

# **East Anglia ONE North Offshore Windfarm**

## **Chapter 28**

### **Offshore Seascape, Landscape and Visual Amenity**

#### **Environmental Statement Volume 1**

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# Table of Contents

<b>28</b>	<b>Offshore Seascape Landscape and Visual Amenity</b>	<b>1</b>
28.1	Introduction	1
28.2	Consultation	2
28.3	Scope	4
28.4	Assessment Methodology	12
28.5	Existing Environment	27
28.6	Potential Seascape Impacts during Construction, Operation and Decommissioning	41
28.7	Potential Landscape Impacts during Construction, Operation and Decommissioning	47
28.8	Potential Visual Impacts During Construction, Operation and Decommissioning	72
28.9	Cumulative Impacts	89
28.10	Transboundary Impacts	120
28.11	Inter-relationships	121
28.12	Interactions	124
28.13	Summary and Conclusions	128
28.14	References	134

**Chapter 28 Offshore Seascape, Landscape and Visual Amenity** figures are presented in **Volume 2: Figures** and listed in the table below.

Figure number	Title
<b>Figure 28.1</b>	SLVIA Project Envelope
<b>Figure 28.2</b>	SLVIA Alternative Project Envelope
<b>Figure 28.3</b>	Site Location and SLVIA Study Area
<b>Figure 28.4</b>	Blade Tip Zone of Theoretical Visibility (ZTV) (250 m) – 50km Study Area (A3)
<b>Figure 28.5</b>	Blade Tip ZTV (300 m) – 50km Study Area (A3)
<b>Figure 28.6</b>	Blade Tip ZTV (300 m) – 50km Study Area (A1)
<b>Figure 28.7</b>	Hub Height ZTV
<b>Figure 28.8</b>	Horizontal Angle ZTV
<b>Figure 28.9</b>	Energy Developments Location Map
<b>Figure 28.10</b>	Seascape Character
<b>Figure 28.11</b>	Landscape Character (National)
<b>Figure 28.12</b>	Landscape Character (District & County)
<b>Figure 28.13</b>	Landscape Designations
<b>Figure 28.14</b>	Visual Receptors
<b>Figure 28.15</b>	Blade Tip ZTV with Seascape Character (A1)
<b>Figure 28.16</b>	Blade Tip ZTV Landscape Character (National) (A1)
<b>Figure 28.17a</b>	Blade Tip ZTV Landscape Character (District & County) (A1)
<b>Figure 28.17b</b>	Blade Tip ZTV Landscape Character (District & County) -Detailed Mapping – Landscape Character 5 (A3)
<b>Figure 28.17c</b>	Blade Tip ZTV Landscape Character (District & County) -Detailed Mapping – Landscape Character 5 (A3)
<b>Figure 28.17d</b>	Blade Tip ZTV Landscape Character (District & County) -Detailed Mapping – Landscape Character 6 (A3)
<b>Figure 28.17e</b>	Blade Tip ZTV Landscape Character (District & County) -Detailed Mapping – Landscape Character 6 (A3)
<b>Figure 28.17f</b>	Blade Tip ZTV Landscape Character (District & County) -Detailed Mapping – Landscape Character 7 (A3)
<b>Figure 28.17g</b>	Blade Tip ZTV Landscape Character (District & County) -Detailed Mapping – Landscape Character 8 (A3)
<b>Figure 28.18</b>	Blade Tip ZTV with Landscape Designations (A1)

Figure number	Title
Figure 28.19	Blade Tip ZTV with Visual Receptors (A1)
Figure 28.20	Visibility Range
Figure 28.21a	Cumulative ZTV with Scroby Sands
Figure 28.21b	Cumulative ZTV with Lowestoft Ness Point
Figure 28.21c	Cumulative ZTV with Greater Gabbard and Galloper
Figure 28.21d	Cumulative ZTV with East Anglia TWO
Figure 28.22	Suffolk Coastal Path and England Coastal Path
Figure 28.23	Suffolk Coastal Path Visibility with Blade Tip ZTV (A1)
Figure 28.24	Suffolk Coastal Path Visibility with Landscape and Seascape Character (A1)
Figure 28.25a-g	<b>Viewpoint 1 Lowestoft</b> – Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage, 53.5° night-time photomontage (2000 candela), 53.5° night time photomontage (200 candela).
Figure 28.26a-g	<b>Viewpoint 2 Kessingland Beach</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage, 53.5° night-time photomontage (2000 candela), 53.5° night-time photomontage (200 candela).
Figure 28.27a-g	<b>Viewpoint 3 Covehithe</b> - Viewpoint location, 180° baseline panorama and cumulative wirelines, 53.3° wireline, 53.5° photomontage, cumulative wireline 300m turbine layout, cumulative wireline 250m turbine layout.
Figure 28.28a-i	<b>Viewpoint 4 Southwold</b> – Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage, 53.5° night-time photomontage (2000 candela), 53.5° night-time photomontage (200 candela), cumulative wireline 300m turbine layout, cumulative wireline 250m turbine layout.
Figure 28.29a-g	<b>Viewpoint 5 Gun Hill, Southwold</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage, cumulative wireline 300m turbine layout, cumulative wireline 250m turbine layout.
Figure 28.30a-g	<b>Viewpoint 6 Walberswick</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage, cumulative wireline 300m turbine layout, cumulative wireline 250m turbine layout.
Figure 28.31a-g	<b>Viewpoint 7 Dunwich</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage, cumulative wireline 300m turbine layout, cumulative wireline 250m turbine layout.
Figure 28.32a-h	<b>Viewpoint 8 Dunwich Heath &amp; Beach (Coastguard Cottages)</b> - Viewpoint location, 270° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage, cumulative wireline 300m turbine layout, cumulative wireline 250m turbine layout.
Figure 28.33a-e	<b>Viewpoint 9 Minsmere Nature Reserve</b> – Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.

Figure number	Title
Figure 28.34a-f	<b>Viewpoint 10 Sizewell Beach</b> – Viewpoint location, 270° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.35a-f	<b>Viewpoint 11 Suffolk Coastal Path, between Thorpeness and Sizewell</b> - Viewpoint location, 270° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.36a-e	<b>Viewpoint 12 Thorpeness</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.37a-g	<b>Viewpoint 13 Aldeburgh</b> – Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage, 53.5° night-time photomontage (2000 candela), 53.5° night-time photomontage (200 candela).
Figure 28.38a-e	<b>Viewpoint 19 Hopton-on-sea</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.39a-e	<b>Viewpoint 20 Gorleston-on-sea</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.40a-e	<b>Viewpoint 21 Great Yarmouth, South Beach</b> – Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.41a-g	<b>Viewpoint 22 Caister-on-sea</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.42a-e	<b>Viewpoint A Southwold Common</b> – Viewpoint location, 180° baseline panorama and cumulative wireline.
Figure 28.43a-e	<b>Viewpoint B Ness Point Lowestoft</b> – Viewpoint location, 270° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.44a-e	<b>Viewpoint C Corton Holiday Village</b> - Viewpoint location, 180° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.
Figure 28.45a-e	<b>Viewpoint D Southwold Pier</b> - Viewpoint location, 270° baseline panorama and cumulative wireline, 53.3° wireline, 53.5° photomontage.

**Chapter 28 Offshore Seascape, Landscape and Visual Amenity** appendices are presented in **Volume 3: Appendices** and listed in the table below.

Appendix number	Title
Appendix 28.1	SLVIA Consultation Responses
Appendix 28.2	SLVIA Methodology
Appendix 28.3	Seascape Assessment
Appendix 28.4	Landscape Assessment
Appendix 28.5	Viewpoint Assessment
Appendix 28.6	Suffolk Coastal Path Assessment
Appendix 28.7	Cumulative Seascape, Landscape and Visual Assessment
Appendix 28.8	Offshore Windfarm Visibility
Appendix 28.9	Met Office Vessel Visibility Data

## Glossary of Acronyms

AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
CAA	Civil Aviation Authority
cd	Candela
CIA	Cumulative Impact Assessment
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
ES	Environmental Statement
ETG	Expert Topic Group
GIS	Geographic Information System
GLVIA	Guidelines for Visual Impact Assessment
HAT	Highest Astronomical Tide
IALA	International Association of Lighthouse Authorities
IPC	Infrastructure Planning Commission
IR	Infra-Red
km	Kilometre
LAT	Lowest Astronomical Tide
LCA	Landscape Character Assessment
LCT	Landscape Character Type
MCA	Maritime and Coastguard Agency
MOD	Ministry of Defence
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MW	Megawatt
NCA	National Character Area
NE	Natural England
NGO	Non-Governmental Organisation
NGV	National Grid Venture
NPS	National Policy Statement
OEP	Offshore Electrical Platform
O&M	Operation and Maintenance
OMM	Operational Meteorological Mast
OS	Ordnance Survey
PEIR	Preliminary Environmental Information Report
RPG	Registered Park and Garden
SAR	Search and Rescue
SCT	Seascape Character Type
SL&V	Seascape, Landscape and Visual
SLVIA	Seascape, Landscape and Visual Impact Assessment
SNH	Scottish Natural Heritage
SPS	Significant Peripheral Structure
SZC	Sizewell C
ZTV	Zone of Theoretical Visibility

## Glossary of Terminology

Applicant	East Anglia ONE North Limited.
Construction operation and maintenance platform	A fixed offshore structure required for construction, operation, and maintenance personnel and activities.
Development area	The area comprising the onshore development area and the offshore development area (described as the 'order limits' within the Development Consent Order).
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one offshore construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia ONE North windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
National electricity grid	The high voltage electricity transmission network in England and Wales owned and maintained by National Grid Electricity Transmission
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and the information required to support HRA.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
Inter-array cables	Offshore cables which link the wind turbines to each other and the offshore electrical platforms.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape effects	Effects on the landscape as a resource in its own right.
Meteorological mast	An offshore structure which contains metrological instruments used for wind data acquisition
Monitoring buoys	Buoys to monitor <i>in situ</i> condition within the windfarm, for example wave and metocean conditions.
Marking buoys	Buoys to delineate spatial features / restrictions within the offshore development area.
Offshore cable corridor	This is the area which will contain the offshore export cables between offshore electrical platforms and landfall.
Offshore development area	The East Anglia ONE North windfarm site and offshore cable corridor (up to Mean High Water Springs).

Offshore electrical infrastructure	The transmission assets required to export generated electricity to shore. This includes inter-array cables from the wind turbines to the offshore electrical platforms, offshore electrical platforms, platform link cables and export cables from the offshore electrical platforms to the landfall.
Offshore electrical platform	A fixed structure located within the windfarm area, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which would bring electricity from the offshore electrical platforms to the landfall. These cables will include fibre optic cables.
Offshore infrastructure	All of the offshore infrastructure including wind turbines, platforms, and cables.
Offshore platform	A collective term for the offshore construction, operation and maintenance platform and the offshore electrical platforms.
Platform link cable	Electrical cable which links one or more offshore platforms. These cables will include fibre optic cables.
Safety zones	A marine area declared for the purposes of safety around a renewable energy installation or works / construction area under the Energy Act 2004.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
Seascape	Landscapes with views of the coast or seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other.
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 the people living, working, recreating or travelling through an area.
Visual effects	Effects on specific views and on the general visual amenity experienced by people.

# 28 Offshore Seascape Landscape and Visual Amenity

## 28.1 Introduction

1. This chapter of the Environmental Statement (ES) presents the Seascape, Landscape and Visual Impact Assessment (SLVIA) for the construction and operation of the offshore infrastructure of the proposed East Anglia ONE North project during the construction, operation and decommissioning phases. Operational effects include consideration of maintenance. The SLVIA evaluates the effects of the construction and operation of the offshore infrastructure, i.e. all offshore aspects of the East Anglia ONE North windfarm site, including the wind turbines, offshore transmission works, offshore platforms and offshore cable corridor (shown in **Figure 28.1** and described in **section 28.3.2** of this chapter). It has been authored by chartered landscape architects at Optimised Environments (OPEN).
2. The SLVIA identifies and assesses the significance of changes resulting from the construction and operation of the offshore infrastructure to both the seascape/landscape as an environmental resource in its own right, and on people's views and visual amenity. It also assesses the cumulative effects of the proposed East Anglia ONE North project in conjunction with other developments.
3. The landscape and visual effects arising from the onshore infrastructure and National Grid infrastructure are assessed in **Chapter 29 Landscape and Visual Impact Assessment** of this ES.
4. More detail of the approach and methodology for the SLVIA can be found in **Appendix 28.2**.
5. This SLVIA chapter provides a summary of the significance of changes resulting from the construction and operation of the offshore infrastructure of the proposed East Anglia ONE North project to seascape, landscape and visual receptors. Full technical assessments of the seascape, landscape and visual impacts of the construction and operation of the offshore infrastructure are contained within **Appendices 28.2 – 28.7** as follows:
  - **Appendix 28.3 Seascape Assessment,**
  - **Appendix 28.4 Landscape Assessment,**
  - **Appendix 28.5 Visual Assessment,**
  - **Appendix 28.6 Suffolk Coastal Path Assessment,**

- **Appendix 28.7 Cumulative Seascape, Landscape and Visual Assessment,**
  - **Appendix 28.8 Offshore windfarm Visibility,** and
  - **Appendix 28.9 Met Office Visibility.**
6. The SLVIA is supported by plan graphics and visual representations as shown in **Volume 2: Figures.**

## 28.2 Consultation

7. Consultation is a key feature of the Environmental Impact Assessment (EIA) process, and continues throughout the lifecycle of a project, from its initial stages through to consent and post-consent.
8. Pre-application consultation with regards to SLVIA has been undertaken primarily through specialist consultation via Expert Topic Group (ETG), along with the wider consultation described within **Chapter 5 EIA Methodology** through the East Anglia ONE North Scoping Report (SPR 2017) and the Preliminary Environmental Information Report (PEIR) (SPR 2019). Numerous ETG meetings and site visits have been held between 2017 and 2019 with representatives from Suffolk County Council, Suffolk Coastal District Council, Waveney District Council, Great Yarmouth Borough Council, the Broads National Park, Suffolk Coast and Heaths AONB unit, Natural England and Historic England. Feedback received through this process has been considered in preparing the ES where appropriate and this chapter has been updated for the final assessment submitted with the Development Consent Order (DCO) application.
9. The responses received from stakeholders with regards to the Scoping Report, PEIR, as well as feedback from SLVIA ETGs, are summarised in **Appendix 28.1**, including details of how these have been taken account of within this chapter.
10. Public consultation has been conducted primarily through a series of Public Information Days (PIDs) and Public Meetings. PIDs have been held throughout Suffolk in November 2017, March 2018, June / July 2018 and February / March 2019. A series of stakeholder engagement events were also undertaken in October 2018 as part of phase 3.5 consultation. Details of the consultation phases are discussed further in **Chapter 5 EIA Methodology.**
11. **Table 28.1** shows public consultation feedback pertaining to SLVIA. Full details of the proposed East Anglia ONE North project consultation process are presented in the Consultation Report (document reference 5.1), which is provided as part of the DCO application.

**Table 28.1 Public Consultation Relevant to SLVIA**

Topic	Response / where addressed in the ES
<b>Phase 1</b>	
<ul style="list-style-type: none"> <li>Proximity to shore and potential night time impacts</li> <li>Seascape / landscape and visual impacts</li> <li>Impacts on views from Southwold</li> </ul>	<p>Impacts to the seascape are assessed in <b>section 28.6</b></p> <p>Impacts to landscape are assessed in <b>section 28.7</b></p> <p>Potential Visual Impacts are assessed in <b>section 28.8</b>.</p>
<b>Phase 2</b>	
<ul style="list-style-type: none"> <li>Concerns over night time lighting of offshore infrastructure</li> <li>Proximity to shore and scale of turbines</li> <li>Sun reflection off the moving turbine blades</li> <li>Impact on character of AONB</li> </ul>	<p>Impacts to the seascape are assessed in <b>section 28.6</b></p> <p>Impacts to landscape are assessed in <b>section 28.7</b></p> <p>Impacts to the AONB are considered in <b>section 28.9.1.3.2</b></p> <p>Potential Visual Impacts are assessed in <b>section 28.8</b></p>
<b>Phase 3</b>	
<ul style="list-style-type: none"> <li>Visibility from beach</li> <li>Concerns over night time lighting of offshore infrastructure</li> <li>Proximity to shore and scale of turbines</li> <li>Impact on character of AONB</li> <li>Seascape issues – possible curtaining effect</li> </ul>	<p>Impacts to the seascape are assessed in <b>section 28.6</b></p> <p>Impacts to landscape are assessed in <b>section 28.7</b></p> <p>Impacts to the AONB are considered in <b>section 28.9.1.3.2</b></p> <p>Potential Visual Impacts are assessed in <b>section 28.8</b></p>
<b>Phase 3.5</b>	
<ul style="list-style-type: none"> <li>Visibility from beach</li> <li>Proximity to shore and scale of turbines</li> </ul>	<p>Impacts to the seascape are assessed in <b>section 28.6</b></p> <p>Impacts to landscape are assessed in <b>section 28.7</b></p> <p>Potential Visual Impacts are assessed in <b>section 28.8</b></p>
<b>Phase 4</b>	
<ul style="list-style-type: none"> <li>Impact on the AONB</li> <li>Concern over lighting, especially flashing lights</li> <li>Impacting tourism</li> </ul>	<p>Impacts to the AONB are considered in <b>section 28.9.1.3.2</b></p> <p>Lighting on the wind turbines is described in <b>section 28.3.2.5</b></p> <p>The potential impact on tourism due to the visibility of the wind turbines is</p>

Topic	Response / where addressed in the ES
	assessed in <b>Chapter 30 Tourism, recreation and Socio-Economics</b>

## 28.3 Scope

### 28.3.1 Study Area

12. The SLVIA study area is defined as a 50km radius from the outermost wind turbines of the East Anglia ONE North windfarm site in all directions and is shown in **Figure 28.3**.
13. A 50km radius study area has been selected for the SLVIA for a number of reasons. As described in **Chapter 6 Project Description** and in **section 28.3.2**, the realistic worst case layout assessed as the project design envelope for the SLVIA is the 60 x 300m layout ('the 300m wind turbine layout') with 300m blade tip height wind turbines (**Figure 28.1**). Although 300m blade tip height wind turbines could theoretically be visible at distances beyond 50km, the EIA regulations require assessment of 'likely significant effects', therefore the SLVIA study area should extend far enough to include all areas within which significant visual effects are likely to occur. It is considered that the construction and operation of the offshore infrastructure is unlikely to result in significant effects at distances over 50km. Relevant guidance, professional experience, ZTV mapping, published material (BOEM 2013) and Met Office Visibility Data all indicate that the threshold at which significant visual effects would diminish is likely to be within this 50km radius area.
14. Relevant guidance (SNH 2017) recommends that ZTV distances are used for defining study area based on wind turbine height. The guidance recommends 45km for wind turbines greater than 150m to blade tip, although it also recognises that 'greater distances may need to be considered for the larger wind turbines used offshore'.
15. Consideration of the blade tip ZTV (**Figures 28.4** and **28.5**), indicates that theoretical visibility of the East Anglia ONE North windfarm site will become very dispersed at distances beyond 50km. The horizontal angle ZTV (**Figure 28.8**) and **Table 28.6** also shows that the portion of views occupied by the horizontal spread of the East Anglia ONE North windfarm site will decrease dramatically with distance. At distances over 50km, the horizontal spread of the array will occupy a small portion of available views (generally less than 14 degrees).
16. The actual visibility of the East Anglia ONE North windfarm site that will be experienced by people will be influenced substantially by the prevailing weather and visibility conditions in the area. Visibility frequency data supplied by the Met

Office from Weybourne and Shoeburyness, provides an understanding about the amount of time when visibility is experienced at distances greater than 50km. The Met Office data shows that visibility frequency drops sharply at longer distances, such that visibility over 50km recorded at Weybourne occurred for only around 9% of the time over the 10-year period between 2007 – 2017. This would equate to approximately 33 days per year on average, when there is visibility beyond 50km, and that there would be theoretical visibility of the East Anglia ONE North windfarm site. The prevailing weather/ visibility conditions notably reduce the potential for effects to relatively limited and infrequent periods, when there is excellent visibility at distances over 50km. The Met Office visibility data indicates that it is likely that there would be no visibility of the East Anglia ONE North windfarm site at distances over 50km for approximately 90% of the time over the 10 year period between 2007 and 2017 (or 332 days per year on average).

17. Further details of visibility frequency are provided in **Appendix 28.8**, using METAR visibility data from the nearest Met Office stations that record visibility (Weybourne and Shoeburyness), to highlight potential trends in the visibility conditions of the study area. Both GLVIA3 (8.15) and SNH guidance (SNH 2017, para 39) refer to use of this Met Office visibility data to assess typical visibility conditions within an area. Although there are limitations to how this data can be applied to judgements about windfarm visibility, the visibility data provides some understanding and evidence basis for evaluating the visibility of the wind turbines against their background. Weybourne and Shoeburyness provide the most representative Met Office stations.
18. Consultation with relevant stakeholders has not identified any specific concerns about significant visual effects of the East Anglia ONE North windfarm site in areas located beyond 50km, with the focus of consultation comments and discussion being on assessment of the closest coastal landscapes that are more likely to experience effects. The visibility of the East Anglia ONE North windfarm site reduces considerably from inland areas where the screening effects of landform, vegetation, buildings and other surface features screen views. Visual effects, while possible, are unlikely to be significant beyond 50km. The Planning Inspectorate has agreed in its Scoping Opinion (section 4.24) that an assessment of impacts beyond the 50km ZTV can be scoped out of the assessment.
19. Significant seascape/ landscape and visual effects are scoped out beyond 50km, which is considered to be the maximum area within which a significant effect would be likely to occur as a result of the construction and operation of the offshore infrastructure and has been agreed with the SLVIA ETG. A 50km radius study area is suitable for the purposes of assessing the likely significant effects of the construction and operation of the offshore infrastructure. In reality, significant seascape, landscape and visual effects are more likely to occur from

locations in closer proximity to the array; and less likely to occur towards the outer edges of the study area at long distance.

20. A 50km radius study area has also been utilised as the search area for the identification of other wind energy developments relevant to the assessment (**Figure 28.9**), including all operational, consented, application and scoping stage windfarm proposals out to 50km from the East Anglia ONE North windfarm site. These are further discussed in **section 28.9**.

### 28.3.2 Worst Case Scenario

#### 28.3.2.1 Wind Turbines

21. The SLVIA is based on the Rochdale Envelope described in **Chapter 6 Project Description**. In compliance with EIA regulations, the likely significant effects of a realistic ‘worst case’ scenario are assessed and illustrated in the SLVIA.
22. The maximum design scenarios identified have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in the project description **Chapter 6 Project Description**. Effects of greater adverse significance are not predicted to arise should any other development scenario (based on details within the project design envelope) to that assessed here, be taken forward in the final proposed East Anglia ONE North project design.
23. The wind turbine sizes that are currently under consideration as the upper range of the Rochdale envelope are 250m wind turbines and 300m wind turbines. In the SLVIA Rochdale envelope considered in this assessment, assumptions are made with regards to the dimensions and height of this size of wind turbines as shown in **Table 28.2**.

**Table 28.2 Wind Turbines Considered in the SLVIA Rochdale Envelope**

Wind turbine rating (MW):	250m wind turbine	300m wind turbine
Maximum number of turbines	67	53
Maximum blade tip height above Lowest Astronomical Tide (LAT) (m)	250	300
Maximum rotor diameter (m)	220	250
Min Air draught above LAT (m)	24.44	24.44

Wind turbine rating (MW):	250m wind turbine	300m wind turbine
Maximum tower diameter (at bottom) (m)	8	12
Number of blades (per wind turbine)	3	3
Turbine spacing (in row) (min) (m)	800	800
Turbine spacing (inter row) (min) (m)	1,200	1,200
Layout pattern	Wind turbines located within the East Anglia ONE North windfarm site with regular spacing ( <b>Figure 28.1</b> )	

24. The design envelope would allow a mixture of turbine sizes to be used in the final detailed design. However, the assessment scenario(s) for the SLVIA is based on the use of a single wind turbine model for the East Anglia ONE North windfarm site as this is considered the realistic worst case.
25. The realistic worst case layout assessed as the project design envelope for the SLVIA is the 53 x 300m wind turbine layout ('the 300m wind turbine layout'), as shown in **Figure 28.1**. This layout has the highest wind turbine blade tip height (300m), with largest rotor diameter (250m), with a lower overall number of wind turbines and the least dense spacing with turbine rows oriented in a realistic grid alignment. The realistic worst case for SLVIA assessment has turbines spaced evenly within the East Anglia ONE North windfarm site in a regular pattern (**Figure 28.1**). The Rochdale Envelope would allow for wind turbines to be spaced closer together however this is not considered the worst case for assessment as the largest turbines spread over the greatest lateral extent across the East Anglia ONE North windfarm site is considered the worst case. An alternative project design envelope for the SLVIA is the 67 x 250m wind turbine (250m blade tip) layout ('the 250m wind turbine layout') as shown in **Figure 28.2**.
26. There are a number of reasons why the 300m wind turbine layout, as shown in **Figure 28.1**, is considered to form the worst case and is assessed as such in the SLVIA. Wind turbines with a higher 300m blade tip height will have a wider extent of ZTV than the lower 250m blade tip height wind turbines. They have the potential to be visible from a wider geographic area, since they are 50m higher and it is their height which contributes most to extent of visibility. This is evident in comparison of the ZTVs in **Figure 28.4** (250m blade tip) and **Figure 28.5** (300m blade tip).

27. In addition to the wider geographic extent of effect, the 300m wind turbines will appear to have a larger scale in views than the 250m wind turbines, both in terms of their overall blade tip height (which is 50m higher), but also in terms of the appearance of the larger rotor of the wind turbine (which is 30m larger). This will result in visible differences in scale, with the 300m wind turbine considered to have potential for a higher visual effect than the 250m wind turbine, by nature of its larger scale and height on the sea skyline. This is evident in comparison of the wireline visualisations in **Figures 28.26 – 28.53**.
28. The increased visual effect arising from the larger scale of the 300m wind turbines is offset to a degree, by the 250m wind turbine layout having a higher number of wind turbines, with a denser spacing, than the 300m wind turbine layout - which may typically be considered 'worse'. The 300m wind turbine layout consists of 53 wind turbines, compared to the 67 wind turbines in the 250m wind turbine layout. The effect that results from the additional 14 turbines of smaller size, in the 250m wind turbine layout is however, considered to be outweighed by the larger height and scale of the 300m wind turbines.
29. The lateral spread of development on the horizon also contributes to the scale of the visual effect (along with height and density of wind turbines), however the lateral spread will be similar for both the 250m wind turbine and 300m wind turbine layouts, as the wind turbines in each layout are spaced to fill the extents of the East Anglia ONE North windfarm site. The 300m wind turbine layout represents both the maximum wind turbine height and maximum lateral spread of wind turbines in the field of view.
30. Considering all of the factors described above, the 300m wind turbine layout, shown in **Figure 28.1**, is considered to be representative of the realistic worst case in terms of seascape, landscape and visual effects, and is the main scenario assessed in the SLVIA and shown in the visual representations in **Figures 28.25 – 28.45**. Effects of greater adverse significance are not predicted to arise should any other development scenario (based on details within the project design envelope) to that assessed, be taken forward in the final design scheme.
31. In addition to this main realistic worst case assessment scenario (53 x 300m wind turbine), an alternative worst case 250m wind turbine layout (67 x 250m wind turbine) is also illustrated in wirelines from a selection of key viewpoints (in **Figures 28.25 – 28.45**.) in order to consider this potential development scenario with a denser wind turbine spacing and largest overall number of wind turbines, with wind turbines located within the East Anglia ONE North windfarm site with regular spacing.

### 28.3.2.2 Foundation Substructures

32. The worst case for the SLVIA assumes that the substructure design will be a 4-legged jacket substructure. Field survey and experience of the visual effects of existing offshore windfarms suggests that jacket foundations are worst case for visual impacts. Jacket foundations are shown for the East Anglia ONE North windfarm site in photomontage visualisations where visible.
33. The foundation substructures are assumed to have a working platform and tower interface, where the tower connects with the jacket foundation structure. The interface level (above Highest Astronomical Tide (HAT)) between the substructure and the wind turbine hub is assumed to be 20m above HAT. The jacket foundations are assumed to have four sides and four legs, supported by cross braces. The foundation substructures will be painted yellow for navigational marking.

### 28.3.2.3 Offshore Electrical Platforms (OEP) and Offshore Construction Operation and Maintenance Platform

34. The SLVIA Rochdale Envelope identifies that up to four OEPs and one construction operation and maintenance platform are required within the East Anglia ONE North windfarm site. Indicative locations of the OEPs and construction, operation and maintenance platform have been assumed for the SLVIA, located along the shoreward perimeter of the East Anglia ONE North windfarm site, as shown in **Figure 28.1**, where they will in theory be most visible from coastal viewpoints.
35. The SLVIA Rochdale envelope assumes that each OEP and the construction, operation and maintenance platform will have a maximum platform length of 70m, platform width of 50m and topside maximum height above LAT of 50m (excluding crane and helideck). The foundation type for the construction operation and maintenance platform is assumed to be 8-legged jacket foundations, supported with cross braces and painted yellow for navigational marking. The effects of the OEPs are assessed as part of the East Anglia ONE North windfarm site in this SLVIA chapter. OEPs are shown in the photomontage visualisations in **Figures 28.25 – 28.45**.

### 28.3.2.4 Operational Meteorological Mast

36. The worst case for the SLVIA assesses that a single operational met mast will be installed within the boundaries of the East Anglia ONE North windfarm site, with a lattice tower with a maximum height of 175m above LAT (the hub height of the 300m wind turbines). It is assumed, as worst case for the SLVIA, that the substructure design will be a jacket substructure and that the operational met mast will be placed close to the landward site boundary. The met mast is shown

in photomontage visualisations from a selection of key viewpoints - **Figures 28.25 – 28.45**.

#### 28.3.2.5 Wind Turbine Lighting

37. The wind turbines, OMM, OEP, and the construction, operation and maintenance platform will be lit in accordance with the International Association of Lighthouse Authorities (IALA) standards and Civil Aviation Authority (CAA) requirements. As such, there is potential for the East Anglia ONE North windfarm site to be visible at night. Specific requirements for aviation and navigational lighting will be agreed with the relevant stakeholders (as listed in **section 28.2**) post-consent and prior to construction.
38. The following worst case assumptions have been made with regards to lighting of the East Anglia ONE North windfarm site for the SLVIA:
- Red, medium intensity aviation warning lights (2000 candela (cd)) will be located on either side of the nacelle (175m above LAT for 300m wind turbines) of significant peripheral wind turbines. Significant peripheral wind turbines are assumed to include all wind turbines on the periphery of the 300m layout shown in **Figure 28.1**. These lights will flash simultaneously with a Morse W flash pattern and will also include an infra-red component;
  - All aviation warning lights will flash synchronously throughout the East Anglia ONE North windfarm site and be able to be switched on and off by means of twilight switches;
  - Aviation warning lights will allow for reduction in lighting intensity at and below the horizon, to a minimum of 10% (i.e. 200cd) when visibility from every wind turbine is more than 5km. The SLVIA and the night-time photomontages in **Figures 28.25f, 28.26f, 28.28g, and 28.37e** assume full lighting intensity of the 2000cd aviation warning lights in very good to excellent visibility conditions, as a worst case. Additional photomontage visualisations of the aviation lights at 200cd are also shown in **Figures 28.25g, 28.26g, 28.28h and 28.37f**
  - Search and rescue (SAR) lighting of each of the non-periphery wind turbines will be combi infra-red (IR)/200cd steady red aviation hazard lights, individually switchable from the control centre at the request of the MCA (i.e. when conducting SAR operations in or around the East Anglia ONE North windfarm site). These low intensity lights are not shown in the night-time photomontages, as they will not be visible at such long distances;
  - All wind turbines will be fitted with a low intensity light for the purpose of helicopter winching (green hoist lamp). All wind turbines will also be fitted with suitable illumination (minimum one 5cd light) for ID signs. These low intensity

lights are not shown in the night-time photomontages, as they will not be visible at such long distances; and

- Marine navigational lights will be fitted at the platform level on significant peripheral structures (SPS) as shown in **Figure 28.1**. These lights will be synchronized to display simultaneously an IALA “special mark” characteristic, flashing yellow, with a range of not less than five (5) nautical miles. The marine navigational lights will be located circa 10m above sea level and will not be visible from coastal viewpoints, as they will be hidden at such long distances by the curvature of the earth.

