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MONA OFFSHORE WIND PROJECT

Offshore Cable Corridor – Disposal Site Characterisation Report

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Image of an offshore wind farm

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Prepared by:

RPS

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Mona Offshore Wind Ltd.

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Glossary

Term	Meaning
Benthic ecology	Benthic ecology encompasses the study of the organisms living in and on the sea floor, the interactions between them and impacts on the surrounding environment.
Biotope	The combination of physical environment (habitat) and its distinctive assemblages of conspicuous species.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project (NSIP).
Demersal species	Fish species that live and feed on or near the seabed.
Epifauna	Organisms living on the surface of the seabed.
Habitat	The environment that a plant or animal lives in.
Infauna	The animals living in the sediments of the seabed.
Maximum design scenario (MDS)	The scenario within the design envelope with the potential to result in the greatest impact on a particular topic receptor, and therefore the one that should be assessed for that topic receptor.
Marine licence	The Marine and Coastal Access Act 2009 requires a marine licence to be obtained for licensable marine activities. Section 149A of the Planning Act 2008 allows an applicant for a DCO to apply for 'deemed marine licences' (DML) as part of the DCO process. In addition, licensable activities within 12nm of the Welsh coast require a separate marine licence from Natural Resource Wales (NRW).
Mona Offshore Wind Project	The Mona Offshore Wind Project is comprised of both the generation assets and offshore and onshore transmission assets and associated activities.
Mona Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables and offshore substation platforms (OSPs) forming part of the Mona Generation Assets will be located.
Prehistoric Archaeology	In the British Isles the period from the earliest hominin occupation more than 780,000 years Before Present (BP) to the time of the Roman invasion of Britain in 43 AD.

Acronyms

Acronym	Description
AEZ	Archaeological Exclusion Zone
AL	Action Level
Cefas	Centre for Environment, Fisheries and Aquaculture Science
Defra	Department for Environment Food and Rural Affairs
DML	Deemed Marine Licence
DDV	Drop Down Video
EIA	Environmental Impact Assessment
EU	European Union
ICES	International Council for the Exploration of the Sea

Acronym	Description
IEF	Important Ecological Feature
ISAA	Information to Support an Appropriate Assessment
MCZ	Marine Conservation Zone
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
NRW	Natural Resources Wales
OSI	Offshore Storage Installation
OSP	Offshore Substation Platform
OSPAR	Oslo-Paris (The Convention for the Protection of the Marine Environment of the North-East Atlantic)
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PEIR	Preliminary Environmental Information Report
PEL	Probable Effect Level
PSA	Particle Size Analysis
SAC	Special Area of Conservation
SPA	Special Protection Area
SSC	Suspended Sediment Concentration
TEL	Threshold Effect level
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance
VMS	Vessel Monitoring System
WFD	Water Framework Directive

Units

Unit	Description
%	Percentage
km^2	Square kilometres
kv	Kilovolt
m	Metre
m^3	Cubic metres
mm	Millimetre

1 Mona Offshore Cable Corridor – disposal site characterisation report introduction

1.1 Introduction

1.1.1.1 Mona Offshore Wind Limited (hereafter referred to as the Applicant), a joint venture of bp Alternative Energy investments (hereafter referred to as bp) and Energie Baden-Württemberg AG (hereafter referred to as EnBW) is developing the Mona Offshore Wind Project, a proposed offshore wind farm located in the east Irish Sea.

1.1.1.2 This document has been drafted to provide the licensing authority with the necessary information to permit disposal of material associated with the construction of the Mona Offshore Wind Project. This document represents the site characterisation for the proposed disposal site associated with the construction of the Mona Offshore Wind Project. It specifically outlines the disposal of material originating from dredging and sandwave clearance activities associated with the Mona Offshore Wind Project within the Mona Offshore Cable Corridor (noting that this does not include the Access Areas).

1.1.1.3 Site characterisation provides a description of the existing environment at the proposed marine disposal site for spoil material generated by construction activities, using all available data sources. This report has been prepared in the event a formally licenced disposal site in deemed necessary.

1.1.1.4 Noting that all the information required for a site characterisation to support a disposal licence application is contained within the Environmental Statement, this document takes the form of a 'framework' document that provides a summary of the key points of relevance to site characterisation and refers to more detailed information and data presented within the relevant sections of the Environmental Statement at this stage.

1.1.1.5 This disposal site characterisation report covers the Mona Offshore Cable Corridor and associated infrastructure (identified in section 1.1.2) only and will accompany the application to Natural Resources Wales (NRW) for a marine licence for the offshore export cables. Whilst the marine licence for the Mona Offshore Cable Corridor will also cover the transmission infrastructure within the Mona Array Area, the Mona Offshore Cable Corridor disposal licence will only cover disposal activities within the Mona Offshore Cable Corridor. The entire Mona Offshore Cable Corridor will be licensed for disposal activities except for the area of overlap with Constable Bank and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy Special Area of Conservation (SAC), as illustrated in Figure 1.1. The disposal activities associated with the Mona Array Area will be covered by the marine licence to be deemed as part of the Development Consent Order (DCO) application and are therefore considered in a separate document (Mona Array Area disposal site characterisation report (Document Reference J.19)).

1.1.2 Project background and overview

1.1.2.1 The Mona Offshore Wind Project will consist of up to 96 wind turbines. The maximum proposed number of turbines has been reduced from 107 proposed in the Preliminary Environmental Information Report (PEIR). The proposed capacity of the Mona Offshore Wind Project is over 350 MW, therefore it is within the Planning Act 2008 thresholds for Welsh offshore schemes. The final capacity of the Mona Offshore Wind Project will be determined based on available technology and constrained by the design envelope of the wind turbines presented in Volume 1, Chapter 3: Project description of the Environmental Statement (Document reference F1.3).

1.1.2.2 The Mona Array Area (i.e. the area within which the offshore wind turbines will be located) is 300 km^2 in area and is located 28.8 km (15.6 nm) from the north coast of Wales, 46.9 km (25.3 nm) from the northwest coast of England and 46.6 km (25.2 nm) from the Isle of Man (when measured from Mean High Water Springs (MHWS)). The Mona Array Area is located in Welsh offshore waters (beyond 12 nm from the Welsh coast), (Figure 1.1).

1.1.2.3 As outlined in paragraph 1.1.1.5, this document considers the Mona Offshore Cable Corridor only. The Mona Offshore Cable Corridor is the corridor between the Mona Array Area and the landfall up to MHWS, in which most of the length of the offshore export cables will be located (the export cables are linked to the Offshore Substation Platforms (OSPs) and therefore are partially within the Mona Array Area also).

1.1.2.4 The offshore infrastructure within the Mona Offshore Cable Corridor will include up to a maximum of four offshore export cables, with a total maximum length of 360 km. The offshore export cables are used for the transmission of electricity from the OSPs to the landfall and onwards to connect to the onshore National Grid substation. Up to four offshore export cables with a voltage of up to 275 kV will be required for the Mona Offshore Wind Project. Each offshore export cable will also house a fibre optic cable for communication. Where possible, the cables will be buried below the seabed to landfall.

1.1.2.5 The Applicant requires flexibility in type, location, depth of burial and protection measures for the offshore export cables to ensure that anticipated physical and technical constraints and changes in available technology can be accommodated within the Mona Offshore Wind Project design.

1.1.2.6 The key components of the Mona Offshore Cable Corridor are outlined in Table 1.1.

Table 1.1: Maximum design parameters for the offshore export cables within the Mona Offshore Cable Corridor and Access Areas.

