

East Anglia ONE North Offshore Windfarm

Appendix 28.3 **Seascape Assessment**

Environmental Statement Volume 3

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Appendix 28.3 is supported by the tables listed below.

Table Number	Title
Table A28.1	Seascape Character Types

Glossary of Acronyms

AONB	Area of Outstanding Natural Beauty
km	Kilometre
LNR	Local Nature Reserve
SCT	Seascape Character Types
SLVIA	Seascape and Landscape Visual Impact Assessment
SPA	Special Protection Area
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 in situ 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.

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28.3 Seascape Assessment

28.1 Introduction

1. A preliminary assessment of the seascape character types (SCTs) in the study area has been undertaken using zone of theoretical visibility (ZTV) analysis (**Figure 28.15**) and site survey. This preliminary assessment is presented in **Table A28.1** below, which identifies the SCTs that have the potential to undergo significant effects as a result of the proposed East Anglia ONE North project 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.

Table A28.1 Seascape Character Types (SCTs)

Seascape Character Type	Distance from the East Anglia ONE North Windfarm Site	Theoretical Visibility of East Anglia ONE North	Actual Visibility of East Anglia ONE North	Preliminary Assessment	
Suffolk, South Norfolk and North Essex Seascape Character Assessment					
SCT 01	Inland Navigable Waters	36.7km	Inland rivers with widespread areas of SCT having no visibility or low theoretical visibility (1-10 wind turbines), and limited areas with high theoretical visibility.	Inland rivers largely screened by intervening landform between the rivers and sea, with limited visibility.	No potential for significant effects - scoped out of further assessment.
SCT 02	International Ports and Approaches	75.4km	Located outside East Anglia ONE North SLVIA study area.	Located outside East Anglia ONE North SLVIA study area	No potential for significant effects - scoped out of further assessment.
SCT 03	Nearshore Waters	32.6km	Widespread areas of SCT has high theoretical visibility (51-53 wind turbines).	Affords open sea views with no screening.	Potential for significant effects that require further assessment.
SCT 04	Developed Nearshore Waters	28.4km	Widespread areas of SCT has high	Affords open sea views	Potential for significant effects that

Seascape Character Type	Distance from the East Anglia ONE North Windfarm Site	Theoretical Visibility of East Anglia ONE North	Actual Visibility of East Anglia ONE North	Preliminary Assessment
		theoretical visibility (51-53 wind turbines).	with no screening.	require further assessment.
SCT 05	Coastal Waters	17.7km	Widespread areas of SCT has high theoretical visibility (51-53 wind turbines).	Affords open sea views with no screening. Potential for significant effects that require further assessment.
SCT 06	Offshore Waters	The East Anglia ONE North windfarm site is located within this SCT.	Widespread areas of SCT has high theoretical visibility (51-53 wind turbines).	Affords open sea views with no screening. Potential for significant effects that require further assessment.

28.2 Impacts during Construction, Operation and Decommissioning – Technical Assessment

- A detailed technical assessment of the seascape effects of the construction and operation of the offshore infrastructure is set out in the following sections which address SCTs. This describes, in full technical detail, the likely significant effects of the construction and operation of the offshore infrastructure on each SCT, assessing those SCTs that were identified in the preliminary assessment in **Table A28.1** as having potential to be significantly affected.

28.2.1 SCT 03: Nearshore Waters

SCT 03: Nearshore Waters			
Designations:	Coastal edge is within Suffolk Heritage Coast and adjacent to Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB).	Viewpoints:	Viewpoints 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13.
Baseline Description			
<p>Extends along the coastline between Old Felixstowe and Lowestoft (Figure 28.10). It occupies the shallower coastal waters associated with the largely rural Suffolk coastline. The landward extent of the SCT is broadly defined by the Low Water Mark. Its seaward extent is between 5 and 8km from the shoreline.</p> <p>Key characteristics:</p> <ul style="list-style-type: none"> • Sheltered or moderately sheltered coastal waters, adjacent to long curving bays backed by shingle beaches, low vegetated dunes and in places low crumbling cliffs and occasional relatively small, coastal settlements. • Sea floor underlain by complex superficial sediments largely masking underlying bedrock. • Shallow waters up to approximately 20m deep with sand bank systems parallel to the coastline in places. • Active length of coast with a fluctuating patchwork of erosion and accretion with relatively low rates of change. • Dynamic nature of coastline illustrated by events in history such as the inundation of coastal settlements by storm surges and creation of shingle features by longshore drift resulting from steady movement of sediment. • Strategically important coastline with numerous fortifications still visible including Napoleonic and Second World War structures and Cold War military establishments. • Relatively undeveloped coastline and foreshore. Absence of coast road and widespread development imparts a rural character to the terrestrial hinterland. • Sailing and water-sports activity throughout, albeit centred on the towns and approaches to navigable rivers. • The coast contains fisheries for many species. Commercial fishing activity is relatively intense along the coast. Activity includes potting, netting and recreational angling occurs from shore or from vessels. Beached fishing boats are characteristic, along with small independent fish sales outlets along the coast. • Popular tourist area, notably for walking and nature watching. Small number of popular visitor destinations and tourist towns located along the coast. • Coastline and sea have strong associations with writers, painters and composers. • Strong visual relationship with the coastline. Occasional coastal towns and large-scale developments including energy and military infrastructure evident in some views act as orientation points/navigation aids. • Expansive views offshore encompass largely undeveloped seascape, but offshore shipping and windfarms visible in adjacent seascape character types. 			