39. The visual effect of the construction and operation of the offshore infrastructure at night has been assessed in this chapter, informed by assessment and night-time photomontage visualisations produced from representative viewpoints at:

- Lowestoft (Viewpoint 1 – **Figure 28.25f**);
- Kessingland Beach (Viewpoint 2 – **Figure 28.26f**);
- Southwold (Viewpoint 4 – **Figure 28.28g**); and
- Aldeburgh (Viewpoint 13 – **Figure 28.37e**).

### 28.3.3 Embedded Mitigation and Best Practice

40. Mitigation measures that were identified and adopted as part of the evolution of the project design (embedded into the project design) and that are relevant to seascape, landscape and visual effects are described as follows.

41. The East Anglia ONE North windfarm site is located within the former East Anglia Zone, whose location was sited outside territorial waters following feedback on its consultation. The ‘Round 3 plan/programme’ was considered under SEA which noted that the siting of Round 3 zones outside territorial waters, 8km off undesignated coasts and 13km off AONB and heritage coasts, would help mitigate potential visual impacts.

42. Following feedback to the PEIR, one of the issues that was raised was the potential cumulative impact of both the East Anglia ONE North and East Anglia TWO offshore windfarm sites. Following this feedback, consideration was given to a revised windfarm layout design. The Applicant investigated the potential to reduce the East Anglia TWO windfarm site area to reduce the magnitude of effect on onshore receptors and thus reduce the cumulative effect with East Anglia ONE North (and Sizewell C New Nuclear Power Station). The revised design for the East Anglia TWO windfarm site presented in this ES therefore represents a reduction in its geographic extent, whilst maintaining its generation capacity.

Further details of this are presented in **Section 28.3.3 of Chapter 28: SLVIA** of the **East Anglia TWO ES**.

43. The change has resulted in the following reduction in cumulative effects:
- The revised East Anglia TWO windfarm site will reduce cumulative landscape and visual effects on the AONB. This is primarily due to the increase in open sea horizon or 'gap' between the East Anglia ONE North and East Anglia TWO windfarm sites; which increases the legibility of each as a windfarm in its own right (rather than visually merging to form one larger array). This change affords mitigation of the 'curtaining' effect of the conjoined layouts that was the subject of responses to the PEIR.
  - Cumulative effects are most likely to reduce from northern viewpoints/parts of the AONB, such as between Kessingland and Southwold, where the increased 'gap' or 'space' between East Anglia ONE North windfarm site and East Anglia TWO windfarm site is most evident.
44. The wind turbines, OMM, OEP and the construction, operation and maintenance platform will be lit in accordance with the IALA standards and CAA requirements, however embedded mitigation measures are included to mitigate the visual effect of the construction and operation of the offshore infrastructure at night. Aviation warning lights will only be fitted to significant peripheral wind turbines and will allow for reduction in lighting intensity at and below the horizon when visibility from every wind turbine is more than 5km. SAR lighting of each of the non-periphery turbines will be low intensity hazard lights, individually switchable from the control centre at the request of the MCA. Marine navigational lights will be fitted at the platform level only on SPS.

#### 28.3.4 Monitoring

45. Post-consent, the final detailed design of the proposed East Anglia ONE North project will refine the worst-case parameters assessed in this ES. It is recognised that monitoring is an important element in the management and verification of the actual impacts based on the final detailed design however no monitoring is currently planned for SLVIA.

### 28.4 Assessment Methodology

#### 28.4.1 Guidance

46. There are a number of pieces of legislation, policy and guidance applicable to SLVIA. The following sections provide detail on key pieces of international and UK legislation, policy and guidance which are relevant to this chapter.

#### 28.4.1.1 Legislation and Policy

##### 28.4.1.1.1 European Landscape Convention (ELC)

47. The ELC is devoted exclusively to the protection, management and planning of all landscapes in Europe. Landscape is described as *"an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors"* (ELC 2000). The definition applies to all urban and peri-urban landscapes, towns, villages, rural areas, the coast and inland areas. In addition, it applies to ordinary or even degraded landscape as well as those areas that are of outstanding value or protected.
48. The ELC is binding in the UK. As a signatory, the UK Government has therefore undertaken to adopt general policies and measures to protect, manage and plan landscapes as follows:
- To recognise landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity;
  - To establish and implement landscape policies aimed at landscape protection, management and planning through the adoption of the specific measures. These include awareness-raising, training and education, identification and assessment of landscapes, definition of landscape quality objectives and the implementation of landscape policies;
  - To establish procedures for the participation of the general public, local and regional authorities, and other parties with an interest in the definition and implementation of the landscape policies mentioned above; and
  - To integrate landscape into regional and town planning policies and in cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape.
49. Landscape policy in the UK is already closely aligned with the Convention, and before UK ratification a Regulatory Impact Assessment had demonstrated that existing procedures and practice (through the work over many years of Government agencies, Local Government and Non-Governmental Organisations (NGOs) such as the National Trust) are compliant with its formal requirements. Given the UK's adoption of the ELC and its aims, the ELC gives an appropriate basis for the importance placed on the UK landscape.

##### 28.4.1.1.2 National Policy Statements (NPS)

50. The assessment of potential effects on the landscape and visual receptors has been made with reference to relevant NPSs, as discussed in **Chapter 3 Policy and Legislative Context**. The relevant NPSs to this assessment are:

- Overarching National Policy Statement for Energy (NPS EN-1 July 2011);
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3 July 2011); and
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5 July 2011).

51. The specific assessment requirements for landscape and visual receptors, as detailed in the NPSs, are summarised in **Table 28.3**.

**Table 28.3 NPS Assessment Requirements**

NPS Requirement	NPS Reference	ES Reference
<b>EN-1 Overarching NPS for Energy</b>		
<p>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:</p> <p>Landscape Institute and Institute of Environmental Management and Assessment (2002, 2nd edition): Guidelines for Landscape and Visual Impact Assessment; and</p> <p>Land Use Consultants (2002): Landscape Character Assessment – Guidance for England and Scotland.</p>	<p>Paragraph 5.9.5</p>	<p>‘The Guidelines for Landscape and Visual Impact Assessment’ (GLVIA) (2002, 2nd edition) has been superseded by GLVIA Version 3.</p> <p>Landscape Character Assessment – Guidance for England and Scotland has been superseded by Natural England’s ‘An Approach to Landscape Character Assessment’.</p> <p>This LVIA has been prepared following the updated versions of these documents which are referred to in <b>Appendix 28.2</b></p>
<p><i>“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.”</i></p>	<p>Paragraph 5.9.5</p>	<p>Published landscape character assessments and associated studies for the study area are referred to in <b>section 28.5</b> of the SLVIA. Local Development Plan policies are considered in the Development Consent and Planning Statement.</p>
<p><i>“The applicant’s assessment should include the effects during construction of the project and the effects of the completed development and its operation</i></p>	<p>Paragraph 5.9.6</p>	<p>The effect on landscape components and landscape character during construction and operation are assessed in <b>section 28.6</b> of the SLVIA and <b>Appendix 28.4</b>.</p>

NPS Requirement	NPS Reference	ES Reference
<i>on landscape components and landscape character.”</i>		
<i>“The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity.”</i>	Paragraph 5.9.7	The visual effect of the proposed East Anglia ONE North project during construction and operation, including night-time visual effects, are assessed in <b>section 28.6</b> of the SLVIA and <b>Appendix 28.5</b> .
<i>“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.”</i>	Paragraph 5.9.8	The quality, value and capacity of the landscape to accommodate change are considerations of the landscape assessment. The design of the proposed East Anglia ONE North project has considered and addressed the potential impact on seascape, landscape and visual receptors, in order to minimise harm by mitigation of landscape effects as presented in <b>section 28.6</b> of the SLVIA and <b>Appendix 28.4</b> . Adverse landscape and visual effects are minimised through embedded mitigation measures as presented in <b>section 28.3.3</b> .
<i>“The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid compromising the purposes of designation and such projects should be designed sensitively given the various siting, operational, and other relevant constraints.’ ... and paragraph 5.9.13 advises ‘The fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent.”</i>	Paragraph 5.9.12 and Paragraph 5.9.13	The potential for the proposed East Anglia ONE North project to affect the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB), The Broads National Park (NP) and Registered Parks and Gardens (RPG), has been considered in <b>section 28.6</b> of the SLVIA and <b>Appendix 28.4</b> .
<i>“Outside nationally designated areas, there are local landscapes that may be highly</i>	Paragraph 5.9.14	The value of the local landscape is a consideration within the LVIA and is informed by local landscape designations identified in

NPS Requirement	NPS Reference	ES Reference
<i>valued locally and protected by local designation. Where a local development document in England has policies based on landscape 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.”</i>		local development plan documents. Effects on landscape character are assessed in respect of each landscape receptor in <b>section 28.6</b> and <b>Appendix 28.4</b> .
<i>“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.”</i>	Paragraph 5.9.17	Chapter 4 Site Selection and Assessment of Alternatives of the ES sets out the iterative process that has influenced the design of the proposed East Anglia ONE North project. The mitigation of landscape and visual effects has been carefully considered in the SLVIA, to minimise ‘harm to the landscape’ where possible.
<i>“Within a defined site, adverse landscape and visual effects may be minimised through appropriate siting of 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.”</i>	Paragraph 5.9.22	Adverse landscape and visual effects are minimised through embedded mitigation measures as presented in <b>section 28.3.3</b> . The role of the site selection process in minimising landscape and visual effects is presented in <b>Chapter 4 Site Selection and Assessment of Alternatives</b> . Choice of colours and materials is set out in <b>Chapter 6 Project Description</b> .
<b>EN-3 NPS for Renewable Energy Infrastructure</b>		
<i>“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.”</i>	Paragraph 2.4.2	The proposed East Anglia ONE North project has been designed to address potential seascape, landscape and visual effects. Embedded mitigation measures that address seascape, landscape and visual effects are presented in <b>section 28.3.3</b> .

### 28.4.1.2 Assessment Guidance

52. This methodology has been specifically devised by OPEN for the assessment of wind energy developments and accords with Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3). Previous assessments which have been produced by OPEN using this methodology include Thanet Extension

and Norfolk Vanguard. The following publications have been used for guidance and reference in preparation of the SLVIA:

- Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope;
- Landscape Institute and IEMA (2013) - Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3);
- Landscape Institute (2017). Visual Representation of Development Proposals;
- Natural England (2012). An Approach to Seascape Character Assessment;
- Natural England (2014). An Approach to Landscape Character Assessment;
- Scottish Natural Heritage (SNH) (2012). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- SNH (2017) - Siting and Designing Windfarms in the Landscape, Guidance (Version 3) (herein referred to as 'SNH Siting and Designing'); and
- SNH (2017) - Visual Representation of Windfarms, Guidance (Version 2.2) (herein referred to as 'SNH Visual Representation').

#### 28.4.2 Data Sources

53. 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 characterisation, landscape designations and other Governmental and Local Planning Authority data of relevance. The full list of data sources is presented in **Appendix 28.2**.

#### 28.4.3 Impact Assessment Methodology

54. The methodology for the assessment of SL&V impacts of the construction and operation of the offshore infrastructure is set out in full in **Appendix 28.2**. A brief summary of the SLVIA methodology is provided within this chapter.

##### 28.4.3.1 Approach to Assessment of East Anglia One North

55. This SLVIA is undertaken for the East Anglia ONE North windfarm site as a standalone project, in **Appendices 28.3 – 28.6**, with the proposed East Anglia TWO project being considered as a cumulative source of impact and part of the cumulative context in **Appendix 28.7**.

##### 28.4.3.2 Approach to Operational Energy Developments

56. The SLVIA in **section 28.6** and **Appendices 28.3 – 28.6** considers effects of the construction and operation of the offshore infrastructure with a baseline of existing wind energy development, as listed in **Table 28.5** and illustrated in **Figure 28.9**.

#### 28.4.3.3 Whole Project Effects

57. The SLVIA presented in this chapter and LVIA presented in **Chapter 29 Landscape and Visual Impact Assessment** together provide a whole project assessment of the SL&V effects of the proposed East Anglia ONE North project i.e. of both the construction and operation of the offshore infrastructure (including windfarm site, offshore platforms, offshore cable corridor) and the onshore infrastructure and National Grid infrastructure.
58. The effect of the construction and operation of the offshore infrastructure on specific receptors (coastal viewpoints, seascape character types etc) is assessed within this chapter. The effect of the onshore development area on specific onshore receptors (inland viewpoints, landscape character areas etc) is assessed in **Chapter 29 Landscape and Visual Impact Assessment**. This chapter refers primarily to effects of the construction and operation of the offshore infrastructure, while **Chapter 29 Landscape and Visual Impact Assessment** refers primarily to effects of the construction and operation of the onshore infrastructure and together should be read as the de-facto whole project assessment of the proposed East Anglia ONE North project. A further assessment of inter-related effects in **section 28.11** assesses any areas where the construction and operation of the offshore infrastructure and onshore development area combine, or inter-relate, to have an effect e.g. on views from the coastal area near the landfall (between Sizewell and Thorpeness) and the combined effects of the construction and operation of the offshore infrastructure and onshore infrastructure on the character of the Suffolk Coast and Heaths AONB.

#### 28.4.3.4 Seascape Effects and Landscape Effects

59. In England, seascape character 'principally applies to coastal and marine areas seaward of the low-water mark' and landscape character 'principally applies to terrestrial areas lying to the landward side of the high-water mark' (Natural England 2012 p7, Box 1). Although these definitions are clear in the guidance, the importance of the interaction of sea, coastline and land as perceived by people is also highlighted in subsequent definitions of seascape in the guidance (Natural England 2012), indicating a subtler transition between seascape and landscape than defined in Box 1, p7 of the guidance.
60. In order to address this and avoid under-valuing the intertidal area between the mean low and high-water mark (Mean Low Water Springs (MLWS) and Mean High Water Springs (MHWS) respectively), this SLVIA assesses seascape effects on Seascape Character Types (SCTs) that are seaward of the mean low-water mark, which consist of areas of inshore waters and offshore shipping channels. Landscape effects are assessed on Landscape Character Types

(LCTs) lying to the landward side of the mean low-water mark, which includes beaches, intertidal areas and coastlines within LCTs covering the coast and those LCTs covering inland terrestrial areas with views of the proposed East Anglia ONE North project.

#### 28.4.3.5 Overview of Approach to SLVIA

61. The SLVIA deals with the effects of changes resulting from the proposed East Anglia ONE North project on landscape/ seascape as a resource, the views available to people and their visual amenity. The SLVIA is undertaken using the following steps:

- The features of the proposed East Anglia ONE North project that may result in seascape, landscape and visual effects are described;
- The overall scope of the assessment is defined, including the study area and range of possible seascape, landscape and visual effects;
- The seascape and landscape baseline is established using seascape and landscape character assessment and the ZTV of the proposed East Anglia ONE North project, to identify seascape and landscape receptors that may be affected and their key characteristics and value;
- The visual baseline is established by identifying the extent of possible visibility (ZTV), identifying the people who may be affected and identifying visual receptors and selecting viewpoints;
- A preliminary assessment is undertaken of landscape and visual receptors using ZTV analysis, to identify which landscape and visual receptors are unlikely to be significantly affected and those that are more likely to be significantly affected by the proposed East Anglia ONE North project, which require to be assessed in full;
- Interactions are identified between the proposed East Anglia ONE North project and seascape, landscape and visual receptors, to predict potentially significant effects arising and measures are proposed to mitigate effects;
- An assessment of the susceptibility of seascape, landscape and visual receptors to specific change and the value attached to seascape/ landscape receptors and views is undertaken, combining these judgements to assess the sensitivity of the seascape, landscape and visual receptor to the proposed East Anglia ONE North project;
- An assessment of the size/ scale of landscape effect, the degree to which landscape elements are altered and the extent to which the effects change the key characteristics of the seascape/ landscape is undertaken, combining these judgements to assess the magnitude of change on the seascape/ landscape receptor;

- An assessment of the size/ scale of visual effect, the extent to which the change would affect views, whether this is unique or representative of a wider area, and the position of the proposed East Anglia ONE North project in relation to the principal orientation of the view and activity of the receptor; These judgements are combined to assess the magnitude of change on the visual receptor; and
- The assessments of sensitivity to change and magnitude of change are combined to assess the significance of seascape, landscape and visual effects.

#### 28.4.3.6 Defining Impact Significance

62. The objective of the assessment is to predict the likely significant effects of the proposed East Anglia ONE North project on the SL&V resource. In accordance with the EIA Regulations, SL&V effects are assessed to be either significant or not significant. The SLVIA does not define intermediate levels of significance as the EIA Regulations do not provide for these.
63. The significance of the effect on each seascape/ landscape character receptor is dependent on all of the factors considered in the sensitivity of the receptor and the magnitude of change resulting from the proposed East Anglia ONE North project. Factors which influence levels of sensitivity and magnitude of change assessed in the SLVIA are set out in full in **Appendix 28.2**.
64. Judgements on sensitivity and magnitude of change are combined to arrive at an overall assessment as to whether the proposed East Anglia ONE North project will have an effect that is significant or not significant on each seascape/ landscape and visual receptor. An assessment of the factors considered in the evaluation of the sensitivity of each seascape/ landscape and visual receptor and the magnitude of the change resulting from the proposed East Anglia ONE North project is presented, in order that the relevant considerations which have informed the significance can be considered transparently. The matrix in **Table 28.4** helps to inform the threshold of significance when combining sensitivity and magnitude to assess significance.

**Table 28.4 Impact Significance Matrix – Seascape/Landscape Effects**

		Magnitude of change					
		High	Medium-high	Medium	Medium-low	Low	Negligible
Sensitivity	High	Significant	Significant	Significant	Significant or not significant	Not significant	Not significant
	Medium-high	Significant	Significant	Significant or not significant	Significant or not significant	Not significant	Not significant
	Medium	Significant	Significant or not significant	Significant or not significant	Not significant	Not significant	Not significant
	Medium-low	Significant or not significant	Significant or not significant	Not significant	Not significant	Not significant	Not significant
	Low	Significant or not significant	Not significant	Not significant	Not significant	Not significant	Not significant

#### 28.4.3.7 Geographical Extent

65. The geographic extent over which the seascape/ landscape and visual effects will be experienced is also assessed, which is distinct from the size or scale of effect. This evaluation is not combined in the assessment of the level of magnitude, but instead expresses the extent of the receptor that will experience a particular magnitude of change and therefore the geographical extents of the significant and not significant effects.
66. The extent of the effects varies depending on the specific nature of the proposed East Anglia ONE North project and is principally assessed through analysis of the extent of perceived changes through visibility of the proposed East Anglia ONE North project.

#### 28.4.3.8 Duration and Reversibility

67. The duration and reversibility of seascape/ landscape and visual effects is based on the period over which the proposed East Anglia ONE North project is likely to exist and the extent to which the proposed East Anglia ONE North project will be removed and its effects reversed at the end of that period. OPEN's methodology does not include duration and reversibility as part of magnitude of change, as there is potential that the reversibility aspect could alter or reduce potentially significant effects even though they are long-term. The duration and reversibility of the effects is instead determined separately in relation to the assessed effects.
68. Long-term, medium-term and short-term seascape/ landscape effects are defined as follows:

- Long-term – more than 10 years;
- Medium-term – 5 to 10 years; and
- Short-term – 1 to 4 years.

69. Duration and reversibility are not incorporated into the assessment of magnitude of change, but are stated separately in relation to the assessed effects (i.e. as short/medium/long-term and temporary/permanent) and are considered as part of drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.

#### 28.4.4 Cumulative Impact Assessment

##### 28.4.4.1 Introduction

70. In GLVIA3 (Landscape Institute and IEMA 2013, p120) the guidelines define cumulative landscape and visual effects as those that *'result from additional changes to the landscape and visual amenity caused by the proposal in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.'*

71. SNH's guidance, Assessing the Cumulative Impact of Onshore Wind Energy Developments (SNH 2012) is widely used across the UK to inform the specific assessment of the cumulative effects of windfarms. Both GLVIA3 and SNH's guidance provide the basis for the methodology for the cumulative SLVIA undertaken in this ES. The SNH (2012) guidance defines:

- Cumulative effects as *'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'* (SNH 2012, p4);
- Cumulative landscape effects are those effects that *'can impact on either the physical fabric or character of the landscape, or any special values attached to it'* (SNH 2012, p10); and
- Cumulative visual effects are those effects that can be caused by combined visibility, which *'occurs where the observer is able to see two or more developments from one viewpoint'* and/or sequential effects which *'occur when the observer has to move to another viewpoint to see different developments'* (SNH 2012, p11).

72. In line with guidance (SNH 2012), the SLVIA has sought to assess the key cumulative impacts which are likely to give rise to significant effects which could influence decision making, rather than assessing every potential cumulative

effect. **Chapter 5 EIA Methodology** provides information and the methodology that has been used for the Cumulative Impact Assessment (CIA).

#### 28.4.4.2 Scope of the Cumulative Assessment

73. In accordance with guidance (SNH 2012), the cumulative SLVIA undertaken in this ES assesses the combined effect of a set of developments taken together. The focus of the cumulative SLVIA is on the combined effect of the construction and operation of the proposed East Anglia ONE North offshore infrastructure with the construction and operation of the proposed East Anglia TWO project.
74. The main SLVIA in **Appendices 28.2 – 28.5** considers effects of the construction and operation of the offshore infrastructure with a baseline of existing energy development, as listed in **Table A2810** and illustrated in **Figure 28.9**.
75. The cumulative SLVIA in **Appendix 28.7** considers effects of the construction and operation of the East Anglia ONE North windfarm site cumulatively with the East Anglia TWO windfarm site, as this is the only relevant offshore project which requires assessment, as listed in **Table 28.5** and shown in the cumulative search plan (**Figure 28.9**). **Table 28.5** identifies those projects that have been scoped in and out of the cumulative assessment.

**Table 28.5 Other Energy Developments Considered in the SLVIA**

Project	Status	Distance (km) from coastline	Scoped in (✓) or scoped out (x)	Rationale
<b>Projects considered as part of the baseline</b>				
Scroby Sands	Operational	2.0 km	✓	Considered as part of the baseline.
Greater Gabbard	Operational	24.8 km (from Orford Ness)	✓	Considered as part of the baseline.
Galloper	Operational	28.9 km (from Orford Ness)	✓	Considered as part of the baseline.
Gunfleet Sands 1, 2 and 3	Operational	6.2 km (from Clacton-on-Sea)	✓	Considered as part of the baseline.
London Array	Operational	22.5 km (from Frinton-on-Sea)	✓	Considered as part of the baseline.
Lowestoft Ness Point	Operational	Onshore	✓	Considered as part of the baseline.
Sizewell A and B Nuclear Power Station	Operational	Onshore	✓	Considered as part of the baseline.

Project	Status	Distance (km) from coastline	Scoped in (✓) or scoped out (x)	Rationale
<b>Projects scoped out of the SLVIA (as agreed at scoping)</b>				
East Anglia ONE	Consented	48.6 (between Kessingland and Covehithe)	x	Limited theoretical visibility of East Anglia ONE offshore windfarm in coastal views and location behind East Anglia TWO windfarm site and at greater distance offshore.
East Anglia THREE	Consented	67.9 (Lowestoft)	x	Likelihood that there will be no visibility of East Anglia THREE offshore windfarm at distances over 67.9km from the coast.
Norfolk Vanguard	Application submitted	47.8 (Winterton-on-sea)	x	Limited theoretical visibility of Norfolk Vanguard in coastal views at distances of 47.8km from coast. Geographic separation from East Anglia ONE North windfarm site.
Norfolk Boreas	Application submitted	73.2 (Scraby)	x	Likelihood that there will be no visibility of Norfolk Boreas at distances over 73.2km from coast. Geographic separation from East Anglia ONE North windfarm site.
National Grid Ventures (NGV) inter-continental connectors (Nautilus and Eurolink)	Pre-application	NA - site location yet to be determined	x	NGV inter-continental connector projects are at pre-application stage. Lack of detail dictates that the NGV projects cannot be properly considered as part of the SLVIA for the proposed East Anglia ONE North project.
<b>Projects considered as part of the cumulative impact assessment (assessed in <i>Appendix 28.7</i>)</b>				
East Anglia TWO	Application submitted	32.6km	✓	The proposed East Anglia TWO project will be included in the cumulative assessment for the proposed East Anglia ONE North offshore windfarm due to its proximity and potential for cumulative effects on receptors/coastal views from the Suffolk/Norfolk coast.
Sizewell C	Scoping	Onshore	✓	EDF Energy's proposals for a new nuclear power station to north of Sizewell B may have cumulative effect interactions with the onshore infrastructure associated with the proposed East Anglia

Project	Status	Distance (km) from coastline	Scoped in (✓) or scoped out (x)	Rationale
				ONE North project. Cumulative effects assessed in <b>Chapter 29 Landscape and Visual Impact Assessment</b>

#### 28.4.4.3 Significance of Cumulative Effects

76. Judgements on sensitivity and cumulative magnitude of change are combined to arrive at an overall assessment as to whether the proposed East Anglia ONE North project will have a cumulative effect that is significant or not significant on each seascape/ landscape and visual receptors. An assessment of the factors considered in the evaluation of the sensitivity of each seascape/ landscape and visual receptor and the magnitude of the change resulting from the proposed East Anglia ONE North project is presented, in order that the relevant considerations which have informed the significance can be considered transparently.
77. The matrix in **Table 28.4** helps to inform the threshold of significance when combining sensitivity and magnitude to assess significance.
78. Significant cumulative SL&V effects are likely to arise where the addition of the proposed East Anglia ONE North project, leads to offshore windfarms/energy development becoming a prevailing seascape/ landscape and visual characteristic of a receptor that is sensitive to such change.

#### 28.4.5 Transboundary Impact Assessment

79. Transboundary effects have been scoped out of the SLVIA since there is no potential for transboundary seascape/ landscape and visual effects to arise as a result of the construction and operation of the offshore infrastructure.

#### 28.4.6 Visual Representations

80. The methodology for the production of visual representations (photomontages and ZTVs) of the East Anglia ONE North windfarm site is set out in full in **Appendix 28.2**.
81. Photomontages have been produced in accordance with SNH Visual Representation of Windfarms Guidance (SNH February 2017) and the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA 3) (Landscape Institute and IEMA 2013).
82. In preparing photomontages for the SLVIA, photographs have been taken in favourable weather conditions. Weather conditions shown in the photographs for

all viewpoints have, where possible, been taken during periods of 'very good' or 'excellent' visibility conditions, during summer and in the afternoon or evening - seeking to represent a maximum visibility scenario when the developments may be highly visible. In reality, the degree and extent of visual effects arising from the East Anglia ONE North windfarm site will be influenced by the prevailing weather and visibility conditions. Viewing conditions and visibility have been found to vary as described in **section 28.8.3.1** and **Appendix 28.8 and 28.9**.

83. A selection of receptor locations / viewpoints were agreed with the ETG as needing night-time photomontages to illustrate the likely impacts of aviation and marine safety lighting, from Lowestoft, Kessingland, Southwold and Aldeburgh. These receptors for night-time photo locations were agreed with the ETG based on the locations where people will most likely experience night-time views, i.e. the sea fronts of key settlement receptors. The photomontages from these viewpoints also help with understanding of the likely effects of aviation lighting in views from other nearby coastal locations. The SLVIA and the night-time photomontages in **Figures 28.25f, 28.26f, 28.28g, 28.37e** assume full lighting intensity of the 2000cd aviation warning lights in very good to excellent visibility conditions, as a worst case. Additional photomontage visualisations of the aviation lights at 200cd are also shown in **Figures 28.25g, 28.26g, 28.28h, 28.37f** as this represents a more realistic scenario.
84. Lighting requirements would follow the MCA (2018) guidance, Offshore Renewable Energy Installations: Requirements, Guidance and Operational Considerations for Search and Rescue and Emergency Response. This will ensure that adequate consideration with regard to lighting of offshore structures is given for Search and Rescue and Emergency Response. In addition, the following assumptions have been made with regards to lighting of the East Anglia ONE North windfarm site:
- Red, medium intensity aviation warning lights (of variable brightness between a maximum of 2000 candela (cd)) to a minimum of 10% of the maximum which would be 200cd) will be located on either side of the nacelle of significant peripheral wind turbines. These lights will flash simultaneously with a Morse W flash pattern and will also include an infra-red component;
  - All aviation warning lights will flash synchronously throughout the East Anglia ONE North windfarm site and be able to be switched on and off by means of twilight switches (which activate when ambient light falls below a pre-set level);
  - Aviation warning lights will allow for reduction in lighting intensity at and below the horizon when visibility from every wind turbine is more than 5km (to a minimum of 10% of the maximum, i.e. 200cd);

- Search and rescue (SAR) lighting of each of the non-periphery turbines will be combi infra-red (IR)/200cd steady red aviation hazard lights, individually switchable from the control centre at the request of the MCA (i.e. when conducting SAR operations in or around the East Anglia ONE North offshore windfarm site);
  - All wind turbines will be fitted with a low intensity light for the purpose of helicopter winching (green hoist lamp). All wind turbines will also be fitted with suitable illumination (minimum one 5cd light) for ID signs; and
  - Marine navigational lights will be fitted at the platform level on significant peripheral structures (SPS). These lights will be synchronized to display simultaneously an IALA “special mark” characteristic, flashing yellow, with a range of not less than five (5) nautical miles.
85. The photomontage visualisations of the East Anglia ONE North windfarm site (and any windfarm proposal) have a number of limitations when using them to form a judgement on visual impact.
86. Rendering of the wind turbines in the photomontages is as photorealistic as possible to the conditions shown in each viewpoint photograph. There is some variation in the appearance and visibility of the wind turbines between the viewpoints, as they are rendered to suit the conditions shown in each of the different viewpoint photographs, which have some unavoidable degree of variation in terms of lighting and weather conditions. The key requirement is that the wind turbines have been rendered with sufficient contrast against the skyline backdrop to illustrate their maximum visibility scenario in each image. The full suite of viewpoint photomontages should be viewed to gain an impression of the likely visual effects of the East Anglia ONE North windfarm site.
87. The ZTV has been generated using GIS software (ESRI ArcGIS Version 10.5) to demonstrate the number of wind turbines that may theoretically be seen from any point in the study area. The ZTVs, shown in **Figures 28.4 to 28.6**, show the number of wind turbines (blade tips) that are theoretically visible around the study area (based on the maximum blade tip height of 300m). The ZTVs in **Figures 28.16 to 28.19** are shown in conjunction with the seascape, landscape and visual receptors.

## 28.5 Existing Environment

### 28.5.1 Seascape Character

#### 28.5.1.1 Seascape Definition

88. In England, Seascape Character principally applies to coastal and marine areas seaward of the low water mark. Seascape, like landscape is about the relationship between people and place and the part it plays in forming the setting

to our everyday lives. Seascape results from the way that the different components of the environment – both natural and cultural - interact and are understood and experienced by people. Seascape is defined by Natural England in its position statement on All Landscapes Matter (2010) as: “An area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land with sea, by natural and/or human factors”. A summary of what constitutes seascape is presented in ‘An Approach to Seascape Character Assessment’ (Natural England 2012).