Parameter	Maximum design parameters
Maximum number of circuits	4
Maximum voltage (kV)	275
Cable diameter (mm)	350
Maximum length of the Mona Offshore Cable Corridor (km)	90
Maximum width of the Mona Offshore Cable Corridor (km)	1.5
Maximum total length of offshore export cables (km)	360

1.1.3 Scope and purpose of document

1.1.3.1 This document is the site characterisation for the Mona Offshore Cable Corridor which is required to apply for a permit for the disposal of seabed and sub-bottom geological material that may arise during the construction of the Mona Offshore Cable Corridor.

1.1.3.2 This disposal site characterisation report draws on the findings of the technical reports and assessments produced for the Mona Offshore Wind Project Environmental Statement, to support the application for licensing of the Mona Offshore Cable Corridor disposal site.

1.1.3.3 Site characterisation is the process whereby the existing environment for a proposed marine disposal site for spoil material and drill arisings generated by construction activities is described, using all available data sources. It is a requirement that a site characterisation report be submitted to NRW, to inform the decision-making process and to allow the licensing of the disposal site as well as facilitating the consideration of the need for any relevant conditions in relation to the disposal activity within the marine licence for the offshore export cables.

1.1.3.4 The Site Characterisation report is structured as follows:

- Section 1: Introduction
- Section 1.2: Predicted spoil sources and volumes
- Section 1.3: Consideration of alternative disposal options
- Section 1.4: Characteristics of the disposal site – physical, biological, human environment
- Section 1.5: Characteristics of material to be disposed – physical, chemical and toxicological, biological
- Section 1.6: Assessment of potential adverse effects on physical, biological, and human environment
- Section 1.7: Monitoring
- Section 1.8: Conclusions
- Section 1.9: References.

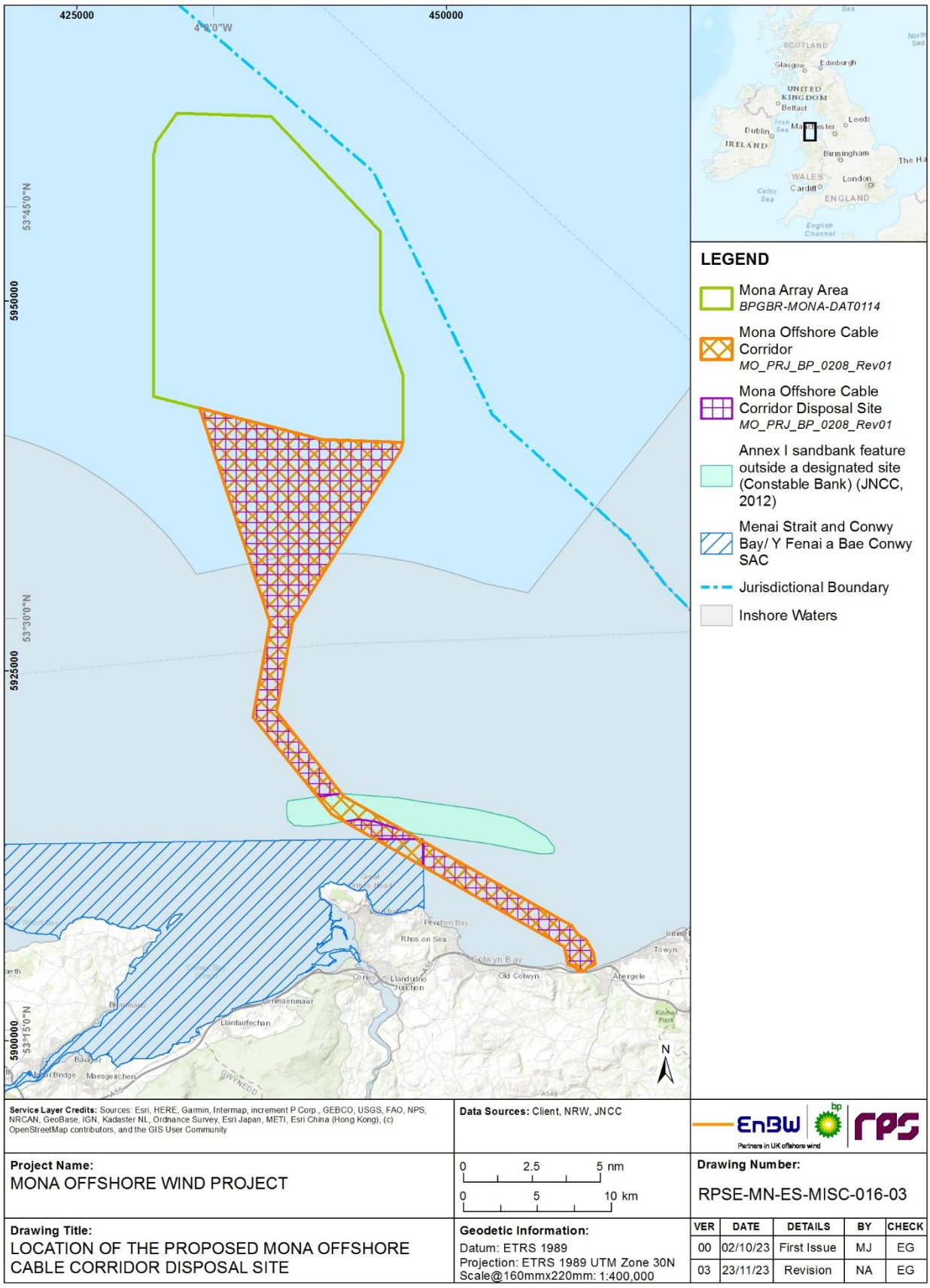

Figure 1.1: Location of proposed Mona Offshore Cable Corridor disposal site.

1.1.4 Consultation

1.1.4.1 A summary of the key issues raised during consultation activities undertaken to date specific to dredging and disposal site characterisation is presented in Table 1.2.

Table 1.2: Summary of key consultation topics raised during consultation activities undertaken for the Mona Offshore Wind Project relevant to Mona Offshore Cable Corridor disposal site characterisation.

Date	Consultee	Type of consultation	Summary of consultation	Response
June 2023	The Marine Management Organisation (MMO)	S42 consultation	The MMO requested clarification regarding the number of stations sampled for sediment chemistry analysis for metals, Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs). They also requested the full data set be presented and that the appropriate thresholds be checked and clarified.	The number of sample stations which have been analysed for sediment chemistry has been presented in sections 1.7.1 and 1.7.2 of Volume 2, Annex 2.1 Benthic subtidal and intertidal ecology of the Environmental Statement. The full sediment contamination data is presented in Appendix F.
			The MMO noted that Thomson Environmental Consultants are not validated by the MMO to undertake particle size analysis (PSA) in support of marine licences, and therefore these results cannot be considered for purposes of dredge and disposal operations.	The PSA analysis was conducted by Kenneth Pye Associates Ltd. and Ocean Ecology (both MMO validated laboratories).
			The MMO noted some inconsistencies regarding the presentation of the sediment contamination data.	Inconsistencies regarding the sediment chemistry analysis have been addressed. Analysis is presented in section 1.7.1 and 1.7.2 of Volume 6, Annex 2.1 Benthic subtidal and intertidal ecology technical report of the Environmental Statement. The full sediment contamination data is presented in Appendix F.
June 2023	NRW	S42 consultation	NRW requested that the PAH data be checked as one station which seems to exceed a relevant threshold needs reporting.	The PAH assessment data has been checked and it can be confirmed that no relevant thresholds were exceeded (section 1.7.2 of Volume 2, Annex 2.1 Benthic subtidal and intertidal ecology of the Environmental Statement).