SCT 03: Nearshore Waters



Value

High

- Suffolk Heritage Coast and the AONB provide a strong indication of the scenic qualities of the coastal strip, however the majority of the seascape within this SCT is not designated for its scenic value.
- Interaction of terrestrial, coastal and offshore areas important for biodiversity, evidenced by designations along the coast and offshore, and frequency of sites managed for nature conservation.
- Relatively widespread seascape character covering band of sea between low water mark and 5-8km offshore along the majority of the Suffolk coastline within the study area between Kessingland and Bawdsey.
- The SCT has notable recreational value as the focus for recreational sailing, water sports and visitor activity at the coast, including informal seaside recreation and bathing in these nearshore waters.
- The scenic quality and interest of all stretches of the SCT is influenced by the simplicity of the main elements (shingle beach/sea/sky) and the dynamic qualities of the seascape that are evident to the coast.
- Scenic qualities are varied and not always consistent across different areas of the SCT. In close proximity to Lowestoft, Kessingland and Aldeburgh, scenic qualities are influenced by the presence of seafront developments and busy waters with recreational sailing activities. Areas of the SCT around Covehithe, Dunwich, Minsmere Haven and Orford Ness have more natural/remote scenic qualities.
- The scenic qualities of the Walberswick to Thorpeness section of the SCT are influenced by the presence of Sizewell Nuclear Power Station. Areas to the south of the SCT around Aldeburgh Bay and Hollesley Bay are more influenced by the presence of existing offshore wind farms (Galloper and Greater Gabbard) in the adjacent Offshore Waters SCT than areas to the north of the SCT.
- The vast, expansive open seas of the offshore waters form the backdrop to these nearshore waters, and contribute to the value of the scenic qualities of the seascape setting of the AONB.

Sensitivity to change: *Combination of the value and susceptibility of the SCT*

Susceptibility

Medium-high

- SCT has the potential to be influenced by the construction and operation of the offshore infrastructure due to its exposure to the offshore waters in which it is located. There is no concealment/screening of views out to sea and the offshore waters, with just the long distance (32.6km) between this SCT and the East Anglia ONE North windfarm site reducing its susceptibility.

SCT 03: Nearshore Waters	
<ul style="list-style-type: none"> • Addition of elements forming the East Anglia ONE North windfarm site in offshore waters outside the SCT, have the potential to alter the perceived character of the nearshore waters, particularly the expansive views across the nearshore waters offshore and its largely undeveloped seascape character. • Some of the aesthetic and perceptual aspects of its seascape character are susceptible to change, such as the perceived remoteness and tranquillity evident in some areas of the SCT, however the wind turbines may also relate rationally to the exposure and bleakness of some areas and to the existing energy generation influences which partially influence its baseline character. • The experience of the seascape is influenced by activities that have changed its inherent character, such as commercial shipping vessels and traffic out to sea, however this nearshore SCT tends to be more influenced by the coastal character than the more distant seaward character. • The character of this seascape is susceptible to changes occurring from development in its backdrop of offshore waters, as perceived from the coastal edges of the AONB. 	
Sensitivity	High
<p>The Nearshore Waters SCT has a high value. It forms part of the seascape of the Suffolk Heritage Coast and the immediate seascape setting to the Suffolk Coast and Heaths AONB, however the majority of the seascape within this SCT is not designated for its scenic value. Its special qualities focus on the simplicity of its main elements (shingle beach/sea/sky), the natural qualities of the vegetated dune/shingle and low cliffs habitats along its coastline; its relative remoteness/inaccessibility along some stretches and traditional seaside influences of other stretches; the unique character of Orford Ness and the dynamic qualities of the seascape where it meets the coast. The vast, expansive open seas of the offshore waters form the backdrop to these nearshore waters and on the one hand contribute its value and the seascape setting of the AONB, while also providing the large scale that is better able to accommodate windfarm development than smaller scale more complex seascapes. The SCT is assessed as having a medium-high susceptibility to changes arising from the construction and operation of the offshore infrastructure. The addition of the East Anglia ONE North windfarm site in offshore waters beyond the SCT has potential to alter the perceived character of the SCT and some of its aesthetic/perceptual characteristics, in particular, the character of this seascape is susceptible to changes occurring from development in its backdrop of offshore waters, as perceived from the coastal edges of the AONB.</p>	
Magnitude of change	
Geographic extent	Regional
<p>Geographically, the area of the SCT that may experience change as a result of visibility of the construction and operation of the offshore infrastructure is within the band of nearshore waters along the coast, however this SCT extends along the majority of the Suffolk coastline in the study area, so there is potential for changes to occur over a regional extent. The ZTV (Figure 28.15) shows that there will be high theoretical visibility of 51-53 wind turbines from almost the entirety of this SCT at distances of between 32.6km and 50km from the East Anglia ONE North windfarm site. The closest areas of the SCT, between Kessingland and Dunwich, will be most likely to experience change than the more distant areas of the SCT between Dunwich and Orfordness. Visibility also extends across this SCT to the coastal edges of East Suffolk and the AONB.</p>	
Size/scale of change (construction, operation and decommissioning) to perceived characteristics:	
Area A: Kessingland to Dunwich	Medium-low
<ul style="list-style-type: none"> • No changes to seascape characteristics which are not part of the perceived character, such as the complex superficial sediments masking underlying bedrock; sand bank systems parallel to the coastline; erosion and accretion and dynamic nature of coastline. 	