89. A definition of seascape is also set out in NPS EN3 (2.6.203): “*Where necessary, assessment of the seascape should include an assessment of three principal considerations on the likely effect of offshore windfarms on the coast:*
- *Limit of visual perception from the coast;*
  - *Individual characteristics of the coast which affect its capacity to absorb a development; and*
  - *How people perceive and interact with the seascape”.*

#### 28.5.1.2 Seascape Overview

90. The seascapes of Suffolk, south Norfolk and north Essex within the SLVIA study area, are varied and interesting seascapes, which are valued natural and cultural assets. They contain important habitats, contribute to the setting of designated landscapes (notably the Suffolk Coast and Heaths AONB); are important from an economic perspective, with major ports, seaside resorts and commercial activities at sea and along the coast; and contribute to the culture and identity of local communities.
91. In 1996, the ‘Character of England: landscape, wildlife and natural features’ map was published, which included ‘Maritime Natural Areas’ and onshore ‘Natural Areas’. The SLVIA study area includes the full extent of the Suffolk Coast Maritime Natural Area, together with parts of the Sheringham to Lowestoft and Southern North Sea Marine Natural Area. The immediate onshore hinterland of the study area encompasses five terrestrial natural areas – North Norfolk, The Broads, Suffolk Coast and Heaths, London Basin and Greater Thames Estuary.
92. The SLVIA study area falls within the East Inshore Marine Plan area (MMO 2012), which is described as covering an area with “...*its coastline includes exposed sandy beaches, soft glacial till cliffs and seafront towns...busy with tourism, recreational activities and fisheries. Shallow waters and sandbanks provide important wildlife habitats and spawning grounds for many species and the area is rich in wildlife with many internationally designated sites.*”

93. The East Offshore Marine Plan Area is described as “...predominantly open, expansive, shallow water supporting oil and gas platforms and commercial activities such as shipping, aggregate extraction and fishing. Designated shipping routes, cables infrastructure and oil and gas pipelines cross the offshore area linking the United Kingdom mainland with Europe.” (MMO 2012)
94. In October 2012, Natural England published a pilot seascape character assessment of the Marine Plan Areas 3, 4 and Part of Area 6. The assessment maps and describes 11 seascape character areas at the national scale, highlights their key characteristics and their physical and cultural influences along with aesthetic and perceptual qualities.
95. In July 2012, the MMO published a study that was undertaken to summarise and respond to comments received following the informal consultation of the key characteristics for 10 of the seascape character areas described in the pilot study published by Natural England (MMO 2012). The study area includes the following Seascape Character Areas: Suffolk Coastal Waters; Norfolk Coastal Waters; East Anglian Shipping Waters; and East Midlands Offshore Gas Fields (**Figure 28.10**).

#### 28.5.1.3 Suffolk, South Norfolk and North Essex Seascape Character Assessment

96. During pre-application discussions between the SLVIA ETG (Suffolk County Council, Suffolk Coastal and Waveney District Council, Great Yarmouth Borough Council) and the Applicant, regarding the East Anglia ONE North offshore windfarm, it was noted that there was no published seascape character assessment for the proposed study area for the SLVIA.
97. It was agreed that it would be necessary to map and describe seascape character to an appropriate level of detail to provide a comprehensive description of the marine areas of Suffolk and south Norfolk to inform the project and assessment of effects of the East Anglia ONE North windfarm site on seascape character (whilst also having an application in informing wider planning, design and management decisions).
98. In response, Suffolk County Council and Suffolk Coastal and Waveney District Council commissioned the Suffolk, South Norfolk and North Essex Seascape Character Assessment (LDA Design December 2018).
99. The SLVIA uses this Suffolk, South Norfolk and North Essex Preliminary Seascape Character Assessment (LDA Design 2018) to define the baseline seascape characterisation for the assessment. This preliminary seascape character assessment maps and describes the seascape character of the Suffolk, south Norfolk and north Essex coast in order to provide a comprehensive

baseline description of the marine environment consistent with information available for terrestrial areas, at the county scale of assessment.

100. The emphasis is on mapping SCTs (**Figure 28.10**) and describing their 'key characteristics' (set out in full in **Appendix 28.3**). A subsequent phase will develop the description presented for each SCT to include aesthetic and perceptual qualities, drawing on further assessment work.
101. The seascape within which the East Anglia ONE North windfarm site is located is defined by the Offshore Waters SCT (06) (**Figure 28.10**). Situated at a distance of approximately 18km from the coastline and extending to the seaward extents of the SLVIA study area, the Offshore Waters SCT is formed by an open expanse of sea with consistently deep waters, generally in excess of 30m. The seascape is visually unified, with an expansive open character, but the character is influenced by the presence of commercial vessels crossing these busy shipping waters, to and from major coastal ports, which are often visible from the shore. The existing Greater Gabbard and Galloper offshore windfarms, together with the under-construction East Anglia ONE offshore windfarm, form a key characteristic in the baseline character of the southern and central parts of the SCT. The lights of shipping, flashing maritime navigation devices and lighting of existing offshore wind turbines have an influence on the seascape character at night.
102. The East Anglia ONE North windfarm site is also located 17.5km from the Coastal Waters SCT (05), which runs parallel to the coastline and marks a transition between the Nearshore Water SCT (03) and Developed Nearshore Waters SCT (04) which lie closer to the coast, and the Offshore Waters SCT (06) which lies further out to sea. Situated at a distance of 8km from the coast, the Coastal Waters SCT (05) is defined by an open expanse of sea, with simple bathymetry between 20 and 30 m in depth, incorporating commercial shipping routes and busy fishing waters. The Nearshore Waters SCT (03) extends along the coastline between Old Felixstowe and Lowestoft, occupying the shallower coastal waters associated with the Suffolk coastline; and to the north is the Developed Nearshore Waters SCT (04) which occupies the coastal waters associated with the largely developed stretch of coast extending north from Lowestoft.
103. Two further SCTs identified within the Suffolk, South Norfolk and North Essex Preliminary Seascape Character Assessment are located outside and to the south of the SLVIA study area. The Inland Navigable Waters SCT (01) extend across the estuaries of the River Stour and River Orwell, the eastward limits of which are defined by the adjacent International Ports and Approaches SCT (02).
104. The key characteristics of each SCT in the SLVIA Study Area (**Figure 28.10**) are described in full and assessed in **Appendix 28.3**.

## 28.5.2 Landscape Character

### 28.5.2.1 Landscape Character Areas

105. Landscape character principally applies to terrestrial areas lying to the landward side of the high-water mark. There is a hierarchy of published Landscape Character Assessments (LCAs) that describe the baseline landscape character of the landscape in the SLVIA study area, at the National, County and District level.
106. The English Landscape is classified at the national level by National Character Areas (NCAs). The 159 NCAs, which cover the country, were originally identified by the Countryside Agency. This mapping and the associated descriptions have been revised and developed by Natural England into NCA profiles, which provide a recognised, national, spatial framework.
107. At the National level, the SLVIA study area is characterised by the following NCAs, as shown in **Figure 28.11**:
- North East Norfolk and Flegg (NCA 79);
  - The Broads (NCA 80);
  - Suffolk Coast and Heaths (NCA 82); and
  - South Norfolk and High Suffolk Claylands NCA (NCA 83).
108. The Suffolk Coast and Heaths NCA covers the largest part of the SLVIA study area and is located approximately 36.7km from the East Anglia ONE North windfarm site, at its closest point. The Suffolk Coast and Heaths NCA lies on the North Sea coast between Great Yarmouth in the north and Harwich in the south, forming a long, narrow band that extends between 10-20km inland. The distinctive landscape character is a product of its underlying geology, shaped by the effects of the sea and the interactions of people. It is mainly flat or gently rolling, often open but with few commanding viewpoints. In many places, and especially near the coast, wildlife habitats and landscape features lie in an intimate mosaic, providing diversity. Farming utilises much of the total land area, however the remaining land consists of coast and lowland heaths (known locally as the Sandlings) and form distinctive features, although traditional heath is now much fragmented. The coast is interrupted by five estuaries (Stour, Orwell, Deben, Alde/Ore and Blyth) with extensive intertidal areas of mudflat and salt marsh. The importance of the coast for biodiversity is recognised by its many wildlife designations. The shoreline consists of predominantly shingle beaches, often extensive in nature. Shingle structures, such as Orford Ness, form important geomorphological features.

109. Local Planning Authorities across England have produced LCAs for their areas which subdivide the broader NCAs into more detailed Landscape Character Areas. These County Council and District Council scale landscape characterisations are utilised in the SLVIA.
110. The Suffolk County Council Landscape Character Assessment (Suffolk County Council 2008/2011) define the baseline for the Suffolk section of the SLVIA study area, as mapped in **Figure 28.12**. The LCAs identified within this character assessment are considered to be of an appropriate scale to allow assessment of the effects of the construction and operation of the offshore infrastructure over a relatively wide SLVIA study area, but at a sufficient level of detail. The SLVIA presents a baseline description of relevant LCAs from the Suffolk County Council Landscape Character Assessment in **Appendix 28.4** and assesses the likely significant effects of the construction and operation of the offshore infrastructure on their landscape character. In the context of the construction and operation of the offshore infrastructure, only the visual/perceptual characteristics of onshore LCAs in the Suffolk County Council Landscape Character Assessment are likely to be relevant when considering potential effects, given that there will be no alteration to physical features of these LCTs as a result of the offshore infrastructure.
111. There are various district level landscape character assessments and other reference material that may also inform the baseline description of the SLVIA study area, within the framework of the Suffolk County Council Landscape Character Assessment, including:
- Waveney District Landscape Character Assessment (Waveney District Council 2008);
  - Touching the Tide Landscape Character Assessment (Suffolk Coast and Heaths AONB 2012); and
  - Shotley Peninsula and Hinterland Landscape Character Assessment (Stour and Orwell Society 2013).
112. Norfolk County Council does not have an equivalent county scale landscape character assessment for the region. Reference will instead be made to District Council landscape character assessments covering Great Yarmouth, Broadland and South Norfolk as follows and shown in **Figure 28.12**:
- Great Yarmouth Landscape Character Assessment (Great Yarmouth Borough Council 2008);
  - Broadland District Landscape Character Assessment (Broadland District Council 2013); and

- South Norfolk Landscape Character Assessment (South Norfolk Council 2001).
113. The SLVIA presents a baseline description of relevant LCAs from the Great Yarmouth Borough Landscape Character Assessment in **Appendix 28.4** and assesses the likely significant effects of the construction and operation of the offshore infrastructure on the landscape character of relevant LCAs within Great Yarmouth Borough. In the context of the construction and operation of the offshore infrastructure, only the visual/perceptual characteristics of onshore LCAs in Great Yarmouth will be relevant when considering potential effects, given that there will be no alteration to physical features of these LCTs as a result of offshore development.
114. Potential landscape effects of the construction and operation of the offshore infrastructure on LCAs within Broadland and South Norfolk Districts are scoped out of the assessment. Significant effects on the landscape character of LCAs within these districts are unlikely due to the long distance of the East Anglia ONE North windfarm site from Broadland District (approximately 46.3km) and South Norfolk (approximately 41.6km); and the limited visibility to the sea and the East Anglia ONE North windfarm site afforded from the landscapes in these districts, which are located further inland, low-lying and partially screened by landforms and intervening vegetation (woodland and hedgerows).

#### 28.5.2.2 Landscape Designations

115. The East Anglia ONE North windfarm site is located out with any areas subject to international, national or regional landscape designation intended to protect landscape quality, as shown in **Figure 28.13**.
116. A number of landscape designations occur in the wider landscape of the SLVIA study area and include the nationally important Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB), which is located approximately 37.7km from the East Anglia ONE North windfarm site (**Figure 28.13**). The Suffolk Heritage Coast is largely contained within the AONB and is located 36.1km from the East Anglia ONE North windfarm site (**Figure 28.13**).

##### 28.5.2.2.1 Suffolk Coast and Heaths AONB

117. The unique character of the AONB is a product of its underlying geology, shaped by the effects of the sea and the interaction of people with the landscape. It is a mainly flat or gently rolling landscape, often open but with few commanding viewpoints. In many places, and especially near the coast, habitats and landscape features lie in an intimate mosaic, providing great diversity in a small area.

118. The AONB comprises mainly farmland. Other main components of the landscape are forestry plantations, low-lying freshwater marshes, intertidal estuaries, heathland, the coast, small villages and iconic coastal market towns. The area is probably best known for the particularly distinctive features of the coast and lowland heath which give the AONB its name. Where it joins the sea, the AONB consists of predominantly shingle beaches, often extensive in nature, and backed in places by sandy cliffs. The coastline is interrupted by five river estuaries (Blyth, Alde/Ore, Deben, Orwell and Stour) with extensive wildlife-rich intertidal areas of mudflat and saltmarsh. In some places, old estuary mouths have become blocked, creating large areas of brackish or freshwater marshland of significant wildlife value. Centuries old river walls were created to reclaim intertidal areas from the estuaries. These areas claimed from the sea are now important for agriculture.
119. The area's heathland, known locally as the Sandlings and now much fragmented, follows the line of the coast. Large areas that were once Sandlings heath have been converted to farmland, planted as coniferous forests or developed for housing or military airfields, particularly during the 20th century. The Suffolk Coast & Heaths AONB remains a lightly populated, undeveloped area, popular for outdoor recreation and tourism. The area is valued for its tranquillity, the quality of the environment and culture and for its wildlife.
120. The main LCTs that make up the Suffolk Coast & Heaths AONB are:
- Coastal Dunes and Shingle Ridges (LCT 05);
  - Coastal Levels (LCT 06);
  - Open Coastal (LCT 08) and Wooded Fens (LCT 29);
  - Estate Sandlands (LCT 07);
  - Estate Farmlands (LCT 11 and 15);
  - Rolling Estate Sandlands (LCT 16);
  - Saltmarsh and Intertidal Flats (LCT 20); and
  - Valley Meadowlands (LCT 26).
121. A landscape baseline of the Suffolk Coast and Heaths AONB is described in full in **Appendix 28.4**, referring to these LCTs from the Suffolk Landscape Assessment, the AONB Management Plan and the AONB Special Qualities report (EDF Energy, Suffolk Coast and Heaths AONB Partnership, Suffolk County Council, Suffolk Coastal District Council and Waveney District Council, 2016).

122. The SLVIA assesses the effects of the construction and operation of the offshore infrastructure on the special characteristics and qualities of the Suffolk Coast and Heaths AONB in **Appendix 28.4**, including consideration of effects relating to the contribution of the inshore waters to the character and the special qualities of the AONB, as well as its contribution to their setting.

#### 28.5.2.2.2 Suffolk Heritage Coast

123. The Suffolk Heritage Coast is located within the SLVIA study area, approximately 36.1km from the East Anglia ONE North windfarm site at its closest point. The Suffolk Heritage Coast was defined in 1973 and is largely contained within the AONB. It runs from Kessingland to Felixstowe and incorporates the Blyth, Alde/Ore and lower Deben estuaries. There are no statutory requirements or powers associated with the Heritage Coast definition, however it is noted that it includes objectives for conserving the environmental health and biodiversity of inshore waters and beaches, and to extend 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. The purpose of Heritage Coast is similar to that of an AONB. As its geographic area is largely within the AONB and its protection policies are now incorporated into the AONB Management Plan, the effects on the Suffolk Heritage Coast designation are considered as integral to this assessment of the AONB.

#### 28.5.2.2.3 The Broads National Park

124. The Norfolk and Suffolk Broads (the Broads) is Britain's largest protected wetland and third largest inland waterway, with the status of a National Park and is located approximately 39.3km from the East Anglia ONE North windfarm site at its closest point. The landscape baseline of the Broads National Park is mapped in **Figure 28.13**, referring to:

- The Broads Landscape Character Assessment (Broads Authority 2006); and
- The Broads Landscape Sensitivity Study for Renewables and Infrastructure (Broads Authority / Prepared by LUC July 2012).

125. Potential landscape effects of the construction and operation of the offshore infrastructure on the Broads National Park have been scoped out of the SLVIA assessment, as agreed with the Planning Inspectorate during scoping, due to the long distance of the East Anglia ONE North windfarm site from the Broads (approximately 39.3km); and the limited visibility to the sea and the East Anglia ONE North windfarm site afforded from the landscapes of the Broads, which are located further inland, very low-lying and partially screened by surrounding landforms and intervening vegetation (woodland and hedgerows).

#### 28.5.2.2.4 Registered Parks and Gardens (RPG)

126. There are several Registered Parks and Gardens (RPG) in the study area (**Figure 28.13** and **28.18**), the closest of which to the East Anglia ONE North windfarm site is Belle Vue Park (36.6km). Further RPGs are located at Henham and Somerleyton Park. The SLVIA assess the effects of the construction and operation of the offshore infrastructure on the character of RPGs in **Appendix 28.4**.

### 28.5.3 Views/Visual Amenity

#### 28.5.3.1 Zone of Theoretical Visibility

127. Visual effects will occur when the introduction of the construction and operation of the offshore infrastructure changes or influences the visual amenity and views experienced by people in the area. The visual baseline is defined by the ZTV shown in **Figure 28.5** and in more detail in **Figure 28.6**. The ZTV shows the main area in which the East Anglia ONE North windfarm site will theoretically be visible, highlighting the different groups of people who may experience views of the East Anglia ONE North windfarm site and assisting in the identification of viewpoints where they may be affected.
128. The ZTV shown in **Figure 28.5** and **28.6** is based on a windfarm layout consisting of 300m wind turbines with a 300m blade tip height, representing the maximum visibility scenario for the SLVIA. This is the highest turbine height under consideration for the project envelope, but also the lowest number of turbines and will have the least dense appearance in views.
129. The Blade Tip ZTV (**Figures 28.5** and **28.6**) shows the main areas of theoretical visibility of the East Anglia ONE North windfarm site will be along the Suffolk and Norfolk coastlines and immediate hinterland, between Newport, Norfolk in the north and Sizewell, Suffolk in the south. The closest areas of theoretical visibility of the East Anglia ONE North windfarm site will be between Lowestoft and Southwold at approximately 36km from the coast at its closest point at Lowestoft. Theoretical visibility also extends along the coast, at longer distances north of Lowestoft and Great Yarmouth; and south to areas around Thorpeness and Aldeburgh.
130. The area of theoretical visibility of the East Anglia ONE North windfarm site becomes more fragmented from the hinterland and inland areas of the SLVIA study area, where views of the sea become increasingly screened within the main river valleys, either by adjacent rising land or coastal landforms. Actual visibility from these hinterland and inland areas also becomes increasingly screened by vegetation, such as woodland and hedgerows, and/or built development and settlement. There are relatively few elevated areas affording wider views of the sea from inland areas of the SLVIA study area.

### 28.5.3.2 Visual Receptors

131. The principal visual receptors are those that are most likely to be susceptible to visual effects arising from the construction and operation of the offshore infrastructure. The principal visual receptors in the SLVIA study area (**Figure 28.14**) are likely to be focused along the closest sections of the Suffolk and south Norfolk coastline, including people within settlements, driving on roads, visitors to tourist facilities or historic environment assets, and people engaged in recreational activity such as on walking along the Suffolk Coastal Path, cycling, informal beach activities and recreational sailing.
132. Principal visual receptors that are likely to be susceptible to visual effects arising from the construction and operation of the offshore infrastructure are located along the Suffolk and south Norfolk coastlines and immediate hinterland, including:
- Coastal settlements - including; Great Yarmouth; Gorleston-on-sea; Hopton-on-sea; Corton; Lowestoft; Kessingland; Southwold; Walberswick; Dunwich; Thorpeness and Aldeburgh;
  - Recreational routes - including the Suffolk Coastal Path; Regional Cycle Routes 30, 31, 41, 42 and 517;
  - Main road routes - such as the A12 and the various roads that lead off it to the coast such as the A1095, B1083, B1084, B1353, B1122, B1125, B1127;
  - Visitors to natural assets – such as the Suffolk Coast and Heaths AONB, beaches and woodland;
  - Visitors to tourist facilities - such as the sea fronts/beaches of the main coastal towns/resorts, holiday villages and nature reserves/visitor centres; and
  - Visitors to historic environment assets - such as Dunwich Heath, and the series of Martello Towers along the Suffolk coast.

### 28.5.3.3 Viewpoints

133. Representative and illustrative viewpoints proposed for the visual assessment are identified in **Table 28.6** and mapped in **Figures 28.5** and **Figure 28.6**.
134. Representative viewpoints are selected to represent the experience of different types of visual receptor where larger numbers of viewpoints cannot all be included. A combination of baseline panorama, wireline and full photomontage visualisations has been produced. Full written analysis of visual effects will be undertaken in the SLVIA for those viewpoints that may experience significant visual effects, while others may be scoped out during preliminary assessment if no potential for significant effects is identified.

135. Illustrative viewpoints are chosen specifically to demonstrate a particular effect or specific issue (including restricted visibility). A baseline panorama and wirelines visualisation have been produced, but a written assessment of the visual effects from these viewpoints is not included in the SLVIA as agreed with the SLVIA ETG in Suffolk County Council / Suffolk Coastal and Waveney District Councils comments on viewpoint selection (27/07/2017).
136. Viewpoints have been compiled based on consultee feedback, the potential landscape and visual receptors and the ZTV for the East Anglia ONE North windfarm site. Consultations with the SLVIA ETG (Suffolk County Council, Suffolk Coastal District Council, Waveney District Council, Great Yarmouth Borough Council, the Broads National Park, Suffolk Coast and Heaths AONB unit, Natural England and Historic England) have been ongoing and the agreement of viewpoint locations for use in the SLVIA has been reached following consideration of their combined feedback. The viewpoints to be included in the SLVIA are listed in **Table 28.6**. The baseline panoramas from these viewpoints are shown in **Figures 28.26 – 28.53** and existing views described in full in **Appendix 28.5**. The numbering of the viewpoints is consistent with that used in the proposed East Anglia TWO project SLVIA in order to simplify cross referencing should this be required. Not all the viewpoints used in the East Anglia TWO SLVIA are used in the East Anglia ONE North SLVIA due to the greater distance offshore of East Anglia ONE North.

**Table 28.6 Viewpoints included in SLVIA**

Viewpoint	Easting	Northing	Distance from East Anglia ONE North windfarm site (km)	Distance from nearest wind turbine (km) (Figure 28.1)	Horizontal Angle (°) of nearest wind turbine (Figure 28.1)	
<b>Representative viewpoints</b>						
<b>Suffolk</b>						
1	Lowestoft	654451	291813	36.9	37.5	16.0
2	Kessingland Beach	653618	285844	37.8	38.3	16.7
3	Covehithe	652370	281104	39.7	40.1	16.6
4	Southwold	651072	276454	42.1	42.5	16.1
5	Gun Hill, Southwold	650828	275764	42.5	42.9	16.0
6	Walberswick	649936	274658	43.7	44.1	15.6
7	Dunwich	647961	270777	46.9	47.3	14.8

Viewpoint	Easting	Northing	Distance from East Anglia ONE North windfarm site (km)	Distance from nearest wind turbine (km) (Figure 28.1)	Horizontal Angle (°) of nearest wind turbine (Figure 28.1)	
8	Dunwich Heath & Beach (Coastguard cottages)	647700	267801	48.3	48.7	14.4
9	Minsmere Nature Reserve	647171	267225	49.0	49.4	14.2
10	Sizewell Beach	647542	262858	50.2	50.8	14.0
11	Suffolk Coastal Path, between Thorpeness and Sizewell	647624	260987	50.9	51.4	13.9
12	Thorpeness	647287	259490	51.7	52.4	13.8
13	Aldeburgh	646525	256500	53.5	54.2	13.9
<b>Norfolk</b>						
19	Hopton-on-sea	653585	299727	39.2	39.9	16.9
20	Gorleston-on-sea	652912	303337	41.0	41.7	16.9
21	Great Yarmouth, South Beach	653175	307578	42.5	43.1	17.2
22	Caister-on-sea	652777	312085	45.0	45.6	16.9
<b>Illustrative viewpoints</b>						
Illustrative viewpoints chosen specifically to demonstrate a particular effect or issue; appropriate visualisation produced, but written analysis of the impacts not required for LVIA.						
A	Southwold Common	650484	276162	42.8	43.1	0
B	Ness Point, Lowestoft	655573	293668	36.0	36.7	17.1
C	Corton Holiday Village	654535	297101	37.7	38.3	17.0
D	Southwold Pier	651357	276627	41.7	42.1	16.2
G	North Warren	645241	259034	53.8	54.4	13.3

#### 28.5.4 Anticipated Trends in Baseline Condition

137. The baseline character of the landscape in the study area 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 the proposed East Anglia ONE North project progresses to construction or not.

138. 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 planning policies covering the coastal landscape within the study area, such as the AONB, generally seek to conserve and enhance the natural beauty of the area, while recognising the need to adapt to inevitable change over time, particularly in such a dynamic coastal landscape shaped by coastal processes, and the need to respond to development pressures that reflect the changing needs of society.
139. There is overwhelming evidence that global climate change, influenced by the human use of fossil fuels, raw materials and intensive agriculture, is occurring (IPCC 2014). Any notable change in climate is likely to present potential changes to the coastline of the study area in a variety of ways. The legislative framework already exists to ensure that no net loss of internationally important habitat occurs, but there remains a need to increase understanding of the potential effects of climate change on the characteristic landscapes of the study area and to develop longer term strategies that will mitigate any adverse effects of climate change.
140. Suffolk County Council has produced 'Suffolk Climate Action Plan 3' (2017) which presents a summary of the County's climate change strategy. The Action Plan states "*Extremes of weather are fast becoming the 'new normal', which presents particular challenges to this, the most vulnerable region in the UK to the impacts of climate change, and the most low-lying with up to 30 per cent of land below sea level. This is also the driest area of the UK, with less annual average rainfall than parts of the Middle East, and yet our population is fast growing too, which brings into sharp focus the need to manage our year-round precious water resources. The rainfall we do get is increasingly falling in high intensity events, presenting significant management challenges.*" In respect of the study area associated with East Anglia ONE North, higher sea levels will affect much of the Suffolk coastline, with some coastal areas predicted to being lost to the sea. Droughts and flooding will affect the productivity of agricultural land and the stability of farm businesses, while woodlands and other semi-natural landscapes, would be affected both in dry periods and wet periods, with long-term water-logging in low-lying parts presenting a particular problem.
141. The nationally designated AONB landscape within the study area is subject to changes implemented from the aims and objectives of the Suffolk Coast and Heaths AONB Management Plan (Suffolk Coast and Heaths AONB 2013 - 2018). The baseline conditions of this AONB landscape are likely to change gradually over time in response to the implementation of actions set out in the AONB Management Plan (Section 5).

142. Recent development management decisions/planning decision precedent has established and accepted landscape change from offshore windfarm development in the seascape of the study area. Several large scale offshore windfarms are operating and visible in the seascape of the study area, including Scroby Sands in the nearshore waters near Great Yarmouth; Galloper and Greater Gabbard in the offshore waters of the southern part of the study area; and other windfarms such as London Array and Gunfleet Sands (I, II and III) also being visible in the seascape outside the study area to the south, off the north Essex coastline. The baseline conditions are likely to change as a result of further offshore wind energy development in this seascape, with other offshore windfarms under construction nearby (East Anglia ONE) and consented (East Anglia THREE). There are other proposals for large scale offshore windfarms at long distance from the Norfolk coastline, at Norfolk Vanguard and Norfolk Boreas, which are anticipated to change the baseline of the wider seascape. The East Anglia ONE North project fits with the current approach to accommodate wind energy development in this seascape.
143. There is notable development pressure in the Sizewell area of the study area, with several National Grid Ventures (NGV) inter-continental connector projects at pre-application stage. Lack of detail dictates that these NGV projects cannot be properly considered as part of the SLVIA, but there is potential for these projects, if implemented, to increase the influence of energy development in the Sizewell area. EDF Energy's proposals for a new nuclear power station, Sizewell C, to north of Sizewell B are within the onshore study area and may have a notable change to the baseline landscape and visual conditions of the area to the north of the existing Sizewell Power Station, with proposals for a new nuclear power station, accommodation campus, new road and rail access and beach landing facility outlined in the Stage 3 consultation summary document (EDF 2019).
144. Further development pressures which may change the baseline conditions, include suburbanisation and increased tourist development influences, particularly around the coastal landscapes and established coastal towns within the study area, which have potential to increase the developed influence and reduce perceived naturalness of the coastline.

## 28.6 Potential Seascape Impacts during Construction, Operation and Decommissioning

### 28.6.1 Preliminary Assessment

145. The potential seascape impacts that could arise as a result of the construction and operation of the offshore infrastructure are identified as follows:
- Temporary impacts on seascape character during construction and decommissioning; and

- Long-term impacts on seascape character during operation (including maintenance) - either affecting the pattern of elements that define the character or affecting the visual/perceptual characteristics of seascape character areas.
146. A preliminary assessment of the seascape character types in the study area has been undertaken using ZTV analysis (**Figure 28.15**) and site survey, to identify which of the SCTs are likely to be affected by the construction and operation of the offshore infrastructure. This preliminary assessment is presented in **Appendix 28.3**, which identifies the SCTs that have the potential to undergo significant effects as a result of the construction and operation of the offshore infrastructure and require to be assessed in full; and those that do not have potential to undergo potential significant effects that can be scoped out of further assessment.
147. The preliminary assessment in **Appendix 28.3** has identified four SCTs that require to be assessed further in the technical assessment, as a result of the potential for significant seascape effects arising from the construction and operation of the offshore infrastructure (**Figure 28.15**):
- Nearshore Waters (SCT 03);
  - Developed Nearshore Waters (SCT 04);
  - Coastal Waters (SCT 05); and
  - Offshore Waters (SCT 06).
148. The construction and operation of the offshore infrastructure is assessed in the preliminary assessment in **Appendix 28.3** as having no significant effects on the Inland Navigable Waters (SCT 01) and International Ports and Approaches (SCT 02), which are located outside the study area and have low to negligible visibility of the East Anglia ONE North offshore infrastructure.

### 28.6.2 Technical Assessment

149. A detailed technical assessment of the seascape effects of the construction and operation of the offshore infrastructure is set out in **Appendix 28.3**. This describes, in full technical detail, the likely significant effects of the construction and operation of the offshore infrastructure on each SCT identified in the preliminary assessment as having potential to be significantly affected. The full technical assessment of seascape effects from **Appendix 28.3** is summarised for this SLVIA chapter in **section 28.6.3** as follows.

### 28.6.3 Summary Assessment

150. A summary assessment of the predicted seascape effects of the construction and operation of the offshore infrastructure on SCTs is set out in **Table 28.7**. SCTs are mapped in detail in **Figure 28.15**. Full technical assessments are provided in **Appendix 28.3**.
151. The East Anglia ONE North windfarm site is located within the Offshore Waters SCT (06) (**Figure 12.10**). This seascape is formed by open expanses of sea with consistently deep waters. The character of SCT 06 is shaped by considerable human activity. These are busy shipping waters, with several established commercial shipping routes with large vessels, as well as dredging activity, gas wells and three existing offshore windfarms (Greater Gabbard, Galloper and East Anglia ONE). These existing offshore windfarms form important features that are physically sited within the SCT and perceived to be part of the seascape character when viewed by offshore receptors. Otherwise, the Offshore Waters SCT (06) are visually unified, with an expansive open character with consistent panoramic horizons, over extensive tracts of sea. It is just the southern grouping of Greater Gabbard and Galloper offshore windfarms that have an onshore visual influence on the closest parts of the AONB, creating some existing development features on the seascape horizon where they are visible from the coast (subject to weather conditions).
152. The Offshore Waters SCT (06) is not subject to scenic designation, however they do have strong cultural associations. Whilst the SCT forms part of the wider seascape setting of the AONB the land has very limited influence on the character of the SCT itself. The susceptibility of the Offshore Waters SCT (06) to changes arising from the construction and operation of the offshore infrastructure primarily derive from the potential contrast that the East Anglia ONE North windfarm site may have on areas of featureless, open and panoramic seascape. The open waters of the SCT also have a role in forming part of the offshore seascape setting of the AONB. Despite this recognised susceptibility, the offshore waters of this SCT have a very large, expansive scale, simple form and an existing offshore windfarm characteristic, which provide some ability to accommodate the changes associated with the construction and operation of the offshore infrastructure. The Offshore Waters SCT (06) is assessed as having a medium-low sensitivity to changes arising from the construction and operation of the offshore infrastructure. The East Anglia ONE North windfarm site will be located in a seascape where the existing Galloper, Greater Gabbard and East Anglia ONE windfarms influence the baseline character, as perceived from offshore areas within the SCT. In its offshore context, changes to the character of the Offshore Waters SCT as a result of the construction and operation of the offshore

infrastructure occur in the presence of these existing offshore windfarms, with the introduction of further elements that are characteristic in the receiving seascape.

