Partners in UK offshore wind

MONA OFFSHORE WIND PROJECT

Environmental Statement

Volume 7, Annex 5.7: Settings assessment (offshore infrastructure)

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Image of an offshore wind farm

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Term	Meaning
Designated historic asset	A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield, Registered Historic Landscape or Conservation Area designated under the relevant legislation.
Historic asset	An identifiable component of the historic environment. It may consist or be a combination of an archaeological site, a historic building or area, a historic park and garden or a parcel of historic landscape. Nationally important historic assets will normally be designated.
Historic environment	All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.
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.
Setting of a historic asset	The setting of an historic asset includes the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Setting is not a historic asset, though land within a setting may contain other historic assets. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.
Significant view	Significant views are identified in the Register of Parks and Gardens of Special Historic Interest in Wales as part of the registration process.

Acronyms

Acronym	Description
CIfA	Chartered Institute for Archaeologists
NG	National Grid
SLVIA	Seascape Landscape and Visual Impact Assessment
ZTV	Zone of Theoretical Visibility

Units

Unit	Description
km	Kilometres
m	Metres

1 Settings assessment (offshore infrastructure)

1.1 Introduction

1.1.1.1 This document presents the results of the assessment of potential impacts and effects arising from changes within the settings of designated historic assets as a result of the construction, operations and maintenance and decommissioning of the offshore elements of the Mona Offshore Wind Project. For clarification, the elements with the potential to cause such impacts comprise the wind turbines and offshore substation platforms, thus the assessment is restricted to these elements.

1.2 Settings assessment study area

1.2.1.1 The study area for this assessment (hereafter referred to as the offshore settings study area) comprises a 50 km buffer around the Mona Array Area) and is presented on Figure 1.1. It is based on the study area and maximum design scenario (see Table 1.6) developed for the Seascape Landscape and Visual Impact Assessment (SLVIA) undertaken for the Mona Offshore Wind Project, as set out in Section 8.1.2 of Volume 2, Chapter 8: Seascape and visual resources of the Environmental Statement, which was defined through consideration of the turbine blade tip Zone of Theoretical Visibility (ZTV). This is an area defined by a computer-generated tool to identify the likely (or theoretical) extent of visibility of a development.

1.2.1.2 Whilst the wind turbines and offshore substation platforms within the Mona Array Area may be visible at distances in excess of 50 km, this eventuality is scoped out of assessment because:

- At distances over 50 km, the apparent height of the wind turbines and offshore substation platforms would appear very small and this along with the limitations of the human eye in distinguishing shapes at such distances will result in the structures being experienced as recessive, barely noticeable elements in the setting of historic assets outside the offshore settings study area (based upon consultation with NRW presented in Table 8.5 of Volume 2, Chapter 8: Seascape and visual resources of the Environmental Statement)
- The influence of earth curvature begins to limit the apparent height and visual influence of the wind turbines and offshore substation platforms visible at long distances, as the lower parts of the wind turbines and all of the offshore substation platforms would be partially hidden behind the apparent horizon, leaving only the upper parts visible above the skyline
- The variation of weather conditions influencing visibility off the coast has also informed the SLVIA and hence this offshore settings study area. Meteorological Office visibility data gathered over a 10-year period (2012-2021) indicate that visibility beyond 50 km is likely to occur infrequently. The data is presented in full in Volume 6, Annex 8.4: Seascape, landscape and visual resources impact assessment methodology of the Environmental Statement.

Given the above, there is negligible potential for the wind turbines and offshore substation platforms to affect the setting of historic assets that are more than 50 km from the Mona Array Area in such a way that their heritage significance might be adversely affected. A methodology for the assessment, including the identification of the offshore settings study area, was submitted to stakeholders (Cadw, Historic

England and Manx National Heritage) for information purposes. A response was received from Cadw confirming that the methodology was accepted.

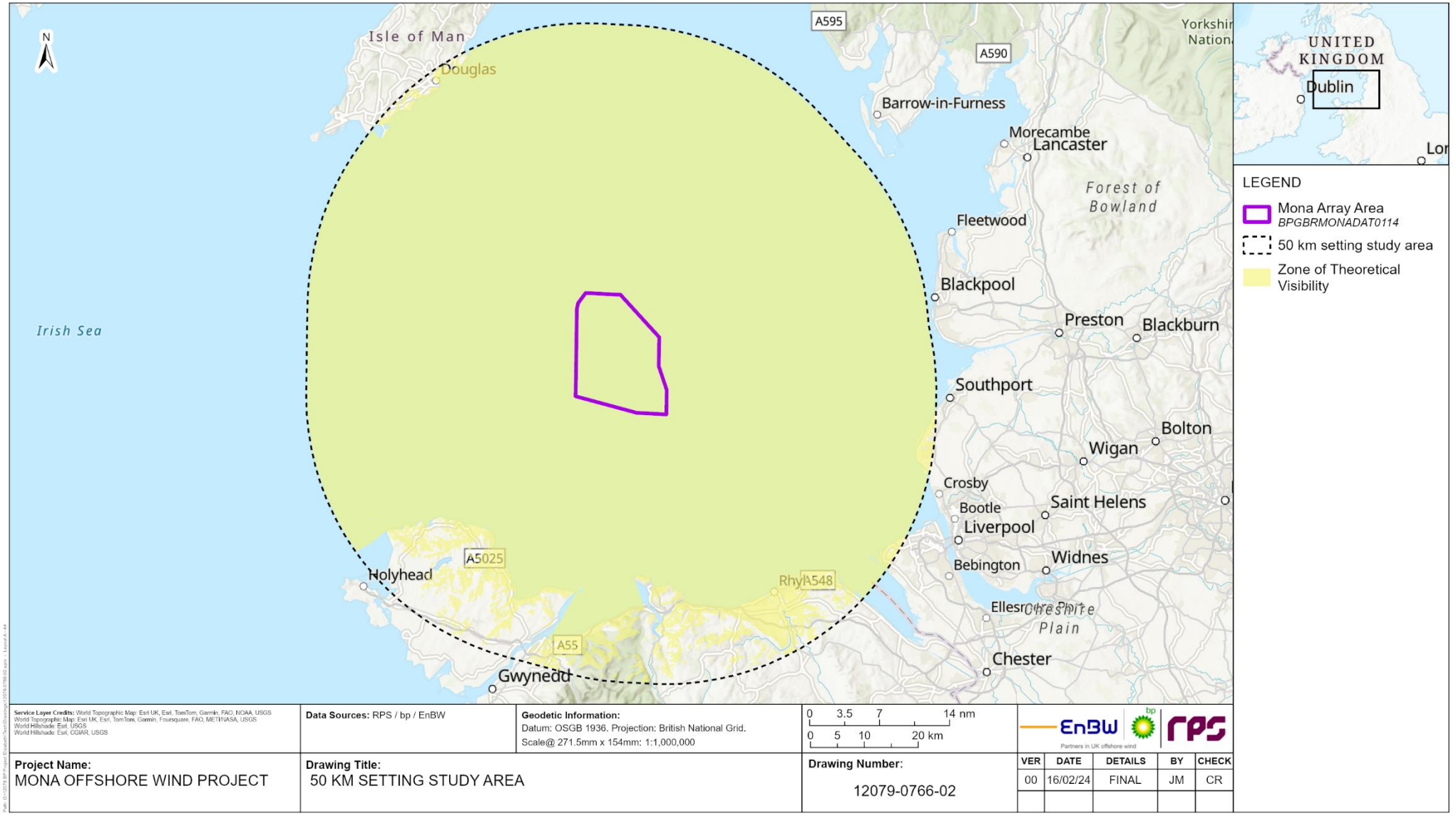

Figure 1.1: Settings study area including the ZTV.

1.3 Methodology

1.3.1 Introduction

1.3.1.1 The methodology submitted is included as Appendix A and is summarised here. It was prepared with reference to appropriate guidance including the following documents:

- Setting of Historic Assets in Wales (Cadw, 2017a)
- Heritage Impact Assessment in Wales (Cadw, 2017b)
- The Setting of Heritage Assets (Historic England, 2017)
- Principles of Cultural Heritage Impact Assessment in the UK (IEMA *et al*, 2021)
- Guidelines for Landscape and Visual Assessment in the UK (Landscape Institute, 2013)
- Standard and Guidance for Historic Environment Desk Based Assessment (CIfA, 2020)
- Conservation Principles for the Sustainable Management of the Historic Environment in Wales (Cadw, 2011).

1.3.1.2 Due to the location of the Mona Array Area, the majority of the onshore designated historic assets which have been assessed are located in Wales. Consequently, the definition of setting (of a historic asset) used for the assessment is the one provided in Technical Advice Note 24 (TAN24):

'*The setting of a historic asset includes the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Setting is not a historic asset, though land within a setting may contain other historic assets*' (Welsh Government, 2017, Annex D).

1.3.1.3 It is considered that the definition of setting provided above is suitable for the assessment regarding historic assets located in England and the Isle of Man.

1.3.1.4 Whilst development in general may affect the setting of heritage assets in a range of ways, including factors such as noise and odour, this assessment considers impacts resulting from visual change only. At its closest points, the Mona Array Area is located approximately 28.8 km from Anglesey, 31.2 km from mainland north Wales, 46.9 km from the Lancashire coast and 46.8 km from the Isle of Man. Consequently, there is no potential for the wind turbines and offshore substation platforms within the Mona Array Area to affect the setting of onshore historic assets other than visually.

1.3.1.5 The settings assessment has considered only designated historic assets. This reflects the importance attached to their settings by statute and policy, and hence the greater likelihood of significant effects as a result of change within their settings. Designated historic asset types considered within the assessment comprise:

- World Heritage Sites
- Scheduled Monuments (Wales and England)
- Ancient Monuments (Isle of Man)
- Listed Buildings (Wales and England)
- Registered Buildings (Isle of Man)

- Registered Historic Parks and Gardens (Wales and England)
- Registered Battlefields (England)
- Inventoried Historic Battlefields (Wales)
- Registered Historic Landscapes (Wales only).

1.3.1.6 The settings assessment has examined data from a number of sources, principally the Cadw website (Cof Cymru) but also the equivalent datasets which cover England and the Isle of Man (https://historicengland.org.uk/listing/the-list and https://isleofmanher.im). The locations of designated historic assets within the offshore settings study area and within the ZTV were identified and plotted.

1.3.2 Consultation

1.3.2.1 A summary of the key matters raised during consultation activities undertaken to date specific to offshore settings is presented in Table 1.1 below, together with how these comments have been considered in the production of this chapter.

1.3.2.2 A methodology for the assessment, including the identification of the offshore settings study area, was submitted to stakeholders comprising Cadw, Historic England and Manx National Heritage for information purposes. A response was received from Cadw confirming that the methodology was accepted.

Table 1.1: Summary of key consultation comments raised during consultation activities undertaken for the Mona Offshore Wind Project relevant to offshore settings.

Date	Consultee and type of response	Comment raised	Response to comment
01 June 2023	Manx National Heritage response to PEIR	MNH would expect that the forthcoming EIA would consider the following issues: Visual impact of proposals on the setting of protected monuments on the east side of the watershed of the Island, given the proximity of the western edge of the study area, this could involve approximately 25 monuments. The impact could be considered limited, but there are some flagship sites such as Castle Rushen and Laxey Wheel which are major tourist assets of national and economic significance to the Island where the impact should be considered more holistically.	Offshore settings are considered within this document and summarised within Volume 3, Chapter 5: Historic environment of the Environmental Statement
13 February 203	Cadw in response to methodology notification	Cadw expressed satisfaction with the offshore settings assessment methodology to be applied.	Noted

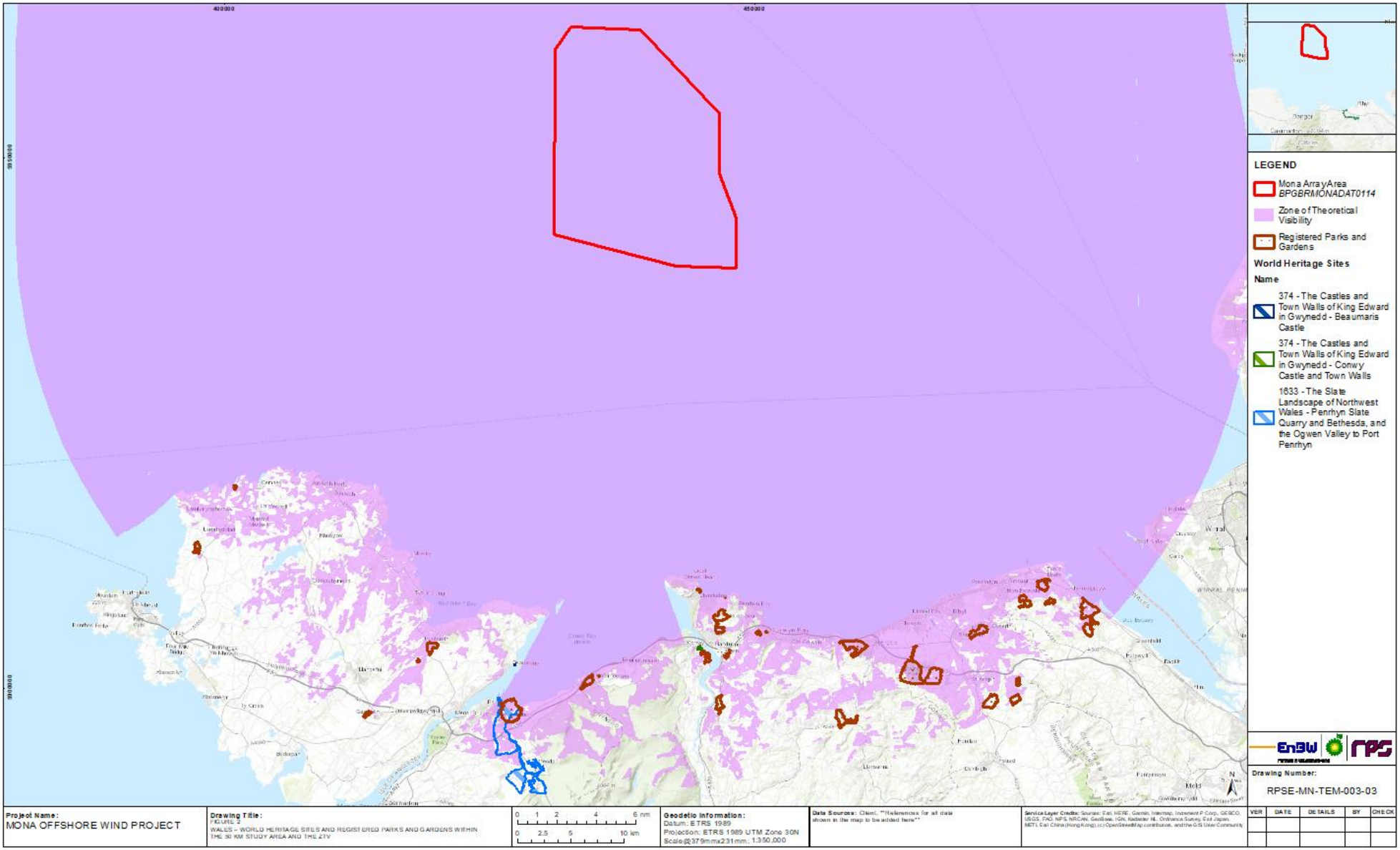

Figure 1.2: Wales - World Heritage sites and registered parks and gardens within the offshore settings study area and the ZTV.

