

ABWP Phase I Decommissioning

Marine Archaeology

Volume 2, Chapter 8



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Appendices

Appendix number	Appendix title
8.1	Marine Archaeology Technical Report

Statement of Authority

Author	Qualifications	Relevant Experience
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Joey O'Connor	BSc (National University of Ireland, Galway 2007), MSc (University of Southampton 2009), MIMarEST (2025)	Joey is Head of Environmental in GDG, specialising in EIA, Appropriate Assessment and environmental consultancy. A Marine Scientist with coastal engineering expertise and extensive experience of delivering environmental assessments and consents for development activities and projects, Joey leads a team of environmental and consenting specialists within GDG's Advisory Team and has 17 years' experience across the public and private sectors and >10 years project and team management experience with a focus on managing delivery of scientifically robust marine environmental evidence and advice. Joey has worked on a range of infrastructure projects including onshore wind farms, ports and offshore wind farms, and was EIA Coordinator and Environmental Lead for the Rosslare Europort ORE Hub project.
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Matt Royall	BSc (Hons) Natural Environmental Science (Earth Sciences), University of Sheffield (UK) MSc Environmental Pollution Control, University of Leeds (UK) Chartered Environmentalist (CEnv)	Over 25 years' experience of environmental impact assessment for a wide range of sectors, including windfarms. Experience is across a number of geographies including Ireland, UK, Poland, Lithuania and Romania.

Glossary

Term	Meaning
Arklow Bank Wind Park (ABWP) Phase I	Arklow Bank Wind Park (ABWP) Phase I comprises: - Offshore infrastructure seaward of High Water Mark (HWM), including: - Seven Wind Turbine Generators (WTG) with a combined capacity of 25.2 MW; - One meteorological (met) mast; - Inter-array cables connecting the WTGs and met mast; and - One offshore export cable connecting WTG T4 with landfall at HWM; - Onshore infrastructure landward of HWM including: - One onshore cable connecting landfall at HWM with the onshore substation; and - One onshore substation compound, where the onshore substation and ancillary infrastructure are located.
ABWP Phase II	ABWP Phase II comprises: - Offshore Infrastructure, including: 53 or 47 WTGs and two Offshore Substation Platforms (OSPs) located within the "Array Area"; - Inter-array cables connecting WTGs with the OSPs; and - Two offshore export cables; - Onshore grid connection infrastructure, including a 220 kV substation at Shelton Abbey with an associated connection to the existing National Electricity Transmission Network; - Operations and Maintenance Facility (OMF) at South Dock, Arklow Harbour; and - EirGrid Upgrade Works.
Additional mitigation	Actions that will be required to reduce the significance of environmental effects of the Proposed Works, which will be dependent on the significance of effects assessed in the EIAR. Also referred to as secondary mitigation in Institute of Environmental Management and Assessment (IEMA) (2024). IEMA is now the Institute of Sustainability and Environmental Professionals (ISEP).
Archaeological Exclusion Zone (AEZ)	Area around a known or suspected archaeological feature within which specified activities or works are prohibited.
Archaeological Impact Assessment	Archaeological report that sets out the known archaeology based on existing records and/or commissioned studies, and assesses the impacts arising from proposed works and make archaeological recommendations in keeping with the existing archaeological legislation and expectations of the archaeological regulator
Archaeology Management Plan (AMP)	Document that sets out clear protocols to follow in the course of a project to ensure compliance with archaeological legislation by all parties, and mitigation of works in accordance with existing national monuments legislation.
Baseline	A description of the relevant aspects of the current state of the environment (baseline scenario) (EIA Directive 2014/52/EU).
Before Present	The date of 1950 AD that is set by the scientific dating community from which measurements are calculated backwards to determine the age of an organic object that is subject to radiocarbon dating analysis
Cumulative effect	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects (EPA, 2022). Cumulative effects within this EIAR comprise those arising from the Proposed Works with other developments, i.e. plans and projects that are 'reasonably foreseeable' (Planning Inspectorate (PINS), 2024).

Term	Meaning
Cumulative effects assessment	Assessment of potential environmental effects resulting from the Proposed Works cumulatively with other plans, projects or reasonably foreseeable activities.
Decommissioning	The final closing down and putting into a state of safety of a development, project or process when it has come to the end of its useful life (EPA, 2022).
Detailed Offshore Decommissioning Environmental Management Plan (DEMP)	The contractor-developed version of this Outline Offshore DEMP, to be prepared before Proposed Works Offshore commence and maintained as a live document until completion.
Dredged material	Seabed material arising from localised dredging potentially required to facilitate safe vessel access during Proposed Works Offshore, and / or extraction of seabed material located inside monopile (MP) foundations, as part of MP decommissioning.
Easting	Compass direction set at 90 degrees
Effect	The consequence of an impact on a receptor. For example, in the offshore environment, vessel activity (activity) results in increased levels of underwater noise (impact), with the potential to disturb marine mammals (effect).
Embedded mitigation	Mitigation measures included as part of the Proposed Works. Include modifications arising through the iterative design process; and standard industry practice that would occur even without input from the EIA process, e.g. actions undertaken to meet other existing legislative requirements, or actions that are standard practices used to manage commonly occurring environmental effects. Correspond to primary and tertiary mitigation defined in Institute of Environmental Management and Assessment (IEMA) (now Institute of Sustainability and Environmental Professionals (ISEP)) (2024).
Environmental Impact Assessment (EIA)	Process of assessment of the effects of a project or development proposal on the environment. In the planning area, it is undertaken by a planning authority or An Coimisiún Pleanála during the consideration of applications for planning permission, taking account of an Environmental Impact Assessment Report (EIAR). The projects which require EIA are listed in Annex I and Annex II of the EIA Directive, as amended (Office of the Planning Regulator, n.d.).
Environmental Impact Assessment Report (EIAR)	A report or statement of the effects, if any, that Proposed Works, if carried out, would have on the environment. It is prepared by the developer to inform the EIA process (Office of the Planning Regulator, n.d.).
High Water Mark (HWM)	Level reached by the sea at high tide, measured as the mean of high tides.
Impact	A change brought about by the Proposed Works.
Inter-array cables	Subsea power lines that link individual wind turbine generators (WTGs) together in an offshore wind farm, forming an electrical network. In ABWP Phase I, inter-array cables connect WTGs and the met mast to each other and have an overall length of 7.4 km.
Irish Transverse Mercator	Map projection that flattens Ireland into one zone and enables accurate positioning
Landfall	The point where the offshore export cable transitions from the offshore marine environment to the onshore terrestrial environment.
Low Water Mark (LWM)	Level reached by the sea at low tide, measured as the mean of low tides.
Lowest Astronomical Tide (LAT)	Exact, lowest theoretical sea level that can be predicted to occur under average meteorological conditions.
Meteorological (Met) mast	A mast with a number of meteorological sensors located at different heights to record meteorological and sea condition data

Term	Meaning
Mitigation measures	Measures to avoid, prevent or reduce impacts (EPA, 2022), which comprise both embedded and additional mitigation, see separate definitions for these.
Monitoring	The periodic or continuous observation of biodiversity indicators and of other parameters that may affect biodiversity for any changes that may occur over time, so as to confirm predictions made with respect to likely effects and identify adverse changes that may require remedial action (Office of the Planning Regulator, n.d.).
Monopile (MP)	Hollow steel cylinder driven into the seabed typically used to anchor an offshore wind turbine generator (WTG). In ABWP Phase I, MPs support the seven WTGs as well as the meteorological (met) mast.
Nautical mile (nm)	Measurement used for distances at sea. 1 nm equates to 1.852 km.
Offshore export cable	Subsea power cable that transports the total generated power from an offshore wind farm to the onshore power grid. In ABWP Phase I, the offshore export cable connects the wind turbine generator (WTG) T4 to landfall with an approximate overall length of 15.6 km. At landfall, the offshore export cable transitions to the onshore cable connecting to the onshore substation.
Offshore Site	Part of the Site where Proposed Works Offshore are proposed to take place. In this application for planning permission, the Offshore Site comprises the Sub Lease Area, where the ABWP Phase I wind turbine generators (WTGs), met mast and inter-array cables are located, and the offshore export cable 10 m corridor connecting WTG T4 to the landfall at high water mark (HWM) near Arklow Harbour.
Ordnance Datum	Defined heights above sea level determined by the Ordnance Survey
Pathway	The route by which an effect is conveyed between a source and a receptor (EPA, 2022).
Proposed Works	The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).
Receptor	Any element in the environment which is subject to impacts (EPA, 2022).
Residual effect	The final predicted effect / impact remaining after mitigation (EPA, 2022).
Scour protection	Engineered barrier typically placed on the seabed around WTG foundations and subsea cables to prevent sediment erosion caused by accelerated water currents and waves, safeguarding the WTG's stability and protecting subsea cables. In ABWP Phase I, scour protection was originally introduced in the form of rock armour, however, this proved ineffective, and was removed in 2005. Since then, scour protection has been introduced through sandbags.
Sensitivity	The potential of a receptor to be significantly affected (EPA, 2022).
Side scan sonar (SSS)	Underwater remote sensing device that captures an image of the seabed surface across the extent of the area over which the device is deployed
Significance	The importance of the outcome of the impact (or the consequence of change) for the receiving environment (EPA, 2022).
Source	The activity or place from which an effect originates (EPA, 2022)
Sub Lease Area	Area where the ABWP Phase I WTGs, met mast and inter-array cables are located, as defined in the Sub Lease granted by Sure Partners Limited (SPL) to Arklow Energy Limited (Arklow Energy) to construct and operate ABWP Phase I.
The Marine Archaeology Study Area	Area covered in the characterisation of the baseline environment and considered in the assessment of potential environmental effects relevant to Marine Archaeology, defined as a 5.2 km long by 1.3 km wide area in the central area of the Arklow Bank, and an approximately 1 km wide

Term	Meaning
	corridor that follows the offshore export cable to shore. See Section 8.4.3 and Figure 8.1 in this document.
Transboundary effects	Potential environmental effects that may occur across jurisdictional boundaries (MDB, 2017).
Unexploded Ordnance (UXO)	Military munitions that were primed, fired, or dropped but failed to detonate as intended. UXO are generally associated with World War I and World War II hostilities
Universal Transverse Mercator	Map projection that flattens the Earth into 60 zones and enables accurate positioning. Unlike Irish National Grid and Irish Transverse Mercator, Universal Transverse Mercator extends across the marine environment and links seamlessly to neighbouring countries and jurisdiction
Wind Turbine Generator (WTG)	Structure that converts the kinetic energy of ocean winds into electrical energy. ABWP Phase I includes seven GE Energy 3.6s WTGs with a rated capacity of 3.6 megawatts (MW) per WTG.
Zone Of Influence (ZoI)	The potential geographic area that could be affected by the implementation of the Proposed Works, having regard to the source-pathway-target risk assessment concept. The ZoI for Marine Archaeology is defined as 500 m from the Offshore Site boundary.