153. The East Anglia ONE North windfarm site also results in changes to the seascape character as perceived by people from the onshore coastal edges of East Suffolk, where the Offshore Waters SCT form the distant offshore setting to the AONB. When perceived from land, the only offshore windfarms visible from the shoreline of the AONB are Greater Gabbard and Galloper which form a fairly small, discrete element in an otherwise vast and featureless seascape. They are only visible from the southern portion of the AONB coastline, as distant features on the horizon and are not prominent in seaward views and East Anglia ONE offshore windfarm is not visible at all.
154. The East Anglia ONE North windfarm site will extend the lateral spread of wind turbines in this seascape, thereby extending the horizontal effect of wind energy development in the seascape context of the AONB. This is a large-scale seascape, with open panoramas and an exposed windswept character. The proposed wind turbines will both contrast with the current open seascape qualities, while also appearing to relate to the exposed conditions favourable for wind energy generation.
155. The construction and operation of the offshore infrastructure is assessed as resulting in a medium magnitude of change and not significant on the character of the Offshore Waters SCT (06). The East Anglia ONE North windfarm site will not redefine the character of the Offshore Waters SCT (06), as perceived in its offshore context. It will however, result in changes to the seascape character perceived from land, particularly that portion of the Offshore Waters SCT (06) which forms the seascape setting of the northern parts of the AONB, however these effects are assessed as being not significant on those receptors from where these changes are perceived, particularly the AONB and the coastal landscape/seascape types that form its immediate coastal edge and nearshore waters.
156. The East Anglia ONE North windfarm site is located approximately 32.6km from an area of Nearshore Waters (SCT 03), which extends along the coastline between Old Felixstowe and Lowestoft. This seascape forms the immediate seascape setting along the coastline of the Suffolk Coast and Heaths AONB. The AONB and Suffolk Heritage Coast provide a strong indication of the scenic qualities of the coastal edges of this SCT, although the majority of the seascape within this SCT is not designated for its scenic value. The character of this nearshore waters seascape is susceptible to changes occurring from the construction and operation of the offshore infrastructure in its backdrop, in the offshore waters, as perceived from the coastal edges of the AONB and in the

context of the coastal landscape of the AONB. The addition of the East Anglia ONE North windfarm site in the offshore waters outside these nearshore waters has potential to alter the perceived character of the SCT and some of its aesthetic/perceptual characteristics, in particular, the simplicity of its main elements (beach/sea/sky) and the perceived natural qualities of the coastline including its perceived remoteness and tranquillity in some areas. The Nearshore Waters SCT (03) is assessed as having a high sensitivity to changes arising from the construction and operation of the offshore infrastructure.

157. The construction and operation of the offshore infrastructure is assessed as resulting in a medium-low magnitude of change and having not significant effects on the seascape character of the area of this Nearshore Waters SCT (03) approximately between Kessingland and Dunwich, which is located between the East Suffolk coast and the East Anglia ONE North windfarm site. The East Anglia ONE North windfarm site will result in the addition of elements on the sea skyline which will partially alter the visual relationship of the seascape with the coastline, resulting in partial loss of open sea skyline in the backdrop of offshore waters; appearing as an additional element in the simple sea/sky composition and a further focal point in the expansive/limitless views offshore. The East Anglia ONE North windfarm site will result in changes to the seascape character of the Nearshore Waters SCT resulting from the wind turbines forming a new backdrop to this area of the SCT, as perceived from the coastal edges of the AONB and nearshore waters. The East Anglia ONE North windfarm site will extend the lateral spread of wind turbines in the backdrop to this seascape and interrupt the expansive/limitless views offshore with wind turbine development on the sea skyline. These effects are considered to be not significant on the seascape character of the area of Nearshore Waters SCT (03) approximately between Kessingland and Dunwich, where the changes arising are most notable.
158. The effects of the construction and operation of the offshore infrastructure are also assessed as not significant on the southern part of the SCT, between Dunwich and Orford Ness, where the likely changes to the existing seascape characteristics are notably reduced, because the East Anglia ONE North windfarm site will be located at longer distances and increasingly behind the horizon, with diminishing prominence as an additional element, and introducing features that have some similarities to existing elements of the seascape (Galloper and Greater Gabbard windfarms) already give rise to offshore windfarm characteristics in the seascape backdrop to this southern area of the SCT.
159. No significant effects have been found on the Developed Nearshore Waters SCT (04) or the Coastal Waters SCT (05).

160. A summary assessment of the predicted seascape effects of the construction and operation of the offshore infrastructure on SCTs is set out in **Table 28.7**.

**Table 28.7 Seascape Character Types – Summary of Effects**

Seascape Character Type (SCT) (Figure 28.15)	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)
<b>Nearshore Waters (SCT 03)</b>				
Area A: Kessingland to Dunwich	High	Medium-low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
Area B: Dunwich to Orford Ness		Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
<b>Developed Nearshore Waters (SCT 04)</b>				
Area A: Lowestoft area	Medium-low	Medium-low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
Area B: South Norfolk area (Caister-on-Sea to Hopton-on-Sea)		Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
<b>Coastal Waters (SCT 05)</b>				
Area A: Coastal waters offshore of Lowestoft to Dunwich	Medium	Medium-low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
Area B: Coastal waters offshore of south Norfolk (north of Lowestoft)		Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
Area C: Coastal waters offshore between Dunwich and Orford Ness		Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
<b>Offshore Waters (SCT 06)</b>				
Offshore Waters SCT	Medium-low	Medium	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible

## 28.7 Potential Landscape Impacts during Construction, Operation and Decommissioning

### 28.7.1 Preliminary Assessment

161. The potential landscape impacts that could arise as a result of the construction and operation of the offshore infrastructure are identified as follows:
- Temporary impacts on landscape character during construction and decommissioning; and
  - Long-term impacts on landscape character during operation (and maintenance) - within terrestrial landscape types and landscape designations, primarily as a result of visibility of the offshore wind turbines during operation.
162. A preliminary assessment of the landscape receptors in the study area has been undertaken using ZTV analysis (**Figure 28.17**) and site survey, to identify which of the landscape receptors are likely to be affected by the construction and operation of the offshore infrastructure. This preliminary assessment is presented in **Appendix 28.4**, which identifies the landscape character types (LCTs) and landscape designations that have the potential to undergo significant effects as a result of the construction and operation of the offshore infrastructure and require to be assessed in full; and those that do not have potential to undergo significant effects that can be scoped out of further assessment.
163. The preliminary assessment in **Appendix 28.4** has identified that three LCTs and two landscape designations require to be assessed further in the technical assessment, as a result of the potential for significant seascape effects arising from the construction and operation of the offshore infrastructure (**Figure 28.17**):
- Coastal Dunes and Shingle Ridges LCT (05);
  - Coastal Levels LCT (06);
  - Estate Sandlands LCT (07);
  - Suffolk Coast and Heaths AONB; and
  - Suffolk Heritage Coast.
164. The construction and operation of the offshore infrastructure is assessed in the preliminary assessment in **Appendix 28.4** as having no significant effects on the remaining LCTs within the study area.

### 28.7.2 Technical Assessment

165. A detailed technical assessment of the landscape effects of the construction and operation of the offshore infrastructure is set out in **Appendix 28.4**. This

describes, in full technical detail, the likely significant effects of the construction and operation of the offshore infrastructure on each landscape receptor, focusing on those landscape receptors that were identified in the preliminary assessment as having potential to be significantly affected. The technical assessment of landscape effects from **Appendix 28.4** is summarised for this SLVIA chapter as follows.

### 28.7.3 Summary Assessment

#### 28.7.3.1 Landscape Character Types

166. A summary assessment of the predicted landscape effects of the construction and operation of the offshore infrastructure on LCTs is set out in **Table 28.8**. Full technical assessments are provided in **Appendix 28.4**. LCTs are mapped at detailed scale in **Figure 28.17**.
167. At the National level, the largest part of the SLVIA study area is characterised by the Suffolk Coast and Heaths (NCA 82), which is located approximately 36.0km from the East Anglia ONE North windfarm site, at its closest point. It lies on the North Sea coast between Great Yarmouth in the north and Harwich in the south, forming a long, narrow band that extends between 10-20km inland. It is mainly flat or gently rolling, often open but with few commanding viewpoints. In many places, and especially near the coast, wildlife habitats and landscape features lie in an intimate mosaic, providing diversity. Farming utilises much of the total land area, however the remaining land consists of coast and lowland heaths (known locally as the Sandlings) and form distinctive features, although traditional heath is now much fragmented. The coast is interrupted by five estuaries (Stour, Orwell, Deben, Alde/Ore and Blyth) with extensive intertidal areas of mudflat and salt marsh. The importance of the coast for biodiversity is recognised by its many wildlife designations. The shoreline consists of predominantly shingle beaches, often extensive in nature. Shingle structures, such as Orford Ness, form important geomorphological features.
168. The Suffolk County Council Landscape Character Assessment (Suffolk County Council, 2008/2011) defines the baseline for the Suffolk section of the SLVIA study area (**Figure 28.17**). Three LCTs have been identified at the coastline as being most susceptible to changes in character resulting from the construction and operation of the East Anglia ONE North offshore infrastructure - Coastal Dunes and Shingle Ridges LCT (05); Coastal Levels LCT (06) and Estate Sandlands LCT (07).
169. The construction and operation of the offshore infrastructure will not result in any direct changes to the current pattern of elements that define the landscape character of this section of coastline, however the East Anglia ONE North windfarm site will introduce a further element into the wider seascape setting,

adding to the juxtaposition of different elements perceived from the coastal edge. Changes to the perceived character of these LCTs occur from them, rather than 'on' or 'within' them, with changes to the juxtaposition of elements derived from the views experienced from within the LCT out to sea or along the coast. In terms of this scenic quality, the East Anglia ONE North windfarm site does not affect the immediate setting of these LCTs, but will be seen on and beyond the horizon, as a 'horizon development' to a large open seascape, rather than being viewed 'within' its seascape/landscape.

170. It is not the overall character or physical features of the coastal areas of these LCTs that will be changed, but instead it is the perception of specific aesthetic/perceptual aspects of character at the coast that will experience change, where there are interactions between these aesthetic/perceptual aspects of the sea and the East Anglia ONE North windfarm site. The effects arise as a result of change on the particular seascape characteristic, not wholesale change on landscape character, since there are other elements, features and aesthetic/perceptual aspects that continue to contribute to the character and distinctiveness of the LCTs that will not be changed or effected in the same way, and will continue to form the distinctive and prevailing landscape character.
171. The East Anglia ONE North windfarm site is assessed as resulting in not significant, long-term but reversible effects on the perceived landscape character of a narrow edge of the immediate coastal LCTs forming the closest part of the Suffolk coastline primarily between Lowestoft and Southwold consisting of specific parts of the Coastal Dunes and Shingle Ridges LCT (05) and the coastal edges of the Estate Sandlands LCT (07).
172. The **Coastal Dunes and Shingle Ridges LCT (05)** is found in narrow bands along the study area coast: short stretches to the north of Lowestoft; at Kessingland; and a long stretch from Southwold to the north side of Orford Ness (**Figure 28.17a-g**). It is formed by flat or gently rolling landform of shingle ridges or coastal dunes, formed by wave action and longshore drift of sand and stones. There are variations in character, with the majority of the LCT formed by vast, open and uncluttered landscape, but with short stretches influenced by intensive tourist activity. The seascape setting of the Coastal Dunes and Shingle Ridges LCT (05) is an important attribute of its landscape character, forming an essential part of its qualities as a coastal LCT. There are open, unfettered sea views with expansive and natural qualities, in which the simplicity of landscape elements of land/sea/sky at the immediate coast, contrast with the diversity of landscape character on the inland side of this coastal edge landscape.

173. The Coastal Dunes and Shingle Ridges LCT (05) is assessed as having a high sensitivity to change, due to its high value and medium-high susceptibility to changes arising from the construction and operation of the offshore infrastructure. Its value is recognised through AONB designation, with special qualities focusing on the simplicity of its main elements (shingle beach/sea/sky); the natural qualities of its vegetated dune and shingle habitats; its relative remoteness/inaccessibility along some stretches and traditional seaside influences of other stretches; the unique character of Orford Ness and the direct exposure to the seascape with dynamic qualities of the exposed landscape near the powerful forces of the sea. The LCT provides opportunities to experience attributes of relative wildness and tranquillity associated with coast. The landscape is also highly valued for recreation and the focus of visitor activity at the coast. The LCT is assessed as having a medium-high susceptibility to changes arising from the construction and operation of the offshore infrastructure. It has the potential to be influenced by the construction and operation of the offshore infrastructure due to its coastal location and exposure to the sea and offshore waters in which the East Anglia ONE North windfarm site is located, however the potential change will not occur in the immediately associated nearshore seascape and is separated from the LCT by large areas of open sea. The LCT is exposed to the changes arising offshore from the East Anglia ONE North windfarm site and has highest degree of exposure of the coastal LCTs in the study area, since there is very limited concealment/screening of views out to sea and the offshore waters, other than the intervening nearshore and coastal waters. The perceptual qualities of wildness, remoteness and tranquillity of the LCT are susceptible to the influence of the development features of the East Anglia ONE North windfarm site.
174. The magnitude of change resulting from the construction and operation of the offshore infrastructure on the perceived character of the Coastal Dunes and Shingle Ridges LCT (05) is assessed as low from the areas of the LCT at Lowestoft (Area A), Kessingland (Area B) and Southwold to Sizewell (Area C) (**Figure 28.17 b-c**). The effect of the construction and operation of the offshore infrastructure on the character of the Coastal Dunes and Shingle Ridges LCT (05) is assessed as not significant. The character of this stretch of the LCT at Lowestoft and Kessingland is heavily influenced by the adjacent developed coastline. The introduction of wind turbines on the distant sea skyline located well outside and at distance from these areas of the LCT (over 36.0km) would constitute a new, but relatively low change to the perceived character, at variance to the same characteristics of the LCT, such as its open, vast, uncluttered character, but is in keeping with other characteristics such as its large scale, exposure and existing offshore wind energy generation influences. The area of the LCT between Southwold and Sizewell (Area C) (**Figure 28.17b-c**), represents

the section of coastline wholly within the AONB and Suffolk Heritage Coast, however the scale of change to the key characteristics of this area of the LCT are likely to be reduced due to the increased distance from the East Anglia ONE North windfarm site, from 41.6km at its closest point near Southwold, extending to 50km on the southern edge of the study area.

175. The **Estate Sandlands LCT (07)** is found in a slightly interrupted series along the coast, taking in a large part of the area known as the Sandlings heaths and forests, and includes a series of areas stretching eastward from Sutton to Leiston, Westleton and Dunwich to Southwold and Reydon, and from Covehithe to Benacre (**Figure 28.17f**). The coastal edges of the LCT are defined by low cliffs, such as Covehithe and Sizewell Cliffs, which contrast to gently rolling Sandlings heaths, forests and farmland further inland. The sensitivity of the Estate Sandlands LCT (07) is assessed as locally medium where it meets the sea, but generally low over most of the inland areas of the LCT. Its value is recognised in some of the areas through AONB and natural heritage designations (such as SSSI / SPA), but with other areas not being designated and having been subject to changes in the inherent character through extensive plantation forestry, suburbanisation and/or modern energy generation and transmission infrastructure. The main scenic qualities and of the LCT are influenced by areas of heathland/acid grassland within the backdrop of extensive coniferous forestry (Sandlings Forests) and often vary between the different areas. The LCT is assessed as generally having a low susceptibility to changes arising from the construction and operation of the offshore infrastructure as the majority of the LCT has limited association with the sea, where it covers extensive inland areas away from the coast and is often influenced primarily by the presence of plantation forestry or agricultural landscapes with no exposure to the seascape in which the East Anglia ONE North windfarm site is located. In some localised areas of this LCT, where it extends near to the coast to meet the sea, such as Dunwich Heath/Cliffs and areas between Sizewell and Thorpeness, there are stronger associations with the sea and the character will be exposed to the seascape and has a medium susceptibility to change. On balance, the LCT is assessed as having a generally low sensitivity over most of the LCT, with a locally medium-high sensitivity where it forms the coastal edge (such as at Dunwich Cliffs, Sizewell Cliffs, Easton Bavents and Thorpeness).
176. The magnitude of change resulting from the construction and operation of the offshore infrastructure on the Estate Sandlands LCT (07) is assessed as low from localised areas at the coast in the Covehithe to Benacre and Easton Bavents area (Area A) and Dunwich Heath/Cliffs area (Area C). The construction and operation of the offshore infrastructure will introduce new elements that will change the perception of the seascape in the distant setting of the low coastal cliffs on the edges of this area of the LCT. The long distance and panoramic

views out to sea and along the coast from the cliffs will be altered through a small and partial loss of open sea skyline, changes in the simple landscape composition and sense of isolation, however these changes on the sea skyline are located well outside and at long distance from the LCT (over 38.1km) would constitute a relatively low change to the perceived character, at variance to some characteristics such as its natural qualities, remoteness/isolation and panoramic views, but in keeping with other characteristics such as its large scale and exposure. The magnitude of change resulting from the construction and operation of the offshore infrastructure on Area B (Southwold Common) of the Estate Sandlands LCT (07) is assessed as negligible as views from Southwold Common to the East Anglia ONE North windfarm site are entirely concealed/screened by the intervening urban area of Southwold.

177. The effect of the construction and operation of the offshore infrastructure on the perceived character of the Estate Sandlands LCT (07) is assessed as not significant. The construction and operation of the offshore infrastructure will introduce a further visible element in sea view component of the large open vistas across heaths and along the coast out to sea. Changes to this characteristic of the LCT occur from it, rather than on it, with changes to the vistas across heaths derived from the views experienced from within the LCT out to sea or along the coast. In terms of this scenic quality, the East Anglia ONE North windfarm site does not affect the immediate setting of the LCT, but will be seen on and beyond the horizon of a large-scale, open seascape at distances over 38km from the LCT. The large scale of the expansive views offshore is considered more likely to be able accommodate windfarm development than smaller scale, complex seascapes.
178. The **Coastal Levels LCT (06)** is formed by low-lying, flat marshland found in a number of areas along the coast and besides the estuaries of the study area. The LCT has consistent, intact, well defined and distinctive attributes with scenic qualities relating to natural qualities of the marshland habitats; and the dynamic qualities of its low-lying landscape adjacent to the sea and major rivers. In combination with adjacent coastal LCTs, it contributes to the special qualities that define the nationally designated scenic qualities of the AONB and it is assessed as having a high value. Whilst the qualities of wildness, remoteness and tranquillity of the LCT have the potential to be influenced by the construction and operation of the offshore infrastructure, due to its coastal location, and potential exposure to changes occurring in the seascape, the LCT is not directly exposed to the offshore waters in which the East Anglia ONE North windfarm site is located and has a notable degree of concealment/screening by the dunes/shingle ridges between this LCT and the sea. On balance, the Coastal Levels LCT (06) is assessed as having a medium-high sensitivity to change (combination of its high value and medium susceptibility to change).

179. The magnitude of change resulting from the construction and operation of the offshore infrastructure on the perceived character of the Coastal Levels LCT (06) is assessed as low from localised portions of the LCT near the coast, including the marshes near the Hundred River at Kessingland (Area A), marshes flanking the Blyth near Walberwick (Area B) and marshes of the Minsmere Levels (Area C) (**Figure 28.17d-e**). Although the beach and shoreline are generally not visible from these areas of the LCT, due to intervening dune/shingle landforms, there are some long distance and panoramic views out to the seaward horizon available which form a component of the character of the Coastal Levels LCT (06). Due in part to the height and lateral spread of the wind turbines, the construction and operation of the East Anglia ONE North windfarm site will have some influence the character of the coastal portions of these areas of the Coastal Levels LCT (06), however the introduction of wind turbines on the sea skyline located well outside and at distance from the LCT (over 37.8km from Area A and up to 48.3km from Area C) would constitute a low change to the perceived character and would not result in significant effects on the perceived character. The effect of the construction and operation of the offshore infrastructure on all other areas of the Coastal Levels LCT (06), often extending inland along river valleys/estuaries, has been assessed as not significant.
180. No significant effects on landscape character have been identified as a result of the construction and operation of the offshore infrastructure. Although effects on the perception of the landscape will extend beyond the immediate offshore waters of the East Anglia ONE North windfarm site itself. These effects will be produced away from the receptor, and are therefore to some degree indirect effects, since the East Anglia ONE North windfarm site is not physically located within these LCTs, with the effects occurring on the perception or aesthetics of a particular seascape component of the landscape character. Moving outwards and away from the East Anglia ONE North windfarm site, it will exert a reduced effect upon landscape character, such that the surrounding open seascape and features of the coastal and inland landscape are increasingly the features that exert the characterising influence, such that these existing features of character become more fundamental in defining character than the distant influence of the East Anglia ONE North windfarm site. In this situation the East Anglia ONE North windfarm site will become part of the recognisable pattern of elements but would not be of sufficient dominance or directness in its effects to change the overall character of these coastal LCTs.
181. A summary assessment of the predicted landscape effects of the construction and operation of the offshore infrastructure on LCTs is set out in **Table 28.8**. Full technical assessments are provided in **Appendix 28.4**. LCTs are mapped at detailed scale in **Figure 28.17**.

**Table 28.8 Landscape Character Types – Summary of Effects**

Landscape Character Type (LCT) (Figure 28.17)	Sensitivity to change	Magnitude of change (construction, operation and decommissioning)	Significance of effect (construction and decommissioning)	Significance of effect (operation)
<b>Coastal Dunes and Shingle Ridges (LCT 05)</b>				
Area A: Lowestoft	Value: High Susceptibility to change: Medium-high Sensitivity to change: High	Low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
Area B: Kessingland		Low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
Area C: Southwold to Sizewell		Low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
<b>Coastal Levels (LCT 06)</b>				
Area A: Marshes flanking the Hundred River from Kessingland Beach westward through the Kessingland Levels to Henstead	Value: High Susceptibility to change: Medium Sensitivity to change: Medium-high	Low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
Area B: Marshes flanking the River Blyth and Buss Creek from Walberswick westward to Wolsey Bridge		Havenbeach and Busscreek Marshes, inland across Reydon Marshes to Wangford: Low or negligible Southwold Harbour, and mouth of the River Blyth and Sole Bay: Low	Havenbeach and Busscreek Marshes, inland across Reydon Marshes to Wangford: <b>Not significant</b> , short-term, temporary Southwold Harbour, and mouth of the River Blyth and Sole Bay: <b>Not significant</b> , short-term, temporary	Havenbeach and Busscreek Marshes, inland across Reydon Marshes to Wangford: <b>Not significant</b> , long-term, reversible Southwold Harbour, and mouth of the River Blyth and Sole Bay: <b>Not significant</b> , long-term, reversible
Area C: Marshes of the Minsmere Level extending westward to Eastbridge and Theberton		The Scrape: Negligible Island Mere and North Levels: Low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible

Landscape Character Type (LCT) (Figure 28.17)	Sensitivity to change	Magnitude of change (construction, operation and decommissioning)	Significance of effect (construction and decommissioning)	Significance of effect (operation)
<b>Estate Sandlands (LCT 07)</b>				
Area A: Covehithe to Benacre and Easton Bavents	Value: Medium-high	Low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
Area B: Southwold Common	Susceptibility to change: Medium (coastal portions) / Low (inland)	Negligible	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
Area C: Walberswick to Westleton and Dunwich	Sensitivity to change: Medium-high (coastal portions) / Low (inland)	Areas between Walberswick and Westleton: Low Localised area at Dunwich Heath/Cliffs: Low	Areas between Walberswick and Westleton: <b>Not significant</b> , short-term, temporary Localised area at Dunwich Heath/Cliffs: <b>Not significant</b> , short-term, temporary	Areas between Walberswick and Westleton: <b>Not significant</b> , long-term, reversible Localised area at Dunwich Heath/Cliffs: <b>Not significant</b> , long-term, reversible
<b>Open Coastal Fens (LCT 08)</b>				
Area A: Corporation and Oldtown Marshes	Value: High Susceptibility to change: Medium	Low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
Area B: Westwood Marshes	Sensitivity to change: Medium-high	Negligible	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
Area C: Dingle and Reedland Marshes		Negligible	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible

### 28.7.3.2 Suffolk Coast and Heaths AONB and Suffolk Heritage Coast

#### 28.7.3.2.1 Introduction

182. A summary assessment of the predicted landscape effects of the construction and operation of the offshore infrastructure on the Suffolk Coast and Heaths AONB and Suffolk Heritage Coast is set out in this chapter and **Table 28.9**. Full technical assessments are provided in **Appendix 28.4** and these landscape designations are mapped in **Figure 28.13** and at detailed scale in **Figure 28.18**.
183. The Suffolk Coast and Heaths AONB (the AONB) is located approximately 37.7km from the East Anglia ONE North windfarm site at its closest point at the coast, extending to over 50km away and outside the SLVIA study area to the south-west (**Figure 28.18**). It covers, approximately, the Suffolk coastline

stretching from Kessingland in the north to the River Stour in the south. Many of the LCTs that define the baseline character of the AONB have been assessed as having no potential to be significantly affected by the construction and operation of the offshore infrastructure (LCTs 11, 15, 16, 20, 26 and 29), due to their inland locations, long distance and/or substantial amount of intervening screening between these areas and the East Anglia ONE North windfarm site. Only the LCTs that define the coastal areas of the AONB, where it joins the sea and has a seascape setting, are those which are susceptible to the influence of the construction and operation of the offshore infrastructure. These are identified as the Coastal Dunes and Shingle Ridges (LCT 05), Coastal Levels (LCT 06), Estate Sandlands LCT (07) and Open Coastal Fens (LCT 08). The Suffolk Heritage Coast (**Figure 28.13**), which overlaps with the coastal areas and estuaries of the AONB, represents that part of the AONB most likely to experience significant effects arising from the East Anglia ONE North windfarm.

184. The assessment of effects of the construction and operation of the offshore infrastructure on the character of the AONB is informed by these assessments of the LCTs that define its coastal character; but is also based upon published citations that describe the 'special qualities' of the AONB. Special qualities are set out in the AONB Natural Beauty and Special Qualities Indicators report (EDF Energy et al. 2016). The assessment, which is presented in detail in **Appendix 28.4**, utilises the natural beauty indicators from the AONB special qualities report (Section 2.0), supplemented with further reference to seascape setting and consultations with the ETG, and assesses the significance of effect on the AONB special qualities – landscape quality, scenic quality, relative wildness, relative tranquillity, and natural heritage features, with reference to the LCTs that define the coastal areas of the AONB. Effects on cultural heritage are assessed separately in **Chapter 24 Archaeology and Cultural Heritage** of this ES.

#### 28.7.3.2 Sensitivity to Change

185. Although there are pockets of the AONB landscape where the baseline conditions are such that the value of particular features or aesthetic dimensions are reduced, the AONB is, as a whole, of high value, recognised through its designation as an AONB. In addition, much of the AONB coast is designated as of European importance for its habitat and for the birds and other species associated with it. Some of these are also recognised internationally as 'wetlands of international importance' (Ramsar sites). The AONB landscape acts as a major tourist destination contributing significantly to the local economy, especially Southwold, Aldeburgh and Thorpeness. The natural landscape with varied coastal habitats and rare birds are valued as an attraction for walkers and wildlife enthusiasts, especially birdwatchers. Amenity value for tourism and leisure activities, especially the extensive network of coastal nature reserves, coastal paths and

lowland heaths with open access. The scenic qualities of the AONB have, in part, been influenced by the presence of modern energy generation and transmission infrastructure, particularly Sizewell A and B Nuclear Power Station, which forms a distinctive feature on the coast and in the backdrop to views across the nearby Sandlings Forest and Heaths. The AONB has recognised cultural heritage value through Heritage Coast designation, distinctive built heritage in the landscape such as Martello towers and Cold War buildings on Orford Ness, also add a sense of history to the landscape.

186. The scenic qualities and interest are in part defined by the coast and views out to sea; shingle features of the coast, some vegetated, notably Orford Ness; prominence of short sections of crumbling soft cliffs, such as at Dunwich and Covehithe; bodies of water (broads/saline lagoons) Shingle Street, Benacre and Easton Broads; and seascape setting of the coastal areas of the AONB. There are pockets of relative wildness associated with coast, in this largely farmed and settled landscape. A number of coastal locations within the AONB provide opportunities to experience attributes of relative wildness, including Orford Ness, Minsmere, Dunwich Heath and the marshlands/estuaries, where the character of the landscape and views afforded out to sea and along the coast are a notable part of the experience. The seascape setting of the coastal areas of the AONB contributes to the perception of wildness attributes and relative tranquillity. The nearshore waters and inland waterways are valued sailing/boating areas, especially the Orwell and Deben estuaries with extensive moorings and boatyards.
187. Although the inherent sensitivity of the AONB is high, there is some variation in the sensitivity of the different areas/LCTs within the AONB to the specific nature of the proposed development, since the assessment of susceptibility to change is tailored to the proposed East Anglia ONE North project. Full narrative assessment of the sensitivity to change of LCTs within the AONB is contained within the technical assessment of LCTs in **Section 28.2.1** of **Appendix 28.4** and is summarised in **Table 28.8** of this chapter.

#### 28.7.3.2.3 AONB Special Qualities Assessment

188. The effects of the construction and operation of the offshore infrastructure on AONB special qualities are assessed in detail in **Appendix 28.4**. The key findings are summarised as follows and in **Table 28.9** with regards to the landscape quality, scenic quality, relative wildness, relative tranquillity, natural heritage and cultural heritage features special qualities of the AONB as drawn from the AONB Natural Beauty and Special Qualities Indicators report (LDN, November 2016).

#### 28.7.3.2.3.1 *Landscape Quality*

189. The construction and operation of the offshore infrastructure will not result in any direct changes to the current pattern of elements that create the close-knit relationship of semi-natural and cultural landscapes, nor will there be any direct changes to areas of heath and acid grassland, or their national biodiversity value.
190. The construction and operation of the offshore infrastructure will result in some changes to the landscape qualities perceived from the AONB. Changes to landscape qualities occur as a result of views from the AONB, rather than within it. Changes to the landscape qualities arise as a function of the juxtaposition of elements derived from the views experienced from within the AONB looking out to sea or along the coast. In terms of these landscape qualities, the East Anglia ONE North windfarm site does not affect the immediate setting of the AONB, but will be seen on and beyond the horizon, as a 'horizon development' to a large, open seascape, rather than being viewed 'within' its seascape/landscape.
191. The East Anglia ONE North windfarm site will, however, introduce a further element into the distant seascape setting of the coastal areas of the northern parts of the AONB, primarily between Southwold and Kessingland, adding to the juxtaposition of different elements perceived from the coastal edges of the AONB. Vast, largely open partially developed (by offshore windfarm development) seascape forms one of the key characteristics, as part of the simple landscape composition of sea, sky and shingle, and it is this quality in particular, that is exposed to changes arising from the East Anglia ONE North windfarm site, and on which changes are likely to occur. The magnitude of change to these perceived landscape qualities is assessed as low and the effect not significant, although geographically contained to a limited area. The effects on these perceived landscape qualities of the AONB are mainly restricted to the coastal edges of the Coastal Dunes and Estate Sandlands LCT (05), especially between Southwold and Kessingland (LCT Area 5A); and to the short sections of Estate Sandlands LCT (07) where it forms the coast at Covehithe and Dunwich Heath. Although these are relatively long stretches of the east Suffolk coast, they are narrow, therefore the effects are focused on the characteristics perceived at the immediate coastal edge of the AONB and within its northern parts between Southwold and Kessingland.
192. The East Anglia ONE North windfarm will form additional large-scale energy development contributing to the characteristics of the coast and its seascape setting from some stretches of the coastline alongside other long-established elements such as Sizewell Nuclear Power Station and more recent Greater Gabbard and Galloper windfarms. Galloper and Greater Gabbard windfarms are more notable as characteristics in the baseline from the southern areas of the AONB, approximately between Aldeburgh and Felixstowe, and Orford Ness. The

construction and operation of the offshore infrastructure will contribute further to the influence of offshore wind energy development that already forms part of the perceived character of these areas of the AONB and add to what is described (in the AONB Natural Beauty and Special Qualities Indicators report (November 2016) as the already 'cluttered' seascape horizon. The East Anglia ONE North windfarm site is, however, located at long distance and has limited influence on these southern areas of the AONB and generally tends to have more influence on the northern parts of the AONB, which are less influenced by existing windfarms in the baseline.

