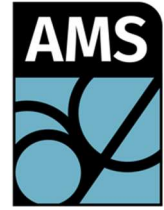


Underwater Archaeology Impact Assessment for Maintenance Dredging in Wicklow Harbour



Archaeological
Management Solutions



Prepared for Wicklow County Council

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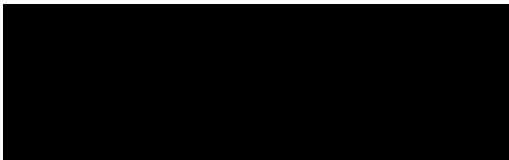
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NSAI



Summary

Archaeological Management Solutions (AMS) have been engaged by Wicklow County Council (WCC) to undertake an Underwater Archaeology Impact Assessment (UAIA) for proposed maintenance dredging operations in the approaches to the entrance to Wicklow Harbour and several areas located within Wicklow Harbour itself.

The purpose of this UAIA is to undertake a desk-top study and analysis of recorded archaeological and other cultural heritage sites that lie within areas previously dredged with a view to informing an appropriate strategy to avoid/mitigate any likely impacts that are identified. Previously recorded cultural heritage sites in proximity to the proposed works have also been identified where relevant.

The desk-top study has confirmed that there is one (1) known recorded wreck (W11326) within the proposed dredging areas, although this is likely to relate to the remains of the Schooner *Sarah* purported to be located underneath a boulder breakwater adjacent to the South Quay outside the dredge area. There is a further one (1) known recorded wreck for which there is locational information from the Wreck Viewer/Wreck Inventory of Ireland Database (WIID) identified within 500m of the proposed dredging areas, while the UK Hydrographic Office (UKHO) database lists one (1) wreck or obstruction in the same area. The WIID records a further 25 wrecks with Wicklow Harbour, Wicklow, Wicklow Town or the Black Castle as a recorded place of loss, with no specific locational information.

There is one potential **direct impact** arising from the known/recorded Maritime and Aviation Archaeology (W11326, see above) within the proposed dredging areas. This UAIA finds that there is **low to negligible** potential for submerged prehistoric finds and deposits to be encountered within the previously dredged areas; **medium** potential for unknown Maritime Archaeology Assets; and **negligible** potential for Aviation Archaeology Assets to be encountered within the proposed dredging areas which could be directly and negatively impacted.

In light of the results of the assessment, mitigation measures have been recommended for the pre-dredge, operational, and post-dredge phases for the consideration of the Underwater Archaeology Unit, National Monuments Service.

The above measures are subject to the agreement of the UAU of the National Monuments Service. Please note that the local and statutory authorities may issue alternative or additional measures

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Abbreviations and Definitions

Abbreviation	Definition
AEZ	Archaeological Exclusion Zone
AMS	Archaeological Management Solutions
CH	Cultural Heritage (Asset/Receptor)
DHLGH	Department of Housing, Local Government and Heritage
DIER	Database of Irish Excavation Reports
EPA	Environmental Protection Agency
HEV	Historic Environment Viewer
IFC	Irish Folklore Commission
ITM	Irish Transverse Mercator
NIAH	National Inventory of Architectural Heritage
NMI	National Museum of Ireland
NMPF	National Marine Planning Framework
NMS	National Monuments Service
NRA	National Roads Authority
OS	Ordnance Survey
OSI	Ordnance Survey Ireland
RMP	Record of Monuments and Places
RPS	Record of Protected Structures
RSL	Relative Sea Level
SID	Strategic Infrastructure Development
SMR	Sites and Monuments Record
TSHD	Trailing Suction Hopper Dredger
UAU	Underwater Archaeology Unit
UAIA	Underwater Archaeological Impact Assessment
UHO	Underwater Heritage Order
UKHO	UK Hydrographic Office
WCC	Wicklow County Council
WID	Water Injection Dredging
WIID	Wreck Inventory of Ireland Database
ZoN	Zone of Notification

Coordinate System

All grid coordinates in this report use the Irish Transverse Mercator (ITM) coordinate reference system unless otherwise stated.

1 Introduction

1.1 Proposed Works

Archaeological Management Solutions (AMS) have been engaged by Wicklow County Council (WCC) to undertake an Underwater Archaeology Impact Assessment (UAIA) for proposed maintenance dredging operations for areas previously dredged in the Harbour (Figure 1).

1.1.1 Planning and Development Background

This UAIA has been prepared on behalf of WCC in relation to proposed maintenance dredging operations in support of applications for a Dumping at Sea Permit obtained through the Environment Protection Agency (EPA), and a Maritime Usage Licence (XXXXXXX) obtained through the Maritime Area Regulatory Authority (MARA), and in line with feedback received during the consultation process.