Acronyms

Acronym	Meaning
ABWP	Arklow Bank Wind Park
ADCO	The Archaeological Diving Company
AEZ	Archaeological Exclusion Zone
AIA	Archaeological Impact Assessment
AMP	Archaeology Management Plan
BP	Before Present
CEA	Cumulative Effect Assessment
COWRIE	Collaborative Offshore Wind Research Into the Environment
DAHGI	Department of Arts, Heritage, Gaeltacht and the Islands
DEMP	Decommissioning Environmental Management Plan
DHLGH	Department of Housing, Local Government and Heritage
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
GSI	Geological Survey of Ireland
HSI	Historic Shipwreck Inventory
HWM	High Water Mark
IEMA	Institute of Environmental Management and Assessment
INFOMAR	Integrated Mapping for the Sustainable Development of Ireland's Marine Resource
ISEP	Institute of Sustainability and Environmental Professionals
ITM	Irish Transverse Mercator
JUB	Jack-up Barge

Acronym	Meaning
LAT	Lowest Astronomical Tide
MDS	Maximum Design Scenario
NMPF	National Marine Planning Framework
NMS	National Monuments Service
ORE	Offshore Renewable Energy
OSPs	Offshore Substation Platforms
OWF	Offshore Wind Farm
PINS	Planning Inspectorate
ROV	Remotely Operated Vehicle
SI	Site Investigation
SSS	Side scan sonar
UCD	University College Dublin
UTM	Universal Transverse Mercator
UXO	Unexploded Ordnance
WIID	Wreck Inventory of Ireland Database
WTG	Wind Turbine Generator
ZoI	Zone of Influence

Units

Unit	Meaning
km	Kilometre
km ²	Square kilometre
kV	Kilovolts
m	Metre
m ²	Square metre
m ³	Cubic metre
MW	Megawatts
nm	Nautical mile

8 MARINE ARCHAEOLOGY

8.1 Introduction

- 8.1.1.1 Arklow Energy Limited (Arklow Energy) is seeking planning permission to decommission Arklow Bank Wind Park (ABWP) Phase I (referred to hereafter as 'the Proposed Works'). The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).
- 8.1.1.2 This chapter of the Environmental Impact Assessment Report (EIAR) presents the findings of the Environmental Impact Assessment (EIA) work undertaken to date for the Proposed Works Offshore as described in **Volume 2, Chapter 3: Proposed Works Description**.
- 8.1.1.3 The Proposed Works Offshore will be undertaken within the Offshore Site (see **Volume 2, Chapter 3**), which includes:
- The Sub Lease Area, located on the long narrow Arklow Bank sand bank, situated approximately 10 km off the coast of Arklow, south-east Ireland, where seven wind turbine generators (WTGs) and foundations, associated scour protection, 7.4 km of inter-array cables and one met mast are located; and
 - A 10 m wide cable corridor along the 15.6 km offshore export cable route connecting WTG T4 to the landfall point at High Water Mark (HWM).
- 8.1.1.4 Marine archaeology is defined as the study of past human activities in the marine environment that are evidenced by material remains. Cultural Heritage is defined as monuments, groups of buildings/structures and individual sites that are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view.
- 8.1.1.5 In this chapter, marine archaeology is considered to encompass cultural heritage, and this chapter considers the potential impacts and effects on marine archaeology that could result from the Proposed Works Offshore and is, in part, based on the EIAR prepared in support of the planning application for the proposed ABWP Phase II (SSE Renewables, 2026), which includes the development of 47 or 53 offshore wind turbines in an area surrounding the Offshore Site, where the Proposed Works Offshore are proposed to take place, see **Volume 2, Chapter 3**.
- 8.1.1.6 This chapter describes the methodology, datasets that have informed the EIA, baseline conditions, including future baseline, mitigation measures and the residual significant effects on marine archaeology that could result from the Proposed Works Offshore.
- 8.1.1.7 The assessment is informed by the following chapters:
- **Volume 2, Chapter 1: Introduction;** and
 - **Volume 2, Chapter 3: Proposed Works Description.**
- 8.1.1.8 The chapter also draws on information contained within the following appendices:
- **Volume 3, Appendix 8.1: Marine Archaeology Technical Report.**

8.2 Legislative and Policy Context

8.2.1 Overview

- 8.2.1.1 The full relevant legislation and policy context for the Proposed Works has been detailed in **Volume 2, Chapter 1**. This section sets out the legislation and planning policy that is relevant to the marine archaeology assessment.

8.2.2 Legislation

- 8.2.2.1 The principal legislative context that operates across the marine environment in Ireland is informed by international legislation and is governed archaeologically by the requirements of the National Monuments Act 1930-2004, which, at the time of writing, is being replaced by the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 (**Table 8.1**).

Table 8.1 Principal legislation to inform known Marine Archaeology

Legislation	Reference	Geographic Coverage
European Convention on the Protection of the Archaeological Heritage (Valetta Convention)	Council of Europe, 1992	EU
The National Monuments Act 1930; Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023	Govt. of Ireland, 1930; 2023	Republic of Ireland, Republic of

International

European Convention on the Protection of the Archaeological Heritage (Revised) (Valetta Convention)

- 8.2.2.2 The Valetta Convention (Council of Europe, 1992) replaced and updated the original London Convention of 1969. It establishes a body of new basic legal standards for Europe, to be met by national policies for the protection of archaeological assets as sources of scientific and documentary evidence, in line with the principles of integrated conservation.

National

The National Monuments Act 1930-; Historic and Archaeological Heritage and Miscellaneous Provisions Act, 2023

- 8.2.2.3 The National Monuments Act 1930 is the principal legislative document that governs the protection of archaeological sites and objects in Ireland. When fully commenced, the Historic Archaeological Heritage and Miscellaneous Provisions Act 2023 will provide strengthened protection for historic and archaeological heritage, and artefacts of cultural interest and importance in Ireland. The Act will repeal and replace the existing National Monuments Acts 1930, and will enable the more efficient reporting of new discoveries.

8.2.3 Policy Context

National Policy Context

National Marine Planning Framework (NMPF)

- 8.2.3.1 The NMPF (The Department of Housing, Planning and Local Government (DHPLG, 2021) sets out a 20-year horizon on use, protection and enjoyment of the Irish marine environment. It proposes an integrated approach for planning the marine environment, with cultural heritage as an important component of this wealth. It situates heritage assets as part of the social infrastructure.
- 8.2.3.2 Heritage Assets Policy 1 supports proposals that demonstrate they will contribute to enhancing the significance of heritage assets where such proposals seek to avoid, minimise or mitigate harm to the significance of heritage assets.

Offshore Renewable Energy Development Plan I, 2014

- 8.2.3.3 Sets out expected archaeological mitigations required in Offshore Renewable Energy (ORE) projects in Ireland, which comprise: conforming to National Monuments Act legislative requirements; conducting seabed investigations prior to device installation; avoiding sites of interest and Archaeological Exclusion Zones (AEZ); submitting artefacts to the National

Monuments Service (NMS); conducting associated terrestrial walkover and related surveys; and providing reporting to NMS.

Table 8.2: Summary of the National Policies relevant to Marine Archaeology

Summary of relevant National Policy provisions	How and where considered in the EIAR
National Marine Planning Framework	
Heritage Assets Policy 1	Section 8.10.2 Summary of Additional Mitigation and Monitoring
Offshore Renewable Energy Development Plans I	
Section 4 – Suggested Project Level Mitigation Measures	Section 8.10.2 Summary of Additional Mitigation and Monitoring

Local Policy Context

- 8.2.3.4 The Offshore Site is adjacent to the jurisdiction of Wicklow County Council (which begins at HWM and extends landwards). The Wicklow County Development Plan 2022-2028 aligns with the approved National Marine Planning Framework, with common policy areas including renewable energy, electricity networks, coastal and flood defences, fishing and aquaculture, ports and harbours, public access, tourism and recreation, protected sites and species, seascape and landscape. Objective CPO 19.4 supports the development of Marine Tourism, especially with regard to development of Wicklow's harbours, beaches, marine landscape, maritime cultural heritage and water related activities, including leisure and recreational tourism, subject to compliance with environmental requirements.

Table 8.3 Summary of the National Policies relevant to Marine Archaeology

Summary of relevant local policy provisions	How and where considered in the EIAR
Wicklow County Development Plan 2022-2028	
CPO 19.4 Marine Tourism	It is not considered directly in Chapter 8. Rather it informs the process of care in the protection of the archaeological resource during the works.

8.3 Consultation and Engagement

- 8.3.1.1 The EIA Scoping Presentation was issued to prescribed bodies in March 2026 (see **Volume 2, Appendix 1.1: EIA Scoping Presentation**).
- 8.3.1.2 **Table 8.4** sets out the key comments raised specific to this chapter, with details of how these comments have been addressed, see **Stakeholder Consultation and Engagement Report** prepared in support of the application for planning permission.

Table 8.4: Summary of consultation and engagement feedback relevant to marine archaeology

Comment	How and where considered in the EIAR
National Monuments Service, Development Applications Unit, written response received on 8th May 2026	
As is recommended by this Department in relation to all substantive development schemes, such as the project in question, it is advised that a Project Archaeologist(s) be appointed to oversee and advise on all aspects of this scheme from design, through EIAR compilation to decommissioning.	Volume 2, Chapter 8: Marine Archaeology (this chapter) and Volume 3, Appendix 8.1: Marine Archaeology Technical Report of the EIAR have been prepared by a qualified archaeologist. In addition, as indicated in Volume 3, Appendix 3.4: Outline Offshore Decommissioning Environmental Management Plan (DEMP), A Marine Archaeological Consultant will be appointed to support the Arklow Energy Project Manager / Environmental Manager in relation to archaeological matters, see Volume 3, Appendix 3.4 for additional information on role and responsibilities.
In defining the scope of the EIAR it is vital that the entirety of what constitutes underwater cultural heritage is reflected in its content (...) it should be noted that Section 3.3.6 of the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency 2022, 32) states that EIAR Cultural Heritage chapters should contain the following: Cultural Heritage • Archaeology • Known archaeological monuments • Areas of archaeological potential (including unknown archaeology) • Underwater archaeology Architectural Heritage • Designated architectural heritage • Other significant architectural heritage Folklore and History • Designations or sensitivities The Landscape • Landscape Appearance and Character • Landscape Context • Views & Prospects Historical Landscapes	Volume 2, Chapter 1: Introduction, Section 1.4.3 (Scope of the EIAR) describes the reasons why onshore archaeology and heritage have been scoped out of the EIAR. Section 8.4.3 of Volume 2, Chapter 8 justifies the potential impacts scoped into the EIAR in relation to marine archaeology.
Section 3.6.4 of Frameworks and Principles for the Protection of the Archaeological Heritage (Government of Ireland 1999) document states in relation to the scope of archaeological assessments that they: <i>'may, as appropriate, include documentary research, field-walking, examination of upstanding or visible features or structures, examination of existing or new aerial photographs or satellite or other remote sensing imagery, geophysical survey, topographical assessment, general consideration of the archaeological potential of the area or areas effected by a development based on their environmental characteristics, or archaeological testing.'</i>	As indicated in Volume 2, Chapter 8, Section 8.4.4, the assessment of potential effects on marine archaeology has been informed by a detailed desktop review of existing studies and datasets, including archaeological monitoring reports and surveys of relevance to the Offshore Site.