193. From areas of the AONB coast near Sizewell, the changes resulting from the East Anglia ONE North windfarm site will be experienced in the context of more prominent energy infrastructure influences at Sizewell Nuclear Power Station and its offshore intake and outfall structures in foreground. The concrete hulk of Sizewell A and white dome of Sizewell B are a key landmark and exert a strong influence on the local character of the AONB in this area. The scale of the buildings dominates the local landscape such that other landscape features, including the East Anglia ONE North windfarm site, will exert less influence and not be as notable or influential on the AONB landscape as the existing developments.
194. The construction and operation of the offshore infrastructure will have a relatively low change to the strong overall character of the AONB, with its varied and distinctive landscapes continuing to define its overall character. Although the overall character and physical features of the coastal edges of the AONB will not be changed, there will be some affect upon specific aesthetic/perceptual aspects of character. These will occur where there are interactions between these aspects and the East Anglia ONE North windfarm. The effects will arise as a result of change to some characteristics of the coastal edges of the AONB, but which will not bring about any significant changes to the overall character. There are other elements, features and aesthetic/perceptual aspects that will not change and will continue to contribute strongly to the character and distinctiveness of the AONB that will not be changed or effected in the same way. The perception of many of the other AONB special qualities and key characteristics also remain unaffected by the construction and operation of the offshore infrastructure.

#### 28.7.3.2.3.2 *Scenic Quality*

195. The construction and operation of the offshore infrastructure will result in some changes to the scenic qualities perceived from the AONB. As with landscape qualities, changes to scenic qualities occur as a result of views from the AONB, rather than internal views or views of the AONB, with change to some views out to sea and along the coast.

196. The construction and operation of the offshore infrastructure will result in a partial reduction of open sea skyline in long distance and panoramic views out to sea and along the Heritage Coast, from some elevated vantage points, due to the lateral spread of wind turbines on the seaward horizon experienced from the AONB coastline.
197. The East Anglia ONE North windfarm site may also be seen with other landmarks along the coast and out to sea as an additional focal point, however due to the relatively low elevation of the heaths, simple form of the coastline, its long distance offshore and relatively contained lateral spread, the East Anglia ONE North windfarm site will be seen on and beyond the horizon, as a 'horizon development' which will substantially limit its potential to compete with landmarks within the AONB. The open sea skyline of the large vistas would remain unaffected across the majority of the field of view out to sea and the large scale of the open sea vistas are more likely to be able accommodate windfarm development than smaller scale, complex seascapes.
198. The magnitude of change to these perceived scenic qualities is assessed as low and the effect not significant, although geographically contained to the Coastal Dunes and Shingle Ridges LCT (05) between Lowestoft and Southwold; and the Estate Sandlands LCT (07) near Covehithe and Easton Bavents. Although these are relatively long stretches of the east Suffolk coast, they are narrow. The significant effects on scenic qualities are focused on the characteristics perceived at and limited to the immediate coastal edge of the AONB. Notwithstanding the above assessment of some localised effects the perception of many of the scenic qualities of the AONB will remain unaffected by the construction and operation of the offshore infrastructure.

#### 28.7.3.2.3.3 *Relative Wildness*

199. The term 'wild land' qualities encompasses both physical attributes and perceptual responses, reflecting that it is a combination of both physical and perceptual factors that contributes to the value and appreciation of wildness. No physical attributes that contribute to wildness special qualities of the AONB will be changed as a result of the construction and operation of the offshore infrastructure. Development located outside the AONB may only impact on perceptual responses or the perception of relative wildness.
200. A number of coastal locations within the AONB provide opportunities to experience attributes of relative wildness. There are pockets of relative wildness associated with coast, in this largely farmed and settled landscape. These include, but are not limited to, areas such as Orford Ness, Minsmere, Dunwich Heath and some of the marshlands/estuaries/fen landscapes near the coast, where the character of the landscape and views afforded out to sea and along

the coast contribute to the perception of semi natural landscape and seascape. Notably these attributes are often experienced along the coastline and within undeveloped shingle ridges, estuaries/levels or heathlands, where there is little evidence of apparent human activity. The east Suffolk coastline is however, an area that has been transformed by the impact of people and has a long-established inter-relationship between people using and interacting with the sea/maritime environment.

201. The effect of the construction and operation of the offshore infrastructure has been found to be not significant and of low magnitude of change, on the expansive views out to sea from the AONB, which emphasise a sense of openness and exposure on the open and exposed coastline and on the Sandlings heaths. This is a particular effect on one aspect of relative wildness that derives from changes to views from the AONB. The construction and operation of the offshore infrastructure will therefore introduce an additional visible element in the sea view component of the expansive views out to sea from the heaths and along the open coast. The East Anglia ONE North windfarm site may in some views affect the sense of openness through its relationship with the horizon. However due to the relatively low elevation of the heaths, simple form of the coastline, its long distance offshore (over 37.7km from the closest point of the AONB) and narrow lateral spread, the East Anglia ONE North windfarm site will be seen on and beyond the horizon, as a 'horizon development' with reduced potential to change the openness and exposure experience within the AONB. Its location on the distant skyline ensures that it would not alter the perception of big 'Suffolk skies'. Fundamentally, the openness and exposure experienced from the coastline and the Sandlings heaths would continue to be experienced notwithstanding the presence and influence of the East Anglia ONE North windfarm.
202. The effect of the construction and operation of the offshore infrastructure is assessed not significant (and of low magnitude) on all other AONB relative wildness special quality indicators. The introduction of modern, man-made structures and increase in evidence of apparent human activity may change the perceived wildness attributes from pockets of coastal AONB landscapes, mainly of the northern parts of the AONB, which have perception of relative wildness associated with coast. While wind energy development influence may contrast with this perception of wildness, wind turbines may also relate legibly to the coastal exposure and inclement conditions experienced. Although the perceptual qualities of relative wildness experienced in pockets of the coastal fens and estuaries/marshlands near the coast are, to varying degrees, susceptible to the influence of development, the visual containment of these low lying estuaries, marshland and fens of the AONB by the intervening raised dunes and shingle landforms along their eastern edge, reduces their association and the resulting

changes arising from the East Anglia ONE North windfarm site. These attributes are such that it would but removed from and in the background to the main elements that define character. The technological appearance of the wind turbines may contrast with the perceived naturalness of these habitats in relation to the least developed parts of the AONB coastline, but may also be seen to represent the visual aesthetic of green/sustainable energy which may be perceived as having positive visual associations with the natural environment.

203. From certain parts of the coastline, the changes arising from the construction and operation of the offshore infrastructure occur in the context of existing energy generation developments. These developments already influence the perceived wildness of the AONB; the Greater Gabbard and Galloper windfarms influence the seascape setting of the southern parts of the AONB coastline between Aldeburgh and Bawdsey; whilst the Sizewell A and B Nuclear Power Stations have a strong influence on negating perceived wildness in the area near Sizewell. In the context of the coastline of parts of the AONB near Sizewell and to the south of Thorpeness, the construction and operation of the offshore infrastructure represents an increase in energy development influence of the AONB coastline, rather than an entirely new form of development influence.
204. The distance of the East Anglia ONE North windfarm outside the AONB and not within its immediate setting, will reduce the perception of introducing new human artefacts/structures and hereby minimise the change to the perception of relative wildness. The changes identified do not affect the strength of the wildness perceived within the AONB to the degree the qualities are substantially eroded and are considered to be not significant. The geographic extent of changes in this perceived wildness quality is also very limited to isolated pockets of landscape, with the vast majority of the AONB landscape experiencing negligible changes to the wildness attributes perceived. The wider character of the AONB extending inland beyond its immediate coastal edges will experience no significant effects on relative wildness, due to a combination of landform, extensive plantation forestry, woodlands and hedgerows which limit or block views of the East Anglia ONE North windfarm site.

#### *28.7.3.2.3.4 Relative Tranquillity*

205. Relative tranquillity is a product of a wide range of environmental attributes (both natural and man-made) found within a specific location. It is how these elements combine and are then sensed, mostly through seeing and hearing, by an individual which generates an experience of tranquillity. The seascape setting of the coastal areas of the AONB contributes to the relative tranquillity, particularly in good weather conditions and during calm seas, with the visual tranquillity provided by the perceived endlessness of the sea aspect. The coastal areas of the AONB contain a number of locations with the opportunity to experience a

sense of relative tranquillity which is above that which is available elsewhere in the AONB. These locations coincide with, but are not limited to, the areas of relative wildness referred to above, however other more discrete locations along the coast can also provide this experience.

206. The effect of the construction and operation of the offshore infrastructure is assessed not significant (and generally of low magnitude) on all AONB relative tranquillity special quality indicators.
207. The introduction of the East Anglia ONE North windfarm site will increase the evidence of apparent development and human activity, as a modern intervention in the distant, but not immediate, seascape setting of the coastal landscapes mainly of the northern parts of the AONB. The construction and operation of the offshore infrastructure will not directly change the physical pattern of elements within areas of semi-natural habitat, but instead introduces development influence in the offshore waters that form the distant seascape setting to the AONB, as viewed from the relatively undeveloped character of parts of the Suffolk coast. The technological appearance of the wind turbines and the visual movement of the rotor blades may contrast with the perceived tranquillity of these landscapes, evident in the least developed pockets of the AONB coastline. The construction and operation of the offshore infrastructure will introduce visible man-made structures (wind turbines) which incorporate a kinetic element into an otherwise relatively undeveloped seascape, thereby affecting the potential for people to experience tranquillity in these locations. The relatively slow visual movement of the wind turbine rotors and long distance offshore reduces the potential changes in perceived tranquillity. Effects are likely to be infrequent due to the long distance offshore and the prevailing weather conditions that influence visibility at such distance.
208. Although forming further development and increasing the presence of apparent human activity, the construction and operation of the offshore infrastructure will result in no audible changes to the existing sounds of tranquil areas of the AONB. The appearance of the East Anglia ONE North windfarm site relates rationally to the sounds of the wind and exposure along the AONB coastline. The construction and operation of the offshore infrastructure will introduce some changes to the tranquillity experienced in sea views, as an element that interrupts or defines a presence or limit on the perceived endlessness of the aspect out to sea, particularly during good visibility conditions when the appreciation of the is greatest, or at certain times of the day when it may for example, interrupt views of the sunrise to the east first thing in the morning. The construction and operation of the offshore infrastructure will result in no changes to inland areas of the AONB away from the immediate coastline where there is no appreciation of the tranquil seascape setting.

209. Night time lighting of the wind turbines will introduce further lighting in the relatively dark night skies, however will be viewed at long distance offshore, in the context of existing wind turbine lighting from parts of the AONB (Gallopier, Greater Gabbard and London Array lights are evident) and other lighting of cardinal buoys and vessels in the waters, as well as settlements on the coast to the north of the AONB, and result in relatively low change to the tranquillity experienced within the AONB coastline. Landscape character is not readily perceived at night due to the level of darkness, particularly in rural areas, and it is considered that the aviation lighting will not significantly affect the perception of perceived character or tranquillity of the AONB at night. The visual effects of the aviation lighting of the wind turbines are considered in **section 28.6.1** of this ES.
210. The distance of the East Anglia ONE North windfarm outside the AONB and not within its immediate setting, will reduce the perception of introducing new human artefacts/structures and hereby minimise the change to the perception of relative tranquillity. The changes identified do not affect the strength of the tranquillity perceived within the AONB to the degree the qualities are substantially eroded and are considered to be not significant. The geographic extent of changes in this perceived wildness quality is also very limited to isolated pockets of landscape, mainly from the northern parts of the AONB between Southwold and Kessingland, but at distances of over 37.7km from the AONB, with the vast majority of the AONB landscape experiencing negligible changes to the tranquillity attributes perceived.

#### *28.7.3.2.3.5 Natural Heritage Features*

211. The effect of the construction and operation of the offshore infrastructure is assessed not significant on all AONB natural heritage features special qualities. The construction and operation of the offshore infrastructure will result in no direct changes to the characteristic expressions of geology which mark the boundary of the AONB or the striking expressions of geology and sedimentation that defines the crumbling coastal cliffs; no direct physical landscape changes to the varied, nationally and internationally protected sites such as SSSI, SPA and SAC; or to the dynamic coastal regimes and resulting transitions in character. The construction and operation of the offshore infrastructure may only result in some perceived changes to the skyline of offshore waters that form the backdrop to the low crumbling cliffs and banks of shingle beaches, but the appearance of a distant offshore windfarm influence would not change the fundamental characteristic of the dynamic coastline and geomorphological features of the coast, or the dynamic processes that will continue to fundamentally shape the coastal environment and its distinctiveness.

28.7.3.2.3.6 Summary

212. The key findings of the assessment of AONB special qualities are summarised in **Table 28.9** and set out with full narrative in the assessment in **Appendix 28.4**.

**Table 28.9 Suffolk Coast and Heaths AONB – Summary of Effects**

Baseline Description of Special Qualities (extracted from AONB Special Qualities Report and supplemented with reference to seascape setting)	Magnitude of Change on Special Quality	Significance of Effect on Special Quality (during construction)	Significance of Effect on Special Quality (during operation)
<b>Landscape Quality</b>			
<p>Intactness of the landscape in visual, functional and ecological perspectives.</p> <p>Close-knit interrelationship of semi-natural and cultural landscapes (notably sea, coast, estuaries, reedbeds, Sandlings heath, forest, farmland and market towns) and built heritage features (such as Martello towers, pill boxes, river walls), creating a juxtaposition of elements in a relatively small area. The AONB contains important areas of heath and acid grassland, and it supports a high number of protected species populations. As such it has importance in a national context for biodiversity.</p>	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
<p>The condition of the landscape's features and elements</p> <p>Strong overall character, albeit that the evolving nature of intensively farmed arable land with agricultural fleece/polythene and outdoor pig rearing can divide opinion on landscape condition in visually sensitive locations such as on valley sides.</p>	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
<p>The influence of incongruous features or elements (whether man-made or natural) on the perceived natural beauty of the area.</p> <p>A small number of large scale and long-established elements on the coast of the AONB divide opinion, being regarded by some as incongruous features and by others as enigmatic; for example, the complex military site at Orford Ness. The power stations at Sizewell also divide opinion in this way, however in many views, particularly of the B station, the apparent uncluttered simple appearance and outline as well as the lack of visible human activity, partially mitigate the adverse visual impacts. Offshore wind turbines at Greater Gabbard, Galloper and the more distant London Array Offshore Windfarms are visible from some stretches of the coastline. These create a cluttered horizon and, like the large-scale elements onshore, also divide opinion.</p>	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible

Baseline Description of Special Qualities (extracted from AONB Special Qualities Report and supplemented with reference to seascape setting)	Magnitude of Change on Special Quality	Significance of Effect on Special Quality (during construction)	Significance of Effect on Special Quality (during operation)
<b>Scenic Quality</b>			
A distinctive sense of place. Unique character defined by semi-natural and cultural landscapes (notably sea, coast, estuaries, reedbeds, Sandlings heath, forest, farmland and villages) and built heritage features (such as Martello towers, pill boxes, river walls), creating a juxtaposition of elements in a relatively small area.	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
Striking landform. Sea cliffs and shingle beaches contrasting to flat and gently rolling Sandlings heaths and farmland. Extensive shingle beaches and shallow bays provide opportunities for long distance and panoramic views including out to sea and along the Heritage Coast. Views to coastal landform also possible from locations offshore. Landscape displays a 'rhythm' dictated by a series of east-west rivers and estuaries, and the interfluves that lie between them.	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
Striking landform. Coastal cliffs, shingle spits, estuaries and beaches are striking landform features.	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
Visual interest in patterns of land cover. Varied habitats and land cover in intricate mosaic corresponding to natural geography (landform, geology, soils & climate) and displaying seasonal differences, either as a result of natural processes or past and current farming and land management regimes.	<b>None</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
Appeal to the senses. Close-knit interrelationship of constituent features creates a juxtaposition of colours and textures (such as coniferous forests, reedbeds, intertidal mud flats and heathland, sand dunes and shingle beaches) that is further enhanced by seasonal changes. Strong aesthetic, spatial and emotional experiences - for example in the contrast between open and exposed areas on the coast, seaward or within estuaries with more traditional enclosed farmland areas.	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible

Baseline Description of Special Qualities (extracted from AONB Special Qualities Report and supplemented with reference to seascape setting)	Magnitude of Change on Special Quality	Significance of Effect on Special Quality (during construction)	Significance of Effect on Special Quality (during operation)
<p>Appeal to the senses.</p> <p>Large open vistas across heaths and along the coast, out to sea and from sea to coastline, with memorable views and eye-catching features or landmarks. Landmarks include historic structures such as churches, Martello towers and lighthouses, the House in the Clouds (Thorpeness) as well as more modern structures including Sizewell A and B and the former military structures and masts at Orford Ness.</p>	Low	Not significant, short-term and temporary	Not significant, long-term and reversible
<p>Appeal to the senses.</p> <p>Sensory stimuli enhanced by quality of light / space (the big 'Suffolk skies'), areas with dark skies and sound (e.g. bird calls, curlews on heath and geese on estuaries, the wind through reeds in estuaries, waves on shingle). Presence of individual species that contribute to perceived wildness.</p>	Low	Not significant, short-term and temporary	Not significant, long-term and reversible
<b>Relative Wildness</b>			
<p>A sense of remoteness.</p> <p>Absence of major coastal road or rail route, due to estuaries, and intermittent 'soft edged', often lightly trafficked access routes across the AONB to the coastline from main routes inland, has contributed to the relatively undeveloped character of the Suffolk coast.</p>	Low	Not significant, short-term and temporary	Not significant, long-term and reversible
<p>A sense of remoteness.</p> <p>Pockets of relative wildness associated with coast, estuary and forests in this largely farmed and settled landscape.</p>	Low	Not significant, short-term and temporary	Not significant, long-term and reversible
<p>A relative lack of human influence.</p> <p>Semi-natural habitats evident, notably on the Sandlings heaths, marshes, reedbeds, estuaries and along the coastline.</p>	Low	Not significant, short-term and temporary	Not significant, long-term and reversible
<p>A relative lack of human influence.</p> <p>Largely undeveloped coastline and offshore areas and areas of semi-natural habitat including Sandlings heath, forests, reedbeds, estuaries and marshland. Landscape interspersed with isolated villages, and built heritage assets such as Martello towers, pill boxes, river walls that contribute to character. A small number of large scale and industrial elements on the coast of the AONB are long established, notably</p>	Low	Not significant, short-term and temporary	Not significant, long-term and reversible

Baseline Description of Special Qualities (extracted from AONB Special Qualities Report and supplemented with reference to seascape setting)	Magnitude of Change on Special Quality	Significance of Effect on Special Quality (during construction)	Significance of Effect on Special Quality (during operation)
Sizewell A and B and the former military site at Orford Ness, whilst offshore wind turbines at Greater Gabbard, Galloper and the more distant London Array Offshore Windfarms are visible from stretches of the coastline.			
A sense of openness and exposure. Big 'Suffolk skies' and expansive views offshore emphasise sense of openness and exposure on open and exposed coastline and on the Sandlings heaths.	<b>Low</b>	<b>Not Significant,</b> short-term and temporary on big 'Suffolk skies' and on expansive views offshore	<b>Not Significant,</b> long-term and reversible on big 'Suffolk skies' and on expansive views offshore
A sense of enclosure and isolation. Forestry plantations create sense of enclosure and isolation contrasting to open and more exposed areas along the coast and on the Sandlings heaths.	<b>Negligible</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
A sense of passing of time and a return to nature. Significant areas of semi natural landscape and seascape notably along the coastline, offshore and within undeveloped estuaries where there is little evidence of apparent human activity despite the sea walls and coastal marshes.	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
<b>Relative Tranquillity</b>			
Contributors to tranquillity Areas of semi natural habitat, where there is a general absence of development and apparent human activity, contribute to a sense of relative tranquillity. Presence of individual species that contribute to perceived tranquillity. Further enhanced by sounds (bird calls, the wind through reeds in estuaries, waves on shingle) and relatively dark skies.	<b>Low</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
Detractors from tranquillity. Some local detractors from tranquillity include the seasonal influx of visitors to coastal towns, low flying aircraft noise and urban development on fringes of the AONB.	<b>Negligible</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
<b>Natural Heritage Features</b>			
Geological and geo-morphological features.	<b>None</b>	<b>Not significant,</b>	<b>Not significant,</b>

Baseline Description of Special Qualities (extracted from AONB Special Qualities Report and supplemented with reference to seascape setting)	Magnitude of Change on Special Quality	Significance of Effect on Special Quality (during construction)	Significance of Effect on Special Quality (during operation)
Boundary of the AONB is broadly geological marking the border between the inland boulder clay and the coastal fringe. Visible and striking expressions of geology and sedimentation on faces of crumbling coastal cliffs. Use of flint, local crag and Aldeburgh brick for building are indicators of local geology.		short-term and temporary	long-term and reversible
Geological and geo-morphological features. Low crumbling cliffs and steep banks of pebbles on shingle beaches contribute to a landscape of constant change. Striking and memorable geomorphological features include the vast cusped foreland shingle spit of Orford Ness and river estuaries such as the estuary of the River Alde.	<b>None</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
Wildlife and habitats. Varied, nationally and internationally protected sites such as SSSI, SPA and SAC, semi-natural habitats designated for their nature conservation interest and range of species supported (including shingle beaches, intertidal and offshore areas, reedbeds, grazing marshes and Sandlings heaths).	<b>None</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
Wildlife and habitats. Varied protected species across major habitat types, for example breeding and wading birds in estuaries and reedbeds; rare communities of salt tolerant plants on the coast; and birds and invertebrates on the Sandlings heaths.	Effects on wildlife and habitats are considered in <b>Chapter 22 Onshore Ecology and Chapter 23 Onshore Ornithology.</b>	Not assessed	Not assessed
<b>Cultural Heritage</b>			
Built environment, archaeology and designed landscapes. Villages and small towns, particularly at 'end of the road' coastal and estuary locations, such as Pin Mill, Ramsolt and Walberswick and built heritage assets such as military structures (e.g. Martello towers, castle at Orford and pillboxes); Low Countries influence on architecture (as at Aldeburgh); and use of soft hued red brick and pink render with thatch or pantiles contribute to sense of place	Effects on built heritage assets considered in <b>Chapter 24 Onshore Archaeology Cultural Heritage.</b>	Not assessed	Not assessed

Baseline Description of Special Qualities (extracted from AONB Special Qualities Report and supplemented with reference to seascape setting)	Magnitude of Change on Special Quality	Significance of Effect on Special Quality (during construction)	Significance of Effect on Special Quality (during operation)
<p>Built environment, archaeology and designed landscapes.</p> <p>Archaeological and historic sites and features include prehistoric and later burial monuments (including the Anglo-Saxon burial ground at Sutton Hoo); early medieval churches (many of which pre-date the Domesday survey); historic field and settlement patterns; and evidence of land reclamation dating back to the 12<sup>th</sup> century. Distinctive vernacular use of flint, clunch and brick. Designed landscapes are important notably along southern estuaries and in the northern part of the AONB, including Thorpeness Model Village.</p>	<p>Effects on built heritage assets considered in <b>Chapter 24 Onshore Archaeology Cultural Heritage.</b></p>	<p>Not assessed</p>	<p>Not assessed</p>
<p>Historic influence on the landscape.</p> <p>Field patterns reflect process of land management and enclosure stretching back many centuries.</p> <p>Evidence of reclamation of former intertidal areas to form freshwater grazing marsh dating back to the 12<sup>th</sup> century.</p> <p>Prehistoric and later burial monuments (such as at Sutton Hoo), early medieval churches/religious houses and castles.</p> <p>There is also more recent military and infrastructure elements particularly on the coast (e.g. Martello towers, former military installations at Orford Ness), WWII airfields, radar installations and pillboxes that form part of the long history of “Suffolk’s Defended Shore”.</p> <p>More latterly the Sizewell nuclear complex highlights evidence of time depth across the landscape. Both the nuclear complex and the nearby infrastructure associated with offshore energy generation are part of a developing story of the Suffolk’s Energy Coast.</p> <p>There are often strong associations between these features and areas of more remote coastal landscape character.</p> <p>Some of the military structures by reason of their scale, design, and cultural importance have now become an accepted part of the landscape, such as the Martello towers or the pagodas. Whereas other infrastructure, such as electricity pylons and the power stations are still cited by some as visual detractors in the landscape, despite the test of time.</p>	<p><b>Low</b></p>	<p><b>Not significant,</b> short-term and temporary</p>	<p><b>Not significant,</b> long-term and reversible</p>

Baseline Description of Special Qualities (extracted from AONB Special Qualities Report and supplemented with reference to seascape setting)	Magnitude of Change on Special Quality	Significance of Effect on Special Quality (during construction)	Significance of Effect on Special Quality (during operation)
<p>Characteristic land management practices.</p> <p>Landscape character and diversity of habitat types dependent on wide range of land management practices, several of which date back many centuries. Examples include pasturing; grazing on coastal marshes; forestry; extensive grazing to maintain heathland; reed cutting; and ditch/marshland and hydrological management. Small scale fishing industry results in boats, nets, pots and storage buildings on some stretches of coastline.</p>	<b>None</b>	<b>Not significant,</b> short-term and temporary	<b>Not significant,</b> long-term and reversible
<p>Associations with written descriptions.</p> <p>Associations with numerous writers including George Crabbe, (e.g. the poem 'The Borough', 1810), P.D. James and Arthur Ransome</p>	Effects on cultural and built heritage assets considered in <b>Chapter 24 Onshore Archaeology and Cultural Heritage.</b>	Not assessed	Not assessed
<p>Associations with artistic representations.</p> <p>Landscape, towns, coastal areas and the sea captured in, or formed the inspiration for, the works of various artists and composers including J.M.W. Turner (e.g. 'Aldborough, Suffolk' c.1826) and Benjamin Britten (e.g. the opera 'Peter Grimes' c.1945).</p> <p>Annual arts and music festival established in 1948, by Benjamin Britten along with singer Peter Pears and writer Eric Crozier.</p>	Effects on cultural and built heritage assets considered in <b>Chapter 24 Onshore Archaeology and Cultural Heritage.</b>	Not assessed	Not assessed
<p>Associations of the landscape with people, places or events.</p> <p>Wide range of 'stories' describing historical events or activities relate to the landscape and features within the landscape, including stories related to smuggling; the creation of Minsmere; and the loss of Dunwich to the sea.</p> <p>More recent stories include the discovery of the Sutton Hoo ship burial in 1939, the 1953 flood, and experimental projects; Cobra Mist at Orford Ness and Radar at Bawdsey Manor.</p>	Effects on cultural and built heritage assets considered in <b>Chapter 24 Onshore Archaeology and Cultural Heritage.</b>	Not assessed	Not assessed

## 28.8 Potential Visual Impacts During Construction, Operation and Decommissioning

### 28.8.1 Preliminary Assessment

213. Potential visual impacts that could arise during construction, operation and decommissioning are identified as follows:

- Temporary visual impacts on views during construction and decommissioning; and
- Long-term visual impacts on views during operation and maintenance (O&M) - primarily as a result of offshore wind turbine operation, experienced by visual receptors (groups of people) with visibility of the construction and operation of the offshore infrastructure, on specific views and on their visual amenity/experience of the landscape. In addition, there may be visual impacts on views at night-time as a result of navigational lighting and aviation lighting of offshore wind turbines.

214. A preliminary assessment of the visual receptors and viewpoints in the study area has been undertaken using ZTV analysis (**Figure 28.19**) and site survey, to identify which of the visual receptors and viewpoints are likely to be affected by the construction and operation of the offshore infrastructure. This preliminary assessment is presented in **Appendix 28.5**, which identifies the visual receptors and viewpoints that have the potential to undergo significant effects as a result of the construction and operation of the offshore infrastructure and require to be assessed in full; and those that do not have potential to undergo potential significant effects that can be scoped out of further assessment.

#### 28.8.1.1 Viewpoints

215. The preliminary assessment in **Appendix 28.5** has identified the following viewpoints (shown in **Figure 28.19**) that require to be assessed further in the technical assessment, as a result of the potential for significant visual effects arising from the construction and operation of the offshore infrastructure:

- Viewpoint 1 - Lowestoft;
- Viewpoint 2 - Kessingland Beach;
- Viewpoint 3 - Covehithe;
- Viewpoint 4 - Southwold;
- Viewpoint 5 - Gun Hill, Southwold;
- Viewpoint 6 - Walberswick;
- Viewpoint 7 - Dunwich;
- Viewpoint 19 - Hopton-on-Sea; and

- Viewpoint 20 - Gorleston-on-Sea.

216. The construction and operation of the offshore infrastructure is assessed in the preliminary assessment in **Appendix 28.5** as having no significant effects on the remaining representative viewpoints within the study area:

- Viewpoint 8 - Dunwich Heath & Beach (Coastguard cottages);
- Viewpoint 9 - Minsmere Nature Reserve;
- Viewpoint 10 - Sizewell Beach;
- Viewpoint 11 - Suffolk Coastal Path, between Thorpeness and Sizewell;
- Viewpoint 12 - Thorpeness;
- Viewpoint 13 - Aldeburgh;
- Viewpoint 21 Great Yarmouth; and
- Viewpoint 22 Caister-on-Sea.

#### 28.8.1.2 Settlements

217. The preliminary assessment in **Appendix 28.5** has identified the following settlements that require further assessment in the technical assessment, as a result of the potential for significant seascape effects arising from the construction and operation of the offshore infrastructure: Lowestoft, Kessingland and Southwold.

218. The construction and operation of the offshore infrastructure is assessed in the preliminary assessment in **Appendix 28.5** as having no significant effects on the remaining settlements within the study area.

#### 28.8.1.3 Recreational Routes

219. The preliminary assessment in **Appendix 28.5** has identified that the Suffolk Coastal Path requires further assessment in the technical assessment, as a result of the potential for significant seascape effects arising from the construction and operation of the offshore infrastructure.

#### 28.8.1.4 Transport Routes

220. The preliminary assessment has identified that the construction and operation of the offshore infrastructure will have no significant effects on main transport routes through the study area (main roads and railway lines). There is an absence of major coastal roads and rail routes, due to the estuaries and intermittent 'soft edged' coastal landscape, with lightly trafficked access routes across the AONB to the coastline from main routes further inland. This has contributed to the relatively undeveloped character of the Suffolk coast but also means that there

are no major transport routes that will experience significant effects. No further assessment of the effects of the construction and operation of the offshore infrastructure on transport routes has been undertaken.

### 28.8.2 Technical Assessment

221. A detailed technical assessment of the visual effects of the construction and operation of the offshore infrastructure is set out in **Appendix 28.5**. This describes, in full technical detail, the likely significant effects of the construction and operation of the offshore infrastructure on each visual receptor/viewpoint, focusing on those visual receptors/viewpoints that were identified in the preliminary assessment as having potential to be significantly affected. The technical assessment of visual effects from **Appendix 28.5** is summarised for this SLVIA chapter in **section 28.8.3**.

