Partners in UK offshore wind

MONA OFFSHORE WIND PROJECT

Preliminary Environmental Information Report

Volume 5, annex 4.1: Site Selection Area of Search Identification

Image of an offshore wind farm

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Glossary

Term	Meaning
Bodelwyddan National Grid Substation	This is the Point of Interconnection (POI) selected by National Grid for the Mona Offshore Wind Project.
Cable Route Protocol	This comprises a set of requirements developed by The Crown Estate detailed in Appendix 1, to help developers establish a transmission system infrastructure including export cabling
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project (NSIP).
Export Cable Region	The Region defined by Niras within the Round 4 HRA for the Irish Sea and North Wales bidding area where preferred bidders may place cable infrastructure
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, offshore export cables and offshore substation platforms (OSPs) forming part of the Mona Offshore Wind Project will be located.
Mona Potential Array Area	The area that was presented in the Mona Scoping Report as the area within which the wind turbines, foundations, meteorological mast, inter-array cables, interconnector cables, offshore export cables and offshore substation platforms (OSPs) forming part of the Mona Offshore Wind Project were likely to be located.
Mona Offshore Transmission Infrastructure Scoping Search Area	The area that was presented in the Mona Scoping Report as the area encompassing and located between the Mona Potential Array Area and the landfall up to Mean High Water Springs (MHWS), in which the offshore export cables and any offshore booster substation will be located.
Mona Onshore Transmission Infrastructure Scoping Search Area	The area that was presented in the Mona Scoping Report as the area located between Mean High Water Springs (MHWS) at the landfall and the onshore National Grid substation, in which the onshore export cables, onshore substation and other associated onshore transmission infrastructure will be located.
Mona Offshore Cable Corridor	The corridor located between the Mona Array Area and the landfall up to Mean High Water Springs (MHWS), in which the offshore export cables and the offshore booster substation will be located.
Mona Onshore Cable Corridor Search Area	The corridor located between Mean High Water Springs (MHWS) at the landfall and the Mona onshore substation, in which the onshore cable route will be located.
Mona 400kV Cable Corridor	The corridor from the Mona onshore substation to the Bodelwyddan National Grid substation.
Mona Proposed Onshore Development Area	The area in which the landfall, onshore cable corridor, onshore substation, mitigation areas, temporary construction facilities (such as access roads and construction compounds), and the connection to National Grid Bodelwyddan substation will be located.
Offshore Substation Platform (OSP)	The offshore substation platforms located within the Mona Array Area will transform the electricity generated by the wind turbines to a higher voltage allowing the power to be efficiently transmitted to shore.
Applicant	Mona Offshore Wind Limited.
Wind turbines	The wind turbine generators, including the tower, nacelle and rotor.
Inter-array cables	Cables which connect the wind turbines to each other and to the offshore substation platforms. Inter-array cables will carry the electrical current produced by the wind turbines to the offshore substation platforms.
Interconnector cables	Cables that may be required to interconnect the Offshore Substation Platforms in order to provide redundancy in the case of cable failure elsewhere.
Intertidal area	The area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).
Llandfall	The area in which the offshore export cables make contact with land and the transitional area where the offshore cabling connects to the onshore cabling.
The Northern Wales and Irish Sea Bidding Area	The Northern Wales and Irish Sea Bidding Area was one of four Bidding Areas identified by The Crown Estate through the Offshore Wind Leasing Round 4 process.
Preferred Bidding Areas	The Applicant identified two Preferred Bidding Areas (Morgan and Mona) within the Northern Wales and Irish Sea Bidding Area. In February 2021, The Crown Estate awarded the Applicant the right to develop up to 1.5GW of wind capacity within each of the two Preferred Bidding Areas.
Offshore Wind Leasing Round 4	The Crown Estate auction process which allocated developers preferred bidder status on areas of the seabed within Welsh and English waters and ends when the Agreements for Lease (AfLs) are signed.

Acronyms

Acronym	Description
AfL	Agreement for Lease
AoS	Area of Search
BRAG	Black, Red, Amber, Green
CRIA	Cable Route Identification and Approval
CRP	Cable Route Protocol
JNCC	Joint Nature Conservation Committee
MCZ	Marine Conservation Zone
NRW	Natural Resources Wales
POI	Point of Interconnection
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

1. Site Selection Area of Search Identification

1.1 Introduction

1.1.1 Purpose

1.1.1.1 This note summarises the work undertaken to identify the Areas of Search (AoS) for the following elements of the Mona Offshore Wind Project:

- Offshore Cable Corridor
- Landfall
- Onshore cable route
  - Onshore substation (and associated 400kV cable corridor connection to the Bodelwyddan National Grid substation).