Comment	How and where considered in the EIAR
National Monuments Service, Development Applications Unit, written response received on 8th May 2026	
The scope of the EIAR should include the broadest gamut of underwater cultural heritage to be sufficiently accurate to provide a reliable reference against which the likely significant effects of the decommissioning project can be assessed. The following constitutes some of the key elements of underwater cultural heritage that require detailed assessment in the EIAR: wrecks (...), submerged prehistoric sites and palaeo landscapes (...), Maritime and Coastal Built Heritage (...), Statutory Protections on Underwater Cultural Heritage (...).	Volume 2, Chapter 8 presents an assessment of potential effects on marine archaeology receptors of relevance to the Offshore Site and scale of Proposed Works Offshore, including submerged prehistoric archaeological sites potential, paleo landscapes and historic shipwrecks. Due to the location and limited spatial scale of the Offshore Site, maritime and coastal built heritage is not considered likely to be affected by Proposed Works Offshore. Statutory protections on underwater cultural heritage are located within the Offshore Site and its vicinity and are associated with known shipwreck sites.
OWF projects, including decommissioning projects, can have a significant effect on a broad range of underwater cultural heritage, which should be comprehensively addressed through the Archaeological Assessment process. An Archaeological Assessment and Mitigation Strategy for a proposed OWF project, including for design and geophysical and geotechnical investigations, and for enabling works and decommissioning activities, should primarily aim to avoid likely significant effects on the underwater cultural heritage. The risk of adverse effects on underwater cultural heritage can be reduced through carrying out mitigation as early as possible and assessment should also inform the design of a given scheme with reasonable alternatives that achieve the maximum amount of preservation in-situ of underwater cultural heritage. Each phase of the proposed decommissioning project requires its own approach and strategy for Archaeological Assessment and Mitigation. As each stage reaches completion, the Archaeological Strategy and Mitigation in place may need to continue onto the next stage or be expanded in the event, for example, that new discoveries are made that warrant additional archaeological inputs. Assessment recommendations, with appropriate avoidance or mitigation measures, require implementation regardless of whether the assessment took place before or after a grant of approval for an OWF. As Geophysical and Geotechnical Investigation works are generally undertaken before a project receives approval, they will require separate screening, assessment as set out in an assessment report to be submitted and agreed with the National Monuments Service.	Volume 2, Chapter 8 presents an assessment of potential effects on marine archaeology from Proposed Works Offshore. Proposed Works Offshore include pre-decommissioning surveys that will confirm the location of marine archaeology receptors and ensure that embedded and additional mitigation identified in the EIAR is appropriate and sufficient. The Proposed Works Offshore will not require geophysical or geotechnical investigation works.

Comment	How and where considered in the EIAR
National Monuments Service, Development Applications Unit, written response received on 8th May 2026	
The sA detailed assessment of underwater cultural heritage, undertaken by suitably qualified and experienced specialists, is required during the pre-design and/or design phase, as part of the EIA process. The purpose of such assessments is to identify, describe and assess the likely significant effects on underwater cultural heritage resulting from, inter alia, the decommissioning project. This is to ensure that any significant adverse effects can be avoided, reduced or offset, and that mitigation measures can be embedded into the design, wherever possible. Assessment should address direct and indirect effects on underwater cultural heritage (...).	Volume 2, Chapter 8 and Volume 3, Appendix 8.1 of the EIAR have been prepared by a qualified archaeologist in line with relevant Irish guidance.
The EIAR chapter on Underwater Cultural Heritage should include a description of the full gamut of underwater cultural heritage (as described above (...)) include, as a minimum, the following: • A synthesis of desktop study to include historical and cartographic research, research on primary and secondary archival sources, and the results of a review of the Wreck Inventory of Ireland Database, Record of Monuments and Places/Sites and Monuments Record, National Inventory of Architectural Heritage and the Record of Protected Structures. • A synthesis of all underwater surveys, intertidal surveys and any other prior archaeological assessments undertaken. • An Inventory of all underwater cultural heritage assets, including wrecks, submerged palaeo landscapes, archaeological features/deposits, sites/monuments, or objects and marine built heritage. A detailed Impact Statement, which includes drawings/mapping that clearly show impacts/ effects, and recommendations for appropriate mitigation of any adverse impacts and effects to known or potential archaeological heritage.	Volume 2, Chapter 8 and Volume 3, Appendix 8.1 include the contents specified and detail the sources of information used to inform both documents, see notes on scope below and in Section 8.4.3 in Volume 2, Chapter 8.

Comment	How and where considered in the EIAR
National Monuments Service, Development Applications Unit, written response received on 8th May 2026 OWF decommissioning projects can lead to significant adverse effects on a broad range of underwater cultural heritage (see above), requiring comprehensive and proactive mitigation informed by a comprehensive Archaeological Assessment process (...) measures to mitigate any adverse effects should be devised and embedded within the overall EIAR. EIARs will include a Schedule of Environmental Commitments detailing specific measures to be undertaken to mitigate any adverse effects on underwater cultural heritage (...). When no impact is caused, often through consideration of alternatives (that is, a design solution), mitigation by avoidance/preservation in-situ is achieved (...) Avoidance will, in general, be designed into the OWF design at an early stage, and may require defined Archaeological Exclusion Zones, buffers, vibration monitoring and periodic inspection (...). Investigations may be required in order to characterise and determine the full extent of an underwater cultural heritage asset (...). Preservation in-situ may also be used where archaeology discovered during decommissioning works can be preserved with suitable measures (...). Mitigation by Remedy/Offsetting (...) is achieved when an adverse effect is compensated for by a remedial action and balanced by a positive effect (...) it is advisable to consult with the National Monuments Service when this scenario arises (...). Preservation by Record is a mitigation of last resort and this principle is an important part of state policy in relation to archaeological heritage. (...) Before an approval is provided for full archaeological excavation the National Monuments Service will require sufficient evidence that all options for preservation in-situ have been exhausted. Mitigation relating to residual impacts of the excavation on remaining archaeological deposits/features/structures may also need to be addressed (...)	Volume 2, Chapter 8 and Chapter 11: Summary of Mitigation, Residual Effects and Monitoring describe embedded and additional mitigation measures identified to avoid and mitigate potential impacts on marine archaeology, which include the consideration of Archaeological Exclusion Zones (AEZs). No investigations, beyond pre- and post-decommissioning surveys, or identified mitigation / monitoring, are proposed as part of Proposed Works Offshore.
Archaeological monitoring is generally undertaken following prior archaeological assessments (...) as a method of dealing with any residual risks to underwater cultural heritage that remain following the completion of prior assessments and any related mitigations. (...) For OWF projects archaeological monitoring can include (but is not limited to): • Monitoring of sub-tidal/intertidal excavations of the seabed relating to decommissioning activities • Monitoring of geotechnical investigations • Monitoring of dredging works • Monitoring of dredged spoil through metal detection assessment • Periodic/intermittent monitoring All archaeological monitoring should be carried out under licence (...).	Volume 2, Chapter 8 and Chapter 11: Summary of Mitigation, Residual Effects and Monitoring describe monitoring measures identified to deal with any residual risks to marine archaeology that remain following the completion of this chapter and any mitigation proposed to be implemented.

8.4 Impact Assessment Methodology

8.4.1 Overview

- 8.4.1.1 **Volume 2, Chapter 1: Introduction** sets out the overarching approach that has been used in this EIAR. This section describes the assessment scope, baseline characterisation method and criteria used to determine the sensitivity of the receptors and magnitude of effects and sets out the significance criteria that have been used for the marine archaeology assessment.

8.4.2 Relevant Guidance

- 8.4.2.1 This chapter has been prepared in accordance with the following guidance documents:

International Guidance

Collaborative Offshore Wind Research Into the Environment (COWRIE) Guidance for Assessment of Cumulative Impacts on the Historic Environment from Offshore Renewable Energy, 2007

- 8.4.2.2 While set up to deal with archaeological issues associated with offshore wind and associated renewable energy projects, the COWRIE guidance sets a UK standard that is commonly applied in Ireland.

National Guidance

Framework and Principles for the Protection of the Archaeological Heritage, 1999, and Archaeology and Flood Relief Schemes Guidelines, 2023

- 8.4.2.3 The primary document reflecting policy and guidance for marine archaeology in Ireland as regulated by the Department of Housing, Local Government and Heritage are the Framework and Principles for the Protection of the Archaeological Heritage (1999), and the Archaeology and Flood relief Schemes Guideline (2023). These documents set out the stages expected in a managed approach to archaeological resolution for projects and have been considered in the preparation of this chapter:
- Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI), Framework and Principles for the Protection of the Archaeological Heritage (1999);
 - DAHGI, Policy and Guidelines on Archaeological Excavation (1999); and
 - National Monuments Service, Archaeology and Flood Relief Schemes Guidelines (2023).

8.4.3 Assessment Scope

Technical Scope

- 8.4.3.1 The approach to assessment was presented in the EIA Scoping presentation (see **Volume 3, Appendix 1.1**) and has been refined during the preparation of this EIAR (see **Volume 2, Chapter 1**).

Table 8.5: Impacts scoped into the assessment (Marine Archaeology)

Impact	Potential effects scoped into the assessment
Sediment disturbance and deposition leading to effects on known and unknown heritage assets	Potential for effects on known and unknown heritage assets from sediment disturbance and subsequent deposition from the Proposed Works Offshore.
Direct impact on historic shipwreck sites	Potential for direct disturbance to shipwreck sites from the Proposed Works Offshore.
Direct impact on unknown heritage assets associated with submerged palaeo landscapes	Potential for effects on unknown heritage assets associated with submerged palaeo landscapes from sediment disturbance and subsequent deposition from the Proposed Works Offshore.

Spatial Scope

- 8.4.3.2 The Marine Archaeology Study Area extends 500 m beyond the Offshore Site boundary, in order to assess the immediate context of both the Arklow Bank and the sea area to the shore (**Figure 8.1**). The Marine Archaeology Study Area represents a 5.2 km long by 1.3 km wide area in the central area of the Arklow Bank, and an approximately 1 km wide corridor that follows the offshore export cable to shore.
- 8.4.3.3 The Marine Archaeology Study Area is shown on **Figure 8.1**.

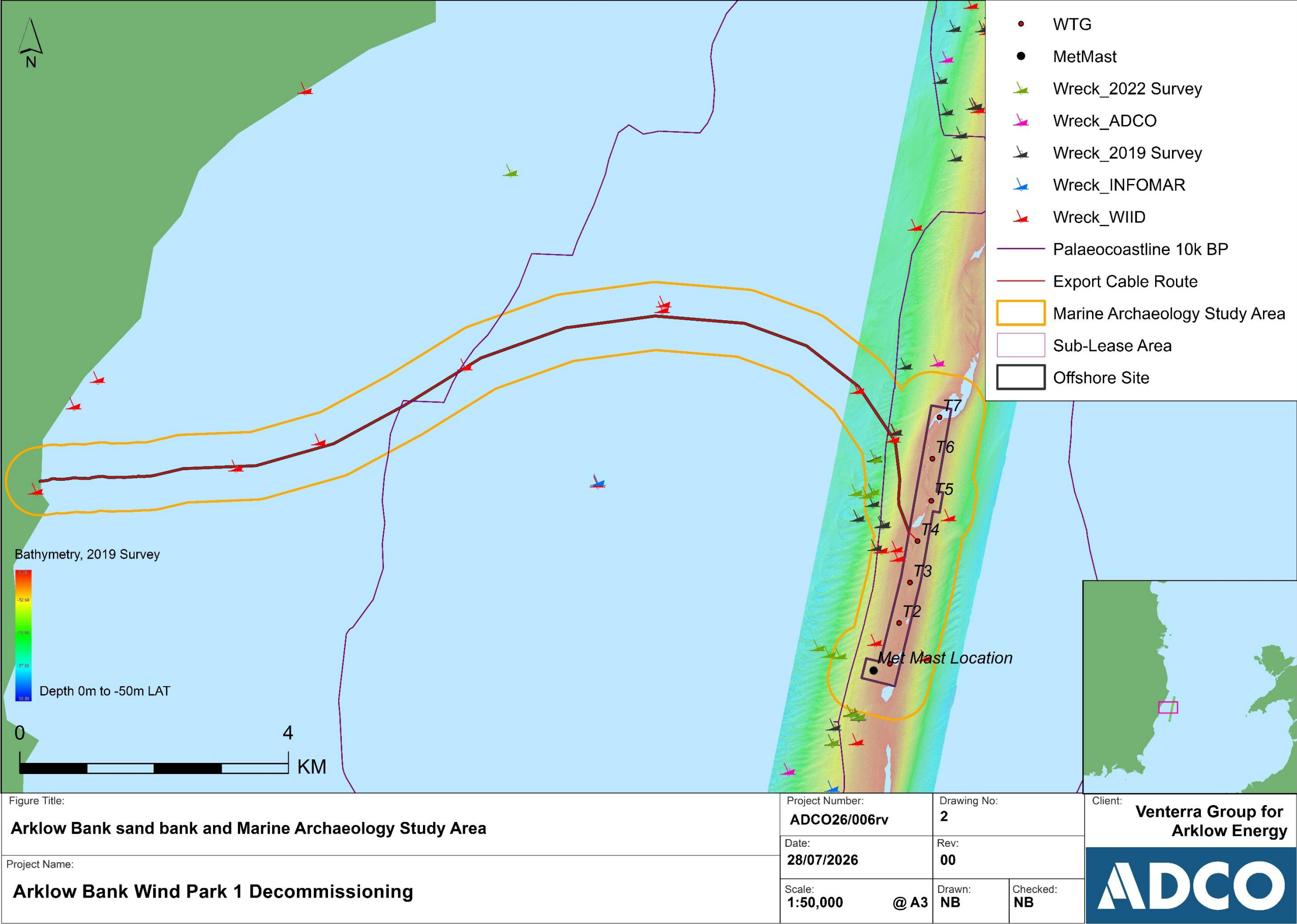


Figure 8.1: Marine Archaeology Study Area

Temporal Scope

- 8.4.3.4 The assessment has considered impacts arising during the Proposed Works Offshore which would be temporary and short-term in nature, as well as any long-term residual impacts that may continue / arise following the completion of Proposed Works Offshore.

