



gwerth mewn gwahaniaeth
delivering on distinction

Morlais Project Environmental Statement

Chapter 20: Onshore Archaeology and Cultural Heritage

Volume I

Applicant: Menter Môn Morlais Limited
Document Reference: PB5034-ES-020
Chapter 20: Onshore Archaeology and Cultural Heritage
Author: Royal HaskoningDHV



Morlais Document No.:
MOR/RHDHV/DOC/0041

Status:
Final

Version No:
F3.0

Date:
July 2019



TABLE OF CONTENTS

TABLE OF CONTENTS	II
TABLE OF TABLES	III
TABLE OF FIGURES (VOLUME II).....	III
TABLE OF APPENDICES (VOLUME III).....	III
GLOSSARY OF ABBREVIATIONS.....	IV
GLOSSARY OF TERMINOLOGY	IV
20. ONSHORE ARCHAEOLOGY AND CULTURAL HERITAGE	1
20.1. INTRODUCTION.....	1
20.2. POLICY, LEGISLATION AND GUIDANCE	1
20.3. CONSULTATION	8
20.4. ASSESSMENT METHODOLOGY	14
20.5. EXISTING BASELINE	19
20.6. IMPACT ASSESSMENT	28
20.7. SUMMARY	46
20.8 REFERENCES.....	51

TABLE OF TABLES

Table 20-1 NPS EN-1 and EN-3 Assessment Requirements Relevant to Onshore Archaeology and Cultural Heritage	2
Table 20-2 National and Regional Policy Requirements Relevant to Onshore Archaeology and Cultural Heritage	6
Table 20-3 Consultation Responses	9
Table 20-4 Definitions of Significance (Heritage interest)	17
Table 20-5 Definitions of Magnitude of Effect	18
Table 20-6 Definitions for Impact Significance	18
Table 20-7 Impact Significance Assessment Matrix	18
Table 20-8 Scheduled Monuments within study area	21
Table 20-9 Listed buildings within study area	21
Table 20-10 Further designated heritage assets scoped into the report	23
Table 20-11 Heritage Assets identified as key to the Project	25
Table 20-12 Worst-Case Scenario impacts from the Project	29
Table 20-13 Inter-topic relationships	43
Table 20-14 Interaction between Impacts	44
Table 20-15: Summary of Impacts by key asset	48

TABLE OF FIGURES (VOLUME II)

Figure 20-1 Designated Heritage Assets within the Study Area
Figure 20-2 Non-Designated Heritage Assets within the Study Area
Figure 20-3 Key Heritage Assets within the Study Area
Figure 20-4 Key Heritage Assets within the Study Area

TABLE OF APPENDICES (VOLUME III)

Appendix 20.1 Desk-Based Assessment – Terrestrial archaeology and Walkover Survey
Appendix 20.2 Royal HaskoningDHV Specific Reference Numbers

GLOSSARY OF ABBREVIATIONS

ADS	Archaeology Data Service
EIA	Environmental Impact Assessment
ES	Environmental Statement
CIfA	Chartered Institute for Archaeologists
DBA	Desk-Based Assessment
GAPS	Gwynedd Archaeological Planning Services
GAT	Gwynedd Archaeological Trust
GHER	Gwynedd Archaeological Trust Historic Environment Record
GIS	Geographical Information Systems
HDD	Horizontal Directional Drilling
MHWS	Mean High Water Springs
NMRW	National Monuments Record of Wales
NRW	Natural Resources Wales
PDE	Project Design Envelope
PINS	The Planning Inspectorate
RCAHMW	Royal Commission on the Ancient and Historical Monuments of Wales
RSPB	Royal Society for the Protection of Birds
SLVIA	Seascape, Landscape and Visual impact assessment
TWAO	Transport and Works Act Order
WCS	Worst-Case Scenario
WSI	Written Scheme of Investigation
ZTV	Zone of Theoretical Visibility

GLOSSARY OF TERMINOLOGY

Designated heritage asset	Heritage assets which have been afforded protection under current acts and regulations (e.g. scheduled monuments, listed buildings, registered parks and gardens).
Geoarchaeology	The application of earth science principles and techniques to the understanding of the archaeological record. Includes the study of soils and sediments and of natural physical processes that affect archaeological sites.
Historic Landscape Character	The attributes that contribute to the formation of the historic character of the landscape.
Listed buildings	A Listed Building is that which is seen to be of special architectural or historic interest. Listed buildings are designated as (from highest perceived significance to lowest): Grade I, II*, or II.
Non-Designated heritage asset	Heritage assets not currently afforded protection by current acts and regulations. Often in the form of buried archaeological remains, or locally listed buildings.
Palaeoenvironmental	Study of preserved organic remains (preserved through burning, waterlogging, etc) which survive within subsurface deposits and can be used to put archaeological sites into the historic environmental context.
Setting	The surroundings in which a heritage asset is experienced
Significance	Collective term for the sum of all archaeological, architectural, artistic and historic interest of a heritage asset.

20. ONSHORE ARCHAEOLOGY AND CULTURAL HERITAGE

20.1. INTRODUCTION

1. This chapter has been undertaken to assess the impact of the Morlais Project (the Project) upon the onshore historic environment and includes an assessment of potential impacts of the construction and operation of the Project upon the historic environment; principally designated and non-designated heritage assets, as as-yet unknown buried archaeological remains and their setting.
2. This chapter has been produced by Patrick Moan, BA, ACIfA, Heritage Consultant at Royal HaskoningDHV (RHDHV). The chapter is supported by a desk-based assessment (DBA) produced by Wessex Archaeology (**Appendix 20.1, Volume III**), which contains heritage baseline data for the Project along with assessments of significance and the contribution of setting to that significance.
3. As there is no industry-standard methodology for heritage impact assessment in terms of Environmental Impact Assessment (EIA), the approach to this chapter has followed standards and guidance set out in documents prepared by: Cadw, Chartered Institute for Archaeologists (CIfA), Historic England, and the Welsh Government (**Section 20.2.3**).
4. The key sections of the chapter are:
 - Policy, Legislation and Guidance (**Section 20.2**): Outlines the legislation, planning policy and guidance relevant to this Project in terms of onshore archaeology and cultural heritage;
 - Consultation (**Section 20.3**): Identifies the comments from consultation with relevant stakeholders (the Scoping Opinions from 2015, 2017 and 2018) and where their comments are addressed in this report;
 - Assessment Methodology (**Section 20.4**): Outlines the methodologies employed for this report (baseline data procurement, study area etc.);
 - Existing Baseline (**Section 20.5**): Summarises the data produced within the DBA (**Appendix 20.1, Volume III**) for use in the following impact assessment;
 - Impact Assessment (**Section 20.6**): Identifies the impact the Project may have on identified (onshore) heritage assets during the Project's construction, operation and decommissioning, and potential mitigation;
 - Summary (**Section 20.7**); and
 - References (**Section 20.8**).

20.2. POLICY, LEGISLATION AND GUIDANCE

5. There are a number of relevant Policies, Acts and guidance documents which inform the approach to the assessment of impacts to archaeology and cultural heritage as part of an EIA framework, although no industry-standard methodology is currently available. A full description of all policy and legislation relevant to the Project is included in **Chapter 2, Policy and Legislation** of this ES.

20.2.1. Policy

6. The following policies have been reviewed to inform the approach to this chapter:

- Planning Policy Wales, Edition 10, Chapter 6 (Welsh Government, 2018);
- Technical Advice Note (TAN) 24: The Historic Environment (Welsh Government, 2017);
- Welsh Office Circular 11/99: Environmental Impact Assessment (Welsh Office 1999);
- Conservation principles for the sustainable management of the historic environment in Wales (Cadw, 2011); and
- Anglesey and Gwynedd Joint Local Development Plan 2011 - 2026 (Isle of Anglesey County Council and Gwynedd Council, 2017).

20.2.1.1. National Policy Statement

7. The Project is seeking consent for a Transport and Works Act Order from the Welsh Government and a Marine Licence from Natural Resources Wales (NRW). Although this project is not seeking a Development Consent Order (DCO), its size (240 MW) means it is representative of a Nationally Significant Infrastructure Project (NSIP), therefore guidance relevant to NSIPs is considered appropriate to use for this Project. Guidance that is relevant to assessing impacts on marine water and sediment quality for NSIPs are set out within National Policy Statements (NPSs) which are the principal decision-making documents for NSIPs. Those relevant to marine water and sediment quality include:

- Overarching NPS for Energy (EN-1) (Department of Energy and Climate Change (DECC) 2011a); and
- NPS for Renewable Energy Infrastructure (EN-3), July 2011 (DECC, 2011b).

8. **Table 20-1** sets out how specific NPS policies relevant to onshore archaeology and cultural heritage are addressed within this chapter. Further detail on legislation and policy in relation to the wider project is provided in Chapter 3, Policy and Legislation.

Table 20-1 NPS EN-1 and EN-3 Assessment Requirements Relevant to Onshore Archaeology and Cultural Heritage

NPS Requirement	NPS Reference	ES Reference
“As part of the Environmental Statement the applicant should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset.”	EN-1, Section 5.8.8	The significance of the archaeological receptors (heritage assets) considered in this chapter has been detailed in Section 20.5 .
“Where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect	EN-1, Section 5.8.9	As described in Section 20.4 , this chapter is informed by a Desk-based Assessment undertaken by Wessex Archaeology (Wessex Archaeology, 2019). A settings assessment was undertaken to inform the DBA, and is updated as

NPS Requirement	NPS Reference	ES Reference
the setting of a heritage asset, representative visualisations may be necessary to explain the impact.”		part of the impact assessment for this chapter (Section 20.6)
“The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents.”	EN-1, Section 5.8.10	The potential impacts of the Project are assessed in Section 20.6 , informed by the findings of the DBA (Wessex Archaeology, 2019).
<p>In considering applications, the Infrastructure Planning Commission (IPC) [now the Planning Inspectorate and the Secretary of State] should seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development, including by development affecting the setting of a heritage asset, taking account of:</p> <ul style="list-style-type: none"> ▪ Evidence provided with the application; ▪ Any designation records; ▪ The Historic Environment Record, and similar sources of information; ▪ The heritage assets themselves; ▪ The outcome of consultations with interested parties; and ▪ Where appropriate and when the need to understand the significance of the heritage asset demands it, expert advice’ 	EN-1, Section 5.8.11	This ES chapter assesses the potential for impacts to occur upon the onshore archaeology and cultural heritage resource as a result of the Project. Impacts of a direct (e.g. physical) and indirect (e.g. non-physical) nature are considered within the context of the project in a manner that is proportionate to those assets present (and their perceived heritage significance), as agreed in consultation with GAT and Cadw. This approach is outlined in Section 20.4 with the heritage assets set out in the Existing Baseline in Section 20.5 and assessment detailed in Section 20.6 .
“In considering the impact of a proposed development on any heritage assets, the IPC [now the Planning Inspectorate and the Secretary of State] should take into account the particular nature of the significance of the heritage assets and the value that they hold for this and future generations. This understanding should be used to avoid or minimise conflict between conservation of that significance and proposals for development.”	EN-1, Section 5.8.12	Heritage significance is assigned (Section 20.5) in line with the methodology set out in Section 20.4 , based on available data. A precautionary approach has been adopted with regard to below ground remains which will be further substantiated post-consent following an initial informative stage of mitigation work (e.g. further geophysical survey and archaeological trial trenching).
<p>The IPC [now the Planning Inspectorate and the Secretary of State] should take into account the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution of their settings and the positive contribution they can make to sustainable communities and economic vitality... This can be by virtue of:</p> <ul style="list-style-type: none"> ▪ heritage assets having an influence on the character of the environment and an area’s sense of place; 	EN-1, Section 5.8.13	In order to assess the positive contributions of the Project in the context of onshore archaeology and cultural heritage, the magnitude of positive effect has also been considered in this chapter. The magnitude of positive effect directly relates to the level of public value associated with an individual beneficial impact and may correspond directly to the project itself (e.g. by means of route refinement or micro-siting which seek to avoid heritage

NPS Requirement	NPS Reference	ES Reference
<ul style="list-style-type: none"> ▪ heritage assets having a potential to be a catalyst for regeneration in an area, particularly through leisure, tourism and economic development; ▪ heritage assets being a stimulus to inspire new development of imaginative and high-quality design; ▪ the re-use of existing fabric, minimising waste; and, ▪ the mixed and flexible patterns of land use in historic areas that are likely to be, and remain, sustainable. <p>...The IPC [now the Planning Inspectorate and the Secretary of State] should take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design should include scale, height, massing, alignment, materials and use. The IPC [now the Planning Inspectorate and the Secretary of State] should have regard to any relevant local authority development plans or local impact report on the proposed development in respect of the factors set out [above]’.</p>		<p>assets) or where a project will enhance the historic environment and / or public understanding (e.g. by adding to the archaeological record). This is discussed in Section 20.4 and assessed in Section 20.7.</p>
<p>There should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Once lost heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated assets of the highest significance, including Scheduled Monuments; registered battlefields; grade I and II* listed buildings; grade I and II* registered parks and gardens; and World Heritage Sites, should be wholly exceptional.’</p>	<p>EN-1, Section 5.8.14</p>	<p>The potential impacts arising on designated heritage assets are assessed within Section 20.6.</p>
<p>“Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset the greater the justification will be needed for any loss. Where the application will lead to substantial harm to or total loss of significance of a designated heritage asset the IPC [now the Planning Inspectorate and the Secretary of State] should refuse consent unless it can be demonstrated that the substantial harm to or loss of significance is</p>	<p>EN-1 Section 5.8.15</p>	<p>The potential impacts arising on designated heritage assets are assessed within Section 20.6. A heritage settings assessment was undertaken as part of the DBA (Wessex Archaeology, 2019) and is updated in Section 20.5. which undertakes Stages 1 and 2 of the Cadw setting guidance (Cadw 2017a) for assets not assessed as part of the DBA (Appendix 20.1,</p>

NPS Requirement	NPS Reference	ES Reference
necessary in order to deliver substantial public benefits that outweigh that loss or harm.”		Volume III), whilst assessment of potential impacts and consideration of mitigation (Stages 3 and 4) is undertaken in Section 20.6 .
“Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. The policies set out in paragraphs 5.8.11 to 5.8.15 above apply to those elements that do contribute to the significance. When considering proposals, the IPC [now the Planning Inspectorate and the Secretary of State] should take into account the relative significance of the element affected and its contribution to the significance of the World Heritage Site or Conservation Area as a whole.’	EN-1, Section 5.8.16	There are no World Heritage Sites or conservation areas within the study areas considered within this chapter.
“Where loss of significance of any heritage asset is justified on the merits of the new development, the IPC [now the Planning Inspectorate and the Secretary of State] should consider imposing a condition on the consent or requiring the applicant to enter into an obligation that will prevent the loss occurring until it is reasonably certain that the relevant part of the development is to proceed”	EN-1, Section 5.8.17	The results of the impact assessment (Section 20,6) including proposed mitigation measures and residual impacts are summarised in Section 20.7 in Table 20-14 .
“When considering applications for development affecting the setting of a designated heritage asset, the IPC [now the Planning Inspectorate and the Secretary of State] should treat favourably applications that preserve those elements of the setting that make a positive contribution to, or better reveal the significance of, the asset. When considering applications that do not do this, the IPC [now the Planning Inspectorate and the Secretary of State] should weigh any negative effects against the wider benefits of the application. The greater the negative impact on the significance of the designated heritage asset, the greater the benefits that will be needed to justify approval.”	EN-1, Section 5.8.18	The results of the impact assessment (Section 20,6) including proposed mitigation measures and residual impacts are summarised in Section 20.7 in Table 20-14 . As set out in Section 20.4 the assessment is based on a desk-based review and a settings assessment.
“Consultation with the relevant statutory consultees should be undertaken by the applicants at an early stage of the development.”	EN-3, Section 2.6.140	Consultation undertaken to inform this chapter is discussed in Section 20.3 .
“Assessment should be undertaken asset out in Section 5.8 of EN-1. Desk-based studies should take into account any geotechnical or geophysical surveys that have been undertaken to aid the wind farm design.”	EN-3, Section 2.6.141	This chapter has been undertaken in accordance with Section 5.8 of EN-1, as detailed above. It has also been informed by an ADBA (Wessex Archaeology, 2019) and a visual setting assessment (Section 20.5.5).

