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Morlais Demonstration Zone Order

Design and Access Statement

Isle of Anglesey (Ynys Môn)

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1. INTRODUCTION

1.1. SUMMARY

1. This Design and Access Statement (DAS) has been prepared by WSP on behalf of Menter Môn Morlais Ltd (*'the applicant'*) and accompanies an application for a Transport and Works Act Order (TWAO), including an application for deemed planning permission, seeking powers to construct and operate 240MW of tidal generating capacity within the Morlais Demonstration Zone (MDZ), an area to the west of Holyhead/Holy Island on the Isle of Anglesey, North Wales. The MDZ has been identified by the Crown Estate (previously known as the West Anglesey Demonstration Zone (WADZ)) as being a suitable location for the installation of marine energy devices. The leasing rights for this area of 35 km², were awarded to Menter Môn Cyf to develop the Morlais Project.
2. The DAS has been prepared in respect of the elements (*'the Proposed Development'*) of the Project for which deemed planning permission is sought. This includes both the onshore elements and the intertidal area where the marine and terrestrial jurisdiction is shared and therefore is included in the Transport and Works Act Order (TWAO), deemed planning permission and Marine Licence applications for consent.
3. The electricity generated by the tidal generators will be brought to shore via cables that will make landfall at Abraham's Bosom, on the west coast of Holy Island, Anglesey. From the landfall substation at Ty-Mawr, the onshore electrical cable route will connect to a new onshore substation at the existing Orthios Eco-Park to the east of Holyhead, at the site of the former Anglesey Aluminium works.

1.2. THE BRIEF & VISION

4. Menter Môn's vision and brief for the Proposed Development provides the starting point for the design process. The final design of the onshore development will be subject to a detailed design phase, should the TWAO be made and the planning direction given. This will include careful consideration of suitable and appropriate design and materials, which will be agreed with the Local Planning Authority (LPA).
5. Development of the Project is being led by Menter Môn. Menter Môn is a not for profit, third sector social enterprise, delivering socioeconomic development projects across North Wales in various sectors. Menter Môn has been allocated funding from the European Union (EU) Structural Funds prioritised for marine energy in Wales. Menter Môn aims to be a community agency at the centre of renewable innovation, and to establish Anglesey as a marine energy hub, thereby securing maximum added value for the local economy and community.
6. The design of the scheme seeks to integrate its infrastructure with the surroundings and existing built form and develop locally-based skills, with social value, this is an important consideration in Menter Môn's procurement strategy. Menter Môn will identify local suppliers and contractors

to undertake each contract, in accordance with Goal 6 of the Well-Being of Future Generations Act, a Wales of vibrant culture and thriving Welsh language.

1.3. PURPOSE OF THE DESIGN & ACCESS STATEMENT

7. This DAS supports the application for a direction as to deemed planning permission for the development provided for in the Order (“the planning direction”. The DAS should be read in conjunction with the TWAO, Planning Statement and other supporting documentation. It explains the decision process; how the features of the site and its context have been considered in the design process, including the challenges and opportunities, and how design quality objectives and planning policy have been considered.
8. This DAS has been produced in line with the Welsh Government guidance written in conjunction with the Design Commission for Wales, *Design and Access Statements in Wales: Why, What and How* published in April 2017.
9. In line with the suggested structure of a Design and Access Statement noted within the Welsh Government Guidance, the following table identifies where the design objectives have been assessed in this document:

Character	Within Section 5.2
Access	Within Section 5.3
Movement	
Environmental Sustainability	N/A
Community Safety	Within Section 5.4

1.4. STRUCTURE OF THE DESIGN & ACCESS STATEMENT

10. The DAS is submitted as a supporting document, which forms part of the application for TWAO and deemed planning permission and is structured as follows:
 - **Section 2 (Description of the Proposed Development)** – describes the location of the Proposed Development, and provides an analysis of the site constraints and opportunities presented by the Site;
 - **Section 3 (Site & Context Analysis)** – sets out the relevant design and landscape policies associated with the Proposed Development;
 - **Section 4 (Interpretation & Design Development)** – sets out the process and stages in determining the proposals for the Proposed Development;
 - **Section 5 (The Proposal)** – this section provides further details on the Proposed Development in relation to character; access & movement; environmental sustainability; community safety; and planning policy;

- **Section 6 (Conclusion)** – summarises the design and access principles applied to the proposed development and how it accords with the planning policy framework.