### 28.8.3 Summary Assessment

#### 28.8.3.1 Frequency and Likelihood of Visual Effects – Weather Conditions

222. The judgements made in the SLVIA are based on optimum ‘very good’ to ‘excellent’ visibility of the East Anglia ONE North windfarm site. This assumption is assessed as the worst case scenario in the SLVIA, but in reality, the degree and extent of visual effects arising from the East Anglia ONE North windfarm site will be influenced by the prevailing weather and visibility conditions. Viewing conditions and visibility have been found to vary in the study area. The varied clarity or otherwise of the atmosphere will reduce the number of days upon which views of the East Anglia ONE North windfarm site will be available from the coastline and hinterland, and is likely to inhibit clear views, rendering the wind turbines more visually recessive within the wider seascape. The effects of construction and operation of the offshore infrastructure will vary according to the weather and prevailing visibility. This means that effects that are assessed to be significant in the SLVIA under very good or excellent visibility conditions, may be not significant under moderate, poor or very poor visibility conditions.

223. A description of visibility frequency is provided in the SLVIA, using METAR visibility data from the nearest Met Office stations that record visibility (Weybourne and Shoeburyness), to highlight potential trends in the visibility conditions of the study area. Both GLVIA3 (8.15) and SNH guidance (SNH 2017, para 39) refer to use of this Met Office visibility data to assess typical visibility conditions within an area. Although there are limitations to how this data can be applied to judgements about windfarm visibility, the visibility data provides some understanding and evidence basis for evaluating the visibility of the wind turbines against their background.

224. Met Office visibility data is mapped in **Figure 28.20** in the context of the East Anglia ONE North windfarm site and visibility frequency over a 10 year period at

different distance ranges, based on Met Office visibility definitions: <1km Very Poor; 1 - 4km Poor; 4 -10km Moderate; 10 - 20km Good; 20 - 40km Very Good; 40km > Excellent. The visibility range is shown in bands extending offshore and these can be correlated against the percentage visibility frequency graph (in **Figure 28.20**) to show the frequency of visibility at different ranges. The East Anglia ONE North windfarm site will only be visible in 'very good' or 'excellent' visibility, since it is located at approximately 36km from the coast at its closest point and extends beyond 50km from the coast at its more distant points. Based on visibility from the closest point (36km), the Met Office visibility data indicates that the East Anglia ONE North windfarm site will have a visibility frequency of approximately 26% i.e. 91 days of the year on average (or approximately one-quarter of the year) with visibility over 36km.

225. The Met Office visibility data allows some quantification of the likely frequency of visibility of the East Anglia ONE North windfarm site from individual viewpoints, based on the distance of each viewpoint location from the East Anglia ONE North windfarm site. The Met Office visibility frequency data is used to inform an assessment of the 'likelihood of effect' from each viewpoint, in order to qualify any significant effects assessed in optimum visibility conditions with how likely they are to actually occur given the prevailing weather/ visibility conditions. The viewpoints included in the SLVIA range from 36.9 km to 53.5 km from the East Anglia ONE North windfarm site, with assessments of likelihood of effect varying from 26% at the closest viewpoint (Viewpoint 1, Lowestoft), to 9% at the more distant viewpoints (such as Viewpoint 13, Aldeburgh), with assessments varying between a medium-low likelihood of effects occurring at the closest viewpoints to a low likelihood at the more distant viewpoints.
226. Visibility data from sea-faring vessels was obtained from the Met Office for the years 1988 to 2017. The study presented in **Appendix 28.9** supplements the SLVIA and was undertaken to qualitatively assess the potential duration over which the proposed East Anglia ONE North and East Anglia ONE North projects would be visible from the coast, using visibility data from sea-faring vessels. The Visibility from Vessels data suggests visibility from the coast at a distance of greater than 36km would occur less than 10% of the time.

#### 28.8.3.2 Viewpoints

227. A summary assessment of the predicted visual effects of the construction and operation of the offshore infrastructure on visual receptors at representative viewpoints is set out in **Table 28.10**. Full technical assessments are provided in **Appendix 28.5**. Viewpoint locations and visual receptors are shown on **Figure 28.19**.

228. Views of the construction and operation of the offshore infrastructure will primarily be experienced where the coastal edges of Suffolk meet the sea, between Lowestoft and Southwold, at distances of between approximately 37km near Lowestoft to 42km near Southwold. Views of the construction and operation of the offshore infrastructure will also extend further north along the south Norfolk coastline, and further south between Southwold and Sizewell, at longer distance and reduced prominence. Substantial areas of these latter sections of coastline are already likely to experience some view of an existing offshore windfarm, either Scroby Sands from the south Norfolk coastline; or Greater Gabbard, Galloper, London Array and Gunfleet Sands from the coastline between Southwold and Sizewell.
229. Visibility of the East Anglia ONE North windfarm site is curtailed by landform together with larger areas of coniferous plantation woodland, woodland belts and hedgerows within hinterland and inland areas of the study area, which often confine views of the sea and the East Anglia ONE North windfarm site to the coastal dunes and shingle ridges running along the coast; and occasional areas of higher ground along the crumbling sea cliffs at Dunwich and between Sizewell and Thorpeness. Inland areas of the study area, away from the immediate coastal edge, marshland and estuaries near the coast, often have limited association and intervisibility with the sea. From inland areas of the study area, theoretical visibility of the East Anglia ONE North windfarm site is very much restricted, as successive layers of landform combine to create an effective visual barrier, limiting visibility.
230. The visual effects of the construction and operation of the offshore infrastructure has been assessed as **not significant** on the visual amenity experienced by visual receptors from all representative viewpoints in the SLVIA. The magnitude of change arising from the construction and operation of the offshore infrastructure is assessed as medium-low from representative viewpoint locations along the closest section of coastline between Lowestoft and Kessingland, including Viewpoint 1 (Lowestoft) and Viewpoint 2 (Kessingland). The magnitude of change arising from the construction and operation of the offshore infrastructure is assessed as low on all other representative viewpoints that were assessed in full in the SLVIA (i.e. those that were not scoped out), including Viewpoint 3 (Covehithe), Viewpoint 4 (Southwold), Viewpoint 5 (Gun Hill, Southwold), Viewpoint 6 (Walberswick), Viewpoint 7 (Dunwich), Viewpoint 19 (Hopton-on-Sea) and Viewpoint 20 (Gorleston-on-Sea).
231. In these views, the East Anglia ONE North windfarm site will generally have a lateral spread on the sea skyline of between 14-17° of the field of view, which is a relatively limited portion of the wider 180° sea views available to the observer. The open sea skyline would remain unaffected across the majority of the field of

view out to sea. The wind turbines of the East Anglia ONE North windfarm site will add a new offshore windfarm element to the composition of these views, which are often currently a relatively simply composed view of sandy beach, sea and sky layers with relatively little influence from offshore development (except for Greater Gabbard and Galloper offshore windfarms in very good or excellent visibility) or Scroby Sands which is visible in views from the South Norfolk viewpoints. The towers and rotors of the wind turbines tend to be visible above the sea skyline, with those to the west of the East Anglia ONE North windfarm site appearing more prominent than those which recede with distance to the east that are increasingly behind the horizon. The vertical height of the wind turbines will be relatively small in scale, due to their long distance offshore and the large scale of the seascape in the views, and the height of the wind turbines will be difficult to judge due to the general absence of scale indicators from which to compare the scale of the wind turbines.

232. The movement of rotor blades on an otherwise relatively still horizon, will introduce further complexity and visual movement to these views, but this movement will only be visible in the clearest of visibility conditions. The technological appearance of the wind turbines may contrast with the perceived natural qualities associated with the habitats and visible geology of parts of the coastline, however their appearance will also relate rationally to the visual exposure and large scale. Due to the relatively low elevation of the viewpoints along much of the coast, the simple form of the coastline, its long distance offshore and relatively narrow lateral spread, the East Anglia ONE North windfarm site will be seen on and beyond the horizon, as a 'horizon development' to a large open seascape, rather than being viewed 'within' its seascape/landscape. The large scale of the open sea vistas and expansive views offshore is more likely to be able accommodate windfarm development than in views of smaller scale, complex seascapes.
233. The lateral spread of the East Anglia ONE North windfarm site and the vertical scale of the wind turbines becomes increasingly smaller with increased distance along the southern coastline of the study area, between Southwold and Sizewell which is between 42km – 50km from the East Anglia ONE windfarm site, with the turbine towers and rotors increasingly hidden behind the skyline having a diminishing effect. The visual effect of the construction and operation of the offshore infrastructure on representative viewpoints between Dunwich Heath and Aldeburgh has been scoped out as not significant in the SLVIA, due to the long distance and low to negligible magnitude of change resulting, including:
- Viewpoint 8 Dunwich Heath and Beach (Coastguard Cottages);
  - Viewpoint 9 Minsmere Nature Reserve;

- Viewpoint 10 Sizewell Beach;
- Viewpoint 11 Suffolk Coastal Path, between Thorpeness and Sizewell;
- Viewpoint 12 Thorpeness; and
- Viewpoint 13 Aldeburgh.

234. Views of the East Anglia ONE North windfarm site also extend further north along the south Norfolk/north Suffolk coastline, where the visual effects of the construction and operation of the offshore infrastructure have also been scoped out as not significant in the SLVIA from the following representative viewpoints:

- Viewpoint 21 (Great Yarmouth); and
- Viewpoint 22 (Caister-on-Sea).

**Table 28.10 Viewpoints - Summary of Effects**

Receptor/ Viewpoint (Figure 28.19 and Figures 28.25 – 28.41)	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)	Likelihood of effect
<b>Viewpoint 1: Lowestoft</b>					
Beach users (Lowestoft Beach):	Medium- high	Medium-low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 36.9km occurs 26% of the time*.
Walkers and cyclists (Suffolk Coastal Path):	Medium- high				
Residents of Lowestoft seafront:	Medium- high				
Visitors engaged in recreational amusements:	Low				
People sitting / viewing from seafront benches:	Medium- high				
Recreational boaters (Lowestoft Marina):	Medium				

Receptor/ Viewpoint (Figure 28.19 and Figures 28.25 – 28.41)	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)	Likelihood of effect
<b>Viewpoint 2: Kessingland</b>					
Beach users (Kessingland Beach):	Medium- high	Medium-low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 37.8km occurs 26% of the time*.
Walkers (Suffolk Coastal Path/ promenade):	Medium- high		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
Residents of Kessingland seafront:	Medium- high		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
<b>Viewpoint 3: Covehithe</b>					
Beach users:	High	Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 39.7km occurs 26% of the time*.
<b>Viewpoint 4: Southwold</b>					
Beach users (Southwold Beach):	High	Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 42.1km occurs 20% of the time*.
Walkers and cyclists (Suffolk Coastal Path):	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
Residents of Southwold seafront:	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
People engaged in recreational amusements:	Low		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b>	

Receptor/ Viewpoint (Figure 28.19 and Figures 28.25 – 28.41)	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)	Likelihood of effect
				long-term, reversible	
People sitting/viewing from seafront benches:	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
Recreational boaters (Southwold Harbour):	Medium		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
<b>Viewpoint 5: Gun Hill, Southwold</b>					
Beach users (Gunhill Cliff/The Denes):	High	Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 42.5km occurs 20% of the time*.
Walkers (Suffolk Coastal Path):	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
Residents around Gun Hill/promenade:	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
People sitting/viewing from seafront benches:	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
Recreational boaters (Southwold Harbour):	Medium		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
<b>Viewpoint 6: Walberswick</b>					
Beach users (Walberswick Beach):	High	Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 33.2km occurs
Walkers using the Suffolk Coastal Path:	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	

Receptor/ Viewpoint (Figure 28.19 and Figures 28.25 – 28.41)	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)	Likelihood of effect
Residents of the coastal edges of Walbersick:	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	33% of the time*.
Recreational boaters (Southwold Harbour):	Medium		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
<b>Viewpoint 7: Dunwich</b>					
Beach users at Dunwich Beach:	High	Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 46.9km occurs 15% of the time*.
Visitors to the nearby café:	Medium- low		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
Dingle Marshes RSPB reserve (NNR):	Medium		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
Residents of the edges of Dunwich village:	High		<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	
<b>Viewpoint 19: Hopton-on-Sea</b>					
Beach users (Hopton-on-Sea):	Medium- high	Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 39.2km occurs 20% of the time*.
Tourist visitors (e.g. Hopton Holiday Village):	Medium- high				
Residents of the coastal edges of Hopton-on-Sea (e.g. Sea View Rise):	Medium- high				
Walkers using the England Coastal Path:	Medium- high				

Receptor/ Viewpoint (Figure 28.19 and Figures 28.25 – 28.41)	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)	Likelihood of effect
<b>Viewpoint 20: Gorleston-on-Sea</b>					
Beach users (Gorleston-on- Sea beach):	Medium- high	Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 41.0km occurs 15% of the time*.
Tourist visitors to the seafront e.g. around Lower Esplanade/Marine Esplanade:	Medium- high				
People sitting/viewing from seafront benches/gardens:	Medium- high				
Walkers using the England Coastal Path:	Medium- high				
Cyclists using NCNR 517:	Medium				
Residents of Gorleston-on- Seafront (e.g. Marine Parade):	Medium- high				
People engaged in active sports (e.g. Tennis / Basketball /Trim Trails):	Medium- low				
* over 10 year period 2007-2017 from Weybourne Met Office Station (Met Office Visibility Data)					

### 28.8.3.3 Settlements

235. A summary assessment of the predicted visual effects of the construction and operation of the offshore infrastructure on residents of settlements is set out in **Table 28.11**. Full technical assessments are provided in **Appendix 28.5**. The location of settlements is shown on **Figure 28.19**.

236. The principal visual receptors that may experience views of the construction and operation of the offshore infrastructure are residents of the coastal towns of Lowestoft, Kessingland and Southwold. The residences of the coastal and sea-front edges of these towns are often orientated to the open seaward horizon in

the direction of the East Anglia ONE North windfarm site. The study area offers a variety of visitor attractions and facilities, ranging from the beaches and bays around coast, offering opportunities for walking, cycling and water sports; traditional seaside resort towns and attractions on the coast and historic environment attractions. It includes the Suffolk Coastal Path long distance walking route, national cycle routes and numerous public rights of way.

#### 28.8.3.3.1 Lowestoft

237. Lowestoft is the most easterly town in England and a popular seaside holiday destination. It is split in two by the inland water body of Lake Lothing and this along with the harbour area is a focus of commercial development, some of which is associated with the renewables industry. The town has long and wide beach with two piers and several tourist attractions along the frontage, often set back from the coast by gardens/parks and car parks. The main town centre is set back from the coast beyond the harbour area with the main street running parallel to the coast. Large residential areas spread along the coast and inland to the edge of the Norfolk Broads and the marshes around the River Waveney. The main approaches to the town are from Great Yarmouth in the north along the A47 and from the south via Kessingland along the A12. These routes run inland from the coast and are separated from it by urban areas, tourist facilities and farmland. Roadside and other vegetation as well as the flat nature of the terrain generally tends to restrict views out to sea.

238. Visibility of the East Anglia ONE North windfarm will be largely constrained to the coastal edge rather than other parts of the town or its approaches.

#### 28.8.3.3.2 Kessingland

239. Kessingland is a large village a short distance to the south of Lowestoft which can be reached along the A12. Its High Street is set back from the coast along what would have formerly been the main connecting north-south route. Urban areas, as well as amenity buildings and facilities, are spread out from this route in an easterly direction to the coast, which is predominantly bounded by holiday accommodation and caravan parks as well as other tourist facilities, and these also spread southwards, set back from the coast slightly. The beach is a long and wide with sand, shingle and marram grasses and backed by low cliffs in places. The approach from the south along the A12 is approximately 2-3km inland and separated from the coast by agricultural land and a wildlife park with trees and woodland.

240. Visibility of the East Anglia ONE North windfarm will be largely constrained to the coastal edge rather than other parts of the village or its approaches.

28.8.3.3 Southwold

241. Southwold is a small coastal town to the north of the River Blyth. It is approached from the west via the A1095 (Halesworth Road) or the B1126 (Wangford Road) through the settlement of Reydon. Once in Southwold this route becomes first Station Road and then the High Street and Queen Street which provides access to the coastal areas. From the north the approach is to the east of Reydon along the along the B1127, which is set back from the coast by more than 0.5km and has few opportunities for views out to sea. Southwold has a beach frontage backed by a long parade, amenity areas and visitor facilities. There is also a pier approached along Pier Avenue through a residential area and a prominent lighthouse. The town has a high percentage of second homes as well as attracting tourists and day visitors. It is an important commercial centre for the wider agricultural area and this is focussed around the High Street which extends back from near the coast in a north-westerly direction.
242. Visibility of the East Anglia ONE North windfarm will be largely constrained to the coastal edge rather than other parts of the town or its approaches.

**Table 28.11 Settlements – Summary of Effects**

Settlement receptor (Figure 28.19)	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)	Likelihood of effect
<b>Lowestoft</b>					
Area A: Gunton area to the north of Lowestoft	Medium-high	Low	<b>Not significant, short-term, temporary</b>	<b>Not significant, long-term, reversible</b>	Very good or excellent visibility required. Visibility at or beyond 36.9km occurs 26% of the time*.
Area B: South Beach/Kirkley area		Medium-low			
Area C: Pakefield/Pakefield Cliffs area (e.g. Pakefield Road, Pakefield Street)		Medium-low			
Area D: Quayside/inner harbour along Lake Lothing and Oulton Broad		Negligible			
Area E: Urban areas of Lowestoft set-back from coast, including Kirkley, Pakefield and Carlton Colville		Negligible			
<b>Kessingland</b>					

Settlement receptor (Figure 28.19)	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)	Likelihood of effect
Area A: Sea front extending from Kessingland Beach to Alandale Park and Coastguard Lane	Medium-high	Medium-low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 37.8km occurs 26% of the time*.
Area B: Kessingland		Negligible	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible	
<b>Southwold</b>					
Area A: Immediate seafront along coastal edge of Southwold between Pier Avenue/Southwold Pier (Illustrative Viewpoint D) along North Parade (Viewpoint 4) to Gun Hill (Viewpoint 5).	High	Low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 42.1km occurs 20% of the time*.
Area B: Southwold Common (Illustrative Viewpoint A)		Negligible	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible	
Area C: Southwold town centre, (including from High Street/Market Place)		Negligible			
Area D: North Southwold residential areas between North Road and Victoria Street		Negligible			
Area E: Residential areas to the south and west of High Street/Queen Street		Negligible			
<p>* over 10 year period 2007-2017 from Weybourne Met Office Station (Met Office Visibility Data)</p> <p>The Visibility from Vessels data suggests visibility from the coast, at a distance of greater than 32.6km, would occur less than 10% of the time.</p>					

#### 28.8.3.4 Suffolk Coastal Path

243. A summary assessment of the predicted visual effects of the construction and operation of the offshore infrastructure on walkers using the Suffolk Coastal Path is set out in **Table 28.12**. Full technical assessments are provided in **Appendix 28.6**. ZTVs illustrating the predicted visibility of the East Anglia ONE North windfarm site from the Suffolk Coastal Path are shown in **Figures 28.23a-b**.
244. The Suffolk Coastal Path is an approximately 87.4km long distance footpath which follows the Suffolk coast between Felixstowe and Lowestoft. It runs through a wide variety of landscapes many of which typify the character of the Suffolk Coast and Heaths AONB including nationally important examples of shingle beaches, coastal marshes, low coastal cliffs, heathland, forest and late enclosure farmland. The route of the Suffolk Coastal Path is mapped together with LCTs in the study area in **Figures 28.24a-b**.
245. The exact distance of the footpath is to an extent defined by the dynamic nature of the coastline. The route varies according to the time of year as well as in accordance with local tides. Between late autumn and spring some coastal sections can become impassable and are diverted inland due to flooding and erosion of the coastal cliffs, whilst some beach sections of the Suffolk Coastal Path are only walkable between mid and low tide. Sections of the Suffolk Coastal Path are rebuilt either naturally as sediment is returned to beaches as part of ongoing coastal geomorphological process or by humans after the impact of storms. Latest updates on diversions and advice for walking the Suffolk Coastal Path can be found online<sup>1</sup>.
246. The England Coast Path is being developed for this section of coast by Natural England and will adopt the Suffolk Coast Path for some of its length, but in places provide new sections which focus more specifically on the coast and on enjoyment of sea views. The Suffolk Coast is undergoing Stage 2 and 3: Develop and Propose for inclusion into the England Coastal Path – a new national trail around England’s Coast, which when completed will be one of the longest coastal walking routes in the world. The proposals will be finalised and then published in a report to the Secretary of State for Environment, Food and Rural Affairs. This is expected to take place in autumn 2019 and the new access is expected to be ready in 2020.
247. The Sandlings Walk follows a route inland between Ipswich and Southwold but roughly parallel to the Suffolk Coastal Path and covers more of the heath and forest landscapes. However, the two routes meet and cross at several points

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<sup>1</sup><http://www.suffolkcoastandheaths.org/things-to-do/walking/footpath-changes-updates/suffolk-coast-path/>.

- including in the area between Snape and Southwold. The Suffolk Coastal Path also meets with the Stour and Orwell Walk (between Felixstowe and Cattawade) at Felixstowe which, combined with the presence of other local rights of way affords the opportunity for numerous shorter walks and circular routes which encompass sections of the Suffolk Coastal Path.
248. The proposed East Anglia ONE North project alone assessment of the effects on the Suffolk Coastal Path covers the section north of Southwold as determined through **Table A28.4** which is contained in **Appendix 29.4**. The assessment of this part of the Suffolk Coastal Path is divided into four sections, as shown on **Figure 28.23**, each of which is assessed independently. This is followed by a combined assessment of the entire route to the north of Southwold. The full method used to establish the path sections is outlined in **Appendix 28.2**.
249. The findings of the detailed technical assessment in **Appendix 28.6**, summarised in **Table 28.12**, conclude that the construction and operation of the offshore infrastructure would result in **not significant** visual effects on users of the Suffolk Coastal Path along the seven sections of the Suffolk Coastal Path in the study area. The primary visual effects arising to views experienced by walkers on the Suffolk Coastal Path would be geographically spread over a 3.7km stretch through Lowestoft; a 2.5km stretch along Kessingland Beach; a 4.4km stretch through Southwold; and a 1km stretch over Dunwich Heath north of the coastguard cottages, however these visual effects are assessed as **not significant**, primarily due to the medium-low or low magnitude of change arising from the construction and operation of the offshore infrastructure.
250. The proximity of the Suffolk Coastal Path to the Sandlings Walk, the Stour and Orwell Walk and a comprehensive network of local rights of way affords the opportunity to create circular routes incorporating shorter sections of the Suffolk Coastal Path. Walkers using the path in this manner would only be significantly affected by views of the proposed development for a section of their walk if passing through any of the significant area of the route near Southwold or Thorpeness.
251. The Suffolk Coastal Path is promoted and way-marked as a long-distance footpath and is undergoing development to incorporate it within the England Coastal Path, a high-profile national trail around all of England's coast. A significant number of walkers are therefore likely to be walking longer sections of the route and would be repeatedly exposed to views of the East Anglia ONE North windfarm site. This repeated exposure to views which have been assessed as not significant in isolation, do not amount to a significant effect when combined over a longer distance or viewed in succession over several days.

**Table 28.12 Suffolk Coastal Path – Summary of Effects**

Section of Suffolk Coastal Path ( <i>Figure 28.23a-b</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North) (construction and decommissioning)	Significance of effect (East Anglia ONE North) (operation)
<b>Suffolk Coastal Path</b>				
Section 01 Lowestoft	Medium-high	Medium-low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
Section 02 Kessingland	Medium-high from the stretch south of Kessingland and medium-low through Kessingland	Medium-low for 2.5km stretch along Kessingland Beach	<b>Not significant,</b> short-term, temporary for 2.5km stretch along Kessingland Beach	<b>Not significant,</b> long-term, reversible for 2.5km stretch along Kessingland Beach
Section 03 Kessingland to Reydon	Medium	Low	<b>Not significant,</b> short-term, temporary	<b>Not significant,</b> long-term, reversible
Section 04 Southwold	High from the 2.5 km stretch along the sea front of Southwold, between Eastern Marshes and Havenbeach Marshes.  Medium in all other areas around Southwold.	Low from 2.5 km stretch along the sea front of Southwold, between Eastern Marshes and Havenbeach Marshes.	<b>Not significant,</b> short-term, temporary from the 2.5 km stretch along the sea front between Eastern Marshes and Havenbeach Marshes and over remainder of this section in the Southwold area including Southwold Harbour.	<b>Not significant,</b> long-term, reversible from the 2.5 km stretch along the sea front between Eastern Marshes and Havenbeach Marshes and over remainder of this section in the Southwold area including Southwold Harbour.

252. The effect of the effect of the construction and operation of the offshore infrastructure in views experienced by people walking the full route of the Suffolk Coastal Path sequentially as a long-distance footpath has also been assessed in the SLVIA.
253. The total length of the route of the Suffolk Coastal Path to the north of Southwold with actual visibility of the East Anglia ONE North windfarm site is identified as approximately 10.9km (approximately one-third of this section between Lowestoft and Southwold), however the construction and operation of the offshore

infrastructure is assessed as **not significant** over these sections with visibility, due primarily to the long distance and relatively narrow lateral spread of the East Anglia ONE North windfarm site in offshore views. These sections with visibility of the East Anglia ONE North windfarm site have a relatively limited contribution to the overall visual amenity experienced in views from the Suffolk Coastal Path when considered as a whole, with views from the large majority of the route to the south of Southwold having a lower level of change or not being affected at all due to having no visibility of the construction and operation of the offshore infrastructure.

254. The overall effect of the construction and operation of the East Anglia ONE North offshore infrastructure on long distance walkers walking the Suffolk Coastal Path as a whole is assessed as **not significant**. This is primarily due to factors relating to the nature of the route as comprising a series of shorter sections with visibility of the East Anglia ONE North windfarm site, interspersed with generally longer sections with no visibility. The route is therefore characterised by a wide variety of landscapes with different types of view of which coastal views and seascape panoramas including the East Anglia ONE North windfarm site comprise only a part, with the main views limited to parts of the Suffolk Coastal Path outside the AONB and often within urban areas such as Kessingland and Lowestoft. Any views of the proposed East Anglia ONE North project would be intermittent when experienced walking the route as a whole and of short duration in relation to the overall walking duration and the duration of sections with no visibility.

## 28.9 Cumulative Impacts

### 28.9.1 Cumulative Effects with the Proposed East Anglia TWO Project

#### 28.9.1.1 Introduction

255. The proposed East Anglia TWO offshore windfarm project is also in the application phase. The proposed East Anglia TWO project has a separate DCO which has been submitted together with the application for the proposed East Anglia ONE North project.
256. The cumulative SLVIA in **Appendix 28.7** and summarised here in **section 28.9.1**, considers the combined (or total) effect of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure. This cumulative assessment focuses on the seascape, landscape and visual receptors that were assessed in full in the proposed East Anglia ONE North project alone technical assessments in **Appendixes 28.3 – 28.6**. Receptors which were scoped out of the SLVIA in the preliminary assessment contained in these appendices are also scoped out of the cumulative SLVIA in **Appendix 28.7** (and **section 28.9.1**).

### 28.9.1.2 Cumulative Seascape Effects

257. A detailed technical assessment of the cumulative seascape effects of the construction and operation of the East Anglia ONE North offshore infrastructure and East Anglia TWO offshore infrastructure is set out in **Appendix 28.7**. This describes, in full technical detail, the likely significant cumulative seascape effects on each SCT. The full technical assessment of cumulative seascape effects from **Appendix 28.7** is summarised for this SLVIA chapter in **Table 28.13**. SCTs are shown on **Figure 28.15**.

**Table 28.13 Seascape Character Types – Summary of Cumulative Effects**

Seascape Character Type (SCT) ( <i>Figure 28.15</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
<b>Nearshore Waters (SCT 03)</b>				
Area A: Kessingland to Orford Ness	High	Medium to medium-high	<b>Significant</b> , medium-term, temporary	<b>Significant</b> , long-term, reversible
Area B: Orford Ness to Bawdsey		Low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
<b>Developed Nearshore Waters (SCT 04)</b>				
Area A: Lowestoft area	Medium-low	Medium	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area B: South Norfolk area (Caister-on-Sea to Hopton-on-Sea)		Low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
<b>Coastal Waters (SCT 05)</b>				
Area A: Coastal waters offshore of Covehithe to Aldeburgh	Medium	Medium to medium-high	<b>Significant</b> , medium-term, temporary	<b>Significant</b> , long-term, reversible
Area B: Coastal waters offshore of south Norfolk (north of Lowestoft)		Medium to medium-low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area C: Coastal waters offshore between Orford Ness and Bawdsey		Low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible

Seascape Character Type (SCT) (Figure 28.15)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
<b>Offshore Waters (SCT 06)</b>				
Area A: Offshore waters within the study area	Medium-low	Medium	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible

### 28.9.1.3 Cumulative Landscape Effects

258. A detailed technical assessment of the cumulative landscape effects of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure is set out in **Appendix 28.7**. This describes, in full technical detail, the likely significant cumulative landscape effects on each landscape receptor. The full technical assessment of landscape effects from **Appendix 28.7** is summarised for this SLVIA chapter in **Table 28.14**. LCTs are shown in **Figure 28.17**.