9. **Table 20-1** sets out the national and regional policies that are of relevance to Onshore Archaeology and Cultural Heritage.

Table 20-2 National and Regional Policy Requirements Relevant to Onshore Archaeology and Cultural Heritage

Policy Description	Reference	ES Reference
Planning Policy Wales		
<p>The Welsh Government’s specific objectives for the historic environment seek to:</p> <ul style="list-style-type: none"> • protect the Outstanding Universal Value of the World Heritage Sites; • conserve archaeological remains, both for their own sake and for their role in education, leisure and the economy; • safeguard the character of historic buildings and manage change so that their special architectural and historic interest is preserved; • preserve or enhance the character or appearance of conservation areas, whilst the same time helping them remain vibrant and prosperous; • preserve the special interest of sites on the register of historic parks and gardens; and • protect areas on the register of historic landscapes in Wales. 	6.1.6	<p>A Desk-based Assessment and walk over survey (Appendix 201., Volume III) was undertaken to identify all known and unknown, designated and undesignated heritage assets within the onshore study area. This is presented in Section 20.5.</p>
<p>Any decisions made through the planning system must fully consider the impact on the historic environment and on the significance and heritage values of individual historic assets and their contribution to the character of place.</p>	6.1.9	<p>The significance of heritage assets key to the Project is presented in Table 20-9.</p>
<p>If the planning authority is minded to approve an application and where archaeological remains are affected by proposals that alter or destroy them, the planning authority must be satisfied that the developer has secured appropriate and satisfactory provision for their recording and investigation, followed by the analysis and publication of the results and the deposition of the resulting archive in an approved repository.</p>	6.1.27	<p>Mitigation measures that have been proposed for the Project are summarised in Section 20.6.11.</p>
<p>Development proposals should aim to protect or enhance the natural or historic character and landscape of undeveloped coastlines. The particular landscapes of the coastline should be recognised and protected where they represent significant characteristics of place. Designation as a heritage coast does not directly affect the status of the area in planning terms, however, the features which contributed to the designation of such areas will be important considerations in development plans and in making development management decisions.</p>	6.5.12	As above
Anglesey and Gwynedd Joint Local Development Plan (JLDP)		
<p>1. All impacts on landscape character, heritage assets and natural resources have been adequately mitigated, ensuring that the special qualities of all locally, nationally and internationally important landscape, biodiversity and heritage designations, including, where appropriate, their settings are conserved or enhanced;</p> <p>2. That the proposal does not have a significant unacceptable effect on visual amenities;</p>	Policy ADN 3: Other Renewable Energy and Low Carbon Technologies	<p>The impact assessment of the Project on heritage assets, including proposed mitigation measures is presented in Section 20.6.</p>

Policy Description	Reference	ES Reference
3. That the proposal is mitigated to ensure that there aren't any significant unacceptable effects on sensitive uses located nearby;		
The Councils will manage development so as to conserve and where appropriate enhance the Plan area's distinctive natural environment, countryside and coastline, and proposals that have a significant adverse effect on them will be refused unless the need for and benefits of the development in that location clearly outweighs the value of the site or area and national policy protection for that site and area in question.	Strategic Policy PS 19: Conserving and Where Appropriate Enhancing the Natural Environment	As above
It is important that heritage assets - encompassing archaeology and ancient monuments, listed buildings, conservation areas and historic parks, gardens and landscapes are preserved	Policy PS 20: Preserving and Where Appropriate Enhancing Heritage Assets	As above

20.2.2. Legislation

10. The principal legislation relevant to protecting the historic environment in Wales are set out below. These acts also influence how cultural heritage is assessed in the EIA framework.

20.2.2.1. The Historic Environment (Wales) Act 2016

11. This Historic Environment (Wales) Act 2016 forms part of a suite of policies, advice and guidance to make improvements to the existing protection and management of Welsh heritage assets.

20.2.2.2. Planning (Listed Buildings and Conservation Areas) Act (1990)

12. Statutory protection for Listed Buildings and Conservation Areas, and their setting, is provided under the Planning (Listed Buildings and Conservation Areas) Act (1990). A Listed Building is that which is seen to be of special architectural or historic interest, and a Conservation Area comprises an area of special architectural or historic interest, the character or appearance of which is desirable to preserve or enhance. Grades of listing are:

- Grade I: buildings of exceptional interest;
- Grade II*: particularly important buildings of more than special interest; and
- Grade II: buildings of special interest, warranting every effort to preserve them.

20.2.2.3. The Planning (Listed Buildings and Conservation Areas) (Wales) Regulations 2012

13. The Planning (Listed Buildings and Conservation Areas) (Wales) Regulations 2012 dictate the process of statutory protection for Listed Buildings and Conservation Areas in Wales. It states that the process of listing is administered by Cadw on behalf of the National Assembly for Wales.

20.2.2.4. Ancient Monuments and Archaeological Areas Act 1979 (as amended)

14. Any archaeological site or historic building of national importance can be designated as a Scheduled Monument under the terms of the Ancient Monuments and Archaeological Areas Act

1979 (as amended), and is registered with the Department of Culture, Media and Sport. Any development that might physically affect a scheduled monument is subject to the granting of Scheduled Monument Consent. Cadw advise the government on individual cases for consent and offers advice on the management of Scheduled Monuments.

20.2.3. Guidance

15. A suite of documents have been produced by Cadw which provide guidance on how the historic environment in Wales is to be protected, managed and assessed. Similarly, standards and guidance and the Code of Conduct by the Chartered Institute for Archaeologists (CIfA) also informed the production of this ES and the Wessex DBA (**Appendix 20.1, Volume III**). The full list of guidance used to inform methodologies in this ES are:

- Historic Environment Guidance for Wave and Tidal Energy (Historic England, 2013);
- CIfA's Standard and guidance for historic environment desk-based assessments (2014a) and Code of Conduct (2014b);
- Guide to Good Practice on using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process, Revised (2nd) edition (Cadw and Countryside Council for Wales, 2007);
- Setting of Historic Assets in Wales (Cadw, 2017a);
- Heritage Impact Assessment in Wales (Cadw, 2017b);
- Managing Change to Listed Buildings in Wales (Cadw, 2017c);
- Managing Conservation Areas in Wales (Cadw, 2017d); and
- Managing Historic Character in Wales (Cadw, 2017e).

20.3. CONSULTATION

16. Consultation with stakeholders has been ongoing during Project development (**Table 20-3**), through comments obtained from Scoping Opinion documents (2015, 2017 and 2018), along with a conference call with a Gwynedd Archaeological Planning Services (GAPS) planning archaeologist.

17. A request for scoping opinion for the Project was issued to the Welsh Government Planning Inspectorate (PINS) under different consenting regimes in 2015 and 2017, with a final scoping opinion requested in April 2018 from Natural Resources Wales (NRW) and the Welsh Government PINS. All comments relevant to onshore heritage received in these scoping opinions have been compiled in **Table 20-3** and have been responded to in this Chapter.

18. A number of comments from the scoping opinion relate to the offshore/marine environment. These comments are responded to in **Chapter 13, Offshore Archaeology**.

19. A conference call with GAPS has also been undertaken at this stage of the Project, to inform GAPS of the project design, archaeology and cultural heritage considerations that will be included within this ES chapter and to identify the approach to mitigation moving forward.

Table 20-3 Consultation Responses

Consultee	Date/Document	Comment	Response
Planning Inspectorate	2018 Scoping Comments	The onshore study area should be defined and justified within the ES.	The onshore study area is defined in Section 20.4.1 and in the Wessex Archaeology DBA (Appendix 20.1, Volume III).
		The Scoping Report identifies a number of Scheduled Monuments within the onshore scoping corridor. Cadw has also identified the Holyhead Road: Quay on the Stanley Embankment. This should be included as a receptor within the assessment of effects.	Scheduled Monuments and the quay of Stanley embankment are discussed in Section 20.6 and in the Wessex Archaeology DBA (Appendix 20.1, Volume III).
		Assessment of Potential impact on the historical setting of assets should include consideration of noise and visual effects from construction activities.	The setting of heritage assets is discussed in Section 20.6.2 .
		The assessment should be undertaken in line with best practice guidance documents identified by Cadw	The guidance documents used to inform this assessment are presented in Section 20.2 .
NRW (inclusive of comments provided to NRW by Cadw)	Scoping Opinion 2018	Cadw is the primary source of information for designated assets and is also directly responsible for the management of some of the scheduled monuments within the study area.	Cadw data on designated assets has been downloaded from Lle (GIS data).
		In addition, other data sources (including primary sources) should be considered within the assessment, including, where appropriate, information held by the local archives and Oriol Ynys Mon. As noted in the scoping report, walk-over surveys are also likely to be required.	Wessex Archaeology undertook a paid Historic Environment Record search, records office visit and walkover survey as part of their DBA.
		The impact on the following designated historic assets, and their setting, should be assessed in the ES Scheduled Monuments: <ul style="list-style-type: none"> ▪ AN011 Trefignath Burial Chamber ▪ AN012 Ty-Mawr Standing Stone ▪ AN016 Holyhead Mountain Hut Circles 	These assets form part of the baseline data, produced as part of the DBA (Appendix 20.1, Volume III), updated for this ES and are included in the Impact Assessment in Section 20.6 .

Consultee	Date/Document	Comment	Response
		<ul style="list-style-type: none"> ▪ AN017 Penrhos Feilw Standing Stones ▪ AN019 Caer y Twr ▪ AN033 Plas Meilw Hut Circles ▪ AN034 Porth Dafarch Hut Circles ▪ AN146 The Holyhead Road: quay on the Stanley Embankment <p>Listed Buildings</p> <ul style="list-style-type: none"> ▪ 14733 Ebenezer Chapel II ▪ 14743 No 1, Stanley Cottages, Tyn Pwll Road II ▪ 14744 No 2, Stanley Cottages, Tyn Pwll Road II ▪ 14745 No 3, Stanley Cottages, Tyn Pwll Road II ▪ 14746 No 4, Stanley Cottages, Tyn Pwll Road II ▪ 14747 No 5, Stanley Cottages, Tyn Pwll Road II ▪ 14748 No 6, Stanley Cottages, Tyn Pwll Road II ▪ 16524 Pont Cytir, Cytir Road II ▪ 16525 Pont Penlech Nest, Penlech West II ▪ 16526 Bridge over Railway near Ty Mawr Farmhouse, Kingsland II ▪ 19231 Stanley Embankment II ▪ 19232 Milestone II ▪ 19233 Valley Station Signal Box II ▪ 19234 Cleifiog Fawr II ▪ 20069 Stanley Tollhouse II ▪ 20073 Milestone II ▪ 20074 Stanley Embankment II ▪ 20077 Fynnon y Wrach II ▪ 20081 Tan-y-Cytiau II ▪ 5714 Old Customs Post II ▪ 5759 Valley Railway Station Main Building II ▪ 5762 Kingsland Windmill, Mill Road, (S side) II* <p>Within the offshore buffer:</p>	

Consultee	Date/Document	Comment	Response
		<ul style="list-style-type: none"> ▪ 18032 Enclosure Walls at South Stack Lighthouse II ▪ 18033 Storehouse at South Stack Lighthouse II ▪ 18034 Former Oil Store at South Stack Lighthouse II ▪ 18035 Bridge Towers at South Stack Lighthouse II ▪ 5284 South Stack Lighthouse and former keeper accommodation II 	
		<p>The Scoping Report provides a basic outline of the methodology proposed to be applied for assessing impact on Archaeology and Cultural Heritage. Currently this is very minimal in detail and needs to be worked up providing greater detail on the methodology of investigation and assessments proposed to understand and evaluate the potential impact on historic assets.</p>	<p>The methodology for assessment is presented in Section 20.4.</p>
		<p>A number of scheduled monuments lie within the onshore scoping area or close to it. Many of these – including Trefignath Burial Chamber, Ty-Mawr Standing Stone, Holyhead Mountain Hut Circles and Caer y Twr are in the care of Welsh Ministers and are popular visitor attractions. Many of these sites were located specifically to take advantage of elevated viewpoints and have extensive settings – for example Caer y Twr watchtower. The onshore study area must therefore take account of this and ensure that full account of the potential impact of the works on the settings of these designated historic assets. The scoping report indicates that this will be the case however it would be advisable for the boundary of the scoping area be re-drawn to include the designated assets described in section 9.6.1 of the scoping report within the assessment area. The same comments apply to the important group of listed buildings, including those at South Stack. It will also be particularly important to</p>	<p>Undertaken as part of setting study in Wessex Archaeology DBA (Appendix 20.1, Volume III) and summarised in Sections 20.5.4 and 20.6.</p> <p>Scoping in of heritage assets outside of the study area has also been undertaken as part of the ES chapter, to include the South Stack lighthouse listed structures. All heritage assets of relevance to the final project design are within the study area.</p>

Consultee	Date/Document	Comment	Response
		consider the impact on non-designated historic assets.	
		In addition, three Conservation Areas are located in close proximity to the onshore scoping area, these being the Holyhead Beach, Holyhead Central and Holyhead Mountain Conservation Areas. A detailed Cultural Heritage record and Heritage Impact Assessment is expected as part of the EIA.	Conservation Areas are discussed and assessed in the Wessex Archaeology DBA (Appendix 20.1, Volume III), as summarised in Section 20.5.2 . Impact assessment is not undertaken on Conservation Areas as the onshore infrastructure is not in a position to affect the Conservation Area within the study area (Holyhead Mountain).
		The EIA should take account of the potential impact on the settings of all historic assets within the scoping area. This should be undertaken in line with Welsh Government Guidance provided in the document Managing Setting of Historic Assets in Wales.	Agreed, and undertaken following guidance as part of this chapter and in the Wessex Archaeology DBA and see Section 20.2 and 20.5 .
		Geophysical measures and potentially test pitting may also be required onshore to assess suitable locations for the substation and onshore cable route. A method statement for onshore evaluation will be required commencing with a Desk Based Assessment	Discussed with GAPS and proposed mitigation identified for each impact (Section 20.6) with an overview in Section 20.6.11 .
		The work required to determine the magnitude of impact of the development on the historic environment will need to be assessed using professional judgement by a competent expert.	DBA undertaken by ClfA Registered Organisation and this chapter completed by a Heritage Consultant (ACIfA) (Section 20.1).
Cadw	Scoping Opinion 2018	Table 8.5 should include consideration of designated Conservation Areas as the Holyhead Beach and Holyhead Central Conservation Areas are within scoping area B. Holyhead Mountain Conservation Area lies directly between sub-areas A and B and given the importance of outward views from this conservation area, should be included. A detailed Cultural Heritage record and Heritage Impact Assessment would be expected as part of the EIA.	Conservation Areas are discussed in the Wessex Archaeology DBA (Appendix 20.1, Volume III), as summarised in Section 20.5.2 , and impacts assessed in Section 20.6 .