8.4.4 Baseline Characterisation Method

Desk Study

- 8.4.4.1 Information on marine archaeology within the study area was collected through a detailed desktop review of existing studies and datasets. The key data sources reviewed are indicated in **Table 8.6**.
- 8.4.4.2 The archaeological potential of the Arklow Bank had been informed principally by Admiralty Charts and local diver records of shipwrecks discovered on the bank until Arklow Energy commissioned surveys of the bank in the early 2000s in advance of constructing ABWP Phase I, the results of which were fed into the national database of the Historic Shipwreck Inventory (HSI) maintained by the National Monuments Service (NMS) at the Department of Housing, Local Government and Heritage (DHLGH). The Inventory for four counties, including Wicklow, was published in 2008 by the NMS (Brady, 2008; pp 448–496). More recent records are contained in the Wreck Inventory of Ireland (WIID), accessible as an online portal maintained by the NMS and updated to 2023, and The Irish National Seabed Survey, INFOMAR, that is accessible online. Additional sources consulted include historic Ordnance Survey maps and Admiralty Charts, along with the Topographical Files in the National Museum of Ireland, which contain records of marine-related finds reported to the Museum.
- 8.4.4.3 These sources informed the Marine Archaeology and Cultural Heritage chapter of the Arklow Bank Wind Park II Environmental Impact Assessment Report (2026), which also considered marine geophysical surveys and marine geotechnical investigations commissioned for the ABWP Phase II project.

Table 8.6: Principal sources to inform known Marine Archaeology

Source	Year	Author
Archaeological monitoring of dredging operations, Turbine Five Access Channel, 03E1101, report of Boland Archaeological Services for GE Wind Energy	2004	Campbell, K.
Arklow Bank Wind Park Archaeogeophysical Investigation, post installation survey, 04R056, 04D022, report of Boland Archaeological Services	2004	Boland, D.
Shipwreck inventory of Ireland: Louth, Meath, Dublin and Wicklow (Dublin: Stationery Office)	2008	Brady, K.
Export Power Cable – burial survey, Island Group report for GE Wind Energy	2010	Greenwood, S.
Underwater inspection report, Arklow Banks Wind Farm 2015, Export cable and wreck inspection, report of Marine Specialists for GE Wind Energy	2015	McKeown, J.
Marine geophysical survey, Arklow Waste Water Marine Outfall, 16R0219', report of ADCO Ltd. https://water.widen.net/view/pdf/fvu52ixp2z/Appendix-12.1---Marine-Archaeological-Geophysical-Survey-Report?t.download=true	2017	Brady, N.
Historic Shipwreck Inventory, also known as the Wreck Inventory of Ireland, online portal: https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=89e50518e5f4437abfa6284ff39fd640	2018	Department of Housing, Local Government and Heritage (DHLGH)
Underwater archaeological inspections, Arklow Waste Water Marine Outfall, 17D0078, 17R0197', unpublished report of ADCO Ltd	2019	Brady, N.
Excavations Bulletin: https://excavations.ie/	2020	Isabel Bennett

Source	Year	Author
INFOMAR Survey: www.infomar.ie	2020	Geological Survey of Ireland
Sites and Monuments Record: https://webgis.archaeology.ie/historicenvironment/	2020	DHLGH
Arklow Bank Wind Park 2 EIAR Chapter 18 Marine Archaeology and Cultural heritage and supporting appendices (e.g. appendix 18.1)	2026	Brady, N.

Site-specific Surveys

8.4.4.4 No site-specific surveys other than the Benthic/Live Habitat Cable Survey (see **Volume 3, Appendix 5.1**) have been undertaken to inform this chapter. **Volume 3, Appendix 5.1** provides updated information on the seabed conditions, including reference to potential marine archaeological remains found within the Offshore Site.

Baseline Data Limitations and Assumptions

8.4.4.5 The marine archaeology baseline has been informed primarily through desk-based review of publicly available datasets and previous project reports, supplemented by site-specific survey data. As such, a number of limitations apply:

- Existing datasets, including the Historic Shipwreck Inventory, Wreck Inventory of Ireland Database and other archival sources, are inherently incomplete and may not record all archaeological assets within the study area;
- The available site-specific survey data may not have identified all seabed anomalies or buried features of archaeological interest across the Marine Archaeology study area; and
- The seabed within the study area is characterised by mobile sediments, meaning that archaeological features may be periodically buried or exposed, resulting in temporal variability in baseline conditions.

8.4.4.6 Notwithstanding these limitations, the available data is considered sufficient to support a robust assessment of likely significant effects, with a precautionary approach adopted where uncertainty exists.

8.4.5 Assessment Criteria

Receptor Sensitivity

8.4.5.1 When defining sensitivity, reference has been made to the criteria levels set out in **Volume 2, Chapter 1**. To determine sensitivity of the receptor specific to marine archaeology, the susceptibility of the receptor to change, its ability to recover and adapt, and its inherent value have also been considered, as presented in **Table 8.7**, indicating applicability to marine archaeology receptors.

Table 8.7: Definition of terms relating to the sensitivity of the receptor specific to marine archaeology

Sensitivity	Definition
Very high	• Very high importance and rarity; • International scale; and/or • Very limited potential for substitution. <i>Marine archaeology receptor of very high importance, e.g. National Monument</i>
High	• High importance and rarity; • National scale; and/or • Limited potential for substitution. <i>Marine archaeology receptor of high importance, e.g. protected site</i>

Sensitivity	Definition
Medium	- High or medium importance and rarity; - Regional scale; and/or - Limited potential for substitution. <i>Marine archaeology receptor of local interest</i>
Low	- Low or medium importance and rarity; and/or - Local scale. <i>Marine archaeology receptor of local interest</i>
Negligible	- Very low importance and rarity; and/or - Local scale. <i>Marine archaeology receptor of local interest</i>

Magnitude of Impact

8.4.5.2 When defining magnitude of impact, reference has been made to the criteria levels set out in **Volume 2, Chapter 1**. To determine the magnitude of impact specific to marine archaeology, the scale, extent, duration and frequency, and severity of the change have also been considered, as presented in **Table 8.8**.

Table 8.8: Definition of terms relating to the magnitude of an impact in relation to marine archaeology

Magnitude of impact	Definition
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (negative).
	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (positive).
Medium	Loss of resource, but not adversely affecting integrity of resource; partial loss of/damage to key characteristics, features or elements (negative).
	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (positive).
Low	Some measurable change in attributes, quality or vulnerability, minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (negative).
	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of adverse impact occurring (positive).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (negative).
	Very minor benefit to, or positive addition of one or more characteristics, features or elements (positive).
No change	No measurable change to the baseline environment and no observable effect.

Significance of Effect

8.4.5.3 The significance of the effect upon marine archaeology is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The method employed for this assessment is presented in **Table 8.9**.

Table 8.9: Matrix used for the assessment of the significance of the effect in relation to marine archaeology

Sensitivity of receptor	Magnitude of impact				
	No change	Negligible	Low	Medium	High
Negligible	Neutral	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Neutral	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Neutral	Negligible or minor	Minor	Moderate	Moderate or major
High	Neutral	Minor	Minor or moderate	Moderate or major	Major
Very high	Neutral	Minor	Moderate or major	Major	Major

8.4.5.4 Following the classification of an effect using this methodology, a clear statement will then be made as to whether that effect is significant or not significant. Major and moderate effects are considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement will also be applied in reaching conclusions as to the significance of effects. Moderate levels of effect have the potential, subject to the assessor's professional judgement to be significant or not significant. Moderate will be considered as significant or not significant in EIA terms, depending on the sensitivity and magnitude of change factors evaluated. These evaluations are explained as part of the assessment, where they occur. Typical definitions for the classification of effects are shown in **Table 8.10**.

Table 8.10: Significance definitions relevant to Marine Archaeology

Significance classification	Definition	Significant effect
Major	A large and detrimental change to a valuable/sensitive receptor, likely exceeding an accepted threshold. A large and beneficial change, resulting in enhancements in baseline conditions, transitioning from previously poor conditions to new legal compliance, or making a major contribution to national goals These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional scale. Major effects may relate to features that are unique and irreplaceable.	Significant
Moderate	A medium scale change that, although not beyond an accepted threshold, is still considered to be generally unacceptable, unless offset by significant positive benefits of the project. If adverse, these effects are likely to be important at a regional or local scale and on their own could influence on decision making. A positive moderate effect is a medium scale change that improves baseline conditions sufficiently to contribute to guideline targets.	Significant or Not Significant, depending on the sensitivity and magnitude of change factors evaluated
Minor	A minor adverse change that remains within legal and planning policy limits. A minor positive change that is unlikely to significantly impact the overall balance of considerations. These effects might be raised as local issues and could be relevant to the detailed design of a project, but they are unlikely to be critical in the decision-making process.	Not significant
Negligible	A very small change that is so inconsequential it can be considered acceptable to disregard. These effects fall below perceptible limits, lie within normal variations, or fall within the margin of forecasting error. They are unlikely to influence decision-making.	Not significant

Significance classification	Definition	Significant effect
Neutral	No noticeable change or effects within normal bounds of variation.	Not significant

8.4.6 Key Parameters for Assessment

Maximum Design Scenario

- 8.4.6.1 The maximum design scenario (MDS) for each impact identified in **Section 8.4.3** has been selected as that having the potential to result in the greatest effect on an identified receptor or receptor group. The MDS presented in **Table 8.11** has been selected from the parameters provided in **Volume 2, Chapter 3** and methodology outlined in **Volume 2, Chapter 1**.
- 8.4.6.2 It is assumed that direct impacts to the seabed will be restricted to the Offshore Site boundary. This includes anchoring arrangements for decommissioning vessels as well as the decommissioning activities that impact the seabed directly.

