. Those which are located within the study areas of the onshore substation sites are shown on **Figure 28.13**, and listed below:

- A1. Tas Rural River Valley;
- B1. Tas Tributary Farmland;
- C1. Yare Tributary Farmland with Parkland;
- D1. Wymondham Settled Plateau Farmland;
- D2. Poringland Settled Plateau Farmland; and
- F1. Yare Valley Urban Fringe.

157. As set out in **Section 28.5.3**, the ZVI of each onshore substation site (see **Figures 28.15** and **28.16**) would be visually contained to their immediate contexts. Only the LCA of B1 Tas Tributary Farmland lies within the ZVI and could be affected to a such a degree that significant might arise as a consequence of either onshore substation site option. This LCA is taken forward for further detailed assessment in **Section 28.6**.

158. Based on fieldwork observations set out in **Section 28.5.3**, potential effects on landscape character outside of the extent of the ZVI would be of a negligible scale, and no significant effects would occur on the following LCAs that lie within the study areas of the substation sites, and these are not assessed further:

- A1. Tas Rural River Valley;
- C1. Yare Tributary Farmland with Parkland;
- D1. Wymondham Settled Plateau Farmland;
- D2. Poringland Settled Plateau Farmland; and
- F1. Yare Valley Urban Fringe.

28.5.5 Visual Receptors

159. Visual receptors are *"the different groups of people who may experience views of the development"* (GLVIA3, para 6.3). In order to identify those groups who may be significantly affected, ZTV studies, baseline desk study and site visits have been used to inform the professional judgements made in this assessment.

160. The different types of receptors assessed within this chapter encompass local residents; people using key routes such as roads; cycle ways; long distance walking routes; people within accessible or recreational landscapes; people using Public Rights of Way (PRoW); and / or people visiting key viewpoints.

161. 11 representative viewpoints have been selected and agreed with the relevant local authorities and statutory bodies (although no written response has been received from South Norfolk District Council as noted in **Table 28-1**) to assess the potential effects on visual receptors within the study areas of the two onshore substation site options (1 and 2). Details of the consultations held are set out in **Section 28.2**.

162. Visual receptors are assessed under the following categories:

- Settlements;
- Roads and Rail;
- Recreational routes (long distance walking routes and national and regional cycle routes);
- Accessible and recreational landscapes; and
- Visual receptor groups (comprising users of PRoW and local roads).

28.5.5.1 Onshore Cable Corridor

28.5.5.1.1 Settlements

163. Assessment of impacts on people within settlements includes views from the publicly accessible routes, public spaces, homes and businesses within them. The following settlements are located within the onshore cable corridor study area (listed north to south):

- Weybourne;
- Kelling
- Upper Sheringham;

- Bodham;
- West Beckham;
- Baconsthorpe;
- Plumstead;
- Matlaske;
- Little Barningham;
- Saxthorpe;
- Oulton;
- Oulton Street;
- Southgate;
- Cawston;
- Eastgate;
- Brandiston;
- Swannington;
- Alderford;
- Upgate;
- Morton;
- Attlebridge;
- Weston Longville;
- Weston Green;
- Easton;
- Colton;
- Marlingford;
- Barford;
- Great Melton;
- Wramplingham;
- High Green;
- Hethersett;
- Wymondham;
- Ketteringham;
- East Carleton;
- Mulbarton;
- Dunston;
- Swainsthorpe; and
- Swardeston.

164. Of the settlements listed above, Upper Sheringham, Matlaske, Saxthorpe and Colton all lie largely outside of the onshore cable corridor study area at a distance where construction phase impacts are unlikely to be greater than negligible and as such they are not considered in further detail in assessing effects of the onshore cable corridor. In addition to the settlements listed above there are other areas of dispersed settlement, such as isolated farms, manor houses and small hamlets, throughout the onshore cable corridor study area which may be referred to in **Section 28.6** as necessary.

28.5.5.1.2 Roads and Rail

165. The following main road and rail routes pass through the onshore cable corridor study area (listed north to south):

- A149 – crosses corridor (**Figure 28.1**);
- North Norfolk Railway – crosses corridor (**Figure 28.1**);
- A148 – crosses corridor (**Figure 28.1**);
- A1067 – crosses corridor (**Figure 28.4**);
- A47 – crosses corridor (**Figure 28.4**);
- A11 – crosses corridor (**Figure 28.15**);
- Rail line between Norwich and Cambridge – crosses corridor (**Figure 28.5**);
- Rail line between Norwich and Ipswich – crosses PEIR boundary (**Figure 28.6**); and
- A140 – runs along eastern edge of PEIR boundary (**Figure 28.6**).

166. These routes are considered in further detail in **Section 28.6**.

28.5.5.1.3 Recreational Routes

28.5.5.1.3.1 Long Distance Walking Routes

167. The following Long Distance Walking Routes pass through the onshore cable corridor study area (listed north to south) (see **Figures 28.1** to **28.6**):

- Peddars Way, Norfolk Coast Path and England Coast Path – crosses corridor (**Figure 28.1**);
- Holt-Mannington Walk – crosses corridor in two locations (**Figure 28.2**);
- Marriot's Way – crosses corridor in two locations (**Figure 28.3 and 28.4**); and
- Tas Valley Way – crosses corridor (**Figure 28.6**).

168. These routes are considered in further detail in **Section 28.6**.

169. Peddars Way, Norfolk Coast Path and England Coast Path follow the same route along the Norfolk coast through the study area and are assessed together, and are hereafter referred to as the 'Coast Path'. The England Coast Path is a proposed National Trail around all of England's coast which Natural England is establishing under the provisions of Part 9 of the Marine and Coastal Access Act 2009 (UK Legislation (2010). It includes a wider area of 'coastal margin' either side of the path itself, giving greater statutory protection to the de facto access to the coast the public already enjoys. Some sections are open and others have yet to be implemented.

170. Small lengths of two sections of the England Coast Path and coastal margin defined by Natural England lie within the study area of the onshore cable corridor; Sea Palling to Weybourne and Weybourne to Hunstanton. The only section which lies within the landfall part of the onshore cable corridor is the eastern end of the section from Weybourne to Hunstanton. The section from Sea Palling to Weybourne is confirmed and open to the public. The section from Weybourne to Hunstanton has been approved by the Secretary of State for the Environment, Food & Rural Affairs and has not yet been implemented but is due to be implemented before the wind farm sites would be developed. Further information is available at www.gov.uk/government/publications/england-coast-path-in-the-east-of-england (accessed 23/12/2020).

171. The coastal margin is considered separately to the Coast Path in **Section 28.5.5.1.4 Accessible and Recreational Landscapes**.

28.5.5.1.3.2 National and Regional Cycle Routes

172. The following National and Regional Cycle Routes pass through the onshore cable corridor study area (listed north to south):

- Regional Cycle Route 30 – crosses corridor (**Figure 28.1**);
- Regional Cycle Route 33 – crosses corridor (**Figure 28.3**); and
- National Cycle Network Route 1 – crosses corridor (**Figure 28.4**).

173. These routes are considered in further detail in **Section 28.6**.

28.5.5.1.4 Accessible and Recreational Landscapes

174. The following accessible and recreational landscapes are located within the onshore cable corridor study area (listed north to south). This excludes accessible and recreational landscapes within settlements which are included in the assessment on settlements.

- Weybourne Beach and the existing and future coastal margin – corridor crosses this area (**Figure 28.1** (only showing the section which is existing as described in **Section 28.5.5.1.3.1**));
- Fox Hill/Muckleburgh Hill Open Access Land – corridor lies outside (**Figure 28.1**);
- Kelling Heath Open Access Land – corridor lies outside (**Figure 28.1**);
- Weybourne Wood Open Access Land – corridor crosses this area (**Figure 28.1**);
- Upper Sheringham Common – corridor lies outside (**Figure 28.1**);
- Bodham Wood Open Access Land – corridor lies outside (**Figure 28.1**);

- Barningham Green Farm Common – corridor lies outside (**Figure 28.2**);
- Cawston Heath - corridor lies outside (**Figure 28.3**);
- Hengrave Common - corridor lies outside (**Figure 28.3**);
- Swannigton Common - corridor lies outside (**Figure 28.3**);
- Alderford Common – corridor lies outside (**Figure 28.3**);
- Upgate Common - corridor lies outside (**Figure 28.3**);
- Church Hill Common – corridor lies outside (**Figure 28.4**);
- Ringland Hills - corridor lies outside (**Figure 28.4**);
- Mulbarton Common - corridor lies outside (**Figure 28.6**);
- Dunston Common - corridor lies outside (**Figure 28.6**);
- Swardeston Common - corridor lies outside (**Figure 28.6**); and
- Venta Icenorum Roman Town - corridor lies outside (**Figure 28.6**).

175. Of the areas listed above Cawston Heath and Ringland Hills lie largely outside of the onshore cable corridor study area at a distance where construction phase effects are unlikely to be greater than negligible magnitude and **minimal** significance and as such they are not considered in further detail in assessing effects of the onshore cable corridor.

176. Bodham Wood, Barningham Green Farm Common, Hengrave Common, Swannigton Common, Alderford Common, Church Hill Common, Mulbarton Common, Dunston Common and Swardeston Common are wooded, or screened from the onshore cable corridor by trees and / or buildings, and from within which construction activity would be screened from view, although glimpsed views might be possible from parts of some of these areas. As a result, visual effects on receptors in these areas are unlikely to be greater than negligible magnitude and **minimal** significance and are not considered further in assessing effects of the onshore cable corridor.

177. The only section of the onshore cable corridor within 1 km of Venta Icenorum Roman Town is a potential access road to the onshore substation which is hidden from Venta Icenorum by woodland. Construction activity associated with the onshore cable corridor is unlikely to be seen from Venta Icenorum and effects would not be significant. Impacts on this accessible area of landscape are not considered further in assessing effects of the onshore cable corridor.

28.5.5.1.5 Local Roads and Public Rights of Way

178. Local roads and PRoW within settlements are assessed as part of the settlements, all other local roads and PRoW within the onshore cable corridor study area are grouped by parish for ease of reference. The following parishes contain local roads and PRoW that fall within the onshore cable corridor study area (listed north to south):

- Weybourne;
- Upper Sheringham;
- Bodham;
- West Beckham;

- Kelling;
- Baconsthorpe;
- Plumstead;
- Matlaske;
- Little Barningham;
- Wickmere;
- Corpusty and Saxthorpe;
- Itteringham;
- Oulton;
- Heydon;
- Cawston;
- Booton;
- Brandiston;
- Little Witchingham;
- Haveringland;
- Swannington;
- Alderford;
- Attlebridge;
- Morton on the Hill;
- Weston Longville;
- Weston Green;
- Ringland;
- Hockering;
- Honingham;
- Easton;
- Marlingford and Colton;
- Barford;
- Great Melton;
- Wramplingham;
- Wymondham;
- Hethersett;
- Ketteringham;
- East Carleton;
- Swardeston;
- Keswick and Intwood;
- Mulbarton;

- Swainsthorpe;
- Caistor St. Edmund and Bixley;
- Stoke Holy Cross.

179. The parishes of Wickmere, Little Witchingham, Haveringland, Alderford all lie largely outside the onshore cable corridor study area or only have very short sections of routes within it. Overall, visual impacts on local roads and PRoW in these parishes are unlikely to be significant, due to their distance from the onshore cable corridor, intervening vegetation and buildings and very limited extent of routes within the onshore cable corridor study area, they are therefore not considered further in assessing effects of the onshore cable corridor.

28.5.5.1.6 Specific Viewpoints

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

28.5.5.1.7 Designated and Defined Landscapes

28.5.5.1.7.1 Norfolk Coast AONB

181. The Norfolk Coast AONB is a landscape of national importance with the primary purpose to conserve and enhance the natural beauty of the landscape. The onshore cable corridor runs through the Norfolk Coast AONB for approximately 5.5km as shown on **Figure 28.1**. Effects due to the construction of the onshore cable corridor on the Norfolk Coast AONB are assessed in **Section 28.6.2.3.1**.

28.5.5.1.7.2 North Norfolk Heritage Coast

182. As shown on **Figure 28.1** an area of Heritage Coast (The NNHC) is located within the study area of the onshore cable corridor landfall. The Heritage Coast lies approximately 200m west of the onshore cable corridor on the coast. Avoiding direct impacts to the NNHC formed a key consideration in the site selection process for the landfall location.

183. The NNHC is a non-statutory landscape definition (although recognised in the statutory planning system), which was defined by agreement between local authorities and the Countryside Commission (now part of Natural England) in 1975, recognising this section of coastline as one of the finest stretches of undeveloped coast in England and Wales.

184. Effects due to the construction of the onshore cable corridor on the NNHC are assessed in **Section 28.6.2.3.2**.

28.5.5.2 Onshore Substation

185. Visual receptors discussed below can be seen on **Figure 28.6**.

28.5.5.2.1 Settlements

186. Assessment of impacts on people within settlements includes views from all of the publicly accessible routes, public spaces, homes and businesses within them.

187. The following settlements lie within both study areas :

- Arminghall;

- Bracon Ash;
- Caistor St Edmund;
- Cringleford;
- Dunston;
- East Carleton;
- Keswick;
- Mulbarton;
- Newton Flotman;
- Norwich;
- Shotesham;
- Stoke Holy Cross;
- Poringland;
- Swainsthorpe;
- Swardeston; and
- Upper Stoke.

188. In addition to the settlements listed above, a number of isolated farmsteads and hamlets are distributed across the study areas.

189. The ZTVs (**Figures 28.15** and **28.16**) indicate that there could theoretically be a degree of visibility of either onshore substation site from the peripheries of all of the settlements, and a number of nearby isolated farmsteads / hamlets. However, fieldwork has identified that, as described in **Section 28.5.3**, visibility would not be as widespread as the ZTVs theoretically indicate and there would be little or no visibility from any settlements.

190. If the onshore substation site options are visible from any locations within settlements, they would be mostly screened by intervening vegetation, landform and / or existing development, and be barely perceptible within the context of other man-made infrastructure such as the Norwich Main substation, and pylons and overhead wires, and views would remain fundamentally unchanged. Visual effects would be no greater than a negligible magnitude and **minimal** significance. Therefore, settlements are not assessed in further detail.

28.5.5.2.2 Roads and Rail

191. The following main road and rail routes lie within or pass through the study areas of both onshore substation site options:

- A47 (Norwich southern bypass);
- A140 (Ipswich Road);
- Norwich – Ipswich Railway Line; and
- Norwich – Cambridge Railway Line.

192. The ZTVs (**Figures 28.15** and **28.16**) indicate that there could theoretically be visibility of the onshore substation sites from all of these routes. However, fieldwork has identified that, as described in **Section 28.5.3**, visibility would not be as widespread as the ZTV theoretically indicates and there would be little to no visibility from either the A47 or the Norwich – Cambridge Railway Line. Should views of the onshore substation sites be possible from either of these routes, they would be mostly screened by intervening vegetation, landform and / or existing development, and be barely perceptible within the context of other man-made infrastructure such as roads, pylons and overhead wires, and views would remain fundamentally unchanged. Visual effects would be no greater than a negligible magnitude and **minimal** significance. Therefore, the A47 and the Norwich – Cambridge Railway Line are not assessed in further detail.

193. Short sections of the A140 and Norwich-Ipswich railway line fall within the ZVI between Hickling Lane and the woodland belt immediately north of the substation sites. Both routes are well used by people travelling to and from Norwich, and a degree of visibility would be possible to either onshore substation site options.

194. Fieldwork has confirmed that from the remainder of each route beyond this small section of the A140 and Norwich-Ipswich Railway Line within the ZVI, views would be obscured by intervening vegetation, development and / or landform. Whilst views to either onshore substation site option might be possible at breaks in vegetation, they would be glimpsed at most and seen within the context of other man-made infrastructure such as roads, the Norwich Main substation, pylons and overhead wires, and views would remain fundamentally unchanged. Therefore, the assessment of these two routes in **Section 28.6** will focus on the sections of the A140 and Norwich-Ipswich Railway Line within the ZVI.

28.5.5.2.3 Long Distance Walking Routes

195. The following Long Distance walking Routes are located within the onshore substation sites' study areas:

- Tas Valley Way; and
- Boudicca Way

196. Both routes lie outside the ZVI of the substation site options.

197. The Tas Valley Way extends broadly south from Norwich, passing to the west of the substation sites, as it heads towards Bracon Ash and out of the study areas. The ZTVs (**Figures 28.15** and **28.16**) indicate potential visibility of both substation site options, albeit intermittently, along parts of its length. In reality this would be considerably reduced as a result of hedgerows and tree belts along its route and other intervening vegetation in the wider landscape. There would be little to no visibility of either substation site from the Tas Valley Way.

198. The Boudicca Way extends broadly south from Norwich, passing east of the substation site options. It follows a relatively elevated route past Arminghall and through Upper Stoke with a spur forking west to Venta Icenorum. Viewpoint 7 is located at Venta Icenorum and the wireframe views shown on **Figures 28.30** and **28.31** illustrate that only the upper parts of small sections of electrical infrastructure would potentially be visible. As can be seen in **Table 28-13**, effects are assessed as negligible scale for both substation sites from Viewpoint 7. The ZTVs (**Figures 28.15** and **28.16**) indicate views of the substation sites would potentially be possible from parts of the route. However, fieldwork has identified that there would be little potential for there to be views of the substation sites from the Boudicca Way and that, if they were visible only small parts would be seen, in the context of existing pylons and overhead wires.

199. Visual effects would be no greater than negligible magnitude and **minimal** significance from these routes Therefore, the Tas Valley Way and Boudicca Way are not assessed in further detail.

28.5.5.2.4 National and Regional Cycle Routes

200. No National or Regional Cycle Routes have been identified within the onshore substation sites' study areas.

28.5.5.2.5 Accessible and Recreational Landscapes

201. The following Accessible and Recreational Landscapes are located within the extents of the onshore substation sites' study areas:

- Swardeston Common;
- Eaton Common;
- Venta Icenorum;
- Dunston Common;
- Marston Marshes;
- Mulbarton Common;
- Smockmill Common;
- Shotesham Common;
- Marsh Green; and
- Bracon Common.

202. In addition, there are small areas of Common Land alongside the road in Swainsthorpe, and other small areas of open space within settlements including play areas and recreation grounds.