Consultee	Date/Document	Comment	Response
		<p>Cadw has published guidance clarifying the required methodologies for assessing impact of developments on the setting of historic assets – see list below.</p>	<p>The Cadw guidance on setting has been taken into account (Section 20.2.3)</p>
		<p>The following policy and guidance documents will need to be taken into account:</p> <ul style="list-style-type: none"> ▪ Planning Policy Wales ▪ UK Marine Policy Statement ▪ Conservation Principles for the Sustainable Management of the Historic Environment in Wales ▪ Environment in Wales ▪ Welsh Government Technical Advice Note 24: the Historic Environment ▪ Draft Welsh National Marine Plan ▪ Managing Setting of Historic Assets in Wales. ▪ Managing Heritage Impact Assessment in Wales ▪ Managing Conservation Areas in Wales 	<p>The policy and guidance relevant to onshore heritage are taken into account (Section 20.2)</p>
GAT	Scoping Opinion 2017	<p>Impacts need to be considered in EIA</p>	<p>The impact assessment is presented in Section 20.6.</p>
		<p>WSI must be agreed (GAPS, Cadw and RCHAMW) prior to assessment and evaluation work</p>	<p>The requirement for a Written Scheme of Investigation (WSI) to be agreed in advance of further assessment and valuation work is described in Section 20.6.11.</p>
		<p>Coflein and Archwilio datasets are not to be used for development management/commercially.</p>	<p>A commercial search of the HER search was undertaken as part of Wessex Archaeology DBA (Appendix 20.1, Volume III).</p>
	Conference Call, 28/03/19	<p>Highlight that it is a false economy to defer archaeological evaluation work until post-consent and surveys are required to inform their response</p>	<p>Commitment from the Menter Môn to undertake geophysics and, if required, trial trenching pre-determination (Section 20.6.11).</p>

Consultee	Date/Document	Comment	Response
		An Iron Age settlement is located within the area at Parc Cybi.	This forms part of the Wessex Archaeology DBA (Appendix 20.1, Volume III) and also informs proposed mitigation within this ES (Section 20.6.11)

20.4. ASSESSMENT METHODOLOGY

20. The overarching methodologies used for EIA are outlined in **Chapter 5, EIA Methodology**. This section provides methodologies specific to the historic environment.

20.4.1. Study Area

21. The study area comprises the onshore cable corridor and the boundary of substation locations plus a 1 km buffer, implemented in order to capture all records of onshore archaeology and cultural heritage relevant to establishing the baseline (**Figure 20-1, Volume II**). A selective approach has also been used to undertake the setting study, whereby designated heritage assets outside of the study area which are identified as potentially being affected through a change in setting have been included, to allow for a bespoke approach to impact assessment. Some of these assets were identified through consultation with GAPS and Cadw (See **Section 20.3**).
22. The onshore study area stops at mean high water springs (MHWS). Any heritage data below this forms part of **Chapter 13, Offshore Archaeology**.
23. These study areas were agreed between Wessex Archaeology, Royal HaskoningDHV and GAPS prior to assessment.
24. For the purposes of this ES, all designated heritage assets and select non-designated heritage assets have been given an RHDHV-specific reference number (**Section 20.5.4, Section 20.5.3**). The RHDHV-specific reference numbers are used on the figures referred to within this chapter (**Figures 20-1 to 20-4, Volume II**) and are cross-referenced with the designation references within **Appendix 20.2, Volume III**. Groupings of non-designated heritage assets have been combined under one RHDHV reference, due to their inter-relationships, with a number of records often forming one larger archaeological site (e.g. Parc Cybi; RHDHV38).

20.4.2. Desk-Based Assessment

25. To assess impacts to onshore archaeology and cultural heritage from the Project, the presence of known heritage assets and the potential for as-yet unknown heritage assets to be present needs to be identified. This includes designated and non-designated assets. To compile this data-set, a desk-based assessment (DBA) was undertaken by Wessex Archaeology (2019). The DBA has been used to inform the baseline data presented in this chapter.

26. The DBA compiled data from the following sources:

- Data from Cadw (the Welsh Government's Historic Environment Service) regarding Welsh designated sites: including (where present) World Heritage Sites, Scheduled Monuments, Listed Buildings, Parks and Gardens, Conservation Areas and Historic Landscape Areas;
- Data from the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) – the National Monuments Record of Wales (NMRW) regarding onshore and offshore sites;
- Data from Gwynedd Archaeological Trust (GAT) – the Gwynedd Historic Environment Record (GHER);
- Regional, Local and Period Archaeological Studies and Journals;
- Geological, palaeoenvironmental and historical literature relating to the development and land-use of the study area;
- The Archaeology Data Service (ADS);
- A Research Framework for the Archaeology of Wales (ClfA Wales, first published in 2008 – present: on-going);
- Previous archaeological studies in the area; and
- Historical cartographic sources.

27. Full methodologies for how the Wessex Archaeology DBA was produced can be found in **Appendix 20.1 (Volume III)**.

28. Following production of the DBA, further heritage assets were identified that may be affected by the Project. These new heritage assets form part of an updated baseline data section (**Section 20.5.2**) and setting study (**Section 20.5.5**) within this ES chapter.

20.4.3. Setting Assessment

29. An initial heritage setting assessment was also undertaken as part of the DBA, which is further refined as part of this chapter. This assessment is undertaken following the Setting of Historic Assets in Wales guidance (Cadw, 2017) which defined the setting of a historic asset as: "*the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape*" (Cadw 2017, p2). The setting of a heritage asset can affect its significance either positively or negatively and many elements can affect it, for example, intervisibility with other assets, its current surroundings, noise, smells, artistic representations and historic associations.

30. The Cadw guidance recommends a stepped approach for assessing the implications of project proposals, as follows:

- Step 1: Identify the historic assets that might be affected by a proposed change or development;
- Step 2: Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced;

- Step 3: Evaluate the potential impact of a proposed change or development on that significance; and
- Step 4: If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance.

31. Steps 1 and 2 of this approach were undertaken as part of the DBA. Steps 3 and 4 are considered in this chapter, following a summary of the DBA results and an update to the baseline data. Assessment of potential impact on setting was undertaken following confirmation of the preferred project design envelope (PDE).
32. Heritage assets were identified as being potentially affected through assessment of Seascape, Landscape and Visual Impact Assessment (SLVIA) work undertaken for this Project (**Chapter 24, Seascape, Landscape and Visual Assessment**).
33. As part of the DBA, heritage assets within the study area were screened to identify if there was intervisibility between them and the Project, informed by a site walkover. If there was potential for intervisibility, the assets were brought forward for setting assessment. Further assessment as part of this ES chapter has assessed the Zone of Theoretical Visibility (ZTV) of the Project to identify if other assets may require scoping into the study.

20.4.4. Impact Assessment

34. The overarching methodologies used for EIA are outlined in **Chapter 5, EIA Methodology**. This section details the methodology used to determine the significance of the impacts of the Project on archaeological and cultural heritage assets. The assessment criteria and assignment of significance with respect to archaeology and cultural heritage are based on available standards and guidance, good practice, consultation and professional judgement. The methodology will remain the same for both construction, operational and decommissioning phases of the Project.
35. Identifying the impact of a development upon heritage assets is a four-stage approach. Initially, heritage assets potentially impacted need to be identified (Stage 1), whilst their significance (heritage interest) also needs to be understood (Stage 2). Identification of heritage assets is undertaken as part of the DBA (**Appendix 20.1, Volume III**), whilst an initial assessment of significance is also undertaken in the DBA and refined as part of this ES. Following this, the magnitude of effect needs to be identified (Stage 3) followed by an assessment of impact significance to the heritage asset (Stage 4).
36. A heritage assets' significance, for the purposes of this report, is identified as anywhere from **negligible** (no significant heritage interest) to **high** (an asset with significant heritage interest) (**Table 20-4**). The categories and definitions of heritage significance do not necessarily reflect a definitive level of importance of an asset. They are intended to provide a provisional guide to the assessment of perceived heritage significance, which is to be based upon professional judgement incorporating the evidential, archaeological, historical, aesthetic, architectural and communal heritage values of the asset or assets.
37. The evidence for some heritage assets, particularly non-designated buried archaeological remains, is often an incomplete picture due to a lack of data on the remains (i.e. from a lack of intrusive investigations, ground truthing and associated reporting). Thus, the categories and

definitions of heritage significance do not necessarily reflect a definitive level of importance of an asset. Where uncertainty occurs, the precautionary approach is to assign high significance; a good practice in impact assessments which reduces the potential for impacts to be underestimated. Judgements on heritage significance, therefore, should be regarded as providing a preliminary significance level based on available information.

Table 20-4 Definitions of Significance (Heritage interest)

Heritage Significance (non-exhaustive, examples only)	
High (perceived International / National Importance)	<p>For example:</p> <p>World Heritage Sites; Scheduled Monuments; Grade I, II* and II Listed Buildings or structures; Designated historic landscapes of outstanding interest; and Conservation Areas containing very important buildings.</p> <p>Assets of acknowledged international / national importance.</p> <p>Assets that can contribute significantly to acknowledged international / national research objectives.</p> <p>Significance is related to an outstanding level of evidential, archaeological, historic, aesthetic, architectural and communal heritage interest, or combination of these values.</p>
Medium (perceived Regional Importance)	<p>For example:</p> <p>'Locally Listed' buildings or structures; Conservation Areas containing buildings that contribute significantly to its historic character; and Designated historic landscapes of special interest.</p> <p>Assets that contribute to regional research objectives.</p> <p>Assets with regional value, educational interest or cultural appreciation.</p> <p>Significance is related to a high level of evidential, archaeological, historic, aesthetic, architectural and communal heritage interest, or combination of these values.</p>
Low (perceived Local Importance)	<p>For example:</p> <p>Assets that contribute to local research objectives</p> <p>Assets with local value, educational interest or cultural appreciation.</p> <p>Assets that may be heavily compromised by poor preservation and/or poor contextual associations.</p> <p>Significance is related to a certain level of evidential, archaeological, historic, aesthetic, architectural and communal heritage interest, or combination of these values.</p>
Negligible	<p>For example:</p> <p>The nature, form, level of survival, condition or ability to appreciate the asset or similar, means that it cannot be assigned heritage asset status in its own right.</p> <p>Assets with no significant value or archaeological / historical interest.</p>

38. The classification of the magnitude of effect (**Table 20-5**) on known heritage assets takes account of such factors as:

- The physical scale and nature of the anticipated impact; and
- Whether specific features or evidence would be lost that are fundamental to the historic character and integrity of a given asset, and its understanding and appreciation.

Table 20-5 Definitions of Magnitude of Effect

Magnitude	Definition
High	Total loss of or substantial harm to an asset
Medium	Partial loss of, harm to or alteration of an asset which will affect its significance
Low	Minor loss of or alteration to an asset which leaves its significance largely intact
Negligible	Minor alteration to an asset which does not affect its significance in any notable way.
None / Nil	No alteration to an asset.

39. Following identification of the magnitude of effect, the significance of impact is predicted. To provide a consistent framework for the consideration and evaluation of impacts on different environmental parameters, the following terminology will be used (**Table 20-6**).

Table 20-6 Definitions for Impact Significance

Impact	Definition
Major adverse	The impact gives rise to serious concern that should factor into the decision-making process for the development.
Moderate adverse	The impact gives rise to some concern, but it is likely to be tolerable (depending on its scale and/or duration)
Minor adverse	The impact is undesirable, but of limited concern
Negligible	The impact is considered to be of limited or no concern
Minor beneficial	The impact is of minor significance but has some heritage-related benefit
Moderate beneficial	The impact provides some tangible benefit to the historic environment
Major beneficial	The impact provides a significant positive benefit to the historic environment

40. Assessment of the impact significance is reliant on professional judgement and experience and is tailored to each heritage asset. Any judgment is accompanied by a narrative description to qualify that opinion. The following matrix (**Table 20-7**) for calculation of impact significance should therefore be seen as a framework to aid in understanding how the level has been reached, rather than as a direct tool for direct decision making.

Table 20-7 Impact Significance Assessment Matrix

		Negative Magnitude				Beneficial Magnitude			
		High	Medium	Low	Negligible	Negligible	Low	Medium	High
Sensitivity	High	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Minor	Minor	Minor	Moderate	Major
	Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

41. Both direct physical and indirect non-physical (e.g. visual, setting) impacts on heritage assets are considered relevant. Impacts may be adverse or beneficial. Depending on the nature of the impact and the duration of development, impacts can also be temporary and / or reversible

or permanent and / or irreversible. The finite nature of archaeological remains means that physical impacts are almost always adverse, permanent and irreversible; the 'fabric' of the asset and, hence, its potential to inform our historical understanding, will be removed.

42. In EIA terms, 'major' and 'moderate' impacts are generally deemed to be significant. In addition, whilst minor impacts are not significant in their own right, it is important to distinguish these from other non-significant (negligible) impacts as they may contribute to significant impacts cumulatively or through interactions between heritage assets or elements of the historic environment (or historic landscape).

20.5. EXISTING BASELINE

43. Data on the historic environment has been compiled using data sources listed in the **Section 20.4.2** above. The initial baseline data was collated by Wessex Archaeology in the walkover survey and DBA (**Appendix 20.1, Volume III**). This has been supplemented during production of this ES chapter with further heritage assets which were identified as potentially being affected, following revision of the PDE. These are included in the below baseline information (**Section 20.5**).
44. This baseline data is collated from records held in the GHER and other sources, which is not a record of all heritage assets, but a record of those currently discovered/identified. As such, the information held within it is not a complete record and does not preclude the subsequent discovery of further sites and finds which currently remain unknown.