#### 28.9.1.3.1 Landscape Character Types

**Table 28.14 Landscape Character Types – Summary of Cumulative Effects**

Landscape Character Type (LCT) (Figure 28.17)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
<b>Coastal Dunes and Shingle Ridges (LCT 05)</b>				
Area A: North of Lowestoft	High	Medium-low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area B: Kessingland		Medium	<b>Significant</b> , medium-term, temporary	<b>Significant</b> , long-term, reversible
Area C: Southwold to the north side of Orford Ness		Medium	<b>Significant</b> , medium-term, temporary	<b>Significant</b> , long-term, reversible
Area D: South side of Orford Ness		Medium-low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible

Landscape Character Type (LCT) (Figure 28.17)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
Area E: Shingle Street to Bawdsey		Low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
<b>Coastal Levels (LCT 06)</b>				
Area A: Marshes flanking the Hundred River from Kessingland Beach westward through the Kessingland Levels to Henstead	Medium-high	Low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area B: Marshes flanking the River Blyth and Buss Creek from Walberswick westward to Wolsey Bridge		Havenbeach and Busscreek Marshes, inland across Reydon Marshes to Wangford: Low  Southwold Harbour, and mouth of the River Blyth and Sole Bay: Medium	<b>Not significant</b> , short-term, temporary  <b>Significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible  <b>Significant</b> , long-term, reversible
Area C: Marshes of the Minsmere Level extending westward to Eastbridge and Theberton		The Scrape: Negligible  Island Mere and North Levels: Low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area D: Area of former Meare to the south of existing Meare at Thorpeness and the northern outskirts of Aldeburgh		Inland areas of LCT: Low  Coastal portion/edges of LCT: Medium-low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area E: Marshes flanking the sides of the Rivers Alde, Ore and Butley from Aldeburgh south past Orford to East Lane in Bawdsey		Inland areas of LCT, Alde Mudflats, Butley River, Hollesley and Boyton areas: Low  Sudbourne Marshes, Sudbourne	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible

Landscape Character Type (LCT) (Figure 28.17)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
		Beach and Kings Marshes: Medium-low	<b>Not significant</b> , short-term, temporary	<b>Not significant</b> , long-term, reversible
Area F: Marshes flanking the Deben Estuary, from Bawdsey to Ramsholt		Negligible	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
<b>Estate Sandlands (LCT 07)</b>				
Area A: Covehithe to Benacre and Easton Bavents	Locally medium-high at coastal edges of LCT, but generally low over most of the inland LCT	Medium	<b>Significant</b> , medium-term, temporary	<b>Significant</b> , long-term, reversible
Area B: Southwold Common		Negligible	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area C: Walberswick to Westleton and Dunwich		Localised area at Dunwich Heath/Cliffs: Medium Areas between Walberswick and Westleton: Low	Localised area at Dunwich Heath/Cliffs <b>significant</b> , short-term, reversible  Areas between Walberswick and Westleton not <b>significant</b> , medium-term, temporary	Localised area at Dunwich Heath/Cliffs <b>significant</b> , long-term, reversible  Areas between Walberswick and Westleton not <b>significant</b> , long-term, reversible
Area D: Leiston and Aldringham to Snape, Thorpeness and Aldeburgh		Areas between Leiston, Aldringham, Friston, Snape and Aldeburgh: Negligible  Localised area at Sizewell Cliffs to Thorpe Ness: Medium-low	<b>Not significant</b> , medium-term	<b>Not significant</b> , long-term, reversible
Area E: Hollesley, Rendlesham and Tunstall Forests to Sudbourne		Negligible	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
<b>Open Coastal Fens (LCT 08)</b>				

Landscape Character Type (LCT) (Figure 28.17)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
Area A: Corporation and Dingle Marshes	Medium-high	Medium-low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area B: Westwood Marshes		Low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible
Area C: Reedland Marshes		Low	<b>Not significant</b> , medium-term, temporary	<b>Not significant</b> , long-term, reversible

### 28.9.1.3.2 Suffolk Coast and Heaths AONB and Suffolk Heritage Coast

259. A detailed technical assessment of the cumulative landscape effects on AONB special qualities of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure is set out in **Appendix 28.7**. As the combined or ‘total’ cumulative effect resulting from the East Anglia ONE North and East Anglia TWO windfarm sites is considered in the cumulative assessment, the cumulative effects on AONB special qualities are very similar to those set out for the project alone assessment of the East Anglia TWO windfarm site in **Section 28.7.3.2.3** of the East Anglia TWO SLVIA (**Chapter 28**). It is assessed that there are no differences in the levels of magnitude of change or significance of effects on AONB special qualities set out in the project alone assessment for the East Anglia TWO windfarm site, with the addition of East Anglia ONE North resulting in a relatively low change/addition, with the combined magnitude of change only being slightly higher than that resulting from the proposed East Anglia TWO offshore infrastructure alone.
260. The key differences in the perceived changes to AONB special qualities result mainly from the lateral spread of both East Anglia ONE North and East Anglia TWO windfarm sites on the horizon, which results in windfarm development occupying a wider field of view, although generally separated by a section of open sea skyline such that they will appear as separate offshore windfarms, rather than a combined grouping on the horizon. This wider lateral spread of the two projects in combination, tends to exacerbate effects on the AONB special qualities of long distance and panoramic views out to sea experienced from the AONB, creating a relatively consistent but distant wind energy development influence in the offshore seascape setting, but not to the level where the impact magnitude

threshold would increase from that assessed in the project alone assessment for the East Anglia TWO offshore windfarm site.

261. As for the project alone assessment, the cumulative effect resulting from the East Anglia ONE North and East Anglia TWO windfarm sites is assessed as significant (and of medium magnitude) on the perception of specific landscape, scenic and relative wildness qualities that derive from changes to views from the AONB out to sea from geographically focused areas along the immediate coastal edges of the AONB where these panoramic, long distances views offshore are an indicator of special qualities.
262. The key differences in terms of combined or 'total' cumulative impact on AONB special qualities is the relative contribution of each project to the overall cumulative impact, which varies between different parts of the AONB coastline. From the very northern parts of the AONB coastline near Covehithe, the East Anglia ONE North and East Anglia TWO windfarm sites both contribute to the total cumulative effect on the perceived landscape and scenic qualities, at distances of approximately 32 - 38km offshore, however moving south along the coast, towards Southwold, Dunwich and Sizewell, the East Anglia TWO windfarm site contributes more to the overall cumulative effect, due to it being closer and having more lateral spread on the horizon, compared to the increasingly distant turbines of the East Anglia ONE North windfarm site, which are over 42km offshore from Southwold and 50km offshore from Sizewell, increasingly hidden behind the horizon and having limited effects on AONB special qualities. From the southern parts of the AONB coastline, to the south of Orford Ness, there is little or no visibility of the East Anglia ONE North windfarm site, which is over 60km from the coast, therefore the potential for additional cumulative effects on the special qualities of the AONB can largely be discounted, with the combined or 'total' effect on AONB special qualities resulting entirely from the presence of the East Anglia TWO windfarm site.

#### 28.9.1.4 Cumulative Visual Effects

##### 28.9.1.4.1 Viewpoints

263. A detailed technical assessment of the cumulative visual effects of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure is set out in **Appendix 28.7**. This describes, in full technical detail, the likely significant cumulative visual effects on each visual receptor and representative viewpoint identified in the preliminary assessment as having potential to be significantly affected. The full technical assessment of visual effects from **Appendix 28.7** is summarised for this SLVIA chapter in **Table 28.15**. Viewpoints and visual receptors are shown in **Figure 28.19**.

**Table 28.15 Viewpoints – Summary of Cumulative Effects**

Receptor/ Viewpoint ( <i>Figure 28.19 and Figures 28.25 – 28.41</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
<b>Viewpoint 1: Lowestoft</b>					
Beach users (Lowestoft Beach):	Medium-high	Medium-low	Not significant, medium-term, temporary	Not significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 37km occurs 26% of the time*.
Walkers and cyclists (Suffolk Coastal Path):	Medium-high		Significant, medium-term, temporary	Significant, long-term, reversible	
Residents of Lowestoft seafront:	Medium-high		Significant, medium-term, temporary	Significant, long-term, reversible	
Visitors engaged in recreational amusements:	Low		Not significant, medium-term, temporary	Not significant, long-term, reversible	
People sitting / viewing from seafront benches:	Medium-high		Significant, medium-term, temporary	Significant, long-term, reversible	
Recreational boaters (Lowestoft Marina):	Medium		Not significant, medium-term, temporary	Not significant, long-term, reversible	
<b>Viewpoint 2: Kessingland</b>					
Beach users (Kessingland Beach):	Medium-high	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 34km occurs 33% of the time*.
Walkers (Suffolk Coastal Path/ promenade):	Medium-high				
Residents of Kessingland seafront:	Medium-high				
<b>Viewpoint 3: Covehithe</b>					
Beach users:	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required.

Receptor/ Viewpoint ( <i>Figure 28.19 and Figures 28.25 – 28.41</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
					Visibility at or beyond 33km occurs 33% of the time*.
<b>Viewpoint 4: Southwold</b>					
Beach users (Southwold Beach):	High	Medium-high	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 32.6km occurs 33% of the time*.
Walkers and cyclists (Suffolk Coastal Path):	High		Significant, medium-term, temporary	Significant, long-term, reversible	
Residents of Southwold seafront:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
People engaged in recreational amusements:	Low		Not significant, medium-term, temporary	Not significant, long-term, reversible	
People sitting/viewing from seafront benches:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
Recreational boaters (Southwold Harbour):	Medium		Not significant, medium-term, temporary	Not significant, long-term, reversible	
<b>Viewpoint 5: Gun Hill, Southwold</b>					
Beach users (Gunhill Cliff/The Denes):	High	Medium-high	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 32.6km occurs 33% of the time*.
Walkers (Suffolk Coastal Path):	High		Significant, medium-term, temporary	Significant, long-term, reversible	
Residents around Gun Hill/promenade:	High		Significant, medium-term, temporary	Significant, long-term, reversible	

Receptor/ Viewpoint ( <i>Figure 28.19 and Figures 28.25 – 28.41</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
People sitting/viewing from seafront benches:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
Recreational boaters (Southwold Harbour):	Medium-low		Not significant, medium-term, temporary	Not significant, long-term, reversible	
<b>Viewpoint 6: Walberswick</b>					
Beach users (Walberswick Beach):	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 33.2km occurs 33% of the time*.
Walkers using the Suffolk Coastal Path:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
Residents of the coastal edges of Walbersick:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
Recreational boaters (Southwold Harbour):	Medium		Not significant, medium-term, temporary	Not significant, long-term, reversible	
<b>Viewpoint 7: Dunwich</b>					
Beach users at Dunwich Beach:	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 34.6km occurs 26% of the time*.
Visitors to the nearby café:	Medium-low		Not significant, medium-term, temporary	Not significant, long-term, reversible	
Dingle Marshes RSPB reserve (NNR):	Medium		Not significant, medium-term, temporary	Not significant, long-term, reversible	
Residents of the edges of Dunwich village:	High		Significant, medium-term, temporary	Significant, long-term, reversible	

Receptor/ Viewpoint ( <i>Figure 28.19 and Figures 28.25 – 28.41</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
<b>Viewpoint 8: Dunwich Heath and Beach</b>					
Visitors to Dunwich Heath and Beach (including Coastguard Cottages):	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 34.7km occurs 33% of the time*.
Walkers using the Suffolk Coastal Path:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
<b>Viewpoint 9: Minsmere Nature Reserve</b>					
Visitors at the visitor centre/car parking area:	Medium-high	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 35.2km occurs 26% of the time*.
Birdwatchers using hides/viewing platforms:	Medium-low		Not significant, medium-term, temporary	Not significant, long-term, reversible	
Walkers using the coast trail around the Scrape:	Medium-high		Significant, medium-term, temporary	Significant, long-term, reversible	
Walkers using the Island Mere and Woodland Trail:	Medium-low		Not significant, medium-term, temporary	Not significant, long-term, reversible	
<b>Viewpoint 10: Sizewell Beach</b>					
Beach users at Sizewell Beach:	Medium	Medium	Not significant, medium-term, temporary	Not significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 34.8km occurs 33% of the time*.
Walkers using the Suffolk Coastal Path:	Medium				
Residents of Sizewell:	Medium				
Workers at Sizewell Nuclear Power Station:	Low				

Receptor/ Viewpoint ( <i>Figure 28.19 and Figures 28.25 – 28.41</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
<b>Viewpoint 11: Coastal Path between Thorpeness and Sizewell</b>					
Walkers using the Coastal Path:	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 34.8km occurs 33% of the time*.
<b>Viewpoint 12: Thorpeness</b>					
Beach users at Thorpeness beach:	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 35.1km occurs 26% of the time*.
Residents of Thorpeness:	High				
Tourist visitors to Thorpeness/holiday accommodation:	High				
Walkers using the Suffolk Coastal Path:	High				
<b>Viewpoint 13: Aldeburgh</b>					
Beach users (Aldeburgh Beach):	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 35.9km occurs 26% of the time*.
Residents of Southwold seafront:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
Tourist visitors to the seafront:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
Walkers/strollers using Crag Path alongside the beach:	High		Significant, medium-term, temporary	Significant, long-term, reversible	

Receptor/ Viewpoint ( <i>Figure 28.19 and Figures 28.25 – 28.41</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
People sitting/viewing from seafront benches:	High		Significant, medium-term, temporary	Significant, long-term, reversible	
People working along the front e.g. RNLI shop, vendors:	Medium-low		Not significant, medium-term, temporary	Not significant, long-term, reversible	
Recreational boating (e.g. from Aldeburgh Yacht Club):	Medium		Not significant, medium-term, temporary	Not significant, long-term, reversible	
<b>Viewpoint 14: Orford Castle</b>					
Visitors to the roof of Orford Castle:	High	Medium-low	Not significant, medium-term, temporary	Not significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 40.4km occurs 20% of the time*.
Residents of Orford:	Low				
<b>Viewpoint 15: Shingle Street</b>					
Residents of Shingle Street:	High	Low	Not significant, medium-term, temporary	Not significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 45.8km occurs 15% of the time*.
Walkers using the Suffolk Coastal Path:	High				
Visitors/beach users:	High				
<b>Viewpoint 16: Bawdsey</b>					
Visitors to Bawdsey Point:	Medium	Low	Not significant, medium-term, temporary	Not significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond
Walkers using the Suffolk Coastal Path:	Medium				

Receptor/ Viewpoint ( <i>Figure 28.19 and Figures 28.25 – 28.41</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
					47.4km occurs 15% of the time*.
<b>Viewpoint 18: Orfordness (Lighthouse)</b>					
Visitors to Orford Ness:	Medium-high	Medium-low	Not significant, medium-term, temporary	Not significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 37.4km occurs 26% of the time*.
<b>Viewpoint 19: Hopton-on-Sea</b>					
Beach users (Hopton-on-Sea):	Medium-high	Medium-low	Not significant, medium-term, temporary	Not significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 43.2km occurs 20% of the time*.
Tourist visitors (e.g. Hopton Holiday Village):	Medium-high				
Residents of the coastal edges of Hopton-on-Sea (e.g. Sea View Rise):	Medium-high				
Walkers using the England Coastal Path:	Medium-high				
<b>Viewpoint 20: Gorleston-on-Sea</b>					
Beach users (Gorleston-on-Sea beach):	Medium-high	Medium-low	Not significant, medium-term, temporary	Not significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 46.4km occurs 15% of the time*.
Tourist visitors to the seafront e.g. around Lower Esplanade/Marine Esplanade:	Medium-high				
People sitting/viewing from	Medium-high				

Receptor/ Viewpoint ( <i>Figure 28.19 and Figures 28.25 – 28.41</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
seafront benches/gardens:					
Walkers using the England Coastal Path:	Medium-high				
Cyclists using NCNR 517:	Medium				
Residents of Gorleston-on-Seafront (e.g. Marine Parade):	Medium-high				
People engaged in active sports (e.g. Tennis / Basketball /Trim Trails):	Medium-low				
* over 10 year period 2007-2017 from Weybourne Met Office Station (Met Office Visibility Data)					

#### 28.9.1.4.2 Settlements

264. A summary assessment of the predicted cumulative visual effects of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure on residents of settlements is set out in **Table 28.16**. Full technical assessments are provided in **Appendix 28.7**. The location of settlements is shown on **Figure 28.19**.

**Table 28.16 Settlements – Summary of Cumulative Effects**

Settlement receptor ( <i>Figure 28.19</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
<b>Lowestoft</b>					
Area A: Gunton area to	Medium-High	Low	Not significant, medium-term, temporary	Not significant,	Very good or excellent visibility

Settlement receptor (Figure 28.19)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
the north of Lowestoft				long-term, reversible	required. Visibility at or beyond 37km occurs 26% of the time*.
Area B: South Beach/Kirkley area		Medium	Significant, medium-term, temporary	Significant, long-term, reversible	
Area C: Pakefield/Pakefield Cliffs area (e.g. Pakefield Road, Pakefield Street)		Medium	Significant, medium-term, temporary	Significant, long-term, reversible	
Area D: Quayside/inner harbour along Lake Lothing and Oulton Broad		Negligible	Not significant, medium-term, temporary	Not significant, long-term, reversible	
Area E: Urban areas of Lowestoft set-back from coast, including Kirkley, Pakefield and Carlton Colville		Negligible	Not significant, medium-term, temporary	Not significant, long-term, reversible	
<b>Kessingland</b>					
Area A: Sea front extending from Kessingland Beach to Alandale Park and Coastguard Lane	Medium-high	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 34km occurs 33% of the time*.
Area B: Kessingland		Negligible	Not significant, medium-term, temporary	Not significant,	

Settlement receptor (Figure 28.19)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
				long-term, reversible	
<b>Southwold</b>					
Area A: Immediate seafront along coastal edge of Southwold between Pier Avenue/Southwold Pier (Illustrative Viewpoint D) along North Parade (Viewpoint 4) to Gun Hill (Viewpoint 5).	High	Medium-high	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 32.6km occurs 33% of the time*.
Area B: Southwold Common (Illustrative Viewpoint A)		Negligible	Not significant, medium-term, temporary	Not significant, long-term, reversible	
Area C: Southwold town centre, (including from High Street/Market Place)		Negligible			
Area D: North Southwold residential areas between North Road and Victoria Street		Negligible			
Area E: Residential areas to the south and west of High		Negligible			

Settlement receptor (Figure 28.19)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
Street/Queen Street					
<b>Thorpeness</b>					
Area A: Seafront residential areas between North End Avenue, Admiral's Walk/The Headlands/Bent hills; to Thorpe Road.	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 35.1km occurs 26% of the time*.
Area B: Areas of Thorpeness set-back from these seafront areas, including the Meare and its adjacent streets (The Haven/Lakeside Avenue); and central/western areas of Thorpeness around the village green/The Sanctuary/Westgate/The Whinlands/Pilgrim's Way.		Negligible	Not significant, medium-term, temporary	Not significant, long-term, reversible	
<b>Aldeburgh</b>					
Area A: Aldeburgh seafront between Thorpe Road, Market Cross	High	Medium	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond

Settlement receptor (Figure 28.19)	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
Place, Crabbe Street and Crag Path					35.9km occurs 26% of the time*.
Area B: Parts of Aldeburgh around Church Farm Rise/St Peter's Road/Victoria Road inland of immediate seafront which are slightly elevated.		Medium	Significant, medium-term, temporary	Significant, long-term, reversible	
Area C: Aldeburgh town centre along Aldeburgh High Street; residential areas in northern part of Aldeburgh (to north of Victoria Road/east of Leiston Road); residential areas in southern part of Aldeburgh (to south Victoria Road); residential areas in western part of Aldeburgh (to north of Saxmundham Road (A1094)/south of Leiston Road).		Negligible	Not significant, medium-term, temporary	Not significant, long-term, reversible	

Settlement receptor ( <i>Figure 28.19</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)	Likelihood of effect
* over 10 year period 2007-2017 from Weybourne Met Office Station (Met Office Visibility Data)					

### 28.9.1.4.3 Suffolk Coastal Path

265. A summary assessment of the predicted cumulative visual effects of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure on walkers using the Suffolk Coastal is set out in **Table 28.17**. Full technical assessments are provided in **Appendix 28.7**. ZTVs illustrating the predicted visibility of the East Anglia TWO windfarm site from the Suffolk Coastal Path are shown in **Figures 28.23a-b**.

**Table 28.17 Suffolk Coastal Path – Summary of Cumulative Effects**

Section of Suffolk Coastal Path ( <i>Figure 28.23a-b</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
<b>Suffolk Coastal Path</b>				
Section 01 Lowestoft	Medium-high	Medium for a 3.7km stretch along Lowestoft seafront	Significant, medium-term, temporary for a 3.7km stretch along Lowestoft seafront.  Not significant, medium -term, temporary on other parts of this section.	Significant, long-term, reversible for a 3.7km stretch along Lowestoft seafront.  Not significant, long-term, reversible along other sections.
Section 02 Kessingland	Medium-high from the stretch south of Kessingland and medium-low through Kessingland	Medium for 2.8km stretch along Kessingland Beach	Significant, medium-term, temporary for 2.8km stretch along Kessingland Beach	Significant, long-term, reversible for 2.8km stretch along Kessingland Beach

Section of Suffolk Coastal Path ( <i>Figure 28.23a-b</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
Section 03 Kessingland to Reydon	Medium	Low	Not significant, medium-term, temporary	Not significant, long-term, reversible
Section 04 Southwold	High from the 2.5km stretch along the sea front of Southwold, between Eastern Marshes and Havenbeach Marshes.  Medium in all other areas around Southwold.	Medium-high from 2.5km stretch along the sea front of Southwold, between Eastern Marshes and Havenbeach Marshes.  Medium-Low in all other areas around Southwold	Significant, medium-term, temporary from the 2.5km stretch along the sea front between Eastern Marshes and Havenbeach Marshes  Not significant, medium-term, temporary over remainder of this section in the Southwold area including Southwold Harbour.	Significant, long-term, reversible from the 2.5km stretch along the sea front between Eastern Marshes and Havenbeach Marshes  Not significant, long-term, reversible over remainder of this section in the Southwold area including Southwold Harbour.
Section 05 Walberswick and Corporation Marshes	High	Medium for approximately 1.9km of the route between Walberswick and Dunwich Forest  Negligible/none elsewhere.	Significant, medium-term, temporary for approximately 1.9km of the route between Walberswick and Dunwich Forest.  Not significant, medium-term, temporary over the remainder of the section.	Significant, long-term, reversible for approximately 1.9km of the route between Walberswick and Dunwich Forest.  Not significant, long-term, reversible over the remainder of the section.
Section 06 Dunwich Forest and Heath	Medium-high in the area north of Coastguard Cottages. Medium elsewhere.	Medium over a 1km stretch north of Coastguard Cottages  Low over the remainder of this section.	Significant, medium-term, temporary over a 1km stretch north of Coastguard Cottages.  Not significant, medium-term, temporary over remainder of this section.	Significant, long-term, reversible over a 1km stretch north of Coastguard Cottages  Not significant, long-term, reversible over remainder of this section.

Section of Suffolk Coastal Path ( <i>Figure 28.23a-b</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North and East Anglia TWO) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (construction and decommissioning)	Significance of effect (East Anglia ONE North and East Anglia TWO) (operation)
Section 07 Minsmere and Sizewell	Medium-high over the stretch near Minsmere Medium-low over the stretch near Sizewell	Low over the stretch through Minsmere Medium over the stretch near Sizewell	Not significant, medium-term, temporary	Not significant, long-term, reversible
Section 08 Thorpeness	High	Medium over a 1.2km stretch south of Thorpeness Medium-low over the stretch across Southwold Common	Significant, medium-term, temporary over a 1.2km stretch south of Thorpeness. Not significant, medium-term, temporary over the stretch across Southwold Common.	Significant, long-term, reversible over a 1.2km stretch south of Thorpeness. Not significant, long-term, reversible over the stretch across Southwold Common.
Section 09 Aldeburgh to Boyton Marshes	Medium-low inland, and medium in coastal areas.	Low	Not significant, medium-term, temporary	Not significant, long-term, reversible
Section 10 Boyton Marshes and Orford Beach	High	Low	Not significant, medium-term, temporary	Not significant, long-term, reversible
Section 11 Shingle Street to Bawdsey	High when walking north and medium-high when walking south	Low	Not significant, medium-term, temporary	Not significant, long-term, reversible

266. The cumulative effect of the effect of the construction and operation of the East Anglia ONE North and East Anglia TWO windfarm sites in views experienced by people walking the full route of the Suffolk Coastal Path sequentially as a long-distance footpath has also been assessed in the SLVIA.

267. When seen in combination the East Anglia ONE North and East Anglia TWO windfarm sites result in a partial loss of the open sea skyline, in the expansive offshore views from parts of the Suffolk Coastal Path. The greatest combined lateral spread occurs in views from the northern sections 1 (Lowestoft) and 2 (Kesslingland) of the Suffolk Coastal Path, where they are located at similar distances from the path and both contribute to the total cumulative effect (although the East Anglia TWO windfarm site has a slightly wider lateral spread on the sea skyline). These sections of the Suffolk Coastal Path tend to be the sections with relatively lower sensitivity to change, due to their routes through non-designated landscape outside the AONB and/or through urban areas.
268. The cumulative magnitude of change of the East Anglia ONE North and East Anglia TWO windfarm sites has been assessed as being significant in views from some short sections of the route through the AONB, at Southwold, Dunwich Heath and Thorpeness. From these parts of the Suffolk Coastal Path through the AONB, the East Anglia TWO windfarm site contributes more to the overall cumulative effect, due to it being closer and having more lateral spread on the horizon, compared to the increasingly distant turbines of the East Anglia ONE North windfarm site, which is over 50km offshore and increasingly hidden behind the horizon.
269. The total length of the route with actual visibility of the construction and operation of the East Anglia ONE North and East Anglia TWO windfarms is less than a third (29.4%, 25.7km) of the entire route and that assessed as having a significant cumulative impact is approximately 15% (13.1km) of the full route. These sections of significant cumulative visual impact have a relatively limited contribution to the overall visual amenity experienced in views from the Suffolk Coastal Path when considered as a whole, with views from the large majority of the route not being affected at all.
270. The overall effect of the construction and operation of the East Anglia ONE North and East Anglia TWO offshore infrastructure on long distance walkers walking the Suffolk Coastal Path as a whole is assessed as **not significant**. This is primarily to due factors relating to the nature of the route as comprising a series of shorter sections with visibility of the construction and operation of the East Anglia ONE North and East Anglia TWO windfarm sites, interspersed with generally longer sections with no visibility. The route is therefore characterised by a wide variety of landscapes with different types of view, of which coastal views and seascape panoramas including the East Anglia ONE North and East Anglia TWO windfarm sites comprise only a part. Any views of the proposed East Anglia ONE North and East Anglia TWO windfarm sites would be intermittent when experienced walking the route as a whole and of short duration in relation to the overall walking duration and the duration of sections with no visibility.

## 28.9.2 Cumulative Effects with Sizewell C New Nuclear Power Station

### 28.9.2.1 Introduction

271. The cumulative SLVIA in **Appendix 28.7** and summarised here in **section 28.9.2**, considers the combined (or total) effect of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure and the Sizewell C New Nuclear Power Station. This assessment focuses on seascape, landscape and visual receptors with the potential to have additional significant cumulative effects with the Sizewell C New Nuclear Power Station. It is less detailed due to the early stage of the Sizewell C proposals and the relative lack of detail or certainty on that project.
272. Sizewell A and B Power Stations currently have an influence on seascape, landscape and visual receptors within the area as part of the baseline context, which is considered in the project alone assessment for the proposed East Anglia ONE North project. The potential for further significant cumulative effects on the seascape, landscape and visual resource due to the construction and operation of the offshore infrastructure, with the proposed East Anglia TWO project and Sizewell C New Nuclear Power Station, would be restricted to those receptors with relative geographic proximity to Sizewell C New Nuclear Power Station.
273. In addition to the receptors that were scoped out of the proposed East Anglia TWO project cumulative assessment, those that were found in that assessment to have a low or negligible cumulative magnitude of change, have not been included in the Sizewell C New Nuclear Power Station assessment.

### 28.9.2.2 Cumulative Seascape Effects

274. A detailed technical assessment is set out in **Appendix 28.7**. This describes, in full technical detail, the likely significant cumulative seascape effects on each SCT. The full technical assessment of cumulative seascape effects from **Appendix 28.7** is summarised for this SLVIA chapter in **Table 28.18**. SCTs are shown on **Figure 28.15**.

**Table 28.18 Seascape Character Types – Summary of Cumulative Effects**

Seascape Character Type (SCT) ( <i>Figure 28.15</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C) (operation)
<b>Nearshore Waters (SCT 03)</b>				
Area A: Kessingland to Orford Ness	High	High locally in the area near Sizewell, reducing to medium with increasing distance from Sizewell to the north and south of the SCT	<b>Significant</b> , medium-term, temporary	<b>Significant</b> , long-term, reversible

### 28.9.2.3 Cumulative Landscape Effects

275. A detailed technical assessment is set out in **Appendix 28.7**. This describes, in full technical detail, the likely significant cumulative landscape effects on each landscape receptor. The full technical assessment of landscape effects from **Appendix 28.7** is summarised for this SLVIA chapter in **Table 28.19**. LCTs are shown in **Figure 28.17**.

### 28.9.2.4 Landscape Character Types

**Table 28.19 Landscape Character Types – Summary of Cumulative Effects**

Landscape Character Type (LCT) ( <i>Figure 28.17</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C) (operation)
<b>Coastal Dunes and Shingle Ridges (LCT 05)</b>				
Area C: Southwold to the north side of Orford Ness	High	High locally in the area near Sizewell, reducing to medium with increasing distance from Sizewell to the north towards Dunwich and	<b>Significant</b> , medium-term, temporary, particularly on the character of the section of the LCT in close proximity to Sizewell C	<b>Significant</b> , long-term, reversible, particularly on the character of the section of the LCT in close proximity to Sizewell C

Landscape Character Type (LCT) ( <i>Figure 28.17</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C) (operation)
		Southwold and to the south of the LCT towards Orford Ness		
<b>Estate Sandlands (LCT 07)</b>				
Area D: Leiston and Aldringham to Snape, Thorpeness and Aldeburgh	Locally medium-high at coastal edges of LCT, but generally low over most of the inland LCT	Areas between Leiston, Aldringham, Friston, Snape and Aldeburgh: Low  Localised area at Sizewell Cliffs to Thorpe Ness and extending inland to east of Leiston and north of Goose Hill: Medium to medium-high	<b>Significant</b> , medium-term, temporary within localised area between Sizewell Cliffs to Thorpe Ness and extending slightly inland.  Not significant, medium-term, temporary between Leiston, Aldringham, Friston, Snape and Aldeburgh	<b>Significant</b> , long-term, reversible within localised area between Sizewell Cliffs to Thorpe Ness and extending inland to east of Leiston and north of Goose Hill.  Not significant, long-term, temporary between Leiston, Aldringham, Friston, Snape and Aldeburgh.

#### 28.9.2.4.1 Suffolk Coast and Heaths AONB and Suffolk Heritage Coast

276. A full technical assessment of the cumulative effects on AONB special qualities resulting from the construction and operation of the Sizewell C New Nuclear Power Station together with the construction and operation of the East Anglia ONE North and East Anglia TWO offshore infrastructure is provided in **Appendix 28.7**.
277. In addition to the potential cumulative effects on AONB special qualities resulting from the construction and operation of the East Anglia One North and East Anglia TWO offshore infrastructure, there is potential for further cumulative changes to AONB special qualities to occur as a result of the combination of the construction and operation of the East Anglia ONE North and East Anglia TWO offshore infrastructure, with the construction and operation of the Sizewell C New Nuclear Power Station. The magnitude and significance of these effects on AONB special

qualities are assessed as a 'total' cumulative effect, with assessment focusing primarily on how Sizewell C adds to the overall or 'total' cumulative effect and how it may combine with the construction and operation of the East Anglia ONE North and East Anglia TWO offshore infrastructure to have cumulative effects on AONB special qualities.

278. The geographic extent of cumulative effects on AONB special qualities resulting from the construction and operation of the Sizewell C, East Anglia ONE North and East Anglia TWO offshore infrastructure are likely to extend approximately between Southwold and Aldeburgh, but with highest magnitude from coastal areas between Dunwich to Thorpeness. The cumulative effects of the construction and operation of the Sizewell C, East Anglia ONE North and East Anglia TWO offshore infrastructure on coastal areas of the AONB to the north of Southwold and to the south of Orford Ness, assessed as being of low magnitude and not significant, due to the limited interaction between these parts of the AONB and the projects cumulatively.
279. The construction and operation of the Sizewell C, East Anglia ONE North and East Anglia TWO offshore infrastructure is assessed as having significant effects on the landscape and scenic qualities of this area of the AONB, where direct changes to landscape qualities resulting from Sizewell C will be experienced in succession with the East Anglia ONE North and East Anglia TWO windfarm sites, which introduce further elements into the seascape setting of the coastal areas of the AONB and add to the juxtaposition of different elements perceived in views out to sea or along the coast. The potential for cumulative effects on the perceived landscape qualities of the AONB due to the combined or 'total' effect results primarily and most directly from the development of Sizewell C within the AONB; and indirectly from the additional changes to views of the East Anglia TWO windfarm site, and less so the East Anglia ONE North windfarm site, on the distant seaward horizon. Considering Sizewell C, East Anglia ONE North and East Anglia TWO windfarm sites in total, these changes are assessed as being of high magnitude and significant on the landscape quality of the AONB, but with the addition of the East Anglia ONE North and East Anglia TWO windfarm sites having a substantially lower contribution to the overall cumulative change to this special quality than that resulting from the construction and operation of Sizewell C.
280. The construction and operation of Sizewell C will result in direct changes to the current pattern of elements within the AONB, particularly within the Sizewell C 'main development site' and as experienced from the land to the north, south and the immediately adjacent coast. The construction and operation of Sizewell C is likely to result in a direct loss to the 'wet meadows' fen habitats of the Sizewell Marshes SSSI, effecting the national biodiversity interest; interrupt the

relationship between sea, coast, fen meadows and forest habitat; and will add to the juxtaposition of elements, particularly between Dunwich and Thorpeness, resulting from the increased influence of man-made energy generation elements.