203. The ZTVs (**Figures 28.15** and **28.16**) indicate that there could theoretically be visibility of the onshore substation sites from these accessible recreational landscapes. However, fieldwork observations have identified that there would be little or no visibility from the landscapes listed above. They all lie outside the ZVI described in **Section 28.5.3**.

204. Should visibility of the onshore substation site options be possible from any accessible recreational landscapes they would be mostly screened by intervening vegetation, landform and / or existing development, and be barely perceptible within the context of other man-made infrastructure such as the pylons and overhead wires, and views would remain fundamentally unchanged. Visual effects would be no greater than negligible magnitude and **minimal** significance. Therefore, accessible recreational landscapes are not assessed in further detail.

28.5.5.2.6 PRoW, permissive bridleway and Gowthorpe Lane within the ZVI

205. PRoW, a (presumed) permissive bridleway and Gowthorpe Lane within the immediate context of the onshore substation site options and within the ZVI set out in **Section 28.5.3** have been grouped together for the purpose of this assessment. Walkers or other visual receptors are likely to use more than one of these routes, for example by undertaking a circular walk along the PRoW that encircle the substation sites, shown on **Figure 28.17**. The visual receptor group is located within an area of landscape between the established woodland and tree vegetation along the PRoW (Swardeston BR12 and Stoke Holy Cross BR3) (north of the sites); the A140 (Ipswich Road) (east of the sites); Hickling Lane (south of the sites); and Gowthorpe Lane (west of the sites).

206. The footpath and bridleway west of A140 was present on the ground in October 2020 but is not recorded on the Definitive Map and Statement of Public Rights of Way for Norfolk (confirmed by Norfolk County Council on 18th December 2020). It is assumed that this is a permissive bridleway for the purpose of this assessment.

207. Fieldwork has identified that a degree of visibility of either onshore substation site option would be experienced from this group of visual receptors and they are assessed in more detail in **Section 28.6**.

208. The A140 and Norwich-Ipswich railway line also lie within the ZVI in this area and are assessed separately in **Section 28.6**.

209. No other visual receptors at publicly accessible areas or routes lie within the ZVI.

210. There would be little to no visibility of either onshore substation site option for users of local roads and PRoW located outside of this visual receptor group as set out in **Section 28.5.3**. Whilst views may be possible, they would be from short sections of roads or PRoWs and of small parts of either substation site. Where either substation is visible, it would be seen within the context of other man-made infrastructure such as the Norwich Main substation, pylons and overhead wires, and views would remain fundamentally unchanged. Overall, effects on visual receptors outside the receptor group identified above would be no greater than negligible magnitude and **minimal** significance, and they are not assessed further.

28.5.5.2.7 Specific Viewpoints

211. No specific viewpoints have been identified within the extent of the onshore substation sites' study areas.

28.5.6 Landscapes or Features Protected by Policy

212. The following areas of landscape or road approaches lie within the onshore substation study areas and are protected by policy contained with the South Norfolk Local Plan Development Management Policies Document (October 2015).

- River Valleys (Policy DM4.5 – Landscape Character and River Valleys);
- Norwich Southern Bypass Landscape Protection Zone (Policy DM4.6 – Landscape Setting of Norwich);
- Key Viewing Cones (Policy DM4.6 – Landscape Setting of Norwich); and
- Undeveloped Approaches (Policy DM4.6 – Landscape Setting of Norwich).

28.5.6.1 Policy DM 4.5 Landscape Character and River Valleys

213. Policy DM 4.5 sets out the policy to protect the *"…distinctive characteristics and special qualities of the five identified Rural River Valleys and the Valley Urban Fringe and their constituent Landscape Character Areas, within South Norfolk that are desirable to safeguard. They contribute:*

- *a distinctive character and sense of place;*
- *contain important/rare features and landmarks and diverse habitats;*
- *grazed pastoral valley floors; intimate and enclosed landscape with overall small-scale character; and*
- *enjoy a largely intact rural character, which in places is highly tranquil and undisturbed."* (para. 4.49).

214. The policy states in paragraph 4.50 that *"the Rural River Valleys and Valley Urban Fringe Extents are identified with the Landscape Character Areas to which they contribute"*. In this instance, the landscapes protected by this policy lie within the study areas as follows.

28.5.6.1.1 Onshore cable corridor

215. The onshore cable corridor crosses South Norfolk District LCAs A3 Tud Rural River Valley and A2 Yare/Tiffey Rural River Valley (**Figures 28.11** and **28.12**) which are protected by Policy DM 4.5 (**Figures 28.4** and **28.5**). LCA A1 Tas Rural River Valley lies within the onshore cable corridor study area (**Figures 28.13** and **28.6**) but cable corridor construction works is unlikely to be visible from this LCA due to tree and woodland vegetation within the western edge of the LCA screening views, and would not adversely affect the 'distinctive characteristics or special qualities' noted in Policy DM 4.5.

216. Potential effects on these LCAs protected by Policy DM 4.5 are assessed in **Section 28.6.2.3.3**.

28.5.6.1.2 Onshore substation

217. South Norfolk District LCAs A1 Tas Rural River Valley and F1 Yare Valley Urban Fringe which are protected by Policy DM 4.5 lie within the study areas of the onshore substation sites (**Figures 28.13** and **28.6**). As set out in **Section 28.5.4.3.2**, these LCAs are unlikely to experience any notable landscape effects as a result of the onshore substation sites, and in turn, it is unlikely that either onshore substation site would adversely affect the 'distinctive characteristics or special qualities' noted in Policy DM 4.5.

218. **Figure 28.6** indicates that the River Valley area extends a few metres west of the A140 into the field east of the railway, and would be within the ZVI described in **Section 28.5.3**, potentially affecting LCA A1 Tas Rural River Valley. The GIS data for the River Valleys was supplied by South Norfolk District Council. However, the area of the River Valley extending west of the A140 partly across the triangular field east of substation Site 1 does not accurately reflect wording set out in the landscape character assessment – SNLA (LUC, 2001). The SNLA states in relation to the LCA A1 Tas Rural River Valley that its boundaries in this area are as follows:

> *"… The boundaries are defined topographically, in relation to the top of the valley sides and roughly follow the 30m contour, except where human influences have caused a distinct change in character. For example, in the lower part of the valley the A140 defines the boundary on the west side as the road creates a clear division on the upper valley side."* (Underlining emphasis added.)

219. This wording identifies that where the River Valley is shown to extend west of the A140 this is incorrect and should be aligned to the A140. The road provides the logical boundary between LCA A1 Tas Rural River Valley east of the A140 and LCA B1 Tas Tributary Farmland west of the A140 (see **Figure 28.13**). The whole triangular arable field lies within B1 Tas Tributary Farmland and reflects the character of this LCA.

220. On this basis, it is assessed in accordance with the conclusions of the baseline study undertaken for local landscape character in **Section 28.5.4.3**, that the River Valley landscape would not experience any notable effects as a result of the substation site options.

221. Even if the River Valley character area were to extend to the west of the A140 within the area indicated on **Figure 27.6**, there would be no permanent changes to this field. There would potentially be a temporary staff parking area in part of this field during construction. This would be reinstated to its original condition once construction has ceased. The substation sites would be visible to the west of the railway line from within this field, but this would only indirectly affect a very limited extent of the River Valley landscape and no significant effects would arise as a consequence of SEP and / or DEP. Impacts would be at most of **minimal** significance and neutral.

222. Therefore, the River Valley landscapes protected by policy are not considered in further detail.

28.5.6.2 Policy DM4.6 Landscape Setting of Norwich

223. Policy DM4.6 sets out policy to protect the openness of a zone around the Southern Bypass, avoid undermining the rural character of undeveloped approaches to Norwich and specific 'Key Views' of the city. The Norwich Southern Bypass Landscape Protection Zone (NSPLPZ), Key Viewing Cones and Undeveloped Approaches which are protected by Policy DM4.6 are shown on **Figure 28.6**.

224. Policy DM4.6 is primarily a spatial planning or land use policy which is not intended to protect the inherent qualities of the landscape itself, but to protect landscape from the encroachment of new development. Given the locations of the two onshore substation site options the NSPLPZ, the Key Viewing Cones and Undeveloped Approaches being located outside of the ZVI, no effects would arise as a consequence of SEP and / or DEP. They are therefore not considered in further detail.

28.5.7 Local Landscape Value

225. Within the study areas of onshore cable corridor and the onshore substation site options there are a number of designations, features and other factors that contribute to the value of the local landscape, such as the Norfolk Coast AONB, NNHC, the PRoW network, long distance walking routes, cycle routes, accessible and recreational landscapes, and the popularity of the Norfolk coast as a tourist destination.

226. The Norfolk Coast AONB and NNHC encompass part of the landscape within the study area of the onshore cable corridor. These landscapes are nationally designated or defined and afforded legislative protection. They are assessed to be of national value. They broadly correspond with coastal areas popular with tourists.

227. Where the landscape is protected by Policy DM4.5 – River Valleys, their value would be of a local / district value.

228. Outside of the designated and defined landscapes, there are numerous landscape features which are valued by the local community. Where none of these assets are considered to demonstrate that the landscape is more valued beyond the local community the value, the value of the landscape is community value.

28.5.8 Climate Change and Natural Trends

229. The existing environment of the landscape in the study areas of the onshore cable corridor and substation sites is likely to change in the future as a result of the effects of climate change, land use policy, environmental improvements and development pressures, regardless of whether DEP and / or SEP wind farm sites progresses to construction or not.

230. A range of policies impact on the management of the landscape, ranging from European Directive, national policy and regulation, through to community strategies and development frameworks. Landscape policies protecting designated landscapes generally seek to conserve and enhance the natural beauty of the area, or conserve the character of the landscape, while recognising the need to adapt to inevitable change over time, particularly in a dynamic coastal landscape shaped by coastal processes, and the need to respond to development pressures that reflect the changing needs of society.

231. There is overwhelming evidence that global climate change, influenced by the human use of fossil fuels, raw materials and intensive agriculture, is occurring. Any notable change in climate is likely to present potential changes to the study areas in a variety of ways.

232. Potential changes to the landscape as a result of climate change and natural trends have been considered but would not change the assessment of impacts presented in this chapter.

28.5.9 Data limitations

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

28.6 Potential Impacts

28.6.1 Introduction

234. This section sets out the effects that the proposed onshore cable corridor and onshore substation site options would have on landscape and visual receptors. The realistic worst case scenario is assessed as described in **Section 28.3.2**.

235. The realistic worst case scenario is if both DEP and SEP are constructed sequentially with the largest potential gap between the start of construction of the first project and the start of construction of the second project. However, should SEP and / or DEP be developed in isolation or together (either concurrently or sequentially), there would be no material difference in the resultant impacts between the various project scenarios.

236. All identified effects included within this section are summarised in **Table 28-18** in **Section 28.12**.

237. The principal landscape and visual effects for each onshore component (i.e. cable corridor and substation) would occur during different phases of the DEP and SEP as described below.

28.6.1.1 Onshore cable corridor

238. As noted in **Table 28-1** the Scoping Opinion from PINS (The Planning Inspectorate 2019) states that *"… the Inspectorate considers visual effects from the onshore cable route (including the landfall) during operation are unlikely to be significant and can be scoped out of the assessment. However, the ES should assess any likely significant long-term landscape effects that could persist from landfall and cable construction activities; for example as a result of any vegetation clearance. This should take into account the effectiveness of any proposed mitigation measures."* Effects from the onshore cable corridor are therefore only assessed for the construction phase as set out in **Section 28.3.2.1**, but including effects resulting from vegetation removal and the time taken for replacement planting to mature that might persist following completion of construction works.

239. Effects arising as a consequence of SEP and / or DEP would be short-term, temporary and reversible i.e. landscape features would be reinstated following completion of construction activities, with replacement planting implemented during the first planting season following completion of construction, except for tree / woodland removal which would not be re-planted within the 20m wide cable (both projects SEP and DEP) or 12m (single project SEP or DEP) easement.

240. The onshore cable corridor crosses an area of woodland south of Weybourne within the North Norfolk AONB, where two corridors (west and east) are proposed in the vicinity of Weybourne Wood at PEIR stage (see **Figure 28.1**). Three alternative routes are being considered through Weybourne Wood and along Sandy Hill Lane at PEIR stage:

- Along the carriageway of Sandy Hill Lane. The cable(s) would be laid through open cut trenching in the carriageway. Some existing vegetation (including trees and hedgerows) alongside the carriageway might need to be removed or cut back to enable installation of the buried cables.
- Trenchless crossing of Sandy Hill Lane and Weybourne Wood retaining all vegetation, with the exception of potential localised impacts to vegetation associated with the HDD compound and the launch and reception pits.
- Eastern route through commercial forestry requiring the removal of commercial forestry woodland. The working corridor would be reduced to 20m in all project scenarios in order to minimise tree removal as described in **Section 28.3.3**. Trees would not be re-planted within the final 20m (both projects) or 12m (single project) wide cable easement. The onshore cable corridor and easement would use existing forestry rides and clearings as much as possible, to minimise tree removal. An alternative appropriate restored land use would be agreed with the landowner, and may include habitat creation.

28.6.1.2 Onshore substation

241. For the onshore substation site options, the principal effects would occur during the 35 year operational lifetime of SEP and / or DEP and are reversible. At the end of the lifespans of SEP and / or DEP, the onshore substation site would be decommissioned, and the site restored to its existing condition.

242. The construction and decommissioning of the onshore substation site would be temporary activities involving the movement of vehicles to transport materials and undertake earthworks; and the use of cranes to erect or dismantle the development. Construction and decommissioning effects are assumed to be similar.

243. The only landscape receptors likely to experience construction and decommissioning effects that are markedly different to the operational effects would be within extent of the onshore substation sites themselves and their immediate localities. Within these areas, during these phases, the character of the landscape would be influenced by the construction / decommissioning activities.

244. With regards to potential effects on visual receptors during construction and decommissioning, visibility of the plant movements, crane operations, and the construction or dismantling of the substation and its associated equipment would be experienced by people at nearby publicly accessible locations. These potential effects would be different in nature to those experienced while the onshore substation site is in operation, albeit similar or lower (due to shorter duration) in terms of their magnitude and significance.

245. Given the temporary duration of the construction and decommissioning phases compared to the longer term duration of the operational phases of SEP and / or DEP, potential effects during construction and decommissioning would not be greater than those experienced during the operation of the onshore substation site and are likely to be less due to the shorter-term duration.

246. Therefore, in order to keep the chapter proportionate and present where the greatest potential effects would arise, the assessment will only describe in detail the operational phase impacts of the onshore substation sites of SEP and / or DEP as set out in **Section 28.3.2**. A summary of the effects that would arise during construction and decommissioning is presented in **Annex 28.5**.

247. Those effects identified for the operational phases of DEP and / or SEP would extend beyond the duration 'long-term' described in the methodology of this assessment and is defined in the methodology as Permanent (**Section 28.4**). However, the onshore substation site would be temporary and would be removed after the proposed operating life of 35 years. Operational effects would thus extend beyond being 'long-term' (defined as up to 25 years) but not be permanent.

248. Design measures including planting to integrate the onshore substation into its landscape context and reduce the impacts on landscape and visual receptors will be incorporated throughout design development of the final onshore substation site. Landscape proposals will be detailed in an OLEMS that will be submitted as part of the final DCO application. No mitigation measures such as planting are proposed at the PEIR stage, so effects are assessed without such mitigation in place.

28.6.2 Potential Impacts During Construction – Onshore Cable Corridor

28.6.2.1 Effects on Landscape Character

249. The preliminary 200m wide onshore cable corridor identified for the PEIR passes through a series of landscapes that can be broadly categorised as rural. Typically, they comprise extensive areas of farmland with fields enclosed by hedgerows and tree belts in varying proportions and frequently there are small to medium size blocks of woodland and some areas of heathland. Settlement is typically small to medium sized villages and there are frequently isolated houses and farms. There are larger areas of woodland south of Weybourne within the northern end of the onshore cable corridor study area. River valley LCTs occur within each district crossed by the onshore cable corridor.

28.6.2.1.1 Sensitivity

250. North Norfolk District Council published a draft Landscape Sensitivity Assessment (November 2018) for public consultation in 2019. The final version, incorporating any potential changes resulting from consultation, has not yet been published. The draft Landscape Sensitivity Assessment states that it is intended to be a tool for informing the management of landscape change, by assessing and mapping the relative sensitivity of different landscapes to different types of change. The assessment focuses on the landscape sensitivity of LCTs to renewable and low carbon energy developments. Of relevance to this chapter is the assessment of sensitivity of LCTs to onshore underground cable routes for offshore wind farms.

251. The onshore cable corridor would run through the following North Norfolk LCAs (from north to south) which lie within LCTs which are assessed as having the following sensitivity to onshore cable corridor by the draft Landscape Sensitivity Assessment (NNDC November 2018):
    - CS1. Weybourne to Mundesley Coastal Shelf (within AONB). Medium-High sensitivity.
    - WGR1. Wooded Glacial Cromer Ridge (within AONB). High sensitivity.
    - TF1. North Norfolk Tributary Farmland (all but a very small area outside AONB). Medium sensitivity.
    - RV2. River Bure and tributaries (outside AONB). Medium-High sensitivity.
252. Although the North Norfolk Landscape Sensitivity Assessment is in draft and the sensitivity levels may change before it is finalised, the above sensitivity ratings are used for the purpose of this assessment.
253. LCA RV2 River Bure and tributaries lies within LCT River Valleys. The similarities between River Valley LCTs across North Norfolk, Broadland and South Norfolk districts suggest that they should all be considered of equivalent sensitivity for the purpose of this assessment (medium-high).
254. There are no similar landscape sensitivity assessments within Broadland or South Norfolk. The sensitivity of other LCAs within Broadland and South Norfolk are assessed following the method presented in **Section 28.4**, based on landscape value and susceptibility to SEP and / or DEP.
255. The value of the other LCAs crossed by the onshore cable corridor within Broadland and South Norfolk Districts varies. None of them lie within nationally designated or defined landscapes such as the North Norfolk AONB or NNHC covering parts of North Norfolk District. There is no further documentary evidence to suggest that other LCAs or LCTs within the onshore cable corridor study area are of increased value and these are generally considered to be community value.
256. LCAs within Broadland and South Norfolk districts outside the River Valleys LCAs are deemed to range from medium to low susceptibility to SEP and / or DEP, are of community value and range from medium to medium-low sensitivity.