During consultation, the Underwater Archaeology Unit (UAU) of the National Monuments Service (NMS) recommended (by letter dated 16 January 2023) the following:

- 1) *An Underwater Archaeological Impact Assessment (UAIA) report shall be forwarded to the National Monuments Service of the Department of Housing, Local Government and Heritage for review and approval. The UAIA shall include the following:*
 - a) *A desktop assessment that includes a full inventory and mapping of all identified and recorded wrecks, archaeological/built/cultural heritage features and structures (including industrial, vernacular and fishing structures) within the development area and its environs.*
 - b) *The results of a licenced dive assessment centred on (but not confined to) the area(s) where in-water works are proposed, accompanied by a hand-held metal detection survey, undertaken by a suitably licenced and experienced underwater archaeologist with metal detection experience. All archaeological diving should comply with the Health and Safety Authority's Safety, Health and Welfare at Work (Diving) Regulations 2018/2019. A Dive Survey Licence (Section 3 1987 National Monuments Act) and Detection Device consent (Section 2 1987 National Monuments Act) will be required for all of these works. Licence applications, accompanied by Method Statements, shall be sent for vetting to the National Monuments Service of the Department of Housing, Local Government and Heritage and no surveys shall be undertaken until licences have been approved.*
 - c) *Once the desk study and all surveys have been completed, the full information should be compiled into a UAIA report and submitted to the National Monuments Service for review and further comment. The UAIA Report should contain a detailed Archaeological Impact Assessment that addresses all identified and potential impacts on archaeological, including underwater, heritage and should also make recommendations on mitigation measures to avoid or mitigate all impacts. Potential secondary or indirect impacts, such as access roads or construction works to facilitate access to the waterways, for example, shall also be included. If identified or potential sites, features or artefacts cannot be avoided (preserved in situ) by the proposed works, then the UAIA report shall include an archaeological mitigation strategy that addresses these impacts, including how the archaeology can be preserved by record*

(archaeological testing and/or full archaeological excavation). Where archaeological materials/features are shown to be present, preservation in situ, avoidance, preservation by record (archaeological excavation) or archaeological monitoring may be required. All resulting and associated archaeological costs shall be borne by the developer. The developer shall be prepared to be advised by the National Monuments Service in this regard or in regard to any subsequent recommendations that may issue.

- d) *No construction works shall commence until the National Monuments Service have had the opportunity to fully evaluate the findings of the UAIA and our recommendations have been received and agreed by the developer.*
- 2) *A Construction Environment Management Plan should incorporate any significant findings that emerge from the UAIA process, including but not limited to, the location of any archaeological or cultural heritage constraints relevant to a proposed development and present appropriate mitigation measures to protect the archaeological or cultural heritage environment.*

Subsequently, observations/recommendations were made by the NPWS (by letter dated 30 May 2023) which included the following:

Please note that the Departments recommendation for an Underwater Archaeological Impact Assessment was made on the basis of the supplied submission documentation and the presence within the proposed maintenance dredge area of a protected wreck. It is noted in your email that all proposed works are confined to previously dredged areas (which were subject to prior archaeological monitoring) and that measures to protect the recorded wreck are in place. Accordingly, having reviewed the recommendation it is proposed that no mitigation is required.

The UAIA has been undertaken in line with the recommendations above, utilising available sources of archaeological and historical records and data to assess the potential impacts of the proposed dredging on the underwater cultural heritage resource.

1.1.2 Proposed Dredging Description

The proposed maintenance dredging areas extend from the quays along the river margins to the entrance to the main harbour. The location and extent of the areas of the proposed maintenance dredging considered as part of this UAIA are illustrated in Figure 2–Figure 3. The proposed dredging methods to be deployed include:

- Trailing Suction Hopper Dredging (TSHD)
- Water Injection Dredging (WID)
- Mechanical Dredging
- Plough Dredging

The method of dredging in each area will be determined based on bed level conditions and composition of materials to be dredged.

1.2 Purpose and Scope of this Assessment

The purpose and scope of this assessment is to carry out the recommendations outlined in 1.1.1 above. Furthermore, the Government policy document *Framework and Principles for the Protection of the Archaeological Heritage* states that “where it is considered that a proposed development may (due to its location, size, or nature) have archaeological implications, then an archaeological assessment should be carried out” and defines archaeological assessment as an investigation aimed at:

- “gaining a better understanding of a known or suspected archaeological site or monument with particular reference to considering the implications of proposed development for such a site or monument” and
- “locating previously unidentified archaeological sites or monuments (or possible ones) prior to the commencement of development works with particular reference to considering the implications of proposed development for such sites or monuments” (DAHGI 1999, 25).

In line with this, the purpose of this current assessment is to provide a desk-based survey and analysis of recorded archaeological and other cultural heritage sites that lie within those areas proposed for maintenance dredging with a view to informing an appropriate strategy to avoid/mitigate any likely impacts that are identified. Previously recorded cultural heritage sites in proximity to the proposed works have also been identified where relevant.

2 Legislation, Policy and Guidance

2.1 Legislation

2.1.1 Irish

The primary Legislation in place to protect wrecks and archaeological objects within Irelands territorial waters and inland waterways is the *National Monuments (Amendment) Act 1987*. This legislation protects wrecks over 100 years old, and archaeological objects irrespective of their age. Wrecks or objects less than 100 years old can be protected through an Underwater Heritage Order (UHO) where they are deemed to be of such importance to merit protection.

