Port of Mostyn

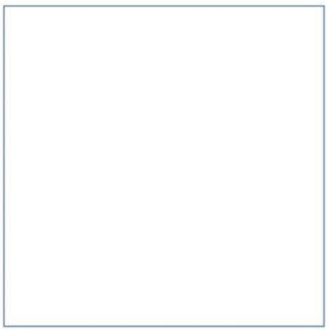
Mostyn Energy Park Extension

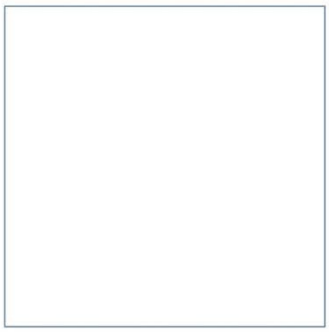
Environmental Statement

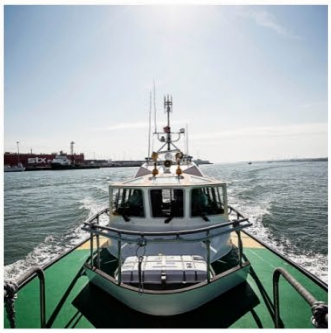
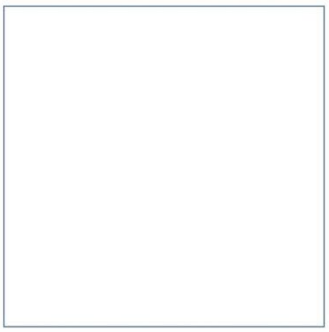
Chapter 14: Summary of Impacts

December 2022







Innovative Thinking - Sustainable Solutions

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14.1 Introduction

This chapter summarises the key outcomes of the assessment of potential impacts associated with the MEPE Project on all relevant (scoped-in) topics/receptors. Consultation with key stakeholders has been undertaken prior to and throughout the EIA process in order to discuss environmental issues and agree the scope of and approach to the assessment.

14.2 Impacts

Table 14.1 presents a summary of the key potential impacts associated with the proposed development that have been assessed in detail in the EIA, the significance of each potential impact, proposed mitigation measures and the significance of the residual impact (i.e. the impact remaining following the implementation of mitigation measures).

The key issues identified in the ES that have the potential to result in significant adverse impacts were those associated with underwater noise effects on migratory fish and marine mammals during impact piling; noise and visual disturbance of waterbirds during construction; and direct disturbance to potential cultural heritage and marine archaeology receptors during construction and operation.

Standard best practice procedures and impact reduction measures have been identified to avoid and/or minimise significant adverse impacts as far as practicable. Some of these mitigation measures are recommendations arising from the impact assessment process (secondary measures), whilst others have been incorporated into the design of the proposed development (primary measures) or are required to meet existing legislative requirements and are considered standard practices to manage commonly occurring environmental effects (tertiary measures). The secondary mitigation measures that have been identified to minimise significant adverse impacts as far as practicable are included in Table 14.1. The tertiary mitigation measures are detailed in each of the respective topic ES chapters.

With the adoption of appropriate mitigation where and when required, it is considered that all significant adverse impacts can be avoided and/or minimised to acceptable levels. The residual impacts identified in this EIA have been assessed to be at worst of minor adverse significance following the application of best practice procedures and appropriate mitigation measures.

In order to enhance the marine ecology of the port area and surroundings, approximately 1.5 ha of rubble is proposed to be scraped back from the toe of the rock armour along the western section of the dock estate to expose intertidal mudflat habitat on the Mostyn Bank. This enhancement has the potential to result in marine ecological benefits to the local area by allowing silt to settle in the areas where the hard substrate is scraped back and enabling natural mudflat restoration.