28.6.2.1.2 Assessment

257. As noted at **Section 28.5** only those character areas within the onshore cable corridor itself would potentially experience notable impacts on landscape character. These would be direct as a result of short term construction activity involving the excavation of cable trenches, HDD works and the removal of vegetation, short sections of hedgerow and some individual or small groups of trees and areas of woodland. Although occurring as part of DEP and / or SEP, some of these activities are not dissimilar in nature to other 'normal', short term activities that may occur at any time in any landscape (e.g. temporary road and other construction works, tree, hedgerow and woodland management, cultivation of farmland).
258. Areas of woodland within the North Norfolk AONB could potentially be removed within LCA WGR1 Wooded Glacial Cromer Ridge where three cable construction options are being considered as described in **Section 28.6.1.1**.

259. Woodland as the dominant land cover is noted as a key characteristic of LCT Wooded Glacial Ridge (which LCA WGR1 lies within) (see **Annex 28.3**) and WGR1. The draft Landscape Sensitivity Assessment (NNDC November 2018) states:

"The predominant landcover throughout the LCT is woodland, which has typically developed on areas of former lowland heath, and includes a combination of commercial forestry plantations (principally conifers), and semi-natural deciduous woodland. … Commercial forestry plantations, arable landcover and previously developed land tend to have a lower sensitivity to most forms of development compared with more naturalistic landcover such as semi-natural woodland, heathland, parkland and pasture. … Commercial forestry plantations, arable landcover and previously developed land tend to have a lower sensitivity to most forms of development compared with more naturalistic landcover such as semi-natural woodland, heathland, parkland and pasture. … The linear nature of onshore cable routes means that the extensive tree removal likely to be required in this LCT (and the time needed for replacement planting to mature) would be particularly prominent, including on skylines, which more strongly influences sensitivity to this development type." (Page 203.)

260. The draft Landscape Sensitivity Assessment (NNDC November 2018) also states that more recent forestry plantations sited on lowland heath has been to the detriment of the intactness of lowland heath (pages 206 and 207).

261. South of Weybourne the eastern route has the potential to remove the greatest area of woodland of the three routing options. However, this would be commercial forestry which is typically felled and replanted on a cyclical basis as part of a cropping regime. As noted in draft Landscape Sensitivity Assessment (NNDC November 2018), commercial forestry tends to have a lower sensitivity to most forms of development. Commercial forestry could potentially be felled within a corridor width of 20m which would not be re-planted in the realistic worst case scenario. . If only one project was constructed it would be possible to re-plant trees outside the 12m cable easement. This permanent change would have limited effects on landscape character in the context of the extensive existing commercial forestry within the vicinity. If possible, the eastern route would be constructed along existing forestry rides to minimise tree removal.

262. The western route along Sandy Hill Lane is likely to result in some limited trimming back or removal of vegetation (including trees and hedgerows) alongside the carriageway. Cables would lie within the carriageway and vegetation outside the carriageway would be re-planted subject to the landowner's agreement. Vegetation removal (if required) would only extend to vegetation immediately adjacent to or above the carriageway; primarily to enable plant access. .

263. The draft Landscape Sensitivity Assessment (NNDC November 2018) states that *"The predominant, extensive woodlands provide significant enclosure and visual containment which typically reduces sensitivity to all forms of development under consideration, …"* (Page 204.) The onshore cable construction within LCA WGR1 would be partially enclosed by woodland, helping to visually contain effects to a limited area.

28.6.2.1.2.1 Duration, extent and scale of impact

264. As described in **Section 28.3.2.1.1** the realistic worst case scenario would see construction activity with a typical works duration of four to eight weeks at any particular location (approximately five months at the landfall for HDD and duct installation and a further six months for the cable pull) so the impact would be temporary short-term duration and reversible i.e. landscape features would be reinstated following completion of construction activities. As described in **Section 28.3.3.2**, replacement planting would be implemented during the first planting season following completion of construction, except for tree / woodland removal which would not be re-planted within the 20m (both projects) or 12m (single project) easement described in **Section 28.3.3.2**. Gaps in hedges with new planting would be visible for a number of years following completion of construction (medium-term duration) until planting matures.

265. Where trees or woodland have been removed and not re-planted effects would be permanent. Where this occurs an alternative appropriate land-use would be proposed subject to agreement with the landowners, such as habitat creation or agriculture. This permanent change would have limited effects on landscape character in the context of the extensive existing woodland and trees within the landscape, and the presence of existing rides through the forestry.

266. Under the sequential scenario, the temporary impacts described above would occur twice, although existing trees within the 20m wide working corridor would have already been removed during construction of the first project and fewer or no trees would need to be removed for construction of the second project. Effects are assessed for the sequential scenario (realistic worst case), although construction of a single project only would not result in impacts of notably different magnitude.

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

268. The effects on landscape character would be of limited spatial extent of each LCA that the onshore cable corridor passes through, and up to medium-small scale during peak construction works at a particular location where areas of mature woodland are removed, and up to small scale elsewhere.

269. The highest sensitivity LCAs (within the AONB and the River Valley LCTs) range from high to medium-high sensitivity. The effects would be up to low magnitude and **moderate** significance at the locations where some areas of woodland are removed and not re-planted, reducing to negligible magnitude and **slight** significance outside these areas. Where effects occur, they would be adverse.

270. The LCAs outside the AONB and River Valleys range from medium to medium-low sensitivity. The effects would be up to low magnitude and **slight** significance at the locations where some areas of woodland are removed and not re-planted, reducing to negligible magnitude and **minimal** significance outside these areas. Where effects occur, they would be adverse.

271. The effects would be negligible magnitude and **minimal** significance for the majority of the landscape of the LCAs. Overall impacts on all LCAs would be negligible magnitude and **minimal** significance and neutral.

28.6.2.2 Effects on Visual Receptors

28.6.2.2.1 Duration of effect on visual receptors

272. Similar to described for effects on landscape character in **Section 28.6.2.1.2.1**, the realistic worst case scenario would see construction activity with a typical works duration of four weeks at any particular location (approximately five months at the landfall for HDD and duct installation and a further six months for the cable pull) so the effects would be temporary short-term duration and reversible i.e. landscape features would be reinstated following completion of construction activities. As described in **Section 28.3.3.2**, replacement planting would be implemented during the first planting season following completion of construction, except for tree / woodland removal which would not be re-planted within the 20m (both projects) or 12m (single project) easement described in **Section 28.3.3.2**. Gaps in hedges with new planting would be visible for a number of years following completion of construction (medium-term duration) until planting matures.

273. Under the sequential scenario, the temporary impacts described above would occur twice, although would not result in impacts of notably different magnitude.

28.6.2.2.2 Settlements

274. The sensitivity of visual receptors within settlements is high-medium.

275. A total of 38 settlements have been identified within the onshore cable corridor study area of which four have been excluded from further consideration due to likely negligible effect, as detailed at **Section 28.5**. The magnitude of effect on visual receptors within the remaining 34 settlements would vary with those closest to the onshore cable corridor generally experiencing the greatest effects and those more distant experiencing effects of lesser magnitude.

276. The 200m wide onshore cable corridor identified for PEIR does not pass directly through any settlements although it does run within approximately 100m of 11 of the identified settlements and these are the settlements where the greatest impacts could potentially occur (Weybourne, Bodham, Little Barningham, Swannington, Attlebridge, Barford, Great Melford, Ketteringham, Lower East Carlton, Swardston and Swainsthorpe). Impacts would arise from the introduction of construction activities (excavations, temporary work lighting, individual tree felling, hedgerow removal etc.) into views that presently, in the most part, look out across open fields adjacent to the settlements. No substantial areas of mature woodland have potential to be removed adjacent to settlements.

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

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

279. The most affected settlements would be those smaller settlements where construction activity could potentially be seen from a wider extent, or those where the onshore cable corridor passes very close to part of the settlement. In this case, effects may be large scale but only experienced in very localised areas over a short period of time with the wider settlement relatively unaffected.

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

281. The effects on visual receptors within settlements during construction would be of up to localised spatial extent, up to large-medium scale during peak construction works at a particular location, temporary short term duration and reversible. Gaps in hedges would be visible from some locations; any visual effects due to this would be very minor and, after re-planting, reduce over time as plants mature (medium-term). The magnitude would range from medium-low at settlements where the construction works would be most visible, through to negligible on settlements where views of the construction works, and hedge gaps would be very limited or non-existent.

282. Overall, the magnitude of the effect would range from medium-low to negligible. The effects on settlements would range from **moderate** significance and adverse, at the most affected settlements, to **minimal** significance.

28.6.2.2.3 A-Roads and Rail

283. Users of the A-roads (except the A410) are judged to be of a low sensitivity (low susceptibility and limited value). However, the A410 (the main road along the north Norfolk coast) runs through the Norfolk Coast AONB and is well used by and tourists as well as local people and is judged to be of a medium sensitivity.

284. Train passengers are judged to be of a medium sensitivity (medium susceptibility and community value) as receptors are afforded the opportunity to appreciate views to the landscape through which they are travelling.

285. In the case of people travelling by car on A-roads or train, views of construction activities would tend to be very brief in relation to journey time, seen as the onshore cable corridor is passed, usually at speed. These roads and railway lines would be crossed by trenchless techniques, with roadside hedgerows and other vegetation retained. The magnitude of effects on these receptors would be negligible due to the brief, and temporary short term changes to views. Impacts would be of **minimal** significance and neutral.

28.6.2.2.4 Recreational Routes (Long Distance Walking Routes and National and Regional Cycle Routes)

286. Users of the Coast Path (a National Trail) which runs through the Norfolk Coast AONB area are judged to be of high sensitivity (high susceptibility and national value). They are of high susceptibility because people have the time and inclination to enjoy the view and they have potential to be directly affected by the construction works.

287. Users of other long distance walking routes are judged to be of high-medium sensitivity (high susceptibility and local / district value).

288. Users of cycle routes are judged to be of medium sensitivity (medium susceptibility and local / district value).

289. A total of nine recreational routes would be crossed by the 200m wide onshore cable corridor identified for PEIR. These comprise:

- The Coast Path (Peddars Way, Norfolk Coast Path and England Coast Path) – crosses corridor (**Figure 28.1**);
- Holt-Mannington Walk – crosses corridor in two locations (**Figure 28.2**);
- Marriot's Way – crosses corridor in two locations (**Figures 28.3 and 28.4**);
- Tas Valley Way – crosses corridor (**Figure 28.6**);
- Regional Cycle Route 30 – crosses corridor (**Figure 28.1**);
- Regional Cycle Route 33 – crosses corridor (**Figure 28.3**); and
- National Cycle Network Route 1 – crosses corridor (**Figure 28.4**).

290. Those travelling by foot or cycle would generally experience views of construction while they pass the works at a particular location and may be diverted temporarily for short periods during construction. Impacts would primarily arise from the introduction of construction activity, and sometimes temporary construction or HDD compounds, into views at close proximity to each of the routes. These would be seen over short sections of these routes. Some offshore activity associated with the landfall and works in the intertidal zone would also be visible from the Coast Path.

291. The Holt-Mannington Walk and Marriot's Way are crossed by the onshore cable corridor at two locations. Due to construction activity progressing along the onshore cable corridor, the crossings might be made successively so users of the routes would experience views of construction activities for a longer period of time. The total duration for the construction works at crossings of each route across DEP and SEP if constructed separately would, however, remain temporary short term. There would be longer-term and potentially permanent effects due to vegetation removal, but these changes would affect very short parts of longer journeys on foot or bicycle.

292. Impacts associated with construction lighting would only occur during periods where core working hours extend beyond the hours of daylight (e.g. autumn/winter), which at most would be for a few hours each day. Furthermore, it is noted that when this does occur, it is likely that other existing uses will already be creating artificial illumination (e.g. vehicles and street lighting) which minimises the effect of construction activities. The impact of construction lighting may be more notable for users of unlit walking routes and cycle routes, although these are likely to see less use during hours of darkness.

293. The overall impacts on visual receptors using recreational routes within the onshore cable corridor study area would be of limited spatial extent, up to large scale during peak construction works at a particular location, temporary short term duration and would be reversible. Gaps in hedges would be visible from some locations; any visual effects due to this would be very minor and reduce over time as planting matures (medium-term). Where trees and woodlands are removed and not re-planted (permanent) within sight of key routes these changes would affect short parts of longer journeys. It is unlikely that removal of trees or hedges would be visible from Weybourne beach (therefore no medium or longer-term effects are anticipated). The magnitude of effect would be up to medium-low.

294. Overall, for users of the Coast Path, the sensitivity of the receptor is high and the magnitude of the effect would be medium-low. Impacts would be of **moderate** significance and adverse.

295. Overall, for users of other long distance walking routes, the sensitivity of the receptor is high-medium, and the magnitude of the effect would be medium-low. Impacts would be of **moderate** significance and adverse.

296. Overall, for users of cycle routes, the sensitivity of the receptor is medium, and the magnitude of the effect would be medium-low. Impacts would be of **slight** significance and adverse.

28.6.2.2.5 Accessible and Recreational Landscapes

297. Six accessible and recreational landscapes have been identified, at **Section 28.5.5.1.4** as having the potential to experience significant effects as a result of the construction activities associated with the onshore cable corridor:

- Weybourne Beach and the future coastal margin (within AONB) – corridor including landfall crosses this area (**Figure 28.1**);
- Fox Hill/Muckleburgh Hill Open Access Land (within AONB) – corridor lies outside (**Figure 28.1**);
- Kelling Heath Open Access Land (within AONB) – corridor lies outside (**Figure 28.1**);
- Weybourne Wood including Open Access Land (within AONB) – corridor crosses this area (**Figure 28.1**);
- Upper Sheringham Common (within AONB) – corridor lies outside (**Figure 28.1**); and
- Upgate Common (outside AONB) - corridor lies outside (**Figure 28.3**).

298. Users of accessible and recreational landscapes within the Norfolk Coast AONB and are judged to be of high sensitivity (high susceptibility and national value). Users of accessible and recreational landscapes outside the Norfolk Coast AONB are judged to be of medium sensitivity (high susceptibility and community value).

299. Users of Weybourne beach and the coastal margin would experience effects similar to those described for the Coast Path in **Section 28.6.2.2.4**, which follows a route above the beach and through the coastal margin as it passes through the onshore cable corridor study area.

300. The Fox Hill/Muckleburgh Hill and Kelling Heath Open Access Land occupy elevated areas comprising a mix of woodland cover and more open areas of heathland crossed by numerous paths. Users of these areas are likely to experience intermittent, elevated views of construction activities. Some offshore activity associated with the landfall and works in the intertidal zone would be visible from some areas on Fox Hill / Muckleburgh Hill.

301. An area of Open Access Land within Weybourne Wood is crossed by the eastern part of the wider section of corridor where three route options are being considered, as described in **Section 28.6.2.1.2**. In addition, the OS Explorer map indicates that a larger area west of the Open Access Land is access land, and the National Trust provides on-line information on access to Sheringham Park including a circular walk passing through the section of Weybourne Wood that would be crossed by the eastern cable corridor route option (https://www.nationaltrust.org.uk/sheringham-park/trails/sheringham-woodland-and-coastal-walk (accessed 8 March 2021). Only the eastern route would potentially cross this accessible area including Open Access Land. The western and trenchless options would not affect it. The eastern option runs through commercial forestry requiring the removal of commercial forestry woodland within a 20m (DEP and / or SEP) working corridor within the onshore cable corridor, with the potential for trees to be replanted within the working corridor but not within the final 20m (both projects) or 12m (single project) wide cable easement. The onshore cable corridor and easement would use existing forestry rides and clearings as much as possible, to minimise tree removal. An alternative appropriate restored land use would be agreed with the landowner and may include habitat creation. The onshore cable corridor only crosses the northern part of this Open Access Land; views of construction works from the southern part are likely to be filtered or screened by retained forestry between the Open Access Land and the onshore cable corridor.

302. Upper Sheringham Common is a caravan park (Woodlands Caravan Park) and there are likely to be close views of construction works to the west from within the common land.

303. Upgate Common is enclosed by vegetation and buildings, and there are unlikely to be views of construction works from the majority of the Common. Views would be possible from the western tip at a distance of approximately 200m or more.

304. Where construction activities are visible from within these areas, the construction lighting would also be visible, although other light sources associated with settlements, roads and shipping would also be seen. Construction lighting is likely to have the most notable impact at Weybourne beach, Fox Hill/Muckleburgh Hill, Weybourne Wood and Upper Sheringham Common due to the close proximity of the receptor to the onshore cable corridor, however, all of these accessible landscapes would be more frequently visited during the hours of daylight. Impacts associated with construction lighting would only occur during periods where core working hours extend beyond the hours of daylight (e.g. autumn/winter), which at most would be for a few hours each day.

28.6.2.2.5.1 Assessment

305. The impact on visual receptors at Weybourne beach is predicted to be limited spatial extent, up to large scale during peak of construction, temporary and short-term duration and reversible (where no tree or hedgerow loss is likely to be visible). Overall, for users of Weybourne beach and coastal margin, the sensitivity of the receptor is high, and the magnitude of the effect would be medium-low. The impact would be of **moderate** significance and adverse.

306. The impact on visual receptors at Weybourne Wood, if the eastern route is used through the accessible woodland including Open Access Land, is predicted to be intermediate spatial extent, up to large scale and medium-term due to the potential removal of forestry trees. The restored land use (e.g. re-planted forestry, habitat creation, and / or a broader ride through the forest) would establish over time (medium-term). The sensitivity of the receptor is high, and the magnitude of the effect would be high-medium. The impact would be of **major-moderate** significance and, on balance, adverse.

307. The overall impacts on visual receptors at the other accessible recreational landscapes within the AONB (which are not crossed by the onshore cable corridor) are predicted to be of limited spatial extent, up to large scale during peak of construction, temporary and short-term duration and reversible. Gaps in hedges would be visible from some locations; any visual effects due to this would be minor and reduce over time as planting matures (medium-term). Overall, for users of these areas that lie within the AONB, the sensitivity of the receptor is high, and the magnitude of the effect would be medium-low. The impact would be of **moderate** significance and adverse.