Additional Legislation considered as part of this UAIA includes the following:

- *Foreshore Acts 1933 to 2011*
- *Dumping at Sea Act 1996*
- *Maritime Area Planning Acts 2021 and 2022*
- *National Monuments Acts 1930 to 2014 (pending the enactment of the Archaeological Heritage and Miscellaneous Provisions Bill 2023)*
- *Merchant Shipping (Salvage and Wreck) Act 1993*
- *Planning and Development Act 2000 (as amended)*
- *Planning and Development Act 2023*

2.1.2 International

International Legislation considered as part of this UAIA includes the following:

- *UNESCO Convention on the Protection of the Underwater Cultural Heritage (2001) (the Annex of which governing the conduct of archaeological investigations has been adopted by the Irish State – pending full ratification following the enactment of the Archaeological Heritage and Miscellaneous Provisions Bill 2023)*
- *UN Convention for the Law of the Sea (1982) (UNCLOS)*

2.2 Policy

The *National Marine Planning Framework* sets a clear direction for managing the seas around Ireland and aims to inform decision makers, users, and stakeholders towards a more strategic and efficient use of marine resources.¹

In relation to Heritage Assets, the aim of the Policy is to:

¹ <https://www.gov.ie/pdf/?file=https://assets.gov.ie/139100/f0984c45-5d63-4378-ab65-d7e8c3c34016.pdf#page=null> [Accessed: February 2024].

make sure proposals do not have a detrimental impact on marine and coastal heritage assets and to extend consideration to those assets that are, or have the potential to become, significant. It will make sure that assets are considered in decision-making processes at the earliest stages in planning, and extends to those assets that are discovered during the course of developments.

Furthermore, *Policy 1* on p.87 states:

Proposals that demonstrate they will contribute to enhancing the significance of heritage assets will be supported, subject to the outcome of statutory environmental assessment processes and subsequent decision by the competent authority, and where they contribute to the policies and objectives of this NMPPF. Proposals unable to contribute to enhancing the significance of heritage assets will only be supported if they demonstrate that they will, in order of preference:

- a) avoid,*
- b) minimise, or*
- c) mitigate harm to the significance of heritage assets, and*
- d) if it is not possible, to mitigate harm, then the public benefits for proceeding with the proposal must outweigh the harm to the significance of the heritage assets.*

2.3 Guidance

Although there is no specific guidance relating to marine dredging operations in Irish territorial waters (including estuaries and inland waters), this UAIA has been compiled with reference to international, national, and industry specific standards and guidance. The key guidance as relevant to port development and dredging is *Dredging and Port Construction: Interactions with Features of Archaeological or Heritage Interest* (WAWTI 2014).

Further guidance of relevance to the proposed maintenance dredging operation was carried out in line with the following (listed in chronological order of publication):

- *Framework and Principles for the Protection of the Archaeological Heritage* (DAHGI 1999)
- *Advice Notes on Current Practice* (EPA 2003)
- *Marine Aggregate Dredging and the Historic Environment* (BMAPA 2003)
- *Protocol for Reporting Finds of Archaeological Interest* (BMAPA 2005)
- *Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes* (NRA 2005a)
- *Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes* (NRA 2005b)
- *Code of Practice for Seabed Development* (JNAPC 2006)
- *Conserving Ireland's Maritime Heritage – Proposing Policies and Priorities for the National Heritage* (Heritage Council 2006)
- *Architectural Heritage Protection: Guidelines for Planning Authorities* (DAHG 2011)
- *The Assessment and Management of Marine Archaeology in Port and Harbour Development*

(Historic England 2016)

- *National Inventory of Architectural Heritage Handbook* (NIAH 2021)
- *A Living Tradition: A Strategy to Enhance the Understanding, Minding and Handing On of Our Built Vernacular Heritage* (DHLGH 2021)
- *Places for People: National Policy on Architecture* (DHLGH 2022)
- *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2022)

3 Methodology

The study was divided into two main components: the collation of baseline data comprising a desk-top Study and the analysis of this data to determine any likely impacts.

For the purposes of this assessment, recorded wreck sites are noted with either the abbreviation WIID or UKHO and the relevant reference number, recorded archaeological sites are denoted with the abbreviation SMR – Sites and Monuments Record or RMP – Record of Monuments and Places and the relevant identification number.

3.1 Study Area

The Study Area for the pier operation includes those areas where maintenance dredging is proposed, henceforth referred to as the **Dredge Areas**, and a wider Search Area to capture sites of cultural heritage interest that help to inform the potential for unknown/unrecorded cultural heritage assets to be present within the Dredge Areas. The Dredge Areas have been identified as follows:

1. Approach Channel
2. East Quay
3. Packet Quay
4. Southern Quay
5. North Quay
6. Leitrim River

The wider Search Area includes a 500m buffer from the boundary of the areas noted above. In addition, select sites have also been included out-with the 500m buffer where appropriate, to assist in demonstrating the potential for unknown/unrecorded archaeology and cultural heritage to be present through reference to the wider archaeological context.

3.2 Desk-top Study

The methodology for the first component comprised a desk-top survey to identify all recorded and previously unrecorded cultural heritage assets within the search area for the proposed dredging areas and the channel. The sources listed in Table 1 below were consulted to cross-check and update the baseline. This component also included a high-level desk-top review of other readily available information that can provide an indication of the cultural heritage potential within the area of the proposed development.

Inventories of the cultural heritage assets were compiled, drawing on data and information recorded, and supplemented through additional research. The suggested importance of the assets was considered in terms of being Negligible, Low, Medium or High for archaeological sites, and Local,

Regional, National and International for architectural heritage sites, in accordance with the National Roads Authority (NRA) and EPA Guidelines (see below). Relative importance derives from a number of factors including current designation or listing (i.e. UHO, RMP, SMR, WIID, UKHO, RPS, NIAH, or none), preservation/condition and archaeological, architectural, historic, artistic, cultural, scientific, social or technical interest. These importance ratings are for assessment purposes only and professional judgement has been used to determine the importance of individual cultural heritage assets.