2. DESCRIPTION OF PROPOSED DEVELOPMENT

2.1. THE PROPOSAL

11. The proposal is for the development of 240MW of tidal generating capacity within the Morlais Demonstration Zone, and associated infrastructure. Authorisation is sought for the:

Construction, Operation, Maintenance, Repowering and Decommissioning of a New Offshore Energy Generating Station with A Gross Output Capacity of Up To 240 Megawatts Comprising Tidal Stream Devices and Associated Infrastructure Offshore Together with Infrastructure, Cabling and Connection to The Existing Electricity Network Onshore'

12. A full and detailed description of the Proposed Development is provided in Chapter 4 of the Environmental Statement.

13. The Proposed Development comprises of two development areas:

- **Offshore Development Area:** including all intertidal and offshore areas where offshore infrastructure may be placed and encompassing the MDZ (covering an area of 35km²), and the export cable corridor (covering an area of 4.75km²). The Offshore Development Area is shown in **Figure 2-1** below; and
- **Onshore Development Area:** including all intertidal and onshore areas where infrastructure may be placed (covering an area of 1km²). The Onshore Development Area is shown in **Figure 2-2** below

Figure 2-1 Offshore Development Area

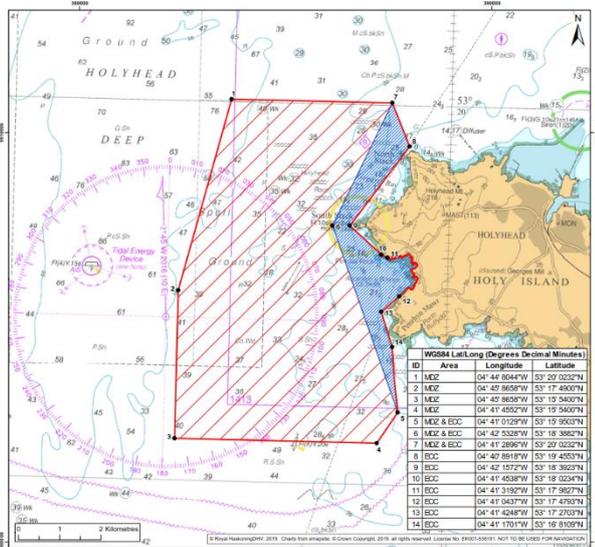
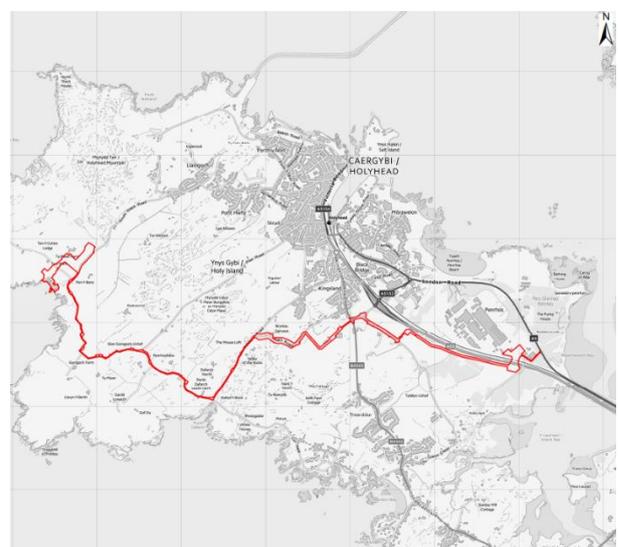


Figure 2-2 Onshore Development Area



14. The key components of the onshore works for the Proposed Development are set out below:
- Cable landfall works, including:
 - Up to nine Horizontal Directional Drilling (HDD) ducts or trenched equivalents;
 - Up to nine transition pits or bays; and
 - Up to nine export cable tails.
 - A landfall substation at Ty-Mawr (hereafter referred to as 'Landfall Substation');
 - A switchgear building at Parc Cybi (hereafter referred to as 'Switchgear Building');
 - A grid connection substation at the existing Orthios Eco-Park to the east of Holyhead (the site of the former Anglesey Aluminium works) (hereafter referred to as 'Grid Connection Substation');
 - Onshore cable circuits installed between Landfall Substation, Switchgear Building and Grid Connection Substation, and
 - Onshore cable route joint bays (along onshore cable route between Landfall Substation, Switchgear Building and Grid Connection Substation).
15. Further details of those specific aspects of the onshore development are set out in **Section 5** of this DAS.

2.2. PARAMETERS APPROACH TO ENVIRONMENTAL IMPACT ASSESSMENT

16. The Proposed Development seeks authorisation for a broad project design envelope, to enable the deployment of a variety of currently available tidal technologies, whilst allowing for the evolution of the design of tidal devices over time. The parameters of the onshore infrastructure are set out in **Appendix A**.
17. However, the range and flexibility sought within the application has been limited by the careful consideration of development scenarios designed to rationalise the likely approach to development and to set workable limits on potential impacts. The Environmental Statement (ES), which documents the assessment of potential significant environmental impacts resulting from the Proposed Development uses the project design envelope. Through this process, the impacts have been fully considered and where appropriate, mitigation has been integrated into the design. This approach has been tested in planning law and is often referred to as the 'Rochdale Envelope' approach. Further detail is described in Chapter 2 of the ES.

3. SITE & CONTEXT ANALYSIS

3.1. SITE ANALYSIS

18. This section describes the location, site and surroundings of the Proposed Development. Site analysis is a critical part of the planning and design process and has influenced the proposed development.