308. The effect on visual receptors at Upgate Common (which lies outside the AONB and would not be crossed by the onshore cable corridor) would be up to small scale, limited spatial extent, temporary and short-term duration. The impact would be of negligible magnitude, **minimal** significance and neutral.

28.6.2.2.6 Local Roads and Public Rights of Way

309. Users of PRoWs within the Norfolk Coast AONB and are judged to be of high sensitivity (high susceptibility and national value). Users of PRoW outside the Norfolk Coast AONB and are judged to be of medium sensitivity (high susceptibility and community value).

310. Users of local roads within the Norfolk Coast AONB and are judged to be of high-medium sensitivity (medium susceptibility and national value). Users of local roads outside the Norfolk Coast AONB and are judged to be of medium sensitivity (medium susceptibility and community value).

311. Impacts on users of local roads and PRoWs would occur as a result of construction activities being seen by users of these routes. The greatest impacts would be experienced where the onshore cable corridor intersects routes using open trench techniques, and PRoW may be temporarily diverted for short distances. Where routes are not crossed or physically affected by the onshore cable corridor views would generally be intermittent due to the extent of roadside and field boundary vegetation that filters or screens views. The greatest magnitude effects would typically be experienced within a few tens of meters of the construction activities where they are most visible and where routes run parallel to the onshore cable corridor and thus experience close views over a greater extent. Beyond approximately 100m from the onshore cable corridor, the layering effect of vegetation in the surrounding landscape would frequently result in views becoming very limited; where construction activities are seen, they would be in the distance and are unlikely to be especially notable.

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

313. The overall impacts on visual receptors using local roads and PRoWs is predicted to be of limited spatial extent, ranging from large scale to negligible, temporary short term duration and reversible. Gaps in hedges would be visible from some locations; any visual effects due to this would be minor and reduce over time as planting matures (medium-term). Where trees and woodlands are removed and not re-planted (permanent) within sight of local roads and PRoWs these changes would generally affect short parts of longer journeys. The magnitude would range from medium-low, where the construction works would be seen up close including permanent woodland removal, through to negligible or no change where views of the construction works would be very limited or non-existent.

314. Overall, for users of PRoWs within the AONB, the sensitivity of the receptor is high, and the magnitude of the effect would be medium-low. The impact would be of **moderate** significance and adverse.

315. Overall, for users of PRoWs outside the AONB, the sensitivity of the receptor is medium, and the magnitude of the effect would be medium-low. The impact would be of **moderate-slight** significance and adverse.

316. Overall, for users of local roads within the AONB, the sensitivity of the receptor is high-medium, and the magnitude of the effect would be medium-low. The impact would be of **moderate** significance and adverse.

317. Overall, for users of local roads outside the AONB, the sensitivity of the receptor is medium, and the magnitude of the effect would be medium-low. The impact would be of **moderate-slight** significance and adverse.

28.6.2.3 Effects on Designated and Defined Landscapes and Landscapes Protected by Policy

28.6.2.3.1 Norfolk Coast AONB

318. The Norfolk Coast AONB is divided into three discrete geographical areas (see **Figure 27.1** of **Chapter 27 Seascape and Visual Impact Assessment**). The western and eastern sections are outside the study area. The onshore cable corridor runs through the largest central section of the AONB for approximately 5.5km as shown on **Figure 28.1** and includes the location of the landfall site at Weybourne. The central section of the AONB extends for approximately 65km along north Norfolk coast between Hunstanton (west) and Paston (east). The Norfolk Coast AONB is judged to be of high sensitivity to SEP and / or DEP.

319. The assessment of effects on the Norfolk Coast AONB focuses on the documented 'key qualities of natural beauty' of the designated area in relation to landscape / seascape character and views. Consideration is also given to information contained in the Norfolk Coast AONB Integrated Landscape Guidance (Norfolk Coast Partnership, 2009).

320. Seven key qualities of natural beauty of the Norfolk Coast AONB are described in the 'Norfolk Coast Area of Outstanding Natural Beauty Management Plan 2014-19 (Norfolk Coast Partnership, 2014). Three are of relevance to this assessment and are discussed below.

321. *"2. Strong and distinctive links between land and sea*

The area's distinctive and unique character is based on the visual, ecological, socio-economic and functional links between land and sea."

322. The proposed views between land (within the AONB) and sea (outside the AONB), would be affected for a temporary short term duration while landfall works and northern section of the onshore cable corridor are being implemented. There are no hedgerows or trees close to the coast that are likely to be removed so all effects would be short-term and temporary.

323. Given the limited spatial extent of this part of the onshore cable corridor in relation to the AONB and the nature of potential effects (i.e. short-term construction activity followed by landscape reinstatement) it is unlikely that construction of the onshore cable corridor would undermine this quality of natural beauty.

324. *"3. Diversity and integrity of landscape, seascape and settlement character*

Key quality is based on maintaining diversity of character types rather than uniformity across the area, including landscapes and seascapes, settlement pattern, building materials and styles."

325. As discussed in **Section 28.6.2.1** the construction works would lead to short term effects on landscape character to a limited spatial extent of each LCA that the onshore cable corridor passes through. Effects would be longer term where hedges are removed and re-planted and permanent where trees and woodland are removed and not re-planted over the cable easement (approximately 20m wide if both projects are constructed and 12m if only one project is constructed). Where woodland is removed permanently an alternative appropriate land-use would be proposed subject to agreement with the landowners, such as habitat creation or agriculture, appropriate to local landscape character. Relatively small-scale permanent removal of trees and woodland, and replacement with an appropriate alternative land use, would have limited effects on landscape character in the context of the extensive existing woodland and trees within the landscape.

326. The diversity of character types, settlement patterns and building materials and styles would not be affected, and the onshore cable works would not undermine this quality of natural beauty.

327. *"6. Sense of remoteness, tranquillity and wildness*

A low level of development and population density for lowland coastal England, leading to dark night skies and a general sense of remoteness and tranquillity away from busier roads and settlements and, particularly for undeveloped parts of the coast, of wildness."

328. Construction along the onshore cable corridor would lead to a temporary reduction in relative tranquillity over a very localised area within the AONB due to the presence of construction activity. This would move progressively along the onshore cable corridor such that any area would only be affected for a short period of time. The presence of cable installation vessels offshore may also temporarily impact on the sense of wildness of this section of the coast.

329. Construction lighting may result in temporary effects on the dark sky quality of a very localised area within the AONB. Lighting would generally only be used in times of low light, be task orientated and directional to minimise light spill to the local area. Kelling Heath Holiday Park Dark Sky Discovery Site lies approximately 1km from the onshore cable corridor as shown on **Figure 28.1** (http://www.norfolkcoastaonb.org.uk/partnership/dark-sky-discovery-sites/1160#:~:text=%20Dark%20Sky%20Discovery%20Sites%20%201%20Dark,elevated%2C%20heathland%20site%20with%20very%20good...%20More%20 (accessed 5/12/2020). The site is at an area of mown grass enclosed by scrub and woodland vegetation within the complex of Kelling Heath Holiday Park. The onshore cable corridor construction works would not be visible from Kelling Heath Holiday Park Dark Sky Discovery Site due to the intervening vegetation. Construction lighting is unlikely to affect the dark sky quality of Kelling Heath Holiday Park Dark Sky Discovery Site.

330. DEP and / or SEP may lead to a temporary short-term change in this quality of natural beauty within a small part of the AONB, although following completion of construction this would not be affected.

331. Given the limited potential for the onshore cable corridor (including landfall) to undermine these qualities of natural beauty, effects would not be significant. Effects on the Norfolk Coast AONB are judged to be (balancing effects on landscape character and visual amenity) up to medium-small scale. This would affect a very limited extent of the AONB and be of low-negligible magnitude, **slight** significance. Effects would be adverse.

28.6.2.3.2 North Norfolk Heritage Coast

332. As can be seen on **Figure 28.1** the eastern edge of the NNHC lies within approximately 200m of the onshore cable corridor at the landfall on the coast. The NNHC extends along the coast and offshore for a length of over 50km from Holme next the Sea in the west to west of Weybourne in the east. The full extent of the NNHC can be seen on **Figure 27.1** of **Chapter 27 Seascape and Visual Impact Assessment**.

333. Whilst the objectives of the NNHC are broad in their description, and do not specifically refer to landscape character or views per se, it is inferred that elements of the following objectives related to landscape and visual amenity:

- *"to conserve protect and enhance the natural beauty of the coasts, including their terrestrial, littoral and marine flora and fauna, and their heritage features of architectural, historical and archaeological interest;*
- *to facilitate and enhance their enjoyment, understanding and appreciation by the public by improving and extending opportunities for recreational, educational, sporting and tourist activities that draw on, and are consistent with the conservation of their natural beauty and the protection of their heritage features."* (http://www.norfolkcoastaonb.org.uk/management-plan/mp11.php#objective [accessed 6 November 2020]

334. The NNHC is judged to be of high sensitivity to SEP and / or DEP.

335. Construction works at the landfall are likely to be visible from the eastern tip of the NNHC, at a distance of approximately 200m or more, for a short-term duration. This would have limited potential to affect the natural beauty or visual amenity of the NNHC. Effects would be negligible magnitude, **minimal** significance and neutral.

28.6.2.3.3 South Norfolk River Valleys

336. As noted in **Section 28.5.6.1.1** the onshore cable corridor crosses South Norfolk District LCAs A3 Tud Rural River Valley and A2 Yare/Tiffey Rural River Valley (**Figures 28.11** and **28.12**) which are protected by Policy DM 4.5 (**Figures 28.4** and **28.5**). Effects on these landscapes protected by Policy DM 4.5 would be the same assessed on the LCAs in **Section 28.6.2.1.** Effects on these River Valley LCAs would be up to low magnitude and **moderate** significance at the locations where some areas of woodland are removed and not re-planted, reducing to **minimal** significance outside these areas. Where effects occur, they would be adverse. The impact would be negligible magnitude and **minimal** significance for the majority of the landscape of the LCAs. Overall impacts on these LCAs would be negligible magnitude, **minimal** significance and neutral.

28.6.3 Potential Impacts During Construction – Onshore Substation

337. As set out in **Section 28.6.1**, the principal effects arising from the onshore substation site options are likely to occur during the 35 year operational lifetime of SEP and / or DEP and are reversible. The construction of the onshore substation site would include temporary activities involving plant movement, crane operations, and the construction or dismantling of the substation and its associated equipment.

338. Given the temporary duration of the construction phases compared to the longer term duration of the operational phases of SEP and / or DEP, potential effects during construction would not be greater than those experienced during the operation of the onshore substation site and are likely to be less due to the shorter-term duration. These potential effects would be different in nature to those experienced while the onshore substation site is in operation, albeit similar or lower (due to shorter duration) in terms of their magnitude and significance.

339. The greatest effects on landscape receptors would be no greater than those experience during operation. At most, effects of a **moderate** significance and adverse, affecting the landscape character within the immediate context of the onshore substation sites. Effects on the overall landscape character would be of **minimal** significance and neutral.

340. The greatest effects on visual receptors would be no greater than those experienced during operation. At most, effects would be of a **major** significance and adverse, affecting visual receptors using publicly accessible locations within the immediate context of the onshore substation sites.

341. A summary of the effects that would arise during construction is presented in **Annex 28.5**.

28.6.4 Potential Impacts During Operation – Onshore Cable Corridor

342. As set out in **Section 28.5**, the Scoping Opinion from PINS (The Planning Inspectorate 2019) states that *"… the Inspectorate considers visual effects from the onshore cable route (including the landfall) during operation are unlikely to be significant and can be scoped out of the assessment."*

343. The greatest effects that would arise as a consequence of the onshore cable corridor have been assessed for the construction phase (see **Section 28.6.2**). Effects during operation are unlikely to be significant given the cables would be buried and land re-instated following completion of construction at each location, with link boxes either buried or above ground as described in **Section 28.3.2**. Above ground link boxes would be visible but these would be relatively small structures (with a footprint of approximately 1m x 1.5m and up to 1.5m tall).

28.6.5 Potential Impacts During Operation – Onshore Substation

28.6.5.1 Effects on Landscape Character

344. **Section 28.5** has identified those LCAs which have been judged to merit further detailed assessment.

345. As set out in **Section 28.5**, principal effects would occur directly within the extents of each onshore substation site option, with indirect effects contained to the ZVI illustrated on **Figures 28.15** and **Figure 28.16**.

346. Within the ZVI effects due to onshore substation Site 1 would range from large scale within the three fields the site lies within, and medium scale reducing to small scale within the other fields within the ZVI.

347. Within the ZVI effects due to onshore substation Site 2 would range from large scale within the field the site lies within, and medium reducing to small scale within the other fields within the ZVI.

348. As described in **Section 28.5.3**, there would be little to no visibility of either onshore substation site options beyond the ZVI as a result of a combination intervening vegetation, landform and / or buildings. Fieldwork has identified that effects would be of a negligible scale beyond the extent of the ZVI. Should views to either onshore substation site be possible beyond the ZVI, the intrinsic and prevailing characteristics of the LCAs in the wider landscape would not be discernibly affected through the introduction of either onshore substation site, being in an area already influenced by infrastructure including the Norwich Main substation, pylons and overhead wires, railway lines, the A140 and A47.

349. Local LCAs, as described in the South Norfolk Landscape Assessment (Land Use Consultants, 2001) are shown on **Figure 28.13**. Descriptions for the assessed LCAs that are relevant to this LVIA are summarised below, along with further observations based on fieldwork.

28.6.5.1.1 B1 Tas Tributary Farmland

350. **Figures 28.13** shows the location of B1 Tas Tributary Farmland in relation to the onshore substation sites. There are two units of this LCA within the onshore substation sites study areas with only that hosting the sites, the larger of the two units, likely to experience any impacts on landscape character.

351. The SNLA (LUC, 2001) describes the location and boundaries of overarching LCT, B Tributary Farmland as follows:

352. *"The tributary farmland occupies a large extent of the South Norfolk landscape occurring across the whole district. It is a broad transitional landscape type defined by the plateau uplands and river valleys, lying between 20m and 50m AOD."*

353. The SNLA also sets out a list of key characteristics for the LCT as follows:

- *"**Shelving and gently undulating landform** created by small tributary valleys, with tributary rivers cutting through the glacial till to create a landscape of restrained variety.*
- ***Transitional landscape** occupying the mid ground between the upland plateaux and the main river valley landscapes providing opportunities for long and framed views.*
- ***Tamed and peaceful farmland** with scattered small farm woodlands creating a quiet rural landscape.*
- ***Dispersed but evenly distributed settlement pattern** of small, nucleated villages and small farmsteads, occasionally with large agricultural sheds.*
- ***An intricate network of narrow winding rural lanes** often bounded by banks or ditches with a sense of impenetrability.*

- ***Tributaries elusive*** *– evident but usually hidden within the landscape by topography or trees*
- ***Medium to large-scale arable farmland*** *of cereals and sugar beet and occasional fields of sunflowers or other crops with sparse and / or overgrown hedgerows and hedgerow trees.*
- ***Remnant parkland****, which sometimes relates to former deer parks, plus areas of common land.*
- ***Mixed architectural character*** *comprising modern bungalow development and traditional vernacular architecture with gable ends (predominantly stepped) and other vernacular influences such as brick and flint and isolated churches.*
- ***High proportion of important ecological assemblages*** *protected as SSSIs including woodland, and wetland habitats."*

354. The landscape character description states that *"The open arable landscape is broken by deciduous woodland blocks, particularly following the tributary corridors, which impart a semi-wooded, semi-enclosed character to much of the area."* This semi-wooded, semi-enclosed character is typical of the landscape of and within the immediate vicinity of the onshore substations sites, as can be seen by the aerial photograph shown on **Figure 28.17**.

355. The onshore substation site options are located within the LCA B1 Tas Tributary Farmland of this LCT. Its location is described by the SNLA as follows:

356. *"The Tas Tributary Farmland is a large area of land situated between the Tas Rural River Valley and the surrounding Plateau areas at an elevation of between about 30m AOD and up to 50m AOD..."*

357. The SNLA sets out a list of LCA's key characteristics. Those of relevance are as follows:

- *"**Open, gently undulating to flat and sloping landscape incised by shallow tributary valleys**, the tributary streams of which are not prominent landscape features.*
- ***Large open arable fields*** *of cereal, sugar beet and occasionally sweetcorn.*
- ***Framed open views*** *across the countryside and into adjacent character areas.*
- ***Small blocks of deciduous woodland*** *of high ecological and visual quality. These create wooded horizons which add variety to and create intimacy within the landscape. …*
- ***Scattered remnant hedgerow trees****, particularly oak, sometimes including intact avenues lining the roads or marking former, denuded, field boundaries.*
- ***Transportation corridors*** *including main connecting roads.*
- ***Network of recreational footpaths****.*
- ***Ditches, low banks and wide grass verges*** *associated with the network of rural roads.*

- ***Settlement characterised by a small number of large villages*** *including the administrative centre of South Norfolk – Long Stratton – with smaller hamlets, scattered farmhouses and agricultural buildings."*

358. The SNLA states *"The large scale arable landscape has an open to semi-enclosed character and there are very few hedgerows remaining. …"* (Paragraph 8.3.) The landscape within close proximity to the onshore substation sites is enclosed by trees, woodlands and hedgerows, and has a more enclosed character than is typical of the wider LCA.

359. The A140 and main railway line, which lie within the ZTV of both onshore substation site options, are described as follows. *"This character area has been affected by the presence of transportation corridors. These include the Norwich Road (A140) and the London-Norwich Railway. …"* (Paragraph 8.8.)

360. Paragraph 8.9 states *"There are views to Norwich and the Norwich Southern Bypass from the northern area of the Tas Tributary Farmland and also into the Tas Rural River Valley Character Area, including towards the earthworks of Venta Icenorum (Caistor St Edmund) and Dunston Hall. The eastern part of the area has been affected by the impacts of modern infrastructure, especially by the large double line of pylons and electricity substation, west of Dunston Hall."* The onshore substation sites are located within the northern and eastern part of the LCA, but views to Norwich and the Norwich Southern Bypass and into the Tas Rural River Valley LCA and to Venta Icenorum and Dunston Hall are obscured by trees and woodland immediately north of the sites and east of the A140. The onshore substation sites lie within the area affected by the impacts of modern infrastructure; the ZVI is crossed by a line of large pylons, the main railway line and the A140, and the Norwich Main substation lies immediately north of the fields which the onshore substation site options lie within.