Date	Consultee	Type of consultation	Summary of consultation	Response
June 2023	NRW	S42 consultation	NRW requested that analysis on the Mona Offshore Cable Corridor be undertaken and presented in order to understand the habitats that could be impacted in the Menai Strait and Conwy Bay SAC and other habitats.	Full analysis of site specific data collected in the Mona Offshore Cable Corridor has been presented in section 1.7 of Volume 6, Annex 2.1 Benthic subtidal and intertidal ecology technical report of the Environmental Statement, the full data is available on request.
June 2023	JNCC	S42 consultation	Volume 1, Chapter 3: Project description 3.6.4.7 Sandwave clearance for cables, and sandwave clearance and/or seabed preparation for foundations JNCC note that “It is expected that material subject to seabed preparation activities will be deposited in the vicinity of where they were removed.” JNCC would strongly recommend that any material from sandwave levelling or dredging be retained within the same sediment system from which it was removed. This could include, where appropriate, deposition upstream of the operations to allow natural backfill.	Noted, material from sandwave clearance will be deposited in the vicinity of the clearance site. Additionally some of the sediment from the Mona Array Area may be removed from the system to be used as ballast for the gravity base foundations. Specifically, the dredging and site preparation associated with conical gravity base foundations may involve the use of up to 7,000 m^3 of this material as ballast within the structure. The remaining material will be sidecast in close proximity to be available within the sediment cell for transport and sandwave regeneration
June 2023	JNCC	S42 consultation	JNCC requested that analysis on the Mona Offshore Cable Corridor be undertaken and presented to provide in order to enable a full assessment of the impact of the Mona Offshore Wind Project.	Full analysis of site-specific data collected in the Mona Offshore Cable Corridor has been presented in section 1.7 of Volume 6, Annex 2.1 Benthic subtidal and intertidal ecology technical report of the Environmental Statement, the full data is available on request.

1.2 Predicted spoil sources and volumes

1.2.1 Sources of spoil

1.2.1.1 In the context of this report, the term 'spoil' covers all material (i.e. sediment) which is extracted from (e.g. by dredging), and subsequently deposited on, the seabed during the construction of the Mona Offshore Cable Corridor.

1.2.1.2 Spoil will be generated from sandwave clearance activities within the Mona Offshore Cable Corridor prior to cables being installed. Many of the cable installation tools require a stable, flat seabed surface in order to install cables as it may not be possible to install the cable up or down a slope over a certain angle. In addition, the cables must be buried to a depth where they can be expected to stay buried for the duration of the lifetime of the Mona Offshore Wind Project. Sandwaves are generally mobile in nature therefore cables must be buried beneath the level where natural sandwave movement could uncover them. Unexploded Ordnance (UXO) and boulder clearance will also be required.

1.2.1.3 Site-specific geophysical data and bathymetry data were used to identify sandwaves and it was determined that up to 20% of the total length of the offshore export cables would require sandwave clearance. If dredging is required, it would be carried out by dredging vessels using suction hoppers or similar.

1.2.2 Volume of spoil for disposal

1.2.2.1 The maximum amount of spoil that is anticipated to arise within the Mona Offshore Cable Corridor as a result of sandwave clearance associated with offshore export cables, which would require disposal within the Mona Offshore Cable Corridor Disposal Site is 1,504,000 m^3 (Table 1.3).

Table 1.3: Summary of MDS spoil volumes associated with sandwave clearance in the Mona Offshore Cable Corridor disposal site.

Source	Sandwave clearance (m^3)
Export cables	1,504,000

1.3 Consideration of alternative disposal options

1.3.1.1 Once drilled or dredged material has been produced, it is classified as a waste material, and is therefore considered to be part of a waste stream and strictly controlled.

1.3.1.2 The disposal of dredged and drilled material is under the London Convention 1972, the Oslo-Paris Commission (OSPAR) Convention 1992, the London Protocol 1996, and the European Union (EU) Waste Framework Directive 2008/98/EC, as well as the Welsh National Marine Plan 2019 that sets the safeguarding policy and policy principles for dredging and disposal activity (Policy SAF_01).

1.3.1.3 At the core of the Waste Framework Directive is the Waste Hierarchy (Department for Environment, Food & Rural Affairs (Defra) 2011) which comprises:

- Prevention
- Re-use

- Recycle
- Other recovery
- Disposal.

1.3.1.4 Where prevention or minimisation is not possible, management options for dealing with waste material must consider the alternative options in the order of priority indicated above (i.e. re-use, recycle, other recovery and then disposal).

1.3.1.5 The consideration of alternative solutions to the disposal of dredged material within the Mona Offshore Cable Corridor is therefore an important part of the site characterisation process and is required in order to inform the decision-making process required of the relevant authority (NRW). The following sections of this document present information on potential alternative to the disposal of dredged material from the Mona Offshore Cable Corridor.

1.3.2 Waste hierarchy

Prevention

1.3.2.1 The Waste Hierarchy places a strong emphasis on waste prevention or the minimisation of waste. However, consent is being sought for the Mona Offshore Wind Project for the use of a range of cable installation methodologies. Further information is required before the design of the Mona Offshore Wind Project can be finalised.

1.3.2.2 Sandwave clearance is expected to be required in areas where sandwave gradients are in excess of the working limits for standard cable installation equipment, to avoid unnecessary strain on the cables through bending, and to maximise ploughing efficiency and reduce the chances of burial failure. Additionally, the cable must be buried to a depth where it may be expected to stay buried for the duration of the project lifetime. Sandwaves are generally mobile in nature therefore the cable must be buried beneath the level where natural sandwave movement would uncover it. Sometimes this can only be done by removing the mobile sediments before installation takes place. Therefore, to install the export cables for the Mona Offshore Cable Corridor, sandwave clearance and the associated dredging and disposal works will in some cases be unavoidable.

1.3.2.3 As a result, the safe and effective installation of the Mona Cable Corridor infrastructure may involve installation techniques that give rise to spoil. Whilst volumes of spoil will be minimised to that necessary for safe and effective installation, it is not possible to prevent spoil generation completely.

Re-use

1.3.2.4 Where prevention is not possible, the re-use of dredged material is the preferred option. Potential options for the re-use of dredged material can include:

- Beach nourishment/replenishment schemes
- Land reclamation schemes
- Habitat enhancement schemes.

1.3.2.5 The material for disposal within the Mona Offshore Cable Corridor could potentially have alternative uses. Transfer of the volume of spoil material to another location where material could be re-used would consist of the movement of up to 1,504,000 m^3 from the Mona Offshore Cable Corridor (see Table 0). Alternative uses are most likely

to be based on land, which would require a total of up to approximately 137 dredging cycles for the Mona Cable Corridor (assuming a hopper capacity of 11,000 m^3). Each cycle would form a round trip from the closest port (for example, the Port of Liverpool).

1.3.2.6 Dredger movements would lead to additional environmental impacts due to increased vessel emissions that could be avoided if dredged material were disposed of *in situ* (i.e. close to the source of production). Barges for transporting material away from the Mona Offshore Cable Corridor may also require four-point anchoring systems at each loading point, which would also result in an additional environmental impact which the disposal of material *in situ* would preclude.

1.3.2.7 In conclusion, the assessments undertaken have not identified any significant adverse (in Environmental Impact Assessment (EIA) terms) impacts on receptors as a result of the proposed disposal activity. It is concluded that whilst potential alternative options for use of this material may exist in theory and at some point in the future, disposal *in situ* remains the most viable option. *In situ* disposal also has the advantage of retaining sediment within the local sedimentary system.

Recycle

1.3.2.8 Recycling of dredged material would involve transforming the material into a different form, for example to produce bricks or aggregate material. As outlined in the MMO guidance (MMO, 2011), these are generally land-based solutions with any material produced used in onshore construction projects. As such, the same issues with respect to vessel movements to transport the dredged material to land, as discussed above, would apply. The disposal of dredged spoil material *in situ* would preclude the additional environmental impacts that would arise.