The Baseline Characterisation (see Section 4 below) places the study area into its wider spatial and temporal context, and where relevant previous archaeological investigations or research works have been conducted, summary detail of the relevant work is provided.

3.2.1 Key Themes

The key archaeological and cultural heritage themes assessed within this UAIA are classified in three categories. These include:

3.2.1.1 Submerged Prehistory

This theme considers submerged deposits of palaeoenvironmental potential that may be present in features such as palaeochannels, and artefacts derived from prehistoric activity such as evidence of tools and weapons.

3.2.1.2 Maritime Archaeology

This theme considers sites such as shipwrecks, parts thereof, and associated debris and material.

3.2.1.3 Aviation Archaeology

This theme considers aircraft crash sites and associated debris and material.

3.2.2 Data Sources

The desktop review aimed to identify, as far as reasonably practicable, the known and potential cultural heritage assets within the cultural heritage study area for the proposed dredging. The main sources consulted are detailed in Table 1.

Table 1: Sources consulted for the assessment.

Data	Source
Background Information	<ul style="list-style-type: none"> County Wicklow Development Plan 2022–2028.² Topographical/toponymic data;³ <i>Logainm.ie</i> (Placenames Database of Ireland); and <i>Townlands.ie</i> (Irish townlands data). Cartography: first-edition six-inch (1837) and 25-inch Ordnance Survey (OS) (1908–11) maps via OSI's public viewer⁴ (now Tailte Éireann). Aerial & street views: Google Earth & Digital Globe;⁵ orthophotographs via OSI's public viewer; Bing images (QGIS Web Mapping Service); Google Street View. Previous Archaeological Investigations: Database of Irish Excavation Reports (DIER) and TII Digital Heritage Collection⁶ Data.
Recorded Archaeological Sites	<ul style="list-style-type: none"> Record of Monuments and Places (RMP) – statutory list of protected places and monuments, with accompanying constraints maps, published for Wicklow in 1995. Wreck Inventory of Ireland Database (WIID).⁷ UK Hydrographic Office Database (UKHO). Wrecks and obstructions shapefile.⁸ Historic Environment Viewer (HEV) – online database of information on sites and monuments based on the Sites and Monuments Record (SMR).⁹ The HEV provides information not only on those archaeological monuments included in the statutory RMP, but also in regard to many more which have been identified since the RMP was issued (DHLGH 2021b). Lists of national monuments in State care: Ownership and Guardianship for County Wicklow.¹⁰ List of Preservation Orders held by the NMS, published in 2019.¹¹
Seabed Mapping	<ul style="list-style-type: none"> Bathymetric datasets for Wicklow Harbour. Marine Institute & Geological Survey of Ireland, INFOMAR dataset, Wicklow Harbour

3.2.3 Data Structure

Identified cultural heritage assets were digitally mapped using open-source Geographical Information System (GIS) software QGIS (version 3.22) which allows for the positional information from the sources

² Available at <https://www.wicklow.ie/Living/CDP2021> [Accessed: 31 January 2024].

³ Lewis S. 1837. *A Topographical Dictionary of Ireland*. London: S. Lewis & Co. Available at: <https://www.libraryireland.com/topog/placeindex.php> [Accessed: 31 January 2024].

⁴ Available at: <https://webapps.geohive.ie/mapviewer/index.html> [Accessed: 31 January 2024].

⁵ Available at: <https://maps.archaeology.ie/HistoricEnvironment/> [Accessed: 31 January 2024].

⁶ Available at: www.excavations.ie and <https://repository.dri.ie/catalog/v6936m966> [Accessed: 31 January 2024].

⁷ Available at <https://www.archaeology.ie/underwater-archaeology/wreck-viewer> [Accessed: 31 January 2024].

⁸ Available at https://datahub.admiralty.co.uk/portal/apps/sites/?_gl=1*324088*_ga*MTE2NjYzNzUzNy4xNjk5ODgzNDQz*_ga_8PTW8GJL1R*MTcwMTcwNjMyNy41LjAuMTcwMTcwNjMzMzMC4wLjAuMA..#/marine-data-portal/items?tags=GlobalWrecks [Accessed: 31 January 2024].

listed above to be spatially analysed and cross-checked with current RMP, SMR, NIAH, and RPS datasets. The WIID was also checked, and this was cross referenced with the most recent UKHO data. The historical mapping and satellite imagery were further explored to identify all other structures and features of potential cultural heritage interest.

3.2.4 Submerged Prehistory

The baseline characterisation for submerged prehistory was based on a review of a number of sources, including geological mapping of seabed sediments, and solid geology and bathymetry from published sources, such as the Geological Survey of Ireland and INFOMAR. This assessment was further supported by the examination of models of past sea level change for this area of coastline. In addition, historic geotechnical core log data obtained for the study area (in the vicinity of Murrough and Upper Strand Street) were reviewed to identify deposits of geoarchaeological potential as part of the submerged prehistory baseline. These records were added to the QGIS mapping.

3.2.5 Maritime and Aviation Archaeology

The sources of data for maritime and aviation archaeology listed in Table 1 above have been collated and summarised in order to develop a baseline of marine archaeology for the study area, and the potential for encountering unknown shipwreck and aircraft crash sites.