361. The SNLA considers each of the key assets that form the overall LCA and notes its 'level of importance' on a four category scale. The table from the SNLA is copied below with commentary on how the proposed onshore substation sites could affect each asset. The first three columns are copied from the SNLA. The fourth column identifies the potential for the onshore substation site options to affect each asset.

362. The level of importance is categorised as follows:

✓✓✓ very characteristic/important;

✓✓ characteristic/important;

✓ noticeably present/important; and

– asset not present or present but by virtue of extent or quality does not contribute significantly to landscape character.

Table 28-12: Landscape Assets of LCA B1 presented in the SNLA

Asset / Level of Importance		Notes	Potential for the onshore substation site options to affect this asset
National / International:			

Asset / Level of Importance		Notes	Potential for the onshore substation site options to affect this asset
Nationally important ecological assemblages	✓✓	Hornbeam coppice habitats and ancient woodlands of particular importance plus some grasslands	None
Presence of Scheduled Ancient Monuments	-	None	None
Presence of round-towered churches	✓		None
Presence of isolated churches	✓		None
District / county			
Strong regional vernacular character	✓✓		The substation would not be of vernacular character, being a functional substation. It would reflect the character of the existing Norwich Main substation and pylons and overhead wires.
Presence of historic parkland particularly EH listed	-		None
Wooded appearance	✓		The sites lie within a wooded area of landscape. The PEIR submission does not include planting proposals. These will be developed for the DCO application when the potential for additional woodland planting to integrate the substation into its landscape context will be explored.
Distinctive valley landform	✓		None. The sites do not lie within valleys.

Asset / Level of Importance		Notes	Potential for the onshore substation site options to affect this asset
Waterways visible within the landscape	✓		None
Watermills present	-		None
Windmills present	-		None
Moats present	✓		None
Local			
Pastoral Farmland with visible grazing animals	✓		None
Important Views that provide sense of place	✓✓	Particularly in north of area	None. The sites are within and area largely enclosed by trees and woodland and visually separated by a woodland belt from the views referred to in the north of the area.
Willow pollard and/or poplar-lined watercourses	✓		None
Drainage ditches	✓✓		There may be drainage ditches within the sites that could be affected by DEP and SEP, and this will be considered in more detail during design development. If any do exist they are not prominent landscape features.
Wide grass verges alongside roads	✓✓		None
Good hedgerow network	-		Each substation site option has potential to affect existing hedgerows. However, the hedgerow network is not a noted landscape asset of this LCA.

Asset / Level of Importance		Notes	Potential for the onshore substation site options to affect this asset
Mature hedgerow trees	✓	Some particularly noteworthy remnant hedgerow avenues	Initial assessment has identified that there is one existing hedgerow tree within substation Site 1 which may need to be removed, and none within Site 2.
Presence of river crossings	✓		None
Sunken Lanes	✓		None
Water bodies	✓✓		None
Distinctive plateau landscape	-		None
Area of or including significant strategic breaks between settled areas	✓✓	Generally important – particularly the area north of the Poringland Settled Plateau farmland and south of Norwich	None. There are a number of settlements within the wider landscape but there would be little or no visibility of the substation site options from them, and a substation on either site would not affect strategic beaks between settled areas.

363. It can be seen from **Table 28-12** that the onshore substation site options have very little potential to adversely affect landscape assets of importance. No assets are of the highest level of importance within this LCA. In relation to key assets identified as 'characteristic / important', the onshore substations sites would not be of strong regional vernacular character, being a functional substation, but would be characteristic of existing electricity infrastructure in the area. They would have no potential to affect the other key assets identified as 'characteristic/important'.

364. The SNLA notes that the principal sensitivities and vulnerabilities of the LCA include loss of vegetation structure that would lead to a greater sense of openness; intrusion by tall and large elements including farm buildings and pylons; and the potential adverse effect upon views to / from Norwich and the Bypass.

365. The area in which the onshore substation site options are located, in the northern part of the LCA, is already heavily influenced by the existing man-made infrastructure that includes the Norwich Main substation; electricity transmission infrastructure; and the main railway line, and the A140 and A47. Hornsea Three onshore substation site lies partially within the northern edge of this LCA, and the buried cable connection between Hornsea Three and Norwich Main Substation lies entirely within this LCA. Hornsea Project Three offshore wind farm and onshore grid connection was granted DCO consent in December 2020. SEP and DEP onshore substation site options would not affect views to / from Norwich or the Bypass (A47). Whilst visibility of either onshore substation site would be possible from their immediate locality, beyond this extent, there would be little to no visibility of a substation on either site. The sites are visually enclosed by trees, woodland and hedgerows. Therefore, the susceptibility of B1 to SEP and / or DEP is medium.

366. In light of information presented in the SNLA, which outlines the landscape assets and their level of importance it is judged that whilst valued by the local population, there is no wider recognition of the LCA's value. B1 is of community value.

367. Taking both susceptibility and value into account, it is assessed that B1 would be of a medium – low sensitivity to either onshore substation sites.

368. The greatest effects on B1 would arise within the onshore substation site options themselves and their immediate contexts, where there would be a direct change to the present land-use from agricultural farmland to an electrical substation, and visibility of the new development would be possible from locations in close proximity. Effects on landscape character would only occur within the area covered by the ZVI as described in detail in **Section 28.5.3** and illustrated on **Figures 28.15** and **28.15**.

369. Effects arising from either onshore substation site would range from large scale within the sites themselves, to medium and small scale within the ZVI. This would affect a very limited extent of the overall LCA and be of medium magnitude and **moderate** significance. Effects would be adverse.

370. There are unlikely to be landscape effects beyond the immediate contexts of the onshore substation sites outside the ZVI. Overall effects on B1 would be of a negligible scale and magnitude, **minimal** significance and neutral.

28.6.5.2 Effects on Visual Receptors

28.6.5.2.1 Visual Aids

371. Wireline visualisations have been used to aid the assessment. These were generated to show the maximum parameters within which the substation would be built, representing the maximum footprint, and buildings at 15m high and electrical equipment at 30m high.

372. The photographs and wirelines are shown on **Figures 28.18** to **28.35**. A detailed description of the methods by which wirelines are prepared is included in **Annex 28.2**.

373. The figures are ordered sequentially and titled with a suffix indicating the type of visualisation. In this instance, the suffix 'BP' has been used, which represents a baseline panorama and wireline.

374. Viewpoint descriptions are set out in **Annex 28.4** with the scale of effects summarised below. The location of each viewpoint is shown on **Figures 28.18** and **28.35**.

375. The scale of effect at each viewpoint is summarised below:

Table 28-13: Effects at Representative Viewpoints

Viewpoint Reference	Distance & Direction	Scale of Effect	
		Site 1	Site 2
Viewpoint 1A – Bridleway (Swardeston BR9) – Site 1	Site 1: W 600m Site 2: W 50m	Small	Large
Viewpoint 1B – Bridleway (Swainsthorpe BR7) – Site 2	Site 1: SW 690m Site 2: SW 200m	Negligible	Large
Viewpoint 2 – Permissive Bridleway, west of A140	Site 1: E 150m Site 2: E 600m	Large	Medium – Small
Viewpoint 3A – Bridleway (Stoke Holy Cross BR3) – Site 1	Site 1: N 200m Site 2: NE 280m	Large	Small
Viewpoint 3B – Bridleway (Swardeston BR12) – Site 2	Site 1: N 490m Site 2: NE 100m	Small	Large
Viewpoint 4 Footpath (Swardeston FP6)	Site 1: SW 1.5km Site 2: SW 90m	Negligible	Negligible
Viewpoint 5 Footpath (Mulbarton FP8)	Site 1: SW 2.1km Site 2: SW 1.6km	Negligible	Negligible
Viewpoint 6 Norwich Road, Stoke Holy Cross	Site 1: SE 1.8km Site 2: SE 2.3km	Negligible	Negligible
Viewpoint 7 Venta Icenorum	Site 1: NE 2km Site 2: NE 2.1km	Negligible	Negligible
Viewpoint 8 Bridleway (Keswick BR3)	Site 1: NW 3.7km Site 2: NW 3.1km	Negligible	Negligible
Viewpoint 9 Marston Marshes	Site 1: N 3.6km Site 2: N 3.3km	Negligible	Negligible

376. Each of the viewpoints is a ‘sample’ of the potential effects, representing a wide range of visual receptors – including not only those actually at the viewpoint, but also those nearby, at a similar distance and / or direction.

377. As set out in **Section 28.5.3**, the anticipated main area of visibility within each of the study areas would be contained to the ZTV within the immediate contexts of either onshore substation site option.

378. In light of this area of potential visibility, and from the judgements reached on the scale of visual effect from each representative viewpoint, effects would be greatest within the immediate context of either onshore substation site, along the PRoWs, the main railway line and the A140 which surround them. The greatest visual effects of each onshore substation site would vary dependent on the location of the visual receptors; however overall, it can be seen that large to negligible scale effects would occur from the PRoWs represented by Viewpoints 1 to 3 (**Figures 28.18** to **28.23**) which all lie within approximately 690m of the onshore substation sites and within the ZVI.

379. Beyond the extent of the ZVI, views to either onshore substation site would be more obscured by vegetation, buildings and landform, with little to no visibility of either site as illustrated in Viewpoints 4 to 9 (**Figures 28.24** to **28.35**). Effects from viewpoints outside the ZVI would be of a negligible scale.

28.6.5.2.2 Roads and Rail (A140 and Norwich-Ipswich Railway Line)

380. As noted in **Section 28.5**, effects are only likely to occur to users of this road and railway where they are within the ZVI (for road and rail lengths of less than approximately 0.7km for the A140 and 0.6km for the Norwich-Ipswich railway line). Both routes are well used, and a degree of visibility would be possible to the onshore substation site options. Beyond these short sections views of the substation sites are likely to be obscured by intervening vegetation, development and / or landform.

28.6.5.2.2.1 A140

381. The A140 traverses the study areas of both onshore substation site options. It passes closest to onshore substation Site 1, which is located approximately 140m to the west of the road. Onshore substation Site 2 is located approximately 550m to the west of the road. There is no footway along the A140 within the ZVI.

382. Users of the A140 are judged to be of a low sensitivity (low susceptibility and limited value).

383. Viewpoint 2 is taken from a PRoW immediately west of the A140 (**Figures 28.20** and **28.21**). There is intermittent tree and shrub vegetation along the west side of the A140 (east of Viewpoint 2) within the ZTV and the views towards the sites would only be as open as represented by Viewpoint 2 where gaps occur, and intermittently for brief periods while travelling along the road. In winter, when deciduous trees are not in leaf, views would be more continuous than in summer. Views of the onshore substation site options would be sideways to the direction of travel.

384. As can been seen from **Figures 28.20** (Site 1) and **28.21** (Site 2), onshore substation Site 1 would be closer to the road and more apparent than Site 2, seen above and between intervening vegetation along the A140 and the railway line. Site 2 would be more distant and screened to a greater degree.

385. The onshore substation at Site 1 would be visible beyond vegetation and electrical cables along the railway line and would be in the foreground to the pylons and overhead wires. The maximum height parameters shown in **Figure 28.20** illustrate that parts of the onshore substation have potential to appear taller than the existing pylons in the views and could screen two existing pylons and associated wires.

386. Visibility of onshore substation Site 2 would be broadly restricted to the upper parts of the proposed buildings and electrical equipment by intervening vegetation and seen within the context of exiting pylons and associated overhead wires, and electrical cables along the railway line, in the foreground. No components of Site 2 would appear taller than the existing pylons and overhead wires in views.

387. Access roads to both onshore substation sites would be potentially developed along either Hickling Lane or the PRoW Stoke Holy Cross BR3 and could be visible in some views, but these are likely to be similar in character to the existing road infrastructure presently experienced by receptors using the A140.

388. Effects arising from onshore substation Site 1 would be at most of a large scale (as assessed at Viewpoint 2). This would affect a very limited extent of the overall route, and result in visual effects of a medium magnitude, **slight** significance, and adverse.

389. Effects arising from onshore substation Site 2 would be at most of medium - small scale (as assessed at Viewpoint 2). This would affect a very limited extent of the overall route, and result in visual effects of a low-negligible magnitude, **slight-minimal** significance and adverse.

28.6.5.2.2.2 Norwich-Ipswich Railway Line

390. The Norwich-Ipswich Railway Line traverses the study areas of both onshore substation site options from Norwich to the north and heading southwards. It passes closest to onshore substation Site 1, which is located approximately 50m to the west of the railway line. Onshore substation Site 2 is located approximately 485m to the west of the railway line.

391. Train passengers are judged to be of a medium sensitivity (medium susceptibility and community value).

392. The greatest effects along the Norwich-Ipswich Railway would occur along the section of the route between the PRoW Stoke Holy Cross BR3 and Hickling Lane. The railway line can be seen in the foreground to the proposed substation site options in Viewpoint 2 (**Figure 28.20**), illustrating that there would be views of both sites from this section of the railway line. Viewpoint 3A (**Figure 28.22**) lies on a PRoW close to the northern end of the railway line where it passes through the ZVI. Within the northern part of the ZVI south-east of Viewpoint 3A the railway line lies in a cutting and is enclosed by trees, restricting views of the substation sites.

393. Views to onshore substation Site 1 would be more apparent than Site 2, being closer to the railway line. Site 2 would be more distant and screened to a greater degree by vegetation in the intervening landscape.

394. The onshore substation at Site 1 would obscure existing views across arable farmland for a brief part of each journey. It would be in the foreground to the existing pylons and overhead wires and screen parts of them as trains pass the site.

395. Visibility of onshore substation Site 2 would be broadly restricted to the upper parts of the proposed buildings and electrical equipment by intervening vegetation and landform and seen within the context of exiting pylons and overhead wires in the foreground. No components of Site 2 would appear taller than the existing pylons and overhead wires in views.

396. Effects arising from onshore substation Site 1 would be at most of a large scale. This would affect a very limited extent of the overall route (for a very brief period passing the site while travelling on a longer journey), and result in visual effects of a medium magnitude and **moderate** significance. Effects would be adverse.

397. Effects arising from onshore substation Site 2 would be at most of a medium-small scale. This would affect a very limited extent of the overall route (for a very brief period passing the site while travelling on a longer journey), and result in visual effects of a low-negligible magnitude and **slight** significance. Effects would be adverse.

28.6.5.2.3 PRoW, permissive bridleway and Gowthorpe Lane within the ZVI

398. This group of visual receptors is located within an area of landscape to the south of the established woodland and tree vegetation along the PRoW (Swardeston BR12 and Stoke Holy Cross BR3); to the west of the A140 (Ipswich Road); north of Hickling Lane; and east of Gowthorpe Lane.

399. **Figures 28.15** (Site 1) and **28.16** (Site 2) show the extent of the ZVIs of each site. **Figure 28.17** shows the landscape context within this area, including PRoWs (with references) and Gowthorpe Lane, and the location of representative viewpoints.

400. The following PRoWs lie within this visual receptor group, and are represented by Viewpoints 1A to 3B (**Figures 28.18** to **28.23**) as follows:

- Bridleway (Swardeston BR9) – Viewpoint 1A (**Figure 28.18**)
- Bridleway (Swainsthorpe BR7) – Viewpoint 1B (**Figure 28.19**)
- Permissive bridleway west of A140 – Viewpoint 2 (**Figures 28.20** and **28.21**)
- Bridleway (Stoke Holy Cross BR3) – Viewpoint 3A (**Figure 28.22**)
- Bridleway (Swardeston BR12) – Viewpoint 3B (**Figure 28.23**)
- Bridleway Open to All Traffic (BOAT) - Swainsthorpe BOAT6 on Hickling Lane

401. In addition, Gowthorpe Lane (a minor road) lies on the western edge of this receptor group.

402. Users of these PRoWs and permissive bridleway would be of a high susceptibility, and users of Gowthorpe Lane medium susceptibility. They would both be of community value. Effects on the PRoW, permissive bridleway and road are assessed as a group so, for the purpose of this impact assessment, the higher level of sensitivity is used which applies to the PRoW and permissive bridleway. Visual receptors within the visual receptor group would be of a high – medium sensitivity.

403. Visual effects arising from each onshore substation site would vary slightly dependent on the location of the visual receptors and whether there is woodland, hedgerow or scrub vegetation between the receptor and the site. It can be seen that large to small scale effects would occur from parts of the PRoWs and permissive bridleway represented by Viewpoints 1 to 3B (**Figures 28.18** to **28.23**).

404. Although the existing Norwich Main substation lies within close proximity to the north of the substation sites, it is not visible from the majority of these routes, being screened by the existing mature woodland belt immediately north of substation Sites 1 and 2.

28.6.5.2.3.1 PRoW to the north of the onshore substation site options

405. PRoW Stoke Holy Cross BR3 and Swardeston BR12 form a continuous west-east route between Swardeston BR9 and the A140. From the majority of this route views of the substation site options would be filtered or obscured by vegetation south of the route. However, views to either site would be available from some sections of the PRoW route where gaps in the vegetation allow views southwards, as illustrated by Viewpoints 3A and 3B (**Figures 28.22** and **28.23**).

406. Norwich Main substation is visible to the north, filtered through trees, from part of this route. Some of the existing woodland might be removed to facilitate construction of the 400kV connection or a new access road, potentially increasing visibility of the Norwich Main substation.

407. Views of onshore substation Site 1 would be most apparent from the eastern extent of the PRoW route, represented by Viewpoint 3A (**Figure 28.22**) (assessed as large scale effect). This open view would only be possible for short stretches of the PRoW route. From the western extent of the PRoW route vegetation south-east of the PRoW would filter or obscure views of the substation site to a greater degree. Onshore substation Site 1 would be visible but partially screened by intervening vegetation from the western extent of the route, where gaps in vegetation allow; Viewpoint 3B lies on this western section of the route where effects are assessed as small scale.

