

Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Impacts on the Qualities of Natural Beauty of Norfolk Coast Area of Outstanding Natural Beauty

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Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

Table of Contents

1	IMPACTS ON THE QUALITIES OF NATURAL BEAUTY OF THE NORFOLK COAST AREA OF					
	OUTSTANDING NATURAL BEAUTY	7				
1.1	Introduction	7				
1.2	Background	7				
1.3	Norfolk Coast Area of Outstanding Natural Beauty Management Plan Strategy: 2014 – 19'	8				
1.4	Summary of the Qualities of Natural Beauty of the Norfolk Coast AONB	10				
1.5	Assessment of Qualities of Natural Beauty in the AONB Strategy	11				
1.6	Potential Impacts of SEP and DEP on the Norfolk Coast AONB QNB	11				
1.7	Assessment of the potential impacts on QNBs of the NCAONB	30				
Dofor	nnece	2.4				

Figures

Figure 1 Location Plan

Figure 2 Location Plan Detail

Page 3 of 34



Page 4 of 34

An Assessment of the Impacts on the Qualities of Natural Beauty of Norfolk Coast AONB

Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

Glossary of Acronyms

AONID	A (O) () N () D (
AONB	Area of Outstanding Natural Beauty
BNG	Biodiversity Net Gain
CROW	Countryside and Rights of Way Act 2000
DCO	Development Consent Order
DEP	Dudgeon Offshore Wind Farm Extension Project
DOW	Dudgeon Offshore Wind Farm
EIA	Environmental Impact Assessment
ES	Environmental Statement
HDD	Horizontal Directional Drilling
Km	Kilometre
LCA	Landscape Character Area
LCT	Landscape Character Type
MP	Management Plan
NSP	National Policy Statements
NSIP	Nationally Significant Infrastructure Project
NCAONB	Norfolk Coast Area of Outstanding Natural Beauty
NCP	The Norfolk Coast Partnership
QNB	Qualities of Natural Beauty
SEP	Sheringham Offshore Wind Farm Extension Project
SSSI	Site of Special Scientific Interest



Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

Glossary of Terms

Dudgeon Offshore Wind Farm Extension site Dudgeon Offshore Wind Farm Extension Project (DEP) Order limits The Dudgeon Offshore Wind Farm Extension site as well as all onshore and offshore infrastructure. The area subject to the application for development consent, including all permanent and temporary works for DEP and SEP. Horizontal directional drilling (HDD) zones Integrated Grid Option Transmission infrastructure which serves both extension projects. Jointing bays Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts. Landfall The point at the coastline at which the offshore export cables are brought onshore and connected to the onshore export cables. 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) 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) 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) Offshore substation platform A fixed structure located within the wind farm area, containing electrical equipment to aggregate the						
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· ·	Offshore export cables	offshore substation platform(s) to the landfall. 220 -				
	Offshore substation platform	•				



Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

	power from the wind turbine generators and convert it into a more suitable form for export to shore.		
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 export cables	The cables which would bring electricity from the landfall to the onshore substation. 220 – 230kV.		
Onshore Substation	Compound containing electrical equipment to enable connection to the National Grid.		
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)		
Study area	Area where potential impacts from the project could occur, as defined for each individual EIA topic.		
Sheringham Shoal Offshore Wind Farm Extension site	Sheringham Shoal Offshore Wind Farm Extension lease area.		
Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Shoal Offshore Wind Farm Extension site as well as all onshore and offshore infrastructure.		
The Applicant	Equinor New Energy Limited.		
Transition joint bay	Connects offshore and onshore export cables at the landfall. The transition joint bay will be located above mean high water.		

Page 6 of 34



Rev. no.2

1 IMPACTS ON THE QUALITIES OF NATURAL BEAUTY OF THE NORFOLK COAST AREA OF OUTSTANDING NATURAL BEAUTY

1.1 Introduction

- This report has been prepared on behalf of the Applicant, 'Equinor New Energy Limited', in support of the application for a Development Consent Order (DCO) of the proposed Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP).
- This purpose of this report is to set out how the key qualities of natural beauty (QNB) of the Norfolk Coast Area of Outstanding Natural Beauty (NCAONB) could be affected as a consequence of construction and operation of the SEP and DEP. This is achieved by drawing together the conclusions of relevant assessments (undertaken for the **Environmental Statement** (**ES**) (document reference 6.1)) into a single report. This matter is also discussed in the **Planning Statement** (document reference 9.1), with specific reference to the policy position.

1.2 Background

Statutory Framework

The statutory framework for protected landscapes in England was first established in the National Parks and Access to the Countryside Act 1949 (NPAC 1949). The legislation has been amended and added to many times since then. Today, land to be included in an Area of Outstanding Natural Beauty (AONB) must meet the statutory designation criteria that are set out in the Countryside and Rights of Way Act 2000. Section 82(1) of the Countryside and Rights of Way Act 2000 defines an AONB in England as an area that is not in a National Park, but which appears to Natural England to be of such outstanding natural beauty that it is desirable that the protective provisions of Part IV of Countryside and Rights of Way Act 2000 should apply to it for the purpose of conserving and enhancing the area's natural beauty.

National Policy Statements

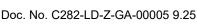
National Policy Statements (NPS), which form the principal decision-making documents for Nationally Significant Infrastructure Projects (NSIPs), afford protection to nationally designated landscapes, such as the NCAONB. Those NPS of relevance to this report includes:

Overarching NPS for Energy (EN-1) (Department of Energy and Climate Change (DECC) 2011a); and

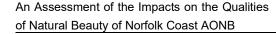
NPS for Renewable Energy Infrastructure (EN-3) (DECC 2011b).