The data obtained were reviewed and those located within the Dredge Areas or wider search area were extracted and compiled to form Tables of assets as part of the known maritime and aviation baseline.

3.3 Assessment Criteria

Evaluation of impacts was carried out with reference to the published EPA Guidelines (2022)¹² and the NRA guidelines for archaeological heritage (NRA 2005a) and architectural heritage (NRA 2005b), as outlined below. Likely impacts were categorised as one of three types in accordance with the NRA guidelines for archaeological heritage (NRA 2005a, 25) and architectural heritage (NRA 2005b, 21):

⁹ Available at: <https://maps.archaeology.ie/HistoricEnvironment/> [Accessed: 31 January 2024].

¹⁰ Available at: <https://www.archaeology.ie/sites/default/files/media/pdf/monuments-in-state-care-wicklow.pdf> [Accessed: 31 January 2024].

¹¹ Available at: <https://www.archaeology.ie/sites/default/files/media/publications/po19v1-all-counties.pdf>

¹² Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf [Accessed: 04 December 2023].

- **Direct Impact** — where a feature or site of archaeological or architectural heritage interest is physically impacted by the proposed development, which potentially entails the removal of part, or all, of the monument or feature. Sites or features that occurred within the redline boundary were assessed for potential direct negative effects;
- **Indirect Impact** — where a feature or site of archaeological or architectural heritage interest, or its setting, is located beyond the redline boundary but is in close proximity; or
- **No predicted impact** — where the proposed development does not adversely or positively affect a feature or site of archaeological or architectural heritage interest.

The quality of each predicted impact was classified as **Negative, Positive or Neutral**. Negative impacts include total or partial loss of a site, monument, structure or its attendant grounds, visual intrusion, severance, degradation of setting and/or amenity. Positive impacts include increased physical separation, reduced visual and noise intrusion, and enhancement of setting or amenity. Where no impact is predicted, the quality of impact is rated as Neutral (None). The predicted magnitude (level) of impact was rated as **Low, Medium, High, or Very High** (NRA 2005b, 32).

The predicted significance of effect was evaluated by comparing the predicted magnitude of impact with the suggested importance of the asset using the schedule and definitions of significance adapted from the NRA guidelines (NRA 2005a, 54). Significance of effect is summarised therein as:

- **Imperceptible** — an impact capable of measurement but without noticeable consequences;
- **Slight** — an impact which causes changes in the character of the environment which are not significant or profound and do not directly impact or affect an archaeological feature or monument;
- **Moderate** — where a change to the site is proposed which though noticeable, is not such that the archaeological integrity of the site is compromised, and which is reversible. This arises where an archaeological feature can be incorporated into a modern-day development without damage and that all procedures used to facilitate this are reversible;
- **Significant** — an impact which, by its magnitude, duration or intensity, alters an important aspect of the environment. An impact like this would be where part of a site would be permanently impacted upon, leading to a loss of character, integrity and data about the archaeological feature/site;
- **Profound** — where mitigation would be unlikely to remove adverse effects. Reserved for adverse, negative effects only. These effects arise where an archaeological site is completely and irreversibly destroyed by a proposed development.

3.4 Data Gaps and Limitations

The data used to compile this UAIA comprise primarily of various secondary sources and datasets. Key sources have been examined for the purposes of the assessment where available. It is assumed that the information within these sources is reasonably accurate.

Geophysical data sets were not available for review as part of this assessment. Such data is a key resource from which to identify potential anomalies of archaeological interest that are either not identified in the available archaeological, architectural, and historical records, or where a known site can be verified and better understood.

Raw, unprocessed geophysical data sets were not available for review as part of this assessment. Such data is a key resource from which to identify potential anomalies of archaeological interest at an appropriate resolution that are either not identified in the available archaeological, architectural, and historical records, or where a known site can be verified and better understood. While the INFOMAR data was accessed and viewed for the purpose of this assessment, the 2m grid resolution will omit the identification of any potential archaeological object less than 2m in size, where only large anomalies such as wrecks and larger debris can be identified. In addition, it is not possible to identify potential buried archaeology within the seabed substrates, with limited or no surface expression. The legacy bathymetric data from former dredging campaigns was also viewed for the purpose of this assessment, and while this allows for the identification of general seabed characteristics that may represent potential anomalies of anthropogenic interest, the resolution and detail of the output is such that the identification of any detail of anomalies of archaeological potential is not possible.

4 Baseline Characterisation

4.1 Submerged Prehistory

4.1.1 Geological Baseline

The underlying solid geology of the Search Area consists of a metamorphic rock consisting of the Wicklow Head Formation, a mica schist dating to the Ordovician Period (488–444 million years ago).

The mapped Quaternary geology around the Search Area includes deposits of marine beach sands, forming the strand extending to the northwest of the harbour, with an area of glacial till, derived both from the nearby shales and sandstones mapped to the southeast of the dredging area. Quaternary geological studies of regions to the east of the proposed dredging area indicate that the main sequence in the area consists of this till, overlain either by sands and gravels of glaciofluvial origin or more recent mobile sediments consisting largely of sands (Coughlan *et al.* 2020). Examination of historic core log data available from the Geological Survey of Ireland indicates the presence of intermittent dense gravelly clay, with a composition that is consistent with till deposits underlying the marine beach sands mapped to the northwest of the harbour area (IGSL 1987).