SCT 03: Nearshore Waters

- No changes to other seascape characteristics that are part of the perceived character, such as the visible fortifications and military establishments.
- The construction and operation of the offshore infrastructure is likely to add development influence in the offshore backdrop to the relatively undeveloped coastline and foreshore.
- Recreational sailing and commercial fishing activities will still be prevalent in nearshore waters, but their role as foci may diminish slightly in the context of the array of wind turbines in the offshore backdrop.
- The construction and operation of the offshore infrastructure 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, located at long distance outside the SCT (over 32.6km); appearing as an additional element in the simple sea/sky composition and forming a further focal point of orientation, albeit at long distance outside this SCT. The construction and operation of the offshore infrastructure will form an increase in wind energy influence, but will not be an uncharacteristic feature, due to the existing Galloper and Greater Gabbard wind farms in the Offshore Waters SCT.
- Vertical elements of the wind turbines contrast with the low/horizontal emphasis of the long curving bays, low vegetated dunes and low cliffs.
- 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 further development.

Area B: Dunwich to Orfordness

Low

- While there is potential for the construction and operation of the offshore infrastructure to result in some of the changes described above for the Kessingland to Dunwich area, changes to existing seascape characteristics are notably reduced over the area of SCT between Dunwich and Orfordness. The magnitude of change is assessed as low, primarily due to the longer distances between these areas of the SCT and the East Anglia ONE North windfarm site, which results in wind turbines becoming increasingly hidden behind the skyline and therefore having less prominence as an additional element, being less of a focal point and lower contrast with the horizontal emphasis of the seascape. The construction and operation of the offshore infrastructure will also introduce elements that are already characteristic in the backdrop from this southern area of the SCT, in the form of Galloper and Greater Gabbard windfarms, which have more influence as characteristic features in the offshore waters in the backdrop to this SCT (and less influence on the northern parts of SCT).

Significance of effect

Geographic area of SCT	Significance of effect (construction and decommissioning)	Significance of effect (operation)
Area A: Kessingland to Dunwich	Not significant , short-term, temporary	Not significant , long-term, reversible
Area B: Dunwich to Orfordness	Not significant , short-term, temporary	Not significant , long-term, reversible

28.2.2 SCT 04: Developed Nearshore Waters

SCT 04: Developed Nearshore Waters			
Designations:	None	Viewpoints:	Viewpoints 1, 19, 20, 21, 22
Baseline Description			
<p>Extends along the coastline from Lowestoft in the south, past Winterton-on Sea and into Norfolk beyond the study area (Figure 28.10). It occupies the shallow coastal waters associated with the largely developed stretch of the coast extending north from Lowestoft. The landward extent of the SCT is broadly defined by the Low Water Mark. Its seaward extent is between 5 and 8km from the shoreline.</p> <p>Key characteristics:</p> <ul style="list-style-type: none"> • Moderately sheltered coastal waters with a relatively low tidal range and shallow waters up to approximately 20m deep. • Sea floor underlain by superficial sediments largely masking bedrock. • Extensive submerged sandbanks parallel to the coast. • Shape of coastline characterised by relatively long, very shallow coastal bays and headlands. • Much of the coast is erosional and significant stretches of sea defences, including concrete sea walls, rock revetments and groins projecting into the sea, are characteristic of the foreshore in many places. • Largely developed coastline with settlements, holiday parks and leisure developments linked by a coastal road landward of sandy and shingle beaches, low vegetated dunes and in places low crumbling cliffs. • Historic ports and modern man-made harbours adjacent to river mouths protected by substantial sea walls and rock revetments. Rivers canalised and dredged to maintain access to riverside berths. • Busy port approaches used by a range of commercial vessels with numerous buoys and beacons to mark safe passage. • Commercial fishing activity is relatively intense along the coastal strip and in the vicinity of fishing ports. Strong associations with herring fishing industry. • Popular for recreational sailing, particularly approaches to rivers, leading to inland quays and harbours. • Coastal areas and major towns are particularly busy in summer, with numerous caravan and holiday parks and other leisure facilities located adjacent to the coast and linked by coastal road. • Extensive linear coastal geometry creating long sweeping views along the coastline and out to sea. • Expanses of extensive sand flats and dune systems create a semi natural character juxtaposed to a relatively developed coastal fringe, with frequent views to shipping, built development, major port infrastructure, wind turbines and sea defences. 			