20.5.1. Historic and Archaeological Background Summary

45. The onshore study area is located on Holy Island (Ynys Gybi), a small island off the coast of Anglesey, North-west Wales. The island has seen occupation from the Mesolithic period onwards, with worked flint of this date being recovered on the island. Neolithic to Bronze Age funerary activity is well attested to, with the regionally significant Neolithic Trefignath Burial Chamber (RHDHV10) located on the east of the island and numerous Bronze Age round barrows found across the island, including three which were excavated by antiquarians in the 19th century at Porth Dafarch (RHDHV04). A scheduled round cairn (RHDHV12) is located on the Holyhead Mountain-side, with impressive views of Gogarth Bay.
46. Standing stones of probable Bronze Age date are also extant within the landscape, with the Ty Mawr standing stone close to the eastern end of the onshore cable route (RHDHV05), at Parc Cybi, and a rare pair of standing stones at Plas Meilw (RHDHV11).
47. Iron Age and Romano-British settlement is also regularly found within the landscape, reflected in the large number of both non-designated and designated heritage assets of this date within the study area. The Caer y Twr hillfort (RHDHV07) is located on the top of Holyhead Mountain, with a small hut circle settlement found to the west (RHDHV06) whilst the impressive Holyhead Mountain hut circles (RHDHV08) are found 600 m north-west of the Project's landfall. Two other scheduled monuments of Iron Age settlement are within the study area; Plas Meilw Hut Circles (RHDHV03) and the defended settlement at Dinas Porth Ruffydd, located on a promontory separated from the mainland by a deep ravine (RHDHV09). A late 3rd century Roman coin and

two bronze ox-head bucket handle mounts of similar date were recovered from the monument during the 1970's.

48. A large number of non-designated heritage assets (GHER monuments) are found within the locality of Parc Cybi (upwards of 75), which relate to archaeological remains of Neolithic, Bronze Age, Iron Age and Roman date (combined as one reference for this ES; RHDHV38) and show the local area was well settled throughout the past. Most of these remains were revealed during development works and have been recorded and since built over by modern development.
49. By the medieval period, Holyhead was an important town, due to the establishment of the Caer Gybi monastery. Viking raids were common during the 9th century. The monastery was thought to have been located within the remains of the old Roman fort within Holyhead. Medieval Christian cemeteries are relatively common across the island, including four early Christian burials, dug into the top of a Bronze Age round barrow, at Porth Dafarch (RHDHV35). The settlement at Holyhead developed throughout the medieval period, thanks to the monastery, and became increasingly important through to the modern era. During the post-medieval period it became the principal port to Ireland and was important enough during the Civil War that the town was garrisoned by Oliver Cromwell's New Model Army.
50. The port of Holyhead continued to grow during the 18th and 19th centuries, thanks in part to better road connections, with Telford's London to Holyhead road (the A5) being completed in 1823, which included construction of the Stanley Embankment, connecting Holy Island to Anglesey. The railway was introduced soon afterwards, with a station built directly next to the port.
51. The South Stack lighthouse is closely associated with the development of the Port. The lighthouse was built by Trinity House in 1809, with improvements made throughout the following centuries and the lighthouse being automated in 1984. A lighthouse had been requested at this location since the 17th century, with South Stack presenting a significant danger to seafaring vessels.
52. Currently, Holy Island has maintained an agricultural character outside of Holyhead itself. Holyhead is a busy port town and has been densely urbanised and industrialised, particularly from the 1970's onwards, when Anglesey Aluminium opened a factory on the eastern edge of the town. The factory is now shut, but still forms a major part of the town's industrial townscape, along with the port itself.

20.5.2. Designated Assets

53. There is a total of 45 designated heritage assets within the 1 km study area, identified in the DBA produced for the Project (**Figure 20-1, Volume II**). These consist of 11 scheduled monuments, 25 listed buildings, one conservation area (Holyhead Mountain) and eight areas of ancient woodland (which are considered as one for this report). There are no registered parks and gardens within the study area. None of these assets fall within the Project's footprint.
54. The scheduled monuments are listed in **Table 20-8** below. These mostly relate to the prehistoric landscape, with hillforts, enclosed settlements and funerary monuments. The nearest to the landfall is Holyhead Mountain Hut Circles (RHDHV08), whilst the onshore cable route passes

directly west of the Porth Dafarch Hut Circles (RHDHV04) and is just south of Ty-Mawr Standing Stone (RHDHV05).

Table 20-8 Scheduled Monuments within study area

RHDHV No.	Cadw Ref.	Name	Broad Class	Period	Site Type
02	256 / AN092	Tre-Arddur Hut Group	Domestic	Prehistoric	Enclosed hut circle
03	528 / AN033	Plas Meilw Hut Circles	Domestic	Prehistoric	Unenclosed hut circle
04	529 / AN034	Porth Dafarch Hut Circles	Religious, Ritual and Funerary	Prehistoric	Round barrow
05	530 / AN012	Ty-Mawr Standing Stone	Religious, Ritual and Funerary	Prehistoric	Standing stone
06	1520 / AN133	Enclosed Hut Circle Settlement at Capel Llochwydd	Domestic	Prehistoric	Enclosed hut circle
07	2509 / AN019	Caer y Twr	Defence	Prehistoric	Hillfort
08	2512 / AN016	Holyhead Mountain Hut Circles	Domestic	Prehistoric	Unenclosed hut circle settlement
09	2547 / AN121	Dinas Porth Ruffydd	Defence	Prehistoric	Hillfort
10	3247 / AN011	Trefignath Burial Chamber	Religious, Ritual and Funerary	Prehistoric	Chambered round barrow
11	3249 / AN017	Penrhos Feilw Standing Stones	Religious, Ritual and Funerary	Prehistoric	Standing stone
12	4173 / AN147	Gogarth Bay round cairn	Religious, Ritual and Funerary	Prehistoric	Round cairn

55. The listed buildings within the study area are detailed in **Table 20-9**. Generally, the few listed buildings in the western half of the Project are often lone buildings, whilst the listed buildings located in the eastern half of the study area are often located in clusters, most within Penrhos Coastal Park and Kingsland. The highest designated structure is the grade II* listed Kingsland Windmill (RHDHV13).

Table 20-9 Listed buildings within study area

RHDHV Ref.	Cadw Ref	Name	Grade	Description
13	5762	Kingsland Windmill	II*	Prominent building set within a modern housing estate reached to the west off B4545 approximately 1 km south of Holyhead town centre.
14	5713	Ellin's Tower (Twr Ellin)	II	In an elevated position, overlooking the sea, c250m southeast of South Stack Island.
15	5714	Old Customs Post	II	In a sheltered location set within the cliffs on the northwest side of Porth Dafarch, northwest of Trearddur Bay.

RHDHV Ref.	Cadw Ref	Name	Grade	Description
16	5764	Candle Tower and walls adjoining remains of Penrhos House	II	Located at the heart of the Penrhos Coastal Park at the southeast end of Holy Island; reached by private driveway north of the A5(T) and c1.25km north-northeast of the northern end of the Stanley Embankment. The Candle Tower and walls lie east of the remains of Penrhos House.
17	5765	Tower, walls and courtyard buildings	II	Located at the heart of the Penrhos Coastal Park at the southeast end of Holy Island; reached by private driveway north of the A5(T) and c1.25km north-northeast of the northern end of the Stanley Embankment. The tower is adjacent to the remains of Penrhos House.
18	5766	Baillifs Tower and with boundary wall, gates and attached outbuildings at Penrhos Home Farm	II	Located at the heart of the Penrhos Coastal Park at the southeast end of Holy Island; reached by private driveway north of the A5(T) and c1.25km north-northeast of the northern end of the Stanley Embankment. The Baillifs Tower lies north of the entrance to the home farm.
19	5767	Barn and cartsheds, Penrhos Home Farm	II	Located at the heart of the Penrhos Coastal Park at the southeast end of Holy Island; reached by private driveway north of the A5(T) and c1.25km north-northeast of the northern end of the Stanley Embankment; this range at east side of the Home Farm.
20	5768	Watertower	II	Located at the heart of the Penrhos Coastal Park at the southeast end of Holy Island; reached by private driveway north of the A5(T) and c1.25km north-northeast of the northern end of the Stanley Embankment. The Watertower is at southeast corner of the walled garden south of Penrhos House.
21	5769	The Betting Stand (aka Rotten Tower)	II	Situated towards the southern end of the park at the edge of woodland and overlooking the broad expanse known as Penrhyn Quillet. Penrhos Coastal Park lies at the southeast end of Holy Island.
22	5770	The Battery	II	On the headland at the northwest edge of the park; Penrhos Beach below to the west. Penrhos Coastal Park lies at the southeast end of Holy Island.
23	14733	Ebenezer Chapel	II	Approximately 100 m south of junction with Cytir Road. Behind low wall with stone posts, iron railings and gates.
24	14743, 4, 5, 6, 7 & 8	Stanley Cottages	II	On corner of Tyn Pwll Road and Cytir Road. U-plan layout of three ranges. Nos 1&2 face Tyn Pwll Road, Nos 3-5 face Cytir Road, no 6 faces side lane.
25	16524	Pont Cytir	II	Carries Cytir Road over main railway lines.
26	16525	Pont Penllech Nest	II	Carried footpath over main railway line, to west of Holland Park industrial units.
27	16526	Bridge Over Railway near Ty Mawr Farmhouse	II	Carries footpath over main railway line near Ty Mawr Farm.

RHDHV Ref.	Cadw Ref	Name	Grade	Description
28	20069	Stanley Tollhouse	II	Set back from the north side of the A5(T), directly over the northern end of the Stanley Embankment and within Penrhos Coastal Park.
29	20073	Milestone	II	Located at the northeast side of the A5 directly over the north end of the Stanley Embankment.
30	20074	Stanley Embankment	II	Spanning the strait between the main island, north of Valley, and Holyhead Island.
31	20077	Fynnon y Wrach	II	Set back slightly from the southeast side of the road below Holyhead mountain, southwest of Holyhead.
32	20081	Tan-y-Cytiau	II	In an elevated position on the slopes of Holyhead Mountain, approached from the lane that leads to South Stack Lighthouse.

56. Further designated heritage assets located beyond the 1 km study area, but which have been identified for the purposes of this ES chapter as they are also subject to potential settings impacts are detailed in **Table 20-10**.

Table 20-10 Further designated heritage assets scoped into the report

RHDHV Ref.	Cadw Ref.	Description	Grade
01	5284	South Stack Lighthouse and former keepers' accommodation	II
01	18032	Enclosure Walls at South Stack Lighthouse	II
01	18033	Storehouse at South Stack Lighthouse	II
01	18034	Former Oil Store at South Stack Lighthouse	II
01	18035	Bridge Towers at South Stack Lighthouse	II

57. One conservation area falls within the study area: Holyhead Mountain (RHDHV33). This is located on the north-east facing slopes of the mountain and is masked from the Project's proposed landfall, whilst having broad views of Holyhead and the surrounding farmland. As no intervisibility with the route was identified as part of this ES, the asset is not considered further.

58. The eight sections of ancient woodland within the study area (RHDHV34), are all located within the Penrhos coastal park, adjacent to the old London Road (A5) and forming part of the setting for a number of listed buildings within the locality, whilst masking most of the Aluminium Works from the listed buildings.

20.5.3. Non-designated Assets

59. There is a total of 330 non-designated heritage assets within the study area (**Figure 20-2, Volume II**), relating to monuments, findspots and locally listed buildings. These assets are included in a gazetteer compiled by Wessex Archaeology (**Appendix 20.1, Volume III**). There is also a total of 36 archaeological events (watching briefs, evaluations and excavations) recorded within the GHER. Six RHDHV-specific references have been given to non-designated heritage assets due to their relevance to the Project. Often, these references relate to numerous non-designated records; e.g. RHDHV 38, Parc Cybi remains, consists of 75 HER entries which relate to known or potential buried archaeological remains within the vicinity. These have been

grouped for ease of reference to what is clearly a very ‘busy’ area in terms of archaeological remains (and potential remains).

60. Many of these non-designated assets relate to archaeological features and findspots, often of prehistoric date, whilst others relate to locally listed buildings or documentary or cartographic evidence (historic farmsteads etc.). These assets all add greatly to the known picture of Holy Island’s past and aid in building a picture of a well settled landscape from the prehistoric period onwards.
61. Non-designated assets scoped in for impact assessment of settings impacts were identified through screening of their monument type, preservation quality and their above-ground survival. In principal, this resulted in extant buildings being the main non-designated assets scoped in for assessment of settings impact. Non-designated buried remains were also assessed for indirect impacts to their setting but were identified as not being impacted.
62. There are a number of areas where non-designated assets have been recorded which should be highlighted along the route, which could indicate a higher potential for buried remains to be found within the Project’s footprint within these areas. The landfall area is located near to designated assets (Holyhead Mountain Hut Circles, RHDHV08), whilst non-designated records nearby indicate there is potential for further remains of prehistoric date to be found within the area. This includes a group of hut circles nearly completely destroyed by ploughing, which contained Romano-British pottery, and a cist burial found nearby in the 19th century (RHDHV39), south-east of the landfall area, whilst similar remains were found to the east (RHDHV40).
63. Another section of the route, at Porth Dafarch, contains non-designated assets recorded within the GHER which indicate the area was settled during prehistoric and historic periods. The area is located near to the scheduled Porth Dafarch Hut Circles (RHDHV04) and the non-designated records indicate that the hut circles were built over three early Bronze Age round barrows. An Early Christian cemetery was also excavated and recorded at this location, with four inhumations interred within the top of the Bronze Age monuments (RHDHV35).
64. The area around Parc Cybi contains numerous non-designated heritage assets (RHDHV38) ranging from the Neolithic to Roman periods, found during archaeological works prior to development, indicating a high potential for further buried remains (**Section 20.5.7**).
65. Along the route, no hedgerows of historic significance are identified. The majority of field boundaries across the island are formed of drystone walls, whilst where hedgerows are maintained, they are often immature and form the roadside boundary.

20.5.4. Key Heritage Assets

66. A number of these designated and non-designated heritage assets were identified as key to the Project as part of the DBA and during this ES production (**Figure 20-3, Volume II**) and form the basis of the resource assessed as part of the impact assessment (**Section 20.6**).
67. Beyond these key assets, other designated assets have been identified as not being affected by the Project, due to distance from the Project and a lack of intervisibility. This was undertaken following production of the DBA, cross referencing the DBA key assets with the ZTV and SLVIA information. The non-designated heritage assets have been included as a key asset where there

is potential for these known assets, or potential remains associated with them, to be directly or indirectly impacted by the Project, or where their inclusion aids in identifying archaeological potential along the route.