- During the course of the Project, updates to relevant NPS were published (in draft) for consultation in September 2021 by the Department for Business Energy and Industrial Strategy (BEIS). A review of these documents shows that for a number of the current NPS, no additional requirements have been proposed with respect to protection of designated landscapes.
- With regard to nationally recognised designations, which included AONBs, the revised draft NPS EN-3 states [inter alia]:

Page 5 of 5



equinor



Rev. no.2

- "In sites with nationally recognised designations (SSSIs, National Nature Reserves, National Parks, the Broads, Areas of Outstanding Natural Beauty, Registered Parks and Gardens, and Marine Conservation Zones), consent for renewable energy projects should only be granted where the relevant tests in Sections 5.4 and 5.10 of EN-1 are met 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. The Secretary of State should have regard to the aims and goals of the government's 25 Year Environment Plan and other existing and future measures and targets in England, including under the new strategy for nature."
- The **ES**, alongside other documents supporting the DCO application, addresses the tests set out in Section 5.4. and 5.10 of EN-1, identifying all significance adverse effects on relevant national designations. The purpose of this report, as set out in paragraph 2, is to draw together and present the conclusions of all relevant topic assessments that have considered the potential impacts of SEP and DEP on the QNBs of the NCAONB.

1.3 Norfolk Coast Area of Outstanding Natural Beauty Management Plan Strategy: 2014 – 19'

- 9 The importance and value attached to the Norfolk Coast landscape was reflected by its designation, in 1968, as an AONB as well as by the separate definition in 1975 of a more limited part of the area as a Heritage Coast. The 'Norfolk Coast Area of Outstanding Natural Beauty Management Plan Strategy: 2014 19' (AONB MP) was published by The Norfolk Coast Partnership in January 2014¹. In February 2022, the Norfolk Coast Partnership confirmed with the Applicant that the AONB MP (2014 19) is the current plan for the NCAONB details of this consultation are set out in Chapter 26 Landscape and Visual Impact Assessment (document 6.1.26) of the ES. Figure 1 shows the designated areas in relation to proposals.
- The AONB MP defines seven QNB for the NCAONB, as summarised in **Section** 1.4.
- The primary purpose of the AONB MP is, as stated on page 5, for the "...use by the members of the Norfolk Coast Partnership to inform, guide and influence their activities within the area, though it is hoped that other individuals and organisations may also find it of interest and use."
- 12 It sets out key information for the AONB, providing relevant background information to the AONB MP and its context in Section 2: Setting the Scene, including:

How the AONB was created, and which organisations have duties within the area. (Section 2.1: Designation and management – the statutory background);

The structure, role and funding of the Norfolk Coast Partnership and its activities and how the AONB interacts with other designations and organisations in the area. (Section 2.2: Managing the area); and

The role and structure of the MP, who should use it and how it should be used. (Section 2.3: How to use the management plan)

Page 5 of 5

Classification: Open Status: Final

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Rev. no.2

Section 3 considers what makes the area unique, the current state of its natural beauty and key drivers of change acting on it.

Section 3.1 describes the combination of characteristics that make the area special and distinguish it from other places and summarises the key QNB that make the area unique and worthy of designation.

Section 3.2 provides a summary assessment of the condition of the area's QNB. Section 3.3 describes drivers of change experienced by the area – a range of environmental, economic, social and political influences that are acting, or may affect the area's QNB.

- Section 4 sets out themes, objectives and policies for the NCAONB; with Section 5 detailing how the management plan will be monitored and reviewed.
- The NCAONB is divided into three discrete geographical areas (west, central and east) as illustrated on **Figure 1** and described in **Table 1-1**.

Table 1-1: NCAONB areas and distances from SEP and DEP

NCAONB area	Distance from SEP offshore wind farm site	Distance from DEP offshore wind farm site	Distance from onshore cable corridor	Distance from onshore substation
West Lies on the Norfolk coast and inland north of Kings Lynn	Approx. 52km	Approx. 71km	Approx. 42.5km	Approx. 56.5km
Central Lies on the north Norfolk coast and inland between Hunstanton and Paston. Part of this area lies within the North Norfolk Heritage Coast.	Approx. Approx. orth 16km 27.5km and en and of this in the		The onshore cable corridor passes through the central area, between Weybourne on the coast and north-east of Bodham, as shown in Figure 2.	Approx. 33km
East Lies on the Norfolk coast south of Sea Palling. Part of this area lies within the Norfolk Broads National Park.	Approx. 40.5km	Approx. 41.5km	Approx. 27.5km	Approx. 31km

- Due to distances from the east and west sections of the NCAONB, SEP and DEP would only have potential to affect the central section of the NCAONB.
- 17 Effects on the western and eastern sections of the NCAONB are scoped out of Chapter 25 Seascape and Visual Impact Assessment (document 6.1.25) and Chapter 26 Landscape and Visual Impact Assessment (document 6.1.26) of the ES. Effects on the central section of the NCAONB are assessed in detail in Chapter 25 Seascape and Visual Impact Assessment (for the offshore works) and Chapter 26 Landscape and Visual Impact Assessment (for the onshore works) of the ES.



Rev. no.2

The NCAONB extends to the mean low water tide level. **Figure 2** shows a greater level of detail for the central section where the project crosses the central section of the AONB.

1.4 Summary of the Qualities of Natural Beauty of the Norfolk Coast AONB

19 Seven QNB are identified and documented within the AONB MP (section 3.1) as follows:

1. Dynamic character and geomorphology of the coast

Movement and interchange of internationally recognised geomorphological features and habitats.

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.

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.

4. Exceptionally important, varied and distinctive biodiversity, based on locally distinctive habitats

Recognised by a range of national and international designations. Coastal habitats are particularly important and most famous for birds, supporting iconic species. Inland habitats and species are also important, particularly lowland heath.

5. Nationally and internationally important geology

Mainly based on past glaciation and current coastal processes. Includes landforms and landscape scale features as well as individual sites.

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.

7. Richness of archaeological heritage and historic environment, particularly that relating to the coast and its character

Evidence and features of human use of the area since prehistoric times and links to current uses and features.