SCT 04: Developed Nearshore Waters



Value	Medium-low
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- The Developed Nearshore Waters SCT do not form part of a landscape designated for its scenic value.
- Nearshore waters are recognised for their wildlife importance through a Special Protection Area (SPA) designation and occasional coastal areas are recognised through local nature reserve (LNR) designation.
- Relatively widespread character covering band of sea between low water mark and 5-8km offshore along north Suffolk and south Norfolk part of the study area coastline between Lowestoft and Caister-on-Sea.
- The SCT has notable recreational value as the focus for recreational sailing, water sports and visitor activity at the coast, including informal seaside recreation and bathing in these nearshore waters.
- The scenic quality and interest of all stretches of the SCT are influenced by developed coastline with settlements, holiday parks, leisure developments, busy commercial harbours and fishing/shipping.
- The seascape displays traditional 'beach resort' qualities and interest arising from the interaction of the open, expansive seascape with development and the activities of people at the seafront and nearshore waters
- The scenic qualities of the SCT are also influenced by existing wind energy developments in nearshore waters – Scroby Sands Windfarm off Caister-on-Sea; and the single wind turbine at Ness Point, Lowestoft.

Sensitivity to change: *Combination of the value and susceptibility of the SCT*

Susceptibility	Medium-low
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- SCT has the potential to be influenced by the construction and operation of the offshore infrastructure, particularly at its southern end, due to its exposure to the offshore waters in which it is located. There is no concealment/screening of views out to sea and the offshore waters, with just the long distance (26 - 50km) between this SCT and the East Anglia ONE North windfarm site reducing its susceptibility.
- The construction and operation of the offshore infrastructure in offshore waters outside the SCT has the potential to alter the perceived character of the nearshore waters, particularly the expansive views across the nearshore waters offshore. These views are however, substantially influenced by existing development features including prominent wind turbines in the nearshore waters.
- Some of the aesthetic and perceptual aspects of its seascape character are susceptible to change, such as the its long sweeping views and semi-natural character influences, however the

SCT 04: Developed Nearshore Waters	
<p>wind turbines will relate rationally to the exposure and to the existing energy generation influences which influence its baseline character.</p> <ul style="list-style-type: none"> The experience of the seascape is influenced by activities that have changed its inherent character, such as relatively intense commercial fishing activity using fishing ports and larger shipping vessel traffic out to sea. The character of this seascape is susceptible to changes occurring from development in its backdrop of offshore waters, as perceived from the coastal edges. 	
Sensitivity	Medium-low
<p>The Developed Nearshore Waters SCT has a medium-low value, which is not recognised through scenic landscape designation and its inherent characteristics/scenic qualities have been influenced by extensive development along the coastline (settlements, holiday parks, leisure developments, busy commercial harbours), commercial activities in nearshore/coastal waters (fishing/shipping) and wind energy development (Scroby Sands/Ness Point Lowestoft). The SCT is also assessed as having a medium-low susceptibility to changes arising from the construction and operation of the offshore infrastructure. The addition of the East Anglia ONE North windfarm site in offshore waters beyond the SCT has potential to alter the perceived character of the SCT and some of its aesthetic/perceptual characteristics, in particular, the character of this seascape is susceptible to changes occurring from development in its backdrop of offshore waters, as perceived from the coastal edges, however its character is largely capable of accommodating changes associated with the features of the development. The coastal edges have a semi natural character juxtaposed to a relatively developed coastal fringe, with shipping, built development, major port infrastructure and wind turbines, characteristics which have a relatively lower sensitivity to change than areas of nearshore waters to the south of the study area.</p>	
Magnitude of change	
Geographic extent:	Regional
<p>Geographically, the area of the SCT that may experience change as a result of visibility of the construction and operation of the offshore infrastructure is confined to the band of nearshore waters along the coast, between Lowestoft and Caister-on-Sea, however this SCT extends along the majority of the north Suffolk and south Norfolk coastline in the study area, so there is potential for changes to occur over a regional extent. The ZTV (Figure 28.15) shows that there will be high theoretical visibility of 51-60 wind turbines from almost the entirety of this SCT at distances of between 30.75km and 50km from the East Anglia ONE North windfarm site. The closest areas of the SCT, near Lowestoft, will be most likely to experience change than the more distant areas of the SCT between Great Yarmouth and Caister-on-Sea.</p>	
Size/scale of change (construction, operation and decommissioning) to perceived characteristics:	
Area A: Lowestoft area	Medium-low
<ul style="list-style-type: none"> No changes to seascape characteristics which are not part of perceived character, such as the shallow water, superficial sediments largely masking bedrock and extensive submerged sandbanks parallel to the coast. Shape of coastline formed by relatively long, shallow coastal bays and headlands allows long-distance but oblique views south-east to the East Anglia ONE North windfarm site. The East Anglia ONE North windfarm site is located at long distance outside the SCT and is likely to result in a relatively medium-low scale of change as an additional windfarm element 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. Additional of the East Anglia ONE North windfarm site in the offshore backdrop will occur in the context of the relatively developed coastline and foreshore, with shipping, built development, 	