LANDSCAPE

19. The topography of Anglesey is generally a rolling, undulating pattern of predominantly agricultural farmland, interspersed by harder, rocky outcrops, such as Holy Island.
20. Holyhead, the main port on Anglesey is on the north side of Holy Island (which is joined to Anglesey at two points: Four Mile Bridge; and Stanley Embankment). To the west of Holy Island is another smaller island, which is the home of the South Stack lighthouse. Other islands include Llanddwyn Island, the Skerries, Ynys Moelfre, Ynys Seiriol, Ynys Cwyfan and Ynys Dulas.
21. The Site and much of Holy Island is included within the Isle of Anglesey Area of Outstanding Natural Beauty (AONB) designation. Some of the main features of the AONB are: low cliffs alternating with coves and pebble beaches; sheer limestone cliffs interspersed with fine sandy beaches; and stretches of sand dunes with beaches.
22. The AONB incorporates three sections of open, undeveloped coastline, comprising 50km of coastline in total, including the Site, which are also designated as Heritage Coast. The Wales / Isle of Anglesey Coastal Path follows a route through the Heritage Coast designation.
23. South Stack Cliffs RSPB Reserve is a protected habitat for choughs, guillemots, razorbills and puffins amongst others. The Site is located circa 200m from the Reserve. The shoreline comprises relatively hard sections of rock cliffs, rock outcrops and headlands.
24. There are a variety of natural habitats on the Island, including mudflats, dunes, marshes and beaches. The western side of the island consists mainly of Holyhead Mountain, which is an area of maritime heather moor. The coastal zone between the Island and the mainland of Anglesey is a large Site of Special Scientific Interest (SSSI), namely Beddmanarch-Cymryan. The landfall substation Site is approximately 190m (at the closest point) to the west of a Special Area of Conservation (SAC), Special Protection Area (SPA) and SSSI.
25. The site of the proposed Landfall Substation comprises of a single sloping field of pasture set in a recessed location in the landscape between an open reservoir, which is open to the public, and a covered reservoir located beneath Holyhead Mountain. The field is accessed via a track from South Stack Road. The closest residential properties are two farmsteads, circa 200m to the south-east and south-west.

26. Both the proposed switchgear building and grid connection substation at Parc Cybi and Orthios, respectively, are set within existing industrial/commercial areas on the eastern side of Holy Island, adjacent to the North Wales Expressway / A55.

MOVEMENT & INFRASTRUCTURE

27. The main road onto Holy Island from Anglesey is the North Wales Expressway / A55, utilising the Stanley Embankment. The A5 and the North Wales Coast Line are also located on the embankment, the latter terminating at Holyhead. There is a second crossing from Anglesey to Holy Island, Four Mile Bridge, which crosses the Cymryan Strait.
28. Holyhead is the main settlement on Holy Island. The Port of Holyhead serves passenger ferries travelling to and from Dublin.
29. The Landfall Substation is located north-west of South Stack Road, which the cable route corridor broadly follows to the switchgear building and Parc Cybi, albeit the cable route corridor follows both Porthdafarch Road and Mill Road.
30. Both the Switchgear Building and Grid Substation are in proximity to junction 2 of the A55, with Switchgear Building on its southern side and Grid Substation on the northern. Access to the Switchgear Building is from the A5153 from the south-west exit of junction 2 of the A55, whilst access to the Grid Substation is via the A5153 and A5 via the northeast exit of junction 2 of the A55.

BUILT FORM

31. At the Orthios Grid Connection Site, the former aluminium smelting plant is a significant built form in the landscape. Whilst a significant portion of the site has been demolished (the plant is no longer in use), there remain several 500m long structures on site, as well as other supporting infrastructure.
32. The Parc Cybi site is in proximity to a number of structures, including telecommunication equipment and a substation in the immediate vicinity, with a café, service station and hotel located further along the road.
33. The existing structures surrounding the site of the Landfall Substation are limited to a number of agricultural farmsteads.
34. Both the A5 and A55 terminate at Holyhead, which is the main settlement on Holy Island (as well as Anglesey) and has a population of circa 11,000. Other settlements on the Island include the villages of Trearddur Bay, Rhoscolyn and Four Mile Bridge.

4. INTERPRETATION & DESIGN DEVELOPMENT

4.1. INTRODUCTION

35. The following provides an overview of how the design, including the route and location of proposed structures, has developed. The key influences on the evolution of the design have included environmental considerations, DCfW comments, EIA scoping and screening responses as well as ecology, landscape and heritage factors.
36. The design of the scheme has been an iterative process, involving consideration of multiple options and informed by stakeholder engagement.

4.2. SITE SELECTION

37. Several alternatives were considered as part of the site selection process, this included reviewing the size of the Proposed Development; the location of the landfall area; location of landfall substation; the grid connection point; and onshore cable route.
38. Further details in relation to site selection are included within section 2.2 of the Planning Statement and Chapter 3 of the ES.

4.3. KEY STAGES OF SITE SELECTION

39. The table below sets out the key site selection and decisions which were made through the design process for the Proposed Development.