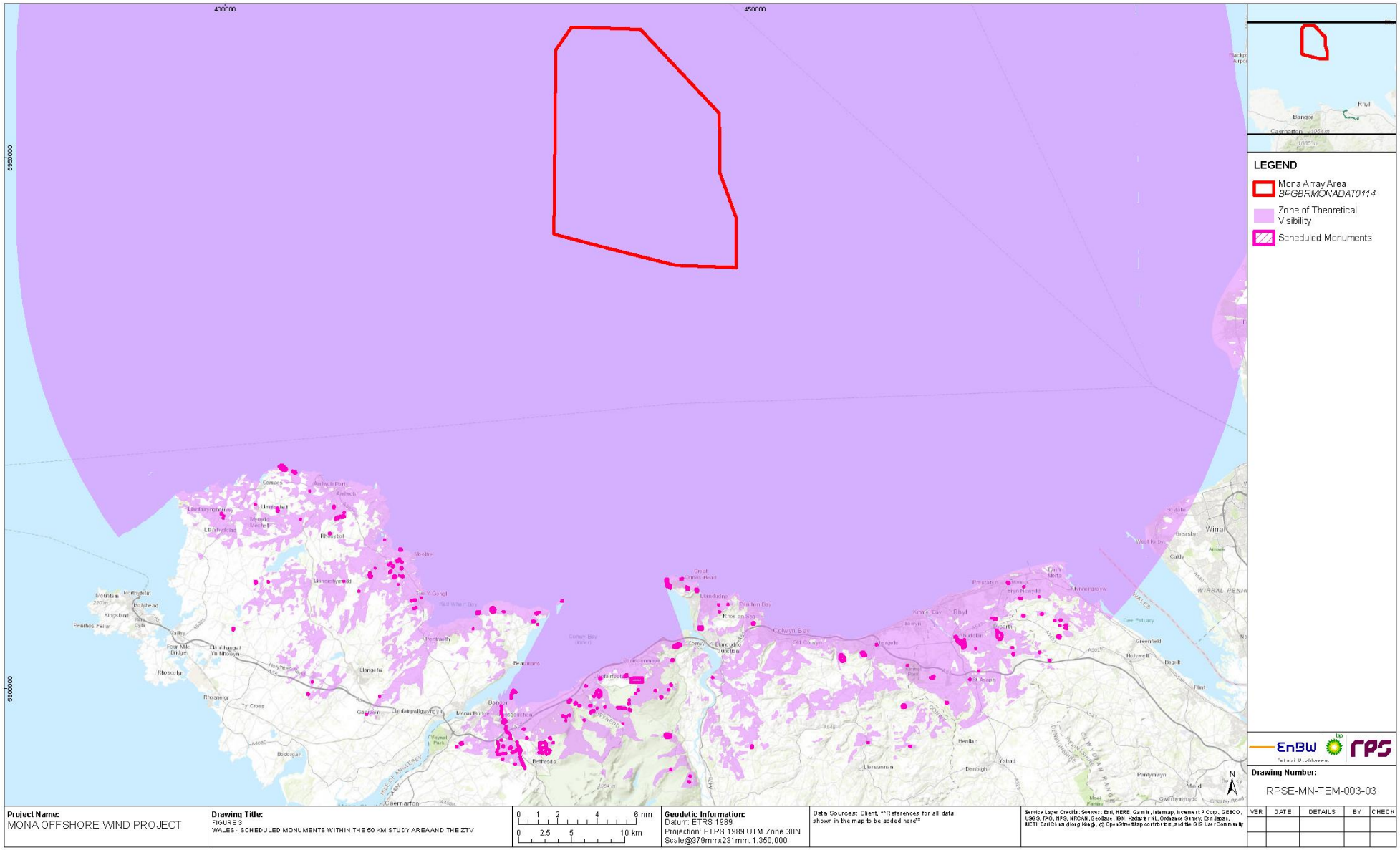

Figure 1.3: Wales - Scheduled monuments within the offshore settings study area and the ZTV.

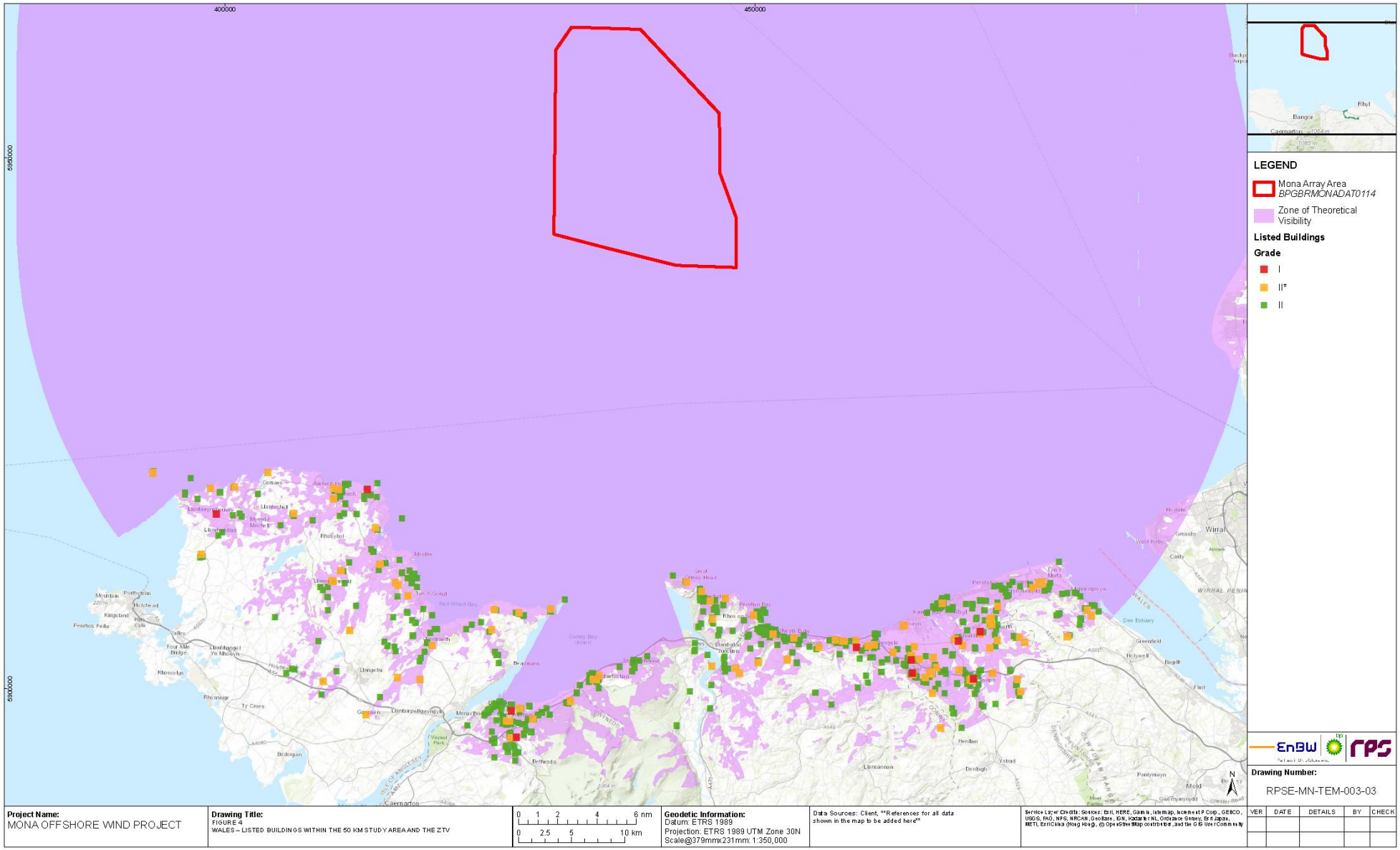

Figure 1.4: Wales - Listed buildings within the offshore settings study area and the ZTV.

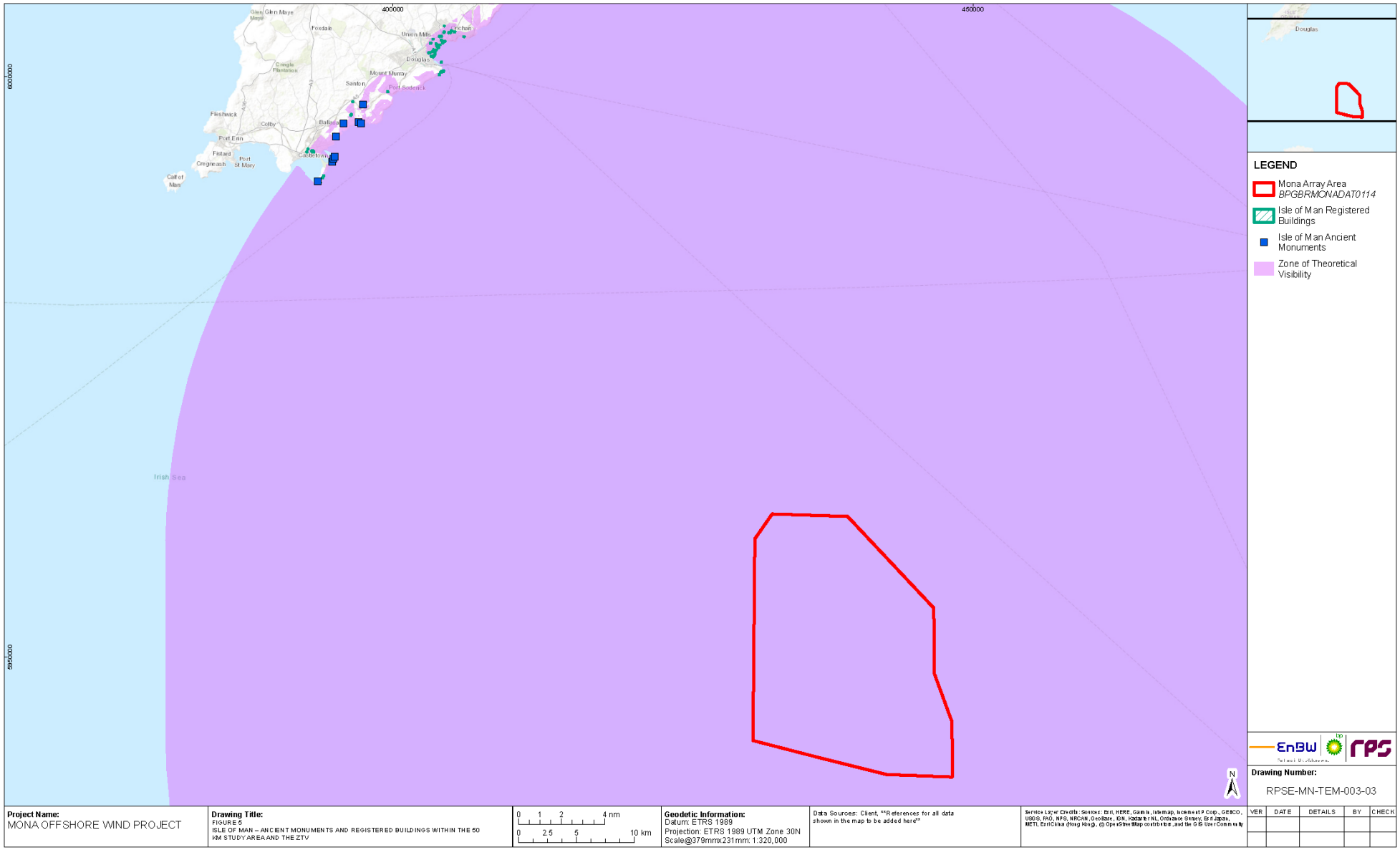

Figure 1.5: Isle of Man – ancient monuments and registered buildings within the offshore settings study area and the ZTV.

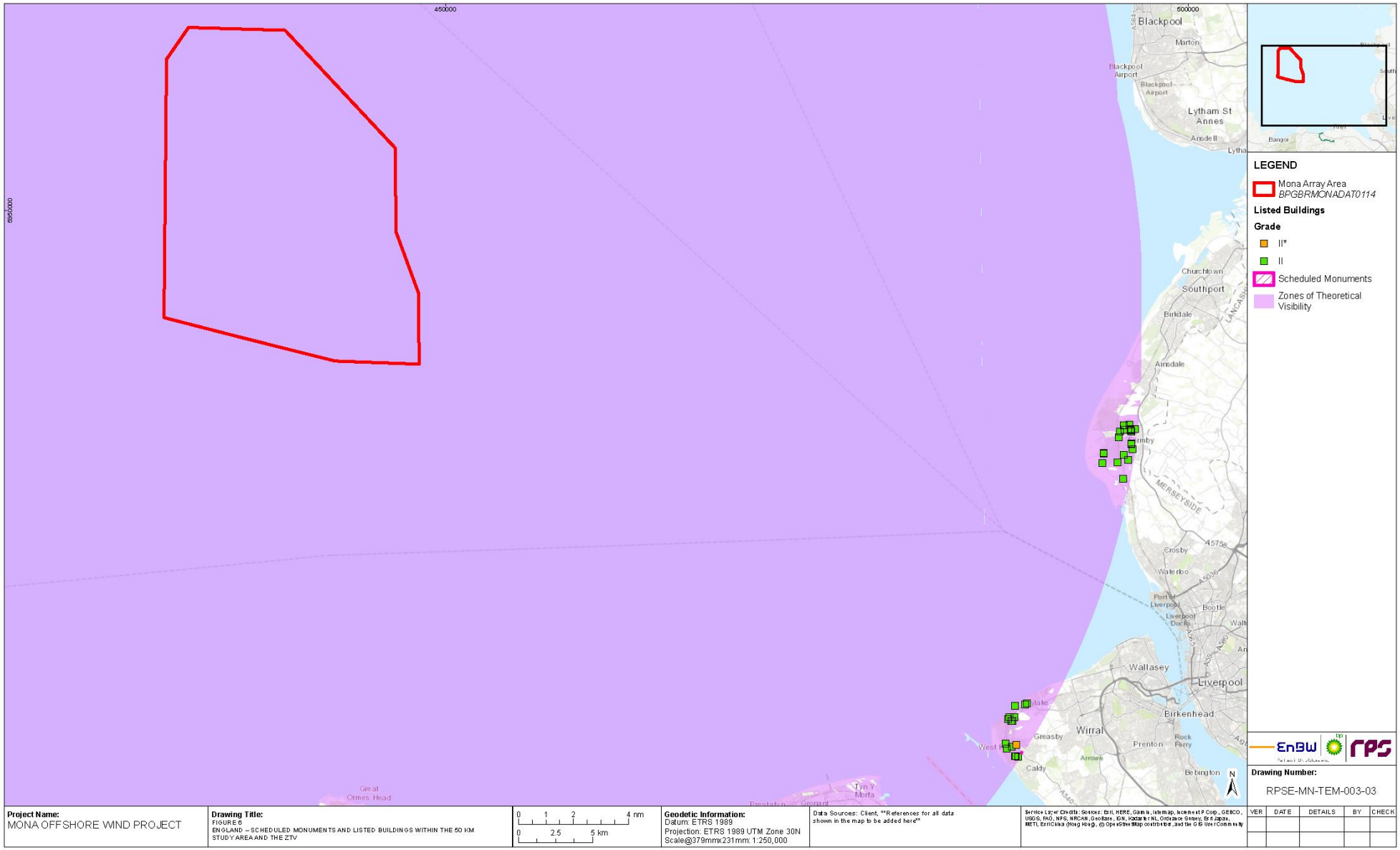

Figure 1.6: England – scheduled monuments and listed buildings within the offshore settings study area and the ZTV.