SCT 04: Developed Nearshore Waters		
<p>major port infrastructure and wind turbines, and thereby forms a relatively smaller change to the existing pattern of influential elements.</p> <ul style="list-style-type: none"> Recreational sailing and commercial fishing activities will still be prevalent in nearshore waters, but their role as foci may diminish slightly in the context of the array of wind turbines in the offshore backdrop. 		
Area B: South Norfolk area (Caister-on-Sea to Hopton-on-Sea)	Low	
<ul style="list-style-type: none"> While there is potential for the construction and operation of the offshore infrastructure to result in some of the changes described above for the Lowestoft area, changes to existing seascape characteristics are notably reduced over the area of SCT in South Norfolk, between Great Yarmouth and Newport. The magnitude of change is assessed as low, primarily due to the longer distances between the SCT and the East Anglia ONE North windfarm site, which results in wind turbines becoming increasingly hidden behind the skyline and oblique to the orientation of the SCT coastline, and therefore having less prominence as an additional element, being less of a focal point and lower contrast with the horizontal emphasis of the seascape. The influence of the existing Scroby Sands Windfarm in the nearshore waters of this area of the SCT is also more notable, and in this context, the changes arising from the construction and operation of the offshore infrastructure appear notably diminished and offshore in comparison. 		
Significance of effect		
Geographic area of SCT	Significance of effect (construction and decommissioning)	Significance of effect (operation)
Area A: Lowestoft area	Not significant , short-term, temporary	Not significant , long-term, reversible
Area B: South Norfolk area (Great Yarmouth to Newport)	Not significant , short-term, temporary	Not significant , long-term, reversible

28.2.3 SCT 05: Coastal Waters

SCT 05: Coastal Waters			
Designations:	Adjacent to Suffolk Heritage Coast. Offshore from Suffolk Coast and Heaths AONB.	Viewpoints:	Middle distance coastal waters visible offshore from all viewpoints
Baseline Description			
<p>The Coastal Waters SCT marks a transition between the Nearshore Waters SCT and Developed Nearshore Waters SCT and Offshore Waters SCT which lie further out to sea (Figure 28.10). It is located approximately 8km from the coast, extending approximately 18km out to sea, along the full north to south extents of the study area.</p> <p>Key characteristics:</p> <ul style="list-style-type: none"> • Open expanse of sea marking transition between the shallower nearshore waters and areas further offshore. • Simple bathymetry ranging between 20 and 30m in depth. • Seabed is characterised by relatively undisturbed sediments, including those laid down by ancient river channels prior to the formation of the North Sea. • Several established commercial shipping routes, predominantly travelling parallel to the coastline to and from major coastal ports, and east to west, to and from continental Europe. • Large vessels often seen on the horizon in views from the coastline. Other activity includes vessels travelling to and from aggregates dredging areas and associated with the transit of plant and supplies for wind farm construction, operation and maintenance activities. • Relatively high concentration of non-designated wrecks. • Busy fishing waters. Commercial fishing activity includes potting, netting and flatfish beam trawling. • Visually unified and extensive open water character in views offshore and to coastline, which is seen as extensive low horizon. • Views to offshore windfarms located beyond the seaward limits of the SCT. 			
			
Value		Medium-high	
<ul style="list-style-type: none"> • Reefs and sandbanks form important habitats with large areas designated for biodiversity value. 			

SCT 05: Coastal Waters

- Coastal Waters are not subject to scenic designation and are not widely recognised for their aesthetic value, however they do form part of the wider offshore seascape setting to the Suffolk Coast and Heaths AONB.
- Relatively widespread seascape character covering band of sea 8 – 18km from the coast, extending along the full north to south extents of the study area between Kessingland and Bawdsey.
- The SCT has busy fishing waters, with limited recreational value, with the focus for sailing being in adjacent nearshore waters.
- The scenic quality and interest of the SCT is influenced by the simplicity of the main elements (sea and sky).
- Seascape with some consistent, well-defined attributes, visually unified and extensive open water character, however its inherent qualities have been changed through commercial shipping and fishing, maintenance vessels for travelling to and from dredging areas and offshore windfarms.
- The scenic qualities of the SCT are influenced by existing wind energy developments (Gallopier and Greater Gabbard) in the adjacent offshore Waters SCT which form a backdrop, particularly to the southern areas of the SCT between Orford Ness and Bawdsey.
- The vast, expansive open seas of the offshore waters form the backdrop to these coastal waters, and contribute to the value of the scenic qualities of the seascape setting of the AONB.

Sensitivity to change: *Combination of the value and susceptibility of the SCT*

Susceptibility	Medium
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- The East Anglia ONE North windfarm site is located approximately 12km offshore from the Coastal Waters SCT.
- The closest areas of the SCT immediately to west of the East Anglia ONE North windfarm site are more susceptible to changes (approximately offshore between Covehithe and Aldeburgh) as there is a direct association and exposure to changes. This susceptibility recedes with the distance to the north, beyond Lowestoft and south beyond Orford Ness.
- The existing Gallopier and Greater Gabbard windfarms form a key characteristic in the baseline character of the southern part of the SCT, forming a prominent feature in the perceived character of the SCT.
- The experience of the seascape is also much influenced by commercial shipping vessels and extensive commercial fishing activities.
- Windswept and exposed character with large scale and simple form, which provides rationale for wind energy influences and is likely to be able to accommodate changes associated with the construction and operation of the offshore infrastructure without fundamental changes to its existing character.
- Visibility from shoreline can be restricted and is dependent on weather conditions.
- The character of this seascape is susceptible to changes occurring from development in its backdrop of offshore waters, as perceived from the coastal edges of the AONB.