Table 4-1 Key Stages of Site Selection

Key Stage	Description	Rationale / Justification
Identification of Morlais Demonstration Zone	MDZ is an area of 35km ² west of Holy Island. It measures approximately 7km from north to south, 5km from east to west. The eastern boundary is approximately 500m from the shore, at its closest point.	The Crown Estate identified the MDZ as one of several development areas around the UK. It was identified because of the potential for wave and tidal energy, as well as the access to necessary infrastructure, including ports and electricity grid
Morlais Demonstration Zone Location	Menter Môn requested that the MDZ be moved north, to include more areas of greater tidal resource. The Crown Estate subsequently agreed to the request.	A review of the baseline metocean conditions highlighted that the tidal resource across the MDZ is variable and is greater to the north and east of the MDZ.
Identification of landfall area options	A long list of 15 landfall areas were identified. Across these options, there was a variety of construction techniques suitable for the variable Holy Island coastline.	Landfall sites were shortlisted based on a number of considerations including: nature conservation designations, existing infrastructure, feasibility of construction, seabed suitability for cable laying and length of export cables.
Refinement of landfall options	A short list was developed of four locations within the Abraham's Bosom area.	Consideration was given to key receptors and impacts such as noise and visual disturbance to nearby residential properties, ecological designations, foreshore and cliff line within the AONB and Heritage Coast.

Landfall Substation	<p>A long list of 13 landfall substation locations were considered. This was then shortlisted to four options, within Abraham's Bosom.</p> <p>The final site (at Tŷ Mawr Farm) (Option 1) was chosen based on further consideration of nature conservation designations and landowner discussions.</p>	<p>The Landfall Substation is located in a recessed location in the landscape, in a relatively low lying position and uses the landform to help integrate the substation (cutting into the valley side rather than building a platform out),</p>
Identification of onshore cable route areas	<p>The onshore cables will be trenched into the local road network, as far as is practicable, to minimise disturbance to the rural area and the AONB.</p> <p>The route options were broken down into segments to cover the multiple options for certain sections of the route.</p>	<p>Given the rural nature of the onshore development area, the AONB designation and in response to consultation feedback from the public and stakeholders, overhead cables were considered to be inappropriate and accordingly discounted from the scheme.</p>
Refinement of onshore cable route	<p>Onshore cable route of up to 8.1km in length, with most of the route being trenched into the local road network, as far as is practicable.</p>	<p>The route will follow the road network, to minimise visual impact and disturbance to the AONB and the rural nature of the area.</p>
Grid Connection Point and Grid Connection Substation	<p>The closest four options to the project site were considered. Those were refined to the three closest, with two on Holy Island to minimise disturbance during cable trenching works; one at the Parc Cybi employment site and one at the existing Anglesey Aluminium and Orthios site.</p>	<p>The preferred locations for connection to the existing electricity network are the switchgear building at Parc Cybi and the Grid Connection Substation at Orthios. This is due to the proximity to an existing substation for minimising visual impacts, technical considerations and the use of land within a brownfield site, to minimise disturbance to onshore ecology and residents.</p>

4.4. CONSULTATION

40. Ateb, on behalf of Menter Môn, has undertaken pre-application engagement with stakeholders, communities and landowners. This consultation exercise has informed the design of the Proposed Development and has provided an opportunity for a dialogue with stakeholders on the site selection process and refinement of the Proposed Development.
41. In summary, the engagement that informed refinement of the Proposed Development included:
- Drop-in Exhibitions held at locations within and adjacent to the onshore Proposed Development area:
 - Public Information Day (PID) held on 19th March 2019;
 - PID held over three sessions on 11th, 12th and 17th June 2019.
 - Community engagement events, focussing on town and community councillors;
 - Direct discussions with landowners, and engagement with interested parties including tenants, occupiers and other parties with land rights;
 - Menter Môn has engaged with landowners regarding survey access, through consultation meetings and during the land referencing process. Letters were sent to all affected parties offering to meet to discuss the Proposed Development;

- Menter Môn's land agents have contacted the affected landowners. Several onshore cable route change suggestions have been put forward by those affected by the red line boundary (RLB) and a result of the presence of natural and cultural heritage assets. Menter Môn has incorporated a number of those suggestions into the final design.
 - Newsletters distributed throughout the Scoping Area, as described in the Consultation Report. These newsletters were distributed prior to each PID event; in March and June 2019;
 - Provision of a dedicated project website; and
 - Regular and targeted communication with regulators and other stakeholder bodies through various means including Technical Working Group meetings, where the siting of proposed infrastructure was discussed in detail.
42. For further information on this process, please refer to the Consultation Report submitted alongside the TWAO application, as well as **Chapter 6** of the ES.

DESIGN COMMISSION FOR WALES

43. The Design Commission for Wales (DCfW) was established by the National Assembly for Wales to promote good design and to help support LPAs, developers and clients to capture the value of high-quality design for better outcomes.
44. Menter Môn has engaged with DCfW through its Design Review Service twice, including two meetings on 11th October 2018 and 6th December 2018. The Design Review Reports, produced by DCfW following these meetings, are provided at **Appendix B** of this Statement.
45. In summary, DCfW commended the initiative and commitment made by Menter Môn to date, and how the Proposed Development is an opportunity to deliver a nationally significant source of low carbon energy generation.
46. The importance of high-quality design of any of the onshore development was highlighted, and that the general principle of sensitively integrating any structures into the AONB landscape, and limiting visibility from the Wales Coast Path. DCfW noted that the buildings required need not be substantially different to other buildings in their surroundings and could take a similar form to agricultural outbuildings. Notwithstanding this, they should be of high quality in terms of materials and detailing to mitigate any impact on the AONB.