Page 5 of 5



Page 5 of 5

An Assessment of the Impacts on the Qualities of Natural Beauty of Norfolk Coast AONB

Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

1.5 Assessment of Qualities of Natural Beauty in the AONB Strategy

An assessment of the condition of QNB for the entire extent of the AONB was undertaken by the Norfolk Coast Partnership in November 2012 and presented in as an appendix to the AONB MP² and summarised in Section 3.2 of the AONB MP. The assessments of the condition of each QNB are rated as follows:

GREEN – quality is being conserved and enhanced;

AMBER - some grounds for concern; and

RED – quality is not being conserved and enhanced.

1.6 Potential Impacts of SEP and DEP on the Norfolk Coast AONB QNB

21 . **The** information contained in **Table 1-2** draws from the assessments undertaken within relevant ES chapters, presenting the key conclusions of their assessments in relation to the QNBs.

² Norfolk Coast Area of Outstanding Natural Beauty, Management Plan 2014 – 19. Public Consultation Draft, January 2014. Appendix: Assessment of Qualities of Natural Beauty



Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

Table 1-2 presents an assessment of the effects on each QNB that would occur as a result of construction and operation of SEP and DEP, for both offshore and onshore components. The information contained in **Table 1-2** draws from the assessments undertaken within relevant ES chapters, presenting the key conclusions of their assessments in relation to the QNBs.



Rev. no.2

Table 1-2 Potential Impact on the Qualities of Natural Beauty of the Norfolk Coast AONB

¹ From Section 3.2 of the AONB MP prepared by the Norfolk Coast Partnership. ² The Applicant's assessment.

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
QNB 1. Dynamic character and geomorphology of the Movement and interchange of internationally recognised g		ures and habitats.		
Some form of flood defences exist for much of the 'low' coast from the western outlier to Weybourne but extensive marshes, mud and sand flats in front of sea banks means that the coast is extensively subject to change through the action of natural forces and coastal processes at present, maintaining the existing range of dynamic coastal geomorphological features and coastal habitats. Realignment schemes and sympathetic management changes have taken place and the future trend is likely to be continued realignment. Extensive stretches of the cliffed coastline are able to erode and change naturally, maintaining a dynamic variety of habitats and providing vital sediment for beaches down-drift. Major settlements are protected by hard defences, which are likely to remain for the foreseeable future and constrain coastal change in these locations. Away from settlements the current and future trend is for reduced defence.	Green	Green	The use of a Horizontal directional drilling (HDD) technique (or other trenchless techniques) at the landfall (which extends approximately 1,000m offshore in the subtidal) will avoid direct impact on the coastline. Therefore, the dynamic character and geomorphology of the coast would be unaffected and maintained. Erosion would continue as a natural phenomenon, driven by waves and subaerial processes, the QNB's condition would not be affected as a result of the construction of SEP and DEP. It is therefore assessed that the QNB's condition would remain "Green – quality being conserved and enhanced". Further detail on the landfall works is provided in Section 4.5 of Chapter 4 Project Description (document reference 6.1.4), and Chapter 6 Marine, Geology, Oceanography and Physical Processes (document reference 6.1.6)	
QNB 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.				
Ecological links are generally sound. A few species depending on both land and sea are under pressure,	Green	Amber	Landscape and Visual Resources – Offshore During construction, visibility of a range of construction	

Doc. No. C282-LD-Z-GA-00005 9.25

Page 13 of 34 Classification: Open Status: Final



Doc. No. C282-LD-Z-GA-00005 9.25 Rev. no.2

Coast AONB Rev.

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
although not necessarily because ecological links are failing. Intertidal areas are a key component in the area's biodiversity and landscape / seascape character. Coastal wildlife and seascapes are strong factors in the local tourism industry. Economic and social links with the sea remain strong, although different in emphasis from the past. Many local people maintain an active involvement with the coast e.g. through recreational activities such as sailing, through the 'longshore economy', including common rights (for example shellfish and samphire gathering), although wildfowling has decreased with increasing numbers of visitors. The local fishing industry, although employing few people, is relatively stable and continues to constitute a part of the area's character. Coastal water quality and the quality of beaches is generally good, providing a suitable environment for coastal recreation and bringing large numbers of visitors at peak times. Panoramic coastal views and seascapes remain distinctive in character, although the wilderness quality of the seascapes of the North Norfolk Heritage Coast has been affected recently by the development of offshore wind farms, with additional wind farm consented (see QNB 6).			activities would be possible, including the installation of the offshore substation(s) and wind turbines; and a variety of construction vessels carrying cranes and other equipment. This would result in some short term, temporary impacts on views from the NCAONB, seen in the context of existing offshore wind farms and other offshore activity and infrastructure including shipping and oil and gas platforms. As a result of the construction of SEP and DEP, it is assessed that the QNB's condition would remain "Amber – some grounds for concern". During operation, the presence of SEP and DEP would affect views from land (within the AONB) to sea (outside the AONB), although current panoramic coastal views are already influenced by existing offshore wind farms, which affect the seascape and its wilderness quality. The assessment of the condition of the area's natural beauty in section 3.2 of the AONB MP states: "Panoramic coastal views and seascapes remain distinctive in character, although the wilderness quality of the seascapes of the North Norfolk Heritage Coast has been affected recently by the development of offshore wind farms, with additional wind farms consented (see QNB 6)." The operation of SEP and DEP would result in impacts on this QNB, that would be of a moderate significance and adverse, as whilst there is visible presence of other wind farm sites that already affect the existing views, SEP and DEP would introduce	