281. The construction and operation of Sizewell C, together with the East Anglia ONE North and East Anglia TWO windfarm sites, will have a relatively low influence on the strong overall character expressed across the AONB as a whole, however the width of the AONB designated area is relatively narrow in the area near Sizewell, therefore the Sizewell C proposals, particularly over their 9-12 year construction period, have the potential to result in severance of the AONB, with geographic areas split to the north and south by an energy/infrastructure influenced landscape across the AONB between the coast and Leiston. Although these changes associated with the potential for physical fragmentation of the AONB may occur as a result of the construction and operation Sizewell C, the construction and operation of the East Anglia ONE North and East Anglia TWO offshore infrastructure would not contribute to this effect.
282. The construction and operation of Sizewell C would consolidate effects to the areas nearer Sizewell Nuclear Power Station, resulting in an intensification of impacts of energy transmission infrastructure on this area of the AONB. There is the potential for effects on special qualities to be further exacerbated by Sizewell C in this area, by the proximity to the existing infrastructure, with the effects combining to create a greater overall in-combination impact on the area of the AONB near Sizewell Power Station. While existing power stations at Sizewell are already prominent features within the AONB, Sizewell C, given the scale and potential design of the development, is likely to cause changes to this quality of the AONB, obscuring views to the landmark built form of Sizewell B. The scale and massing of the buildings, particularly the turbine halls, stacks and reactor domes, are likely to affect the current composition of buildings at Sizewell and the perceived extent and appearance of the Sizewell development. The introduction of four additional tall pylons and power connection lines on the power station site will also result in further large-scale energy transmission elements and potentially affect the uncluttered simple appearance and outline of the current B Station. The addition of the East Anglia ONE North and TWO windfarm sites will have a relatively lower contribution to the overall cumulative change to this special quality, in comparison to that resulting from Sizewell C.
283. There is some potential for the simplicity of landscape elements at the immediate coast to be influenced by the introduction of new Sizewell C sea defences (consisting of a large earth embankment with rock armour and along its length) and beach landing facilities, however these features are relatively contained to the land immediately adjacent to the site and would not generally combine with the East Anglia ONE North and East Anglia TWO windfarm sites to influence the

vast, open seascape or simple landscape composition of sea, sky and shingle. The quality of this seascape setting characteristic in particular, will be more exposed to changes arising from the East Anglia ONE North and East Anglia TWO windfarm sites, in succession with views of Sizewell C, and remains similar and of medium magnitude, to that assessed in the East Anglia ONE North and East Anglia TWO cumulative assessment.

284. The construction and operation of the Sizewell C, East Anglia ONE North and East Anglia TWO offshore infrastructure is also assessed as having effects on the perceived wildness and tranquillity qualities of pockets of the AONB in relatively close proximity to Sizewell C. These effects on the perceived wildness and tranquillity qualities of the AONB are generally assessed as being of medium magnitude and significant during the construction phase, often reducing to medium-low magnitude and not significant during operation. The proposed construction phase of Sizewell C is planned to take 9-12 years and would lead to some significant effects on the perceived wildness and tranquillity of the AONB, given the scale of the construction site and its associated requirements for lorries, cranes, importing of materials and workforce requirements within the AONB, or its immediate setting.
285. The construction and operation of Sizewell C involves the introduction of new transport infrastructure in the AONB, potentially including a helipad, new access road and temporary railway line, thereby increasing rail movements, together with an increase in traffic on routes within the AONB and its setting, including increases in HGV traffic required for the movement of materials.
286. The introduction of modern, man-made structures associated with Sizewell C, and the increase in evidence of apparent human activity, particularly during the construction period, may change the perceived wildness attributes from pockets of coastal AONB landscapes which have perception of relative wildness associated with coast, particularly around Minsmere and Dunwich, to the north of Sizewell C. Sizewell C would however, consolidate effects to the areas near the existing Sizewell Nuclear Power Station, resulting in an intensification of impacts of energy generation infrastructure on this area of the AONB, where Sizewell A and B are already experienced, rather than leading to changing on areas where there is little evidence of apparent human activity. The introduction of the East Anglia ONE North and East Anglia TWO windfarm sites in the coastal backdrop, located well outside and at distance (over 32km) would constitute a new, but relatively minor alteration to perceived wildness of the coast, leading to some increase in evidence of apparent human activity in offshore areas, in succession with changes arising from Sizewell C in views along the coast, but relating legibly to the coastal exposure and inclement conditions experienced.

287. The combination of the views of the proposed wind turbines within the East Anglia ONE North and East Anglia TWO windfarm sites, and Sizewell C, will add new large-scale development elements to views offshore and along the coast.
288. The combination of the views of the proposed wind turbines within the East Anglia ONE North and East Anglia TWO windfarm sites, and Sizewell C, will add new large-scale development elements to views containing big ‘Suffolk skies’, however the vertical height of the wind turbines will be small / moderate in scale when compared to the vast skies, due to their long distance offshore (over 32km) and the large scale of the seascape. Sizewell C will also tend to form a point feature or landmark focus, rather than influencing wider views of the Suffolk skies, or restricting the sense of openness and exposure, except from very close proximity. The East Anglia ONE North and East Anglia TWO windfarm sites may compete with the sense of openness, as an element that may appear to define the limit of the view on the horizon, however due to the relatively low elevation of the heaths, simple form of the coastline and its long distance offshore, the East Anglia ONE North and East Anglia TWO windfarm sites will be seen on and beyond the horizon, as a ‘horizon development’ with reduced potential to change the openness and exposure experience within the AONB.
289. Considering Sizewell C, East Anglia ONE North and East Anglia TWO windfarm sites in total, these changes are assessed as being significant on a number of the landscape, scenic and relative wildness and tranquillity qualities of the AONB, from pockets of the AONB in relative proximity to Sizewell C, but with the addition of the views to the East Anglia ONE North and East Anglia TWO windfarm sites having a substantially lower contribution to the cumulative effects on these AONB special qualities than that resulting from the construction and operation of Sizewell C. The cumulative effect on the big ‘Suffolk Skies’ would be not significant.

### 28.9.2.5 Cumulative Visual Effects

#### 28.9.2.5.1 Viewpoints

290. A detailed technical assessment is set out in **Appendix 28.7**. This describes, in full technical detail, the likely significant cumulative visual effects on each visual receptor and representative viewpoint identified in the preliminary assessment as having potential to be significantly affected. The full technical assessment of visual effects from **Appendix 28.7** is summarised for this SLVIA chapter in **Table 28.20**. Viewpoints and visual receptors are shown in **Figure 28.19**.

**Table 28.20 Viewpoints – Summary of Cumulative Effects**

Receptor/Viewpoint (Figure 28.19 and Figures 28.25 – 28.41)	Sensitivity to change	Magnitude of change (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C)  (construction and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C)  (operation)	Likelihood of effect
<b>Viewpoint 8: Dunwich Heath and Beach</b>					
Visitors to Dunwich Heath and Beach (Coastguard Cottages)	High	Medium-high	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 36km occurs 33% of the time*.
Walkers using the Suffolk Coastal Path	High				
<b>Viewpoint 10: Sizewell Beach</b>					
Beach users at Sizewell Beach	Medium	Medium-high	Significant, medium-term, temporary	Significant, long-term, reversible	Very good or excellent visibility required. Visibility at or beyond 34.8km occurs 33% of the time*.
Walkers using the Suffolk Coastal Path	Medium				
Residents of Sizewell	Medium				
Workers at Sizewell Nuclear Power Station	Low	Medium-high	Not significant medium-term, temporary	Not significant, long-term, reversible	

#### 28.9.2.5.2 Suffolk Coastal Path

291. A summary assessment of the predicted cumulative visual effects of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure and Sizewell C New Nuclear Power Station on walkers using the Suffolk Coastal is set out in **Table 28.21**. Full technical assessments are provided in **Appendix 28.7**. ZTVs illustrating the predicted visibility of the East Anglia TWO windfarm site from the Suffolk Coastal Path are shown in **Figures 28.23a-b**.

**Table 28.21 Suffolk Coastal Path – Summary of Cumulative Effects**

Section of Suffolk Coastal Path ( <i>Figure 28.23a-b</i> )	Sensitivity to change	Magnitude of change (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction, operation and decommissioning)	Significance of effect (East Anglia ONE North, East Anglia TWO and Sizewell C) (construction and decommissioning)	Significance of effect (East Anglia ONE th, East Anglia TWO and Sizewell C) (operation)
<b>Suffolk Coastal Path</b>				
Section 06 Dunwich Forest and Heath	Medium to high	Medium-high over approximately 1km stretch over Dunwich Heath near Coastguard Cottages.	Significant medium-term, temporary over approximately 1km stretch over Dunwich Heath near Coastguard Cottages.	Significant, long-term, reversible over approximately 1km stretch over Dunwich Heath near Coastguard Cottages.
Section 07 Minsmere and Sizewell	Medium-high over the stretch near Minsmere  Medium over the stretch near Sizewell	High along 6km section of route passing Minsmere and Sizewell due to successive and sequential visibility of Sizewell C.	Significant, medium-term, temporary over the 6km section of the route passing Minsmere and Sizewell due to successive and sequential visibility of Sizewell C.	Significant, long-term, reversible over the 6km section of the route passing Minsmere and Sizewell due to successive and sequential visibility of Sizewell C.
Section 08 Thorpeness	High	Medium over a 1.2km stretch south of Thorpeness due to the visibility of the East Anglia ONE North windfarm site and proposed East Anglia TWO windfarm site.	Significant, medium-term, temporary over a 1.2km stretch south of the East Anglia ONE North windfarm site and proposed East Anglia TWO windfarm site.	Significant, long-term, reversible over a 1.2km stretch south of the East Anglia ONE North windfarm site and proposed East Anglia TWO windfarm site.

## 28.10 Transboundary Impacts

292. The East Anglia ONE North windfarm site is located approximately 104km from the coastline of the nearest EU member state (Netherlands). The ZTV in **Figure 28.5** shows that there is no theoretical visibility of the East Anglia ONE North windfarm site beyond approximately 70km, due to the effects of earth curvature which would effectively ‘hide’ the wind turbines behind the horizon at this

distance. Transboundary effects have therefore been scoped out of the SLVIA, since there is no potential for significant effects at such long distance; the coastline of other EU member states is outside the SLVIA study area and would have no visibility of the construction and operation of the offshore infrastructure.

## 28.11 Inter-relationships

293. Inter-relationships are considered to be the impacts and associated effects of different aspects of the proposed East Anglia ONE North project on the same receptor. In the SLVIA, 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 offshore infrastructure (including windfarm site, offshore platforms, offshore cable corridor) and the construction and operation of the onshore infrastructure (i.e. onshore substation, onshore cable corridor, landfall location and National Grid infrastructure). There is potential for effects to interact, spatially and temporally, to create inter-related effects on a receptor.
294. The SLVIA presented in this chapter and **Chapter 29 Landscape and Visual Impact Assessment** together provide an assessment of the SL&V effects of the proposed East Anglia ONE North project i.e. of both the construction and operation of the offshore infrastructure (including windfarm site, offshore platforms, offshore cable corridor) and the onshore infrastructure and National grid infrastructure.
295. An assessment of significant inter-related effects has also been undertaken in **sections 28.11.1 to 28.11.3** to assess any areas where the construction and operation of the offshore infrastructure and the construction and operation of the onshore infrastructure combine, or inter-relate, to have an effect.
296. For example, visibility of the East Anglia ONE North windfarm site and the onshore substation or landfall, from a particular viewpoint or landscape designation, may interact to produce a different, or greater effect on a receptor than when the effects are considered in isolation. Receptor-led effects might be short-term, temporary or transient effects, or incorporate longer term effects.
297. A description of the likely significant inter-related effects arising from the proposed East Anglia ONE North project is provided in the following sections (**sections 28.11.1 to 28.11.3**) of the SLVIA.

### 28.11.1 Inter-related Seascape Effects

298. No inter-related seascape effects have been identified since the construction and operation of the onshore infrastructure will not affect the character of offshore SCTs. These offshore seascape character receptors will be affected only by the construction and operation of the offshore infrastructure in isolation.

## 28.11.2 Inter-related Landscape Effects

### 28.11.2.1 Construction Phase Inter-Related Landscape Effects

299. The majority of LCTs and landscape designations in the SLVIA study area will not experience inter-related effects, since they have either no visibility, or very limited/distant visibility, of either the construction of the onshore infrastructure or the construction of the offshore infrastructure, and therefore have limited potential for inter-related (or combined) effects to occur. Inter-related effects will only occur on those LCTs and landscape designations near the landfall, where the construction of the onshore infrastructure will occur in areas that may also be susceptible to changes resulting from views of the construction of the offshore infrastructure.
300. Based on the assessments undertaken in **section 28.6** and **section 29.6** of **Chapter 29 Landscape and Visual Impact Assessment.**, a limited number of LCTs are identified as having potential to have inter-related effects arising through the potential change in character resulting from the construction of the onshore infrastructure and offshore infrastructure, as follows:
- LCT 05 Coastal Dunes and Shingle Ridges – Area D (Dunwich Heath to Orford Ness).
  - LCT 07 Estate Sandlands LCT - Area A (Thorpeness to Aldringham and Friston).
  - Suffolk Coast and Heaths AONB (and Heritage Coast) - Area A (between Thorpeness, Sizewell and Leiston).
301. The assessment identifies likely significant construction stage inter-related effects of the onshore infrastructure and offshore infrastructure on the landscape character of a localised area near the landfall, within the Coastal Dunes and Shingle Ridges LCT (05), Estate Sandlands LCT (07) and the Suffolk Coast and Heaths AONB. Inter-related effects are assessed as most likely to occur in a localised area of these LCTs and the AONB within close proximity to the landfall (to the north of Thorpeness and south of Sizewell), where the character is assessed as likely to experience significant inter-related effects during the construction of the landfall and onshore cable route together with the construction of the offshore infrastructure, over a short-term period when their construction periods overlap.
302. 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 significant inter-related effects on landscape character occur during construction is therefore limited to the short-term with inter-related effects being temporary, and becoming

not significant during the operational phase, when the landfall and onshore cable route will have a negligible change to landscape character.

#### 28.11.2.2 Operational Inter-Related Landscape Effects

303. Based on the assessments undertaken in **section 28.6** and **section 29.6** of **Chapter 29 Landscape and Visual Impact Assessment** due to the geographic separation of the East Anglia ONE North windfarm site and the onshore substation, the assessment identifies no significant inter-related landscape effects resulting from the operation of the East Anglia ONE North windfarm site and the onshore substation.

### 28.11.3 Inter-related Visual Effects

#### 28.11.3.1 Construction Phase Inter-Related Visual Effects

304. The majority of viewpoints and visual receptors in the SLVIA study area will not experience inter-related effects, since they have either no visibility, or very limited/distant visibility, of both the construction of the onshore infrastructure or the offshore infrastructure, and therefore have limited potential for inter-related (or combined) effects to occur. Inter-related effects will only occur on those viewpoints and visual receptors near the landfall, where the construction of the onshore infrastructure will occur in areas that may also be susceptible to changes resulting from views of the construction of the offshore infrastructure.

305. Based on the assessments undertaken in **section 28.6** and **section 29.6** of **Chapter 29 Landscape and Visual Impact Assessment** a limited number of viewpoints and visual receptors are identified as having potential to have inter-related effects arising through the potential change to views resulting from the construction of the onshore infrastructure and offshore infrastructure, as follows:

- Residents of the northern edges of Thorpeness; and
- Walkers using the Suffolk Coastal Path and Sandlings Walk, in the area between Thorpeness and Sizewell.

306. The assessment identifies likely significant construction stage inter-related effects of the onshore infrastructure and offshore infrastructure on the visual amenity experienced by people within a localised geographic area, consisting of residents of the northern edges of Thorpeness, and walkers over a 2.5km section of the Suffolk Coastal Path and a 3km section of the Sandlings Walk in the area between Thorpeness and Sizewell. Significant construction stage inter-related visual effects are likely to occur where the Suffolk Coastal Path and Sandlings Walk cross, or are in close proximity to, the construction of onshore infrastructure at the landfall and the onshore cable route, from where there is potential for

simultaneous or sequential views of the construction of the offshore infrastructure out to sea in sea views from these routes.

307. The period over which significant inter-related visual effects on views and visual receptors occur during construction is limited to the short-term with inter-related effects being temporary, and becoming not significant during the operational phase, when the landfall and onshore cable route will have a negligible change to views.

#### 28.11.3.2 Operational Inter-Related Visual Effects

308. Based on the assessments undertaken in **section 28.6** and **section 29.6** of **Chapter 29 Landscape and Visual Impact Assessment** due to the geographic separation of the East Anglia ONE North windfarm site and the onshore substation, the assessment identifies no significant inter-related visual effects resulting from the operation of the East Anglia ONE North windfarm site and the onshore substation.

### 28.12 Interactions

309. The impacts identified and assessed in this chapter have the potential to interact with each other, which could give rise to synergistic impacts as a result of that interaction. The areas of interaction between impacts are presented in **Table 28.22** along with an indication as to whether the interaction may give rise to synergistic impacts. This provides a screening tool for which impacts have the potential to interact. **Table 28-23** then provides an assessment for each receptor (or receptor group) related to these impacts in two ways. Firstly, the impacts are considered within a development phase (i.e. construction, operation or decommissioning) to see if, for example, multiple construction impacts could combine. Secondly, a lifetime assessment is undertaken which considers the potential for impacts to affect receptors across development phases. 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. If minor impact and minor impact were added this would effectively double count the sensitivity.
310. The receptors considered in the seascape, landscape and visual impact receptors assessment are:
- Landscape and visual; and
  - Seascape and visual.

**Table 28.22 Interaction Between Impacts**

<b>Potential Interactions between Impacts</b>				
<b>Construction</b>	<b>1 Changes to landscape character</b>	<b>2 Changes to seascape character</b>	<b>3 Changes to landscape designations</b>	<b>4 Changes to visual amenity</b>
1 Changes to landscape character	-	Yes	Yes	Yes
2 Change to seascape character	Yes	-	Yes	Yes
3 Changes to landscape designations	Yes	Yes	-	Yes
4 Changes to visual amenity	Yes	Yes	Yes	-
<b>Operation</b>	<b>1 Changes to landscape character</b>	<b>2 Changes to seascape character</b>	<b>3 Changes to landscape designations</b>	<b>4 Changes to visual amenity</b>
1 Changes to landscape character	-	Yes	Yes	Yes
2 Change to seascape character	Yes	-	Yes	Yes
3 Changes to landscape designations	Yes	Yes	-	Yes
4 Changes to visual amenity	Yes	Yes	Yes	-

**Table 28-23 Potential Interactions Between Impacts on Seascape, Landscape and Visual Impact Receptors**

Receptor	Construction	Operational	Decommissioning	Phase Assessment	Lifetime Assessment
Landscape and visual	Not significant	Significant	Not significant	<p><b>No greater than individually assessed impact</b></p> <p>Although the assessment is broken down into different receptors based upon both physical and policy definitions (visual amenity, landscape character, seascape character and landscape designations), the actual receptor is the same in each case i.e. the people perceiving the effect. Therefore, these people will only perceive the effect in one way (visually), not via multiple pathways simultaneously.</p>	<p><b>No greater than individually assessed impact</b></p> <p>Although the assessment is broken down into different receptors based upon both physical and policy definitions (visual amenity, landscape character, seascape character and landscape designations), the actual receptor is the same in each case i.e. the people perceiving the effect. Therefore, these people will only perceive the effect in one way (visually), at one point in time, and will not experience the construction, operation and decommissioning phases simultaneously</p>
Seascape and visual	Not significant	Significant	Not significant	<p><b>No greater than individually assessed impact</b></p> <p>Although the assessment is broken down into different receptors based upon both physical and policy definitions (visual amenity, landscape character, seascape character and landscape designations), the actual receptor is the same in each case i.e. the people perceiving the effect. Therefore, these people will only perceive the effect in one way (visually),</p>	<p><b>No greater than individually assessed impact</b></p> <p>Although the assessment is broken down into different receptors based upon both physical and policy definitions (visual amenity, landscape character, seascape character and landscape designations), the actual receptor is the same in each case i.e. the people perceiving the effect. Therefore, these people will only perceive the effect in one way (visually) at one point in time, and will not</p>

Receptor	Construction	Operational	Decommissioning	Phase Assessment	Lifetime Assessment
				not via multiple pathways simultaneously.	experience the construction, operation and decommissioning phases simultaneously.

### 28.13 Summary and Conclusions

311. The SLVIA identifies and assesses the significance of changes resulting from the construction and operation of the offshore infrastructure. This is carried out in relation to both the seascape character and landscape character as environmental resources in their own right, and on people's views and visual amenity. It also assesses the cumulative effects of the proposed East Anglia ONE North project in conjunction with other developments.
312. Consultation with regards to SLVIA has been undertaken via an Expert Topic Group, with numerous meetings held between 2017-2019 and through a series of public information days. Publication of the East Anglia ONE North Scoping Report (SPR 2017) and East Anglia ONE North PEIR (SPR 2019) has also provided opportunities for feedback, which has been considered in preparing the ES.
313. The SLVIA is based on the Rochdale Envelope described in **Chapter 6 Project Description**. In compliance with EIA regulations, the likely significant effects of a realistic 'worst case' scenario are assessed and illustrated in the SLVIA. The realistic worst case layout assessed as the project design envelope for the SLVIA is the 53 x 300m wind turbine layout ('the 300m wind turbine layout'), as shown in **Figure 28.1**. This layout has the highest wind turbine blade tip height (300m), with largest rotor diameter (250m), with a lower overall number of wind turbines and the least-dense, regular spacing of turbines.
314. The SLVIA Rochdale Envelope identifies that up to four OEPs and one construction operation and maintenance platform are required within the East Anglia ONE North windfarm site. The wind turbines, OMM, OEP, and the construction, operation and maintenance platform will be lit in accordance with the IALA and CAA requirements.
315. The East Anglia ONE North windfarm site is located within the Offshore Waters SCT (06) (**Figure 12.10**). This seascape is formed by open expanses of sea with consistently deep waters. These are busy shipping waters, located at long distance from the shoreline, with several established commercial shipping routes with large vessels, as well as dredging activity, gas wells and three existing offshore windfarms (Greater Gabbard, Galloper and East Anglia ONE).
316. The large scale of the open seascape is considered more likely to be able accommodate windfarm development than areas of more, complex seascape close to the shore. This seascape forms the wider seascape setting along the coastline of the Suffolk Coast and Heaths AONB. The construction and operation of the offshore infrastructure is assessed as having not significant effects on the seascape character of the area of the Nearshore Waters SCT

- (03), which is located between the East Suffolk coast and the East Anglia ONE North windfarm site. The effects on all other areas of the seascape including the Nearshore Waters SCT between Orford Ness and Bawdsey are also assessed as not significant.
317. The East Anglia ONE North windfarm site is assessed as resulting in not significant, long-term but reversible effects on the perceived landscape character of a narrow strip of the immediate coastal LCTs forming the closest part of the Suffolk coastline between Lowestoft and Southwold – consisting of specific parts of the Coastal Dunes and Shingle Ridges LCT (05) and the coastal edges of the Estate Sandlands LCT (07). The effects on all other areas of the coastal LCTs and LCTs that lie inland are assessed as being not significant.
318. The construction and operation of the offshore infrastructure will not result in any direct changes to the current pattern of elements that define the landscape character of these areas of the coastline, however the East Anglia ONE North windfarm site will introduce a further element into the wider seascape setting, adding to the juxtaposition of different elements perceived from the coastal edge. Changes to the perceived character of these LCTs occur in views from them, rather than ‘on’ or ‘within’ them. The East Anglia ONE North windfarm site does not affect the immediate setting of these LCTs, but will be seen on and beyond the horizon, as a ‘horizon development’ to a large open seascape, rather than being viewed ‘within’ its landscape.
319. Furthermore, the effects arise as a result of change on the particular seascape characteristic which form only part of their setting, not wholesale change on landscape character, since there are other elements, features and aesthetic/perceptual aspects that continue to contribute to the character and distinctiveness of the LCTs that will not be changed or effected in the same way, and will continue to form the distinctive and prevailing landscape character.
320. No physical attributes that contribute to the special qualities of the AONB will be changed as a result of the construction and operation of the offshore infrastructure. The East Anglia ONE North windfarm site, due to its location at long distance outside the AONB, only impacts on the perception of certain special qualities and these are aspects of landscape and scenic quality, relative wildness and tranquillity. The effect resulting from the East Anglia ONE North windfarm site is assessed as not significant (and of low magnitude) on the perception of specific landscape, scenic and relative wildness qualities that derive from changes to views from the AONB out to sea from geographically focused areas along the immediate coastal edges of the AONB where these panoramic, long distances views offshore are an aspect of some of the special qualities. The effects on the big ‘Suffolk Skies’ are assessed as not significant.

321. The construction and operation of the offshore infrastructure will result in a relatively low change to the strong character of the AONB, with its varied and distinctive landscapes continuing to define its overall character. It is not the overall character or physical features of the coastal edges of the AONB that will be changed, but to some degree the specific aesthetic/perceptual aspects of its character from localised areas of the coast, primarily from the northern parts of the AONB between Southwold and Kessingland, where there are interactions between these aesthetic/perceptual aspects of the sea and the East Anglia ONE North windfarm site. These effects arise as a result of change on some particular characteristics, not a change to all of the characteristics since the majority of elements, features and aesthetic/perceptual aspects will continue to contribute to the character and distinctiveness of the AONB and will not be changed or affected in the same way. The perception of most of the other AONB special qualities and key characteristics will remain unaffected by the construction and operation of the offshore infrastructure.
322. Views of the construction and operation of the offshore infrastructure will primarily be experienced from the narrow strip where the coastal edges of Suffolk meet the sea, between Lowestoft and Southwold, at distances of between approximately 37km near Lowestoft to 42km near Southwold, forming the closest section of coast to the East Anglia ONE North windfarm site. No significant visual effects have been assessed from representative viewpoint locations representing views experienced by people along this closest section of the East Suffolk coastline. In these views, the East Anglia ONE North windfarm site will generally have a lateral spread on the sea skyline of between 14-17° of the field of view, which is a relatively narrow spread of windfarm development on the horizon and a relatively limited portion of the wider 180° sea views available to the observer. Due to the relatively low elevation of the viewpoints along much of the coast, the simple form of the coastline and its long distance offshore, the East Anglia ONE North windfarm site will be seen on and beyond the horizon, as a 'horizon development' to a large open seascape, rather than being viewed 'within' its seascape/landscape. Views of the proposed East Anglia ONE North windfarm site will become increasingly distant from the coastline of the southern parts of the study area, between approximately 42km at Southwold and 50km at Sizewell on the southern edge of the study area, from where the construction and operation of the offshore infrastructure will have a decreasingly low to negligible effect on views.
323. The visual effects of the construction and operation of the offshore infrastructure has been assessed as not significant on the visual amenity experienced by visual receptors from all representative viewpoints in the SLVIA. There would be no significant visual effects from settlements (or parts of settlements) or from routes where they are not located along the coastal edge. This is as a result of

a general lack of visual interaction between the inland areas and the sea due to intervening vegetation, built form and the relatively flat terrain near to the coast which reduces the potential for elevated vantage points.

324. The effects of the construction and operation of the East Anglia ONE North offshore infrastructure cumulatively with the East Anglia TWO offshore infrastructure are assessed as a 'total' cumulative effect resulting from both windfarm sites. In general, there are limited differences in the levels of magnitude of change and significance of effects set out in the project alone assessment for the proposed East Anglia TWO windfarm site, with the addition of East Anglia ONE North resulting in a relatively low change/addition, with the combined magnitude of change only being slightly higher in the northern parts of the study area than that resulting from the proposed East Anglia TWO offshore infrastructure alone.
325. The key differences in the perceived changes result mainly from the lateral spread of both East Anglia ONE North and East Anglia TWO windfarm sites on the horizon, which results in windfarm development occupying a wider field of view, although generally separated by a section of open sea skyline such that they will appear as separate offshore windfarms, rather than a combined grouping on the horizon. The wider combined lateral spread of the two projects tends to increase effects on long distance and panoramic views out to sea experienced from the AONB, creating a relatively consistent but distant wind energy development influence in the offshore seascape setting (in addition to the Galloper and Greater Gabbard offshore windfarms) but rarely increasing the effects from those assessed in the project alone assessment of the proposed East Anglia TWO windfarm site.
326. The key differences in terms of combined or 'total' cumulative impact on AONB special qualities is the relative contribution of each project to the overall cumulative impact, which varies between different parts of the AONB coastline. From the very northern parts of the AONB coastline near Covehithe and Kessingland, the East Anglia ONE North and East Anglia TWO windfarm sites both contribute to the total cumulative effect on the perceived landscape and scenic qualities. The contribution of East Anglia ONE North windfarm to the overall cumulative effect reduces moving south along the coast, due to it becoming increasingly distant and hidden behind the horizon and therefore having limited effects on AONB special qualities. From the southern parts of the AONB coastline, there is little or no visibility of the East Anglia ONE North windfarm site, therefore the potential for additional cumulative effects on the special qualities of the AONB can largely be discounted, with the effect resulting largely from the presence of the East Anglia TWO windfarm site.

327. The cumulative effect of East Anglia ONE North, East Anglia TWO and Sizewell C new nuclear power station has also been assessed and in some instances the additional impact of Sizewell C has resulted in further localised significant effects on landscape character and visual amenity being identified, particularly in the vicinity of Sizewell.
328. Having considered all of the issues, the conclusion reached in the SLVIA is that in seascape, landscape and visual terms, it is considered that although the construction and operation of the offshore infrastructure extends the influence of the existing wind energy characteristics of the seascape and results in some effects on the character and views from the closest areas of the Suffolk coastline, these effects of the East Anglia ONE North windfarm site are assessed as being not significant on all receptors and there is capacity for the East Anglia ONE North windfarm site to be accommodated in this location in seascape, landscape and visual terms.
329. In coming to this conclusion, the SLVIA also has regard to the following specific matters in reaching its opinion the effects of the construction and operation of the offshore infrastructure:
- The separation distances from sensitive coastal landscape and visual receptors, at distances of approximately 37km from the nearest coastline. The East Anglia ONE North windfarm site is well set-back at distance (approximately 37km) from the nearest parts of the coastline and 37.7km from the AONB at its closest point.
  - The relatively contained geographic extent of effects, which are largely contained to the narrow coastal edges of the Suffolk coast, particularly to the north of the study area between Lowestoft and Southwold, such that effects that occur are specific to a particular area, and are not widespread. The effects on seascape, landscape character and views/visual amenity are generally restricted to the immediate coastal edges of the Suffolk coastline, between Lowestoft and Southwold, or in the nearshore waters adjacent.
  - The East Anglia ONE North windfarm site is located within a seascape that has physical characteristics and scale that underpin its capacity to absorb further offshore windfarm development of the size and scale proposed.
  - The East Anglia ONE North windfarm site fits within the existing seascape character and will not change the overall character of the offshore waters seascape, given the existing influence of existing offshore windfarms in this seascape and the large, expansive scale of the offshore waters where the land has little bearing on its inherent seascape character.
  - The East Anglia ONE North windfarm site does not affect the immediate setting of the coastal landscape, but will be seen on and beyond the horizon,

as a 'horizon development' to a large open seascape, rather than being viewed 'within' its seascape/landscape.

- The effects of the construction and operation of the East Anglia ONE North windfarm site arise as a result of perceived changes on particular visual characteristics, not wholesale change on landscape character. There will be other elements, features and aesthetic/perceptual aspects that continue to contribute to the character and distinctiveness of the AONB that will not be changed or effected in the same way and will continue to form the distinctive and prevailing landscape character.
- It is not the overall character or physical features of the coastal edges of the AONB that will be changed, but instead it is specific aesthetic/perceptual aspects of its character relating to panoramic views offshore at the coast that will experience change. The construction and operation of the offshore infrastructure will have a relatively low change to the strong overall character of the AONB and will not result in harm to the special qualities of the AONB in overall terms, with the varied and distinctive landscapes of the AONB continuing to define its fundamental character.

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