5. THE PROPOSAL

5.1. INTRODUCTION

48. This section of the DAS provides an overview of the proposed onshore development. The onshore elements have been split into component parts, and described as such, to provide a complete justification for the scheme. An explanation of the: Character; Access & Movement; Community Safety and Environmental Sustainability for each of the following components of the scheme, in addition to a response to planning policy:

- **Cable landfall & Landfall Substation**– the offshore elements of the Proposed Development will reach the land on the western coast of Holy Island, connecting the Export Cable Corridor to the Grid. The substation will house the connection between the offshore export cables and the onshore cable to the grid connection substation.
- **Onshore Cable Corridor** – an 8.1km total route between the Landfall Substation to the Switchgear Building, and on to the Grid Connection Substation.
- **Switchgear Building** – housing a 33kV switchboard room and a metering room.
- **Grid Connection Substation** – located at Orthios to enable connection to the existing electricity network through existing infrastructure.

5.2. CHARACTER

49. The proposed onshore development extends across Holy Island, connecting the offshore tidal generation devices and the Export Cable Corridor to the Grid. This is a sensitive area, due to its rural nature and location within the Isle of Anglesey AONB.

50. The three above ground elements of the development (comprising two substations and the switchgear building) have been designed to reduce the landscape and visual impacts of the Proposed Development. The structures and cable route associated with the Proposed Development have been designed to integrate with the surrounding landscape where possible. This has been achieved through the utilisation of low profile buildings which mimic the surrounding vernacular i.e. agricultural buildings.

LANDFALL & SUBSTATION

51. The Export Cable Corridor will connect the Morlais Demonstration Zone to the landfall location at Abraham's Bosom. The Landfall Substation Site is located next to existing Welsh Water reservoirs and is circa 100m from the Holy Island Coast SPA, SAC and SSSI the . Whilst visible from Holyhead Mountain and higher ground to the north, the site and built form is less visible elsewhere – the nearest residential receptor is circa 200m away.

52. There are two possible methods for the cable installation at landfall; either Horizontal Directional Drilling (HDD) or open cut trenching. Although the preferred method is HDD; this may not be

feasible, in which case open cut trenching will be used to reach landfall. The landfall substation is the connection point between the offshore export cables and the onshore cable which will route to the grid connection substation.

53. The landfall substation will be located within a field, east of the farm buildings at Tŷ Mawr Farm, and north west of South Stack Road. The proposed location of the substation within the valley takes advantage of the landform, which will help to integrate the structure within the surrounding landscape.

Scale and Layout

54. The landfall substation, within a fenced compound approximately 6,400m² in area, will be made up of three separate buildings:
- The main building - 62m by 22.5m (or equivalent area) by 7m high, housing electrical plant rooms for step-up transformers;
 - 28m by 10m (or equivalent area) by 7m high;
 - 8m by 8m by 7m high, within a compound of 28m by 36m (or equivalent area) by 7m high.
55. There will also be a separate transformer compound and external working areas and parking with electric vehicle charging points.
56. As noted in the Outline Landscape Management Plan submitted with the TWAO application, the arrangement of plant and equipment with three buildings results in a collection of buildings that break up the scale of the development and creates a form and massing that is comparable with local agricultural buildings. Furthermore, using the buildings to define the boundaries of the landfall substation will reduce the need for security fencing.

Appearance

57. The landfall substation is positioned within a valley and uses the landform to help integrate the substation into the landscape. The landfall substation will be cut into the valley side rather than building a platform out from the valley slope. There will be a retaining structure (to reduce the amount of cut) along the western and northern edges of this landfall substation site, to be constructed of stone-filled gabions, and likely combined with underlying rock. This detail will be confirmed through the detailed design stages of the process. Approximately 13,900m³ will be cut in to the landscape and a fill of approximately 130m³. The use of external lighting will be minimised and where appropriate planting will be used to help integrate the building, acknowledging the constraints of the surrounding open and exposed coastal landscape.

Figure 5-1 Baseline viewpoint from South Stack Road



58. The Landfall Station buildings will be designed to replicate existing agricultural buildings in the surrounding area. **Figure 5-1**, shows the baseline viewpoint from South Stack Road (extracted from the EIA Landscape and Visual Impact Assessment). The landfall substation will be designed to integrate with these nearby agricultural buildings and structures seen at Tŷ Mawr Farm.