Table 8.11: MDS relevant for the assessment of potential impacts on marine archaeology

Impact	MDS	Explanation
Sediment disturbance and deposition leading to effects on known and unknown heritage assets	Sediment disturbance and subsequent deposition may occur through: • Maintenance dredging for vessel access to Sub Lease Area, maximum area of 0.287 km² (which represents 21.3% of the total Sub Lease Area); – Total volume of dredged material for -4.5 m LAT = 38,139.75 m³; – Total volume of dredged material for -6.5 m LAT = 86,000 m³; • Disposal of dredged material within the Sub Lease Area; • A Jack-up Barge (JUB) will also be required for works. Based on a standard diameter of 2 m per spud leg, there is expected to be approximately 12.57 m² (12.57 x10⁻⁵ km²) of sediment disturbance per jack-up event, with eight jack-up events expected in total. Therefore, a total area of 0.0001 km²; • All exposed hard infrastructure will be removed across an area of 0.07 km²: – Removal of seven WTG foundations and one met mast: ○ Each foundation is 5.1 m in diameter, total area for seven WTG foundations is 0.000143 km² in area; ○ The met mast is 1.8 m in diameter and 0.000002 km² in area; ○ Seabed material inside foundation to be removed using internal dredge pump fitted with water jets or cutter head to remove material which has become compacted over time – up to 171 m³ in each foundation; ○ Target dredging depth of 3 m below target cutting depth; ○ Dredged material from within foundation to be released via pipeline within 100 m of foundation location during dredging activity; – Removal of residual scour protection and release of material back onto the seabed: ○ Use of grab dredger to grab sandbags; ○ Recovery of sandbags and release of material back onto seabed via casting; – Removal of inter-array cables: ○ Total length of 7.4 km and maximum footprint of 3 m width for running method, total seabed disturbance of 0.02 km²; ○ Unburial of the cables using grapnel run or similar; ○ Pulled out using clamps and cable puller towed slowly across seafloor; – Removal of offshore export cable: ○ Total length of 15.6 km and maximum footprint of 3 m width for running method, total seabed disturbance of 0.05 km²; ○ Disconnection / cut of the export cable within the vicinity of the landfall, with some localised excavation potentially required if the export cable is buried within this area, and grabbed from the multicat vessel; and	This represents the maximum extent of seabed disturbance during the Proposed Works Offshore, based on the complete removal of all exposed infrastructure. Dredging by Cutter Suction Dredger may use skips for temporary storage of dredge material before this is side-casted. Use of a Backhoe dredger would load to a single split hopper barge, which would transit to the designated disposal area within the Sub Lease Area Plough dredging may need to be used to maintain pockets of sand within vessel access channels created following dredging with the above methods. The contents of the plough would be released once the water depth increases to a depth greater than the plough depth within the local vicinity

Impact	MDS	Explanation
	○ Unburial of cable with a running method using a grapnel run or similar, pulled out using clamps and a cable puller.	
Direct impact on historic shipwreck sites	The MDS, as described above, for sediment disturbance and deposition leading to effects on known and unknown shipwreck sites	This represents the maximum extent of seabed disturbance during the Proposed Works Offshore, based on the complete removal of all exposed infrastructure.
Direct impact on buried palaeo landscapes	The MDS, as described above, for sediment disturbance and deposition leading to effects on known and unknown palaeo landscapes	This represents the maximum extent of seabed disturbance during the Proposed Works Offshore, based on the complete removal of all exposed infrastructure.

Embedded Mitigation

- 8.4.6.3 As set out in **Volume 2, Chapter 1: Introduction** several embedded mitigation measures have been adopted as part of the Proposed Works Offshore to reduce the potential for impacts on marine archaeology.
- 8.4.6.4 Embedded mitigation includes the following measures as identified in the Institute of Environmental Management and Assessment (Institute of Sustainability and Environmental Professionals (ISEP) (formerly IEMA)) Impact Assessment Guidelines (IEMA, 2024):
- “measures included as part of the project design” (also referred to as primary mitigation in IEMA, 2015); and
 - “actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects” (also referred to as tertiary mitigation in IEMA, 2015). --
- 8.4.6.5 Embedded mitigation measures have been taken into account as part of the initial assessment presented in **Section 8.6** (i.e., the initial determination of impact magnitude and significance of effects assumes implementation of these measures). This ensures that the measures that Arklow Energy is committed to are considered in the assessment of effects. This approach is in line with EPA guidance, which states that ‘in an EIAR, it may be useful to describe avoidance measures that have been integrated into the project proposal’ (EPA, 2022).
- 8.4.6.6 Where an assessment identifies likely significant adverse effects, additional mitigation measures may be applied. These are “actions that will require further activity to achieve the anticipated outcome”, also referred to as secondary mitigation measures in IEMA (2024).
- 8.4.6.7 The embedded mitigation measures relevant to marine archaeology are outlined in **Table 8.12** and will be implemented in accordance with the requirements of the planning permission issued under Section 291 of the Planning and Development Act 2000, as amended.

Table 8.12: Embedded mitigation relevant to marine archaeology implemented as part of the Proposed Works Offshore.

Embedded mitigation	Description
Development and adherence to the Detailed Offshore Decommissioning Environmental Management Plan (DEMP)	Volume 3, Appendix 3.4: Outline Offshore DEMP presents standard industry practice and legal requirements for environmental management and mitigation that will be implemented as part of the Proposed Works Offshore. The outline Offshore DEMP also summarises any required additional mitigation identified in relevant EIAR chapters, serving as a framework for the future decommissioning contractor(s) to develop in detail before decommissioning works commence.
	The Outline Offshore DEMP includes the following embedded mitigation measures specific to marine archaeology, in line with Irish relevant industry standards: • Review of pre-decommissioning geophysical and ROV surveys by a maritime archaeologist, with findings communicated to the NMS. • Establishment of Archaeological Exclusion Zones (AEZs) around each known shipwreck site, within which no Proposed Works Offshore should take place, unless this cannot be avoided, in which case, consent from the NMS will be required. Preliminary AEZs are presented in Table 8.13 and Figure 8.3. • Development and adherence to Archaeology Management Plan (AMP), which will set out the principal protocols that Arklow Energy will put in place to ensure the protection of marine archaeology through the course of the Proposed Works Offshore. The AMP facilitates the recording and reporting of any archaeological material discovered during Proposed Works Offshore lifetime should this occur. The AMP addresses protocols for: – archaeological monitoring of works where the recovery of material to the surface is possible. – recording and reporting observations where the recovery of material to the surface is not possible and where the seabed has already been surveyed comprehensively and no archaeological features recorded. – archaeological inputs when a discovery of archaeological material is made. • Archaeological monitoring of dredging works and/or inter-array / offshore export cable removal where risings are recovered to the surface, with any findings and monitoring report(s) shared with the NMS. Project maritime archaeologists will operate under licence from the DHLGH.

8.5 Baseline Characterisation

8.5.1 Overview

- 8.5.1.1 This section describes the existing baseline characteristics as well as the future baseline relevant to marine archaeology. It considers the seabed topography and its potential to retain archaeological material related to submerged landscape, and its capacity to retain shipwrecks.

8.5.2 Seabed Topography

- 8.5.2.1 Arklow Bank exists southeast of the inferred limit of the Delgany Moraine, based on known seabed exposures although this does not discount the possibility of an inferred morainic core to the bank. The surface sediment is mobile, formed due to reworking following relative sea level rise post-10,000 years Before Present (BP). Areas around the bank are also characterised by mobile sand overlaying glacial clays. To the west of the bank, gravels are exposed on the seabed.

8.5.3 Submerged Prehistoric Archaeological Potential

- 8.5.3.1 The potential for submerged landscape remains within the Offshore Site exists, based on the recovery of two worked pieces of flint during archaeological monitoring of aspects of the Arklow Bank Wind Park phase 1 construction works adjacent to WTG No. 5 (hereafter WTG 5). One piece (reference 03E1101:3) was identified as a crude scraper, while the other piece (03E1101:4) was a core that would have served as the basis for making stone tools (**Table 8.13**). Both pieces were recovered from dredged risings and were collected along with several pieces of glazed earthenware pottery of much later date. The dredging took place at WTG 5, where a 200m-long channel was cut in shallow waters across the uppermost level of the bank, within a 400 m long by 60 m wide footprint aligned northeast/southwest that reached 80 m west of WTG 5 and 320 m east of the turbine (see **Volume 3, Appendix 8.1**). The pieces highlight the potential for prehistoric remains to be associated with the surface levels of the sandbank. Computer-generated modelling by the Geological Survey of Ireland of likely coastlines during early prehistory suggests that the shallows dredged across to provide access to WTG 5 was an exposed surface some 8,000 year BP. This is a time within the Later Mesolithic period (8,700-6,000 BP) in Ireland, when early inhabitants practised a hunter-fisher-gatherer existence, focussed on accessible coastal areas and river systems.

8.5.4 Historic Shipwrecks

- 8.5.4.1 There are 115 recorded shipwrecking events associated with Arklow Bank and the sea area to its west. There are 78 known shipwrecks within these waters. There are 25 archaeological sites within the marine archaeology study area, 23 of which are associated with shipwreck, and two of which are the prehistoric flints recovered while dredging in the vicinity of WTG 5, as mentioned above.
- 8.5.4.2 There are six sites located within or immediately beside the Offshore Site boundary, and these are the sites that may be considered to be at risk from impacts arising from the decommissioning process (**Table 8.13**, orange highlight). The impact risk is because the sites either lie directly within the footprint of the infrastructure to be decommissioned or because they are in close proximity to the infrastructure whose removal is likely to impact the site area.
- 8.5.4.3 The risk associated with these sites results from the removal of cabling from the seabed at each location, where the removal exercise may impose an indirect impact on those locations situated adjacent to the cable corridor (namely sites W02648, W02782) or will impose a direct impact on those locations situated within the cable route corridor (W02650 and W02781).
- 8.5.4.4 Dredging activity in the vicinity of WTG T5 may take place in proximity to where the prehistoric flints 03E1101:3 and 03E1101:4 were recovered.

8.5.5 Archaeological Exclusion Zones

- 8.5.5.1 An AEZ is identified around each wreck site (see **Table 8.13** and **Figure 8.3**), within which no works or impacts (direct and indirect) are permitted without the express permission of the National Monuments Service.
- 8.5.5.2 The size of an AEZ will vary according to the recorded extent of the wreck site or potential wreck site and in some instances extends to include areas that may be related to debris fields associated with the wrecking event.
- 8.5.5.3 In the present context, all AEZs will measure 50 m radius from the centrepoint of the charted wreck site.
- 8.5.5.4 An AEZ is not required for the locations of the two prehistoric period flints, as this location has been impacted already by the dredging event that occasioned their recovery. Dredging in the vicinity of WTG T5 will not recover risings to the surface.
- 8.5.5.5 The AEZ traverses the offshore export cable corridor in four instances. In W02648 and W02782, the wreck site centre is located outside the offshore export cable corridor but the 50 m AEZ radius extends across the corridor. In W02650 and W02781, the wreck site centre is located within the cable corridor.