Page 14 of 34



Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
			additional wind turbines into seascape views which would be discernibly larger and more widely spaced compared to the existing offshore wind turbines, increase the spread of wind turbines across views, and introduce additional lighting at night. It is therefore assessed that the QNB's condition would remain "Amber – some grounds for concern". Landscape and Visual Resources – Onshore Views between land (within the AONB) and sea (outside the AONB), would be affected for a temporary short-term duration while landfall works and the northern section of the onshore cable corridor are being constructed. There are no hedgerows or trees close to the coast that are likely to be removed so all impacts would be short-term and temporary. Further inland, the onshore cable corridor has been designed to avoid the crossing of woodlands and areas/groups of trees where possible. This 'mitigation by design' approach has been developed with consideration to a number of constraints, including ecology and landscape. Where this is not possible, all significant woodlands within the NCAONB would be retained where they lie within the cable corridor, by utilising trenchless crossing techniques. The only exception is where an HDD (or other trenchless crossing techniques) launch and reception pit (approximately 50m x 100m area) and access road would be required within Weybourne Wood to allow the	

Page 15 of 34

Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
			trenchless crossing and installation of the cables, where coniferous plantation trees would be permanently removed and the land re-instated to a suitable habitat agreed with the landowner. This area is enclosed within the larger extent of Weybourne Wood and is unlikely to be visible in views between land and sea. With regards to hedgerows, their removal has been minimised in so far as practically possible. Where necessary, the length of removal would range between 12m – 40m of the corridor width, dependent on the construction activities required at the location. Where hedgerows are removed, they would be replanted in the first planting season following the completion of entire construction of the cable installation works, of either DEP or SEP (subject to landowner agreements), whether constructed concurrently or sequentially. Given the limited spatial extent of this part of the onshore cable corridor in relation to the AONB and the nature of potential impacts (i.e. short-term construction activity followed by landscape reinstatement) it is unlikely that changes to views between land and sea due to the construction of the onshore cable corridor would undermine this QNB. Impacts on the QNB, as a result of the onshore components of SEP/DEP, impacts would be at most slight significance and adverse. It is assessed therefore that the QNB's condition would remain "Amber – some grounds for concern".	

Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
			Onshore Ecology and Ornithology As presented in Chapter 20 Onshore Ecology and Ornithology (document reference 6.1.20), onshore activities associated with SEP and DEP within the AONB, would result in short-term impacts on the ecological linkages as a result of temporary disturbance to birds and severance of linear habitats such as hedgerows. Impacts on hedgerows are predicted to be minor adverse without the implementation of appropriate mitigation measures. Through the implementation of appropriate mitigation measures, i.e. replanting removed hedgerows on a like for like basis as a minimum, it is predicted that the residual impacts would be negligible. However, opportunities to replant removed hedgerows with a more species-rich planting specification will be explored but are subject to agreements with landowners. Where these opportunities will be possible, it is predicted there will be a minor beneficial impact once the replacement planting has established. The predicted impacts on habitat severance for species such as, but not limited to, great crested newts (terrestrial habitat only), reptiles, bats and badgers range between moderate, minor and negligible adverse significance. However, through the implementation and adherence to appropriate mitigation measures, these	

Page 17 of 34



Doc. No. C282-LD-Z-GA-00005 9.25

Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
			predicated impacts would be mitigated in the short-term and unlikely to result in long-term impacts. Through the implementation of the mitigation measures no long-term or permanent impacts on ecological receptors are predicted, either directly or indirectly. Through the implementation of the proposed landscape reinstatement planting scheme (as set out in the Outline Landscape Management Plan, (document reference 9.18)), no long-term or permanent impacts on ecological connectivity are predicted. It is therefore assessed that the QNB's condition would remain "Amber – some grounds for concern". It should be noted that impacts on the intertidal zone will be completely avoided through the use of a long HDD to bring the offshore export cables to shore. Socio-economics and Tourism As presented in Chapter 27 Socio-economics and Tourism (document reference 6.1.27), the baseline data collected identifies that the AONB is an important area in terms of attracting visitors to the North Norfolk coast. Many visitors to the area enjoy the beaches, coastal birdlife, and the character and tranquillity of the AONB. A number of seaside towns contain several attractions and act as a focus for visitors and accommodation, particularly around Cromer and Sheringham. In particular, Sheringham attracts visitors throughout the year (i.e. on day trips, short breaks and/	

Page 18 of 34



Coast AONB Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
			or longer stays) and has a range of accommodation options ranging from high quality hotels to budget and self-catering accommodation. The socio-economic impact assessment largely finds there will be no significant impacts on the AONB, however, the assessment of the impact of onshore construction on volume and value of tourism activity from landfall and onshore up to the edge of Weybourne found there would be up to a moderate adverse effect on the receptor. On balance, it is assessed that the QNB's condition would remain "Amber – some grounds for concern".	
QNB 3. Diversity and integrity of landscape, seascape Key quality is based on maintaining diversity of character building materials and styles			, including landscapes and seascapes, settlement pattern,	
Since designation in the 1960s some significant developments in the area have adversely affected the character of parts of the Norfolk Coast, mainly the A149 bypass in the western parts of the area and the expansion of some settlements outside or on the border of the AONB into the designated area — principally in the Cromer-Sheringham-Holt triangle. Considerable development has taken place on the edge of the AONB, either straddling or just outside the boundary. Bacton Gas Terminal was anticipated at the time of designation and the boundary drawn on its anticipated western edge; the terminal exerts a strong influence on the character of this part of the area. Boundary settlements where particularly significant	Amber	Amber	Landscape and Visual Resources – Offshore The proposed wind farm sites would not directly affect the character of landscape character areas (LCA) or landscape character types (LCT) within the NCAONB, and only potentially affect them indirectly by affecting views of the seascape from them. Chapter 25 Seascape and Visual Impact Assessment of the ES (document reference 6.1.25) concludes that construction and operation of SEP and DEP would not lead to any significant impacts on landscape character, with the greatest impacts being of slight significance and adverse on coastal LCAs OCM1, DCM2 and CS1 (SEP) and CS1 (DEP) during operation. During construction impacts on all LCAs and LCTs would be	