The marine sediments removed during the previous programme of dredging consisted of a mixture of silts, sands and gravels consistent with mobile sediments observed in the areas further east from the harbour (Coughlan *et al.* 2020). No emplaced/*in situ* deposits of organic matter, particularly peat, have been observed in the geotechnical data, nor were any noted during monitoring of the previous dredging programme (Whitty 2014).

Historical changes in Relative Sea Level (RSL) have been modelled for the broad area within which the Search Area lies (Shennan, Bradley and Edwards 2018). The more recent (from 5000 years BP) section of the modelled RSL curve are moderately well constrained with data points. The earlier section of the curves has far fewer data points and is more reliant on the underlying formula of the glacio-isostatic adjustment model used. At around 10,000 years BP, RSL is modelled as having been at –25m. Initial rises in RSL were rapid, moving to –5m by 7,500 BP, with more gradual rises in RSL continuing until circa 2,000 years BP, when levels attained approximately current levels. At the transition between the Mesolithic and Neolithic, at circa 4,000 BC, RSL was at –3m. Assuming RSL is equivalent to mean water, which is currently approximately 1.7–1.8m CD, and no significant variation in historical water depth, then the proposed dredging areas would have been within the intertidal zone at 6,000 BP, and fully terrestrial from approximately 7,500 BP, at an approximate altitude of –3.5 m CD. The depths of the proposed areas of work are a key control on the potential for impacts on submerged prehistoric archaeology.

4.1.2 Submerged Prehistoric Archaeological Potential

While there is no geotechnical data within the proposed coring area, observations of material removed during previous rounds of dredging indicate that the uppermost sediments consist of sands, silts and gravels, and that these are relatively recently deposited mobile sediments.

The approximate time-depth model derived from the RSL model suggests that similar RSL was attained at circa 2,000 BP, and that area would have been sub-tidal after approximately 5,500–6,000 BP, around the Mesolithic to Neolithic transition. This would indicate that there is little prospect of submerged prehistoric landscapes or associated archaeological materials later than this. Should such a landscape survive, it would be present at approximately -3.5m CD, though considerable local topographic variation would be expected. Survival would depend on the pattern of inundation, and whether this would have preserved material through burial or caused erosion of former land surfaces.

Should such surfaces and associated features survive, these might include the infilled locations of watercourses, and cultural artefacts such as fish traps during the period when the area was within the tidal frame, modelled to be approximately 6,000–7,500 BP. At older dates, there may be the potential for terrestrial sites such as camp sites and working areas associated with human activity. Assuming submergence was sufficiently rapid, such sites might preserve organic materials.

The majority of the sediments to be removed within the proposed dredging areas are at altitudes higher than that at which submerged former land surfaces are thought likely to occur. Moreover, it should be noted that previous dredging was undertaken to a depth of -3.6m CD. Based on the time-depth model, this would remove the uppermost part of any submerged landscape. The current proposals are limited to this depth, or less, and therefore are unlikely to remove or disturb any potential surviving submerged prehistoric landscape and associated archaeology.

4.2 Maritime and Aviation Archaeology

4.2.1 Known/Recorded Maritime Sites

Known recorded wrecks are included in Table 2 and Table 3 and on Figure 2–Figure 3. These tables are devised from the WIID and the most recent UKHO wrecks and obstructions data. There are two (2) wrecks with recorded locations on the Wreck Viewer/WIID within, or in proximity to, the proposed dredging areas. There are a further 25 wrecks noted without specific locations noted in various documentary sources on the WIID, these are included as Appendix 1. The available database was queried using the keyword ‘Wicklow’ and entries were searched for locations relating to Wicklow Harbor as were any references to the pier, the town, and the Black Castle. W11326 is located within the proposed dredging area for Packet Quay, although, according to local sources, this is likely to relate the remains of the Schooner *Sarah* purported to be located under a boulder breakwater (known as

the ‘Sarah Rocks’) immediately adjacent to the dredging area. W10651 is located c.70m from the proposed dredging area for East Quay (see Table 2). Furthermore, the UKHO records a wreck or obstruction 9809, c.50m from the proposed dredging area for the Approach Channel (see Table 3). This wreck was last noted in 1999. There are no further wrecks or obstructions noted on the WIID or the UKHO. Several wrecks are also recorded near the Black Castle (RMP WI025-013, PO 113/1940).

Table 2: Wrecks with a recorded location on the WIID

Wreck Name	Classification	Place of Loss	Date of loss	Wreck no
W11326	Unknown	Mouth of River Leitrim, Wicklow town	Unknown	Unknown
W10651	Unknown	Unknown	Unknown	Unknown

Table 3: Wrecks and obstructions noted on the UKHO database

Name	ID	Wreck category	Type	Circumstances
Unknown	9809	Wreck showing any portion of hull or superstructure	Unknown	Unknown

4.2.2 Seabed Features derived from Geophysical Survey

Although there were no marine geophysical datasets available for review and inclusion in this UAIA, INFOMAR data was accessed, and bathymetric results from previous surveys in 2018, 2020, 2021 and 2023 was utilised to check for any large anomalies of potential archaeological interest that may be present within the Dredge Areas. No such anomalies were identified, including in the vicinity of W11326 within the harbour limits.