1.1.1.2 Each infrastructure element is presented in turn in the following sections, with a summary of the data sets used and how each area of search was defined. The overall area of search is shown in Figure 1.1.

1.1.1.3 In addition, this note also outlines how the site selection activities to date comply with the relevant requirements and principles within the Cable Route Protocol (CRP) and to seek comments on it from stakeholders as part of the site selection and consideration of alternatives process.

1.2 Cable Route Protocol

1.2.1.1 The Cable Route Protocol (CRP) is a document prepared by The Crown Estate (2019) and comprises a set of requirements for offshore wind developers which are designed to manage the offshore export cable planning process with the aim of avoiding adverse effects on the integrity of Habitats Regulations sites (such as the Dee Estuary SAC, SPA and Ramsar, and the Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC). The CRP must be followed by developers as they progress project planning and they will be required to demonstrate compliance with the CRP as part of the transmission assets Agreement for Lease (AfL) application.

1.2.1.2 The CRP (2019) comprises a set of Requirements (compliance required as part of AfL application) and Principles (best practice guidance) for offshore wind developers in the planning of offshore export cable routes. Offshore wind export cabling has the potential to cause impacts in marine and coastal environments, and therefore the CRP provides these Requirements and Principles on the way in which cable route planning should be undertaken by developers to ensure good management of land and seabed, and to minimise environmental impacts.

1.2.1.3 This note is intended to provide the information outlined within the CRP where it is of particular relevance to the identification of the AoS and seeks comments as requested from stakeholders. An outline of the relevant Requirements and Principles within the CRP, in relation to the AoS, are outlined in the following sections.

1.2.2 Requirement 9

1.2.2.1 As stated above, compliance with the Requirements in the CRP is required as part of the AfL application.

1.2.2.2 Requirement 9 of the CRP is particularly relevant to the AoS and states “Within the offshore AoS the developer must identify (and map where possible) the following, which are to be given significant weight in cable route planning:

- *Habitats Regulations sites (SACs, SPAs and Ramsar sites, whether fully designated or not)*
- *Features of the Habitats Regulations sites (including priority habitats and species)*
- *Habitats Regulations sites with conservation objectives to recover features to favourable condition*
- *Areas of known Annex I habitat outside protected areas but within the AoS*
- *Habitats that are known to be irreplaceable or very difficult to replace (e.g. chalk reef).*

1.2.2.3 Having undertaken this exercise the developer must consult with statutory nature conservation bodies (SNCBs) (and where considered appropriate other relevant non-statutory consultees) to ensure that the best available evidence about the environment and specific sensitivities has been incorporated into the AoS mapping, and that the consultees have the opportunity to provide additional narrative information about particularly sensitive areas or areas of concern to them. Evidence of providing SNCBs with the opportunity to engage must be provided in the Corridor Identification and Approval for Linear Activities (CIAL).”

1.2.2.4 In response to this Requirement, the offshore area of search (within Volume 1, chapter 4: Site Selection and Consideration of Alternatives of the PEIR) has identified and mapped those sites listed above and features of the Habitats Regulations sites and species are outlined in Volume 1, chapter 4: Site Selection and Consideration of Alternatives of the PEIR.

1.2.3 Requirement 10

1.2.3.1 Requirement 10 states “Developers must prepare an outline view of the possible cabling infrastructure requirements (acknowledging that this may change as the design of the project evolves). The outline should include the potential number and capacities of the export cables with their indicative spacing requirements and the additional structures (e.g. substations and converter stations) which the project is likely to require. Where there are uncertainties in the required infrastructure these should be set out (with reasons).

1.2.3.2 Within the area of search, developers must identify (and where possible, map) hard engineering constraints such as existing infrastructure/licence areas, challenging ground conditions and sections of the coast where landfall is not possible. Developers should also form an initial view on the likely areas within the AoS where cable preparation works and/or cable protection may be needed (noting that this information is likely to change as survey work is undertaken). Where possible, this information should be presented alongside the environmental information from Requirement 9.

1.2.3.3 The developer must consult with SNCBs (and where considered appropriate, non-statutory consultees) to seek to ensure that they understand the likely infrastructure requirements and constraints, and that they have the opportunity to raise any areas of concern about placement of infrastructure (including cable protection) and specific protected sites/features. Evidence of this consultation (and the way in which SNCB concerns have been addressed) must be provided in the CIAL."