Other recovery

1.3.2.9 There are currently very few examples of recovery from dredged material (MMO, 2011) and no such options have been identified for the spoil material from the Mona Offshore Cable Corridor.

Disposal

1.3.2.10 With regards to the potential to dispose of the produced spoil at an existing marine disposal site, the closest open marine disposal site is for Walney Extension (3 and 4), located to the east of Mona Offshore Cable Corridor.

1.3.2.11 Disposal sites are generally licensed to enable the disposal of material from specific locations and activities. It is not considered desirable to use an existing disposal site since the designation of a disposal site is based on an environmental assessment, and future additional use would need to be assessed in line with the original assessment.

1.3.2.12 In addition, the use of another site, such as the Walney Extension (3 and 4) licensed disposal site, would require the transport of the Mona Offshore Cable Corridor spoil material away from Mona Offshore Cable Corridor to another disposal site, resulting in additional vessel movements. Disposal of the spoil material *in situ* within the Mona Offshore Cable Corridor project boundary, and close to the point of production, ensures that the spoil will be returned into a broadly similar sedimentary environment. Disposal of material at another disposal site may also require hydrodynamic and sediment transport modelling studies to determine the capacity of the site to accommodate the additional spoil type and volumes.

1.3.2.13 Therefore, it is concluded that disposal at an existing marine disposal site does not represent the most efficient or environmentally acceptable approach to disposal of material from Mona Offshore Cable Corridor.

1.4 Characteristics of the disposal site

1.4.1 Physical characteristics

1.4.1.1 This section provides a summary of the physical characteristics of the Mona Offshore Cable Corridor. Further details on the physical environment are set out in Volume 6, Annex 1.1: Physical processes technical report and Volume 2, Chapter 1: Physical processes of the Environmental Statement.

Tidal and wave regime

1.4.1.2 The United Kingdom Hydrographic Office (UKHO) states that the mean tidal range at the Standard Port of Holyhead is approximately 3.65 m whilst at Douglas it is 4.55 m. Across the Mona Offshore Cable Corridor tidal flows are relatively strong during spring tides with tidal current speeds typically between 0.2 - 1.1 m/s during flood and ebb currents between 0.1 – 0.9 m/s.

1.4.1.3 Waves in the east Irish Sea are highest to the southwest of the Isle of Man with the highest mean annual significant wave height of 1.39 m recorded between the Isle of Man and Anglesey. Significant wave height is reduced closer to the coast with the lowest significant wave height of 0.73 m recorded to the west of the Dee Estuary, in proximity to the Mona Offshore Cable Corridor (ABPmer, 2008). In the Mona physical processes study area mean annual wave height ranges from 1.1 m to 1.3 m. Over 40% of the waves arise from the southwest with all significant wave heights (>4 m) arriving from the southwest or west (ABPmer, 2018). Within the Mona Offshore Wind Project mean annual wave height ranges from 1.1 m to 1.3 m. Over 40% of waves arise from the southwest and all significant wave heights greater than 4 m originate from the southwest or west (ABPmer, 2018).

Seabed geology

1.4.1.4 Across the Mona Offshore Cable Corridor, the underlying geology consists of bedrock lithologies in the region are Triassic and Carboniferous sandstone and mudstone (Mellett *et al*., 2015). The bedrock of sandstone and mudstone are covered by sediments from the Quaternary age with small areas exposed (Mellett *et al.,* 2015).

1.4.1.5 The Mona Offshore Cable Corridor is dominated by circalittoral course sediments, circalittoral mixed sediments, circalittoral rock and circalittoral sand. To the west of the Mona Offshore Cable Corridor is an important sandbank feature Constable Bank. Further towards the North Wales coast and the landfall site Bodelwyddan the composition of sediment is predominantly fine sand and muddy sand (EMODnet, 2022).

Bedforms and sediment transport

1.4.1.6 There are strong circulatory currents where tidal flows interact with headlands and embayments. The greatest sediment transport rates in estuaries and at headlands where finer sand fractions are present and where tidal currents are strongest. The littoral currents and dominant flood tide significantly increase easterly residual currents particularly along the Welsh coastline. Volume 6, Annex 1.1: Physical processes

technical report of the Environmental Statement presents the shallow water bathymetric features and sediment transport pattern during a spring tide, with bolder vectors indicating increased magnitude in proximity to the Mona Offshore Cable Corridor. This indicates how the nearshore sandwaves and associated sandbanks, such as Constable Bank which overlaps the Mona Offshore Cable Corridor are supplied with sediment.

Suspended sediments

1.4.1.7 The principal mechanisms governing Suspended Sediment Concentration (SSC) in the water column are tidal currents, with fluctuations observed across the spring-neap cycle and across the different tidal stages (high water, peak ebb, low water, peak flood) observed throughout both datasets. It is key to note that SSCs can also be temporarily elevated by wave-driven currents during storm events. During high-energy storm events, levels of SSC can rise significantly, both near bed and extending into the water column. Following storm events, SSC levels will gradually decrease to baseline conditions, regulated by the ambient regional tidal regimes. The seasonal nature and frequency of storm events supports a broadly seasonal pattern for SSC levels.

1.4.1.8 Based on the data recorded within the Morgan Offshore Wind Project: Generation Assets metocean study site, which is located in close proximity to the Mona Offshore Cable Corridor and deemed comparable, the average near bed turbidity associated is circa 2 mg/l.

1.4.2 Biological characteristics

1.4.2.1 This section provides a summary of the biological characteristics of the Mona Offshore Cable Corridor. Details for further information on each receptor are outlined in Table 1.4: below.

Table 1.4: Chapter information for further information on biological characteristics.

Receptor	Chapter reference
Benthic subtidal ecology	• Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement • Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement.
Fish and shellfish ecology	• Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement • Volume 6, Annex 3.1: Fish and shellfish ecology technical report of the Environmental Statement.
Marine mammals	• Volume 2, Chapter 4: Marine mammals of the Environmental Statement • Volume 6, Annex 4.1: Marine mammals technical report of the Environmental Statement.
Offshore ornithology	• Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement • Volume 6, Annex 5.1: Offshore ornithology baseline characterisation of the Environmental Statement.

Benthic subtidal ecology

1.4.2.2 Subtidal sediments recorded from infaunal grab samples collected across the Mona Offshore Cable Corridor during the site-specific benthic subtidal surveys are presented in Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement. In the Mona Offshore Cable Corridor the majority of sediment samples were classified as either gravelly muddy sand or sand (Figure 1.2). Gravelly muddy sands dominated the north of the Mona Offshore Cable Corridor in the area adjoining the Mona Array Area, and sands were more prevalent in the centre and south. Sample stations in the centre of the Mona Offshore Cable Corridor were typically coarser with areas of sandy gravel, gravelly sand and slightly gravelly sand. The stations closest to the landfall were mostly sand with the shallowest station being slightly gravelly sand.

1.4.2.3 Across all sample stations in the Mona Offshore Cable Corridor, the average percentage sediment composition was 80% sand, 15% gravel and 5% fine sediment. Sediments within the Mona Offshore Cable Corridor were typically very poorly sorted (40% of samples), 23% were classified as poorly sorted and 20% were classified as moderately well sorted. In the centre of the Mona Offshore Cable Corridor four sample stations were well sorted, these sites were almost entirely composed of sand, full details are included in Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement.