Sensitivity	Medium
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The Coastal Waters SCT has a medium-high value, which is not recognised directly through scenic landscape designation, however they do form part of the offshore seascape setting to the Suffolk Heritage Coast and Suffolk Coast and Heaths AONB. The inherent characteristics/scenic qualities of the SCT have been influenced by offshore development activities, particularly commercial fishing within the SCT, but also by the perceived influence of commercial shipping and wind energy development, with Gallopier, Greater Gabbard and East Anglia ONE all located in the adjacent Offshore Waters SCT. These offshore wind farms form prominent features when viewed by offshore receptors, but with just the southern grouping of Gallopier/Greater Gabbard having an onshore visual

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influence on the closest part of the AONB. The vast, expansive open seas of the offshore waters form the backdrop to these coastal waters and on the one hand contribute its value and the seascape setting of the AONB, while also providing the large scale that is better able to accommodate windfarm development than smaller scale complex seascapes. The SCT is assessed as having a medium susceptibility to changes arising from the construction and operation of the offshore infrastructure. The addition of the East Anglia ONE North windfarm site 17.7km from these Coastal Waters (at its closest point) has potential to alter the perceived character of the SCT and some of its aesthetic/perceptual characteristics, in particular, the character of this seascape is susceptible to changes occurring from development in its backdrop of offshore waters, as perceived from the coastal edges of the AONB. The SCT does have a large, expansive scale, simple form and existing offshore windfarms, characteristics which provide some ability to accommodate changes associated with the construction and operation of the offshore infrastructure.

Magnitude of change

Geographic extent:	Regional
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Geographically, the area of the SCT that may experience change as a result of visibility of the construction and operation of the offshore infrastructure is confined to the band of Coastal Waters along the coast, however this SCT extends along the majority of the Suffolk coastline in the study area, so there is potential for changes to occur over a regional extent. The ZTV (**Figure 28.15**) shows that there will be high theoretical visibility of 51-53 wind turbines from almost the entirety of this SCT at distances of between 17.7km and 50km from the East Anglia ONE North windfarm site, extending to the coastal edges of the AONB and East Suffolk. The closest areas of the SCT, approximately offshore between Lowestoft and Dunwich, will be most likely to experience change than the more distant areas of the SCT to the north of Lowestoft and to the south of Dunwich.

Size/scale of change (construction, operation and decommissioning) to perceived characteristics:

Area A: Coastal Waters offshore of Lowestoft to Dunwich	Medium-low
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- No changes to seascape characteristics which are not part of perceived character, such as the simple bathymetry and relatively undisturbed sea bed sediments masking bedrock and submerged sandbanks. The East Anglia ONE North windfarm site results in changes to the seascape character as perceived by people from the onshore coastal edges of East Suffolk, where the Coastal Waters SCT form part of the offshore setting to the AONB. The area of the East Anglia ONE North windfarm site, which forms part of the seascape setting of the AONB, is not characterised by such development and is instead characterised as an open seascape with an expansive character and panoramic horizons.
- Although the East Anglia ONE North windfarm site will not redefine the offshore character of the Coastal Waters (SCT 05), it will result in some changes to the seascape character perceived from land, of that portion of the SCT which forms the seascape setting of the AONB. The East Anglia ONE North windfarm site will extend the lateral spread of wind turbines in the backdrop to this seascape, thereby extending the horizontal effect of wind energy development in the seascape context of the AONB.
- The construction and operation of the offshore infrastructure will result in changes to the open sea views of the SCT, introducing further tall vertical elements with moving rotors. 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.
- The construction and operation of the offshore infrastructure will result in some changes to the visually unified, expansive open character, partially interrupting the extensive open water character in views offshore, although large vessels, dredging activity, gas wells, vessels and offshore wind farms are already important points of orientation and scale.