Table 14.1. Summary of all the key potential impacts, mitigation measures and residual impacts associated with the proposed development

ID	Impact Pathway	Impact Significance		Mitigation Measures[1]	Residual Impact
Colour Key					
Major beneficial					
Moderate beneficial					
Minor beneficial					
Insignificant					
Minor adverse					
Moderate adverse					
Major adverse					
Physical processes					
		Exposure to change[2]	**Significance[3]**		
1	Changes to suspended sediment concentration (SSC) and sedimentation as a result of the construction activities	Low	N/A	N/A	N/A
2	Changes to seabed bathymetry as a result of dredge disposal during construction	Negligible	N/A	N/A	N/A
3	Changes to hydrodynamics	Low	N/A	N/A	N/A
4	Changes to wave regime	Low	N/A	N/A	N/A
5	Changes to sediment transport pathways	Low	N/A	N/A	N/A
6	Changes to SSC, sedimentation, seabed bathymetry from maintenance dredge and disposal activities	Negligible	N/A	N/A	N/A
7	Potential impact on receptors, including marine infrastructure and (local and regional) estuary banks and channels	Low (near-field)	Insignificant to minor adverse	N/A	Insignificant to minor adverse
		Negligible (far-field)	Insignificant	N/A	Insignificant
Water and sediment quality					
8	Changes to dissolved oxygen concentrations as a result of increased SSC during construction activities	Insignificant (piling)		N/A	Insignificant (piling)
		Minor adverse (dredging and disposal)		N/A	Minor adverse (dredging and disposal)
9	Changes to chemical water quality as a result of potential sediment-bound contaminants during construction	Insignificant		N/A	Insignificant

1 These are the secondary mitigation measures (i.e. actions that will require further activity in order to achieve the anticipated outcome and identified as necessary through the assessment process). Tertiary mitigation measures (i.e. actions that would occur with or without input from an environmental impact assessment process) are detailed in the respective ES topic chapters.

2 As explained in more detail in Section 6.3, the methods adopted for the physical processes assessment are slightly different to those adopted for other environmental topics. This is because the proposed development has the potential to cause changes to hydrodynamic and sedimentary processes, which in turn can potentially impact other receptors, e.g. nature conservation features. These changes in physical processes are, therefore, assessed as a potential 'exposure to change'.

3 The significance of the physical processes changes on any relevant physical processes receptors (e.g. existing port infrastructure, the wider Dee Estuary and local and regional banks and channels) have been assessed.

ID	Impact Pathway	Impact Significance	Mitigation Measures[1]	Residual Impact
10	Redistribution of sediment-bound contaminants during construction activities	Insignificant	N/A	Insignificant
11	Changes to nutrient concentrations in water during construction activities	Insignificant (piling)	N/A	Insignificant (piling)
		Insignificant to minor adverse (dredging and disposal)	N/A	Insignificant to minor adverse (dredging and disposal)
12	Changes to water quality as a result of potential sediment-bound microbiological contaminants during construction activities	Insignificant	N/A	Insignificant
13	Changes to dissolved oxygen concentrations as a result of increased SSC during operation	Minor adverse	N/A	Minor adverse
14	Changes to chemical water quality as a result of potential sediment-bound contaminants during operation	Insignificant	N/A	Insignificant
15	Redistribution of sediment-bound contaminants during operation	Insignificant	N/A	Insignificant
16	Changes to nutrient concentrations in water during operation	Insignificant to minor adverse	N/A	Insignificant to minor adverse
17	Changes to water quality as a result of potential sediment-bound microbiological contaminants during operation	Insignificant	N/A	Insignificant
Nature conservation and marine ecology				
Benthic habitats and species				
18	Direct loss of intertidal and subtidal habitats and species as a result of the new quay wall	Insignificant (intertidal mud and subtidal habitat)	N/A	Insignificant (intertidal mud and subtidal habitat)
		Insignificant to minor adverse (intertidal hard substrate)	N/A	Insignificant to minor adverse (intertidal hard substrate)
19	Direct loss of intertidal habitat as a result of capital dredging	Insignificant	N/A	Insignificant
20	Changes to subtidal habitats and species as result of the removal of seabed material during dredging	Insignificant	N/A	Insignificant
21	Changes to habitats and species as a result of sediment deposition during dredging and dredge disposal	Insignificant	N/A	Insignificant
22	Changes in water and sediment quality during capital dredging and dredge disposal	Insignificant	N/A	Insignificant
23	Underwater noise and vibration disturbance during construction	Insignificant to minor adverse (piling)	N/A	Insignificant to minor adverse (piling)
		Insignificant (dredging and disposal)	N/A	Insignificant (dredging and disposal)
24	Introduction and spread of non-native species	Insignificant to minor adverse	Include biosecurity control measures within the Construction Environment	Insignificant to minor adverse