1.4.2.4 A total of 18 sediment samples from across the Mona Offshore Cable Corridor within were analysed for sediment chemistry. Regarding metals, levels of cadmium, chromium, copper, nickel, lead, mercury and zinc did not exceed the relevant Cefas Action Level 1 (AL1) or the Canadian Threshold Effect Level (TEL) in any of the samples. Concentrations of arsenic did however exceed Cefas AL1 at three sample stations in the Mona Offshore Cable Corridor and 17 stations were above the Canadian TEL. Levels at all stations were, however, below Cefas Action Level (AL) 2 and the Canadian Probable Effect Level (PEL). No samples exceeded the relevant Cefas ALs or the Canadian TEL or PEL for PCBs. Levels of PAHs were below the relevant Canadian TEL and PEL levels. Concentrations of organotins where below the limit of detection at all stations see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement.

1.4.2.5 Across the Mona Offshore Cable Corridor, the infaunal communities were generally dominated by annelids and crustaceans, closely followed by molluscs. The bivalve *Ensis* was overall the most abundant species with a total of 380 individuals recorded. The biomass data reflected the dominance of annelids with respect to the number of individuals and number of taxa, in 43% of stations annelids contributed the most to biomass. Molluscs and echinoderms contributed the second and third most to biomass.

1.4.2.6 The epifaunal communities recorded by the seabed imagery varied according to the type of sediment. In general, high numbers of epifaunal species were recorded in association with the coarse and mixed sediments. Epifaunal species recorded were dominated by annelids, cnidarians and echinoderms. The offshore coarse and mixed sample stations had a much greater diversity of species as well as much higher abundance. The sand-based sample stations had sparser epifaunal communities with many stations having no epifauna visible from the Drop Down Video (DDV). Some of the most prominent species across the Mona Offshore Cable Corridor included *Serpulidae, A. digitatum, A. rubens, Ophiura albida, Corymorpha nutans, Pectinidae and Metridium.*

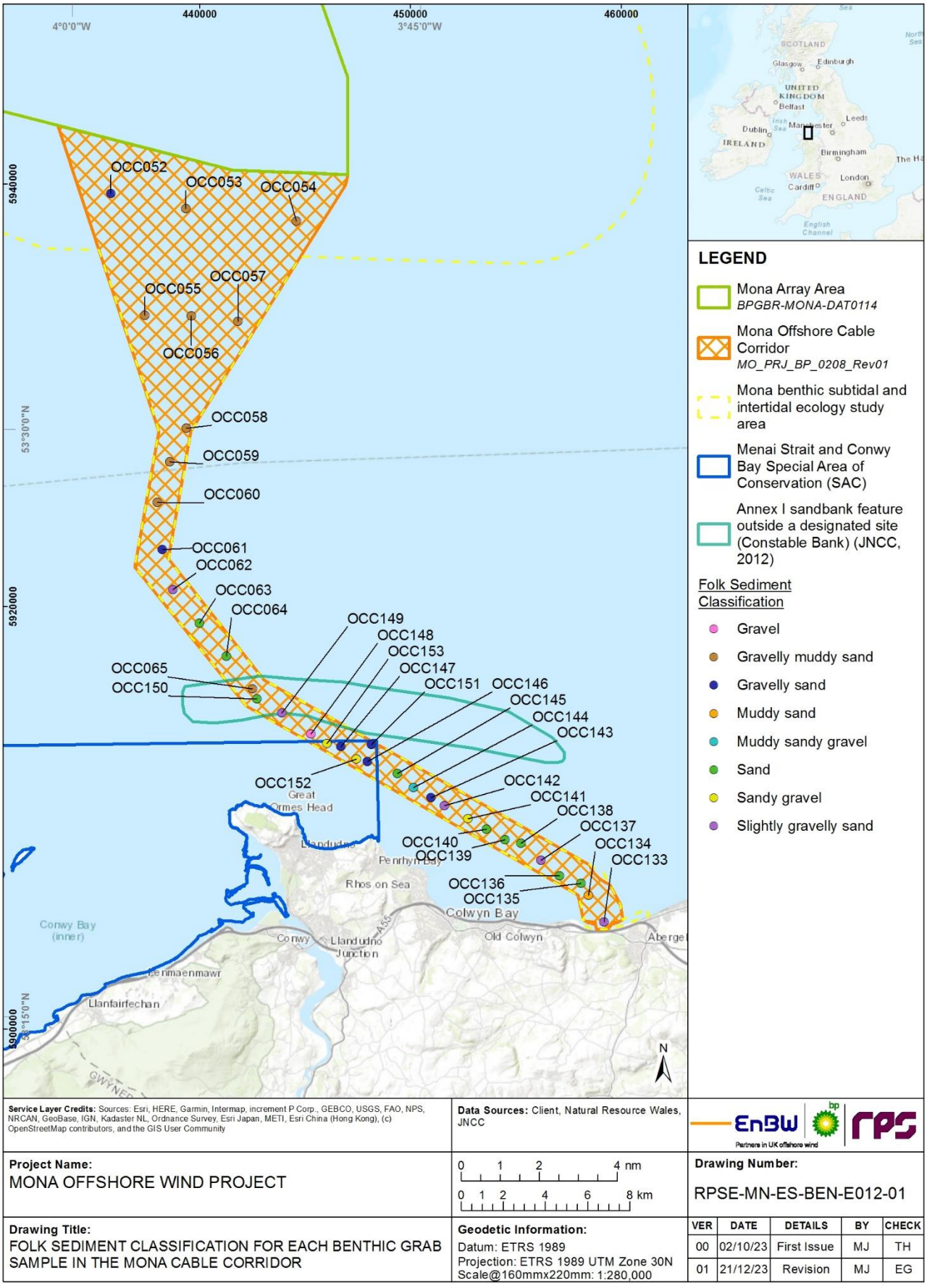

Figure 1.2: Folk sediment classification for each benthic grab sample in the Mona Offshore Cable Corridor.

Fish and shellfish ecology

1.4.2.7 Species identified as likely to be found within the fish and shellfish ecology study area (which covers the east Irish Sea, extending from MHWS west from the Mull of Galloway in Scotland to the west tip of Anglesey, following the territorial waters 12 nm limit of the Isle of Man (IoM), based on consultation with all relevant stakeholders) include:

- Demersal species – sandeel. Whiting *Merlangius merlangus*, lemon sole *Microstomus kitt*, ling *Molva molva*, plaice *Pleuronectes platessa*, cod *Gadus morhua*, and European hake *Merluccius merluccius*
- Pelagic species – herring, mackerel *Scomber scombrus*, sprat *Sprattus sprattus*, and European sea bass *Dicentrarchus labrax*
- Elasmobranch species – basking shark *Cetorhinus maximus*, lesser spotted dogfish *Scyliorhinus canicular*, tope shark *Galeorhinus galeus*, spurdog *Squalus acanthias*, common skate *Dipturus batis*, spotted ray *Raja montagui*, thornback ray *Raja clavate* and angel shark *Squatina squatina*
- Diadromous species – Atlantic salmon *Salmo salar*, European eel *Anguilla anguilla*, sea trout *Salmo trutta*, river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus*, allis shad *Alosa alosa*, twaite shad *Alosa fallax*, sparling/European smelt *Osmerus eperlanus*; and freshwater pearl mussel *Margaritifera margaritifera* (included here due to reliance on Atlantic salmon and sea trout at specific life stages)
- Shellfish species – king scallop, queen scallop, European lobster *Homarus gammarus*, edible crab *Cancer pagurus*, velvet swimming crab *Necora puber*, squid Loliginidae spp. and Ommastrephidae spp., common whelk *Buccinum undatum*, and *Nephrops*.