SCT 05: Coastal Waters		
<ul style="list-style-type: none"> There is limited visibility in these offshore waters, with views restricted and very dependent on weather conditions. 		
Area B: Coastal Waters offshore of south Norfolk (north of Lowestoft)	Low	
<ul style="list-style-type: none"> No changes to seascape characteristics which are not part of perceived character, such as the simple bathymetry and relatively undisturbed sea bed sediments masking bedrock and submerged sandbanks. The East Anglia windfarm site is located beyond the seaward limits of the SCT, with reduced scale and obliqueness to the coastal waters with increasing distance to the north. The East Anglia ONE North windfarm site is located at distance outside this area of the SCT (between 17.7km – 50km) and is likely to result in a relatively low scale of change as an additional windfarm element on the sea skyline, which will partially alter the visual relationship of the seascape with the offshore waters, resulting in partial loss of open sea skyline in the backdrop and changes to the extensive open water character in views offshore. Addition of the East Anglia ONE North windfarm site in the offshore backdrop will occur in the context of shipping, offshore development and wind turbines, and thereby forms a relatively smaller change to the existing pattern of elements. Commercial fishing activities will still be prevalent in Coastal Waters, but their role as foci may diminish slightly in the context of the array of wind turbines in the offshore backdrop. 		
Area C: Coastal Waters offshore between Dunwich and Orfordness	Low	
<ul style="list-style-type: none"> While there is potential for the construction and operation of the offshore infrastructure to result in some of the changes described for Area A, changes to existing seascape characteristics are notably reduced over the area of SCT between Orfordness and Bawdsey. The magnitude of change is assessed as low, primarily due to the longer distances between the SCT and the East Anglia ONE North windfarm site, which results in wind turbines becoming increasingly hidden behind the skyline and therefore having less prominence as an additional element, being less of a focal point and lower contrast with the horizontal emphasis of the seascape. The construction and operation of the offshore infrastructure will also introduce elements that are already characteristic in the backdrop from this area of the SCT, in the form of Galloper and Greater Gabbard windfarms, which have more influence as characteristic features in the offshore waters from this SCT (and less influence on the northern parts of SCT). 		
Significance of effect		
Geographic area of SCT	Significance of effect (construction and decommissioning)	Significance of effect (operation)
Area A: Coastal Waters offshore of Covehithe to Dunwich	Not significant , short-term, temporary	Not significant , long-term, reversible
Area B: Coastal Waters offshore of south Norfolk (north of Lowestoft)	Not significant , short-term, temporary	Not significant , long-term, reversible
Area C: Coastal Waters offshore between Dunwich and Orfordness	Not significant , short-term, temporary	Not significant , long-term, reversible

28.2.4 SCT 06: Offshore Waters

SCT 06: Offshore Waters			
Designations:	Located offshore from Suffolk Heritage Coast and Suffolk Coast and Heaths AONB, separated by areas of Nearshore Waters and Coastal Waters.	Viewpoints:	Long distance offshore waters visible from all viewpoints
Baseline Description			
<p>The Offshore Waters SCT lies seaward of the Coastal Waters SCT at a distance of approximately 18km from the coastline, extending to the seaward extents of the study area (Figure 28.10).</p> <p>Key characteristics:</p> <ul style="list-style-type: none"> • Open expanse of sea with consistently deep waters, generally in excess of 30m becoming shallower towards landward limits of the SCT. • Seabed is characterised by undisturbed sediments with the bedrock rarely exposed on the seafloor. • Sediments include those laid down by ancient river channels prior to the formation of the North Sea. • There is potential in offshore sediments for evidence of Palaeolithic communities that occupied the area prior to the formation of the North Sea. • Busy shipping waters with several established commercial shipping routes, predominantly travelling to and from major coastal ports, and east - west across the area. Large-scale shipping vessels are visible on the skyline in views from the shore in periods of very good/excellent visibility. • Commercial shipping transiting the study area includes cargo vessels, passenger craft and tankers, in part managed by a major Traffic Separation Zone. • Commercial fishing activity from larger vessels. • Industrial activity includes dredging for aggregates and gas fields. • Three operational offshore wind farms are located within this SCT and form characteristic elements - Greater Gabbard and Galloper which form a grouping to the south; and East Anglia ONE to the north-east. • The onshore visual influence of offshore wind farms is confined to the southern grouping of Greater Gabbard and Galloper, which are sometimes visible from the coast, subject to weather conditions, however East Anglia ONE is not visible/perceived from the coast. • Large military practice area. The (past) strategic importance of the coast, principally associated with military actions from the First and Second World Wars, also connects to the offshore seascape, and to the known and as yet unrecorded heritage assets that lie on the seabed near to the East Anglia ONE North windfarm site. • Visually unified, expansive open character with consistent panoramic horizons, over extensive tracts of sea. • Wild and isolated qualities, although views to large vessels, dredging activity, gas wells, vessels and offshore wind farms become important points of orientation and scale in an otherwise vast and featureless seascape. 			

SCT 06: Offshore Waters

- Limited visibility to shoreline. Views restricted to major landmarks onshore from landward extents of the SCT, and very dependent on weather conditions.



Value	Low
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- Sandbanks form important habitats and areas designated (or proposed for designation) for their wildlife value.
- SCT 06 Offshore Waters is not subject to scenic designation and are not widely recognised for their aesthetic value, however they do have strong cultural associations. Whilst they form a part of the distant seascape setting of the AONB the land has very limited influence on the character of the seascape area itself.
- These offshore waters separate the UK from continental Europe and are both historically and presently of value for shipping and trade. The waters have historically been strategically important waters, including major events such as World Wars.
- It is a seascape with consistent, well-defined and distinctive attributes, particularly its unified, expansive open character with some wild/isolated qualities, however the inherent seascape character has been changed by human activity in the form of existing offshore windfarms (Galloper, Greater Gabbard and East Anglia ONE offshore windfarms are all in this SCT), extensive commercial shipping, dredging activity and gas wells.