1.3.3 Screening

1.3.3.1 The overarching methodology for the assessment of impacts and effects on historic assets is set out in Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. The settings assessment specific methodology is presented in Appendix A of this document. A matrix based approach is used, in which the magnitude of impact on a heritage asset is considered alongside the sensitivity/value of the asset in order to determine the significance of effect.

1.3.3.2 Given that impact is determined with reference to heritage significance, simple intervisibility and visual change in a historic asset's setting cannot be equated directly with an adverse impact; in many instances where the structures within the Mona Array Area will be visible from historic assets or otherwise appear in their setting, this will represent a neutral change as the historic asset's heritage significance does not draw upon a visual or historic relationship with the seascape.

1.3.3.3 A screening exercise was therefore undertaken to identify which of the designated historic assets within the offshore settings study area and within the ZTV were likely to have a meaningful visual or clear historic relationship with the seascape that contributes substantively to their heritage significance potential. Such relationships are most frequently related to:

- The historic function of the asset; examples include prehistoric promontory forts, coastal gun batteries and observation posts, mariners' landmarks/beacons, and lighthouses
- Deliberate aesthetic relationships where the asset has been designed with reference to views out to sea; examples include promenade hotels, and parks and gardens with seaward vistas
- Locations where the sea forms an important backdrop; examples include war memorials in seafront locations or ruins on coastal cliffs.

1.3.3.4 Historic assets within the categories identified above were screened into the assessment. A precautionary approach was used (i.e. assets were screed into the assessment if there was any level on uncertainty). Site visits were undertaken in February 2024 to confirm visibility towards the Mona Array Area and gain a fuller understanding of the current settings of these assets and the contribution of the setting to their heritage significance. Where site visits were not possible due to location (such as assets on small islands with no regular access) the understanding of the current settings of these assets and the contribution of the setting to their heritage significance was based on review of available information. For some other assets screened into the assessment, the understanding of the current settings of these assets and the contribution of the setting to their heritage significance was based on previous examination by the assessment team in respect of other proposed developments.

1.3.3.5 Table 1.2 shows the numbers of designated historic assets within the offshore settings study area and within the ZTV. The locations of these designated historic assets are indicated in Figure 1.2 to Figure 1.6.

Table 1.2: Designated historic assets within the offshore settings study area and within the ZTV.

Designation	Number
World Heritage Sites	Wales: 2

Designation	Number
Scheduled Monuments	Wales: 302 England: 2
Ancient Monuments	Isle of Man: 78
Listed Buildings	Wales: 3254 (69 Grade I; 248 Grade II*; 2927 Grade II) England: 47 (0 Grade I; 1 Grade II*: 46 Grade II)
Registered Buildings	Isle of Man: 161
Registered Historic Parks and Gardens	Wales: 43 (5 Grade I; 11 Grade II*; 27 Grade II)
Registered Historic Landscapes	Wales: 9

1.3.3.6 The locations of historic assets screened into the assessment are presented in Figure 1.7 to Figure 1.9.

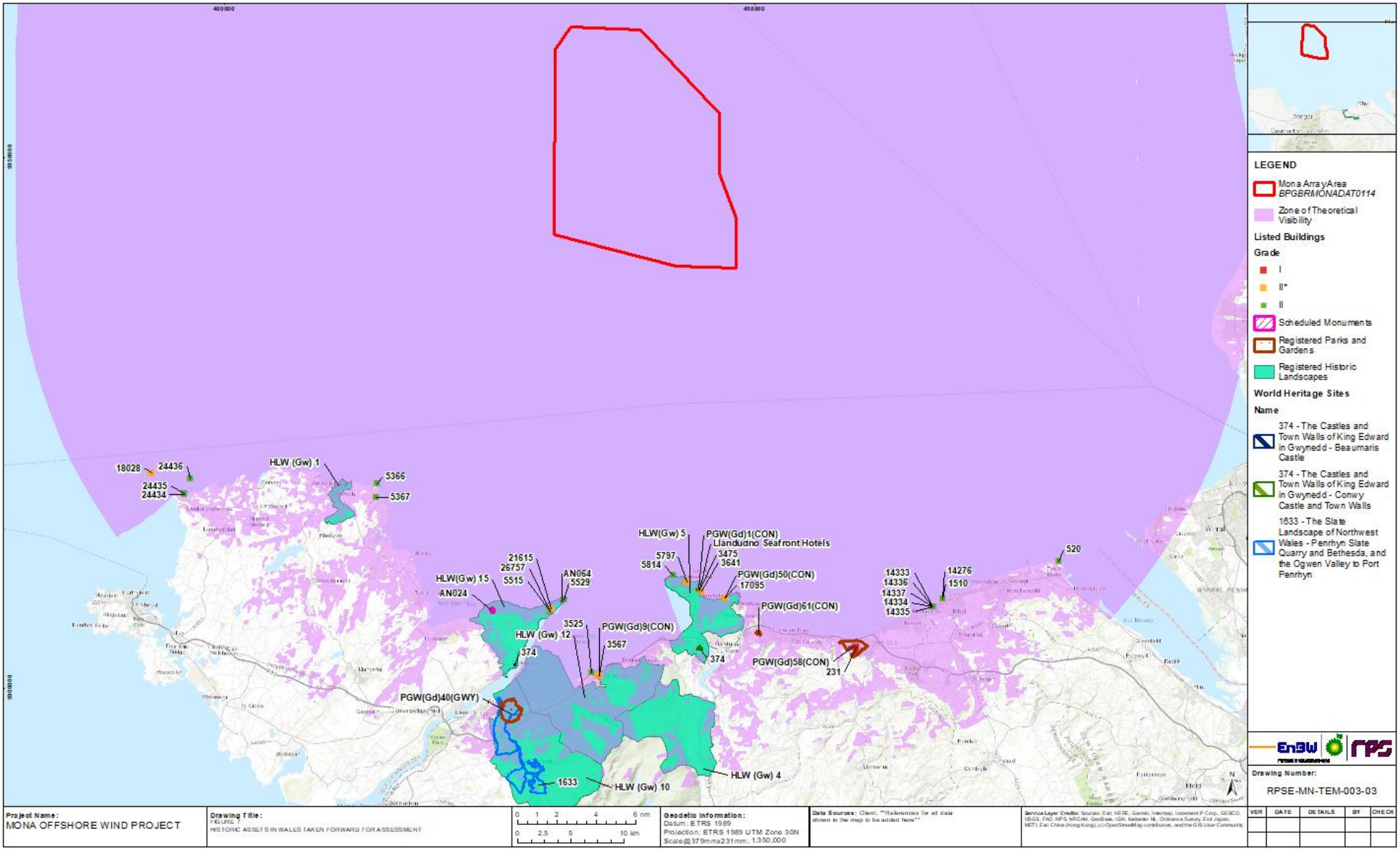

Figure 1.7: Historic assets in Wales taken forward for assessment.

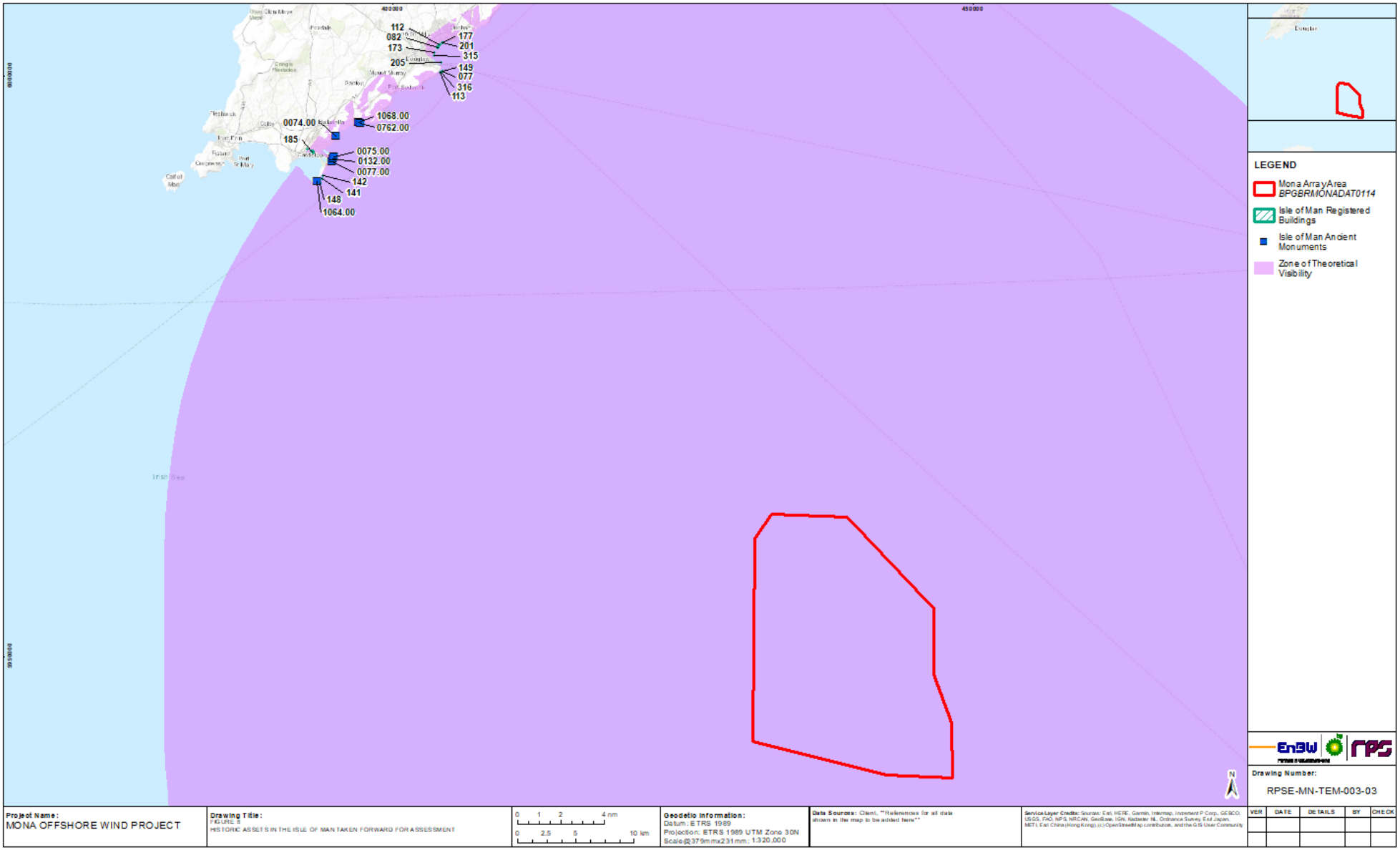

Figure 1.8: Historic assets in the Isle of Man taken forward for assessment.

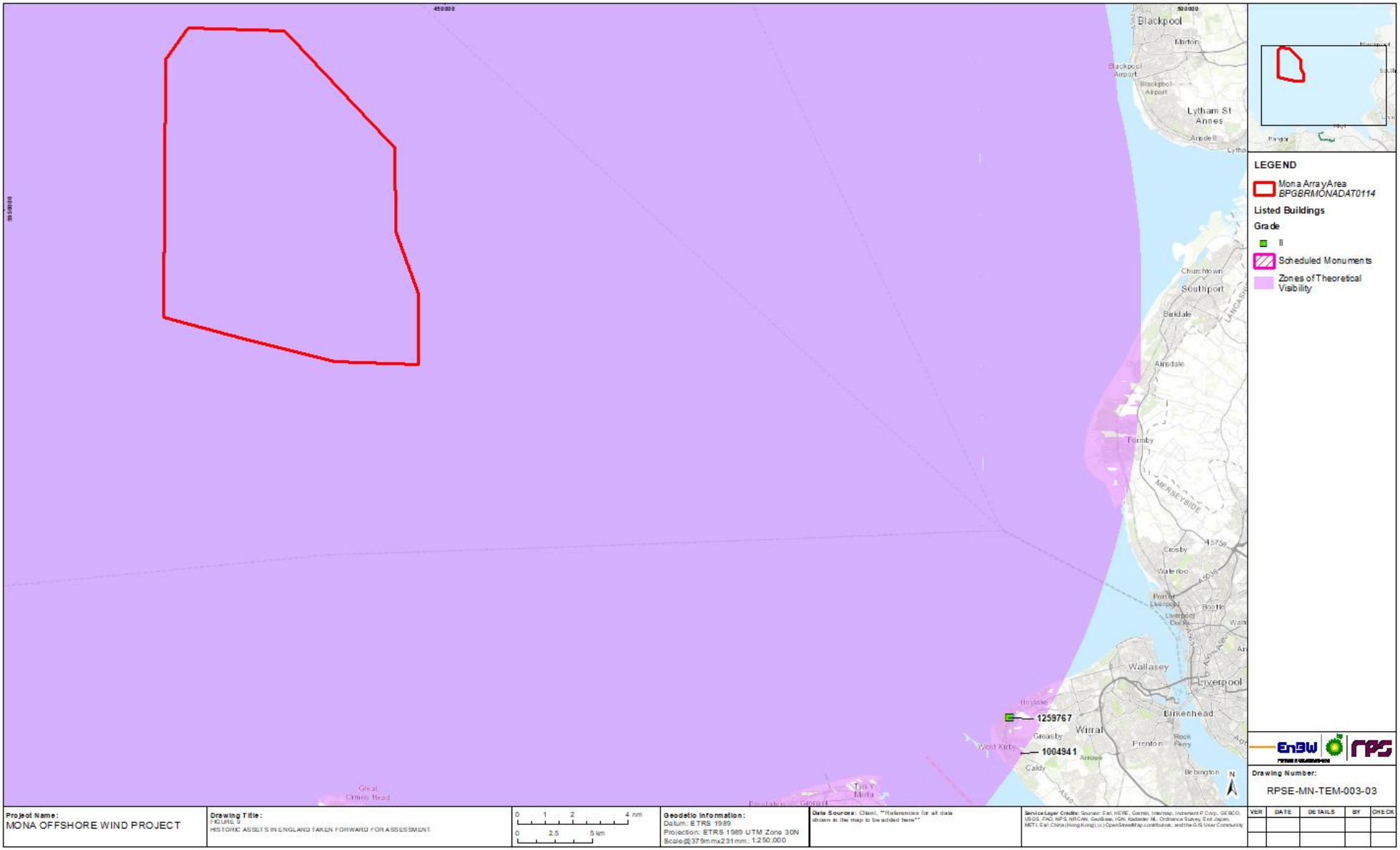

Figure 1.9: Historic assets in England taken forward for assessment.