Table 8.13: Known archaeological sites within and adjacent to the Offshore Site Boundary

Reference	Type	Detail	UTM30N Northing	UTM30N Easting	Name	Within Offshore Site Boundary	AEZ radius	Distance to Offshore Site Boundary
W11475	Wreck	UKHO record	288198	5853863		✖	50 m	160 m S of offshore export cable
W02650	Wreck	SSS contact	291160	5854218	Unknown	✓	50 m	Within, offshore export cable route
W02649	Wreck	SSS contact 8m long	290401	5854597	Unknown	✖	50 m	100 m N of offshore export cable
W02648	Wreck	SSS contact 11m long	294672	5855713	Unknown	✖	50 m	27 m N of offshore export cable, AEZ traverses offshore export cable corridor
W02647	Wreck	SSS contact 16m long	297511	5856580	Unknown	✖	50 m	170 m N of offshore export cable
W18524	Wreck, possible	SSS contact	297539	5856662	Unknown	✖	50 m	215 m N of offshore export cable
W02782	Wreck	Identified during cable lay	300418	5855376	Unknown	✖	50 m	36 m SW of offshore export cable. AEZ traverses offshore export cable corridor
W02783	Wreck	SSS contact 16m long	300974	5854757	Unknown	✖	80 m	80 m E of offshore export cable
W02781	Wreck	Identified during cable lay	300952	5854652	Unknown	✓	50 m	Within, offshore export cable route
LA_0958	Wreck	SSS contacts 13m long	300677	5854362	Unknown	✖	50 m	330 m W of offshore export cable
LA_0855	Wreck	SSS contacts 22m long	300647	5853867	Unknown	✖	50 m	400 m W of offshore export cable
GR_SSS_4457	Wreck	SSS contacts 20m long	300557	5853819	Unknown	✖	50 m	490 m W of offshore export cable
R2_1035	Wreck	SSS contacts, debris & scour	300650.4	5853694.1	Unknown	✖	50 m	385 m W of offshore export cable
LA_0738	Wreck	SSS contacts, debris & scour	300789.0	5853374.6	Unknown	✖	50 m	330 m W of offshore export cable
03E1011:3	Flint scraper	Flint scraper	Not recorded	Not recorded	None	✓	0 m	Within, NE of WTG 5
03E1011:4	Flint core	Flint core	Not recorded	Not recorded	None	✓	0 m	Within, NE of WTG 5
W02780	Wreck	SSS contact 16m long	301782	5853481	Unknown	✖	50 m	350 m SE of WTG 5
W02775	Wreck	SSS contact 44m long	300997	5853014	Unknown	✖	50 m	300 m SW of , offshore export cable route and 330 m SW of WTG 4
W02776	Wreck	SSS contact mound & debris	300775	5852999	Unknown	✖	50 m	480 m SW of , offshore export cable route and 550 m SW of WTG 4

Reference	Type	Detail	UTM30N Northing	UTM30N Easting	Name	Within Offshore Site Boundary	AEZ radius	Distance to Offshore Site Boundary
R2_1070	Wreck	SSS contact 17m long	300689.7	5853034.1	Unknown	*	50 m	540 m SW of Export Cable and 640 m WSW of WTG 4
W02777	Wreck	SSS contact mound & debris	301024	5852907	Unknown	*	50 m	380 m SW of Export Cable and 370 m SW of WTG 4
W02778	Wreck	SSS contact mound & debris	300683	5851621	Unknown	*	50 m	370 m NW of WTG 1
W02779	Wreck	SSS contact 5m long	301427	5851389	Unknown	*	50 m	540 m ENE of WTG 1
GR_SSS_0137	Wreck	SSS contact 20m long	300157.6	5851424	Unknown	*	50 m	560 m WNW of Met Mast
LA_0428	Wreck	SSS contact 68m long	300434	5850503	Unknown	*	50 m	680 m S of Met Mast but scour pocket and AEZ reach within 450 m of Mast

Orange highlight indicates sites located within or immediately beside the Offshore Site boundary considered to have an impact risk.

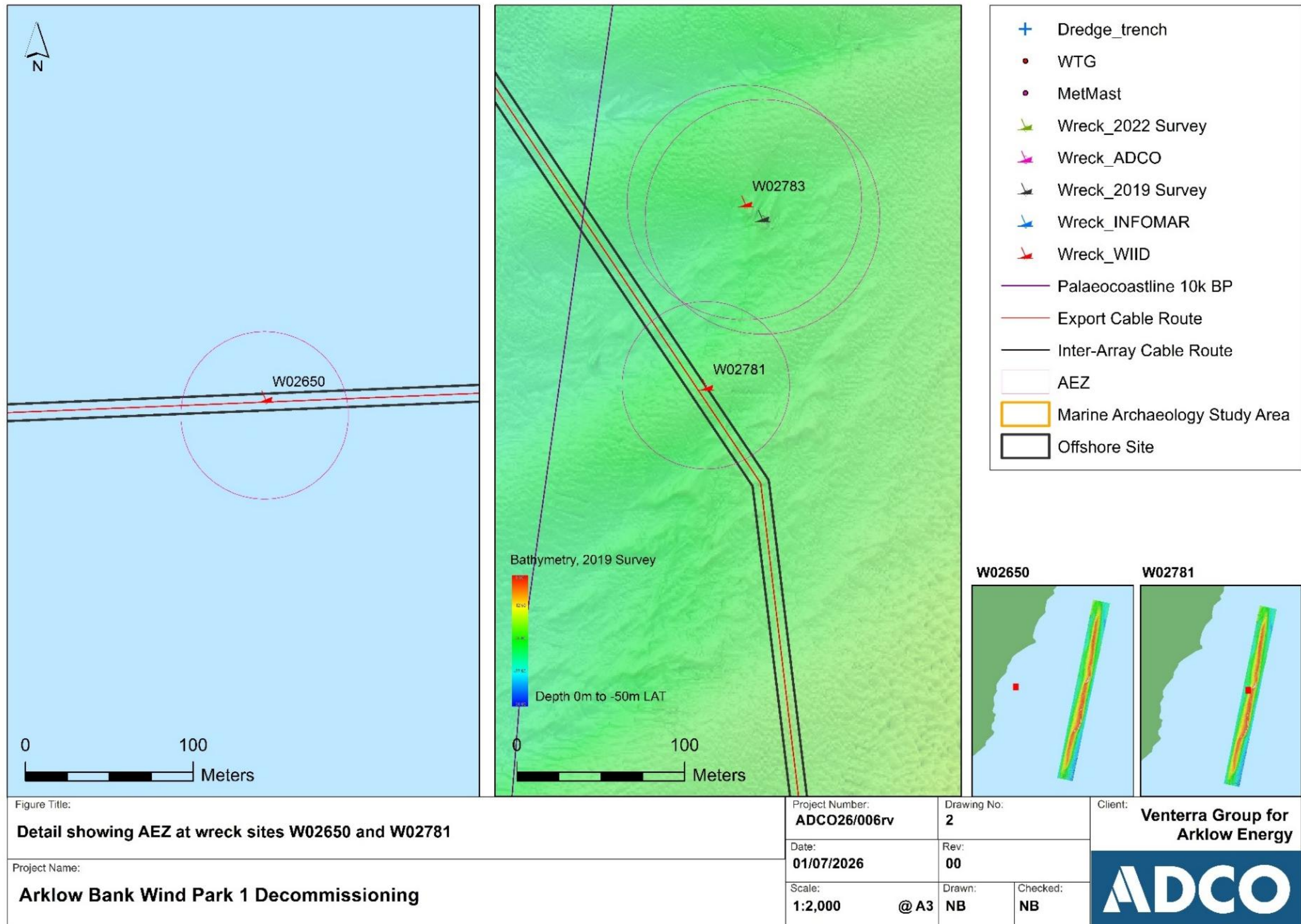


Figure 8.2 Detail showing Archaeological Exclusion Zones (AEZ) at wreck sites W02650 and W2781

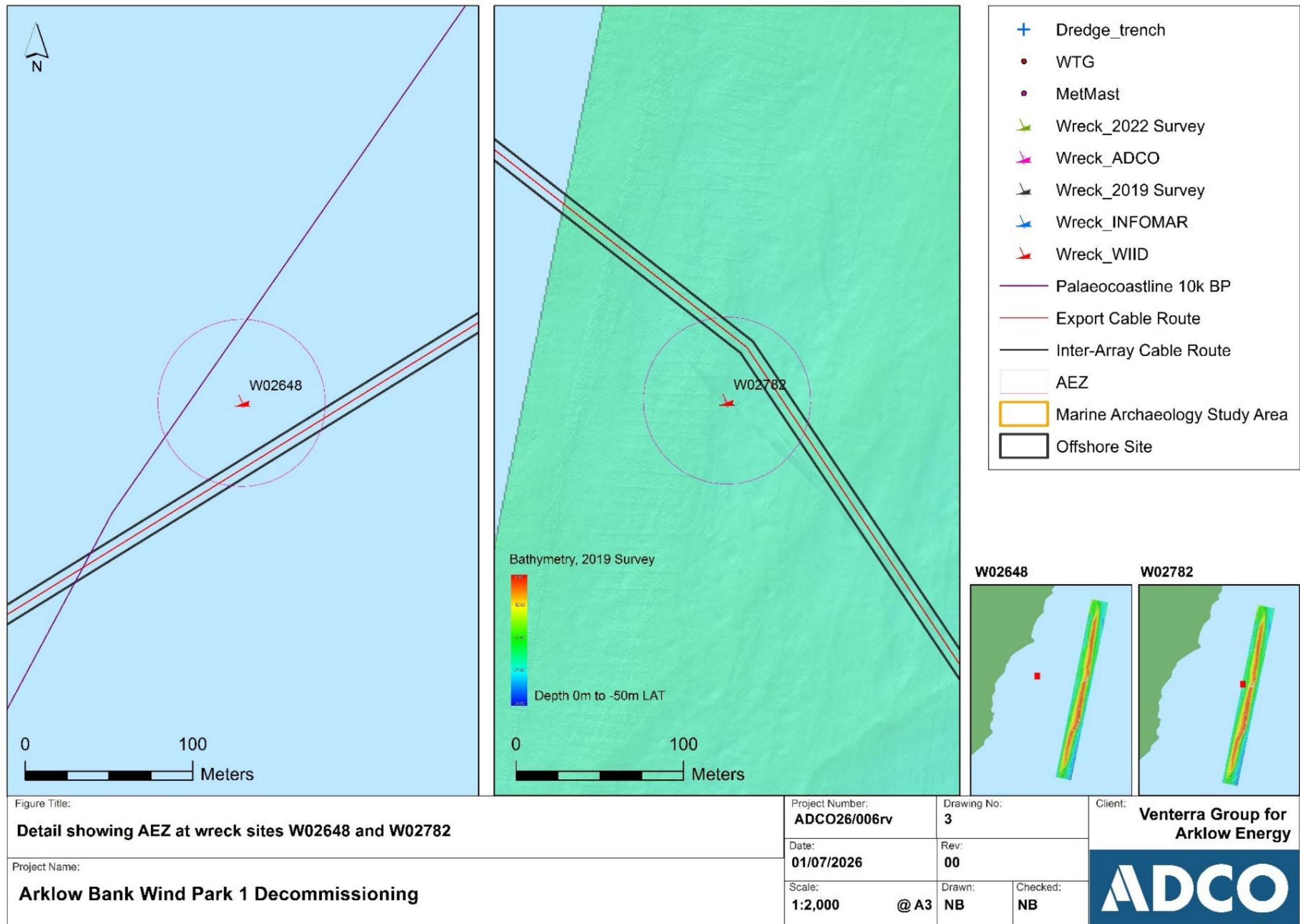


Figure 8.3: Detail showing Archaeological Exclusion Zones (AEZ) at wreck sites W02648 and W278

8.5.6 Future Baseline Conditions

- 8.5.6.1 Following the completion of Proposed Works Offshore, the marine archaeology baseline can be expected to evolve both on a natural basis and in response to global trends such as climate change and other anthropogenic activities.
- 8.5.6.2 An assessment of future baseline conditions, where Proposed Works are not executed, has been undertaken and is described within this section.
- 8.5.6.3 It is unlikely that significant change will occur to the marine archaeology of the Arklow Bank over the next few decades should the Proposed Works Offshore not be executed. The natural formation of the bank has remained unchanged in its millennia of existence and this will continue to be so. It is likely that sediment mobility will continue, and this natural process retains the potential to expose and re-bury shipwreck sites, leading to their deterioration over time. It also possible that new wreck sites will be exposed.

8.5.7 Summary of Sensitive Receptors

- 8.5.7.1 The sensitive marine archaeology receptors are summarised in **Table 8.14**.

Table 8.14: Summary of Marine Archaeology Sensitive Receptors

Reference	Type (Sensitivity)	AEZ radius
Wreck		
W02650	Wreck (High)	50 m
W02648	Wreck (High)	50 m
W02782	Wreck (High)	50 m
W02781	Wreck (High)	50 m
Unknown heritage assets associated with submerged palaeo landscapes potentially present near WTG T5		
03E1011:3	Flint scraper (High)	0 m
03E1011:4	Flint core (High)	0 m

8.6 Assessment of Impacts

8.6.1 Overview

- 8.6.1.1 This section includes the assessment of the impacts to marine archaeology arising from the Proposed Works Offshore. A summary of the effects is presented in **Table 8.17**.