Sensitivity to change: Combination of the value and susceptibility of the SCT

Susceptibility	Medium
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- The East Anglia ONE North windfarm site is located within this Offshore Waters SCT.
- The areas of the SCA immediately around the East Anglia ONE North windfarm site are more susceptible to changes, as there is a direct association and exposure to changes. This susceptibility recedes with the distance to the north and south, and offshore to the east.
- The existing Galloper, Greater Gabbard and East Anglia ONE offshore windfarms form a key characteristic in the baseline character of the SCT, forming prominent features when viewed by offshore receptors, but with just the southern grouping of Greater Gabbard/Galloper having an onshore visual influence on the closest part of the AONB.
- The geographical extent of this SCT is very large and the area of the East Anglia ONE North windfarm site, which forms a part seascape setting of the AONB, is not characterised by such developments, but by open sea that is susceptible to changes arising from the proposed development.

SCT 06: Offshore Waters	
<ul style="list-style-type: none"> The experience of the seascape is also influenced by commercial shipping vessels, commercial fishing and dredging for aggregates and gas fields, although these are more readily perceived from offshore areas than from the coast. Windswept, exposed and remote character which provides both contrasts to the form of the East Anglia ONE North windfarm site, but also a rationale for the wind energy influences. Offshore shipping waters with very large, expansive scale, simple form and an existing offshore windfarm characteristic. Limited visibility of shoreline. Views restricted and very dependent on weather conditions. 	
Sensitivity	Medium-low
<p>The Offshore Waters SCT has a medium value, which is not recognised through scenic landscape designation, however these offshore waters do form part of the distant seascape setting of the AONB, as perceived from the coastal edges of East Suffolk. The inherent characteristics/scenic qualities have been influenced by offshore development activities, commercial shipping and fishing and wind energy development, with Galloper, Greater Gabbard and East Anglia ONE all located within this SCT. These offshore windfarms form prominent features from within the SCT and when viewed by offshore receptors, but with just the southern grouping of Greater Gabbard/Galloper having an onshore visual influence on the closest part of the AONB. The SCT is also assessed as having a medium susceptibility to changes arising from the construction and operation of the offshore infrastructure. The addition of the East Anglia ONE North windfarm site within these offshore waters has potential to alter the perceived character of the SCT and some of its aesthetic/perceptual characteristics. In particular, the area of the East Anglia ONE North windfarm site forms a part the seascape setting of the AONB and has the potential to change and contrast with the open seascape which defines the offshore setting of the AONB, while also providing the large scale that is better able to accommodate windfarm development than smaller scale complex seascapes. The offshore shipping waters of this SCT have very large, expansive scale, simple form and existing offshore windfarms, characteristics which provide some ability to accommodate changes associated with the construction and operation of the offshore infrastructure.</p>	
Magnitude of change	
Geographic extent:	Regional
<p>Almost all of the Offshore Waters SCT will experience theoretical visibility of the East Anglia ONE North windfarm site (Figure 28.15), however the closest offshore areas of the SCT will experience most changes in the perceived character, where there is a direct association and exposure to the physical changes in the pattern of elements. There is also potential for changes to occur over a wider regional extent due to the geographic spread of theoretical visibility extending across much of the seascape in the study area, including adjacent SCTs, nearshore waters and to the coastal edges of East Suffolk and the AONB. The ZTV (Figure 28.15) shows that there will be high theoretical visibility of 51-53 wind turbines from almost the entirety of the Offshore Waters SCT. The ZTV shows that curvature of the earth begins to reduce visibility from the offshore waters on the outer areas of the 50km study area.</p>	
Size/scale of change (construction, operation and decommissioning) to perceived characteristics:	
Offshore Waters SCT	Medium
<ul style="list-style-type: none"> No changes to seascape characteristics which are not part of perceived character, such as the deep waters, undisturbed sediments on the seafloor and Palaeolithic communities. 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 	

SCT 06: Offshore Waters

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

- In the offshore context of the SCT, the addition of the East Anglia ONE North windfarm site will consolidate and extend the existing wind farm influence. The character of the SCT will be influenced by the addition of the East Anglia ONE North windfarm site in the area between the existing Galloper/Greater Gabbard grouping and East Anglia ONE offshore windfarm.
- 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.
- The area of the East Anglia ONE North windfarm site, which forms part of the seascape setting of the AONB, is not characterised by such developments and is instead characterised as an open seascape with an expansive character and panoramic horizons. Although the East Anglia ONE North windfarm site will not redefine the offshore character of SCT 06, it will result in changes to the seascape character perceived from land, of that portion of the SCT which forms the seascape setting of the AONB. 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. The construction and operation of the offshore infrastructure will result in changes to the open sea views of the SCT, introducing further tall vertical elements with moving rotors. This is a large-scale seascape, with open panoramas and an exposed windswept character. The wind 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.
- The construction and operation of the offshore infrastructure will result in some changes to the visually unified, expansive open character, partially interrupting the consistent panoramic horizons and providing further development influence which may reduce its wild/isolated qualities, although large vessels, dredging activity, gas wells, vessels and offshore wind farms are already important points of orientation and scale.
- There is limited visibility in these offshore waters from long distances, with views restricted and very dependent on very good or excellent visibility conditions.

Significance of effect

Geographic area of SCT	Significance of effect (construction and decommissioning)	Significance of effect (operation)
Offshore Waters SCT	Not significant , short-term, temporary	Not significant , long-term, reversible