1.4.2.8 The site-specific survey data found that the majority of the Mona Offshore Cable Corridor and Access Areas comprised unsuitable sediment for herring spawning, with only four stations pertaining to preferred habitats within the south of the Mona Offshore Cable Corridor and Access Areas. The site-specific surveys and EMODnet seabed substrate data show overall good alignment within the Mona Offshore Cable Corridor, with the majority of stations classed as unsuitable habitat, except four stations pertaining to preferred habitats within the south of the Mona Offshore Cable Corridor. EMODnet data indicates that the Mona Offshore Cable Corridor is situated entirely within high intensity sandeel spawning grounds, with substrates mainly comprising gravelly sand and (gravelly) sand, which are preferred sandeel habitats. This was confirmed by the site-specific data PSA results, which indicated that most stations within the Mona Offshore Cable Corridor were classified as preferred habitat for sandeel spawning.

1.4.2.9 Elasmobranch species occurring within the Irish Sea include the spotted and thornback ray. Thornback ray have important spawning grounds in the east Irish Sea around Anglesey, within the fish and shellfish ecology study area (Ellis *et al*., 2012). Other elasmobranch species, including the lesser spotted dogfish and cuckoo ray, are also found throughout the east Irish sea, with both preferring gravelly or coarse sandy substrates for feeding. Basking shark migrate north to south through the Irish and Celtic Seas in August to October while travelling between north Africa and Scotland to overwinter in the 50-200 m continental shelf depth range (Doherty *et al.*, 2017).

1.4.2.10 High levels of commercial fishing of king scallop have been recorded within the wider fish and shellfish ecology study area (International Council for the Exploration of the Sea (ICES), 2020), and queen scallop in the middle of the Mona Array Area.

Marine mammals

1.4.2.11 The marine mammal species which are most likely to occur within the Mona Array Area are: harbour porpoise *Phocoena phocoeana*, bottlenose dolphin *Tursiops truncatus*, Risso's dolphin *Grampus griseus*, short-beaked common dolphin *Delphinus delphis*, minke whale *Balaenoptera acutorostrata*, grey seal *Halichoerus grypus* and harbour seal *Phoca vitulina.*

Offshore ornithology

1.4.2.12 Digital aerial surveys for seabirds have been undertaken across the Mona Offshore Ornithology Array Area study area and commenced in March 2020 and concluded in February 2022, completing a suite of 24 monthly surveys spanning two years. A total of 22 bird species were recorded, with the key species recorded in the greatest abundance/density within the Mona Array Area (and 4 km buffer) being black-legged kittiwake *Rissa tridactyla*, great black-backed gull *Larus marinus*, herring gull *Larus argentatus*, lesser black backed gull *Larus fuscus*, common guillemot *Uria aalge* razorbill, northern fulmar *Fulmarus glacialis*, manx shearwater *Puffinus puffinus*, Northern gannet *Morus bassanus.*

Designated sites

1.4.2.13 The Mona Offshore Cable Corridor overlaps with the Liverpool Bay/Bae Lerpwl SPA and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The closest Marine Conservation Zone (MCZ) is the Fylde MCZ which is located 31.3 km from the Mona Offshore Cable Corridor.

1.4.2.14 Further information and assessment of impacts to designated sites can be found in the Habitats Regulations Assessment (HRA) Stage 2 Information to Support an Appropriate Assessment (ISAA) (Document Reference E1, E1.1 and E1.2) which considers effects on sites within the national site network (SACs, Special Protection Areas (SPAs) and Ramsar sites), the Marine Conservation Zone (MCZ) Assessment (Document reference E.2) and the Volume 6, Annex 2.2: Water Framework Directive (WFD) coastal waters assessment of the Environmental Statement.

1.4.3 Human environment characteristics

1.4.3.1 This section provides a summary of the human environment of the Mona Array Area. Further detail can be found in Volume 2, Chapter 6: Commercial fisheries of the Environmental Statement, Volume 2, Chapter 7: Shipping and navigation of the Environmental Statement, Volume 2, Chapter 10: Other sea users of the Environmental Statement and their associated annexes.

Commercial fisheries

1.4.3.2 Data compiled by both the MMO (MMO, 2020a) and EU STECF[1] (EU STECF, 2017) was reviewed for the most recently available 10 year period of landings (2010 to 2020 and 2006 to 2016 respectively). MMO and EU STECF datasets were filtered to show only landings from the commercial fisheries study area (ICES Rectangles 35E5, 35E6, 36E5 and 36E6). The Mona Array Area will be located in 36E5 and 36E6. The MMO data indicate that over the period 2010 to 2020, shellfish was the most important species group in terms of landed weight and value for UK vessels, with the highest landings from ICES Rectangle 36E5 (within which the Mona Offshore Cable Corridor is located).

1.4.3.3 Dredges accounted for approximately 75% of total landings by UK vessels from the commercial fisheries study area. This indicates the importance of the queen and king scallop fisheries in the region. Pots and traps (targeting crab, lobster and whelk) were also of notable importance in the commercial fisheries study area and consisted mostly of vessels >10 m in length.

1.4.3.4 The dredge fishery targets scallops, with minimal landings of other commercial species. Landings by IoM dredge vessels are highest from 36E5 landings by Scottish dredge vessels are highest from 36E5, with notable landings from 36E6; landings by Northern Irish dredge vessels were highest from 36E5 and notable from 36E6; landings by Irish dredge vessels were highest from 36E5.

1.4.3.5 Vessel Monitoring System (VMS) data illustrating activity by otter trawl vessels (>12 m) from England, IoM and Northern Ireland was limited within the commercial fisheries study area, with the highest levels observed in the northwest part of ICES Rectangle 36E5 and predominantly close to the IoM.

1.4.3.6 Within the commercial fisheries study area, the landings data indicates that landings by vessels using beam trawl were predominantly undertaken by Belgian and south coast English fleets. The target species of this fishery are sole and plaice, which are principally taken from ICES Rectangles 36E6 and 36E5.

Marine archaeology

1.4.3.7 Geophysical data was collected within the Mona Array Area and Mona Offshore Cable Corridor. A total of 107 anomalies of potential archaeological interest were identified through the geophysical surveys. Of these, 14 are considered to be high potential anomalies, 16 are of medium potential and 74 have been classed as low potential anomalies.

1.4.3.8 Of the 14 high potential anomalies which were identified, nine are located within the Mona Offshore Cable Corridor. The 74 low potential anomalies have been assessed against all available evidence and consequently are considered unlikely to have any archaeological significance and so will not be discussed further in this report. The 16 medium potential anomalies could represent marine archaeology sites from potential debris to wreck. Full details of the medium potential anomalies and potential wrecks identified within the desktop data can be found in Volume 6, Annex 9.1: Marine archaeology technical report of the Environmental Statement. Sites identified as high or medium potential will be avoided due to the implementation of Archaeological

[1] EU STECF is a group of experts, appointed by the European Commission, that undertakes scientific work, provides scientific advice on fisheries management and implements a data collection framework.

Exclusion Zones (AEZs) included as measures adopted as part of the Mona Offshore Wind Project and further outlined in Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement.

1.4.3.9 The submerged prehistoric archaeological potential of the Mona marine archaeology study area is summarised in Volume 6, Annex 9.1: Marine archaeology technical report of the Environmental Statement.

Infrastructure and other users

1.4.3.10 There are three licenced marine aggregate extraction areas in the vicinity of the Mona Offshore Wind Project. Of these three sites, none overlap with the Mona Offshore Cable Corridor and only Liverpool Bay 457 overlaps with the regional other sea users study area.

1.4.3.11 There are no marine disposal sites within the regional other sea users study area (which is based on one tidal excursion of the Mona Array Area and the Mona Offshore Cable Corridor and Access Areas). There is a slight overlap between the east edge of the regional other sea users study area and the Liverpool Bay (sludge) B site. This site received sewage sludge and industrial waste for disposal and was closed in 1998.