1.3.4 Visibility

1.3.4.1 The predicated appearance of the wind turbines and offshore substation platforms within the Mona Array Area in views from and across the designated heritage assets screened into the assessment was based on the visualisations presented in Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement. For some of the designated heritage assets screened into the assessment, the Viewpoint used for the visualisation coincides with the location of the heritage asset. For others, the nearest Viewpoint for a visualisation has been examined and the information used within the assessment of impact magnitude.

1.3.4.2 Visibility data compiled by the Meteorological Office gathered over a 10-year period (2012-2021) have been examined as part of the assessment. These data come from three Meteorological Office weather stations:

- Mona, Anglesey (grid reference: 53.26051, -437599)
- Rhyl No.2 (grid reference: 53.2593, -3.50882)
- Ronaldsway, Isle of Man (grid reference: 54.08507, -4.6307).

1.3.4.3 The data are presented in full in Appendix B of Volume 6, Annex 8.4: Seascape and visual resources impact methodology of the Environmental Statement, along with an explanation of how they have been compiled and presented.

1.3.5 Methodology for assessment of impacts and effects

1.3.5.1 The historic environment impact assessment methodology is set out in Volume 3, Chapter 5: Historic environment of the Environmental Statement. In general, this assessment follows the methodology set out in Volume 1, Chapter 5: EIA methodology of the Environmental Statement. The settings assessment specific methodology is presented in Appendix A of this document.

1.3.5.2 The criteria for determining the significance of effects (which can be adverse or beneficial) is a two stage process that involves defining the magnitude of the impacts and the sensitivity and value of the receptors. This section describes the criteria applied in Volume 3, Chapter 5: Historic environment of the Environmental Statement to assign values to the magnitude of potential impacts and the sensitivity and value of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in Volume 1, Chapter 5: EIA methodology of the Environmental Statement.

Impact assessment criteria

1.3.5.3 The criteria for defining magnitude in this assessment are outlined in Table 1.3.

Table 1.3: Definition of terms relating to the magnitude of an impact.

Magnitude of impact	Definition
High	Change to most or all key elements of the historic asset, or changes within the setting of the asset, such that the significance of the asset is lost or substantially harmed (Adverse).
	Change to most or all key elements of the historic asset, or changes within the setting of the asset, such that the significance of the asset is substantially enhanced (Beneficial).
Medium	Change to elements of the historic asset, or changes within the setting of the asset, such that the significance of the asset is clearly harmed (Adverse).
	Change to elements of the historic asset, or changes within the setting of the asset, such that the significance of the asset is clearly enhanced (Beneficial).
Low	Change to elements of the historic asset, or changes within the setting of the asset, such that the significance of the asset is slightly harmed (Adverse).
	Change to elements of the historic asset, or changes within the setting of the asset, such that the significance of the asset is slightly enhanced (Beneficial).
Negligible	Change to elements of the historic asset, or changes within the setting of the asset, such that the significance of the asset is barely affected (Adverse).
	Change to elements of the historic asset, or changes within the setting of the asset, such that the significance of the asset is barely affected (Beneficial).
No change	No changes to elements of the heritage asset, or within the setting of the asset.

1.3.5.4 The criteria for defining sensitivity in this assessment are outlined in Table 1.4 below. All designated historic assets are of medium sensitivity/value or greater, therefore the definitions relating to assets of low or negligible sensitivity/value are not provided.

Table 1.4: Definition of terms relating to the sensitivity of the receptor.

Sensitivity/value	Definition
Very High	Historic assets of international importance. World Heritage Sites and the individual attributes that convey their Outstanding Universal Value. Areas associated with intangible heritage and areas with associations with particular innovations, scientific developments, movements or individuals of global importance. Assets that can contribute significantly to acknowledged international research objectives.
High	Scheduled Monuments, Listed Buildings (Grade I, II*), Registered Buildings, Registered Historic Parks and Gardens (Grade I, II*), Registered Historic Landscapes, Registered Battlefields. Other listed buildings that can be shown to have exceptional qualities in their fabric or historical association not adequately reflected in the listing grade. Unscheduled sites and monuments of schedulable quality and/or importance including those discovered through the course of evaluation or mitigation. Undesignated structures of clear national importance.
Medium	Grade II Listed Buildings and Grade II Registered Historic Parks and Gardens.

1.3.5.5 The significance of the likely effect upon any historic asset is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method

employed for this assessment is presented in Table 1.5. Where a range of significance of likely effect is presented in Table 1.5, the final assessment for each likely effect is based upon expert judgement.

1.3.5.6 For the purposes of this assessment, any likely effects with a significance level of minor or less have been concluded to be not significant in terms of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Table 1.5: Matrix used for the assessment of the significance of the effect.

Sensitivity/value of Receptor	Magnitude of Impact				
	No Change	**Negligible**	**Low**	**Medium**	**High**
Negligible	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	No change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	No change	Negligible or Minor	Minor	Moderate	Moderate or Major
High	No change	Minor	Minor or Moderate	Moderate or Major	Major
Very High	No change	Minor	Moderate or Major	Major	Major

1.4 Key parameters for assessment

1.4.1.1 The maximum design scenarios identified in Table 1.6 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group.

Table 1.6: Maximum design scenario considered for the assessment of potential impacts on designated historic assets.

[a] C=construction, O=operations and maintenance, D=decommissioning

Potential impact	Phase			Maximum Design Scenario	Justification
	C	O	D		
The assessment considers the likely impacts of the structures within the Mona Array Area on designated historic assets within the offshore settings study area resulting from construction, operations and maintenance and decommissioning. Impacts would arise from the visual change within the setting of an asset.	✓	✓	✓	**Construction phase** The offshore components and activities relating to construction of the Mona Offshore Wind Project considered in this assessment are described below. <u>Construction works/activities</u> Generally, wind turbines are installed using the following process: • Wind turbine and foundation components (blades, nacelles, towers, foundations and transition pieces) collected from a UK or European port are transported to the Mona Array Area by dedicated barges/vessels • Wind turbine components will be assembled on site and erected on to foundations by an installation vessel (e.g. Jack-Up Vessel (JUV), Dynamic Positioning Vessel (DPV) or heavy lift vessel). The process is assisted by smaller support vessels (e.g. tugs, guard vessels and anchor handling vessels), which tend to shadow the installation vessels. The maximum number of installation and support vessels for the Mona Array Area is 1878 return trips from port per year required throughout installation. The maximum number of helicopter return trips per year for the construction phase of the Mona Array Area is 1095. <u>Construction programme/duration</u> The total duration for wind turbine installation is expected to be a maximum of 24 months. **Operations and maintenance phase** The Maximum Design Scenario for this assessment during the operations and maintenance phase, comprising the following key project components and equipment: • 68 wind turbines (dimensions below) • Four offshore substation platforms • Service vessels/helicopters. The above components are also a consideration during the construction and decommissioning phases. The wind turbines and offshore service platforms will be attached to the seabed by gravity based and / or jacket foundation structures (the type to be deployed is	Of the possible design scenarios the one with the maximum turbine rotor diameter and maximum tip height has been identified as resulting in the MDS for this assessment, as the tallest turbines would be seen from greater distances.

Potential impact	Phase			Maximum Design Scenario	Justification
	C	O	D		
				subject to further investigations). The wind turbine towers may be connected to the foundation via a transition piece which is visible above sea level. Wind turbines The wind turbines will be the standard horizontal axis design with three blades connected to the nacelle housing the turbine. An illustration of this design can be seen in Volume 1, Chapter 3: Project description of the Environmental Statement. The maximum wind turbine dimensions are: • Maximum blade tip height (above Lowest Astronomical Tide) – 364 m • Maximum rotor diameter – 320 m • Maximum hub height (above Lowest Astronomical Tide) – 204 m. Aids to navigation, colour, marking and lighting Appropriate marking, lighting and aids to navigation will be employed during the operations and maintenance phase (also during construction and decommissioning phases) of the Mona Offshore Wind Project. The nacelles, blades and towers will be painted light grey and the foundation structures, up to +15 m from Highest Astronomical Tide, will be traffic light yellow. Appropriate lighting at night-time will ensure the offshore structures are visible for search and rescue and emergency response procedures. In addition, lighting will conform to the following: • Red, medium intensity aviation warning lights (of variable brightness between 200-2000 candelas (cd)) will be located on either side of the nacelle of significant peripheral wind turbines. These lights will flash simultaneously with a Morse W flash pattern (and will also include an infra-red component) • All aviation warning lights will flash synchronously throughout the Mona Array Area • Aviation warning lights will allow for reduction in lighting intensity at and below the horizon when visibility from every wind turbine is more than 5 km (to a minimum of 10% of the maximum, i.e. 200 cd) • Search and rescue lighting of each of the non-periphery turbines will be combi infra-red (IR)/200 cd steady red aviation hazard lights • All wind turbines will be fitted with a low intensity light for the purpose of helicopter winching (green hoist lamp). All wind turbines will also be fitted with suitable illumination (minimum one 5 cd light) for ID signs.	

Potential impact	Phase			Maximum Design Scenario	Justification
	C	O	D		
				Marine navigational lights will be fitted at the platform level on significant peripheral structures (SPS). These lights will be synchronized to display simultaneously an IALA 'special mark' characteristic, flashing yellow, with a range of not less than 5nm. **Decommissioning phase** Foundations will be cut below the seabed to a level where there will be no hazard to shipping or commercial fishing . The decommissioning sequence will generally be the reverse of the construction sequence and involve similar types and numbers of vessels and equipment. The duration for infrastructure removal is expected to be a maximum of 24 months.	

1.5 Measures adopted as part of the Mona Offshore Wind Project

1.5.1.1 As part of the project design process several measures adopted as part of the Mona Offshore Wind Project have been proposed to reduce the potential for impacts on historic assets as a result of change within their settings (see Table 1.7). As there is a commitment to implementing these measures, they are considered inherently part of the design of the Mona Offshore Wind Project and have therefore been considered in the assessment presented in section 1.6 below (i.e. the determination of magnitude and therefore significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development.

Table 1.7: Measures adopted as part of the Mona Offshore Wind Project.

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure is secured
The nacelles, blades and towers will be painted light grey.	Light grey is considered the optimum colour for offshore wind turbines to minimise adverse effects on seascape, landscape, and visual resources.	Paint colour is secured in the deemed marine licence (dML) in schedule 14 of the Draft DCO.
The lights will be operated at the lowest permissible intensity level. The aviation lighting will be kept to 200 candelas in good visibility conditions. However, in poor visibility, e.g. foggy conditions, the lighting levels may rise to 2,000 candelas.	To keep night time visual impacts to a minimum.	Lighting levels are secured as a Requirement of the Draft DCO.

1.6 Assessment

1.6.1.1 Table 1.8 presents the results of the assessment. The same effects are predicted during construction, operations and maintenance, and decommissioning of the structures within the Mona Array Area.

1.6.1.2 The number of the designated historic asset is the one by which it is identified in the appropriate register or list maintained for each location.

1.6.1.3 The visibility data is taken from the information provided by the nearest Meteorological Office weather recording station. It represents the percentage of time at which the structures within the Mona Array Area are likely to be visible from the designated historic asset - the data include combined daytime and night time observations.

1.6.1.4 The Figure numbers identified within the table refer to the visualisations presented in Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement.

1.6.1.5 Registered Buildings in IoM have no grading and therefore a precautionary approach has been taken and all registered buildings are assessed to have High value / sensitivity. This is different to Wales (and England) where there are three grades and the lowest grade can be considered as Medium.

Table 1.8: Assessment of potential effects arising from changes within the settings of terrestrial designated historic assets during the construction, operation and maintenance of the wind turbines and offshore substation platforms within the Mona Array Area.

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Wales						
World Heritage Sites						
The Slate Landscape of Northwest Wales - Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn 1633	46.1	1 - 2	The Slate Landscape of Northwest Wales comprises six areas which represent an exceptional example of a landscape which was profoundly shaped by the quarrying and mining of slate. The element of the World Heritage Site (WHS) within the offshore settings study area is Component 1: Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn. This includes the railroad and railway which transported the slate to the private harbour at Port Penrhyn along with the quarry-owning family's huge Penrhyn Castle and its vast park. The setting of the WHS takes in much of the surrounding landscape, but the seascape is also important as it indicates the export route for the slate once it was loaded onto vessels at the harbour. Some or all of the structures within the Mona Array Area could be visible from sections of the railroad and railway as they descend from the quarries to the port, and the very south-eastern corner of the Mona Array Area could be visible from the port itself. However, recorded visibility over this distance is very low and the presence of the offshore structures within the setting is unlikely to affect the Outstanding Universal Value of the WHS.	Very High	No change	No change
Registered Historic Landscapes						
Amlwch and Parys Mountain HLW(Gw)1	31.8	7 - 14	Parys Mountain is a low ridge 2 km long and 1 km wide which dominates the surrounding Anglesey plateau. This was once the greatest copper mine in Britain and in the late 18th century was the largest copper production site in Europe. The nearby port of Amlwch developed from a small hamlet in 1768 to a sizeable town and harbour by the beginning of the 19th century, linked to the mining area by a series of now disused railway lines. The setting of the registered historic	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			landscape takes in much of the surrounding area of north-east Anglesey, but the seascape is also important as it indicates the export route for the copper and subsidiary products once it was loaded onto vessels at the harbour. Figure 20.2 shows how the structures within the Mona Array Area would appear in the view from the Amlwch area. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.			
Penmon HLW(Gw)15	33.6	7 - 14	Penmon is the promontory and coastal plateau area which forms the south-eastern extent of Anglesey, and the registered historic landscape includes Puffin Island. There is considerable evidence for continuity of land use and occupation from the later prehistoric period through to modern times. The seascape is an important part of the setting of the registered historic landscape; several key sites and monuments are associated with control of the seaways in and out of the Menai Strait. These include the Iron Age hillfort known as Bwrdd Arthur or Din Silwy, the Norman castle at Aberlleniog and the later castle at Beaumaris. The ZTV indicates that the structures within the Mona Array Area would only be visible from the coastal areas around the northern part of the registered historic landscape and from some of the more elevated land within the registered historic landscape. Figure 24.2 shows how the structures within the Mona Array Area would appear in the view from Penmon Point, whilst Figure 4.2 shows how these structures would appear in the view from Bwrdd Arthur. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Low	Minor adverse (due to low % of recorded visibility).
Ogwen Valley HLW(Gw)10	48.6	1 - 2	This takes in the upper part of the valley in the northern part of Eryri, descending past the slate town of Bethesda to the mouth of the River Cegin on the Menai Strait. The registered historic landscape takes in extensive and well-preserved remains of prehistoric and later date, but is dominated by the huge Penrhyn slate quarry along with associated features including the railroad and railway which transported the slate to the private harbour at Port Penrhyn, also the quarry-owning family's huge Penrhyn Castle and its vast park. The setting of the registered historic landscape takes in much of the surrounding area, but the	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			seascape is also important as it indicates the export route for the slate once it was loaded onto vessels at the harbour. Some or all of the structures within the Mona Array Area could be visible from sections of the railroad and railway as they descend from the quarries to the port, and the very south-eastern corner of the Mona Array Area could be visible from the port itself. However, recorded visibility over this distance is very low and the presence of the offshore structures within the setting is unlikely to have anything more than a minimal effect on the heritage significance of the registered historic landscape.			
North Arllechwedd HLW(Gw)12	42	2 - 4	This comprises the narrow coastal strip, uplands and dissected northern flanks of the Carneddau ridge in Eryri, but also includes the Lavan Sands extending from the coast towards Beaumaris. The registered historic landscape contains a considerable amount of upstanding remains from the prehistoric and later periods, including a Neolithic stone axe production site at Graiglwyd and an important concentration of Bronze Age funerary and ritual monuments. A Norman motte remains present at Abergwyngregyn; this would have controlled movement along the coastal strip. The setting of the registered historic landscape includes the seascape as this may have been an important element in the siting and design of some of the prehistoric monuments. Figure 25.2 shows how the structures within the Mona Array Area would appear in the view from within the registered historic landscape. The structures would be visible within an area of the seascape within which any existing wind farms are considerably further away. However, recorded visibility over this distance is very low and the presence of the offshore structures within the setting is unlikely to have anything more than a minimal effect on the heritage significance of the registered historic landscape.	High	Negligible	Minor adverse
Lower Conwy Valley HLW(Gw)4	41.3	2 - 4	The registered historic landscape straddles the middle reaches of the lower Conwy valley. It contains numerous monuments of prehistoric date such as cairns and standing stones, as well as the Roman fort of *Canovium* (at Caerhun) which is sited at the crossroads of routes along and across the valley and also at the highest pint of the river reached by the tide. The structures within the Mona Array Area would only be	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			visible from the more elevated land in the western part of the registered historic landscape, and even then only the western part of the Mona Array Area would be seen. The setting of the registered historic landscape includes the seascape as this may have been an important element in the siting and design of some of the prehistoric monuments. The presence of the offshore structures within the setting is unlikely to have anything more than a minimal effect on the heritage significance of the registered historic landscape.			
Creuddyn and Conwy HWL(Gw)5	30.2	40 - 50	The registered historic landscape includes the lower part of the estuary of the River Conwy and its hinterland on either side, taking in the raised areas of the Great and Little Orme as well as Conwy Castle and the walled town and bridges here. Visibility of the structures within the Mona Array Area would primarily be from the Great and Little Orme. The former contains a series of prehistoric copper mines as well as Upper Palaeolithic caves and Neolithic and Bronze Age monuments, whilst more Upper Palaeolithic caves are present on the Little Orme. The setting of the registered historic landscape includes the seascape as this may have been an important element in the siting and design of some of the prehistoric monuments. Figure 7.4 shows how the structures within the Mona Array Area would appear in the view from the Great Orme. The structures would be visible within an area of the seascape within which any existing wind farms are considerably further away. There are existing windfarms to the east which are closer than the Mona Offshore Wind Project would be.	High	Low	Minor adverse
Registered Historic Parks and Gardens – Grade II*						
Penrhyn Castle PGW(Gd)40(GWY)	44	2 - 4	Well-preserved 19th century garden and landscaped park surrounding the early 19th century neo-Norman Penrhyn Castle, could also include elements of an earlier (18th century) park and possibly a preceding medieval one. Although this is in a coastal location, the designed views are inland and also eastwards along the coast towards Penmaenmawr. Due to the coastline in this area, only the very south-eastern corner of the Mona Array Area would be visible in views from this registered park and garden.	High	No change	No change