1.2.3.4 In response to this Requirement, the Mona Offshore Wind Project cabling infrastructure requirements were developed to aid in the site selection process and identification of the area of search and are outlined in section 1.2.4 below. Hard engineering constraints such as existing infrastructure areas have been mapped the current position on the cable protection that is likely to be required has been outlined in section 1.2.4.

1.2.4 Principle 3

1.2.4.1 As stated above, the Principles in the CRP provide best practice guidance on the way in which cable route planning should be undertaken by developers to ensure good management of land and seabed, and to minimise environmental impacts.

1.2.4.2 Principle 3 of the CRP is particularly relevant to this AoS note and mentions how the CRP can be applied to marine and terrestrial environments. Principle 3 in the CRP states *"The Cable Route Protocol applies specifically to Habitats Regulations Sites. However, as a matter of best practice the approach set out in the CRP may also be applied to other protected sites (both marine and terrestrial) and known sensitive habitats, and this is strongly encouraged. This includes (inter alia) MCZs and SSSIs."*

1.2.4.3 In response to this Requirement, the site selection process (within Volume 1, chapter 4: Site Selection and Consideration of Alternatives of the PEIR) specifically includes constraints mapping in relation to Habitats Regulations sites as well as other protected marine and terrestrial protected sites.

1.3 Infrastructure Requirements

1.3.1 Engineering assumptions

1.3.1.1 In response to Requirement 10, an outline view of the possible infrastructure requirements known at this stage, are provided in Table 1.1. It is important to note that these assumptions and principles may be further refined as more information is obtained about the scale of the proposed development and the constraints present.

Table 1.1: Infrastructure requirements (including additional structures).

Parameters	Up to	Notes
Offshore substation (OSP)		
Maximum number of OSPs	4	Located within the offshore array area
Foundation options	Monopile, Suction bucket monopile, Gravity base, Pinpiled jacket foundations, Suction bucket jacket foundation	A range of foundation types will be considered and presented within the Scoping Report (and EIA) for the OSPs.
Maximum topside height (m) (including crane)	+115m LAT	
Maximum topside width and length	50 x 80	
Offshore Cable Corridor		
Number of circuits	4	
Number of export cables per circuit	1	Assumes a 3 core subsea cable will be used
Working width required for offshore export cable lay (m)	2000	
Cable spacing (m)		50m minimum
Landfall		
Number of HDD drills	4	
Number of transition bays	4	One per circuit
TJB construction compound (m)	100 x 150	
Onshore cable corridor		
Number of circuits	4	
Cable corridor construction swathe	100	100m for 4 circuits
No. onshore transmission cables per circuit	3	3 power cables per circuit
No. of cable corridor construction compounds	Up to 2 primary compounds Up to 10 secondary compounds	Depends upon final length of onshore cable corridor
Cable corridor construction compound dimensions (m)	Primary compound = 150 x 150 Secondary compound = 150 x 100	
Cable spacing (m)		10m minimum spacing between trenches
Onshore substation		
Construction compound dimensions (sq/m)	250,000m^2	
Indicative onshore substation footprint (sq/m)	125,000m^2	Dimensions are for the onshore substation zone with an onshore substation building footprint within this of 105,000m^2

1.3.1.2 It is anticipated that National Grid will be required to undertake an extension to the existing NGET GIS building and substation boundary at the existing Bodelwyddan 400kV substation in order to accommodate the Mona Offshore Wind Project connection and reconfigure the existing 400kV overhead line circuits. If these alterations or extensions require planning consent, then this would be obtained by National Grid under a separate application.

1.3.2 Offshore cable protection

1.3.2.1 As far as practicable, all offshore cables will be buried. Where it is not reasonably practicable to bury cables (inter-array and export) it may be necessary to install cable protection to prevent scour and minimise the risk of damage to the cable. Full details of each the areas, volumes and assumptions for the requirement for cable protection (for both export and inter-array cables) are included in volume 1, chapter 3: Project Description of the PEIR and discussed with stakeholders through the Environmental Impact Assessment (EIA) Evidence Plan Process. The PEIR assessment has considered the use of cable protection to be laid anywhere within the Mona Array Area and Moan Offshore Cable Corridor.

1.3.2.2 An analysis of the requirement for the offshore cables to cross existing infrastructure (such as cables and pipelines) has been provided within the PEIR along with realistic worst-case design parameters to enable a detailed assessment to be undertaken.

1.4 Area of Search

1.4.1.1 The following sections summarise the work undertaken to identify the areas of search for the following elements of the Mona Offshore Wind Project:

- Offshore Cable Corridor
- Landfall
- Onshore cable route
- Onshore substation.