8.6.2 Sediment Disturbance and Deposition Leading to Effects on Known and Unknown Heritage Assets

Receptor Sensitivity

- 8.6.2.1 The marine archaeology receptors listed in **Table 8.14** are considered to be sensitive to sediment disturbance and deposition, which may both expose the receptors to the active sea state and associated erosional actions or bury the receptors through the deposition of sediment.
- 8.6.2.2 The marine archaeological receptors are deemed to be of high vulnerability, low recoverability and of national value. The sensitivity of the receptor is therefore, considered to be **high**.

Magnitude of Impact

- 8.6.2.3 The embedded mitigation measures outlined in **Table 8.12** establish a working environment based on avoiding known archaeological sites where possible, and recording new observations

as well as advancing solutions to ensure site protection (such as archaeological review of new survey data and establishment of AEZs), and preservation by record where required. An AMP will be prepared to inform the Proposed Works Offshore, to facilitate the recording and reporting of any archaeological material discovered during the Proposed Works Offshore. In addition, any works within the AEZs will require consent of the NMS, as well as archaeological monitoring during the works by a maritime archaeologist operating under licence from DHLGH.

- 8.6.2.4 Following the implementation of the embedded mitigation measures, sediment disturbance and deposition could potentially indirectly, or directly in the case of wreck sites W02650 and W02781 that lie fully within the offshore export cable corridor, lead to some minor loss of, or alteration to, key characteristics of the receptor. Any potential effects would be anticipated during the execution of the Proposed Works Offshore and not beyond. As such, it is considered that while the magnitude of sediment disturbance and deposition leading to effects on known and unknown heritage assets from Proposed Works Offshore is considered to be **low** overall, in relation to the locations of wreck sites W02650 and W02781, the magnitude of impact is considered to be **medium**.

Significance of Effect

- 8.6.2.5 Overall, it is considered that the receptor sensitivity is **high** and the magnitude of sediment disturbance and deposition leading to effects on known and unknown heritage assets is **low**. Therefore, the significance of effect of sediment disturbance and deposition leading to effects on known and unknown heritage assets from Proposed Works Offshore is considered to be **Minor Adverse** and considered not significant in EIA terms. In relation to sites W02650 and W02781, the significance of effect is considered to be **Moderate Adverse**, which, with due consideration of the sensitivity and magnitude of change factors evaluated by expert judgement, is considered not significant in EIA terms.

Additional Mitigation and Residual Effect

- 8.6.2.6 Given that effect of sediment disturbance and deposition leading to effects on known and unknown heritage assets from Proposed Works Offshore, is considered not significant in EIA terms, no additional mitigation measures are proposed. The residual effect of sediment disturbance and deposition leading to effects on known and unknown heritage assets from Proposed Works Offshore remains **Minor Adverse**, which is not significant in EIA terms.

8.6.3 Direct Impact on Historic Shipwreck Sites

Receptor Sensitivity

- 8.6.3.1 The marine archaeology receptors listed in **Table 8.14** are considered to be sensitive to direct impact on historic shipwreck sites, which may become exposed through offshore export cable removal works. These include the known assets in **Table 8.14** as well as potentially unrecorded shipwrecks.
- 8.6.3.2 The archaeological receptors are deemed to be of high vulnerability, low recoverability and of national value. The sensitivity of the receptor is therefore, considered to be **high**.

Magnitude of Impact

- 8.6.3.3 The embedded mitigation measures outlined in **Table 8.12** establish a working environment based on avoiding known archaeological sites where possible, and recording new observations as well as advancing solutions to ensure site protection (such as archaeological review of new survey data and establishment of AEZs), and preservation by record where required. An AMP will be prepared to inform the decommissioning works, to facilitate the recording and reporting of any archaeological material discovered during the decommissioning phase. In addition, any works within the AEZs will require consent of the NMS, as well as archaeological monitoring during the works by a maritime archaeologist operating under licence from DHLGH.

- 8.6.3.4 Following the implementation of the embedded mitigation measures, the direct impact on historic shipwreck sites W02648 and W02782 which lie within the Offshore Site boundary could lead to some minor loss of, or alteration to, key characteristics of the receptor. As such, it is considered that the magnitude of direct impact on historic shipwreck sites W0248 and W02782 and those that lie outside the Offshore Site boundary from Proposed Works Offshore is considered to be **low**.
- 8.6.3.5 W02650 and W02781 lie within the offshore export cable corridor and are more likely to be impacted directly by offshore export cable removal operations. The implementation of embedded mitigation measures will help to mitigate the risk. As such, it is considered that the magnitude of direct impact on historic shipwreck sites W02650 and W02781 is considered to be **medium**.

Significance of Effect

- 8.6.3.6 Overall, it is considered that the receptor sensitivity is **high** and the magnitude of direct impacts on historic shipwreck sites is overall **low**, increasing to **medium** for receptors W02650 and W02781. Therefore, the effect of direct impact on historic shipwreck sites from Proposed Works Offshore is considered to be overall **Minor Adverse** and **Moderate Adverse** in relation to sites W02650 and W02781 only. However, based on embedded mitigation associated with Proposed Works Offshore and in line with professional judgement, these are not considered significant in EIA terms.

Additional Mitigation and Residual Effect

- 8.6.3.7 Given that effect of direct impact on historic shipwreck sites from Proposed Works Offshore, is considered not significant in EIA terms, no additional mitigation measures are proposed. Therefore, the residual effect of direct impact on historic shipwreck sites from Proposed Works Offshore remains **Minor / Moderate Adverse**, not considered significant in EIA terms.

8.6.4 Direct Impact on Unknown Heritage Assets associated with Buried Palaeo Landscapes

Receptor Sensitivity

- 8.6.4.1 The marine archaeology receptors listed in **Table 8.14** are considered to be sensitive to direct impact on unknown heritage assets associated with buried palaeo landscapes, which may be exposed during Proposed Works Offshore.
- 8.6.4.2 The marine archaeological receptors are deemed to be of high vulnerability, low recoverability and of national value. The sensitivity of the receptor is therefore, considered to be **high**.

Magnitude of Impact

- 8.6.4.3 The embedded mitigation measures outlined in **Table 8.12** establish a working environment based on avoiding known archaeological sites where possible, and recording new observations as well as advancing solutions to ensure site protection (such as archaeological review of new survey data and establishment of AEZs), and preservation by record where required. An AMP will be prepared to inform the decommissioning works, to facilitate the recording and reporting of any archaeological material discovered during the decommissioning phase. In addition, archaeological monitoring will be undertaken during the works, where required, by a maritime archaeologist operating under licence from DHLGH.
- 8.6.4.4 Following the implementation of the embedded mitigation measures, the direct impact on unknown heritage assets associated with buried palaeo landscapes could lead to some minor loss of, or alteration to, key characteristics of the receptor. As such, it is considered that the magnitude of direct impact on unknown heritage assets associated with buried palaeo landscapes from Proposed Works Offshore is considered to be **low**.

Significance of Effect

- 8.6.4.5 Overall, it is considered that the receptor sensitivity is **high** and the magnitude of direct impact on unknown heritage assets associated with buried palaeo landscape sites is **low**. Therefore, the effect of direct impact on unknown heritage assets associated with buried palaeo landscape sites from Proposed Works Offshore is considered to be **Minor Adverse**, which is considered not significant in EIA terms.

Additional Mitigation and Residual Effect

- 8.6.4.6 Given that effect of direct impact on unknown heritage assets associated with buried palaeo landscape sites from Proposed Works Offshore, is considered not significant in EIA terms, no additional mitigation measures are proposed. Therefore, the residual effect of direct impact on unknown heritage assets associated with buried palaeo landscape from Proposed Works Offshore remains **Minor Adverse**, which is not significant in EIA terms.

Cumulative Effects

- 8.7.1.1 As indicated in **Volume 2, Chapter 1**, cumulative effects result from the addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects (EPA, 2022).
- 8.7.1.2 The assessment of cumulative effects on marine archaeology presented in this section has followed the methodology set out in **Volume 2, Chapter 1**, which, in summary comprises:
- **Stage 1: Establish the long list of other developments to consider**, based on the location of other plans and projects (other developments) located within the cumulative Zone of Influence (ZoI). The cumulative ZoI for marine archaeology has been defined as 500 m from the Offshore Site boundary, which captures the immediate wider context of the Proposed Works Offshore.
 - **Stage 2: Establish the short list of other developments to consider**, gathering key information on the other developments that is publicly available, considering the presence of potential pathways for cumulative effects and applying the Stage 2 screening criteria outlined in **Table 8.15**;

Table 8.15: Stage 2 screening criteria

Stage 2 Screening Criteria	
1	Development expected to be constructed / operational before commencement of Proposed Works is to be included as part of the baseline and hence screened out of the assessment.
2	Development not anticipated to temporally overlap or not anticipated to introduce potential for sequential cumulative effects and hence screened out of the assessment.
3	Development not anticipated to introduce physical effect-receptor pathway overlap and hence screened out of the assessment.
4	Development not anticipated to introduce non-physical effect-receptor pathway overlap and hence screened out of the assessment.
5	Low data confidence / low certainty that development will be realised and hence screened out of the assessment.
6	Potential pathway for cumulative effects exists and hence screened into the assessment.

- **Stage 3: Information gathering.** Gathering additional publicly available information on shortlisted developments to inform the assessment of the potential cumulative effects in more detail; and
- **Stage 4: Assessment.** Applying the same methodology used to assess the potential environmental effects of Proposed Works alone.

8.7.1.3 Stages 1 and 2 are presented in **Volume 3, Appendix 1.2: Cumulative Screening**, and the short list i.e. the other developments screened into the assessment of potential cumulative effects on marine archaeology are outlined in **Table 8.16** and are also shown on **Figure 8.4**.

Table 8.16: Other developments screened into the assessment of potential cumulative effects on marine archaeology

Developments shortlisted (ID)	Type	Tier and status	Distance (km)	Pathway for Cumulative Effect
Arklow Bank Wind Park Phase II Site Investigations (SI04)	Site investigations	Tier 1 Approved (valid to July 2029)	0	Potential pathway for cumulative effects exists due to potential temporal / spatial overlap with the Proposed Works Offshore, as localised and minor sediment disturbance activities and additional survey vessels may operate within the Offshore Site / its vicinity.
Proposed offshore wind energy development - ABWP Phase II (ORE01)	Offshore wind farm	Tier 1 Planning application submitted	0	Potential pathway for cumulative effects exists due to temporal / spatial overlap with the Proposed Works Offshore, as sediment disturbance activities and additional vessels will be operating within the vicinity of the Offshore Site.
Wicklow Sea Wind Ltd - Cable Route Site Investigations. Site investigations for an export cable corridor from a Celtic Sea offshore windfarm (OWF0 to the Wicklow coast (SI06)	Site investigations	Tier 1 Application submitted	0.11	Potential pathway for cumulative effects exists due to temporal / spatial overlap with the Proposed Works Offshore, as additional vessels will be operating within the vicinity of the Offshore Site.