ID	Impact Pathway	Impact Significance	Mitigation Measures[1]	Residual Impact
			Management Plan (CEMP) in accordance with guidance.	
25	Changes to benthic habitats and species as result of seabed removal during maintenance dredging	Insignificant to minor adverse	N/A	Insignificant to minor adverse
26	Changes to habitats and species as a result of sediment deposition during maintenance dredging and dredge disposal	Insignificant	N/A	Insignificant
27	Changes in water and sediment quality during maintenance dredging and dredge disposal	Insignificant	N/A	Insignificant
28	Introduction and spread of non-native species during operation	Insignificant	N/A	Insignificant
Fish and shellfish				
29	Direct loss or changes to fish and shellfish populations and habitat	Insignificant to minor adverse	N/A	Insignificant to minor adverse
30	Changes in water and sediment quality during capital dredging and dredge disposal	Insignificant	N/A	Insignificant
31	Underwater noise and vibration disturbance during construction	Minor to moderate adverse (migratory fish during piling)	Apply soft start procedures during piling. Use vibro piling where possible.	Minor adverse (migratory fish during piling)
		Insignificant to minor adverse (other fish species during piling)	N/A	Insignificant to minor adverse (other fish species during piling)
		Insignificant (dredging and disposal)	N/A	Insignificant (dredging and disposal)
32	Changes to fish populations and fish habitat during maintenance dredging and dredge disposal	Insignificant to minor adverse	N/A	Insignificant to minor adverse
33	Changes in water and sediment quality maintenance capital dredging and dredge disposal	Insignificant	N/A	Insignificant
Marine mammals				
34	Underwater noise and vibration disturbance during construction	Minor to moderate adverse (piling)	Apply soft start procedures during piling. Use vibro piling where possible. Marine Mammal Observer will follow JNCC protocol to minimise the risk of injury to marine mammals during percussive piling.	Minor adverse (piling)

ID	Impact Pathway	Impact Significance	Mitigation Measures[1]	Residual Impact
		Insignificant (dredging and disposal)	N/A	Insignificant (dredging and disposal)
Coastal waterbirds				
35	Direct loss and change to intertidal feeding and roosting habitat	Minor adverse	N/A	Minor adverse
36	Airborne noise and visual disturbance during construction	Minor to moderate adverse	Soft starts. Cold weather construction restriction. Screening. Noise suppression system.	Minor adverse
Otters				
37	Direct loss or changes to otter populations and habitat	Insignificant	N/A	Insignificant
38	Noise and visual disturbance during construction	Insignificant to minor adverse	N/A	Insignificant to minor adverse
39	Disturbance of waterbirds during operation	Minor adverse	Screening.	Minor adverse
Fisheries				
Cockle fishery				
40	Interference with fishing activities due to vessel movements obstructing navigation routes to fishing grounds during construction	Insignificant to minor adverse	N/A	Insignificant to minor adverse
41	Interference with fishing activities due to vessel movements disrupting or obstructing fishing activities during construction	No impact	N/A	No impact
42	Loss of or restricted access to fishing grounds during construction	Insignificant	N/A	Insignificant
43	Potential indirect impacts on stocks of target finfish and shellfish species during construction	Insignificant to minor adverse	N/A	Insignificant to minor adverse
44	Potential indirect impacts on stocks of target finfish and shellfish species during operation	Insignificant	N/A	Insignificant
Other fisheries				
45	Interference with fishing activities due to vessel movements obstructing navigation routes to fishing grounds during construction	Insignificant	N/A	Insignificant
46	Interference with fishing activities due to vessel movements disrupting or obstructing fishing activities during construction	Insignificant	N/A	Insignificant
47	Loss of or restricted access to fishing grounds during construction	Insignificant	N/A	Insignificant
48	Potential indirect impacts on stocks of target finfish and shellfish species during construction	Insignificant	N/A	Insignificant
49	Potential indirect impacts on stocks of target finfish and shellfish species during operation	Insignificant	N/A	Insignificant
Commercial and recreational navigation				
50	Collision between commercial vessels	Medium and tolerable	N/A	Medium and tolerable