Figure 5-2 Photomontage of landfall substation



59. **Figure 5-2** above shows a photomontage of the landfall substation used in the landscape and visual impact assessment as part of the ES (for illustrative purposes only). The view is from South Stack Road, near to Tŷ Mawr farm, which passes to the south of the proposed location.
60. The buildings will house equipment associated with the transfer of the electricity into the switchgear building and grid connection point. The layout of the buildings seeks to screen any external substation equipment, thereby providing visual screening and noise attenuation. The buildings will be steel portal frame structures with pitched roofs, which can be clad in timber and/or a profiled metal cladding. In terms of visual impact and the location, the buildings' design reflects existing structures in this rural area, particularly the farm buildings at the nearby Tŷ Mawr Farm.
61. Using colours and materials (including natural materials) that are consistent with the vernacular associated with agricultural buildings and the local context is important to Menter Môn. Stone walls and stock proof fencing will be used as part of new boundaries. Notwithstanding this, the

exact colours and materials of the landfall substation buildings will be confirmed at detailed design.

ONSHORE CABLE CORRIDOR

62. The 8.1km onshore cable route leads from the Landfall Substation at Tŷ Mawr Farm, to the Switchgear Building at Parc Cybi, before connecting to the Grid Connection Substation at Orthios. The onshore cable route will be subject to detailed design, which will confirm the final route, however, as far as is reasonably practicable, the route will be trenched into the local road network.
63. Due to its location within the Isle of Anglesey AONB and in response to consultation feedback, it was decided that overhead cables would not be appropriate for this Proposed Development, and therefore the cables will be buried underground.
64. From the Landfall Substation, the route follows South Stack Road in a south-westerly direction, then along Lon Isallt towards the south before following the road around to the east. Just north of Porth Dafarch, the cable route follows a north-easterly direction along Porthdafarch Road. After passing the Anglesey Outdoors Activity Centre, the route turns eastwards along Ffordd Y Felin, which is a single-lane track. Before this lane turns towards the north, the cable route will leave the road network, continuing east, meeting the access road at Holyhead Leisure Centre.
65. From this point the route crosses the B4545 Kingsland Road, briefly following the A5153, before heading southeastwards along Parc Cybi. The Switchgear Building will be located north adjacent to the existing mast at Parc Cybi, accessed from the roundabout next to the Service Area to the south. From the Switchgear Building the route will follow the line of the A55 North Wales Expressway towards the east. To cross the railway line and the A55, there will be a length of cable installation by HDD. There will be two transition pits either side of the A55 and railway line, which will measure 80m x 15m x 1.5m deep.
66. The onshore cable route will comprise of up to six power cables and two fibre optic cables in total. The maximum width of the work corridor of the cable route will be 30m. Within this corridor, the road verge and adjacent field areas may be utilised if the width of the highway is insufficient.
67. A hardstanding area of 20m x 7m (specification to be confirmed at detailed design) will be required around each joint bay to provide sufficient space for the cable pulling works. Adjacent field areas within the red line boundary may be required to accommodate this, albeit the appearance of onshore cable works, or absence thereof, would be consistent with the assessment of the landfall substation.

SWITCHGEAR BUILDING

68. From the landfall substation, the cable would be routed to the Grid Connection substation via the 33kV Switchgear Building at Parc Cybi. The Switchgear Building will house a 33kV switchboard room and a metering room and enable a connection to the local distribution network.

69. The structure will measure 9.6m x 5m, with a maximum height of 4m. The building will be located northeast of the existing substation within the Parc Cybi employment site, separated by the internal road layout. It is anticipated that the switchgear building would be constructed using materials that reflect other buildings and structures within the Parc Cybi site. The positioning of the Switchgear building, within an allocated employment site, adjacent to an existing substation and where surrounding development will be comparable in form, massing and appearance will help to integrate the site into its surroundings.

GRID CONNECTION SUBSTATION

70. The Grid Connection substation will connect the scheme to the existing electricity network, through existing infrastructure. It will be located adjacent to an existing substation and electrical infrastructure within part of the former Anglesey Aluminium works, to the north of the A55 North Wales Expressway northeast of Holy Island, in an area known as Orthios.
71. The Substation will be made up of four buildings; up to three substation buildings (two 132kV substations and one 33kV), and one static synchronous compensator (STATCOM) building. Within the compound, there will also be air-cooled reactors and cooling units. The Substation will contain up to seven energy storage systems, each with two sets of inverters, HVAC units and transformers.
72. The Substation will cover an area of up to 104m x 62m, with a maximum height of the structures of 9m. Within this area, there would be external plant and equipment, together with four buildings. The building will be positioned in an area where industrial structures form the established part of the baseline context and where established vegetation surrounding the site provides effective visual enclosure.
73. The perimeters of all three of the sites will be protected by a weld steel fence. The fencing will be designed to integrate with the local environment and landscape, whilst maintaining security for the local community, and those persons accessing the site. The minimum height of the perimeter fencing would be 1.8m tall.
74. The ES identified that there is the potential option of screening at the location of permanent above-ground infrastructure, undertaken with heritage input, to reduce landscape and visual impacts from the Proposed Development. Such screening may also be considered beneficial in screening visual impacts upon the heritage assets in the vicinity.
75. In respect of both the Grid Substation and Switchgear Building, the reinstatement of field boundaries following the construction phase, the applicant will consult with IoACC on the types/design of such boundaries e.g. stone walls, cloddiau (hedgebanks) or hedgerows.