1.4.3.12 There are two wreck diving sites within the regional other sea users study area, including one in the Mona Offshore Cable Corridor itself.

1.4.3.13 There are four recreational bathing sites within the regional other sea users study area:

- Llandudno North Shore
- Colwyn Bay
- Colwyn Bay Porth Eirias
- Abergele (Pensarn).

1.4.3.14 Volume 2, Chapter 10: Other sea users of the Environmental Statement illustrates that recreational sailing and motor cruising in inshore and coastal areas is of a low to medium intensity.

1.4.3.15 Sea fishing trips run from Conwy, North Wales and specialise in wreck fishing, deep sea fishing and reef fishing from Anglesey to Liverpool Bay (Sea Fishing Trips in North Wales, 2022). Sea fishing trips also operate from the IoM (Manx Sea Fishing, 2022) and Fleetwood, Lancashire (Blue Mink Boat Charters, 2022) amongst other ports along the coasts of the east Irish Sea.

1.4.3.16 There are a number of proposed and operational offshore wind farms in the east Irish Sea. There is no spatial overlap between any proposed or operational wind farms and the local other sea users study area (and therefore the Mona Offshore Cable Corridor).

1.4.3.17 There are seven active cables and one proposed cable which intersect the local other sea users study area.

1.4.3.18 No currently licenced blocks overlap with the local other sea users study area, although block 110/12a immediately to the east of the local other sea users study area is currently licenced and operated by ENI UK Ltd.

1.4.3.19 There are two main clusters of platforms with associated pipelines nearby:

- The South Morecambe cluster to the northeast of the Mona Array Area, operated by Spirit Energy

- The Douglas cluster to the southeast of the Mona Array Area (including the Offshore Storage Installation (OSI), a barge which serves as a floating oil terminal), operated by ENI.

1.5 Characteristics of material to be disposed

Physical characteristics

1.5.1.1 Subtidal sediments recorded across the Mona Offshore Cable Corridor were predominantly classified as either gravelly muddy sand or sand. Gravelly muddy sands dominated the northern part of the Mona Offshore Cable Corridor, changing to sandy gravel, gravelly sand and slightly gravelly sand in the central section. The sediment was finer at stations approaching the coast with the shallowest station being slightly gravelly sand. This aligned with the desktop data which indicated coarse and fine sand across the Mona Offshore Cable Corridor (EMODnet, 2019) as well as the site-specific geophysical data.

Chemical characteristics

1.5.1.2 As part of the subtidal survey, sediment samples were taken for the purpose of sediment chemistry analysis. Sediment hydrocarbon, metals, total organic carbon, organotins and PCB analyses were carried out by SOCOTEC, a laboratory validated by the MMO for sediment analysis to inform marine licence applications.

1.5.1.3 The concentrations of the heavy metals, PAHs and PCBs were compared to the corresponding Cefas AL1 and AL2 and the Canadian TEL and PEL. In summary, no contaminants were found to exceed Cefas AL2 or the Canadian PEL.

1.5.1.4 Regarding metals, levels of cadmium, chromium, copper, nickel, lead, mercury and zinc did not exceed the relevant Cefas AL1 or the Canadian TEL in any of the samples. Concentrations of arsenic did however exceed Cefas AL1 at three sample stations in the Mona Offshore Cable Corridor and 17 stations were above the Canadian TEL. Levels at all stations were, however, below Cefas AL2 and the Canadian PEL. No samples exceeded the relevant Cefas ALs or the Canadian TEL or PEL for PCBs. Levels of PAHs were below the relevant Canadian TEL and PEL. Concentrations of organotins where below the limit of detection at all stations.

1.5.1.5 The full results of this sediment chemistry analysis are detailed in Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement.

Biological characteristics

1.5.1.6 Information on the biological characteristics of the material to be disposed is outlined above in section 1.4.2.2 to 1.4.2.12. The locations for more detailed information on specific data categories is outlined in Table 1.5.

Table 1.5: Relevant Environmental Statement chapter for each data type.

Data type	Relevant Environmental Statement document
Contaminant analysis	• Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement • Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement.

Data type	Relevant Environmental Statement document
Seabed geology	• Volume 2, Chapter 1: Physical processes of the Environmental Statement • Volume 6, Annex 1.1: Physical processes technical report of the Environmental Statement • Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement.
Biotopes and benthic fauna	• Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement • Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement.
Fish and shellfish spawning and nursery areas	• Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement • Volume 6, Annex 3.1: Fish and shellfish ecology technical report of the Environmental Statement.

1.6 Assessment of potential adverse effects

1.6.1 Physical environment

1.6.1.1 The following section of this Site Characterisation provides an overview of the key findings for Mona Offshore Cable Corridor, as reported in the Environmental Statement, which are relevant to the disposal of dredged material *in situ* within the Mona Offshore Cable Corridor. One impact been assessed in the context of dredging and disposal activities (see Table 1.6).

1.6.1.2 It should be noted that marine processes are not in themselves receptors in the majority of cases when carrying out an impact assessment, but changes to these processes may have an impact on other sensitive receptors (Lambkin *et al.*, 2009). The receptor groups for the potential impact pathways considered within Volume 2, Chapter 1: Physical processes of the Environmental Statement lie principally in other offshore EIA topics, namely:

- Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement
- Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement
- Volume 2, Chapter 4: Marine mammals of the Environmental Statement
- Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement
- Volume 2, Chapter 9: Marine archaeology of the Environmental Statement
- Volume 2, Chapter 10: Other sea users of the Environmental Statement.

1.6.1.3 A full impact assessment has however been provided within Volume 2, Chapter 1: Physical processes of the Environmental Statement for the hydrodynamic regime and the sediment transport regime, which have been identified as potentially sensitive physical processes receptors.

1.6.2 Biological and human environment

1.6.2.1 This Environmental Statement for the Mona Offshore Cable Corridor provides detailed impact assessments related to disposal activities on a number of sensitive biological

and human environment receptors, including benthic habitats, fish and shellfish habitats, marine mammals, offshore ornithology, commercial fisheries, marine archaeology and infrastructure and other users.

1.6.2.2 For all of these assessments, the effects defined within Volume 2, Chapter 1: Physical processes of the Environmental Statement have been interpreted with regard to their subsequent impact on various receptors. The sensitivity of various receptors to these effects (increased SSC, sediment deposition and potential loss of seabed habitats) has been determined based on relevant literature and an assessment of the significance of any impacts undertaken.

1.6.2.3 Table 1.6 below provides a summary of the key impacts on physical, biological and human receptors assessed within the Environmental Statement. The relevant section of the Environmental Statement, where further details of these impact assessments are presented, is also provided.

Table 1.6: Summary of impacts relevant to the disposal of spoil within the Mona Cable Corridor disposal site.