4.2.3 Maritime and Aviation Archaeology Potential

4.2.3.1 Prehistoric Period

Evidence for Mesolithic activity (7000–4000 BC) in Ireland tends to be concentrated around or in close proximity to water. The archaeological record of this period presents as the remains of temporary settlements, fishing technology, or the debitage of flint implements. Mesolithic society is believed to have been the preserve of small family-based groups of nomadic hunter-gathers and fishermen. Given the maritime nature of the Search Area, it is likely that the area was inhabited during the prehistoric period. There is limited evidence for Mesolithic activity in County Wicklow; however, the presence of pieces of broken flint and flint pebbles, discovered in a cave in the 1930s, suggests that there was

some activity in the area from this period, this cave is recorded on the SMR as WI025-039 (Stout 1989, pp 126–127).

The Neolithic period (4000–2500BC) is then typically associated with Ireland's first farmers; the century between c.3800–3700BC saw a period of rapid expansion across the country, with the archaeological imprint of rectangular houses being a common settlement feature of this period. In terms of material culture, County Wicklow has a number of megalithic tombs from this period. These include passage tombs e.g. WI027-02603, portal tombs e.g. WI036-008, and wedge tombs e.g. WI042-036. These appear in two main locations; the first 'in an area of foothills in north-west Wicklow between Baltinglass and Blessington' with the second 'south of Rathdrum and east to the coast at Brittas' (Ibid. p. 127). There is also artefactual evidence from the prehistoric period in the form of stone axeheads, flint arrowheads and javelin/spear heads (Ibid. pp 127–128). There are also several finds of flint noted in the National Museum of Ireland (NMI) topographical files from the townland of Ballynerrin Lower to the southeast of the proposed dredging areas. These were discovered in a cist in a field and include a tool, P1952:3.6, a flint core, P1952:3.1, a flint flake, P1952:3.4, and three chunks of flint, P1952:3.2, 3, 5.

The Bronze Age (2500–500BC) is typically associated with the introduction and development of metal technology and the use of metal tools, and the emergence of a distinct warrior elite class defined by high-status weaponry towards the end of the period. There is both monumental and artefactual evidence for this period in Wicklow also. There are numerous stone circles, for example WI015-010 and WI027-039, as well as numerous standing stones e.g. WI027-04302, and instances of rock art, e.g. WO030-023, all believed to be from this period (Ibid. pp 128–129).

Settlement and continued use of the landscape throughout the Iron Age is inferred through the many and varied sites in the wider area of county Wicklow, while some of the larger hillforts such as that at Rathgall may date to this period.

A combination of recorded archaeological sites and material objects suggest that Wicklow Harbour has been inhabited since the Mesolithic Period and thus there is potential for archaeological objects to be discovered during the dredging process.

4.2.3.2 Early Medieval Period (AD400-1100)

The beginning of the early medieval period saw the arrival of Christianity, the gradual conversion of the population, and the flourishing of Irish monasteries. The period spans 700 years and encompasses a time of huge social changes, (Byrne *et al.* 2008, 5). It was in this period that the monastery at Glendalough was founded, which in turn attracted the attention of the Vikings who subsequently settled in or near the current town of Wicklow c.827. There is also evidence for early medieval religious

settlement in Wicklow town such as in the presence of burials and elements of an enclosure at Weston Close excavated under licence 13E0303.¹³

The name Wicklow is possibly derived from the Scandinavian word *Vykyngelo*, or *Wygngelo*, which appears in early documentary evidence, and means ‘meadow of the Vikings’ (Joyce 1875, pp 105, 107). While the Vikings likely had a settlement in the area, it is from the Anglo-Norman period onwards that we learn most about the development of the town and harbour.

In terms of archaeological sites, ringforts are the most numerous site type from this period. Ringforts are defended homesteads of relatively wealthy farmers, often managed by kings and sub-kings, and are generally dated to the early medieval period (AD 400–1100), though some remained in use until much later. There are approximately 227 recorded ringforts, raths, or cashels recorded in County Wicklow. None are recorded within 500m of the proposed dredging areas.

4.2.3.3 Medieval Period (AD1100–1600)

Terrestrial archaeological evidence for the medieval period is partly characterised by castles or castle sites. The beginning of this period in Ireland is marked by the arrival and settlement by the Anglo-Normans and subsequent interaction with the native Gaelic population. New settlement forms — including many of our surviving towns, systems of landscape divisions based on the manorial systems, and changes in economic/agricultural practices — are typically associated with this period. The first reference to a castle in the study area is from 1173/4 when Henry II gave a grant to Richard de Clare, better known as Strongbow. This castle (RMP WI025-013) is situated on a promontory overlooking Wicklow Harbour and four wrecks are recorded as having been lost near the Black Castle with the earliest recorded date being 1355/1356 (see Appendix 2). The town of Wicklow would also have started to develop during the Anglo-Norman period following this grant although it seems likely that there was some form of pre-existing settlement.¹⁴ The historic town of Wicklow (RMP WI025-012) followed the typical course of many Anglo-Norman towns of this period, i.e. an initial period of development in the twelfth and thirteenth century before a period of relative stagnation in the early fourteenth century.

4.2.3.4 Post-Medieval Period (AD1600–1800)

The town of Wicklow began to grow and develop again by the end of the sixteenth and into the seventeenth century. The seventeenth century saw the construction of the Stone Bridge which had

¹³ See <https://excavations.ie/report/2013/Wicklow/0024312/> (accessed 12 February 2024).