408. Views of onshore substation Site 2 would be most apparent from the western extent of the PRoW route, represented by Viewpoint 3B (**Figure 28.23**) (assessed as large scale effect). This open view would only be possible for short stretches of the PRoW route. From the eastern extent of the PRoW route vegetation south-west of the PRoW would filter or obscure views of the substation site; Viewpoint 3A lies on this section of the PRoW where effects are assessed as small scale.

409. The substation sites would be seen in the context of the existing line of pylons crossing the fields between the sites.

28.6.5.2.3.2 Permissive bridleway to the east of the onshore substation site options

410. Views of onshore substation Sites 1 and 2 would be available from the majority of the permissive bridleway which runs north – south west of and parallel to the A140. Fieldwork has identified that, walking along the route, the degree of visibility of onshore substation Sites 1 and 2 would vary due to distance to the site, the angle of view and the degree of screening by intervening vegetation. This would vary the scale of effect on the receptor.

411. Viewpoint 2 (**Figures 28.20** and **28.21**) (effects assessed as large scale for Site 1 and medium – small scale for Site 2) represents the greatest potential visibility of either site from the route. Onshore substation Site 1 would be closer to the permissive bridleway and more apparent than Site 2, seen above the railway line. Site 2 would be more distant and screened to a greater degree.

412. The onshore substation at Site 1 would be visible beyond vegetation and electrical cables along the railway line and would be in the foreground to the existing pylons and overhead wires. The maximum height parameters shown in **Figure 28.20** illustrate that parts of the substation would have potential to appear taller than the existing pylons in the views and could screen existing pylons and associated wires.

413. The upper parts of the proposed buildings and electrical equipment of onshore substation Site 2 would be visible above intervening vegetation, seen within the context of exiting pylons and associated overhead wires, and electrical cables along the railway line, in the foreground. No components of Site 2 would appear taller than the existing pylons and overhead wires in these views.

28.6.5.2.3.3 PRoW to the west of the onshore substation site options

414. PRoWs Swainsthorpe BR7 and Swardeston BR9 form a continuous north – south route between Mangreen Lane and Gowthorpe Lane. The northern section of PRoW Swardeston BR9 lies outside the ZVI. PRoW Swardeston BR11 runs west-east between Gowthorpe Lane and PRoW Swardeston BR9 within the ZVI.

415. Views of both onshore substation site options would be available from parts of these PRoWs. A tall mature hedgerow and two areas of woodland lie immediately east of the majority of the Swainsthorpe BR7 / Swardeston BR9 route within the ZVI, obscuring or heavily filtering views towards the substation sites. Views are currently more open from approximately 130m of the northern section of the route (on Swardeston BR9) where Viewpoint 1A (**Figure 28.18**) is located.

416. Views of onshore substation Site 1 would be less affected in comparison to Site 2, being further from the route. As can be seen in Viewpoint 1A (**Figure 28.19**) (Site 1 assessed as small scale effect) at a location where it is possible to see over an immature hedge east of the route, intervening vegetation and landform further east would screen much of the proposed substation from view, broadly restricting visibility to the upper parts of the proposed buildings and electrical equipment. Where visibility is possible, substation Site 1 would be seen beyond exiting pylons and overhead wires, which would appear taller than the substation in these views. The immature foreground hedge is likely to grow and obscure views further in the future.

417. Views of onshore substation Site 2 would be most apparent from the northern extent of the Swainsthorpe BR7 / Swardeston BR9 route within the ZVI, represented by Viewpoint 1A (assessed as large scale effect). From this locality, views would be readily available the onshore shore substation over an immature hedge; this hedge is likely to grow and filter or obscure views of the substation sites as it matures. Views would be more limited from locations further south where the mature field hedgerow and a block of woodland restricts views, and from further north where PRoW Swardeston BR9 passes through woodland. Viewpoint 1B (**Figure 28.19**) (Site 2 assessed as large scale effect) is located on the southern part of this route, at a gap in the mature hedgerow. Views would also be possible from the eastern part of PRoW Swardeston BR11 as approaches Swardeston BR9 from the west.

28.6.5.2.3.4 PROW Swainsthorpe BOAT6 to the south of the onshore substation site options

418. Swainsthorpe BOAT6 runs along Hickling Lane, between Gowthorpe Lane in the west and the A140 in the east.

419. An established tree belt and woodland along PRoW restricts views northwards to either onshore substation site from the majority of the route. Views would be possible from limited locations where vegetation is sparser and there are gaps including where the PRoW crosses over the Norwich-Ipswich Railway .

420. It is likely that the onshore cable corridor would connect to the selected substation site from the south, passing through this existing tree belt. If this were to occur, this woodland belt and BOAT could be crossed by trenchless techniques or by open cut trenching. For the purpose of this assessment it is assumed that a width of approximately 20m width of trees would be removed within the working corridor..

421. From locations where views would be available, views to onshore substation Site 1 would be of a large scale, being in closer proximity to the PRoW than Site 2. The onshore substation would be seen within the context of exiting pylons and overhead wires. It would not be visible from the majority of the route.

422. From locations where views would be available, effects due to onshore substation Site 2 would be at most of a medium – small scale. Views would be largely restricted to the upper parts of the proposed buildings and electrical equipment. Where visibility is possible, the onshore substation Site 2 would be seen within the context of exiting pylons and overhead wires.

423. No components of either onshore substation site would be taller than the infrastructure visibly present in existing views. They would not be visible from the majority of the route.

28.6.5.2.3.5 Gowthorpe Lane

424. Gowthorpe Lane is located on the western edge of the ZVI. A hedgerow runs continuously along the east side of the road and would screen views of both substation sites for all road users except those in higher vehicles who may be able to see over the hedgerow. There is further woodland and hedgerow vegetation east of this roadside hedgerow that would also screen or filter views. If parts of either of the substations are visible, they would be seen in the context of existing pylons and overhead wires.

28.6.5.2.3.6 Assessment of PRoWs, permissive bridleway and Gowthorpe Lane within the ZVI

425. Effects on users of these PRoW, permissive bridleway and Gowthorpe Lane would range from large scale at PRoW closest to each site, where gaps in vegetation allow, to medium, small and negligible scale with increasing distance and where vegetation and landform screen or filter views.

426. Onshore substation Site 1 would lead to large scale effects from slightly longer sections of PRoW and the permissive bridleway than Site 2, at routes to the north, east and south of the site. Effects would reduce with distance and as vegetation and landform filters or obscures views of the substation. Views of Site 1 would be obscured or heavily filtered by intervening vegetation from the majority of these PRoW and Gowthorpe Lane. This would affect a localised extent of the receptor group, and result in visual effects of high magnitude and **major** significance. Effects would be adverse.

427. Onshore substation Site 2 would lead to large scale effects from short sections of PRoW to the north and west of the site. Effects would reduce with distance and as vegetation and landform filters or obscures views of the substation. Views of onshore substation Site 2 would be obscured or heavily filtered by intervening vegetation from the majority of these PRoW and Gowthorpe Lane. This would affect a limited extent of the receptor group, and result in visual effects of medium magnitude and **major-moderate** significance. Effects would be adverse.

28.6.6 Potential Impacts during Decommissioning – Onshore Cable Corridor and Substation

28.6.6.1 Onshore Cable Corridor

428. The approach to decommissioning has not yet been defined; however, cable ducts are expected to be left in the ground without the need to re-excavate and there would be very limited potential for landscape or visual effects associated with this during decommissioning.

28.6.6.2 Onshore Substation

429. As set out in **Section 28.3.2**, given the temporary duration of the decommissioning phases in comparation to the longer term duration of the operational phases of DEP and / or SEP, potential effects during decommissioning would not be greater than those experienced during the operation of the onshore substation and could potentially be less due to the shorter-term durations.

430. A summary of the effects that are likely to arise during decommissioning is presented in **Annex 28.5**.

28.7 Cumulative Impacts

28.7.1 Identification of Potential Cumulative Impacts

431. The first step in the cumulative assessment is the identification of which residual impacts assessed for DEP and / or SEP on their own have the potential for a cumulative impact with other plans, projects and activities (described as 'impact screening'). As set out **Section 28.4.3**, developments that are subject to a valid planning application are included where specific circumstances indicate there is potential for cumulative effects to occur, with progressively decreasing emphasis placed on those which are less certain to proceed.

432. Operational, and consented developments are in general treated as being part of the landscape and visual baseline i.e. it is assumed that consented schemes will be built except for occasional exceptions where there is good reason to assume that they will not be constructed. Where it has been identified that there is a realistic potential for the construction phase of the DEP and SEP onshore cable corridor to overlap with the construction of other nearby consented schemes, these schemes have also been included in the CIA.

433. The information set out in **Table 28-14** identifies those potential impacts from **Section 28.6** that would be of a slight significance or above, together with the consideration of confidence in the data that is available to inform the CIA and associated rationale. Where the significance of impact on landscape and visual receptors resulting from DEP and SEP is assessed to be minimal, it is considered that the effect is of such limited significance that it cannot therefore contribute towards any notable cumulative effect. In this case, an assessment of cumulative effects on the receptors in question is not required as effects would not be significant.

434. **Table 28-14** concludes that in relation to landscape and visual receptors, effects would be highly localised to the immediate contexts of the onshore cable corridor and the onshore substation site options. Only where there is potential for other relevant

projects to be located near to or cross the onshore components of the DEP and SEP sites are potential cumulative effects likely to occur.

Table 28-14: Potential Cumulative Impacts (impact screening)

Impact	Potential for Cumulative Impact	Data Confidence	Rationale
Construction Phase			
Onshore Cable Corridor			
Landscape Character	Yes	Moderate	There is potential that other projects, in combination with the DEP and / or SEP onshore cable corridor, could give rise to cumulative effects. However, as set out in **Sections 28.5** and **28.6**, there would be little to no visibility of DEP and / or SEP cable construction works beyond the immediate context of the onshore cable corridor. There would only be potential for cumulative effects where there is an overlap of effects arising from the onshore cable corridor and other projects.
Visual Receptors	Yes	Moderate	
Onshore Substation Sites			
Landscape Character	Yes	Moderate	There is potential that other projects, in combination with the DEP and / or SEP substation site options, would give rise to cumulative effects. There would be little to no visibility of the DEP and / or SEP substation sites beyond the immediate context defined by the ZVI described in **Section 28.5.3**. There would only be potential for cumulative effects where there is an overlap of effects arising from the onshore substation site options and other projects, or where users of a
Visual Receptors	Yes	Moderate	

Impact	Potential for Cumulative Impact	Data Confidence	Rationale
			route (e.g. road) would see more than one project sequentially.
Operational Phase			
Onshore Substation Sites			
Landscape Character	Yes	Moderate	There is potential that other projects, in combination with the DEP and SEP substation sites, would give rise to cumulative effects. However, as set out in detail in **Section 28.5** and **28.6**, there would be little to no visibility of the DEP and SEP substation sites beyond the immediate context defined by the ZVI. There would only be potential for cumulative effects where there is an overlap of effects arising from the onshore substation sites and another projects, or where users of a route (e.g. road) would see more than one project sequentially.
Visual Receptors	Yes	Moderate	
Decommissioning Phase			
Onshore Cable Corridor			
Landscape Character	Yes	Moderate	As set out in **Section 28.6.6.1**, cable ducts are expected to be left in the ground c without the need to re-excavate and there

Impact	Potential for Cumulative Impact	Data Confidence	Rationale
Visual Receptors	Yes	Moderate	would be very limited potential for landscape or visual effects associated with this during decommissioning of DEP and / or SEP.
Onshore Substation Sites			
Landscape Character	Yes	Low	There is potential that other projects, in combination with the DEP and SEP substation site options, would give rise to cumulative effects. There would be little to no visibility of the DEP and / or SEP substation sites beyond the immediate context defined by the ZVI described in **Section 28.5.3**. There would only be potential for cumulative effects where there is an overlap of effects arising from the onshore substation site options and other projects, or where users of a route (e.g. road) would see more than one project sequentially.
Visual Receptors	Yes	Low	

28.7.2 Other Plans, Projects and Activities

435. The second step in the cumulative assessment is the identification of the other plans, projects and activities that may result in cumulative impacts for inclusion in the CIA (described as ‘project screening’).

436. This information is set out in **Table 28-15** below, together with a consideration of the relevant details of each, including current status (e.g. in-planning), planned construction period, closest distance to DEP and SEP, status of available data and rationale for including or excluding from the assessment.

437. The project screening has been informed by the development of a CIA Project List which forms an exhaustive list of plans, projects and activities in a very large study area relevant to DEP and SEP. The list has been appraised, based on the confidence in being able to undertake an assessment from the information and data available, enabling individual plans, projects and activities to be screened in or out.

Table 28-15: Summary of projects considered for the CIA in relation to landscape and visual receptors (project screening)

Project	Status	Construction Period	Distance from the DEP and SEP onshore component	Data Confidence	Included in the CIA	Rationale
Onshore Cable Corridor						
Hornsea Project Three Offshore Wind Farm	DCO Consented	2021 – 2027	Hornsea Three cable corridor would cross DEP and SEP onshore cable corridor south-east of Weston Longville; and the landfall site would be located nearby at Weybourne.	High	Yes	There would be potential for the effects of landscape and visual receptors to overlap, and therefore taken forward for to the CIA in **Section 28.7.3**.
Norfolk Vanguard Offshore Windfarm	DCO consented[1]	2022 – 2025	Norfolk Vanguard and Norfolk Boreas share the same	High	Yes	

[1] Following completion of this CIA, the ruling of a Judicial Review brought against the Secretary of State for Business Energy and Industrial Strategy's (BEIS) decision to award a DCO for NV has been handed down. The decision to grant the order has been submitted to the Secretary of State for redetermination. BEIS will be considering its options, namely appeal or redetermination. Until such time as this process reached a conclusion it has been decided to maintain the NV/ NB cumulative assessment for stakeholder review.

Project	Status	Construction Period	Distance from the DEP and SEP onshore component	Data Confidence	Included in the CIA	Rationale
Norfolk Boreas Offshore Windfarm	DCO Examination	2024 – 2027	onshore cable corridor and would cross the DEP and SEP onshore cable corridor at north of Cawston.	High	Yes	
Land North of The Street, Cawston – solar farm	Screening	Unknown	The onshore cable corridor route would cross part of the solar farm site	No	No	Projects registered at the screening process of the planning application do not give assured indication whether an application will be forthcoming and are held with less certainty. No construction or operational dates are known.
A47 North Tuddenham to Easton	Pre examination DCO	2021 - 2024	The onshore cable corridor route would cross this	High	No	Construction periods may overlap in 2024. The onshore cable

Project	Status	Construction Period	Distance from the DEP and SEP onshore component	Data Confidence	Included in the CIA	Rationale
			section of the A47			corridor would HDD under this road and lead to limited, short-term effects that would be much smaller in scale than the A47 works, and not lead to any cumulative effects.
Onshore Substation Site Options						
Land West of Norwich Road Swainsthorpe Norfolk	Pending Consideration	Unknown	To onshore substation Site 1: 75m, SE To onshore substation Site 2: 620m, SE	Yes	Yes	There would be potential for the effects of landscape and visual receptors to overlap, and therefore taken forward for to the CIA in **Section 28.7.3**.
Hornsea Project Three Offshore Wind	DCO Consented	2021 – 2027	To onshore substation Site 1: 1.4km, NW	High	No	As set out in **Table 28-14**, there would be little to no

Project	Status	Construction Period	Distance from the DEP and SEP onshore component	Data Confidence	Included in the CIA	Rationale
Farm substation			To onshore substation Site 2: 960m, NW			visibility beyond the immediate context of either DEP and SEP substation Site 1 or 2, and the ZTVs of DEP / SEP with Hornsea Three substation would not overlap. It is unlikely that DEP and SEP would be visible to a great degree with Hornsea Three substation from any locations due to screening effects of intervening vegetation. The combined cumulative impacts would be unlikely to give rise to effects greater than those DEP and SEP projects alone.

28.7.3 Assessment of Cumulative Impacts

438. Having established the residual impacts from DEP and / or SEP with the potential for a cumulative impact, along with the other relevant plans, projects and activities, the following sections provide an assessment of the level of impact that may arise as a result of the onshore cable corridor.

28.7.3.1 Construction Phase

439. The effects of other projects in construction would vary according to their scale – for example it can be expected that the construction of a development of a large scale would involve a significant construction project over a number of years; whereas the construction of a smaller scale development would be completed more rapidly and involve a smaller scale of activity.

28.7.3.1.1 Onshore Cable Corridor

28.7.3.1.1.1 Cumulative Landscape Effects

440. As set out in **Section 28.6**, landscape effects resulting from the construction of the onshore cable corridor would range from moderate adverse to negligible neutral significance. Should the Hornsea Project Three offshore wind farm; Norfolk Vanguard offshore wind farm and / or Norfolk Boreas offshore wind farm be constructed within the construction phase of the DEP and / or SEP, the combined effects on the existing landscape character would occur to a limited area where routes cross at Weston Longville and Cawston, where corridors run close to each other, and at the landfall sites located near Weybourne. Within these limited areas, the combined duration is still likely to be short-term (with small areas of longer term effects due to vegetation removal and replacement), and cumulative effects on landscape character are unlikely to be significant.

441. The combination of effects of DEP and / or SEP and the other projects are unlikely to be greater than any of the projects on their own, and there would be no notable cumulative visual effects arising from DEP and / or SEP.

28.7.3.1.1.2 Cumulative Visual Effects

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

443. Where this arises, it would involve developments that in themselves have notably greater effects than those of DEP and / or SEP, and the addition of the relatively smaller effects arising from the DEP and / or SEP would not give rise to a greater cumulative effect.

444. The combination of effects of DEP and / or SEP and the other projects are unlikely to be greater than DEP and / or SEP alone.

28.7.3.1.2 Onshore Substation Site Options

28.7.3.1.2.1 Cumulative Landscape Effects

445. Should construction phases of the Land West of Ipswich Road and either of the DEP and / or SEP substation Sites 1 or 2 occur at the same time, there would be little overlap in areas of land where effects on landscape character would occur due to each project. The Land West of Ipswich Road lies beyond the southern extent of the ZVI of the DEP and / or SEP substation sites and would be partially screened by intervening vegetation found along Hickling Lane and the railway line.