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Condover House PGW(Gd)50(CON)	31.7	40 - 50	Very unusual 1930s garden in a modernist style which complements the contemporary house. There is a defined significant panoramic seaward view. Figure 30.2 shows how the structures within the Mona Array Area would appear in the view from Little Orme Head. The structures would be visible within an area of the seascape within which any existing wind farms are considerably further away.	High	Low	Minor adverse
Gwrych Castle PGW(Gd)58(CON)	37.9	30 - 40	This is an early 19th century park and garden contemporary with the neo-Gothic castle and sharing similar design features in its walling, lodges and towers. It is on rising ground providing clear seaward views. Figure 33.2 shows how the structures within the Mona Array Area would appear in the view from Pen-y-Cordy-Mawr which is near to the registered park and garden at Gwrych Castle. The structures would be visible to the left of, and partly behind, the existing turbines of the Gwynt y Môr offshore wind farm.	High	Low	Minor adverse
Registered Historic Parks and Gardens – Grade II						
Wern Isaf (Rosebriars) PGW(Gd)9(CON)	40.1	2 - 4	Good example of a small Arts-and-Crafts garden set out around 1900 and contemporary with the Grade II* listed house. The house is located in Penmaen Park on the eastern edge of Llanfairfechan and has a defined significant view across the sea towards Anglesey. Figure 7.4 shows how the structures within the Mona Array Area would appear in the view from the seafront at Llanfairfechan. The structures would be visible within an area of the seascape within which any existing wind farms are considerably further away.	Medium	Negligible	Minor adverse
Happy Valley PGW(Gd)1(CON)	30.8	40 - 50	Located on north-eastern edge of the Great Orme headland, overlooking the town of Llandudno. This is a 19th century public garden with a wilder elevated section that provides seaward views. Figure 7.4 shows how the structures within the Mona Array Area would appear in the view from the Great Orme. The structures would be visible within an area of the seascape within which any existing wind farms are considerably further away. There are existing windfarms to the east which are closer than the Mona Offshore Wind Project would be.	Medium	Low	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
The Flagstaff PGW(Gd)61(CON)	35.8	30 - 40	Partially surviving formal and informal garden set out in 1898-1899 for a grand mansion which was never built. This is now home to the Welsh Mountain Zoo and much of it has been overlain by zoo structures, although it retains panoramic views to the north over the sea. The structures within the Mona Array Area would be visible within an area of the seascape within which any existing wind farms are considerably further away. There are existing windfarms to the east which are closer than the Mona Offshore Wind Project would be.	Medium	Negligible	Negligible adverse
Scheduled Monuments						
Dinas Gynfor Hillfort AN038	33.6	7 - 14	Iron Age promontory fort protected on the west, north and east sides by steep cliffs descending to the sea, also contains a tower commemorating the coronation of King Edward VII. Its heritage significance is derived from archaeological and historical values. The setting is important, particularly the coastal location and clear seaward views. Figure 2.2 shows how the structures within the Mona Array Area would appear in the view from the hillfort. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Din Sylwy Hillfort AN024	42	2 - 4	Hillfort also known as Bwrdd Arthur, located close to the coast in south-east Anglesey. Its heritage significance is derived from archaeological and historical values. The setting is important, particularly the coastal location and clear seaward views. Figure 4.2 shows how these structures would appear in the view from the hillfort. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Low	Minor adverse due to low % of recorded visibility.
Tower and remains of church and monastic settlement on Puffin Island AN064	34	7 - 14	Standing tower and other remains of a 12th century church, also the remains of a monastic settlement of possible 7th century date. Its heritage significance is derived from archaeological and historical values. The setting is important insomuch as it contributes towards the eremitic ideals of the monks who moved to live here. Figure 24.2 shows how the structures within the Mona Array Area would appear in the view from Penmon Point; Puffin Island is towards the right-hand side of the	High	Low	Minor adverse due to low % of recorded visibility.

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			image. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures. There are existing windfarms to the east which are closer than the Mona Offshore Wind Project would be.			
Listed Buildings – Grade I						
Remains of monastic settlement including tower and walls on Puffin Island 5528	34	7 - 14	Standing tower and other remains of a 12th century church, also the remains of a monastic settlement of possible 7th century date. Its heritage significance is derived from archaeological and historical values. The setting is important insomuch as it contributes towards the eremitic ideals of the monks who moved to live here. Figure 24.2 shows how the structures within the Mona Array Area would appear in the view from Penmon Point; Puffin Island is towards the right-hand side of the image. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Low	Minor adverse due to low % of recorded visibility.
Gwrych Castle including attached walls and towers and stable block 231	37.9	30 – 40	Very large Gothic-style mansion of early 19th century date with contemporary towers and stables. Its heritage significance is derived from historical, aesthetic and architectural values. Figure 33.2 shows how the structures within the Mona Array Area would appear in the view from Pen-y-Corddyn-Mawr which is near to Gwrych Castle. The structures would be visible to the left of, and partly behind, the existing turbines of the Gwynt y Môr offshore wind farm.	High	Low	Minor adverse
Listed Buildings – Grade II*						
Skerries Lighthouse with associated buildings and enclosure walls 18028	43.6	2 - 4	Lighthouse mostly rebuilt in 1851 but initially built *c*. 1759. Ancillary buildings include a fog station with engine house and attached keepers' accommodation. Its heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 46.2 shows how these structures would appear in the view from Trewyn Cemlyn, approximately 6.5 km to the east of The Skerries. The structures would	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.			
Trwyn Du, or Black Point, Lighthouse 21615	35.1	4 - 7	Lighthouse built 1835-38 to mark the north entrance to the Menai Strait. Circular tower 29.3 m high on a stepped base. The setting is important, particularly the coastal location and clear seaward views. Figure 24.2 shows how the structures within the Mona Array Area would appear in the view from Penmon Point. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Wern Isaf (Rosebriars) 3567	40.1	2 - 4	Arts-and-Crafts house of 1900 designed by H L North for his own use. The house is located in Penmaen Park on the eastern edge of Llanfairfechan. Its heritage significance is derived from historical and architectural values. The setting is important as the house has designed views across the sea towards Anglesey. Figure 7.4 shows how the structures within the Mona Array Area would appear in the view from the seafront at Llanfairfechan. The structures would be visible within an area of the seascape within which any existing wind farms are considerably further away.	High	Negligible	Minor adverse
Church of St Tudno, Great Orme 5797	30.2	40 - 50	Church is of 12th – 15th century date, but on the site of an earlier monastic cell hence the remote location. Its heritage significance is derived from archaeological, historical and architectural values. The setting is important insomuch as it contributes towards the eremitic ideals of the monks who moved to live here. Figure 7.4 shows how the structures within the Mona Array Area would appear in the view from the Great Orme. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures. There are existing windfarms to the east which are closer than the Mona Offshore Wind Project would be.	High	Low	Minor adverse
Llandudno Pier 3641	32.4	40 - 50	Initial stage completed in 1877, extended in 1884. The listing includes the pier end pavilions, the entrance kiosks and a stone lodge. Its heritage significance is derived from historical and architectural values. Figure 38.4 shows how the structures within the Mona Array Area would appear in the view from Llandudno Promenade. The structures	High	Low	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures. There are existing windfarms to the east which are closer than the Mona Offshore Wind Project would be.			
Condover House (formerly Villa Marina) 17095	31.7	40 - 50	House in international modern style with references to the architecture of ocean liners. Built c. 1936 to a design by Harry W Weedon, later became a hotel. Its heritage significance is derived from architectural and aesthetic values. There is a clear panoramic seaward view. Figure 30.2 shows how the structures within the Mona Array Area would appear in the view from Little Orme Head. The structures would be visible within an area of the seascape within which any existing wind farms are considerably further away.	High	Low	Minor adverse
Listed Buildings – Grade II						
Pilot beacon on West Mouse 24436	40.8	2 - 4	Mariners' beacon on small islet, aligns with two land-based beacons at Carmel Head, Anglesey. Early 19th century date tapering stone tower with spherical cap. Its heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 46.2 shows how these structures would appear in the view from Trewyn Cemlyn, approximately 2.8 km to the east of West Mouse. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Negligible	Minor adverse
Carmel Head pilot beacon (south) 24434	42.0	2 - 4	Mariners' beacon in isolated rural location overlooking the coast at Carmel Head, Anglesey. Early 19th century, one of a pair at Carmel Head used in conjunction with the West Mouse beacon for navigation into Holyhead. Its heritage significance is derived from historical values. The setting is important, particularly the coastal location and clear seaward views. Figure 46.2 shows how these structures would appear in the view from Trewyn Cemlyn, approximately 3.6 km to the north-east of Carmel Head. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Carmel Head pilot beacon (north) 24435	42.0	2 - 4	Mariners' beacon in isolated rural location overlooking the coast at Carmel Head, Anglesey. Early 19th century, one of a pair at Carmel Head used in conjunction with the West Mouse beacon for navigation into Holyhead. Its heritage significance is derived from historical values. The setting is important, particularly the coastal location and clear seaward views. Figure 46.2 shows how these structures would appear in the view from Trewyn Cemlyn, approximately 3.6 km to the north-east of Carmel Head. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Negligible	Minor adverse
Point Lynas Lighthouse and telegraph station 5366	28.7	14 - 16	Lighthouse and associated structures built around 1835, telegraph station added in 1879. Its heritage significance is derived from historical and architectural values. Figure 44.2 shows how these structures would appear in the view from the lighthouse. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Negligible	Minor adverse
The Olde Telegraph 5367	29.2	14 - 16	Telegraph station built in 1841, one of 12 along the north Wales coast from Liverpool to Holyhead. Replaced by the telegraph station at Point Lynas lighthouse. Its heritage significance is derived from historical and architectural values. Figure 44.2 shows how these structures would appear in the view from the lighthouse. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Negligible	Minor adverse
Pilot's Cottage (former) No. 1, Black Point 5515	35.2	4 - 7	One of a pair of cottages built for the Trinity House pilots in 1839. Its heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 24.2 shows how the structures within the Mona Array Area would appear in the view from Penmon Point. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Negligible	Minor adverse
Pilot's Cottage (former) No. 2,	35.2	4 - 7	One of a pair of cottages built for the Trinity House pilots in 1839. Its heritage significance is derived from historical and architectural values.	Medium	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Black Point 26757			The setting is important, particularly the coastal location and clear seaward views. Figure 24.2 shows how the structures within the Mona Array Area would appear in the view from Penmon Point. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.			
Telegraph Station (former), Puffin Island 5529	33.9	7 - 14	Telegraph station built in 1841, one of 12 along the north Wales coast from Liverpool to Holyhead, now derelict. Its heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 24.2 shows how the structures within the Mona Array Area would appear in the view from Penmon Point; Puffin Island is towards the right-hand side of the image. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Negligible	Minor adverse
The Towers, Llanfairfechan 3525	39.5	4 - 7	Two storey house with corner tower providing coastal viewing platform, built *c*. 1870 as part of a proposed yacht marina. Its heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 7.4 shows how the structures within the Mona Array Area would appear in the view from the seafront at Llanfairfechan. The structures would be visible within an area of the seascape within which any existing wind farms are considerably further away.	Medium	Negligible	Minor adverse
Great Orme's Head Lighthouse 5814	29.7	40 - 50	Lighthouse and telegraph station built 1862, very similar design to the Point Lynas lighthouse. Its heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 7.4 shows how the structures within the Mona Array Area would appear in the view from the Great Orme. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Low	Minor adverse
Seafront hotels, Llandudno Various	31.9	40 - 50	At least 68 Grade II listed seafront hotels and guesthouses along the promenade at Llandudno. Almost all are of mid-late 19th century date which is when the town expanded rapidly with the advent of mass	Medium	Low	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			tourism. Their heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 38.4 shows how the structures within the Mona Array Area would appear in the view from Llandudno Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.			
War memorial, Llandudno promenade 3475	31.9	40 - 50	War memorial comprising granite obelisk with golden ball finial. Its heritage significance is derived from its historical and architectural values. The seascape forms the major part of the backdrop and is an important component of the setting. Figure 38.4 shows how the structures within the Mona Array Area would appear in the view from Llandudno Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	Medium	Low	Minor adverse
West Parade, Rhyl 14333-14337	37.8	30 - 40	Terrace of boarding houses built 1889. Deep bay windows used for principal drawing rooms on each floor to command the sea view. Their heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 9.3 shows how the structures within the Mona Array Area would appear in the view from Rhyl. The structures would be visible but would be behind the existing turbines of the Rhyl Flats and Gwynt y Môr offshore wind turbines which are closer to the shore.	Medium	No change	No change
Rhyl War Memorial 14276	38.0	30 - 40	Originally erected in 1904 to commemorate those who died in the Boer War, it was moved to this site in 1948. Its heritage significance is derived from historical and architectural values. The seascape forms the major part of the backdrop and is an important component of the setting. Figure 9.3 shows how the structures within the Mona Array Area would appear in the view from Rhyl. The structures would be visible but would be behind the existing turbines of the Rhyl Flats and Gwynt y Môr offshore wind turbines which are closer to the shore.	Medium	No change	No change