68. The heritage significance of these assets is summarised in **Table 20-11**, whilst statements of significance for them are included in the DBA and referred to in the impact assessment.

Table 20-11 Heritage Assets identified as key to the Project

RHDHV Ref.	Cadw / GHER Ref.	Name	Designations	Heritage Significance
1	Cadw 5284	South Stack Lighthouse group	Grade II (5 assets)	Medium
4	Cadw 529 / AN034	Porth Dafarch Hut Circles	Scheduled	High
5	Cadw 3249 / AN012	Ty-Mawr Standing Stone	Scheduled	High
8	Cadw 2509 / AN016	Holyhead Mountain Hut Circles	Scheduled	High
10	Cadw 2547 / AN011	Trefignath Burial Chamber	Scheduled	High
11	Cadw 3249 / AN017	Penrhos Feilw Standing Stones	Scheduled	High
13	Cadw 5762	Kingsland Windmill	Grade II*	High
14	Cadw 5713	Ellin's Tower (Twr Ellin)	Grade II	Medium
15	Cadw 5714	Old Customs Post	Grade II	Medium
23	Cadw 14733	Ebenezer Chapel	Grade II	Medium
32	Cadw 20081	Tan-y-Cytiau	Grade II	Medium
34	n/a	Ancient Woodland, Penrhos coastal park	Ancient Woodland	Low
35	GHER 1776	Cemetery, Porth Dafarch	Non-designated	High
36	GHER 7683	Penrhosfeilw Chapel	Non-designated	Medium
37	GHER 597365	Pillbox, north-east of Tre God	Non-designated	Medium
38	Multiple	Parc Cybi archaeological remains	Non-designated	Medium
39	GHER's 3802 & 3808	Cist burial, remains of hut circles and finds	Non-designated	Medium
40	GHER 3806	Remains of hut circles and finds	Non-designated	Medium

20.5.5. Updated Setting Assessment

69. An initial assessment of the setting of key heritage assets was undertaken as part of the DBA (**Appendix 20.1, Volume III**). As part of this ES, a screening of coastal heritage assets that have the potential to be affected by the introduction of the offshore infrastructure has also been undertaken. This screening assessed the potential for intervisibility between the offshore infrastructure location and any designated and non-designated assets within the study area.

70. It was found that the South Stack Lighthouse (RHDHV01) and Ellin's Tower (RHDHV14) had intervisibility. Other assets, such as the scheduled monuments on Holyhead Mountain (RHDHV06, 07, 08 and 12) were found to have no visibility to the seascape due to the local topography. This section undertakes Stages 1 and 2 of the Cadw setting guidance (Cadw 2017a) for assets not assessed as part of the DBA (**Appendix 20.1, Volume III**), whilst assessment of potential impacts and consideration of mitigation (Stages 3 and 4) is undertaken in **Section 20.6**.

20.5.5.1. South Stack Lighthouse Group (RHDHV01)

71. This group of assets are located on a small outcrop off the north-west limits of Holy Island. The current setting of the group is one of open coastland, with rocky cliffs dropping away to a wide seascape. The lighthouse is accessed by a narrow footpath from a country lane. There is intervisibility with Ellin's Tower to the south-east, whilst impressive views of the lighthouse are obtained from the mainland, with the outcrop the lighthouse is built upon set lower than the main island. There are expansive views out from the lighthouse to the sea. There are no significant views inland from the lighthouse, due to the local topography. Currently, the setting makes a **moderate** contribution to the **medium** historic and architectural interest of the group.

20.5.5.2. Ellin's Tower (RHDHV14)

72. Ellin's Tower (Twr Ellin) is a Grade II listed picturesque castellated folly, built in 1868. It is now used as an information centre and observation tower for the Royal Society for the Protection of Birds (RSPB). The current setting is currently one of major seascape views, located on the cliff edge. The area is often busy with the general public due to the tower's use as an information point. Currently, the setting of the asset makes a **high** contribution to its **medium** historic and architectural interest. There are no views towards inland, due to the local topography.

20.5.6. Identified Heritage Viewpoints

73. Assessment of viewpoints which could have potential for demonstrating the heritage significance of assets has been undertaken as part of this ES, through assessment of work done for the SLVIA chapter (**Chapter 24, Seascape, Landscape and Visual Assessment**) and through data obtained as part of the Wessex DBA (**Appendix 20.1, Volume III**). The SLVIA results and assessment work covers all potential visual impacts resulting from the project (i.e. visual amenity etc.). The views have been considered as part of this chapter in the said views contribute to the heritage significance of an asset.

74. Some of the SLVIA viewpoints have been taken from a heritage asset. One of the key views identified was from Ellin's Tower (RHDHV14, SLVIA Viewpoint 04) on the coast, which shared intervisibility with the South Stack lighthouse (RHDHV01, SLVIA Viewpoint 03) and has large-scale views of the seascape, which will include the offshore infrastructure for the Project. This view is considered to make a **moderate** contribution to the significance of the asset, as the seascape vistas were part of the building's design, whilst the views towards the lighthouse also aid in appreciation of the historic interest of both buildings.

75. Similarly, views from the Standing Stones at Penrhos Feilw (RHDHV11) were identified as key, with views eastwards to the Plas Meilw Hut Circles (RHDHV03, SLVIA Viewpoint 05) and north-

westwards to the Holyhead Mountain hut Circles (RHDHV08). The ZTV identified that visibility of the landfall substation at Ty Mawr (hereafter referred to as the landfall substation) may be obtained when looking westwards from the standing stones. Upon assessment, it is considered that this view makes a low contribution to the already high heritage significance of the standing stones. The landscape view does contain many features which block the views westwards (existing hedgerows across the landscape and buildings at Bodwarren), whilst the SLVIA work undertaken identified that the landfall substation, whilst a prominent change in the landscape, would form part of the modern infrastructure backdrop to the view, marrying in with the modern barn outbuildings at Ty Mawr farmhouse. The noticeable change is identified as being at a very localised level, but beyond a distance of approximately 400m it would form a relatively recessive element in the landscape

76. Other viewpoints identified were at the Ty-Mawr Standing Stone (RHDHV05; SLVIA Viewpoint S11) and Trefignath Burial Chamber (RHDHV10, SLVIA Viewpoint S09), located at the eastern end of the Project, at Parc Cybi. Again, the ZTV indicated views of the switchgear building at Parc Cybi (hereafter referred to as the switchgear building) could be obtained from the heritage assets. Upon assessment however, the minimal scale of the switchgear building, the current tree cover within the area, and modern development to the north and west, reduce the intervisibility significantly and the view was not considered to make a contribution to the already high significance of the assets.

20.5.7. Archaeological Potential of the Project

77. The archaeological potential of the Project was assessed as part of the DBA (**Appendix 20.1, Volume III**). In summary, due to the lack of previous archaeological investigation within the western half of the Project, the archaeological potential of land included in the Project's landfall and onshore cable route is currently difficult to accurately assess. It is suggested that the near vicinity of the scheduled Holyhead Mountain Hut Circles (RHDHV08) and other identified prehistoric remains (RHDHV39 and 40) results in moderate potential for remains of this date to be within the landfall area and fields either side of the onshore cable route to Porth Dafarch.
78. At Porth Dafarch, the route passes directly adjacent to the scheduled Porth Dafarch Hut Circles (RHDHV04), where other non-designated remains have also been recorded (RHDHV35). Within this area, it is identified that there is high potential for buried archaeological remains, even within the footprint of the existing road network, which would have been constructed over the top of archaeological remains which relate to the settlement that has been scheduled. Similarly, the road's junction with Lon Isallt road was identified as being built up from the original ground surface, which would increase the potential for buried archaeological remains to be preserved under the road, having not been damaged from the road's construction.
79. Following Porth Dafarch, the onshore cable route to Parc Cybi has an unclear potential, although geophysical survey and evaluation trenching by GAT has been undertaken in the fields which the proposed onshore cable route passes through (GAT, 2012) towards and past Holyhead Leisure Centre. A moderate amount of archaeology was revealed within the trenches, including a possible prehistoric roundhouse. This area is considered to have moderate potential for archaeological remains to be within the onshore cable route's footprint.

80. Within the locality of the switchgear building are numerous (75) non-designated records associated with known buried archaeological remains. These remains were found during archaeological fieldwork prior to development and identify the area as having very high archaeological potential in any areas where archaeological excavation has not preserved the remains by record.
81. In terms of the grid connection substation at Orthios (hereafter referred to as the grid connection substation), a hoard of Roman coins was found in the 18th century to the west of the Aluminium Works whilst a number of post-medieval buildings are recorded to the south of the A55 from historic cartographic sources. No other evidence of archaeological remains is known within the aluminium works. Due to this lack of known buried archaeological remains, along with the construction of the aluminium works having likely impacted what would have been the archaeological horizon, it is considered there is very low potential for remains to be within the locality of the grid connection substation.
82. It should be highlighted that there are certain areas that the onshore cable route runs through which the DBA identified as being boggy/waterlogged, which could hold potential for preserved palaeoenvironmental remains.

20.6. IMPACT ASSESSMENT

20.6.1. The Project Infrastructure

83. The offshore and onshore infrastructure for the Project is described in **Chapter 4, Project Description**. In summary, the Project consists of up to 620 offshore tidal devices, an offshore export cable corridor, a 8.1 km long onshore cable corridor, a landfall substation, a switchgear building and a grid connection substation. Most of the onshore cable will be installed via open cut trenching within the footprint of current country roads between landfall and the A55, with Horizontal Directional Drilling (HDD) used to pass under the A55 to the grid connection substation.

20.6.2. Overview of Potential Impacts

84. The identified potential impacts on designated and non-designated heritages assets by the proposed Project are:
- Direct Impact to potential buried archaeological remains;
 - Direct Impact to designated heritage assets (scheduled monument);
 - Indirect impact upon the setting of designated heritage assets; and
 - Indirect impact upon the setting of recorded non-designated heritage assets.
85. The direct impact to potential buried archaeological remains may occur during the excavation of any open-cut trenches to lay the onshore cable (including within the footprint of existing roads), excavation of transition pits at landfall (from the HDD to open cut trench to the landfall substation), during construction of the landfall substation, switchgear building and grid connection substation, or during the construction of any temporary works areas or associated infrastructure related to the Project.

- 86. Direct impact to designated heritage assets has been identified where the route passes adjacent to a scheduled monument (RHDHV04), which may result in hydrological changes or impact from vibration to the remains.
- 87. Direct impacts identified relate to the excavation of material during excavation of the onshore cable route or construction of the substations/switchgear building. Similarly, as part of the direct impact to designated heritage assets, impact from vibration and dust were assessed and have not been identified as a factor for this Project if mitigation is followed (**Section 20.5.6**).
- 88. Indirect impact upon the setting of designated and non-designated heritage assets may occur through the introduction of the substations into the landscape, which could affect a heritage assets' setting, or appreciation of such.
- 89. Furthermore, indirect impact to setting may occur due to interactions with the Project's offshore infrastructure, which could change views from certain assets which may alter the historic interest of an asset.

20.6.3. Worst Case Scenario

- 90. This section establishes the Worst-Case Scenario (WCS) for the construction of the Project, forming the basis for the subsequent impact assessment. Full details of the range of development options being considered are provided within **Chapter 4, Project Description**.
- 91. For the purposes of this chapter, only those Project parameters with the potential to influence the impact of known and potential heritage assets are identified. Therefore, if the design parameter is not described below in **Table 20-12**, it is not considered to have a bearing on the outcome of this assessment.

Table 20-12 Worst-Case Scenario impacts from the Project

Impact	Parameter
Construction	
General	Onshore construction programme estimated to take 12 months. Work hours for offshore work and HDD are 24 hours per day, seven days a week. All other works are daylight hours only, six days per week
Direct impacts related to cable landfall	Landfall cable HDD to last ten months. Up to nine cable tails at landfall. Up to nine separate drills; each up to 550 m long, nominally 450 mm diameter. Separation of 10 m between HDD entry points. Separation of 20 m between HDD exit points. Total drill cuttings volume could be up to 900 m ³ (total amount for all 9 drills). Excavation of one transition pit (up to 15m x 85m x 1.5m deep), equating to a footprint of 1,275 m ² , excavated volume 1,912.5 m ³ in addition to trenching excavation or HDD cutting volumes.

Impact	Parameter
	<p>Temporary works area up to 120 m x 70 m (total area for HDD rig, site office and equipment plus laydown area).</p>
<p>Direct impacts related to cable landfall (trenched option)</p>	<p>Excavation of trenched installation and cables down the cliff face (if HDD option is not used).</p> <p>Up to nine cable tails at landfall.</p> <p>Up to nine separate shallow trenches (slots within the cliff face), each between 480 m and 740 m long.</p> <p>Individual trench widths of up to 600 mm. Or a single trench with all nine cables laid within it of approximately 10 m width and 0.5 m to 1.2 m deep</p> <p>Duct or split pipe over 370 m to 550 m of each cable, up to 350 mm external diameter.</p> <p>Total material removed could be up to 2,400 m³; however, the majority would be replaced to backfill the trench after the ducts / cables were installed.</p> <p>Temporary works area up to 100 m x 50 m (for site office and equipment plus laydown area).</p>
<p>Direct impacts related to landfall substation at Ty-Mawr</p>	<p>Construction estimated to take 4 months total.</p> <p>Excavation of topsoil and subsoil to formation level (A fenced site compound approximately 80 m by 80 m. Within this would be three separate buildings of approximately 62 m by 22.5 m by 7 m high, the second will be 28 m by 10 m by 7 m high and the third 8 m by 8 m by 7 m)</p> <p>Associated infrastructure.</p> <p>Associated temporary works area construction.</p>
<p>Direct impacts related to grid connection substation at Orthios</p>	<p>Construction estimated to take 6 months total.</p> <p>Excavation of topsoil and subsoil to formation level (104m x 62m footprint).</p> <p>Associated infrastructure.</p> <p>Associated temporary works area construction (estimated to be 50m x 100m).</p>
<p>Direct impacts related to substation construction of switchgear building at Parc Cybi</p>	<p>Construction estimated to take 4 months total.</p> <p>Excavation of topsoil and subsoil to formation level. (9.4m x 5m footprint)</p> <p>Associated infrastructure</p> <p>Associated temporary works area construction</p>
<p>Direct impacts related to onshore cable installation</p>	<p>Up to 10 months to install onshore cable from landfall to grid connection substation</p> <p>Maximum 8.1km of onshore cable to be installed</p> <p>Works corridor up to a maximum of 30m.</p> <p>Open cut trenching within footprint of existing roads to switchgear building. Trench width 1.5m, depth 1.7m.</p> <p>Open cut trenching within fields adjacent to roads where the road is not suitable for installation of the cable.</p> <p>Open cut trenching crossing open fields within certain section of the route.</p> <p>Transition pits for areas where HDD may be used for sections of the onshore cable route.</p> <p>20 joint boxes along cable route, measuring 15m long x 3m wide x 1.65m deep.</p> <p>20m x 7m hard standing around each joint bay</p>

Impact	Parameter
	42 draw pits along cable route, measuring 8m long x 3m wide x 1.65m deep. Temporary works areas of 50m x 50m for the HDD drill rig and 30m x 30m temporary works area at exit points. Associated temporary work area construction. Vibration and dust from construction activity. HDD drilling from switchgear building to grid connection substation. Drill pits x2 for HDD crossing at rail line, measuring 80m x 15m x 1.5m deep.
Indirect impacts related to construction activity (offshore/onshore)	Construction activity and noise will be apparent within the wider landscape. Increased traffic movements within the vicinity of heritage assets Peak two-way daily HGV movements: 46 Peak two-way daily LGV movements: 140
Operation	
Indirect impacts related to offshore infrastructure	Changes in seascape views from heritage assets, affecting setting, due to introduction of up to 620 tidal devices (supporting up to 1,648 TECs) off the coast. Up to 300 of the TECs could be floating at surface-level. Up to 93 floating hubs or up to eight seabed mounted surface emergent hubs Up to 60 navigation and communication buoys Supporting structure of tidal devices deployed in the MDZ will not emerge more than 6.5 m above the sea surface
Indirect impacts related to switchgear building at Parc Cybi	Change in landscape, views and setting of heritage assets. Building 4m tall, footprint 9.4m x 5m.
Indirect impacts related to grid connection substation at Orthios	Building maximum height of 9m, footprint 104m x 62m.
Decommissioning	
Indirect impacts related to substations	Demolition of landfall substation, switchgear building and grid connection substation and associated ground works. Change in views within wider landscape.
Direct impacts related to onshore cable route	Cables anticipated to be terminated and left in-situ Works areas could impact on buried archaeological remains if they are outside of the Onshore Development Area.