Doc. No. C282-LD-Z-GA-00005 9.25

Page 19 of 34

Classification: Open Status: Final



Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
expansion has occurred include Dersingham, Snettisham, Heacham and the Woottons in the western part of the area; Holt, Sheringham and Cromer in the northern part of the area – although most boundary settlements have expanded noticeably. These have some impact on the setting of the AONB as well as adding to recreational pressures. Within the AONB settlements have generally expanded to some extent, although designation of the cores of most AONB settlements as Conservation Areas has helped to maintain the character of these areas. Growth has not necessarily had a significant effect on the area's character in itself, although insensitive changes to building and settlement character from building alterations / extensions and security lighting are a concern. The wilderness character of seascapes on a large proportion of the undeveloped coast, principally the North Norfolk Heritage Coast, has been adversely affected by the development of offshore wind farms. Otherwise in the wider coast and countryside of the Norfolk Coast, diversity and integrity of character has remained relatively conserved, although agricultural production has generally intensified in line with national trends. Recent changes having a minor effect on character include agricultural irrigation reservoirs (relatively few) and onshore wind farms (none recently approved in the AONB, although some outside the area will be visible to some extent).			negligible. It is therefore assessed that the QNB's condition would remain "Amber – some grounds for concern". Landscape and Visual Resources – Onshore Chapter 26 Landscape and Visual Impact Assessment (document reference 6.1.26) of the ES concludes that, during construction, works would lead to short term impacts 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's permanent easement (20m wide if both SEP and DEP are constructed and 10m 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. The only area within the NCAONB where this is likely to occur is Weybourne Wood as described under QNB 2 above within this table. Relatively small-scale permanent removal of trees and woodland, and replacement with an appropriate alternative land use / habitat, would have limited impacts on landscape character in the context of the extensive existing woodland and trees within the landscape.	

Doc. No. C282-LD-Z-GA-00005 9.25

Page 20 of 34



Doc. No. C282-LD-Z-GA-00005 9.25

Page 21 of 34

Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
			The diversity of character types, settlement patterns and building materials and styles would not be affected, and the offshore and onshore proposals would not undermine this QNB. Impacts, as a result of the onshore components of SEP/DEP, would be at most of a slight significance and adverse. It is therefore assessed that the QNB's condition would remain "Amber – some grounds for concern".	

QNB 4. Exceptionally important, varied and distinctive biodiversity, based on locally distinctive habitats

Recognised by a range of national and international designations. Coastal habitats are particularly important and most famous for birds, supporting iconic species. Inland habitats and species are also important, particularly lowland heath.



Doc. No. C282-LD-Z-GA-00005 9.25 Rev. no.2

Coastal nature reserves in the area were amongst the first to be established so sympathetic management by conservation organisations has long been in place 95% of the area's Sites of Special Scientific Interest (SSSI), comprising approx 27% in total of the area, are in good condition, comparing very favourably with other AONBs and national parks in general.

other AONBs and national parks in general. Populations of most high profile, characteristic bird species are stable or increasing at present. Some of the relatively few exceptions are affected by pressure from coastal visitors, although this is not the only factor.

50% of the area is covered by Environmental Stewardship agreements, including 29% of the area's Biodiversity Action Plan (BAP) habitats.

The benefits of this on biodiversity in the wider countryside of the area are not quantified, however. Statistically valid data on farmland bird populations, a useful high-level indicator, are not available for the AONB although individual species such as turtle dove, for which the Norfolk Coast has been known as something of a stronghold, are known to be much reduced in line with national trends.

Assessment of the ecological status of the area's rivers under the Water Framework Directive suggests that 17% of their lengths are in poor condition, over 80% in moderate condition although initiatives are in progress to address these issues.

Green For designated sites

Green For designated sites

Through the SEP and DEP site selection and route refinement process, the onshore cable route has avoided, wherever possible, direct impacts on designated sites as detailed within **ES Chapter 3 Site Selection and Alternatives** (document reference 6.1.3). In instances where this has not been possible, trenchless crossing techniques, i.e. HDD, will be used. The majority of SEP and DEP falls within arable land, although there are more ecologically valued habitats present such as, but not limited to, woodlands, hedgerows and watercourses that are crossed by the buried cables.

SEP and DEP have committed to the use of trenchless. crossings to cross all major watercourses and large areas of woodland as well as particular hedgerows along its onshore cable route, this is detailed in ES **Chapter 4 Project Description** (document reference 6.1.4) and specifically Figure 4.10 Onshore Project **Area** (document reference 6.2.4). For those hedgerows that will not be crossed using trenchless crossings, i.e. will be crossed using an open cut trenching and in part removed, the width of the construction corridor will be reduced down to 10m (single project) or 20m (two projects). Removed hedgerows would be replanted in the first planting season following the completion of entire construction of the cable installation works, of either SEP and DEP. As a minimum, all removed hedgerows will be replanted on a like for like basis. However, opportunities to replant removed hedgerows with a more species-rich planting specification will be explored but are subject to agreements with landowners. With these measures in place residual impacts on hedgerows were assessed as no greater than minor adverse significance, and where a more species rich planting specification can be agreed, the residual impact may improve to minor beneficial. Refer

Doc. No. C282-LD-Z-GA-00005 9.25 Rev. no.2

to ES Chapter 20 Onshore Ecology and Ornithology. (document reference 6.1.20) It is therefore assessed that the QNB's condition would remain "Green – conserved and enhanced" and "Amber – some grounds for concern" (where applicable).

Ornithology surveys undertaken to date have shown areas of arable fields as being used by farmland bird species. Whilst these areas (and in turn the species known to use them) would be affected by SEP and DEP (i.e. disturbance and/or displacement), it is predicted that this will be only on a temporary and short-term basis given that these habitats would be reinstated following completion of all construction works within that area. Residual impacts to farmland bird species, during construction, were assessed as negligible to minor adverse significance, refer to ES Chapter 20 **Onshore Ecology and Ornithology (document** reference 6.1.20). It is assessed that the QNB's condition would remain "Green - conserved and enhanced" and "Amber – some grounds for concern" where applicable.