1.4.1.2 Each infrastructure element is presented in turn in the following sections, with a summary of the data sets used and how each area of search was defined. The overall AoS is shown in Figure 1.1.

1.4.1.3 The CRP identifies that the process of cable route planning begins with an understanding of the onshore point of interconnection – for the Mona Offshore Wind Project, this is Bodelwyddan – and then to consider a broad area of search for the possible onshore and offshore cable corridors from this point.

1.4.2 Mona Offshore Cable Corridor – area of search

1.4.2.1 The following datasets (Table 1.2) have been considered in the initial identification of the AoS. Further datasets will be identified as the project refinement for the Mona Offshore Wind Project develops in conjunction with studies undertaken in consultation with relevant stakeholders. All of the above and will be considered as part of ongoing site selection and assessment of alternatives process in combination with ongoing project refinement.

Table 1.2: Datasets for the Mona Offshore Cable Corridor AoS.

Data	Source	
Offshore Oil and Gas Wells, Surface and Subsurface Infrastructure	Oil and Gas Authority (2020)	https://dataogauthority.opendata.arcgis.com/datasets/ogaoffshore-zippedshapefiles-wgs84
Offshore Oil and Gas Pipelines inc. 250m Buffer of Pipelines	Oil and Gas Authority (2019)	https://dataogauthority.opendata.arcgis.com/datasets/pipelines-wgs84
Offshore Gas Storage Lease Areas	The Crown Estate (2019)	https://opendatathecrownestate.opendata.arcgis.com/datasets/b01d96e60991444b9199074af2b1cad0_0
Offshore Tidal Stream Lease Areas	The Crown Estate (2019)	https://opendatathecrownestate.opendata.arcgis.com/datasets/a722b677a6754187bd018ca1292af568_0
Existing Offshore Wind Farm Lease Areas, Cable Corridors and Export Cables inc. 250m Buffer of as built offshore wind farm cables within the vicinity	The Crown Estate (2020)	https://opendatathecrownestate.opendata.arcgis.com/datasets/d670e395b81147a4a24d10de74f71446_0 https://opendatathecrownestate.opendata.arcgis.com/datasets/8f9dde0758b241399964c3178f025427_0
UKHO Charted Wrecks inc. 250m Buffer	UKHO (2020)	https://data.admiralty.co.uk/portal/apps/sites/#/marine-data-portal – livefeature datasets
Protected Wrecks	Historic England (2019)	https://services.historicengland.org.uk/NMRDataDownload/Default.aspx
Marine Disposal Sites	Cefas (2020)	http://data.cefas.co.uk/#/View/407
Mineral Aggregate Areas and British Marine Aggregate Producers Association (BMAPA) Dredger Transit routes	The Crown Estate (2019) and BMAPA (2019)	Aggregate areas https://opendatathecrownestate.opendata.arcgis.com/datasets/ced5788f014546b0b571e8d29b021166_0 BMAPA dredger transit - https://www.bmapa.org/
UK Military PEXA	UKHO (2020)	https://data.admiralty.co.uk/server/rest/services/Hosted/UK_PEXA/FeatureServer
Marine Conservation Zones (MCZ)	Natural England (2019)	https://naturalenglanddefra. Opendata.arcgis.com/datasets/marineconservation-zonesengland?geometry=-14.716%2C52.003%2C6.191%2C54.308
Special Protection Areas (SPA)	JNCC (2019)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp

Data		Source
Special Areas of Conservations (SAC)	JNCC (2019)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
Annex 1 Reef Habitats	JNCC (2019)	https://data.gov.uk/dataset/3e72b108-0114-480f-80c7-dd76fa392fb9/annex-ireefs-in-uk-offshorewaters-public
Annex 1 Sandbank Habitats	JNCC (2019)	https://data.gov.uk/dataset/d19f631c-27c0-4c74-804fd76a4632b702/annex-isandbanks-in-the-uk-v2-public
Shellfish Waters	Cefas (2012)	https://magic.defra.gov.uk/Datasets/Dataset_Download_ShellfishWales.htm
IMO Shipping Routes	UKHO (2020)	https://data.admiralty.co.uk/server/rest/services/Hosted/Ships_Routeing_Measures/FeatureServer
Other Offshore Cables (Marine Themes dataset only received after undertaking the AoS exercise and were not included in the mapping but will be taken into account during the identification of the longlist of options).	Marine Themes (2019)	Licenced dataset