20.6.4. Embedded Mitigation

92. The current preferred PDE has been chosen to minimise the impact on archaeological remains as far as reasonably possible. The decision to install the cable within the current road network wherever possible has been taken as this will reduce the likelihood of archaeological remains being present and thus disturbed. Similarly, HDD has been chosen as a preferred option at landfall, to negate the need to open cut trenching which may impact buried archaeological remains.
93. Considered design of the offshore elements of the project has taken place, with input from stakeholders, to ensure the visual impact from offshore infrastructure will be limited. For example, no visually prominent devices would be placed in northern parts of subzones 4 and 8.

94. Please see **Chapter 4, Project Description**, Table 4-1, for a full account of embedded mitigation measures.

20.6.5. Potential Impacts During Construction

20.6.5.1. Construction Impact 1: Direct Impact to Potential Archaeological Remains

95. There are no known designated archaeological sites or remains within the onshore footprint of the Project, whilst non-designated monuments related to archaeological remains are records from past excavations, meaning the archaeology is no longer present. As such, direct impact to archaeological remains relates to any potential remains within the footprint, which are yet to be revealed or recorded.
96. It is worth highlighting that the Parc Cybi locality has revealed significant evidence for buried archaeological remains (RHDHV38), identified during archaeological excavations prior to previous development work in the locality, whilst a number of records within the region indicate a potential for further remains to be within the area, which may be impacted during construction. A large part of the area around Parc Cybi has been previously archaeologically excavated (resulting in the large number of non-designated records) and as such the location of any substation here (if chosen as the option) could potentially be sited upon an area previously excavated.
97. Potential buried archaeological remains can take the form of archaeological features or deposits (e.g. pits, ditches, building foundations), palaeoenvironmental remains and findspots (isolated discoveries of artefacts). There is potential for archaeological remains of prehistoric to post-medieval date to be located within the onshore footprint of the Project. Areas of potential are highlighted within the DBA as at landfall and any areas of the onshore cable route where it passes through pastoral farmland. Potential for buried remains is also noted where the onshore cable route follows the existing road network, although these potential remains will have been previously damaged or at least partially removed by the construction of the roads. It should be noted that the onshore cable route passes directly west of the Porth Dafarch Hut Circles (RHDHV04), and there is potential for remains associated with this site to be found underneath the road (outside of the scheduled area).
98. There is also potential at the switchgear building and grid connection substation, although large parts of Parc Cybi has previously been archaeologically investigated and the grid connection substation is located in an area previously heavily developed, which may have damaged or at least partially removed archaeological remains.
99. Impacts from the construction of the landfall substation, switchgear building, grid connection substation and onshore cable route may result in impacts on buried archaeological remains, if present, through their partial or complete removal due to excavation of the substations' and switchgear building footprint to formation level, and the excavation of the cable trench, associated temporary work areas or associated works infrastructure.
100. In summary, the whole Project footprint has potential for archaeological remains, although key areas to highlight for archaeological potential are:
- Landfall area and landfall substation footprint;

- The road and fields adjacent to Porth Dafarch hut Circles (RHDHV04);
- The fields crossed by the onshore cable route east of Mill Road, towards Holyhead Leisure Centre;
- Fields crossed by the onshore cable route adjacent to the A55. In particular, fields near to Trefignath Burial Chamber (RHDHV10);
- Any fields passed through where installation of cable into the existing road is not viable; and
- The Parc Cybi area.

101. It is deemed that the Project could result in anywhere from a **low** to **high** magnitude of impact upon any archaeological remains that are present within its footprint. This is due to the potential for permanent damage, disturbance or complete removal of the remains.
102. These buried remains have the potential to be anything from **low** to **high** significance, with the potential to contribute to an understanding of the development of the prehistoric and historic landscape on Holy Island. As these potential remains may be permanently destroyed or damaged (as a WCS), the development could have a **permanent major adverse effect** upon potential archaeological remains within its footprint.

20.6.5.1.1. Mitigation

103. Initial (pre-determination) mitigation for this impact will include identification of potential archaeological sites through evaluation (geophysical survey potentially followed by trial trenching) which will in turn feed into decisions regarding micro-siting or route refinement on sections as part of the post-consent works. This will result in the avoidance of sites wherever possible, ensuring they are preserved *in-situ*.
104. Where avoidance is identified as not being viable, consultation with GAPS will be undertaken to confirm where phases of archaeological excavation or monitoring of ground works will be required, to ensure any remains are identified and recorded.
105. The predicted phases of archaeological evaluation and mitigation for the Project are:
- Geophysical survey of the landfall area, landfall substation location and onshore cable route where it passes through fields or adjacent to the road where archaeological potential has been identified. This would be undertaken pre-determination of the Transport and Works Act Order (TWAO) application, to further inform stakeholders of the Project's archaeological potential;
 - Archaeological trial trenching, to be undertaken in areas where archaeology is identified in the geophysical survey results. This will be done following consultation with GAPS, potentially pre-determination;
 - Areas of pre-construction archaeological excavation, if the trenching results reveal that significant archaeological remains are located within the Project's footprint;
 - Archaeological monitoring (Watching Brief) of the cable installation within the road footprint, in areas where archaeological potential is identified;

- Results would be presented in a grey literature report, followed by a publication if the results are worthy of such; and
- Wider dissemination of the results of archaeological works, through talks to local history and archaeology groups, schools or interested parties, to inform the public.

20.6.5.1.2. Residual Impact

106. Archaeological excavation and recording of any potential archaeological remains is identified in Planning Policy Wales as not mitigating the impact to the remains, since they are still removed. However, it is considered that the impact following project design choices have been implemented (micro-siting, use of HDD, re-routing) and any further archaeological excavation offsets the impact, whilst also furthering understanding of the known heritage assets within the study area, which can feed in to assessment of the historic environment for other potential developments in the future. As such, the residual impact is considered to be non-significant in EIA terms.

20.6.5.2. Construction Impact 2: Direct Impact to Designated Heritage Assets (Scheduled Monument)

107. No potential direct impacts to designated assets apart from the one described below have been identified as part of the Project. This includes no material impact occurring from the works from vibration and dust, due to distances involved between the Project and the designated assets.
108. The current onshore cable route indicates that it will pass directly west of the Porth Dafarch Hut Circles (RHDHV04), north-eastwards up Porth Dafarch Road. The current PDE details that if this section of the road network is unsuitable for burying the cable in, the onshore cable route will be buried within the adjoining western field (within a 30 m buffer from the road).
109. If the cable were buried within the road, there is potential for direct impact to the scheduled monument area due to potential changes in hydrology or impacts from vibration from the nearby excavation works.
110. It should also be highlighted that there is the potential for archaeological remains associated with the scheduled monument area to survive underneath the road, but outside of the scheduled area (see **Section 20.6.5.1**).
111. Changes to the hydrology or formation of archaeological deposits due to vibration from nearby excavation is judged to be a **high** magnitude of impact.
112. This monument is of **high** significance, with the potential to contribute to an understanding of the development of the prehistoric environments on Holy Island, having significant archaeological and historic interest. Any impact to archaeological deposits from hydrological changes or vibration is considered a **permanent major adverse** effect.

20.6.5.2.1. Mitigation

113. If the field to the west of the road is used for installation, it would be far enough away to remove any potential impact to the monument from vibration or hydrological changes, resulting in no impact. Archaeological evaluation and investigation of the western field would be undertaken

(as described in the mitigation measures in **Section 20.6.5.1.1** above), to ensure any archaeological remains within the field that might be associated with the scheduled monument are preserved by record.

20.6.5.2.2. Residual Impact

114. Following mitigation, the scheduled monument area would not be impacted by the Project and any potential non-designated archaeological remains associated with the monument and outside the scheduled area would be identified, excavated and preserved by record, it is deemed that the residual impact is **minor adverse**, whilst no direct impact will occur to the scheduled monument area itself.
115. If further remains are identified in the western field during archaeological evaluation which are considered to be of high significance, there is the potential for the area to be added to the currently scheduled area. As such, if HDD was considered for this section, it would remove any potential impact to the designated archaeological remains.

20.6.5.3. Construction Impact 3: Indirect Impact upon the Setting of Designated Heritage Assets

116. Indirect settings impacts upon designated heritage assets could occur, which may affect the significance, or appreciation of, certain assets' historic, architectural or archaeological interest.
117. During the construction phase, indirect impacts would be temporary (up to 24 months), occurring during installation of offshore infrastructure, the cable landfall, the cable within the onshore cable corridor, construction of the landfall substation, switchgear building, grid connection substation and any associated infrastructure. This is due to the introduction of construction activity into the setting of some assets, as described below, by Project-sections (offshore infrastructure, landfall, onshore cable route and grid connection). These indirect impacts can be caused by the presence of site compounds or temporary works areas, machinery, construction traffic and general construction activities. In terms of the Project, it is considered that these impacts would result in temporary minor visual and audible changes in the setting, with assets often located at a distance from the Project where the impact would be of limited concern.

20.6.5.3.1. Offshore infrastructure

118. The designated assets potentially indirectly impacted by the installation of the offshore infrastructure are the South Stack lighthouse group (RHDHV01) and Ellin's Tower (RHDHV14). All other nearby designated assets do not have intervisibility with the offshore location.
119. The impact during construction will be from the visible introduction of activity within the seascape views from the assets. It is expected that noise will not result in an effect on setting, due to the distances between the assets and the offshore works location. The impact upon the South Stack lighthouse group is deemed to be **negligible**. This is due to the fact that the asset's design-purpose is to be seen from the sea, rather than from the lighthouse out to sea. This means the temporary, minor change in view from the lighthouse in the form of offshore construction activity, will not affect the significance of the asset or its setting.

120. The impact upon Ellin's Tower is considered to be **low**. This folly was built with views of the seascape in mind, as noted by the large windows viewing out towards sea. Currently, it is expected that the construction activity offshore will be a small addition to a wide seascape vista and as such will have a **low** impact upon its setting and so significance. These assets are deemed to be of **medium** heritage significance, due to their architectural and historical interest, along with their communal value and links to local historical figures.
121. The indirect effect upon the assets by the construction works offshore are deemed to be of **temporary minor adverse** significance, due to the limited scope and timeframe (24 months) that the introduced construction activity will have on an impressively large vista of the seascape.

20.6.5.3.1.1. Mitigation

122. No mitigation measures are recommended.

20.6.5.3.1.2. Residual Impact

123. The residual effect is **temporary minor adverse**.

20.6.5.3.2. Landfall and landfall substation at Ty-Mawr

124. Temporary changes during construction of the landfall substation, and during activities associated with the installation of the cable at the landfall, may occur to the setting of the scheduled Holyhead Mountain Hut Circles (RHDHV08) and the Grade II listed Tan-y-Cytiau farmhouse (RHDHV32). Other assets within the vicinity (e.g. the Fynnon y Wrach holy well; RHDHV31) are not affected due to the topography precluding intervisibility to the landfall location.
125. The listed Tan-y-Cytiau farmhouse has views towards landfall, sitting slightly higher up the hillside above the landfall area. The farmhouse is approximately 600 m to the north-west of the landfall area and as such noise and vibration are not considered an issue that will affect the setting. The main impact will be a change in views during the construction phase. These views are partially blocked by Ty-Mawr Farm however, as a large outbuilding blocks portions of the view towards the landfall from the farmhouse, whilst also introducing modern agricultural buildings into the listed farmhouse's setting. As such, the magnitude of impact during construction is considered **low**.
126. The Holyhead Mountain hut circles also have partial views towards the landfall location, although this is masked by Tan-y-Cytiau and Ty-Mawr farms, along with Ty'n-Nant house. Similarly, the hedgerows forming field boundaries, along with the gorse within the boundary of the scheduled monument also block views. As such, it is considered the magnitude of impact is **negligible**.
127. These hut circles are deemed to be of **high** heritage significance, due to their architectural, archaeological and historical interest, whilst the Tan-y-Cytiau farmhouse is of **medium** significance, being a good example of 20th century Arts and Crafts style architecture.
128. The indirect effect upon the setting of these assets by the construction works at the landfall are, therefore, deemed to be of **temporary minor adverse** significance.

20.6.5.3.2.1. Mitigation

129. Other than ensuring construction hours are limited to core work hours, the impact to setting during landfall construction work is considered to be one that cannot be mitigated against but is minor enough to not be of concern.

20.6.5.3.2.2. Residual Impact

130. The impact upon these assets during construction is considered to stay as **temporary minor adverse**.

20.6.5.3.3. Onshore Cable Route

131. Assets whose setting may be temporarily affected during the installation of the cable along the onshore cable route are the Porth Dafarch Hut Circles (RHDHV04), Ty-Mawr Standing Stone (RHDHV05), Trefignath Burial Chamber (RHDHV10), the Old Customs Post (RHDHV15), Kingsland Windmill (RHDHV13) and Ebenezer Chapel (RHDHV23). Public access to the other designated assets may be impacted due to road closures, although this is expected to be of low magnitude, with access still being possible through diverted routes.