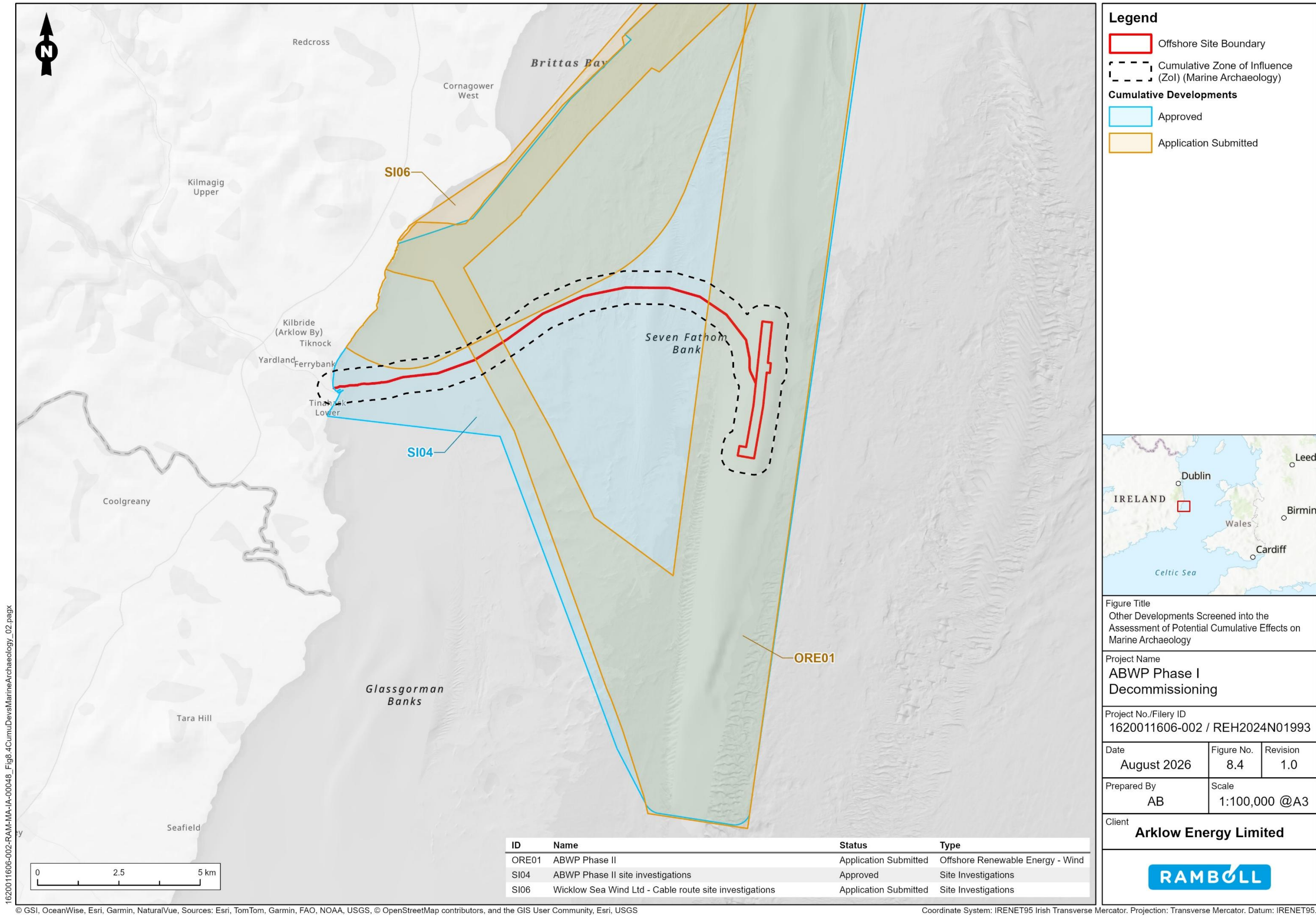


Figure 8.4 Other projects, plans and activities screened into Marine Archaeology CEA

8.7.1.4 The impacts associated with the other developments listed in **Table 8.16** are the same as those associated with the Proposed Works Offshore, as set out in **Table 8.5**. Potential cumulative effects upon marine archaeology arising from the other developments shortlisted above are assessed in relation to:

- Sediment disturbance and deposition leading to effects on known and unknown heritage assets;
- Direct impact on historic shipwreck sites; and
- Direct Impact on Unknown Heritage Assets associated with Buried Palaeo Landscapes.

8.7.1.5 The protocols associated with managing the potential for marine archaeological discovery during site investigation works (SI04 and SI06) are anticipated to be similar to those associated with the Proposed Works Offshore.

8.7.1.6 The Proposed Works Offshore may take place during the construction phase of ABWP Phase II, representing an overlap with both projects operating at the same time and in the same area. The protocols associated with managing the potential for marine archaeological discovery in ABWP Phase II project are aligned with those associated with the Proposed Works Offshore. As described in **Table 8.12**, an AMP will be prepared to inform the Proposed Works Offshore, to facilitate the recording and reporting of any archaeological material discovered.

8.7.1.7 For direct impacts, only S103 and ORE01 are considered given no sediment disturbance activities are anticipated to be associated with S105 within the Offshore Site.

Sediment Disturbance and Deposition Leading to Effects on Known and Unknown Heritage Assets

Receptor Sensitivity

8.7.1.8 The marine archaeology receptors are vulnerable sites that can be exposed further by disturbance activities. Each known shipwreck site is regarded as being of national importance and is a protected site and is considered to have **high** sensitivity.

8.7.1.9 The following receptors are considered to be sensitive to seabed disturbance:

- Known and unknown heritage assets as shown in **Table 8.14**.

Magnitude of Cumulative Impact

8.7.1.10 Site investigations and offshore construction works (SI04 and ORE01) will introduce seabed disturbance and the subsequent deposition of sands on the seabed whose movement is governed by tidal forces, and may result in sediment disturbance and deposition leading to effects on known and unknown heritage assets.

8.7.1.11 **Table 8.12** outlines embedded mitigation for the Proposed Works Offshore relevant to marine archaeology, including preparation of an AMP. It is expected that a similar AMP will be prepared by site investigation projects to inform the survey works and to facilitate the recording and reporting of any archaeological material discovered.

8.7.1.12 Therefore, it is considered that the cumulative magnitude of sediment disturbance and deposition leading to effects on known and unknown heritage assets with Tier 1 projects and plans with the Proposed Works Offshore is considered to be **low**.

Significance of Cumulative Effect

8.7.1.13 Overall, it is considered that the receptor sensitivity is **high** and the cumulative magnitude of sediment disturbance and deposition leading to effects on known and unknown heritage assets is **low**. Therefore, the cumulative effect of sediment disturbance and deposition leading to effects on known and unknown heritage assets, direct impacts on historic shipwreck sites and direct impacts on unknown heritage assets associated with buried palaeo landscapes with Tier 1 projects and plans, from Proposed Works Offshore, is considered to be **Minor Adverse**, and considered not significant in EIA terms.

Direct Impact on Historic Shipwreck Sites

Receptor Sensitivity

- 8.7.1.14 The historic shipwreck marine archaeology receptors are vulnerable sites that can be directly impacted by SI and construction activities. Each known shipwreck site is regarded as being of national importance and is a protected site and is considered to have **high** sensitivity. The potential for new discovery is present when impacting the seabed, and such impacts include SI, dredging and excavation of cable routes and activities associated with pile construction.

Magnitude of Cumulative Impact

- 8.7.1.15 The Proposed Works Offshore may take place during the site investigation works (SI04) and the construction phase of Arklow Bank Wind Park Phase II (ORE01), representing an overlap with projects operating at the same time and in the same area. The protocols associated with managing the potential for marine archaeological discovery in Arklow Bank Wind Park Phase II project area are aligned with those associated with the Proposed Works Offshore. As described in **Table 8.12** which outlines embedded mitigation for the Proposed Works Offshore relevant to marine archaeology, an AMP will be prepared to facilitate the recording and reporting of any archaeological material discovered, and a similar AMP will be in place for the ABWP II project.
- 8.7.1.16 Therefore, it is considered that the cumulative magnitude of direct impacts on historic shipwreck sites with the site investigations and construction of the Tier 1 project, from the Proposed Works Offshore, is considered to be **low**.

Significance of Cumulative Effect

- 8.7.1.17 Overall, it is considered that the receptor sensitivity is **high** and the cumulative magnitude of direct impacts on historic shipwreck sites is **low**. Therefore, the cumulative effect of direct impacts on historic shipwreck sites associated with Tier 1 projects and plans, from Proposed Works Offshore, is considered to be **Minor Adverse**, which is not significant in EIA terms.

Direct Impact on Unknown Heritage Assets associated with Buried Palaeo Landscapes

Receptor Sensitivity

- 8.7.1.18 The buried palaeo landscapes receptors are vulnerable sites that can be directly impacted by site investigation and offshore construction activities. The receptors are deemed to be of high vulnerability, low recoverability and of national value. The sensitivity of the receptor is therefore, considered to be high is considered to have **high** sensitivity.

Magnitude of Cumulative Impact

- 8.7.1.19 The Proposed Works Offshore may take place during the site investigation works (SI04) and the construction phase of Arklow Bank Wind Park Phase II (ORE01), representing an overlap with projects operating at the same time and in the same area. The protocols associated with managing the potential for marine archaeological discovery in Arklow Bank Wind Park Phase II project area are aligned with those associated with the Proposed Works Offshore. As described in **Table 8.12** which outlines embedded mitigation for the Proposed Works Offshore relevant to marine archaeology, an AMP will be prepared to facilitate the recording and reporting of any archaeological material discovered, and a similar AMP will be in place for the ABWP II project.
- 8.7.1.20 Therefore, it is considered that the cumulative magnitude of direct impacts on buried palaeo landscapes receptors with the site investigations and construction of the Tier 1 project, from the Proposed Works Offshore, is considered to be **low**.

Significance of Cumulative Effect

- 8.7.1.21 Overall, it is considered that the receptor sensitivity is **high** and the cumulative magnitude of direct impacts on buried palaeo landscapes receptors is **low**. Therefore, the cumulative effect of

direct impacts on buried palaeo landscapes receptors associated with Tier 1 projects and plans, from Proposed Works Offshore, is considered to be **Minor Adverse**, which is not significant in EIA terms.

8.8 Transboundary Effects

- 8.8.1.1 **Volume 3, Appendix 1.3: Transboundary Screening** presents the screening of potential transboundary effects on shipping and navigation using PINS screening criteria (PINS, 2025) using information contained within this EIAR chapter.
- 8.8.1.2 As stated in **Volume 3, Appendix 1.3**, the approximate distance between the Offshore Site and the nearest maritime boundary is 33 km to the UK (Wales), which is beyond the Marine Archaeology study area, which extends 500 m from the Offshore Site. Accordingly, no transboundary effects on marine archaeology are anticipated to result from Proposed Works Offshore.

8.9 Summary

8.9.1 Summary of Effects

- 8.9.1.1 This chapter has assessed the potential impacts on marine archaeology from the Proposed Works Offshore.
- 8.9.1.2 **Table 8.17** presents a summary of impacts and confirms the residual effects in respect of marine archaeology. The impacts assessed include:
- Sediment disturbance and deposition leading to effects on known and unknown heritage assets;
 - Direct impact on historic shipwreck sites; and
 - Direct impact on unknown assets associated buried palaeo landscapes.

8.9.2 Summary of Additional Mitigation and Monitoring

- 8.9.2.1 No additional mitigation is considered necessary, as all potential effects on marine archaeology are assessed to be not significant in EIA terms.

Table 8.17: Summary of potential impacts and residual effects

Impact	Embedded mitigation	Sensitivity of receptor	Magnitude of impact	Significance of impact	Additional mitigation and monitoring	Residual effect
Sediment disturbance and deposition leading to effects on known and unknown heritage assets	Development and adherence to the Detailed Offshore DEMP (see outline version in Volume 3, Appendix 3.4).	High	Low	Minor Adverse (not significant)	No	Minor (not significant)
Direct impact on historic shipwreck sites		High	Low	Minor Adverse (not significant) Moderate Adverse in relation to sites W02650 and W02781 (not significant)	No	Minor / Moderate (not significant)
Direct impact on unknown heritage assets associated with buried palaeo landscapes		High	Low	Minor Adverse (not significant)	No	Minor (not significant)

8.10 References

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