SEP and DEP include opportunities to deliver Biodiversity Net Gain (BNG) and therefore through the implementation of these opportunities, no significant impacts (in EIA terms) are predicted. Further details on the approach to BNG is set out in **Appendix 9.19.2** of the **Outline Ecological Management Plan** (document reference 9.19).

Following the implementation of the control measures, as outlined in **Appendix 18.1 Water Framework**Directive Compliance Assessment (document reference 6.3.18.1), there will be no activities that have the potential to cause non-temporary impacts to the status of any river bodies assessed.



Doc. No. C282-LD-Z-GA-00005 9.25

Coast AONB Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
	Amber For wider countryside	Amber For wider countryside		
QNB 5. Nationally and internationally important geology Mainly based on past glaciation and current coastal processes. Includes landforms and landscape scale features as well as individual sites.				
At least partly because of the relatively undeveloped nature of the area, large-scale geological formations, features and landforms are largely intact and visible in the landscape, and most are accessible. Coastal geomorphological features are dynamic and	Green	Green	There are no direct overlaps between the landfall location or onshore cable corridor and any designated geological SSSI sites. Therefore, no direct physical impacts are anticipated to occur to designated geological SSSI sites as a result of SEP and DEP.	

Page 24 of 34



Classification: Open

Coast AONB Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
internationally known as classic examples (see QNB1). Individual sites are mostly the result of extractive activity, now almost all inactive. Many of these provide sites for geological record and study although not all are accessible or in good condition, and few have interpretation. A review of the Norfolk Local Plan and Norfo Geodiversity Partnership has also identified regionally important geological sites within the limits or within 250m. Details on the designated geological sites located with the Order limits, indirect impacts to these fear also not anticipated to occur as a result of SE DEP. A review of the Norfolk Local Plan and Norfo Geodiversity Partnership has also identified regionally important geological sites within the limits or within 250m. Details on the designated geological sites located with the Order limits, indirect impacts to these fear also not anticipated to occur as a result of SE DEP. A review of the Norfolk Local Plan and Norfo Geodiversity Partnership has also identified regionally important geological sites within the limits or within 250m. Details on the designated geological sites located with the Order limits, indirect impact sate also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result of SE also not anticipated to occur as a result		A review of the Norfolk Local Plan and Norfolk Geodiversity Partnership has also identified no regionally important geological sites within the Order		
QNB 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.				
Given the amount of development in and bordering the AONB since designation in 1968, the population both in and close to has clearly increased significantly, although it is still arguably of low density compared with lowland England as a whole.	Amber	Amber	Landscape and Visual Resources – Offshore A detailed assessment of the impacts of this QNB is presented in Chapter 25 Seascape and Visual Impact Assessment of the ES, (document reference 6.1.25)	

Doc. No. C282-LD-Z-GA-00005 9.25

Page 25 of 34

Status: Final



Coast AONB Rev. no.2

	Assessment of	QNB's Condition ¹	
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²
Recent trends suggest a slight reduction in the population of some coastal parishes, possibly because of second / holiday homes. This may contribute to a sense of tranquillity but also has negative impacts on local services and communities and increases the pressure for developments including affordable housing. Visitor numbers have increased significantly since designation and pressures arising from this were the main reason given for the foundation of the Norfolk Coast Project in the early 1990s. Evidence for the last five years suggests that visitor figures are stable, with a large difference between peak and low season numbers on the coast. Most of the area has been objectively assessed as tranquil or very tranquil in a 2006 national study by CPRE, with western and eastern outliers and the North Norfolk Heritage Coast being the most tranquil areas, although the study has not been repeated to enable an assessment of trends. Recent night sky surveys show dark skies away from the larger settlements of a quality to compare with areas that have been certified as 'dark sky reserves', although no data is yet available to show trends. Recent development of wind farms off the north Norfolk coast have had a significant negative impact on the wilderness quality of the undeveloped coast, as noted by local observers.			including impacts on the sense of remoteness, tranquillity and wildness. During construction and operation, the only aspect of this QNB that SEP and DEP would have potential to affect is views from land within the AONB to the sea outside the AONB. SEP and DEP would affect the sense of remoteness, tranquillity and wildness of parts of the AONB by affecting views of the seascape from parts of the AONB by introducing additional wind turbines that would be discernibly larger and more widely spaced compared to the existing offshore wind turbines. However, offshore wind farms are, already visible from the AONB, and at night in clear conditions, SEP and DEP navigation and aviation safety lighting would be visible from the parts of the AONB, in addition to existing lighting visible offshore, including lighting on buoys, boats, ships, gas rigs and existing offshore wind farms. The SEP and DEP navigation and aviation safety lighting would be visible close to the horizon, but would not create any additional 'skyglow', and would not affect views looking up at the expansive skies, 'dark night skies' or constellations visible from the NCAONB. The proposed wind farm sites would not directly affect the sense of remoteness, tranquillity and wildness but, by affecting views of the seascape from the AONB, would indirectly affect these qualities from some areas of the AONB to a degree, resulting impacts that would

Doc. No. C282-LD-Z-GA-00005 9.25



An Assessment of the Impacts on the Qualities of Natural Beauty of Norfolk	Doc. No. C282-LD-Z-GA-00005 9.25
Coast AONB	Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
			be of a moderate significance and adverse. It is therefore assessed that the QNB's condition would remain "Amber – some grounds for concern". Landscape and Visual Resources – Onshore Construction works would lead to a temporary reduction in remoteness, tranquillity and wildness 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 affect the remoteness, tranquillity and wildness close to the coast. Construction lighting may result in temporary impacts on the dark sky quality of a very localised area within the AONB. Construction lighting would generally only be used in times of low light, be task orientated and directional to minimise light spill to the local area. DEP and SEP may lead to a temporary short-term change in this QNB within a small part of the AONB during construction, although following completion of construction this would not be affected. Impacts on this QNB, as a result of SEP and DEP, would be at most of a slight significance and adverse. It is assessed therefore that the QNB's condition would remain "Amber – some grounds for concern".	