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Lookout tower in boundary wall, Rhyl 1510	38.3	30 - 40	Lookout purportedly built around 1831 as a semaphore signalling station for paddle steamers operating between Rhyl and Liverpool. Circular two-storey tower of rubble construction. Its heritage significance is derived from historical and architectural values. The seascape is an important component of the setting, but there are modern buildings on the other side of the road which mostly block this view. Figure 9.3 shows how the structures within the Mona Array Area would appear in the view from Rhyl. The structures would be visible but would be behind the existing turbines of the Rhyl Flats and Gwynt y Môr offshore wind turbines which are closer to the shore.	Medium	No change	No change
Point of Ayr Lighthouse 520	42.6	21 - 30	Built in 1776 and marking the entrance to the Dee Estuary, this was modelled on an existing lighthouse at Hoylake. The upper section was rebuilt in 1819. A three-storey tower tapering upwards from a black plinth and topped by a red-domed lantern. Its heritage significance is derived from historical and architectural values. The setting is important, particularly the coastal location and clear seaward views. Figure 36.2 shows how the structures within the Mona Array Area would appear in the view from Rhyl. The structures would be visible but would be behind the existing turbines of the North Hoyle and Gwynt y Môr offshore wind turbines which are closer to the shore.	Medium	No change	No change
Isle of Man						
Ancient Monuments						
Cashal Rhunt, Cassny Hawin 0074.00	48.3	9	Iron Age defended promontory fort and Medieval watch station. The fort is protected on the north and east sides by steep cliffs descending to the sea. Its heritage significance is derived from archaeological and historical values. The setting is important, particularly the coastal location and clear seaward views. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Derby Fort, St Michael's Isle, Malew 0075.00	47.3	9	Circular fort built for Henry VIII in the 1540s to protect Devonshire Bay against enemy shipping. It was later used as a lighthouse although the short lighthouse tower was removed at the end of the 19th century. Its heritage significance derives from its archaeological and historical values, although the structure also has aesthetic values. The setting is important as it provides a clear link to the function of the Henrician fort. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Hango Broogh, Langness 0077.00	47.1	9 - 26	Defended promontory with earthwork remains, located on the south side of the narrow channel between Langness and St Michael's Isle. Its heritage significance principally derives from its archaeological values. The setting is important as the monument is clearly located at the entrance to this side channel into Derby Haven. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
St Michael's Chapel, St Michael's Isle, Malew 0132.00	47.2	9 - 26	Small stone-built Medieval chapel with adjacent burial ground. Recorded in 1250 and shown as ruinous in 17th century illustrations but used for congregational worship before then. Its heritage significance is derived from its historical and architectural values. The setting is important as it contributes greatly towards the feeling of isolation at this location. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Port Grenaugh, Purt ny Ceagagh Promontory Fort 0762.00	47.8	9 - 26	Iron Age defended promontory fort on the east side of the bay at Port Grenaugh. The fort is protected on the west, south and east sides by steep cliffs descending to the sea. Its heritage significance is derived from archaeological and historical values. The setting is important, particularly the coastal location and clear seaward views. Figure 15.2	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.			
Langness Point Promontory Fort 1064.00	47.6	9 - 26	Iron Age defended promontory fort covering a series of small islets at the south-western tip of the Langness Peninsula. Its heritage significance principally derives from its archaeological values. The setting is important, particularly the coastal location and clear seaward views. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Cronk ny Merriu Promontory Fort 1068.00	47.8	9 - 26	Iron Age defended promontory fort on the east side of the bay at Port Grenaugh, with the interior occupied by a later longhouse. The fort is protected on the west, south and east sides by steep cliffs descending to the sea. Its heritage significance is derived from archaeological and historical values. The setting is important, particularly the coastal location and clear seaward views. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Registered Buildings						
Camera Obscura, Douglas Head 77	46.7	9 - 26	The Grand Union Camera Obscura was built on Douglas Head during the 1890s. It provides a unified panoramic view of the surrounding area. Its heritage significance principally derives from its architectural and aesthetic values. The setting is important as the elevated location provides extensive views towards Douglas and out over the sea. Figure 16.2 shows how the structures within the Mona Array Area would appear in the view from Marine Drive Arch. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Castle Mona Hotel, Douglas 82	48.5	9 - 26	The Castle Mona Hotel was built in 1803-04 as a private residence for the 4th Duke of Atholl during his term as the Isle of Man's Governor General. Its heritage significance is derived from its historical and architectural values with a link to the architect George Steuart who also designed the Red Pier and Ramsey Courthouse on the island. The seaward views are an important component of the setting. Figure 39.3 shows how the structures within the Mona Array Area would appear in the view from Douglas Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Falcon Cliff Hotel, Palace Road, Douglas 112	48.6	9 - 26	The former Falcon Cliff Hotel was built as a private house in 1836 and was designed in the Gothic style by the architect John Robinson. It was in use as a hotel by 1877 and has now been converted to offices. The seaward views are an important component of the setting. Figure 39.3 shows how the structures within the Mona Array Area would appear in the view from Douglas Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Douglas Head Apartments, 1-22 Douglas Head 113	46.7	9 - 26	The Douglas Head Hotel was built in around 1869 and incorporated a mariner's beacon that had been constructed on this headland in 1811. The hotel was converted into apartments in 1992 with the beacon retained. Its heritage significance is derived from historical and architectural values. The setting is important as the elevated location provides extensive views out over the sea. Figure 16.2 shows how the structures within the Mona Array Area would appear in the view from Marine Drive Arch. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Herring Tower, Langness Road, Castletown 141	47.1	9 - 26	The herring tower was built as a mariner's beacon in 1823, by the same person who had constructed a similar tower at Douglas which was later incorporated into the Douglas Head Hotel. Its heritage significance is derived from historical and architectural values, with the appearance of the tower apparently being modelled on a tower at Peel Castle. The	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			setting is important as the elevated location provides extensive views out over the sea. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.			
The Powder House, Langness Road, Castletown 142	47.1	9 - 26	Small square roofless structure with internal blast wall, former gunpowder store for mining operations. Its heritage significance is principally derived from its historical values. The most important component of its setting is the isolation – powder houses were deliberately located away from settlements and workplaces. The seascape is part of the setting but does not greatly contribute towards the significance of the asset. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	No change	No change
Langness Lighthouse, Langness Road, Castletown 148	47.1	9 - 26	The lighthouse was built in around 1880 and later was the first one to use a new system of reflecting mirrors invented by Charles Stenson. Its heritage significance is derived from historical and architectural values. The setting is important as the location provides extensive views out over the sea and is key to the function of the structure. Figure 15.2 shows how the structures within the Mona Array Area would appear in the view from the Langness Peninsula. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Former principal keeper's house, Douglas Head 149	46.7	9 - 26	The lighthouse and keeper's cottage at Douglas Head were built in around 1857 by David and Thomas Stevenson, to some extent replacing the mariner's beacon of 1811 which had been incorporated into the Douglas Head Hotel. Its heritage significance is derived from historical and architectural values. The setting is important as the elevated location provides extensive views out over the sea and is key to the function of the structure. Figure 16.2 shows how the structures within the Mona Array Area would appear in the view from Marine Drive	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
			Arch. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.			
Central Hotel, Broadway, Douglas 173	48.5	9 - 26	Seafront hotel built around 1889 to a design by Oswald Pennington, recently converted to apartments. Its heritage significance is derived from its historical and architectural values. The seaward views are an important component of the setting. Figure 39.3 shows how the structures within the Mona Array Area would appear in the view from Douglas Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Erin Brae, Queens Promenade, Douglas 177	48.5	9 - 26	Seafront villa built around 1822, later used as a hotel and then guest house. Its heritage significance is derived from its historical and architectural values. The seaward views are an important component of the setting. Figure 39.3 shows how the structures within the Mona Array Area would appear in the view from Douglas Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
King William's College, Castletown 185	49.0	9 - 26	Purpose-built school built around 1833 in a coastal location. Its heritage significance is derived from its historical and architectural values. The seaward views are an important component of the setting, however the principal views are to the south-west across Castletown Bay.	High	No change	No change
Queens Hotel, Douglas Promenade 201	48.6	9 - 26	Small seafront hotel of likely pre-1826 date, possibly built as cottages and stabling for the Castle Mona in around 1803-04. Subsequently known as the Crescent Hotel and then by 1854 as the Queen's Hotel; its style and size contrast with the later tall terraced hotels and guest houses. Its heritage significance is derived from its historical and architectural values. The seaward views are an important component of the setting. Figure 39.3 shows how the structures within the Mona Array Area would appear in the view from Douglas Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Tower of Refuge, St Marys Rock 205	47.6	9 - 26	Stone-built castellated structure on St Mary's Isle in Douglas Bay, constructed around 1832 in a 13th century style designed by John Welch. The tower was to provide refuge to persons wrecked upon the Isle. Its heritage significance is derived from its historical and architectural values. The seaward views are an important component of the setting. Figure 39.3 shows how the structures within the Mona Array Area would appear in the view from Douglas Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Douglas Borough War Memorial, Harris Promenade, Douglas 315	48.5	9 - 26	War memorial dedicated to those who died during the First and Second World Wars. Erected on Harris Promenade in 1924 and designed by Ewart Crellin, it is around 15 m high and is surmounted by a stone figure of a soldier. Its heritage significance is derived from its historical and architectural values. The seascape forms the major part of the backdrop and is an important component of the setting. Figure 39.3 shows how the structures within the Mona Array Area would appear in the view from Douglas Promenade. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
Goldie-Taubman Memorial, Douglas Head 316	46.7	9 - 26	War memorial on Douglas Head, large stone cross located within an enclosure of iron railings. It was unveiled in 1922 and was a gift from John Leigh Goldie-Taubman of the Nunnery, Douglas. Its heritage significance is derived from its historical and architectural values. The seascape forms the major part of the backdrop and is an important component of the setting. Figure 16.2 shows how the structures within the Mona Array Area would appear in the view from Marine Drive Arch. The structures would be visible within an area of the seascape which does not currently contain any wind farms or other fixed structures.	High	Negligible	Minor adverse
England						
Scheduled Monuments						

Asset Name/Number	Approx. Distance from Mona Array Area (km)	Visibility %	Asset description and change within setting	Value/ Sensitivity	Magnitude of Impact	Significance of effect
Grange Beacon, Column Road, Hoylake 1004941	49.8	15 - 21	Mariner's beacon or landmark set up in 1841 on the site of a mill which had burned down. Its heritage significance is derived from the architecture and the aesthetics, as this is a column-type structure constructed in stone whereas most mariner's beacons are more functional in terms of design. The monument is in an elevated location just inland from the coast and there are extensive seaward views, although as a marine beacon the key view is the one from the sea towards the beacon. The setting provides an important contribution to the significance of the asset. Figure 12.3 shows how the structures within the Mona Array Area would appear in the view from Leasowe Common on the Wirral. The structures would be almost completely hidden behind the wind turbines of the existing Burbo Bank Extension Wind Farm as this wind farm is much closer to the coast of the Wirral. The wind turbines of the existing Gwynt y Môr, North Hoyle and Rhyl Flats wind farms would also be visible to the left of the Mona ones.	High	No change	No change
Listed Buildings – Grade II						
Lighthouse and adjoining keeper's house, Valentia Road, Hoylake 1259767	47.7	15 - 21	Lighthouse (now disused) and keeper's house, built 1865. Its heritage significance is derived from the historical values and also from the architectural and aesthetic values of the keeper's house. The lighthouse is unusual in that it is set back from the edge of the coast and separated from the beach here by later residential development. However, the height of the structure means that there are still extensive seaward views from the lighthouse, and it remains a prominent feature within this part of Hoylake. Figure 12.3 shows how the structures within the Mona Array Area would appear in the view from Leasowe Common on the Wirral. The structures would be almost completely hidden behind the wind turbines of the existing Burbo Bank Extension Wind Farm as this wind farm is much closer to the coast of the Wirral. The wind turbines of the existing Gwynt y Môr, North Hoyle and Rhyl Flats wind farms would also be visible to the left of the Mona ones.	Medium	No change	No change

1.7 Cumulative Effects Assessment Methodology

1.7.1 Methodology

1.7.1.1 The assessment of potential cumulative effects arising from changes within the settings of terrestrial historic assets is presented in two stages in line with guidance including The Planning Inspectorate's Advice Note Seventeen (2019), as follows:

- Effects arising from the Mona Offshore Wind Project in conjunction with existing offshore wind farm projects and offshore wind farm projects under construction, permitted and those submitted for planning approval (Tier 1). Existing offshore wind farms have been grouped into three offshore clusters, namely: Northwest England (the Barrow, Ormonde, Walney (including extensions) and West of Duddon Sands offshore wind farms), North Wales (the Burbo Bank (and extension), Gwynt y Môr, North Hoyle and Rhyl Flats offshore wind farm) and Robin Rigg. Permitted offshore wind farms comprise the Awel y Môr Offshore Wind Farm
- Effects arising from the Mona Offshore Wind Project in conjunction with proposed offshore wind farm projects that haven't yet submitted an application (Tier 2). These comprise: the proposed Morgan Offshore Wind Project, the proposed Mooir Vannin Offshore Wind Project and the proposed Morecambe Offshore Wind Project.

1.7.1.2 Information regarding the identification of the Tier 1 and Tier 2 projects described above is presented within section 8.9 of Volume 2, Chapter 8: Seascape and visual resources of the Environmental Statement.

1.7.1.3 There are no Tier 3 planned offshore and onshore wind farms of relevance to Mona Offshore Wind Project.

1.7.2 Maximum design scenario

1.7.2.1 The MDSs identified in Table 1.9 have been selected as those having the potential to result in the greatest effect on designated historic assets as a result of change within their setting. The cumulative effects presented and assessed in this section have been selected from the Project Design Envelope provided in Volume 1, Chapter 3: Project description of the Environmental Statement, as well as the information available on other projects and plans, in order to inform a MDS. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design (e.g. different wind turbine layout) to that assessed here, be taken forward in the final design scheme.

Table 1.9: Cumulative maximum design scenario considered for the assessment of potential cumulative effects on designated historic assets as a result of the construction, operation and maintenance, and decommissioning of the wind turbines and offshore substation platforms within the Mona Array Area.