Potential impact	Relevant section of the Environmental Statement	Magnitude of impact	Sensitivity of receptor	Significance of effect
Physical processes				
Increase in suspended sediments due to construction, operations and maintenance and/or decommissioning related activities, and the potential impact to physical features	Volume 2, Chapter 1: Physical processes of the Environmental Statement	C: Low O: Negligible D: Low	C: Low O: Low D: Low	C: Negligible - adverse O: Negligible - adverse D: Negligible - adverse
Benthic ecology				
Temporary subtidal habitat disturbance	Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement	Subtidal Important Ecological Feature (IEFs) C: Low O: Negligible D: Low Menai Strait and Conwy Bay SAC IEFs C: Low O: Negligible D: Low Intertidal IEFs C: Low D: Low	Subtidal IEFs • Medium - high Menai Strait and Conwy Bay SAC IEFs • Medium Intertidal IEFs • Negligible - high	Subtidal IEFs C: Minor adverse O: Minor adverse D: Minor adverse Menai Strait and Conwy Bay SAC IEFs C: Minor adverse O: Minor adverse D: Minor adverse Intertidal IEFs C: Minor adverse D: Minor adverse
Increase in suspended sediment concentrations and associated deposition	Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement	Subtidal IEFs C: Low O: Negligible D: Negligible Menai Strait and Conwy Bay SAC IEFs	Subtidal IEFs • Negligible – medium Menai Strait and Conwy Bay SAC IEFs • Low - medium Intertidal IEFs	Subtidal IEFs C: Negligible – minor adverse O: Negligible D: Negligible – minor adverse Menai Strait and Conwy Bay SAC IEFs

Potential impact	Relevant section of the Environmental Statement	Magnitude of impact	Sensitivity of receptor	Significance of effect
		C: Negligible - Low O: Negligible D: Negligible <u>Intertidal IEFs</u> C: Low O: Negligible D: Negligible	• Negligible - medium	C: Negligible – minor adverse O: Negligible D: Negligible <u>Intertidal IEFs</u> C: Negligible – minor adverse D: Negligible – minor adverse
Disturbance/remobilisation of sediment-bound contaminants	Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement	<u>Subtidal IEFs</u> C: Negligible D: Negligible <u>Menai Strait and Conwy Bay SAC IEFs</u> C: Negligible D: Negligible	<u>Subtidal IEFs</u> • Low <u>Menai Strait and Conwy Bay SAC IEFs</u> • Low	<u>Subtidal IEFs</u> C: Negligible D: Negligible <u>Menai Strait and Conwy Bay SAC IEFs</u> C: Negligible D: Negligible
Fish and shellfish ecology				
Temporary habitat loss/disturbance	Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement	C: Negligible to Low O: Negligible to Low D: Negligible to Low	C: Marine – Low - high Diadromous - Negligible O: Marine – Low - high Diadromous - Negligible D: Marine – Low - high Diadromous - Negligible	C: Marine - Minor adverse Diadromous - Negligible O: Marine – Minor adverse Diadromous - Negligible D: Marine – Minor adverse Diadromous - Negligible
Increased SSCs and associated sediment deposition	Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement	C: Low O: Negligible D: Low	C: Marine – Low - medium Diadromous - Low O: Marine – Low - medium Diadromous - Low	C: Marine – Minor adverse Diadromous - Negligible O: Marine – Negligible to Minor adverse

Potential impact	Relevant section of the Environmental Statement	Magnitude of impact	Sensitivity of receptor	Significance of effect
			D: Marine – Low - medium Diadromous - Low	Diadromous - Negligible D: Marine – Minor adverse Diadromous - Negligible
Marine mammals				
Changes in fish and shellfish communities affecting prey availability	Volume 2, Chapter 4: Marine mammals of the Environmental Statement	C: Low O: Low D: Low	C: Minke whale – medium. All other marine mammals – low O: Low D: Low	C: Minor adverse O: Minor adverse D: Minor adverse
Ornithology				
Temporary habitat loss/disturbance and increased SSCs	Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement	C: Negligible O: Negligible D: Negligible	C: Medium O: Medium D: Medium	C: Minor adverse O: Minor adverse D: Minor adverse
Commercial Fisheries				
Potential impacts on commercially important fish and shellfish resources	See Volume 2, Chapter 6: Commercial fisheries of the Environmental Statement.	C: Negligible – low O: Negligible – low D: Negligible – low	C: Low – medium O: Low – medium D: Low - medium	C: Negligible – minor adverse O: Negligible – minor adverse C: Negligible – minor adverse
Marine archaeology				
Sediment disturbance and deposition leading to indirect impacts on marine archaeology receptors	Volume 2, Chapter 9: Marine archaeology of the Environmental Statement	C: Low O: Low D: Low	C: High O: High D: High	C: Minor adverse O: Minor adverse D: Minor adverse

Potential impact	Relevant section of the Environmental Statement	Magnitude of impact	Sensitivity of receptor	Significance of effect
Alteration of sediment transport regimes	Volume 2, Chapter 9: Marine archaeology of the Environmental Statement	O: Low	O: High	O: Minor adverse
Infrastructure and Other Users				
Increased SSCs and associated deposition affecting recreational diving and bathing sites	Volume 2, Chapter 10: Other sea users of the Environmental Statement	C: Low O: Negligible D: Low	C: Low O: Low D: Low	C: Minor adverse O: Negligible D: Minor adverse
Reduction or restriction of oil and gas exploration activities (including surveys, drilling and the placement of infrastructure) within the Mona Array Area	Volume 2, Chapter 10: Other sea users of the Environmental Statement	C: Medium O: Medium D: Medium	C: Negligible O: Negligible D: Negligible	C: Minor adverse O: Negligible D: Minor adverse

1.7 Monitoring

1.7.1.1 Based on the findings of the impact assessments presented in the Environmental Statement, and summarised within this document, long-term impacts from the disposal of spoil and dredged material within the Mona Offshore Cable Corridor are not anticipated. This is due to the limited increase in seabed level, the low levels of contamination in sediments and the temporary nature of any sediment plumes generated.

1.7.1.2 In light of the above, and that impact assessments presented in the Environmental Statement (also see Table 1.6), concluded no significant effects to physical processes, biological or human receptors no monitoring specific to disposal is therefore proposed for the Mona Cable Corridor disposal site.

1.8 Conclusions

1.8.1.1 This document represents the site characterisation for the Mona Offshore Cable Corridor and is required by NRW to allow them to consider the potential impacts of disposal within the site. The document forms the proposal for the licensing of a disposal site within the Mona Offshore Cable Corridor for material arising from seabed preparation.

1.8.1.2 Noting that all the information required for a site characterisation to support a disposal licence application is contained within the Environmental Statement, this document takes the form of a 'framework' document that provides a summary of the key points of relevance to site characterisation and refers to more detailed information and data presented within the relevant sections of the Environmental Statement at this stage.

1.8.1.3 The source of material proposed to be disposed of within the Mona Offshore Cable Corridor will be sediment dredged from the upper layer of the existing seabed via suction hopper dredger as part of seabed preparation works ahead of cable installation.

1.8.1.4 Within the Mona Offshore Cable Corridor Disposal Site, up to a maximum of 1,504,000 m^3 of material will be disposed of *in situ*. Where trenching is required to facilitate the installation of cables to target depth, the spoil arisings will be disposed of at sea, adjacent to the trenched location. The impacts of disposal via the return of spoil material to the water column and/or the placement of spoil arisings adjacent to the trench location has been fully assessed within this document and in relevant chapters of the Environmental Statement. No effects of moderate or major adverse significance (i.e. significant in EIA terms) have been identified in relation to sediment disposal, with only negligible to minor adverse effects predicted on relevant receptors.

1.8.1.5 The deposition of sediment from disposal activities is also predicted to only result in short term, spatially discrete impacts, and the fact that the seabed material to be disposed of *in situ* is not heavily contaminated (as outlined in paragraph 1.4.2.4) has shown that contamination of surrounding sediments will be highly unlikely.

1.8.1.6 No effects of moderate or major adverse significance (i.e. significant in EIA terms) have been identified in relation to sediment disposal, with only negligible to minor adverse effects predicted on relevant receptors.

1.8.1.7 In conclusion, based on the proposals for disposal within the Mona Offshore Cable Corridor Disposal Site, the nature of the material to be disposed of, the receiving environment and the predictions of the Environmental Statement on the impact of

these activities on physical, biological and human receptors, no significant adverse impacts are predicted and disposal *in situ* is the most viable option.

1.9 References

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