QNB 7. Richness of archaeological heritage and historic environment, particularly that relating to the coast and its character Evidence and features of human use of the area since prehistoric times and links to current uses and features.



Doc. No. C282-LD-Z-GA-00005 9.25

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Coast AONB		Rev. no.2

Assessment of QNB's Condition ¹			
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²
Of the large number of designated heritage assets from a range of periods in the AONB, only around 1.5% are assessed as being 'at risk', which is at the lower end of the range for English AONBs as a whole. Two of the heritage assets 'at risk' assessments appear to be because of their vulnerability to coastal change / flooding. Although agri-environment schemes have assisted in providing beneficial management for some archaeological sites, archaeological damage has occurred from ploughing and continues in some cases. There has also been some loss of historic landscape patterns, for example field boundaries since designation although this has also been reduced by changes in agricultural grants and incentives. Coastal and offshore development such as wind farms has affected the setting of some coastal heritage assets.	Green	Green	The Order limits avoid all known designated heritage assets, and as such, no direct physical impacts are anticipated to occur to designated heritage assets. Areas in which non-designated buried archaeological remains (including areas of potential buried archaeological remains) and non-designated built heritage assets have been identified and would be further evaluated and mitigated through a programme of post-consent evaluation and mitigation works prior to the commencement of construction works, which is set out within the Outline Written Scheme of Investigation (Onshore) (document 9.21). Any important hedgerows and historic earthworks would be restored to their pre-construction condition as part of the reinstatement works. Further details and the full assessment of the impact from SEP and DEP upon non-designated heritage assets is presented in Chapter 21 Onshore Archaeology and Cultural Heritage (document 6.1.21) of the ES. The construction and operation of the offshore infrastructure would be visible from some heritage assets, however, these views would not detract from their appreciation or setting. There would be no change to the setting (and associated heritage significance) of the heritage assets identified for assessment and as presented in Appendix 21.5 Offshore Infrastructure Setting Assessment (6.3.21.5) of the ES. It is



Coast AONB Rev. no.2

Assessment of QNB's Condition ¹				
Summary Assessment of QNB's Condition ¹	Overall Assessment Since Designation (1968)	Overall Assessment Currently (2012)	Potential Impact on QNB ²	
			assessed therefore that the QNB's condition would remain "Green – conserved and enhanced".	

Doc. No. C282-LD-Z-GA-00005 9.25

Page 29 of 34

Classification: Open Status: Final



Rev. no.2

1.7 Assessment of the potential impacts on QNBs of the NCAONB

1. Dynamic character and geomorphology of the coast

It has been assessed that the construction or operational of SEP and DEP would not undermine this QNB. The dynamic character and geomorphology of the coast would be unaffected as a result of the use of trenchless crossing techniques used at the landfall, and erosion will continue as a natural phenomenon, driven by waves and subaerial processes. As a result, the Norfolk coastline will be maintained, as will this QNB.

2. Strong and distinctive links between land and sea

- It has been assessed that the during construction of SEP and DEP, this QNB would be temporarily affected, and potential impacts on views (offshore and onshore); the intertidal zone; vegetation (such as woodland, trees and hedgerows); and ecological linkages would be short-term.
- During operation, offshore views would be affected in the long-term as SEP and DEP would introduce additional wind turbines into views which would be discernibly larger and more widely spaced compared to the existing offshore wind turbines; increase the spread of wind turbines across views; and produce additional lighting at night. However, as noted in the AONB MP's assessment of the condition of natural beauty, existing offshore wind farms already affect panoramic coastal views and seascapes and wilderness quality of the seascapes. It is judged therefore that the potential impacts arising from the addition of SEP and DEP would be limited as the introduction of additional turbines into the seascape where turbines are already characteristic. In addition, the SEP and DEP turbines would maintain the same overall groupings albeit in an extended form where they are visible from the sea and/or the coastline. Overall, it is assessed that the strong and distinctive links QNB would be maintained.
- Inland, long-term impacts on vegetation and ecological linkages would be minimal as a result of proposed mitigation measures, which in part, has been led by the project's 'mitigation by design approach' where the has been designed to minimises the removal of vegetation in so far as possible.
- Given the limited spatial extent of this part of the onshore cable corridor in relation to the AONB and the nature of potential impacts (i.e. short-term construction activity followed by landscape reinstatement), any changes to views between land and sea due to the construction of the onshore cable corridor would not undermine this QNB.
- With regard to potential impacts on socio-economics and tourism, it has been assessed that there would be no significant impacts on the AONB as a whole, although during the onshore construction works between the landfall and the edge of Weybourne impacts would be moderate adverse, and temporary. The residual effects would not undermine this QNB.