5.3. ACCESS & MOVEMENT

76. Each of the sites (landfall substation, switchgear building, grid connection substation) will need to be accessible 24 hours and seven days per week. A secure keypad and automatic gate will ensure that only authorised persons can access the sites. Specific areas of the surrounding road

network may require works to assist with turning radius or weight distribution for vehicles navigating the Site.

77. The sub-sections below provide access details for each of the aspects of the onshore development.

LANDFALL & SUBSTATION

78. One temporary track is likely to be required during the construction phase, providing access to the transition pit or to a temporary construction compound. To create the temporary works areas, 0.15m of topsoil will be stripped back, stockpiled and protected during storage throughout the construction phase. The topsoil will be reinstated, so there will be no waste topsoil arising from this activity.
79. A temporary construction compound and laydown area will be located to the south-west of the landfall substation. Permanent access is proposed to the landfall substation during construction and operation. Access and egress will be provided via a new entrance onto South Stack Road.

SWITCHGEAR BUILDING

80. The Switchgear Building will be located within Parc Cybi, where infrastructure and roads are already developed. The existing road will be used to access this site, both for construction activities and once the scheme is operational.

GRID CONNECTION SUBSTATION

81. The grid connection substation will be located within the former Anglesey Aluminium works. This site and temporary construction compounds and laydown areas will be accessed via the existing access from the A5 London Road.

5.4. COMMUNITY SAFETY

82. It may be necessary to site outdoor equipment outside the external compound at the Landfall Substation and the Grid Connection Substation. Reinforced concrete blast walls will provide a protective barrier between adjacent transformers and enclosure whilst palisade fencing installed around the perimeter of the external compound will provide security. The palisade fencing will be installed within the substation perimeter fence. The palisade fencing would be 2.4m tall.
83. The Switchgear Building at Parc Cybi comprises a relatively small site and building which is unlikely to have an impact in respect of community safety.

5.5. ENVIRONMENTAL SUSTAINABILITY

84. The Grid Connection site and building are located on previously development land (also referred to as brownfield land) which, as stated in PPW10, should be used wherever possible in preference to greenfield sites.

85. The Outline Landscape Management Plan sets out further details in respect of the use of hard and soft materials and the management of the landscape and how this ties in with environmental sustainability.
86. The buildings will facilitate the transmission of renewable energy onto the electricity transmission network.

5.6. RESPONSE TO PLANNING POLICY

87. The Site and surrounding area are subject to a number of designations, and associated policies, within the Joint Local Development Plan (JLDP) – including AONB, SSSI, SAC and SPA designations. A detailed analysis of the scheme against the relevant planning policy context is presented in the Planning Statement.
88. The JLDP advises that all proposals will be expected to demonstrate high-quality design, which fully takes into account the natural, historic and built environment context and contributes to the creation of attractive, sustainable places, in accordance with policy PYCFF 3. In this regard, proposals should respect the context of the site and its place within the local landscape; utilise materials which are appropriate to its surroundings and takes account of the site topography. To this end, policy PYCFF 4 states that all proposals should integrate into their surroundings, including, but not limited to, demonstrating how the proposals respect the natural contours of the landscape.
89. Building on the principles of PYCFF 3 & 4, policy AMG 3 requires development not to have significant adverse impacts upon the local landscape and should harmonise with the landform and landscape. The policy applies additional consideration to development within AONBs.
90. As noted within this Statement previously, the Proposed Development is located in a recessive location in the landscape and the design utilises the surrounding landform to help integrate the proposed structures into the surroundings, in line with the criteria set out in policy AMG 3. Whilst detailed information has not been provided in respect of building design, materials and finishes at this stage, the Proposed Development will use colours and materials that are consistent and similar to those used on surrounding buildings – with this varying across the three sites (especially between the landfall substation and the two other locations).
91. Furthermore, the detailed design of the proposal will seek to minimise external lighting and seek to integrate native plant species where appropriate, albeit appreciating the constraints and appearance of the open, coastal landscape, which will be secured via condition.
92. The Planning Statement, submitted alongside this application, assesses the Proposed Development against other relevant policies within PPW, TAN 12 and the JLDP.

6. CONCLUSION

93. This Design and Access Statement forms a key part of the application for direction as to deemed planning permission for the development provided for in the application for the TWAO, for the onshore elements of the Proposed Development. It sets out the brief for the scheme, including design principles and the vision, as well as matters, such as site and context analysis, which have contributed to the development of the design of the scheme.
94. The onshore works are located across Holy Island, within the Isle of Anglesey AONB, which is predominantly rural in nature and is both in proximity to the Holy Island Coast SPA, SAC and SSSI, the Tre Wilmot SPA, SAC and SSSI, and the Beddmanarch-Cymyran SSSI, and, in part where the cable route traverses the coastal area to reach the Landfall Substation, within the Holy Island Coast (SPA, SAC and SSSI) This sensitive landscape, as well as the local environment, has been carefully considered. The iterative design process has been informed by public consultation and stakeholder engagement with communities.
95. A parameters approach to design has been adopted, which allows the Proposed Development to balance its operational requirements whilst ensuring that impacts are appropriately mitigated. In line with Welsh Government guidance, the following table summarises the Proposed Development’s compliance with the design objectives in respect to the onshore works:

Character	The three above-ground Sites have been sensitively located and designed to reduce the landscape and visual impacts of the Proposed Development. This has been achieved through careful siting within the landscape and the utilisation of low profile buildings that reflect the building vernacular in the surrounding area, as well as the cables being located underground.
Access	Each of the three sites will be accessible 24 hours a day, seven days a week. Specific parts of the surrounding road network may require works to enable vehicles to safely navigate to and from the Site.
Movement	
Environmental Sustainability	Development of brownfield land at the Orthios site.
Community Safety	On two of the Sites, it may be necessary to site equipment outside of the proposed compounds. The design incorporates protective reinforced concrete walls within the transformers and enclosure and palisade fencing provides additional security. The Switchgear Building is unlikely to have any effect on community safety.

96. The iterative design process informed by Environmental Impact Assessment and stakeholder engagement has resulted in a Proposed Development that is sensitively located within the landscape; utilising the surrounding landform and existing built environment to help integrate

the structures into the area. Siting the proposed Orthios substation at the former aluminium works both utilises brownfield land and enables connection to the existing electricity network.

97. Detailed landscape design will be developed to further integrate the buildings and structures into the local surroundings.

Appendix A

Parameters of Onshore Infrastructure

Parameter	Value
Landfall Substation	
Fenced compound	80m x 80m (or equivalent area)
Buildings	Building A: 62m x 22.5m (or equivalent area) x 7m high Building B: 28m x 10m (or equivalent area) x 7m high Building C: 8m x 8m (or equivalent area) x 7m high Building C is within a plant compound: 28m x 36m (or equivalent area) x 7m high
Temporary construction compound	50m x 100m (or equivalent area)
Substation perimeter fencing	Weld steel 1.8m tall
Palisade fencing	2.4m tall
Access / egress	Via new entrance South Stack Road
Surfaces	Hard standing 5m to 7m wide on access roads and access within substation Outdoor areas other than hard standing crushed rock 80mm to 150mm deep
Foundations	Concrete slab foundations. Slip and slab if possible Alternative piled solution if ground conditions require
Cut and fill volumes	Approx. 13,900m ³ cut and approx. 130m ³ fill.
Drainage	Foul drainage to septic tank Surface water via oil interceptors (as required) to water course, septic tank or soakaway
Lighting	110 lx directed lighting. Lit only as needed. Motion sensor activated.
Other	Facility for electric vehicle charging.
Switchgear Building	
Fenced compound	N/A
Building	Single building up to 9.4m x 5m, with a maximum height of 4m
Temporary construction compound	N/A

Parameter	Value
Palisade fencing	N/A
Access / egress	Access via the existing road to Parc Cybi employment site
Surfaces	N/A
Foundations	Concrete slab foundations. Slip and slab if possible Alternative piled solution if ground conditions require
Drainage	Surface water via oil interceptors (as required) to water course, local sewerage, or soakaway.
Lighting	110 lx directed lighting. Lit only as needed. Motion sensor activated.
Grid Connection Building	
Fenced compound	104m x 62m or equivalent area
Buildings	Building and plant to maximum height of 9m
Temporary construction compound	50m x 100m or equivalent area
Palisade fencing	2.4 m height
Access / egress	Access via existing road to Orthios site
Surfaces	Hard standing 5m to 7m wide on access roads and access within substation. Outdoor areas other than hard standing crushed rock 80mm to 150mm deep.
Foundations	Concrete slab foundations. Slip and slab if possible Alternative piled solution if ground conditions require
Drainage	Foul drainage to local sewerage network, or to septic tank. Surface water via oil interceptors (as required) to water course, local sewerage, or soakaway.
Lighting	110 lx directed lighting. Lit only as needed. Motion sensor activated.
Onshore cables	
Cable	Six power cables and two fibre optic cables. Each to a maximum of 110mm diameter.

Parameter	Value	
Cable route length	Up to 8.1km, depending on route finalisation.	
Installation methods	Cables will be laid in ducts installed into trenches. Trenches will be laid into the road and adjacent verge/field areas.	
Trench parameters (per section)	Landfall substation to switchgear building	Switchgear building to grid connection substation
Circuit	132 kV	33 kV
Trench depth	1620mm	1620mm
Trench width	1400mm	2000mm
Length	6675m	1420m
Joint pits (no.)	18	2
Joint pits chamber depth	1.65m	1.65m
Joint pits chamber width	2m	3m
Joint pits chamber length	12.5m	5m
Draw pits (to be fully reinstated following works) (no.)	35	7
Draw pit depth	1.65m	1.65m
Draw pit width	3m	5m
Draw pit length	8m	8m
Hard standing	20m x 7m hardstanding at each joint bay	

Appendix B

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