446. It is judged that cumulative effects on landscape character are unlikely to be significant, and the potential cumulative effects of DEP and / or SEP and Land West of Ipswich Road would be no greater than DEP and / or SEP alone.

28.7.3.1.2.2 Cumulative Visual Effects

447. Should construction phases of the Land West of Ipswich Road and either of the DEP and SEP substation Sites 1 or 2 occur at the same time, there would be little potential for cumulative visual effects, except where the Land West of Ipswich Road borders Hickling Lane (Swainsthorpe BOAT6); the A140; and the Norwich-Ipswich railway to south and south-east of the onshore substation sites.

448. Visual receptors using these routes could have views of the Land West of Ipswich Road project, and DEP and / or SEP concurrently and / or sequentially from limited lengths of the routes. Given the short sections of each route in which these potential cumulative effects could occur, it is judged that potential cumulative effects of DEP and / or SEP and Land West of Ipswich Road would be no greater than DEP and / or SEP alone.

28.7.3.2 Operation Phase

28.7.3.2.1 Cumulative Landscape Effects – Onshore Substation Site Options

449. As set out in **Section 28.6**, the greatest effects on the prevailing landscape character – B1 Tas Tributary Farmland – would arise within the onshore substation sites themselves, where there would be a direct change to the present land-use from agricultural farmland to an electrical substation and visibility of the new development be possible from locations in close proximity. Effects on landscape character would only occur within the area covered by the ZVI as described in **Section 28.5.3**.

450. Should the Land West of Ipswich Road and either of the DEP and SEP substation Sites 1 or 2 operate at the same time, there would be little overlap in areas of land where effects on landscape character would occur due to each project. The Land West of Ipswich Road lies beyond the southern extent of the ZVI of the onshore substation sites and would be screened by intervening vegetation found along Hickling Lane and the railway line, and proposed planting within the northern extent of the cumulative scheme.

451. It is judged that cumulative effects on landscape character are unlikely to be significant, and the potential cumulative effects of DEP and / or SEP and Land West of Ipswich Road would be no greater than DEP and / or SEP alone.

28.7.3.2.2 Cumulative Visual Effects

452. Effects on visual receptors due to the DEP and SEP substation sites would only occur within the area covered by the ZVI as described in detail in **Section 28.5.3**.

453. Should the Land West of Ipswich Road and either of the DEP and SEP substation Sites 1 or 2 operate at the same time, there would be little potential for cumulative visual effects, except where the Land West of Ipswich Road borders Hickling Lane (Swainsthorpe BOAT6); the A140; and the Norwich-Ipswich railway to south and south-east of the onshore substation site options.

454. Visual receptors using these routes could have views of the Land West of Ipswich Road project, and DEP and / or SEP concurrently and / or sequentially from limited lengths of the routes. Given the short sections of each route in which these potential cumulative effects could occur, it is judged that potential cumulative effects of DEP and / or SEP and Land West of Ipswich Road would be no greater than DEP and / or SEP alone.

28.7.3.3 Decommissioning Phase

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

28.8 Transboundary Impacts

456. Transboundary effects have been scoped out of the LVIA as it has been judged that no significant transboundary effects would arise as a consequence of either the onshore cable corridor or the onshore substation site options, since these components of DEP and SEP fall entirely within the jurisdiction of the UK, and no other EU member state would have visibility of the construction, operation or decommissioning phases of the onshore components of DEP and SEP.

28.9 Inter-relationships

457. Inter-relationships are considered to be the impacts and associated effects of different aspects of the onshore cable corridor and the onshore substation on the same receptor. In the LVIA, these inter-related effects are considered to be receptor led effects, where specific receptors may be affected by both the construction and operation of the onshore infrastructure (i.e. onshore substation, onshore cable corridor, landfall location and National Grid infrastructure) and the construction and operation of the offshore infrastructure (including windfarm site, offshore platforms, offshore cable corridor). There is potential for effects to interact, spatially and temporally, to create inter-related effects on a receptor.

28.9.1 Inter-related landscape and visual effects between offshore and onshore development

458. The assessment presented in **Chapter 27 Seascape and Visual Impact Assessment** and the LVIA presented in this chapter together provide an assessment of potential impacts on seascape and landscape character; views and visual amenity; and designated and defined landscapes which might arise as a consequence of DEP and / or SEP both offshore and onshore.

459. The majority of LCAs, visual receptors and designated and defined landscapes in the LVIA study areas would not experience inter-related landscape and / or visual effects, since they have either no visibility, or limited or distant visibility, of either the construction of the offshore infrastructure or the construction of the onshore infrastructure, and therefore have limited potential for inter-related (or combined) effects to occur.

460. Inter-related landscape and visual effects between offshore and onshore development would only occur on those LCAs, visual receptors and designated and defined landscapes near the landfall, where the construction of the onshore infrastructure (landfall and onshore cable corridor) would occur in areas that may also be affected by changes resulting from views of the construction of the offshore infrastructure.

461. Based on the offshore (**Chapter 27**) and onshore (this chapter) assessments undertaken, it is assessed that inter-related landscape and visual effects would be limited to areas in close proximity to the landfall site at Weybourne. During the construction of the landfall and onshore cable corridor together with the construction of the offshore infrastructure, the construction periods may overlap.

462. In reality, the programming would mean there would likely be some degree of separation between the construction of the onshore infrastructure and construction of the offshore infrastructure. The period over which inter-related landscape and / or visual effects on seascape, landscape and visual receptors might occur would be limited to a short-term and temporary period, and within a limited geographical area of coast, during the construction phase and is unlikely to give rise to impacts greater than assessed in this chapter and **Annex 28.5** for the onshore cable corridor alone.

28.9.2 Inter-related effects with other sources of impact

463. Inter-related effects between visual impacts presented in this chapter and other potential sources of impact, such as noise, air quality and traffic, are possible as a consequence of the onshore development of SEP and / or DEP, especially during the construction phase of the projects. There are unlikely to be inter-related effects between landscape impacts and other potential sources of impact on landscape receptors.

464. The potential inter-related visual effects with other sources of impact are likely to be limited to areas in close proximity to any construction works being undertaken, and likely only to be experienced for a temporary period.

465. Those chapters that assess impacts which could potentially give rise to inter-related effects are as follows:

- **Chapter 24 Noise and Vibration**;
- **Chapter 25 Air Quality**; and
- **Chapter 26 Traffic**.

28.10 Interactions

466. The impacts identified and assessed in this chapter have the potential to interact with each other. The areas of potential interaction between impacts are presented in **Table 28-16**. This provides a screening tool for which impacts have the potential to interact. **Table 28-17** provides an assessment for each receptor (or receptor group) as related to these impacts.

467. Within **Table 28-17** the impacts are assessed relative to each development phase (Phase assessment - i.e. construction, operation or decommissioning) to see if (for example) multiple construction impacts affecting the same receptor could increase the level of impact upon that receptor. Following this, a lifetime assessment is undertaken which considers the potential for impacts to affect receptors across all development phases.

468. The significance of each individual impact is determined by the sensitivity of the receptor and the magnitude of effect; the sensitivity is constant whereas the magnitude may differ. Therefore, when considering the potential for impacts to be additive it is the magnitude of effect which is important – the magnitudes of the different effects are combined upon the same sensitivity receptor.

Table 28-16: Interaction between impacts - screening

Potential Interaction between Impacts			
Construction, Operation and Decommissioning			
	1. Impacts on landscape character	2. Impacts on views and visual amenity	3. Impacts on designated and defined landscapes, and landscapes protected by policy
1. Impacts on landscape character	-	Yes	Yes
2. Impacts on views and visual amenity	Yes	-	Yes
3. Impacts on designated and defined landscapes, and landscapes protected by policy	Yes	Yes	-

Table 28-17: Interaction between impacts – phase and lifetime assessment

	Highest significance level				
Receptor	Construction	Operation	Decommissioning	Phase assessment	Lifetime assessment
Onshore Cable Corridor					
Landscape Character	Moderate locally, adverse	No effect	No effect	No greater than individually assessed impact	No greater than individually assessed impact

	Highest significance level				
Receptor	Construction	Operation	Decommissioning	Phase assessment	Lifetime assessment
Visual receptors	Major-moderate locally, adverse	No effect	No effect	No greater than individually assessed impact	No greater than individually assessed impact
Designated landscapes (AONB)	Slight locally, adverse	No effect	No effect	No greater than individually assessed impact	No greater than individually assessed impact
South Norfolk River Valleys protected by Policy DM 4.5	Moderate locally, adverse	No effect	No effect	No greater than individually assessed impact	No greater than individually assessed impact
Onshore Substation Sites					
Landscape Character	Moderate locally, adverse	Moderate locally, adverse	Moderate locally, adverse	No greater than individually assessed impact	No greater than individually assessed impact.
Visual receptors	Major locally adverse (Site 1). Major-moderate locally adverse (Site 2).	Major locally adverse (Site 1). Major-moderate locally adverse (Site 2).	Major locally adverse (Site 1). Major-moderate locally adverse (Site 2).	No greater than individually assessed impact	No greater than individually assessed impact.

28.11 Potential Monitoring Requirements

469. No monitoring requirements are identified in light of the conclusions of the LVIA.

28.12 Assessment Summary

28.12.1 Introduction

470. This chapter has provided a characterisation of the existing environment for the LVIA based on both existing and site specific survey data, which has established that there would be some potential impacts on landscape and visual receptors and on a designated landscape and landscapes protected by policy during construction, operation and decommissioning phases of DEP and / or SEP.

471. The realistic worst case scenario for DEP and / or SEP have been assessed for the onshore cable corridor and the onshore substation Site options 1 and 2.

472. The realistic worst case scenario for the construction of the onshore cable corridor and the onshore substations is with DEP and SEP built sequentially with four years between construction of each project. However, it is assessed that in light of the various possible scenarios of DEP and SEP, should they be developed in isolation or together (either concurrently or sequentially), there would be no material difference in the resultant impacts between the various project scenarios.

473. For the onshore cable corridor, the realistic worst case scenario would occur during the construction phase and result from the maximum construction duration and land-take. During operation the onshore cable corridor would be buried and not result in any landscape or visual effects, except for effects as replacement planting matures, and where trees are not replaced over the cable easement. These effects on vegetation have been factored into the visual effects assessed during the construction phase. Link boxes would either be buried or above ground level but would not result in any significant effects. Cable ducts would be left in the ground and trenches would not be re-excavated during decommissioning, and there would be no landscape or visual effects during the decommissioning phase.

474. For the onshore substation Site options 1 and 2, the greatest effects are likely to occur during operation due to the longer-term duration than the construction and decommissioning phases, and result from the maximum footprint and height parameters. However, the summary of potential effects during the construction and decommissioning phases presented in **Annex 28.5** identifies that the significance of effects on receptors during construction and decommissioning phases would be the same as assessed during the operational phase.

475. Two onshore substation site options have been assessed in this chapter, and one single site will be selected and taken forward to the DCO submission.

476. Effects that are **major–moderate** or **major** are considered to be significant.

28.12.1.1 Onshore cable corridor

477. Significant effects have been assessed during construction at Weybourne Wood Open Access Land within the North Norfolk Coast AONB if the eastern onshore cable corridor option is used at this location. If the western or trenchless options are used at this location, there would be no significant effects at Weybourne Wood Open Access Land.

28.12.1.2 Onshore substation sites

478. Significant effects have been assessed during construction, operation and decommissioning due to both onshore substation sites on users of a group of PRoW, a permissive bridleway and Gowthorpe Lane which encircle the fields which the sites lie within and adjacent to.

479. No other significant effects have been identified due to DEP or SEP.

480. The assessment summary presented in **Sections 28.12.3, 28.12.4, 28.12.5 and 28.12.6** below summarises effects during the construction phase of the onshore cable corridor and the operational phase of the onshore substation sites.

28.12.2 Substation Site Selection and Mitigation

481. The two onshore substation sites have been selected following feasibility studies considering a number of potential sites. One site will be selected following PEIR submission and included in the DCO submission.

482. Landscape and visual considerations fed into the studies and site selection process. The final PEIR onshore substation Site options 1 and 2 are considered to be suitable sites from a landscape and visual perspective for a number of reasons including:

- They lie within an area of arable fields enclosed by woodland, tree belts and hedgerows which restricts potential visibility and effects to a relatively small area.
- The existing woodlands and tree belts provide a context where further tree and woodland planting to integrate the final onshore substation site into the landscape and provide further screening would be appropriate.
- The sites lie within an area already influenced by existing electrical infrastructure including the Norwich Main substation to the north, and lines of pylons and overhead wires, one of which crosses the fields between the onshore substation sites. Other existing infrastructure lies to the east – the Norwich-Stowmarket main railway line and the A140. Hornsea Three onshore substation has been granted DCO consent at a site approximately 1km north-west of substation Site 2 and 1.5km north-west of Site 1. Grid and other infrastructure are already characteristic of this location, and further substation infrastructure has been accepted.
- There are relatively few sensitive landscape or visual receptors within close proximity to the sites that have potential to be significantly affected.
- There are no residential receptors that would have clear or close views of the onshore substation options.

483. Site selection is therefore a key part of the embedded mitigation proposals. Further mitigation including substation, landscape and planting design will be considered post-PEIR submission and included in the DCO submission.

484. No further mitigation measures such as planting are proposed at the PEIR stage for the onshore substation site options, so effects are assessed without such mitigation in place.

28.12.3 Landscape Effects

28.12.3.1 Onshore cable corridor – construction phase

485. Effects due to the onshore cable corridor construction works would be temporary and short term. Effects due to hedgerow, tree and woodland removal and replanting would last longer while vegetation matures. Where it is not possible to replace trees over the cable easement there would be some permanent effects to limited areas of landscape. Effects on landscape character would be up to low magnitude and **moderate** significance at the locations where some areas of woodland are removed and not re-planted. Effects would be negligible magnitude and **minimal** significance for the majority of the landscape of the LCAs, and overall impacts on all LCAs would be negligible magnitude and **minimal** significance and neutral. Where effects occur they would be adverse.

28.12.3.2 Onshore substation site options – operational phase

486. DEP and SEP would affect one landscape character area (LCA) B1 Tas Tributary Farmland. Effects would be greatest within the onshore substation sites themselves and their immediate contexts, contained to an area of arable fields enclosed by tree and woodland belts and hedgerows, crossed by a line of pylons and overhead cables. Effects within this contained area (defined as the ZVI illustrated on **Figures 28.15** and **28.16**) would be medium magnitude, **moderate** significance and adverse.

487. There are unlikely to be landscape effects outside the ZVI.

488. Overall effects on LCA B1 Tas Tributary Farmland would be negligible magnitude, **minimal** significance and neutral.

28.12.4 Visual Effects

28.12.4.1 Onshore cable corridor – construction phase

28.12.4.1.1.1 Settlements

489. Construction works would be visible from some settlements as the works pass them for short durations. The degree of visibility and significance of effect would vary between settlements, and the magnitude of the effect would range from medium-low to negligible. Effects would range from **moderate** significance and adverse at the most affected settlements, to **minimal** significance and neutral.

28.12.4.1.1.2 A-roads and rail

490. In the case of people travelling by car on A-roads or by train, views of construction activities would tend to be very brief in relation to journey time, seen as the onshore cable corridor is passed, usually at speed. A-roads and railway lines would be crossed by trenchless techniques, with road and rail-side vegetation retained. The magnitude of effects on these receptors would be negligible due to the brief, and temporary short term changes to views. Impacts would be of **minimal** significance and neutral.

28.12.4.1.1.3 Long distance walking routes

491. Users of long distance walking routes would experience views of construction, vegetation removal and planting while they pass the works at a particular location and may be diverted temporarily for short periods during construction. Effects would be medium-low magnitude, **moderate** significance and adverse.

28.12.4.1.1.4 National and regional cycle routes

492. Users of national and regional cycle routes would experience views of construction, vegetation removal and planting while they pass the works at a particular location and may be diverted temporarily for short periods during construction. Effects would be medium-low magnitude, **slight** significance and adverse.

28.12.4.1.1.5 Accessible and recreational landscapes

493. The onshore cable corridor crosses two accessible and recreational landscapes, both of which lie within the North Norfolk AONB: Weybourne Wood Open Access Land, and Weybourne beach and future coastal margin. Other accessible and recreational landscapes lie within the onshore cable corridor study area.

494. Some commercial forestry woodland may need to be removed within the onshore cable corridor and re-planted outside the final cable easement within Weybourne Wood Open Access Land and effects would be high-medium magnitude, **major-moderate** significance (which is significant) and adverse. Effects on visual receptors at other accessible and recreational landscapes would be up to medium-low magnitude, **moderate** significance and adverse.

28.12.4.1.1.6 Local Roads and Public Rights of Way

495. The greatest magnitude effects would be experienced where the onshore cable corridor intersects PRoW and local roads using open trench techniques.

496. Effects on users of PRoW and local roads within the Norfolk Coast AONB would be medium-low magnitude, **moderate** significance and adverse. Effects on users of PRoW and local roads outside the Norfolk Coast AONB would be medium-low magnitude, moderate-slight significance and adverse.

28.12.4.2 Onshore substation sites – operation phase

497. Visual effects due to the onshore substation Sites 1 and 2 are likely to be contained to receptors within or on the edge of the ZVI illustrated on **Figures 28.15** and **28.16**. Effects on the visual receptors within the ZVI of Sites 1 and 2 are summarised below.

28.12.4.2.1 Roads and Rail (A140 and Norwich-Ipswich Railway Line)

498. Effects on users of the A140 and the Norwich-Ipswich Railway would be limited to short sections of each route as they pass to the east of the substation sites. Beyond these sections, there would be little to no visibility of either onshore substation site.

499. Effects on users of the A140 arising from onshore substation Site 1 would be medium magnitude, **slight** significance, and adverse. Effects arising from onshore substation Site 2 would be low-negligible magnitude, **slight-minimal** significance and adverse.

500. Effects on people on trains on the Norwich-Ipswich Railway arising from onshore substation Site 1 would be medium magnitude, **moderate** significance and adverse. Effects arising from onshore substation Site 2 would be low-negligible magnitude, **slight** significance and adverse.