Identification of the Mona Offshore Cable Corridor AoS

1.4.2.2 The key drivers for the identification of the Mona Offshore Cable Corridor AoS is the location of the Mona Offshore Wind Project AfL area awarded by the Crown Estate (located to the northwest of the Gwynt y Môr, North Hoyle and Rhyl Flats (and north of the proposed Awel y Môr Offshore Windfarm)), the location of the onshore point of interconnection (Bodelwyddan) and the positioning of the key ecological designations present along the coastline to the south of this area, which are:

- Dee Estuary SAC and SPA
- Liverpool Bay Bae Lerpwl SPA
- Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC
- Anglesey Terns/Morwenoliaid Ynys Môn SPA
- Traeth Lafan/Lavan Sands,Conwy Bay SPA.

1.4.2.3 Overall, the intention has been to keep the offshore cable corridor as short as possible to minimise overall potential impacts and also to avoid the current operating windfarms (Gwynt y Môr, North Hoyle and Rhyl Flats), the proposed Awel y Môr Offshore Wind Farm, an Aggregate Production Area and a closed disposal site. This therefore created an AoS from the southern extent of the Mona Offshore Wind Project AfL, to the Welsh coastline, specifically avoiding the ecological designations listed above, with the exception of the Liverpool Bay SPA, which covers a large extent to the south east of the AfL. Due to the proximity of other operational windfarms in the area, the presence of other infrastructure (such as cable corridors) are therefore unavoidably located with the defined AoS. The offshore export cables will be located within the Offshore Cable Corridor AoS.

1.4.3 Landfall – area of search

1.4.3.1 The following datasets (Table 1.3) have been considered in the initial identification of the AoS. Further datasets will be identified as the project refinement for the Mona Offshore Wind Project develops in conjunction with studies undertaken in consultation with relevant stakeholders. All of the above and will be considered as part of ongoing site selection and assessment of alternatives process in combination with ongoing project refinement.

Table 1.3: Datasets for the landfall area of search.

Data		Source
Existing Offshore Wind Farm Cable Corridors and Export Cables inc. 250m buffer of as built offshore wind farm cables within the vicinity of the Mona Offshore Wind Project	The Crown Estate (2020)	https://opendatathecrownestate.opendata.arcgis.com/datasets/d670e395b81147a4a24d10de74f71446_0 https://opendatathecrownestate.opendata.arcgis.com/datasets/8f9dde0758b241399964c3178f025427_0
UKHO Charted Wrecks inc. 250m Buffer	UKHO (2020)	https://data.admiralty.co.uk/portal/apps/sites/#/marine-data-portal – live feature datasets
Annex 1 Reef Habitats	JNCC (2019)	https://data.gov.uk/dataset/3e72b108-0114-480f-80c7-dd76fa392fb9/annex-ireefs-in-uk-offshorewaters-public
Annex 1 Sandbank Habitats	JNCC (2019)	https://data.gov.uk/dataset/d19f631c-27c0-4c74-04fd76a4632b702/annex-isandbanks-in-the-uk-v2-public
Shellfish Waters	Cefas (2012)	https://magic.defra.gov.uk/Datasets/Dataset_Download_ShellfishWales.htm
Other Offshore Cables	Marine Themes (2019)	Licenced dataset
SPAs	JNCC (2019)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
SACs	JNCC (2019)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
Ramsar Sites	JNCC (2018)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
Sites of Special Scientific Interests (SSSI)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_SSSI
Local Nature Reserves (LNR)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_LNR
National Nature Reserves (NNR)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_NNR
Areas of Outstanding Natural Beauty (AONB)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_AONB

Data		Source
National Parks	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_NATIONAL_PARK
Country Parks	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/geonode:country_parks
Ancient Woodland	Natural Resources Wales (2016)	https://datamap.gov.wales/layers/inspire-nrw:NRW_ANCIENT_WOODLAND_INVENTORY_2021
RSPB Reserves	RSPB (2019)	https://opendatarspb.opendata.arcgis.com/
Geological Conservation Review Sites	Natural Resource Wales (2019)	Request from enquiries@naturalresourceswales.gov.uk
Regionally Important Geological and Geomorphological Sites (RIGS)	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_RIG_SITES
Main Rivers	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_MAIN_RIVERS
Flood Zones 2 & 3	Natural Resource Wales (2019)	https://datamap.gov.wales/layergroups/inspire-nrw:FloodMapforPlanningFloodZones2and3
Conservation Areas	Welsh Government (2019)	https://datamap.gov.wales/layers/inspire-wg:conservation_areas
Predictive Agricultural Land Classification	Welsh Government (2019)	https://datamap.gov.wales/layers/inspire-wg:wg_predictive_alc2
Listed Buildings	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-wg:Cadw_ListedBuildings
Scheduled Monuments	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-wg:Cadw_SAM
Historic Landscape	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_LANDMAP_Historic_Landscape
Historic Landfill Sites	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_Historic_Landfill_Sites
Source Protection Zones	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_Source_Protection_Zones
Heritage Coast	Natural Resources Wales (2018)	https://datamap.gov.wales/layers/inspire-nrw:NRW_HERITAGE_COAST
Key Settlements	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Main Roads	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Railways	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Tourist Attractions (e.g. Golf Course, Caravan Parks)	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html