132. Impacts to the setting of these assets will occur during the installation of the cable along the onshore cable route, when the construction works are within vicinity of the assets. There is potential for construction noise and visual impacts to the setting of the monuments during the cable installation. This impact is considered to be **negligible** and **temporary**, with assets only occasionally being affected during the installation of the cable. This is because, despite the 24-month time frame for cable installation, the construction works in direct vicinity of the assets would occur over a shorter period, before moving on to the next section of cable installation.

133. The majority of these assets are of **high** heritage significance, due to their architectural and historical interest, along with their communal value and links to local historical figures. Ebenezer Chapel and the Old Customs Post are considered **medium** heritage significance. The indirect impact from the onshore cable route is deemed to be **temporary minor adverse** during installation.

20.6.5.3.3.1. Mitigation

134. Other than ensuring construction hours are limited to core work hours, the impact to setting during installation of the cable is considered to be one that cannot be mitigated against but is minor enough to not be of concern.

20.6.5.3.3.2. Residual Impact

135. The residual impact upon these assets during construction is, therefore, **temporary minor adverse** and will stop once construction is complete.

20.6.5.3.4. Switchgear Building at Parc Cybi

136. The setting of the Ty-Mawr Standing Stone (RHDHV05) and Trefignath Burial Chamber scheduled monument (RHDHV10) may be indirectly impacted by the location of the switchgear

building, with the standing stone 300 m to the west and the burial chamber located 450 m to the south-east. Other nearby heritage assets (e.g. Kingsland Windmill; RHDHV13) are expected to not be impacted, with modern buildings and tree cover precluding intervisibility.

137. It is possible that there would be partial visibility of the switchgear building and installation of the cable in the onshore cable route when within the setting of both assets, which would have a **temporary negligible** impact upon the setting, with the potential for construction work and machinery noticeable from the monuments. This will be most noticeable at the standing stone, whilst it will most likely be blocked by the tree cover which surrounds the burial chamber, and the large lorry park located to the north-west.
138. The burial chamber and standing stone are of **high** heritage significance, due to its archaeological and historical interest. This indirect impact from the switchgear building and cable installation is deemed to be **temporary minor adverse** upon the assets.

20.6.5.3.4.1. Mitigation

139. Other than ensuring construction hours are limited to core work hours, the impact to setting during construction of the switchgear building at this location is considered to be one that cannot be mitigated against but is minor enough to be of limited concern.

20.6.5.3.4.2. Residual Impact

140. The residual impact upon these assets during construction, therefore, is **temporary minor adverse** and will stop once construction is complete.

20.6.5.3.5. Grid Connection Substation at Orthios

141. The grid connection substation is located within the old Aluminium Works, north of the A55 and south of the old London Road (A5). The area is already heavily industrialised, and a substation is already located within the vicinity. No built designated heritage assets were identified as being indirectly impacted by this option during construction, with all nearby designated built assets (located within the Penhros coastal park) being masked from view by the belts of ancient woodland (RHDHV34). The construction works will be undertaken in an area that is visible from the back edge of the ancient woodland however.
142. The impact of construction works at this location is considered **negligible** upon the historic environment, with potential for the work to indirectly affect the setting of the ancient woodland. This woodland's main heritage value is in its contribution to the setting of the listed buildings nearby however, which will not be impacted by the nearby construction activity. Similarly, the construction activity is taking place within an area already heavily industrialised, which forms part of the ancient woodland's current setting.
143. The ancient woodland is considered to be of **low** heritage significance, with its main heritage value in a contribution to the setting of other nearby heritage assets, along with its communal value forming part of a coastal park. The significance of effect upon the ancient woodland is considered **negligible** and **temporary**.

20.6.5.3.5.1. Mitigation

144. No mitigation is required.

20.6.5.3.5.2. Residual Impact

145. The impact upon these assets during construction is considered to stay as **negligible** and **temporary**.

20.6.5.4. Construction Impact 4: Indirect Impact upon the Setting of Recorded Non-designated Heritage Assets

146. As with construction impact 3 (**Section 20.6.5.3**), this impact could occur due to changes in views to/from certain heritage assets which may affect appreciation of certain assets' historic, architectural or archaeological interest. This indirect impact has been identified for the Penrhosfeilw Chapel (RHDHV36), near the onshore cable route (central) and a World War II pillbox at the eastern-most end (RHDHV37).

147. The impact of construction works at these locations is considered **negligible** upon the setting of two assets. The Chapel will be impacted by temporary noise and general construction activity within its setting during installation of the cable in the adjacent road. The pillbox's setting may be impacted by the cable installation or works associated with drilling the cable at this point under the A55.

148. The Chapel is considered to be of **medium** heritage significance, due to its historic interest and communal value. The pillbox is also considered to be of **medium** heritage significance, due to its historic interest. The significance of effect is considered **minor** and **temporary**.

20.6.5.4.1.1. Mitigation

149. No mitigation is required.

20.6.5.4.1.2. Residual Impact

150. The impact upon these assets during construction is considered to stay as **negligible** and **temporary**.

20.6.6. Potential Impacts During Operation

20.6.6.1. Operational Impact 1 and 2: Direct Impact to Potential Archaeological Remains and Designated Heritage Assets

151. There will be no further direct impact to potential archaeological remains during operation of the Project as no further groundworks are planned in new areas and maintenance work, if required, will be taking place within the existing footprint, already mitigated during construction.

20.6.6.2. Operational Impact 3 and 4: Indirect Impact upon the Setting of Non-designated and Designated Heritage Assets

152. The operation of the Project may result in an indirect impact upon the setting of non-designated and designated heritage assets as well as the appreciation of the historic landscape and seascape character surrounding the Project (See **Chapter 24, Seascape, Landscape and Visual Impact Assessment**).
153. Indirect impacts upon setting could occur due to:
- The introduction of the offshore infrastructure, visible from coastal assets (the South Stack Lighthouse and Ellin's Tower; RHDHV 01 and 14);
 - The introduction of the landfall substation, visible from certain locations within the landscape, principally Holyhead Mountain hut circles (RHDHV 08);
 - The introduction of the switchgear building;
 - The introduction of the grid connection substation; and
 - The introduction of any associated infrastructure required for the Project (new access roads, other infrastructure etc.).
154. The designated heritage assets potentially affected by the operation of the Project are the same as those identified during construction.

20.6.6.2.1. Offshore Infrastructure

155. The installation of the offshore infrastructure will result in some changes to the seascape views from the identified coastal assets (South Stack lighthouse group, RHDHV01, and Ellin's Tower, RHDHV14). The seascape will change due to the visibility of the buoys and other infrastructure off the coast. The magnitude of impact for this is assessed against a worst-case scenario (as set out in **Chapter 4, Project Description** and **Section 20.6.3**). The views from the South Stack lighthouse group out to sea are considered not to make a major contribution to the heritage significance of the assets, as the heritage significance of the lighthouse is in views from the sea towards the coast. The seascape views from Ellin's Tower, however, do contribute. The magnitude of impact has been considered alongside the results of the SLVIA (**Chapter 24**) and identified as **medium**.
156. These assets are deemed to be of **medium** heritage significance, due to their architectural and historical interest, along with their communal value and links to local historical figures. The impact significance, with the currently known information of the offshore infrastructure is **permanent minor to moderate adverse**. As this is a moderate adverse impact, it is therefore significant in EIA terms.

20.6.6.2.1.1. Mitigation

157. Embedded mitigation includes the considered siting, design and layout of the offshore infrastructure, which has been used in the above impact significance result (see **Figure 4-1, Volume II**).

158. Other mitigation could include neutral colouring of the tidal devices and deciding on the least impactful navigational lighting requirements. These potential mitigation considerations would be further detailed during the detailed design stage, through consultation with stakeholders in relation to the discharge of appropriate condition which could be included on the planning consent.

20.6.6.2.1.2. Residual Impact

159. A residual **permanent minor to moderate adverse** effect will result, for the duration of the Project.

20.6.6.2.2. Landfall Substation

160. The new landfall substation could result in a change of Holyhead Mountain Hut Circles' (RHDHV08), the Penrhosfeilw Standing Stones' (RHDHV11) and the Grade II listed Tan-y-Cytiau farmhouse's (RHDHV12) setting through the introduction of the substation into the wider landscape.

161. However, the views towards and between the assets already contain modern infrastructure and agriculture elements and the substation will not affect intervisibility between the assets. From distance, the new substation will look similar to the modern agricultural buildings within the landscape, whilst the height of the buildings is not overly dominant and will not draw the eye away from the heritage assets. As such, the magnitude of impact is considered **negligible**.

162. The hut circles and standing stones (RHDHV08 and 11) are deemed to be of **high** heritage significance, due to their architectural, archaeological and historical interest, whilst the Tan-y-Cytiau farmhouse is of **medium** heritage significance, being a good example of 20th century Arts and Crafts style architecture. The indirect effect upon the assets by the construction works within landfall are deemed to be of **permanent minor adverse** significance.

20.6.6.2.2.1. Mitigation

163. As the new landfall substation will result in a minor adverse impact significance upon the identified assets' setting, no further mitigation is required. Broader mitigation may be put in place by the Project however, including use of screening to reduce visual impacts of the substation.

20.6.6.2.2.2. Residual Impact

164. The impact upon these assets during operation is considered to stay as **minor adverse**.

20.6.6.2.3. Onshore Cable Route

165. During operation, there will be no indirect impacts to the setting of heritage assets because of the onshore cable route, which will be buried and not visible. Impacts may occur if repairs to the cable are required; however, this would result in the same temporary impacts as those described during construction.

20.6.6.2.4. Switchgear Building at Parc Cybi

166. The switchgear building could result in an indirect impact to the setting of Ty-Mawr Standing Stone (RHDHV05) and Trefignath Burial Chamber (RHDHV10). This is due to the building potentially being visible from the assets. Currently, both assets are located within a landscape which contains significant modern infrastructure, as described in the DBA (**Appendix 20.1, Volume III**).
167. The standing stone is located approximately 300 m west of the switchgear building location opposite the services off the main road. Views towards the substation would be potentially available, although there is some tree cover which will mask the views and the setting already contains the modern infrastructure of the road and services. As such, the impact is considered **permanent** but **negligible**. The asset has a **high** heritage significance due to its archaeological and historic interest, resulting in a **permanent minor adverse** impact.
168. For the burial chamber, views towards the switchgear building will be at least partially masked by the existing tree cover and some of the modern buildings within the area, whilst the current setting of the asset is one which includes significant modern infrastructure (the A55 and the Aluminium Works). As such, the impact is considered **permanent** but **negligible**. This asset has a **high** heritage significance, due to its archaeological and historic interest and as such construction of the switchgear building would result in a **permanent minor adverse** impact to the burial chamber.

20.6.6.2.4.1. Mitigation

169. No mitigation is required, although broader mitigation may be put in place by the Project, including use of screening to reduce visual impacts of the substation.

20.6.6.2.4.2. Residual Impact

170. The impact upon these assets during operation is considered to stay as **minor adverse**.

20.6.6.2.5. Grid Connection Substation at Orthios

171. It is considered that there will be no indirect impact to the heritage significance of nearby heritage assets due to the construction of the grid connection substation. The new grid connection substation will blend in with the existing baseline environment, with another substation being located nearby, whilst the views to/from the substation are masked from the majority of the nearby area by existing infrastructure, and the woodland at Penrhos.

20.6.7. Potential Impacts During Decommissioning

172. It is anticipated that the impacts during any decommissioning phase would be no worse than construction. The main potential impacts could be:
- Removal of the facility would require work areas, which may directly impact buried archaeological remains, if new compounds are constructed on areas not archaeologically evaluated or mitigated for during the construction phase.

- Introduction of construction machinery into the wider landscape which may indirectly impact the setting of heritage assets (temporarily).

173. Upon decommissioning, there could be a negligible or minor beneficial effect on the setting of the assets which were identified as previously being adversely impacted during operation. This is due to the impacts that were identified during the operational phase of the Project being removed.

20.6.8. Cumulative Impacts

174. Cumulative impacts between this Project and other nearby planned developments are summarised within **Chapter 26, Cumulative and In-Combination Impacts**.

175. In terms of onshore archaeology and cultural heritage, any new developments within the locality of the landfall substation, switchgear building or grid connection substation could result in a cumulative indirect impact upon the setting of certain heritage assets. Currently, a total of 55 planning applications were assessed, and none have been identified which could cause this cumulative impact.

20.6.9. Inter-relationships

176. This chapter has inter-relationships with **Chapter 13, Offshore Archaeology** and **Chapter 24, Seascape, Landscape and Visual Impact Assessment**.

177. These interrelationships occur due to use of tool-kits employed in **Chapter 24, Seascape, Landscape and Visual Impact Assessment** (photomontages, ZTVs), which were assessed to inform the results of this chapter. Inter-relationship with **Chapter 13, Offshore Archaeology** occurs due to a technical relation between the subjects of the chapters, with results from the offshore archaeology chapter and this chapter combining to give an overview of all impacts to the historic environment by the Project.

178. **Table 20-13** lists out the inter-relationships between this chapter and other chapters in the ES.

Table 20-13 Inter-topic relationships

Topic and description	Related Chapter	Where addressed in this Chapter	Rationale
Offshore Archaeology	Chapter 13, Offshore Archaeology	Section 20.6	There is a technical relation between the subjects of the chapters, with results from the offshore archaeology chapter and this chapter combining to give an overview of all impacts to the historic environment by the Project.
Ground Conditions and Contamination	Chapter 18, Ground Conditions and Contamination	Section 20.5	This chapter has an inter-relationship due to its consideration of the current ground conditions and identification of areas which may be contaminated, which has been used as an aid to identify areas where previous modern impacts could have occurred which would impact any potential archaeological remains.

Topic and description	Related Chapter	Where addressed in this Chapter	Rationale
Noise and vibration	Chapter 21, Noise and Vibration	Section 20.6 (all indirect impacts)	Consideration of Noise and Vibration results informs the assessment of indirect (non-physical) impacts upon heritage assets.
Traffic and Transport	Chapter 23, Traffic and Transport	Section 20.6 (all indirect impacts)	Increases in traffic around heritage assets has the potential to cause an adverse impact to the setting of a heritage asset and so consideration of the predicted traffic movement presented in this chapter are included in the historic environment WCS and considered as part of the assessment.
Seascape, Landscape and Visual Impact Assessment	Chapter 24, Seascape, Landscape and Visual Impact Assessment	Section 20.6 (all indirect impacts)	The historic environment assessment has drawn upon images produced for the SLVIA chapter to aid in identification of potential indirect (non-physical) impacts to heritage assets by the Project. Similarly, the visualisation produced aid in identifying if the appreciation of the heritage assets will be impacted by the development. One of the visualisations produced by the SLVIA team was undertaken from one of the key heritage assets: Ellin's Tower (RHDHV14).