[a] C=construction, O=operations and maintenance, D=decommissioning

Potential cumulative effect	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
The assessment considers the likely impacts of the structures within the Mona Array Area on designated historic assets within the offshore settings 50 km study area resulting from construction, operations and maintenance and decommissioning. Impacts would arise from the visual change within the setting of an asset	✓	✓	✓	Maximum design scenario as described for the Mona Offshore Wind Project assessed cumulatively with the following other projects/plans: Tier 1 Existing offshore wind farms • Northwest England cluster • North Wales cluster • Robin Rigg. Tier 1 Offshore wind farms under construction, permitted and submitted for planning approval. • Awel y Môr Offshore Wind Farm. Tier 2 – proposed offshore wind farms • Morgan Offshore Wind Project • Morecambe Offshore Wind Farm Generation Assets • Mooir Vannin Offshore Wind Farm.	Outcome of the CEA will be greatest when the greatest number of other schemes are considered.

1.7.3 Cumulative assessment

1.7.3.1 The assessment set out below is based on the cumulative wireline visualisations presented in Volume 6: Annex 8.6: Seascape visualisations of the Environmental Statement, including the cumulative wireline visualisations. Figure numbers mentioned in this assessment refer to the figures in that Annex.

Potential cumulative impacts on designated historic assets together with Tier 1 offshore wind farms

Construction and decommissioning phases

1.7.3.2 Based upon current project programmes, the construction and decommissioning phases of the Mona Offshore Wind Project are not scheduled to overlap with Tier 1 consented offshore wind farms and as such there are no cumulative impacts anticipated on designated historic assets during these phases. In the event that the construction programme for Awel y Môr is delayed, there is potential for cumulative effects between the construction phases of the Mona Offshore Wind Project and Awel y Môr. In this eventuality the assessment outcome would be the same as for the operation and maintenance phase outlined in the next section.

Operation and maintenance phase

1.7.3.3 Cumulative effects would potentially be experienced due to implementation of the Mona Offshore Wind Project, together with existing development projects, in particular the North Wales offshore wind farm cluster.

1.7.3.4 Analysis of the cumulative wireline visualisations supported by fieldwork indicates that potential cumulative effects are most likely to be experienced in respect of designated heritage assets in mainland north Wales and in the area extending east from the Great Orme to Point Of Ayr.

1.7.3.5 Figure 49 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement presents the cumulative wirelines visualisation from representative viewpoint 3 on the Great Orme. It shows that from this location the wind turbines and offshore substation platforms of the Mona Offshore Wind Project would be seen as clearly separate from the existing North Wales offshore wind farm cluster, with the North Wales offshore wind farm cluster also being closer and more visible. The separation distance (14 km minimum) and parallax relationship between the existing North Wales offshore wind farm cluster and the Mona Array Area is sufficient to prevent any sense of 'filling' of an area or incremental change resulting from successive individual developments. **Negligible adverse** additional, cumulative effects are likely to arise.

1.7.3.6 Further to the east, for example at Rhyl (Figures 9.1 to 9.4 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement), Prestatyn (Figures 35.1 and 35.2 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement) and Point of Ayr (Figures 36.1 and 36.2 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement), the Mona Array Area would be visible beyond the North Wales cluster and substantially masked by it. Consequently, **negligible adverse** additional, cumulative effects are likely to arise.

1.7.3.7 With regards to locations in northwest England and on the Isle of Man, the Mona Array Area, the Northwest England and North Wales offshore wind farm clusters are all

located too far from any designated historic assets within the offshore settings study area for significant additional cumulative effects to occur (Figures 14.1 to 14.4 and Figures 16.1 and 16.2 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement) illustrate this point.

1.7.3.8 Figure 49 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement presents the cumulative wirelines visualisation from representative viewpoint 7 on the Great Orme. It shows that from this location the wind turbines and offshore substation platforms of the consented Awel y Môr offshore wind farm would be seen as partially overlapping with, and in front of, the wind turbines and offshore substation platforms of the Mona Offshore Wind Project. The wind turbines and offshore substation platforms of the consented Awel y Môr offshore wind farm would also fill in the 'gap' between the Mona Offshore Wind Project and the existing North Wales offshore wind farm cluster.

1.7.3.9 Additional, adverse cumulative effects are likely to arise in respect of some designated historic assets as a result of the cumulative change within their settings. In some cases this could result in a **moderate adverse** effect, which is significant in EIA terms. This is considered likely to apply to the following:

- Creuddyn and Conwy - Registered Historic Landscape
- Condover House - Grade II* Registered Park and Garden and Grade II* listed building
- Gwrych Castle - Grade II* Registered Park and Garden and Grade I listed building
- Happy Valley - Grade II Registered Park and Garden
- Church of St Tudno - Grade II* listed building
- Llandudno Pier – Grade II* listed building.

1.7.3.10 For all of the above, the greater contribution to the magnitude of impact is from the consented Awel y Môr offshore wind farm as this is closer to the historic assets and thus the turbines will appear larger than the Mona turbines. However, the Mona Array Area would widen the visible extent of offshore wind farms into an area where there are no existing or consented developments of this nature. The assessed effect of the consented Awel y Môr offshore wind farm on its own with regard to the Grade II* listed Llandudno Pier was moderate adverse (RWE, 2022), thus any cumulative effects taking account of the Awel y Môr would be moderate adverse or greater.

1.7.3.11 No mitigation is proposed in respect of these assessed cumulative effects, as there are no reasonably practicable measures that would avoid or reduce the impact.

1.7.3.12 Figure 47 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement presents the cumulative wirelines visualisation from representative viewpoint 3 on north Anglesey. It shows that from this location the wind turbines and offshore substation platforms of the consented Awel y Môr offshore wind farm would be seen as an additional element of the existing North Wales offshore wind farm cluster. The gap between the wind turbines and offshore substation platforms of the Mona Offshore Wind Project and the enhanced North Wales offshore wind farm cluster would be reduced but would remain substantial to the extent that only **negligible adverse** additional, cumulative effects are likely to arise.

1.7.3.13 Further to the east, for example at Rhyl (Figures 9.1 to 9.4 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement), Prestatyn (Figures 35.1 and 35.2 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental

Statement) and Point of Ayr (Figures 36.1 and 36.2 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement), the Mona Array Area would be visible beyond the North Wales cluster and substantially masked by it. Consequently, **negligible adverse** additional, cumulative effects are likely to arise.

Potential cumulative impacts on designated historic assets together with Tier 2 offshore wind farms

Construction and decommissioning phases

1.7.3.14 As the construction and decommissioning phases of the Mona Offshore Wind Project could overlap with some of the Tier 2 proposed offshore wind farms, there could be additional cumulative impacts on designated historic assets during these phases.

1.7.3.15 Figure 55 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement presents the cumulative wirelines visualisation from representative viewpoint 19 near to Douglas Head on the Isle of Man, whilst Figure 54 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement presents the cumulative wirelines visualisation from representative viewpoint 18 at the southern end of the Isle of Man. These show that the wind turbines of the Tier 2 proposed offshore wind farms would be closer to, and much more visible from this location than, the wind turbines and offshore substation platforms of the Mona Offshore Wind Project. There is the potential for cumulative effects to occur at a level that might be significant in EIA terms, however the contribution of the Mona Offshore Wind Project to any cumulative effects is very low.

1.7.3.16 Figure 47 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement presents the cumulative wirelines visualisation from representative viewpoint 3 on north Anglesey. It shows that from this location the wind turbines and offshore substation platforms of the Tier 2 proposed offshore wind farms would form a cluster of which the Mona Offshore Wind Project would also be a component. The wind turbines and offshore substation platforms of the Tier 2 proposed offshore wind farms would be less visible as they are further away. The distance between the terrestrial designated historic assets and this cluster (including the Mona Offshore Wind Project) and the recorded low visibility means that no cumulative effects would occur.

1.7.3.17 Figure 49 of Volume 6, Annex 8.6: Seascape visualisations of the Environmental Statement presents the cumulative wirelines visualisation from representative viewpoint 7 on the Great Orme. It shows that from this location the wind turbines and offshore substation platforms of the Tier 2 proposed offshore wind farms would be almost completely hidden behind the wind turbines and offshore substation platforms of the proposed Mona Offshore Wind Project and the consented Awel y Môr offshore wind farm. This would also apply to any location east of here as far as Point of Ayr, from which the wind turbines and offshore substation platforms of the Tier 2 proposed offshore wind farms would be almost completely hidden behind the wind turbines and offshore substation platforms of the proposed Mona Offshore Wind Project, the consented Awel y Môr offshore wind farm and the existing North Wales cluster. Consequently, **negligible adverse** additional, cumulative effects are likely to arise.

1.8 Summary of effects

1.8.1.1 An assessment of potential impacts and effects arising from changes within the settings of designated historic assets as a result of the construction, operation and maintenance, and decommissioning of the wind turbines and offshore substation

platforms of the Mona Offshore Wind Project has been undertaken and presented within this document.

1.8.1.2 Overall it is concluded that there would be no significant direct effects arising from the Mona Offshore Wind Project during the construction, operation and maintenance or decommissioning phases.

1.8.1.3 Assessment has also been undertaken of the potential for cumulative effects to occur in respect of other operational, consented and proposed offshore wind farms. This has found that there is the potential for effects of **moderate adverse** significance to occur in respect of a small number of designated historic assets:

- Creuddyn and Conwy - Registered Historic Landscape
- Condover House - Grade II* Registered Park and Garden and Grade II* listed building
- Gwrych Castle - Grade II* Registered Park and Garden and Grade I listed building
- Happy Valley - Grade II Registered Park and Garden
- Church of St Tudno - Grade II* listed building
- Llandudno Pier – Grade II* listed building.

1.8.1.4 No mitigation is proposed as there are no reasonable practicable measures which would avoid or reduce these significant cumulative effects.

1.8.1.5 All effects should be regarded as time-limited and fully reversible following the decommissioning of the Mona Offshore Wind Project.

1.9 References

Cadw (2011) Conservation Principles for the Sustainable Management of the Historic Environment in Wales, March 2011.

Cadw (2017a) Setting of Historic Assets in Wales, May 2017.

Cadw (2017b) Heritage Impact Assessment in Wales, May 2017.

CIfA (2020) Standard and Guidance for Historic Environment Desk Based Assessment. Chartered Institute for Archaeologists, October 2020.

Historic England (2017) Historic Environment Good Practice Advice in Planning: 3 The Setting of Heritage Assets, 2nd edition, December 2017.

IEMA *et al* (2021) Principles of Cultural Heritage Impact Assessment in the UK, Institute of Environmental Management and Assessment, Institute of Historic Building Conservation and Chartered Institute for Archaeologists, June 2021.

Landscape Institute (2013) Guidelines for Landscape and Visual Impact Assessment in the UK, Landscape Institute and Institute of Environmental Management and Assessment, 3rd edition.

Planning Inspectorate Advice Note Seventeen (2019) Cumulative effects assessment relevant to nationally significant infrastructure projects, Version 2, August 2019.

RWE (2022) Awel y Môr Offshore Wind Farm Category 6: Environmental Statement Volume 6, Annex 2.2: 5: Landscape and Visual Impact Assessment (LVIA) Figures - Figure 2.12a (LANDMAP Aspect Areas: Historic Landscape), Available: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010112/EN010112-000307-6.6.2.2.18_AyM_LVIA_SUB_Fig_2-12a_Landmap_HL.pdf, Accessed February 2024.

Welsh Government (2017) Technical Advice Note 24: The Historic Environment, May 2017.

Appendix A. Assessment methodology

A.1. Introduction

A.1.1.1.1 This technical report presents the methodology used to undertake the assessment of potential impacts and effects arising from changes within the settings of nationally important designated historic assets as a result of the construction, operation and maintenance, and decommissioning of the Mona Offshore Wind Project Generation Assets (hereafter referred to as the Mona Generation Assets), specifically the area containing the wind turbines and offshore substation platforms (hereafter referred to as the Mona Array Area).

A.2. Scope

A.2.1.1.1 The settings assessment considers the potential impact of the Mona Generation Assets on terrestrial (onshore) designated historic assets as a result of change in their settings.

A.2.1.1.2 Due to the location of the Mona Array Area, most of the onshore designated terrestrial historic assets to be subject to assessment are located in Wales. Consequently, the definition of setting (of a historic asset) to be used for the assessment is the one provided in Technical Advice Note 24 (TAN24):

'The setting of a historic asset includes the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Setting is not a historic asset, though land within a setting may contain other historic assets' (Welsh Government, 2017, Annex D).

A.2.1.1.3 A similar definition of setting for heritage assets in England is provided within the glossary of the National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021).

A.2.1.1.4 Whilst development in general may affect setting in a range of ways, including factors such as noise and odour, the current assessment considers impacts resulting from visual change only. At its closest points, the Mona Array Area is located approximately 28 km from Anglesey, 31 km from mainland north Wales, 46 km from the Lancashire coast and 47 km from the Isle of Man. Consequently, there is no potential for the Mona Generation Assets to affect the setting of onshore cultural heritage assets other than visually.

A.2.1.1.5 The offshore export cables will be submerged and have therefore been scoped out of the assessment.

A.2.1.1.6 The settings assessment has considered only designated historic assets. This reflects the importance attached to their settings by statute and policy, and hence the greater likelihood of significant effects as a result of change within their settings. Designated heritage assets comprise:

- World Heritage Sites
- Scheduled Monuments (Wales and England only)
- Listed Buildings (Wales and England only)
- Registered Buildings (Isle of Man only)

- Registered Historic Parks and Gardens (Wales only)
- Registered Parks and Gardens (England only)
- Registered Battlefields (England only)
- Conservation Areas
- Registered Historic Landscapes (Wales only).

A.3. Study area

A.3.1.1.1 The study area for this assessment is illustrated in Figure A.1 and is based on that developed for the Seascape, Landscape and Visual Impact Assessment (SLVIA). It extends 50 km from the Mona Array Area and has been defined through consideration of the blade tip Zone of Theoretical Visibility (ZTV).

A.3.1.1.2 Whilst the wind turbines and offshore substation platforms within the Mona Array Area may be visible at distances in excess of 50 km, this eventuality is scoped out of assessment because:

- At distances over 50 km, the apparent height of the wind turbines would appear very small and this along with the limitations of the human eye in distinguishing shapes at such distances will result in the Mona Generation Assets being experienced as recessive, barely noticeable elements in the setting of heritage assets outside the defined study area.
- The influence of earth curvature begins to limit the apparent height and visual influence of the wind turbines visible at long distances (such as over 50 km), as the lower parts of the wind turbines would be partially hidden behind the apparent horizon, leaving only the upper parts visible above the skyline.
- The variation of weather conditions influencing visibility off the coast has also informed the SLVIA and hence this defined study area. Met Office visibility data gathered over a 10-year period indicate that visibility beyond 50 km is likely to occur infrequently. The data is presented in full in Volume 6, Annex 8.4: Seascape and Visual Resources Impact Methodology.

A.3.1.1.3 Given the above, it is evident that there is negligible potential for the Mona Generation Assets to affect the setting of historic assets that are more than 50 km from the Mona Array Area in such a way that their heritage significance might be adversely affected. As such, there is negligible potential for significant effects to occur outside the defined study area. As the purpose of the EIA process is to identify significant effects, 50 km represents an appropriate outer limit to the defined study area.