Identification of the Landfall Area of Search

1.4.3.2 The key drivers for the identification of the landfall area of search was the location of the Mona Offshore Cable Corridor area of searchalong the Welsh coastline and where this avoided the ecological designations of the Dee Estuary SAC, SPA and Ramsar to the east, and the Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC to the west; and the location of the onshore point of interconnection (Bodelwyddan). The Landfall AoS was therefore positioned to avoid any direct impacts to these designations and the features protected within them. The landfall location will be located within the Landfall AoS.

1.4.4 Onshore Cable Route – area of search

1.4.4.1 The following datasets (Table 1.4) have been considered in the initial identification of the area of search. Further datasets will be identified as the project refinement for the Mona Offshore Wind Project develops in conjunction with studies undertaken in consultation with relevant stakeholders. All of the above and will be considered as part of ongoing site selection and assessment of alternatives process in combination with ongoing project refinement.

Table 1.4: Datasets for the onshore cable route area of search.

Data		Source
SPAs	JNCC (2019)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
SACs	JNCC (2019)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
Ramsar Sites	JNCC (2018)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
Sites of Special Scientific Interests (SSSI)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_SSSI
Local Nature Reserves (LNR)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_LNR
National Nature Reserves (NNR)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_NNR
Areas of Outstanding Natural Beauty (AONB)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_AONB
National Parks	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_NATIONAL_PARK
Country Parks	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/geonode:country_parks

Data	Source	
Ancient Woodland	Natural Resources Wales (2016)	https://datamap.gov.wales/layers/inspire-nrw:NRW_ANCIENT_WOODLAND_INVENTORY_2021
RSPB Reserves	RSPB (2019)	https://opendatarspb.opendata.arcgis.com/
Geological Conservation Review Sites	Natural Resource Wales (2019)	Request from enquiries@naturalresourceswales.gov.uk
Regionally Important Geological and Geomorphological Sites (RIGS)	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_RIG_SITES
Main Rivers	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_MAIN_RIVERS
Flood Zones 2 & 3	Natural Resource Wales (2019)	https://datamap.gov.wales/layergroups/inspire-nrw:FloodMapforPlanningFloodZones2and3
Conservation Areas	Welsh Government (2019)	https://datamap.gov.wales/layers/inspire-wg:conservation_areas
Predictive Agricultural Land Classification	Welsh Government (2019)	https://datamap.gov.wales/layers/inspire-wg:wg_predictive_alc2
Listed Buildings	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-wg:Cadw_ListedBuildings
Scheduled Monuments	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-wg:Cadw_SAM
Historic Landscape	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_LANDMAP_Historic_Landscape
Historic Landfill Sites	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_Historic_Landfill_Sites
Source Protection Zones	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_Source_Protection_Zones
Key Settlements	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Main Roads	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Railways	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Existing National Grid Infrastructure inc. Overhead Lines	National Grid UK (2019)	https://www.nationalgridet.com/network-andassets/network-routemaps
Tourist Attractions (e.g. Golf Course, Caravan Parks)	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html

Identification of the Onshore Cable Route AoS

1.4.4.2 The key influences on the onshore cable route area of search were the Landfall AoS along the Welsh coastline and the initial 5km area of search placed around the identified National Grid connection point of Bodelwyddan substation (see section 1.2.4). A broad area of land was then identified to join these two geographical areas, which was then further refined to avoid the Bryniau Clwyd A Dyffryn Dyfrdwy/Clwydian Range and Dee Valley AONB. The onshore export cables will be located within the Onshore Cable Route AoS.

1.4.5 Onshore Substation – area of search

1.4.5.1 The following datasets (Table 1.5) have been considered in the initial identification of the area of search. Further datasets will be identified as the project refinement for the Mona Offshore Wind Project develops in conjunction with studies undertaken in consultation with relevant stakeholders. All of the above and will be considered as part of ongoing site selection and assessment of alternatives process in combination with ongoing project refinement.