Page 30 of 34



Rev. no.2

3. Diversity and integrity of landscape, seascape and settlement character

- It has been assessed that the proposed wind farm sites would not directly affect the character of landscape character areas (LCA) or landscape character types (LCT) within the NCAONB, and only potentially affect them indirectly by affecting views of the seascape from them. As concluded in the **Chapter 26 Landscape and Visual Impact Assessment** (document reference 6.1.26), the construction and operation of SEP and DEP would not lead to any significant impacts on landscape character, with the greatest impacts being of slight significance and adverse on coastal LCAs during operation. During construction, impacts on all LCAs and LCTs would be negligible.
- Onshore, during construction, works would lead to short term impacts 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 replanted and permanent where trees and woodland are removed and not re-planted over the cable's permanent easement. Relatively small-scale permanent removal of trees and woodland, and replacement with an appropriate alternative land use / habitat, would have limited impacts on landscape character in the context of the extensive existing woodland and trees within the landscape.
- The diversity of character types, settlement patterns and building materials and styles would not be affected, and the offshore and onshore proposals would not undermine this QNB.
 - 4. Exceptionally important, varied and distinctive biodiversity, based on locally distinctive habitats
- As a result of the SEP and DEP site selection and route refinement process, potential impacts on this QNB have been minimised in so far as possible, as described below:
- The onshore cable route has avoided, wherever possible, direct impacts on designated sites or ecologically valued habitats. Commitments have been made to use trenchless crossing techniques for all major watercourses, large areas of woodland and specific hedgerows that interact with the onshore cable rout. Where hedgerows cannot be crossed using trenchless crossings, these would be replanted in the first planting season following the completion of entire construction of the cable installation works, of either SEP and DEP (subject to landowner agreements). Whilst potential impacts would arise, these would be limited and temporary following completion of all construction works.
- Where ornithology surveys (to date) show that farmland bird species use areas of arable fields along the onshore cable corridor route, it has been judged that those areas (and the birds that use them) would be affected by SEP and DEP (i.e. disturbance and/or displacement). However, it is predicted that this will be only on a temporary and short-term basis given that these habitats would be reinstated following completion of all construction works within that area.
- In relation to river bodies, following the implementation of the control measures, there will be no activities that have the potential to cause permanent impacts to the status of any river bodies assessed.



Rev. no.2

SEP and DEP include opportunities to deliver Biodiversity Net Gain (BNG) and therefore through the implementation of these opportunities, no significant impacts (in EIA terms) are predicted. Overall, this QNB will be maintained.

5. Nationally and internationally important geology

It has been assessed that the construction or operational of SEP and DEP would not undermine this QNB. No direct physical impacts are anticipated to occur to designated geological SSSI sites as a result of SEP and DEP, although it has been identified that geological SSSI sites are located within 250m of the Order limits. It is anticipated that indirect impacts to these features would not occur as a result of SEP and DEP. No regionally important geological sites within the Order limits or within 250m. Overall, this QNB will be maintained.

6. Sense of remoteness, tranquillity and wildness

- 38 Offshore, during construction and operation the only aspect of this QNB that SEP and DEP would have potential to affect is views from land within the AONB to the sea outside the AONB. SEP and DEP would affect the sense of remoteness, tranguillity and wildness of parts of the AONB by affecting views of the seascape from parts of the AONB. Offshore wind farms are, however, already visible from the AONB, thus affecting the QNB. At night and in clear conditions, lighting of the existing offshore wind farms is visible, as is other lighting relating to buoys, boats, ships, and gas rigs. SEP and DEP navigation and aviation lighting would add to this lighting, when visible from the parts of the AONB. The additional SEP and DEP navigation and aviation lighting would be visible close to the horizon, with a clear relationship with existing offshore windfarm lighting, and would not create 'skyglow', and would not affect views looking up at the expansive skies, 'dark night skies' or constellations visible from the NCAONB. The proposed wind farm sites would not directly affect the sense of remoteness, tranquillity and wildness but, by affecting views of the seascape from the AONB, would indirectly affect these qualities from some areas of the AONB.
- Onshore, construction works would lead to a temporary reduction in remoteness, tranquillity and wildness 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 affect the remoteness, tranquillity and wildness close to the coast. Construction lighting may result in temporary impacts on the dark sky quality of a very localised area within the AONB. Construction lighting would generally only be used in times of low light, be task orientated and directional to minimise light spill to the local area.
- DEP and SEP may lead to a temporary short-term change in this QNB within a small part of the AONB during construction, although following completion of construction this would not be affected. Overall, this QNB will be maintained.

Page 32 of 34



Rev. no.2

7. Richness of archaeological heritage and historic environment, particularly that relating to the coast and its character

As a result of the SEP and DEP site selection and route refinement process, potential impacts on this QNB have been minimised in so far as possible. The Order limits avoids all known designated heritage assets, and as such, no direct physical impacts are anticipated to occur to designated heritage assets. Areas in which non-designated buried archaeological remains (including areas of potential buried archaeological remains) and built heritage assets have been identified and would be further evaluated and mitigated through a programme of post-consent evaluation and mitigation works prior to the commencement of construction works. Any important hedgerows and historic earthworks would be restored to their preconstruction condition as part of the reinstatement works. The construction and operation of the offshore infrastructure would be visible from some heritage assets, however, these views would not detract from their appreciation or setting. There would be no change to the setting (and associated heritage significance) of the heritage assets identified for assessment. This QNB will be maintained.

Conclusion

- In overall terms, this assessment has confirmed that the condition of the key qualities of the AONB would not be affected individually or collectively to any great extent by the development of SEP and DEP.
- The most affected QNBs would be '2. Strong and distinctive links between land and sea' and '6. Sense of remoteness, tranquillity and wildness'. With regard to QNB2, moderate temporary adverse impacts from a socio-economic aspect are predicted in one specific location (Weybourne); and moderate long-term adverse impacts are assessed on views from land within the AONB to the sea (outside of the AONB). Moderate long-term adverse impacts on views of the seascape from the AONB are assessed in relation to QNB6. All other impacts, where present, are assessed to be slight to minimal. The presence of existing offshore windfarms is relevant to this conclusion, as they influence the existing baseline environmental context in which SEP and DEP would be constructed and operate.
- Overall, it is assessed that the AONB's recorded QNBs will all remain, as will its relative undeveloped/unspoilt character. Its integrity will be retained. There are no effects alone or cumulatively that would undermine the purposes of designation of the AONB as a consequence of the construction and operation of SEP and DEP. SEP and DEP are therefore in accordance with policy in the NPS which afford protection of the AONB.

Page 33 of 34



Doc. No. C282-LD-Z-GA-00005 9.25

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