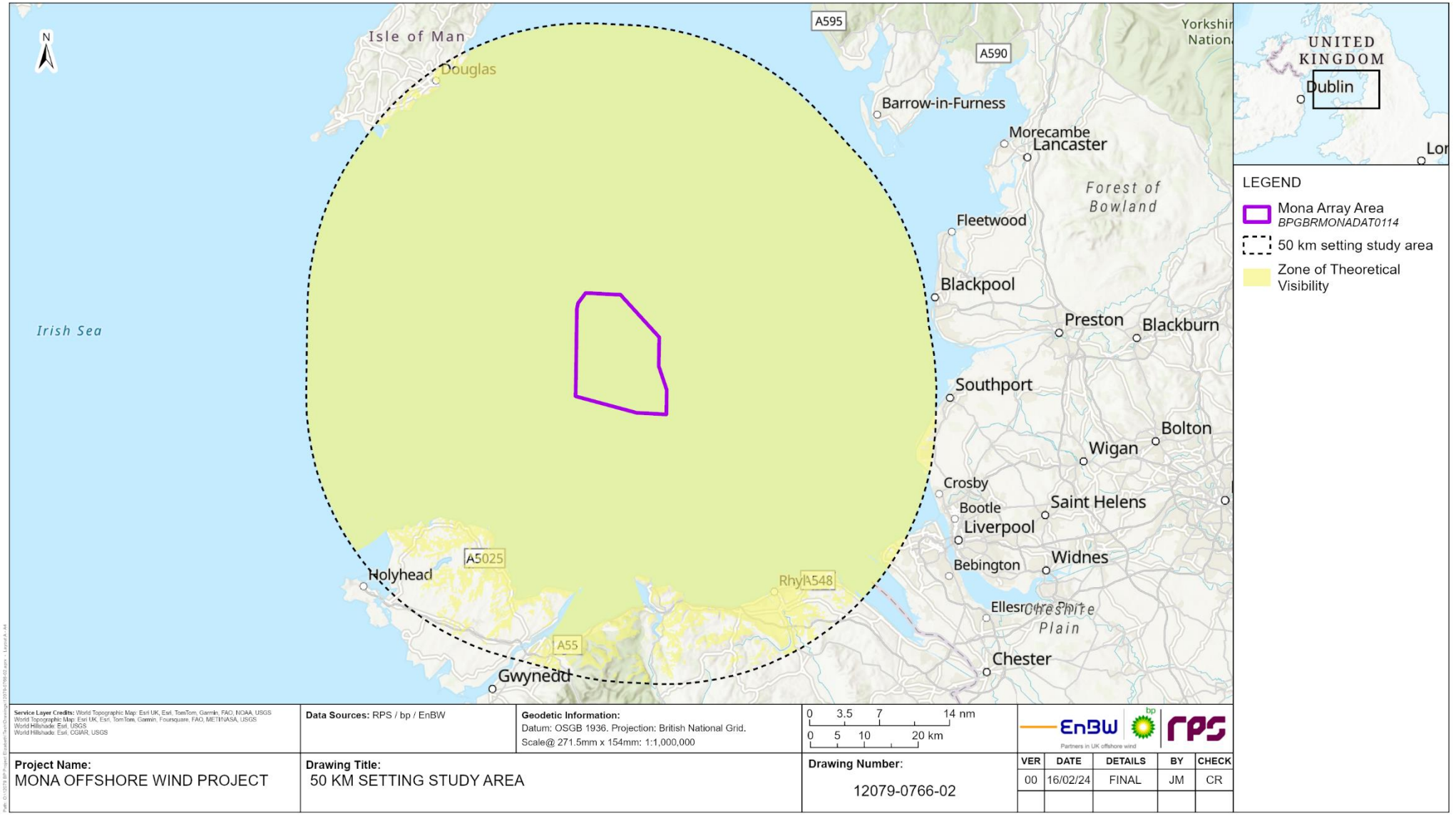

Figure A.1: 50 km settings study area.

A.4. Methodology

A.4.1 Introduction

A.4.1.1.1 This settings assessment has been prepared with reference to appropriate guidance and 'good practice' advice including that presented in the Chartered Institute for Archaeologists' *Standard and Guidance for Historic Environment Desk Based Assessment* (CIfA 2020).

A.4.1.1.2 Planning Policy and guidance appropriate to the historic environment are set out in detail in Volume 7, Annex 5.2; Historic environment policy and guidance of the Environmental Statement and summarised within Volume 3, Chapter 5: Historic environment of the Environmental Statement. For immediate reference, the key guidance relevant to undertaking settings assessments in Wales is set out within the Setting of Historic Assets in Wales (Cadw, 2017). Also relevant is Historic Environment Good Practice Advice in Planning: 3 The Setting of Heritage Assets (Historic England, 2017) and this has been taken into account where relevant.

A.4.1.1.3 This guidance document focuses on the management of change within the setting of historic assets. It explains what setting is, how it contributes to the significance of a historic asset, and why it is important, in order to aid practitioners with the implementation of Welsh national policies and guidance relating to the historic environment.

A.4.1.1.4 In the Conservation Principles document (Cadw, 2011), setting was defined as: 'The surroundings in which an historic asset is experienced, its local context, embracing present and past relationships to the adjacent landscape'.

A.4.1.1.5 This definition has been updated in Technical Advice Note 24 (TAN24) to: 'The setting of a historic asset includes the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Setting is not a historic asset, though land within a setting may contain other historic assets' (Welsh Government, 2017, Annex D).

A.4.1.1.6 The definition is repeated in recent guidance regarding the issue of the settings of historic assets in Wales (Cadw, 2017), which makes the following points:

- Setting usually extends beyond the property boundary of an individual historic asset
- Intangible factors such as function, sensory perceptions or historical, artistic, literary and scenic associations can be important in understanding settings, as well as physical elements within the surroundings of the asset
- When development is proposed there is a need to assess the historic assets that may be affected and understand how their settings contribute to the significance of these assets.

A.4.1.1.7 The 2017 document goes on to outline a four-stage approach to decision-taking, as follows:

1. Identify which historic assets and their settings could be affected by a proposed development

2. Define and analyse the setting of each historic asset and assess whether, how and to what degree the setting contributes to the heritage significance of the asset
3. Evaluate the effects of the proposed development, whether beneficial or harmful, on that heritage significance
4. Consider options to mitigate or improve potential impacts on that heritage significance.

A.4.1.1.8 The guidance also states that the introduction of offsetting or compensatory proposals, such as public access or interpretation panels, will not reduce the impact of the development within the setting of the historic asset, and thus should not be accepted as mitigation. However, these may be considered when the decision-making body weighs up the benefits of the scheme.

A.4.1.1.9 The existence of direct lines of sight between the historic asset and the proposed development is an important factor in judging the visual impact of the development. However, it is possible for changes within the setting to occur even when such a relationship does not exist. For example, views towards a listed building from a frequently visited location, such as a park or a public footpath, may be affected by the presence of a larger development, even if the development is not directly visible from the building itself.

A.4.1.1.10 An assessment of visual impacts on the historic assets and their settings needs to consider a wide variety of factors including the location of the asset within the physical landscape and the seascape, its relationship with contemporary and non-contemporary features within that landscape and seascape, and the location, size and character of the proposed development in relation to these factors.

A.4.1.1.11 The assessment then needs to balance the impact of these various considerations based on informed professional judgment. Assessment of visual impacts can be undertaken in accordance with the procedures expressed in the Guidelines for Landscape and Visual Impact Assessment 3rd Edition (Landscape Institute, 2013).

A.4.1.1.12 There should also be consideration of the sensitivity to change of the setting of a historic asset. This requires examination of the current setting with regard to identifying elements that contribute to the heritage significance of the asset, elements that make a neutral contribution to the heritage significance of the asset and elements that make a negative contribution to (i.e. detract from) the heritage significance of the asset.

A.4.2 Data Gathering

A.4.2.1.1 The defined study area (see section A.2) was used for the purposes of data collection. The following resources were used in the first instance to gather data regarding designated heritage assets:

- Cadw's Cof Cymru
- Historic England's Open Data Hub
- Isle of Man Historic Environment Record.

A.4.2.1.2 The desk-based research has been augmented by site visits in February 2024 to confirm visibility and gain a fuller understanding of the relevant assets' settings and heritage significance.

A.4.3 Identification of Receptors

A.4.3.1.1 As detailed in Table A.1, there is a very large number of designated cultural heritage assets in the defined study area and the Mona Generation Assets may affect the setting of a correspondingly large number of assets.

Table A.1: Designated Heritage Assets in the Cultural Heritage Study Area.

Designation	Number
World Heritage Sites	Wales: 3 England: 0
Scheduled Monuments	Wales: 302 England: 2
Ancient Monuments	78
Listed Buildings	Wales 3254 (Grade I: 69; Grade II*: 248 Grade II: 2937) England: 47 (Grade I: 0; Grade II*: 1 Grade II: 46)
Registered Buildings	161
Registered Historic Parks and Gardens	43 (Grade I: 5; Grade II*: 11; Grade II: 27)
Registered Parks and Gardens	0
Registered Battlefields	0
Conservation Areas	Wales: 64 England: 6
Registered Historic Landscapes	9

A.4.3.1.2 Given that impact is determined with reference to heritage significance, simple intervisibility and visual change in a historic asset's setting cannot be equated directly with an adverse impact; in many instances where the Mona Generation Assets will be visible from historic assets or otherwise appear in their setting this will represent a neutral change, as the historic asset's significance does not draw upon a visual or historic relationship with the seascape.

A.4.3.1.3 Therefore, a staged approach has been used to identify cultural heritage receptors, where there is potential for significant effects to occur, rather than neutral change. The following approach has been adopted to identify receptors to be taken through to assessment:

- Using the ZTV, nationally important designated historic assets within the defined study area that may be subjected to change in setting were identified
- Those assets that have a meaningful visual or clear historic relationship with the sea that contributes substantively to their heritage significance were identified. Such relationships are most frequently related to the historic function of the asset, such as: lighthouses and observation posts; designed aesthetic relationships, where the asset has been designed with reference to views out to sea, for example promenade hotels and designed landscapes with seaward vistas; and assets where the sea forms an important backdrop to the asset, for example war memorials in seafront locations or ruins on coastal cliffs. Assets where no such relationships have been identified have been scoped out of the assessment
- Site visits were undertaken to confirm potential intervisibility and gather baseline setting data.

A.4.3.1.4 This scoping process broadly equates to Stages 1 and 2 of the four-stage process espoused in Cadw guidance, though the Stage 2 element is only undertaken at a high level at this point in the process; more detailed discussion of setting and contribution to heritage significance is presented where assets have been taken through to assessment.

A.5. Impact assessment methodology

A.5.1 Overview

A.5.1.1.1 The historic environment impact assessment has followed the methodology set out in Volume 1, Chapter 5: EIA methodology of the Environmental Statement. Specific to the historic environment impact assessment, the following guidance documents have also been considered:

- Conservation Principles for the Sustainable Management of the Historic Environment in Wales (Cadw, 2011)
- Heritage Impact Assessment in Wales (Cadw, 2017a)
- Setting of Historic Assets in Wales (Cadw, 2017b)
- The Setting of Heritage Assets (Historic England, 2017).

A.5.2 Impact assessment criteria

A.5.2.1.1 The criteria for determining the significance of effects (which can be adverse or beneficial) is a two-stage process that involves defining the magnitude of the impacts and the sensitivity and value of the receptors. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity and value of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in Volume 1, Chapter 5: EIA methodology of the Environmental Statement.

A.5.2.1.2 The criteria for defining magnitude in this chapter are outlined in Table A.2 below. Given that the degree of change in the receptor's setting will be determined by visibility, this will vary substantially depending on atmospheric conditions, such as haze, with the Mona Generation Assets only being visible from land in periods of very good and excellent visibility as defined by the Met Office. Therefore, frequency of visibility has been factored into the assessment of magnitude, drawing upon Met Office visibility data gathered over a 10-year period at Mona (Anglesey), Rhyl and Ronaldsway (Isle of Man) weather stations. The data is presented in full in Volume 6, Annex 8.4: Seascape and Visual Resources Impact Methodology. It should be noted that this visibility data includes nighttime observations.

A.5.2.1.3 The assessment will also examine the potential for cumulative impacts to arise as a results of the construction, operation and maintenance, and decommissioning of other offshore wind projects. Specifically these comprise:

- Awel y Môr – consented but not yet under construction
- Morgan – DCO application forthcoming
- Morecambe – DCO application forthcoming.

Table A.2: Definition of terms relating to the magnitude of an impact.

Magnitude of impact	Definition
High	Change within the setting of the asset such that the significance of the asset is lost or substantially harmed (Adverse).
	Change within the setting of the asset such that the significance of the asset is substantially enhanced (Beneficial).
Medium	Change within the setting of the asset such that the significance of the asset is clearly harmed (Adverse).
	Change within the setting of the asset such that the significance of the asset is clearly enhanced (Beneficial).
Low	Change within the setting of the asset such that the significance of the asset is slightly harmed (Adverse).
	Change within the setting of the asset such that the significance of the asset is slightly enhanced (Beneficial).
Negligible	Change within the setting of the asset such that the significance of the asset is barely affected (Adverse).
	Change within the setting of the asset such that the significance of the asset is barely affected (Beneficial).
No change	No change within the setting of the asset.

A.5.2.1.4 The criteria for defining sensitivity in this chapter are outlined in Table A.3 below.

Table A.3: Definition of terms relating to the sensitivity of the receptor.

Sensitivity/value	Definition
Very High	World Heritage Sites and the individual attributes that convey their Outstanding Universal Value.
High	Scheduled Monuments, Listed Buildings (Grade I, II*), Registered Historic Parks and Gardens (Grade I, II*), Registered Historic Landscapes, Registered Battlefields,.
Medium	Not applicable in the current context
Low	Not applicable in the current context

A.5.2.1.5 The significance of the likely effect upon any historic asset is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table A.4. Where a range of significance of likely effect is presented in Table A.4, the final assessment for each likely effect is based upon expert judgement.

A.5.2.1.6 For the purposes of this assessment, any effects with a significance level of minor or less have been concluded to be not significant in terms of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Table A.4: Matrix used for the assessment of the significance of the effect.

Sensitivity/value of Receptor	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
High	No change	Minor	Minor or Moderate	Moderate or Major	Major
Very High	No change	Minor	Moderate or Major	Major	Major

A.6. References

Cadw, (2011) Conservation Principles for the Sustainable Management of the Historic Environment in Wales.

Cadw, (2017) Setting of Historic Assets in Wales.

Chartered Institute for Archaeologists (CIfA), (2014 updated 2020) Standard and Guidance for Historic Environment Desk Based Assessment. Online, available at: CIfAS&GDBA_2.pdf (archaeologists.net – accessed 26/01/23).

Historic England, (2017), Historic Environment Good Practice Advice in Planning: 3 The Setting of Heritage Assets (2nd Edition)

IEMA, (2021) Principles of Cultural Heritage Impact Assessment in the UK.

Landscape Institute, (2013) Guidelines for Landscape and Visual Impact Assessment

Welsh Government, (2017) Technical Advice Note 24: The Historic Environment.