Table 1.5: Datasets for the onshore substation area of search.

Data	Source	
SPAs	JNCC (2019)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
SACs	JNCC (2019)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
Ramsar Sites	JNCC (2018)	http://archive.jncc.gov.uk/ProtectedSites/SACselection/gis_data/terms_conditions.asp
Sites of Special Scientific Interests (SSSI)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_SSSI
Local Nature Reserves (LNR)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_LNR
National Nature Reserves (NNR)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_NNR
Areas of Outstanding Natural Beauty (AONB)	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_AONB
National Parks	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_NATIONAL_PARK
Country Parks	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/geonode:country_parks
Ancient Woodland	Natural Resources Wales (2016)	https://datamap.gov.wales/layers/inspire-nrw:NRW_ANCIENT_WOODLAND_INVENTORY_2021
RSPB Reserves	RSPB (2019)	https://opendatarspb.opendata.arcgis.com/

Data	Source	
Geological Conservation Review Sites	Natural Resource Wales (2019)	Request from enquiries@naturalresourceswales.gov.uk
Regionally Important Geological and Geomorphological Sites (RIGS)	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_RIG_SITES
Main Rivers	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_MAIN_RIVERS
Flood Zones 2 & 3	Natural Resource Wales (2019)	https://datamap.gov.wales/layergroups/inspire-nrw:FloodMapforPlanningFloodZones2and3
Conservation Areas	Welsh Government (2019)	https://datamap.gov.wales/layers/inspire-wg:conservation_areas
Predictive Agricultural Land Classification	Welsh Government (2019)	https://datamap.gov.wales/layers/inspire-wg:wg_predictive_alc2
Listed Buildings	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-wg:Cadw_ListedBuildings
Scheduled Monuments	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-wg:Cadw_SAM
Historic Landscape	Historic Environment Service (Cadw) (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_LANDMAP_Historic_Landscape
Historic Landfill Sites	Natural Resource Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_Historic_Landfill_Sites
Source Protection Zones	Natural Resources Wales (2019)	https://datamap.gov.wales/layers/inspire-nrw:NRW_Source_Protection_Zones
Key Settlements	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Main Roads	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Railways	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Existing National Grid Infrastructure inc. Overhead Lines	National Grid UK (2019)	https://www.nationalgridet.com/network-andassets/network-routemaps
Tourist Attractions (e.g. Golf Course, Caravan Parks)	Ordnance Survey (2019)	https://www.ordnancesurvey.co.uk/opendatadownload/products.html

Identification of the Onshore Substation AoS

1.4.5.2 The guiding principles for locating the onshore substation are to achieve an economic and efficient connection (i.e. as close as possible to the National Grid connection point) whilst taking into account environmental constraints including siting principles set out within the Horlock Rules. The onshore substation AoS was therefore broadly defined as a 5km buffer around the grid connection point at Bodelwyddan National Grid substation. The Horlock Rules state *"Consideration must be given to environmental issues from the earliest stage to balance the technical benefits and capital cost requirements for new developments against the consequential environmental effects in order to keep adverse effects to a reasonably practicable minimum…Consideration at an early point of the study should be given to placing the electrical infrastructure as close as possible to the existing National Grid connection point (if feasible) in order to minimise the landscape and visual effects associated with introducing new electricity infrastructure to the environment*."

1.4.5.3 This 5km buffer was subsequently refined with due consideration to the overarching guidelines outlined within the Horlock Rules to avoid existing settlements and environmental designations where possible.

1.4.5.4 Key areas removed from the AoS were St Asaph with its associated Conservation Area and Listed Buildings, as well as the Main River of River Elwy, its associated Flood Zones 2 and 3 to the east. The southern boundary was refined to avoid a further stretch of the River Elwy and its associated flood zones, along with the Coedwigoedd Dyffryn Elwy/Elwy Valley Woods SAC, Coedydd Ac Ogofau Elwy A Meirchion SSSI and the Lower Elwy Valley Historic Landscape, which encompassed scattered listed buildings and Scheduled Monuments.

1.4.5.5 The boundary to the northwest of the original 5km buffer was refined to avoid the area of Bodelwyddan, including the area to the north of the A55, which includes Glan Clywd Hospital, mixed residential and commercial areas and the Bodelwyddan Conservation Area. The area to the south of the A55 was also refined, which includes First World War Practice Trenches at Bodelwyddan Park Scheduled Monument, scattered listed buildings including Bodelwyddan Castle and patches of ancient woodland. The onshore substation will be located within the onshore substation AoS.