20.6.10. Interactions

179. The impacts identified and assessed in this chapter have the potential to interact with each other, which could give rise to synergistic impacts because of that interaction. The worst-case impacts assessed within the chapter take these interactions into account and for the impact assessments are considered conservative and robust. For clarity, the areas of interaction between impacts are presented in **Table 20-14**, along with an indication as to whether the interaction may give rise to synergistic impacts.

Table 20-14 Interaction between Impacts

Potential interaction between impacts			
Construction	Direct impact to potential buried archaeological remains	Indirect impact upon setting of designated heritage assets	Indirect impact upon setting of recorded non-designated assets
Direct impact to potential buried archaeological remains	-	No	No
Indirect Impact upon setting of designated heritage assets	No	-	Yes
Indirect impact upon setting of recorded non-designated assets	No	Yes	-
Operation	Direct impact to potential buried archaeological remains	Indirect impact upon setting of designated heritage assets	Indirect impact upon setting of recorded non-designated assets

Potential interaction between impacts			
Direct impact to potential buried archaeological remains	-	No	No
Indirect Impact upon setting of designated heritage assets	No	-	Yes
Indirect impact upon setting of recorded non-designated assets	No	Yes	-
Decommissioning			
It is anticipated that the decommissioning impacts will be similar in nature to those of construction.			

20.6.11. Mitigation Summary

180. A number of mitigation measures have been proposed for the Project to mitigate the impacts identified. These would be undertaken as part of an archaeological works package, beginning pre-determination and continuing through the potential construction programme, as set out below.
181. In terms of mitigating impact to buried archaeological remains, a phase of geophysical survey at the landfall location, agricultural land along the onshore cable route and any other areas which have potential for archaeological remains within the Project's onshore footprint will be undertaken pre-determination of the TWAO application. Following this geophysical survey, trial trenching may also occur, following consultation with Cadw and GAPS. The results of these phases of archaeological investigation will be used to further inform stakeholders of the archaeological potential of the route, whilst also enabling suitable mitigation measures to be designed, to be undertaken post-consent and pre-construction.
182. These further mitigation measures could include monitoring of geoarchaeological works, further evaluation (trial trenching), followed by archaeological monitoring or excavation, if the results of the evaluation identify significant remains within the onshore footprint of the Project. Similarly, areas where evaluation is not viable (e.g. within the road network, which is identified as the preferred installation option for the onshore cable), phases of intermittent archaeological monitoring could be undertaken within areas along the road network where archaeological potential was identified (e.g. where the onshore cable route passes Porth Dafarch Hut Circles; RHDHV04).
183. Results of the archaeological works would be presented in grey-literature reports and publications, resulting in the remains being preserved by record. Public outreach could also form part of the mitigation, with the archaeological contractors presenting the results through talks to interested parties, such as local history groups, schools or parish councils.
184. Any on-site archaeological works and resulting post-excavation works undertaken as part of the Project would be set out within a Written Scheme of Investigation (WSI), which would detail the requirements and be approved by stakeholders and followed by the archaeological contractor on-site. This WSI would be produced prior to any geophysical survey undertaken pre-determination of the application and sent to GAPS for review and approval.

185. Based upon the results of the impact assessment, no mitigation for settings impacts is required for heritage assets onshore. However, there is the potential option of screening at the location of permanent above-ground infrastructure, undertaken with heritage input, to reduce landscape and visual impacts from the Project which may also be considered beneficial in screening visual impacts upon the heritage assets in the vicinity.

20.6.12. Do-Nothing Scenario

186. If the Project were not to take place, buried archaeological remains would remain in-situ, whilst indirect impacts to the setting of heritage assets would not occur. Erosion of buried archaeological remains is currently minimal within the locality of the Project, as the farmland throughout the landscape is pastoral, with minimal to no ploughing being undertaken in the landscape, resulting in no damage to buried remains. This would remain the baseline if the Project didn't take place.
187. Without the Project occurring, no further information would be learned on the historic environment within the western half of Holy Island, which is currently relatively poorly understood.

20.7. SUMMARY

188. In summary, a number of heritage-specific impacts could occur due to the Project. Principally, potential archaeological remains could be partially or completely removed within the footprint of the Project due to excavation works during construction, whilst a number of designated and non-designated heritage assets could be indirectly impacted due to a change in their setting during construction and operation. The potential impacts have been identified by each heritage asset affected (**Table 20-15**), to provide an easily referenced summary.
189. Currently, heritage considerations have fed into the design process for the Project. HDD is the preferred option to make landfall, to reduce the need for open-cut trenching, whilst the landfall substation location has been situated at such a location in the landscape to make it as visually neutral as possible, with limited views to it from designated heritage assets. Similarly, the route chosen for the onshore cable route is to utilise the existing road network as much as reasonably possible, in part due to this location having less archaeological potential than if it were situated within the open pastoral fields of the island. Furthermore, the grid connection substation located within the old Aluminium Works is an area where there is no identified impact to the setting of heritage assets, whilst also have less potential for archaeological remains, due to the previous development works.
190. Proposed mitigation measures include phases of archaeological fieldwork, such as the geophysical survey and trial trenching identified above, which will then potentially be followed by phases of archaeological monitoring (during construction) or excavation (pre-construction), dependant on the results of the evaluation work. Arguably, this Project represents one of the best opportunities to evaluate the archaeological potential for a part of Holy Island which is poorly understood archaeologically, due to a lack of developer funded work having taken place within the area.



191. At this stage of the Project, a commitment is made to undertake geophysical survey of the Project to further inform Menter Môn and stakeholders on the Project's archaeological potential. This work will be undertaken pre-determination, to feed into the decision-making process. Following geophysical survey, trial trenching of high-potential areas may be undertaken following consultation with GAPS and Cadw.



Table 20-15: Summary of Impacts by key asset

RHDHV No.	Name	Heritage Value	Impacts Summary	Magnitude of impact	Significance of effect	Residual effect (post-mitigation)
1	South Stack Lighthouse group	Medium	Construction Impact 3: Indirect impact to setting of assets during construction of offshore infrastructure.	Negligible	Minor	Minor
			Operation Impact 3: Indirect impact to setting of assets from offshore infrastructure.	Medium	Moderate	Minor to Moderate
4	Porth Dafarch Hut Circles	High	Construction Impact 3: Indirect impact to setting of designated assets during installation of landfall cable.	Negligible	Minor	Minor
			Construction Impact 2: Direct impact to designated archaeological remains due to hydrological changes or vibration	High	Major	Minor
			Construction Impact 1: Direct impact to non-designated buried remains associated with (but outside of) the scheduled area.	High	Major	Non-significant
			Operation: No Impact	N/A	N/A	N/A
5	Ty-Mawr Standing Stone	High	Construction Impact 3: Indirect impact to setting of assets during installation of onshore cable.	Negligible	Minor	Minor
			Construction Impact 1: Direct impact to non-designated buried remains associated with (but outside of) the scheduled area.	High	Major	Non-significant
			Operation Impact 3: Indirect impact to setting of assets from landfall substation	Negligible	Minor	Minor
8	Holyhead Mountain Hut Circles	High	Construction Impact 3: Indirect impact to setting of assets during construction of landfall substation and landfall cable.	Negligible	Minor	Minor
			Operation Impact 3: Indirect impact to setting of assets from landfall substation	Negligible	Minor	Minor
10	Trefignath Burial Chamber	High	Construction Impact 3: Indirect impact to setting of assets during installation of onshore cable and switchgear building	Negligible	Minor	Minor



RHDHV No.	Name	Heritage Value	Impacts Summary	Magnitude of impact	Significance of effect	Residual effect (post-mitigation)
			Operation Impact 3: Indirect impact to setting of assets from switchgear building	Negligible	Minor	Minor
11	Penrhosfeilw Standing Stones	High	Construction Impact 3: Indirect impact to setting of the asset during construction of the landfall substation.	Negligible	Minor	Minor
			Operation Impact 3: Indirect impact to setting of assets from landfall substation	Negligible	Minor	Minor
13	Kingsland Windmill	High	Construction Impact 3: Indirect impact to setting of assets during installation of onshore cable.	Negligible	Minor	Minor
			Operation: No Impact	N/A	N/A	N/A
14	Ellin's Tower (Twr Ellin)	Medium	Construction Impact 3: Indirect impact to the setting of asset during installation of onshore cable.	Negligible	Minor	Minor
			Operation Impact 3: Indirect impact to the setting of asset due to offshore infrastructure	Medium	Moderate	Minor to Moderate
15	Old Customs Post	Medium	Construction Impact 3: Indirect impact to the setting of asset during installation of onshore cable.	Negligible	Minor	Minor
			Operation: No Impact	N/A	N/A	N/A
23	Ebenezer Chapel	Medium	Construction Impact 3: Indirect impact to the setting of asset during installation of onshore cable.	Negligible	Minor	Minor
			Operation: No Impact	N/A	N/A	N/A
32	Tan-y-Cytiau	Medium	Construction Impact 3: Indirect impact to the setting of asset during installation of onshore cable.	Low	Minor	Minor
			Operation Impact 3: Indirect impact to setting of assets from landfall substation	Negligible	Minor	Minor
34	Ancient Woodland, Penrhos coastal park	Low	Construction Impact 3: Indirect impact to the setting of asset during construction of grid connection substation	Low	Minor	Minor
			Operation: No Impact	N/A	N/A	N/A
35	Cemetery, Porth Dafarch	High	Construction Impact 1: Direct impact to non-designated buried remains associated with this monument record.	High	Major	Non-significant



RHDHV No.	Name	Heritage Value	Impacts Summary	Magnitude of impact	Significance of effect	Residual effect (post-mitigation)
			Operation: No Impact	N/A	N/A	N/A
36	Penrhosfeilw Chapel	Medium	Construction Impact 4: Indirect impact to the setting of a non-designated asset during installation of onshore cable.	Negligible	Minor	Minor
			Operation: No Impact	N/A	N/A	N/A
37	Pillbox, north-east of Tre God	Medium	Construction Impact 4: Indirect impact to the setting of a non-designated asset during installation of onshore cable.	Negligible	Minor	Minor
			Operation: No Impact	N/A	N/A	N/A
38	Parc Cybi archaeological remains	Medium	Construction Impact 1: Direct impact to potential buried archaeological remains associated with known (recorded) archaeological remains during installation of onshore cable and switchgear building.	High	Major	Non-significant
			Operation: No Impact	N/A	N/A	N/A
39	Cist burial, remains of hut circles & finds	Medium	Construction Impact 1: Direct Impact to potential buried archaeological remains associated with known (recorded) archaeological remains during installation of onshore cable.	High	Major	Non-significant
			Operation: No Impact	N/A	N/A	N/A
40	Remains of Hut circles & finds	Medium	Construction Impact 1: Direct Impact to potential buried archaeological remains associated with known (recorded) archaeological remains during installation of onshore cable.	High	Major	Non-significant
			Operation: No Impact	N/A	N/A	N/A

20.8 REFERENCES

Cadw (2011). Conservation principles for the sustainable management of the historic environment in Wales. Available at: <https://cadw.gov.wales/advice-support/conservation-principles/conservation-principles> [Accessed on 09/07/19]

Cadw (2017a). Setting of Historic Assets in Wales. Welsh Government, Cadw. Available at: <https://cadw.gov.wales/docs/cadw/publications/historicenvironment/20170531Setting%20of%20Historic%20Assets%20in%20Wales%2026918%20EN.pdf> [Accessed on 09/07/19]

Cadw (2017b). Heritage Impact Assessment in Wales. Welsh Government, Cadw. Available at: [https://cadw.gov.wales/docs/cadw/publications/historicenvironment/20170531Heritage%20Imp](https://cadw.gov.wales/docs/cadw/publications/historicenvironment/20170531Heritage%20Impact%20Assessment%20in%20Wales%2026917%20EN.pdf)
[act%20Assessment%20in%20Wales%2026917%20EN.pdf](https://cadw.gov.wales/docs/cadw/publications/historicenvironment/20170531Heritage%20Imp) [Accessed on 09/07/19]

Cadw (2017c). Managing Change to Listed Buildings in Wales. Welsh Government, Cadw. Available at: <https://cadw.gov.wales/advice-support/historic-assets/scheduled-monuments/best-practice-guidance/#section-caring-for-coastal-heritage> [Accessed on 09/07/19]

Cadw (2017d). Managing Conservation Areas in Wales. Welsh Government, Cadw.

Cadw (2017e). Managing Historic Character in Wales. Welsh Government, Cadw. Available at: [https://cadw.gov.wales/docs/cadw/publications/historicenvironment/20170531Managing%20Hi](https://cadw.gov.wales/docs/cadw/publications/historicenvironment/20170531Managing%20Historic%20Character%20in%20Wales%2031145%20EN.pdf)
[storic%20Character%20in%20Wales%2031145%20EN.pdf](https://cadw.gov.wales/docs/cadw/publications/historicenvironment/20170531Managing%20Historic%20Character%20in%20Wales%2031145%20EN.pdf) [Accessed on 09/07/19]

Cadw and Countryside Council for Wales (2007). Guide to Good Practice on using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process, Revised (2nd) edition Welsh Government, Cadw.

Chartered Institute for Archaeologists (CIfA) (2014a). Standard and guidance for historic environment desk-based assessment. Reading.

Chartered Institute for Archaeologists (CIfA) (2014b). Code of Conduct. Reading. Available at: <https://www.archaeologists.net/sites/default/files/CodesofConduct.pdf> [Accessed on 09/07/19]

GAT (2012). Penrhos Leisure Village, Holyhead, Anglesey. Report on Archaeological Evaluation Trenches. GAT unpublished technical report. Available at:

Historic England (2013). Historic Environment Guidance for Wave and Tidal Energy. November 2013

Isle of Anglesey County Council and Gwynedd Council (2017). Joint Local Development Plan (Anglesey and Gwynedd). Available at: <https://www.gwynedd.llyw.cymru/en/Council/Documents---Council/Strategies-and-policies/Environment-and-planning/Planning-policy/Anglesey-and-Gwynedd-Joint-Local-Development-Plan-Written-Statement.pdf> [Accessed on 09/07/19]

Welsh Government (2018). The Planning Policy Wales (Edition 10, November 2018): Chapter 6 – Distinctive and Natural Places. Welsh Government. Available online:

<https://gov.wales/sites/default/files/publications/2019-02/planning-policy-wales-edition-10.pdf>

[Accessed on 09/07/19]

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

Welsh Office (1999). Welsh Office Circular 11/99: Environmental Impact Assessment. Welsh Government.

Wessex Archaeology (2019). *Morlais Tidal Array: Desk -based Assessment on Onshore Archaeology & Walkover Survey*. Wessex Archaeology unpublished technical report