28.12.4.2.2 PRoWs, a permissive Bridleway and Gowthorpe Lane within the ZVI

501. This group of visual receptors is located within an area of landscape to the south of the established woodland and tree vegetation along PRoWs Swardeston BR12 and Stoke Holy Cross BR3; to the west of the A140 (Ipswich Road); north of Hickling Lane; and east of Gowthorpe Lane, within the ZVI illustrated on **Figures 28.15** and **28.16**.

502. Effects on people using these routes arising from onshore substation Site 1 would be high magnitude, **major** significance (which is significant). Effects would be adverse.

503. Effects on people using these routes arising from onshore substation Site 2 would be of medium magnitude and **major-moderate** significance (which is significant). Effects would be adverse.

28.12.5 Effects on Designated and Defined Landscapes and Landscapes Protected by Policy

28.12.5.1 Norfolk Coast AONB

504. The onshore cable corridor runs through the Norfolk Coast AONB for approximately 5.5km as shown on **Figure 28.1**. Given the limited potential for the onshore cable corridor (including landfall) to undermine the Qualities of Natural Beauty of the AONB, effects would not be significant. Effects on the Norfolk Coast AONB would be of low-negligible magnitude, **slight** significance and adverse.

28.12.5.2 North Norfolk Heritage Coast

505. Construction works at the landfall is likely to be visible from the eastern tip of the NNHC, at a distance of approximately 200m or more, for a short-term duration. This would have limited potential to affect the natural beauty or visual amenity of the NNHC. Effects would be negligible magnitude, **minimal** significance and neutral.

28.12.5.3 South Norfolk River Valleys protected by Policy DM 4.5

506. The onshore cable corridor crosses South Norfolk District LCAs A3 Tud Rural River Valley and A2 Yare/Tiffey Rural River Valley which are protected by Policy DM 4.5. Effects would be up to low magnitude and **moderate** significance at the locations if some areas of woodland need to be removed and not re-planted, reducing to negligible magnitude and **minimal** significance outside these areas. Effects would be negligible magnitude and **minimal** significance for the majority of the landscape of these LCAs. Overall effects on these LCAs protected by Policy DM 4.5 would be negligible magnitude, **minimal** significance and neutral. Where effects occur, they would be adverse.

28.12.6 Assessment summary tables

507. Effects on the receptors assessed above are summarised in **Table 28-18**. Significant effects are in bold.

Table 28-18: Summary of potential impacts on landscape and visual resources

Potential impact	Receptor	Sensitivity	Magnitude	Pre-mitigation impact	Mitigation measures proposed	Residual impact
Construction Phase						
Onshore Cable Corridor						
Landscape Character	Landscape character areas *Within immediate context of onshore cable corridor*	High to medium-low	Low	Ranging from moderate to slight Adverse	None	Ranging from moderate to slight Adverse
Landscape Character	Landscape character areas *Overall*	High to medium-low	Negligible	Minimal Neutral	None	Minimal Neutral
Visual amenity	Settlements	High-medium	Ranging from medium-low to negligible	Ranging from moderate adverse to negligible neutral	None	Ranging from moderate adverse to negligible neutral
Visual amenity	A-roads and rail	Ranging from medium to low	Negligible	Minimal Neutral	None	Minimal Neutral

Potential impact	Receptor	Sensitivity	Magnitude	Pre-mitigation impact	Mitigation measures proposed	Residual impact
Visual amenity	Long distance walking routes Coast Path (Peddars Way, Norfolk Coast Path and England Coast Path)	High	Medium-low	Moderate Adverse	None	Moderate Adverse
Visual amenity	Other long distance walking routes	High-medium	Medium-low	Moderate Adverse	None	Moderate Adverse
Visual amenity	National and regional cycle routes	Medium	Medium-low	Slight Adverse	None	Slight Adverse
Visual amenity	Accessible and recreational landscapes within AONB – Weybourne Wood Open Access Land (if eastern corridor option is used)	High	High-medium	**Major-moderate Adverse**	None	**Major-moderate Adverse**
Visual amenity	Accessible and recreational landscapes within AONB - other	High	Medium-low	Moderate Adverse	None	Moderate Adverse
Visual amenity	Accessible and recreational landscapes outside AONB	Medium	Negligible	Minimal Neutral	None	Minimal Neutral
Visual amenity	PRoW within AONB	High	Medium-low	Moderate Adverse	None	Moderate Adverse

Potential impact	Receptor	Sensitivity	Magnitude	Pre-mitigation impact	Mitigation measures proposed	Residual impact
Visual amenity	PRoW outside AONB	Medium	Medium-low	Moderate-slight Adverse	None	Moderate-slight Adverse
Visual amenity	Local roads within AONB	High-medium	Medium-low	Moderate Adverse	None	Moderate Adverse
Visual amenity	Local roads outside AONB	Medium	Medium-low	Moderate-slight Adverse	None	Moderate-slight Adverse
Impacts on qualities of natural beauty	Norfolk Coast AONB	High	Low-negligible	Slight Adverse	None	Slight Adverse
Natural beauty or visual amenity	North Norfolk Heritage Coast	High	Negligible	Minimal Neutral	None	Minimal Neutral
South Norfolk River Valleys protected	River Valley landscape character areas A2 and A3 *Within immediate context of onshore cable corridor*	High-medium	Low	Moderate Adverse	None	Moderate Adverse

Potential impact	Receptor	Sensitivity	Magnitude	Pre-mitigation impact	Mitigation measures proposed	Residual impact
by Policy DM 4.5						
South Norfolk River Valleys protected by Policy DM 4.5	River Valley landscape character areas A2 and A3 *Overall*	High-medium	Negligible	Minimal	None	Minimal Neutral
Onshore Substation Sites						
A summary of effects during the construction phase is presented in **Annex 28.5**. The significance of effects are assessed to be the same as assessed for the operation phase.						
Operation Phase						
Onshore Cable Corridor						
As set out in **Section 28.3.2**, the greatest effects would occur during the construction phase of the DEP and SEP onshore cable corridor. Potential longer-term effects beyond the construction phase due to vegetation removal and reinstatement have been factored into the effects assessed during the construction phase summarised above.						
Onshore Substation Site 1						
Landscape Character	B1. Tas Tributary Farmland	Medium – Low	Medium	Moderate Adverse	None	Moderate Adverse

Potential impact	Receptor	Sensitivity	Magnitude	Pre-mitigation impact	Mitigation measures proposed	Residual impact
	Within immediate context of substation site					
Landscape Character	B1. Tas Tributary Farmland *Overall*	Medium – Low	Negligible	Minimal Neutral	None	Minimal Neutral
Visual amenity	A140 *Within immediate context of substation site*	Low	Medium	Slight Adverse	None	Slight Adverse
Visual amenity	Norwich-Ipswich Railway Line *Within immediate context of substation site*	Medium	Medium	Moderate Adverse	None	Moderate Adverse
Visual amenity	PRoWs, permissive bridleway and Gowthorpe Lane within the ZVI *Within immediate context of substation site*	High – Medium	High	**Major Adverse**	None	**Major Adverse**
Onshore Substation 2						
Landscape Character	B1. Tas Tributary Farmland *Within immediate context of substation site*	Medium – Low	Medium	Moderate Adverse	None	Moderate Adverse

Potential impact	Receptor	Sensitivity	Magnitude	Pre-mitigation impact	Mitigation measures proposed	Residual impact
Landscape Character	B1. Tas Tributary Farmland *Overall*	Medium – Low	Negligible	Minimal Neutral	None	Minimal Neutral
Visual amenity	A140 *Within immediate context of substation site*	Low	Low – Negligible	Slight – Minimal Adverse	None	Slight – Minimal Adverse
Visual amenity	Norwich-Ipswich Railway Line *Within immediate context of substation sits*	Medium	Low – Negligible	Slight Adverse	None	Slight Adverse
Visual amenity	PRoWs, permissive bridleway and Gowthorpe Lane within the ZVI *Within immediate context of substation site*	High – Medium	Medium	**Major – Moderate Adverse**	None	**Major – Moderate Adverse**
Decommissioning Phase						
Onshore Cable Corridor						
The onshore cable ducts would be left in place and trenches would not be re-excavated, and there would be no effects during the decommissioning phase.						
Onshore Substation Sites						

Potential impact	Receptor	Sensitivity	Magnitude	Pre-mitigation impact	Mitigation measures proposed	Residual impact
A summary of effects during the decommissioning phase is presented in **Annex 28.5**. The significance of effects are assessed to be the same as assessed for the operation phase.						

28.13 References

Broadland District Council (2015) *Development Management Development Planning Document* (online) Available at: https://www.broadland.gov.uk/downloads/file/1118/development_management_dpd_adopted [Accessed 3 November 2020]

Chris Blandford Associates (September 2008, updated 2013) *Broadland District Landscape Character Assessment Supplementary Planning Document* (online). Available at: https://www.broadland.gov.uk/downloads/download/167/landscape_character_assessment_supplementary_planning_document_spd [Accessed 3 November 2020]

Department for Business, Energy and Industrial Strategy (2012) Quarterly *public attitudes tracking survey* [online]. Available at: https://www.gov.uk/government/collections/public-attitudes-tracking-survey [Accessed 3 November 2020]

Department for Business, Energy and Industrial Strategy (2019) *BEIS Public Attitudes Tracker (Wave 29)* [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/800429/BEIS_Public_Attitudes_Tracker_-_Wave_29_-_key_findings.pdf [Accessed 3 November 2020]

Department of Energy and Climate Change (2011) *National Policy Statement for Energy (EN-1)* [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed 3 November 2020]

Department of Energy and Climate Change (2011) *National Policy Statement for Renewable Energy Infrastructure (EN-3)* [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf [Accessed 3 November 2020]

Department of Energy and Climate Change (2011) *National Policy Statement for Electricity Networks Infrastructure (EN-5)* [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37050/1942-national-policy-statement-electricity-networks.pdf [Accessed 14 January 2021]

European Union (2014) *The EU Birds and Habitats Directives* [online]. Available at: https://ec.europa.eu/environment/nature/info/pubs/docs/brochures/nat2000/en.pdf [Accessed 3 November 2020]

Greater Norwich Development Partnership (Adopted March 2011, amendments adopted January 2014) J*oint Core Strategy for Broadland, Norwich and South Norfolk*. Available at: https://www.south-norfolk.gov.uk/sites/default/files/JCS_Adopted_Version_Jan_2014.pdf [Accessed 3 November 2020]

Institution of Lighting Professionals (2020) *Guidance Note 01/20 for the reduction of obtrusive light* Available at https://theilp.org.uk/publication/guidance-note-1-for-the-reduction-of-obtrusive-light-2020/ [Accessed 3 November 2020]

Intergovernmental Panel on Climate Change (2014) *Climate Change 2014* [online]. Available at: https://www.ipcc.ch/report/ar5/wg2/ [Accessed 3 November 2020]

Landscape Institute (2017) *Townscape Character Assessment Technical information note 05/2017* [online]. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2018/04/tin-05-2017-townscape.pdf [Accessed 3 November 2020]

Landscape Institute (2019) *Technical Guidance Note 06/19 Visual Representation of development proposals* [online]. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf [Accessed 3 November 2020]

Landscape Institute (2019) Technical Guidance Note 02/19 Residential Visual Amenity Assessment (RVAA) [online]. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf [Accessed 3 November 2020]

Landscape Institute and IEMA (2002) *Guidelines for Landscape and Visual Impact Assessment, Second Edition*, London, Spon Press

Landscape Institute and Institute of Environmental Management and Assessment (IEMA) (2013) *Guidelines for Landscape and Visual Impact Assessment, Third Edition*, London, Spon Press

Land Use Consultants (2007) Breckland District Landscape Character Assessment [online]. Available at: https://www.breckland.gov.uk/media/2069/Landscape-Character-Assessment/pdf/Landscape_Character_Assessment_-_May_2007_Final2.pdf [Accessed 14 January 2021]

Land Use Consultants (2002) *Landscape Character Assessment Guidance for England and Scotland* [online] (3 November 2020). Available at: https://www.nature.scot/sites/default/files/2018-02/Publication%202002%20-%20Landscape%20Character%20Assessment%20guidance%20for%20England%20and%20Scotland.pdf [Accessed 3 November 2020]

Land Use Consultants (2018) *North Norfolk Landscape Character Assessment Draft Supplementary Planning Document* [online]. Available at: https://www.north-norfolk.gov.uk/media/4720/north-norfolk-landscape-character-assessment-2018-final-draft-spd.pdf [Accessed 3 November 2020]

Land Use Consultants (November 2018) *North Norfolk Landscape Sensitivity Assessment with particular reference to renewable energy and low carbon development* [online] Available at: https://www.north-norfolk.gov.uk/media/4721/north-norfolk-landscape-sensitivity-assessment-2018-final-draft-spd.pdf [Accessed 3 November 2020]

Land Use Consultants (June 2001) *South Norfolk Landscape Assessment* [online]. Available at: https://www.south-norfolk.gov.uk/residents/planning-and-building/planning-policy/landscape-character-assessments [Accessed 3 November 2020]

Marine Management Organisation (2012) *Seascape character area assessment: East Inshore and East Offshore marine plan areas* [online] Available at: https://www.gov.uk/government/publications/east-marine-plan-areas-seascape-character-assessment [Accessed 3 November 2020]

Marine Management Organisation (2019) *An approach to seascape sensitivity assessment (MMO1204)* [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/901068/MMO1204_An_Approach_to_seascape_sensitivity_assessment_for_publication_a.pdf [Accessed 3 November 2020]

National Trail (2020) *About the Trail* [online] (3 November 2020). Available at: https://www.nationaltrail.co.uk/en_GB/trails/peddars-way-and-norfolk-coast-path/ [Accessed 3 November 2020]

Natural England (2014) *An Approach to Landscape Character Assessment* [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691184/landscape-character-assessment.pdf [Accessed 3 November 2020]

Natural England (2019) *An Approach to Landscape Sensitivity Assessment* [online]. Available at: https://www.gov.uk/government/publications/landscape-sensitivity-assessment [Accessed 3 November 2020]

Natural England (n.d.) *National Character Areas* [online]. Available at: http://publications.naturalengland.org.uk/category/587130 [Accessed 3 November 2020]

Norfolk Climate Change Partnership (2008) *A Climate Change Strategy for Norfolk* [online] (3 November 2020). Available at: https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjQsNGy1-bsAhXRnFwKHZMkCq4QFjACegQIAhAC&url=https%3A%2F%2Fwww.norwich.gov.uk%2Fdownload%2Fdownloads%2Fid%2F1094%2Fnorfolkclimatechangestrategypdf.pdf&usg=AOvVaw11URjbve_obXEO0dzYSu6h [Accessed 3 November 2020]

Norfolk Coast Partnership (2009) *Norfolk Coast AONB Integrated Landscape Guidance* [online]. Available at: http://www.norfolkcoastaonb.org.uk/mediaps/pdfuploads/pd000812.pdf [Accessed 3 November 2020]

Norfolk Coast Partnership (2014) *Norfolk Coast Area of Outstanding Natural Beauty Management Plan Strategy 2014-19* [online]. Available at: http://www.norfolkcoastaonb.org.uk/mediaps/pdfuploads/pd005040.pdf [Accessed 3 November 2020]

Norfolk Coast Partnership (2019) *The Norfolk Coast Area of Outstanding Natural Beauty Five Year Strategy 2019-2024* [online]. Available at: *http://www.norfolkcoastaonb.org.uk/mediaps/pdfuploads/pd005028.pdf* [Accessed 3 November 2020]

Norfolk Landscape Archaeology (2009) *Norfolk Historic Landscape Character – a Report on the Norfolk Historic Landscape Characterization Project* [online]. Available at:

http://www.norfolkcoastaonb.org.uk/mediaps/pdfuploads/pd000813.pdf [Accessed 3 November 2020]

North Norfolk District Council (September 2008) *North Norfolk Local Development Framework Core Strategy: Incorporating Development Control Policies* Available at: https://www.north-norfolk.gov.uk/media/1370/3-_core_strategy_-incorporating_development_control_policies-_adopted_2008_-updated_2012.pdf [Accessed 3 November 2020]

Scottish Natural Heritage (2012) *Offshore Renewables – guidance on accessing the impact on coastal landscape and seascape Guidance for Scoping an Environmental Statement* [online]. Available at: https://www.nature.scot/sites/default/files/2018-11/Guidance%20-%20Offshore%20Renewables%20-%20assessing%20the%20impact%20on%20coastal%20landscape%20and%20seascape%20-%20Guidance%20for%20scoping%20an%20Environmental%20Statement.pdf [Accessed 3 November 2020]

Scottish Natural Heritage (2017) *Visual Representation of Wind Farms: Guidance* [online]. Available at:

https://www.nature.scot/visual-representation-wind-farms-guidance [Accessed 3 November 2020]

South Norfolk District Council (Adopted October 2015) *South Norfolk local Plan Development Management Policies Document* Available at: https://www.south-norfolk.gov.uk/sites/default/files/Development_Management_Policies_Document_0.pdf [Accessed 3 November 2020]

The Crown Estate (2015) *Public Perceptions of Offshore Wind Farms* [online] (3 November 2020). Available at: https://www.offshorewindindustry.com/sites/default/files/public_perceptions_the_crown_estate.pdf [Accessed 3 November 2020]

The East of England Landscape Framework (2011) *Integrated landscape assessment across the East of England region* [online]. Available at: http://landscape-east.org.uk/resources [Accessed 3 November 2020]

The Planning Inspectorate (2018) *Advice Note Nine: Rochdale Envelope* [online]. Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/05/Advice-note-9.-Rochdale-envelope-web.pdf [Accessed 3 November 2020]

The Planning Inspectorate (2019) Scoping Opinion Proposed Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions Case Reference: EN010109

UK Legislation (2006) *Section 99 of the Natural Environment and Rural Communities Act 2006 Section 99* [online]. Available at:

https://www.legislation.gov.uk/ukpga/2006/16/section/99

[Accessed 3 November 2020]

UK Legislation (2013) *Section 114 of the National Parks and Access to the Countryside Act 1949* [online]. Available at: https://www.legislation.gov.uk/ukpga/Geo6/12-13-14/97/section/114 [Accessed 3 November 2020]

UK Legislation (2017*) Regulation 8 of the of the Conservation of Habitats and Species Regulations 2017* [online]. Available at: https://www.legislation.gov.uk/uksi/2017/1012/regulation/8/made [Accessed 3 November 2020]