ID	Impact Pathway	Impact Significance	Mitigation Measures[1]	Residual Impact
51	Collision between commercial and small/fishing vessels	Medium and tolerable	N/A	Medium and tolerable
52	Collision between a commercial vessel and a development structure	Medium and tolerable	N/A	Medium and tolerable
53	Interference with other harbour works	Low and tolerable	N/A	Low and tolerable
54	Grounding / stranding of a commercial vessel	Medium and tolerable	N/A	Medium and tolerable
55	Grounding of a self- propelled Jack-up barge	Medium and tolerable	N/A	Medium and tolerable
56	Grounding of a small vessel	Low and tolerable	N/A	Low and tolerable
57	Wake wash effects resulting in grounding, capsize or sinking of a small/fishing vessel	Low to Medium and tolerable	N/A	Low to Medium and tolerable
58	Pollution of river or estuarine waters	Medium and tolerable	N/A	Medium and tolerable
59	Ballast water discharge issues	Low and tolerable	N/A	Low and tolerable
Flood risk and drainage				
60	Increased risk of surface water flooding at the Port of Mostyn/MEP during construction	Insignificant	N/A	Insignificant
61	Increased risk of surface water flooding at the MEPE construction site during construction	Insignificant	N/A	Insignificant
62	Increased risk of tidal flooding within the Dee Estuary during construction	Insignificant	N/A	Insignificant
63	Mobilisation of pollutants/suspended solids during the construction phase impacting on the Dee Estuary	Insignificant	N/A	Insignificant
64	Increased risk of surface water flooding at the Port of Mostyn/MEP during operation	Insignificant	N/A	Insignificant
65	Increased risk of tidal flooding within the Dee Estuary during operation	Insignificant	N/A	Insignificant
66	Mobilisation of pollutants/suspended solids during the operational phase impacting on the Dee Estuary	Insignificant	N/A	Insignificant
Cultural heritage and marine archaeology				
67	Direct disturbance to seabed causing damage to potential seabed prehistory receptors during construction	Major adverse	Offsetting by means of geoarchaeological assessment of geotechnical surveys.	Minor to moderate beneficial
68	Direct disturbance to seabed causing damage to potential maritime receptors, aviation receptors, currently unknown archaeological sites and artefacts during construction	Major adverse	Avoidance via implementation of Archaeological Exclusion Zones (AEZs) where deemed appropriate; Written Scheme of Investigation (WSI) (and any supporting activity-specific Method Statements) and Reduction via a Protocol for Archaeological Discoveries (PAD).	Insignificant

ID	Impact Pathway	Impact Significance	Mitigation Measures[1]	Residual Impact
69	Direct impacts from use of jack-up barges on potential seabed prehistory receptors, maritime and aviation receptors	Moderate to major adverse	Avoidance via implementation of AEZs where deemed appropriate; WSI (and any supporting activity-specific Method Statements) and Reduction via a PAD.	Insignificant
70	Indirect disturbance to cultural heritage and marine archaeology receptors due changes to the hydrodynamic and sedimentary regimes	Insignificant	N/A	Insignificant
71	Direct disturbance to previously not impacted seabed during operation causing damage to potential seabed prehistory receptors, maritime and aviation receptors	Major adverse	Avoidance via implementation of AEZs where deemed appropriate; WSI (and any supporting activity-specific Method Statements) and Reduction via a PAD	Insignificant
72	Direct impacts from use of anchors by vessels during operation on potential seabed prehistory receptors, maritime and aviation receptors	Moderate to major adverse	Avoidance via implementation of AEZs where deemed appropriate; WSI (and any supporting activity-specific Method Statements) and Reduction via a PAD.	Insignificant
73	Indirect disturbance to known and potential seabed prehistory receptors, maritime and aviation receptors during operation due to potential scour and plume effects resulting in increased protection to, or deterioration through erosion	Insignificant	N/A	Insignificant

14.3 Abbreviations/Acronyms

AEZ	Archaeological Exclusion Zone
CEMP	Construction Environment Management Plan
EIA	Environmental Impact Assessment
ES	Environmental Statement
ID	Identifier
JNCC	Joint Nature Conservation Committee
MEP	Mostyn Energy Park
MEPE	Mostyn Energy Park Extension
PAD	Protocol for Archaeological Discoveries
SSC	Suspended Sediment Concentration
WSI	Written Scheme of Investigation

Cardinal points/directions are used unless otherwise stated.

SI units are used unless otherwise stated.

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