1.5 Summary

1.5.1.1 This note has summarised the work undertaken to identify the area of searches for the Mona Offshore Wind Project and how the site selection activities to date comply with the relevant requirements and principles within the CRP in relation to the area of search.

1.5.1.2 The Applicant will continue to develop and refine the project design as it progresses towards the final application for Development Consent and will continually review the available datasets informing site selection and consideration of alternatives for all infrastructure requirements of the Mona Offshore Wind Project.

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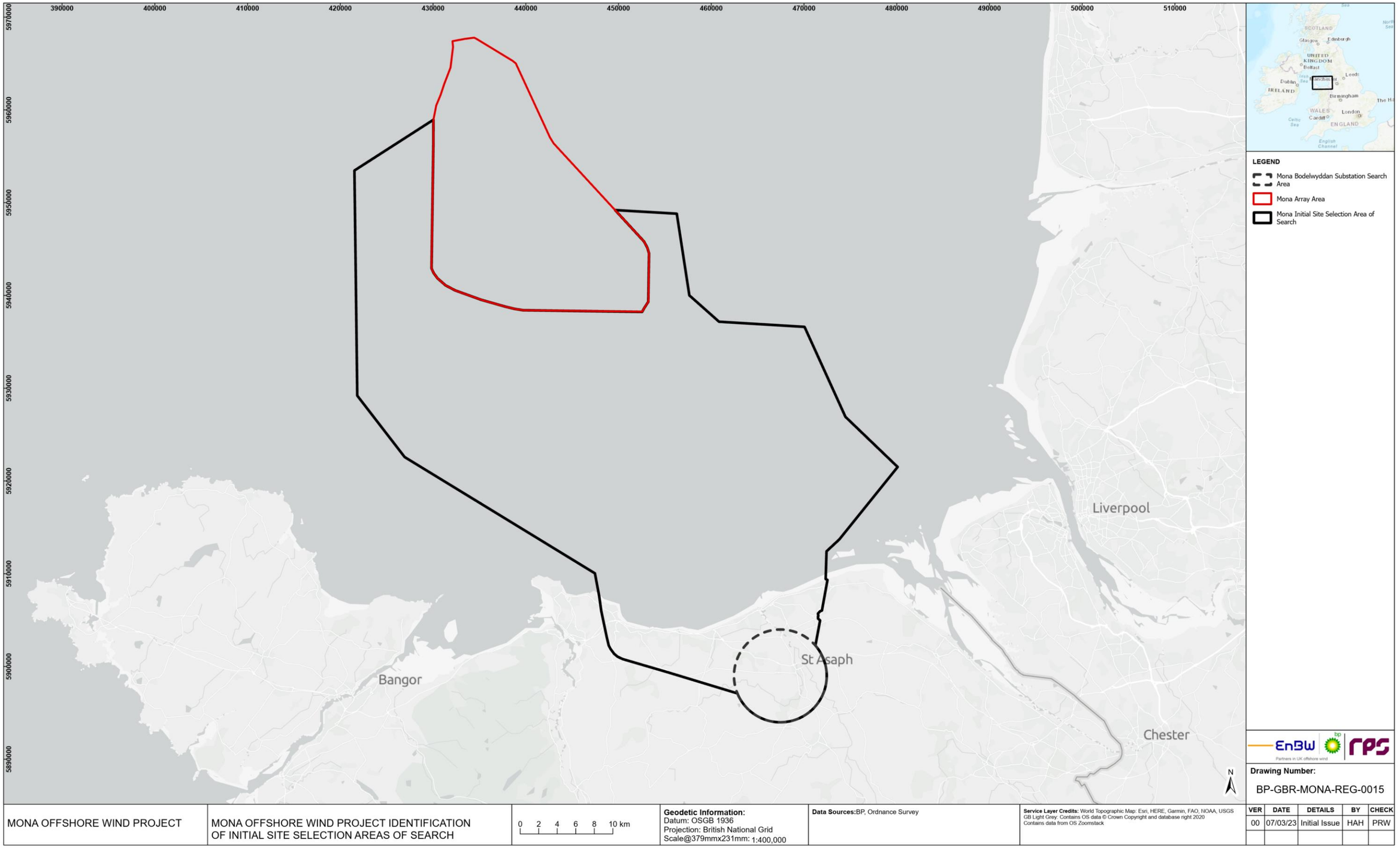

Figure 1.1: Mona Offshore Wind Project Identification of Initial Site Selection Areas of Search.