¹⁴ See the reference on the HEV <https://heritagedata.maps.arcgis.com/apps/webappviewer/index.html?id=0c9eb9575b544081b0d296436d8f60f8> for the historic town of Wicklow (WI025-012) (Accessed: 05 February 2024).

the effect of limiting any further expansion upriver. When this bridge was built, the land available for quays was also limited, with c.390 yards on the northern bank and 440 yards on the southern. The width of the river was recorded as approximately 50 yards with a varying depth. The development of Wicklow as a port followed on from this — albeit in a gradual fashion. Permission was sought to build a mill and quay in 1733, a committee was established in 1755 to provide an estimate on the costs ‘to build a pier and make a safe entrance to the River of Wicklow. While funds were initially raised to carry out this work, none of it was ultimately successful. A map from 1765 (Plate 1) shows the extent of the harbour and has the following description: *‘Wicklow harbour at present admits of nothing but small craft, the bar having no more than seven and eight feet at High Water Spring Tides. In making for the Bar, you must give the Rock at the Black Castle a good birth [sic]. There is now a channel cutting across part of the Murragh, from which great advantages are expected, which may be better described, when experienced, than at present.’*¹⁵

4.2.3.5 Modern Period (AD1800–2000)

The modern period saw a series of upgrades to the harbour at Wicklow. An application was made to central government in 1835 to improve the harbour; however, as the cost was estimated to be in the region of £80,000, this was turned down. More plans were brought forward to improve the harbour in 1840 (Plate 2) that included the construction of quay walls, the west pier, the east pier, a widening of the harbour mouth, the purchase of plots within the area of the port, the removal of the bar as well as the dredging of the river. These works were also delayed, and a Harbour Committee was formed in 1850 with a Harbour Master appointed in 1851. Subsequently, plans for a pier and breakwater submitted in 1855 were approved with further funds granted c.1857. The pier, breakwater, and harbour works were completed by 1865 and further works were undertaken c.1880 which allowed the construction of ‘the East Pier or breakwater and a steam packet pier’ with the east pier being completed in 1884 (Cleary 1990).

A combination of storms and erosion seems to have caused some damage to the steam packet quay in the mid to late 1880s and in 1889, the Schooner, *Sarah*, was ‘grounded at an angle to the rocks’, although this is not noted on the WIID, it is potentially the location of the *Sarah* (Ibid). The breakwater and west pier also needed repair, a loan was eventually obtained to carry these out, with £4000 of the loan used for the purchase of a Hopper Dredger, the *Leitrim* (Ibid.). A further grant was then obtained

¹⁵Cleary; https://heritage.wicklowheritage.org/places/county_wicklow_historical_societies/wicklow_historical_society/1990_wicklow_historical_society_journal/wicklow_harbour (Accessed: 29 January 2024).

to build the New Pier in 1908, while the first motor lifeboat was stationed here in 1911 as it was deemed necessary due to the narrowing of the harbour entrance. Wicklow Harbour has been thoroughly modernised in recent years. At high water, boats with a draft of 5m can enter the harbour, while there are four principal berths with c.430m of quay available with a variety of depths.

4.2.4 Recorded Losses in the Shipwreck inventory of Ireland

The online Wreck Viewer records the location of two wrecks, while the accompanying WIID records 25 wrecks located in the vicinity of Wicklow Harbour, with many of these lacking specific locational information. It was only possible to provide a mapped location for two of these assets (see Figure 2). A full list of these assets is available in Appendix 1 and shown in Figure 2–Figure 3.

4.2.5 Previous Archaeological Investigations

Previous archaeological excavations within 500m of the dredging areas were also assessed as part of this UAIA. These included monitoring of dredging in 2014 (14E0110) by Yvonne Whitty which did not reveal any material of archaeological interest. Further investigations considered were (10E0192), which revealed nothing of archaeological significance, (97E0238), which revealed some detail on the stratigraphy of the quay wall, and (98E0298) which revealed nothing of archaeological significance.¹⁶

¹⁶ See, <https://excavations.ie/report/2014/Wicklow/0024871/>,
<https://excavations.ie/report/2010/Wicklow/0022056/>,
<https://excavations.ie/report/1997/Wicklow/0003172/>,
<https://excavations.ie/report/1998/Wicklow/0003876/> (accessed 5 February 2024).

5 Likely Impacts and Significance of Effect

5.1 Introduction

This section presents the likely impacts and significance of effect on cultural heritage assets located within the proposed Dredge Areas. As highlighted in Section 3.3, there are three types of impact to be assessed, these being:

- **Direct Impact** — where a feature or site or feature of archaeological interest is physically impacted by the proposed dredging, which potentially entails the removal of part, or all, of the feature. Sites or features that occurred within the Dredge Areas were assessed for potential direct negative effects;
- **Indirect Impact** — where a feature or site of archaeological interest is located beyond the Dredge Area but is in close proximity; or
- **No predicted impact** — where the proposed dredging does not adversely or positively affect a feature or site of archaeological interest.

The following summarises the predicted impacts, if any, on known/recorded archaeology assets.

5.2 Impacts to Maritime and Aviation Archaeology Assets

There is one potential **direct impact** arising from the proposed maintenance dredging predicted on the recorded location of W11326, as recorded on the Wreck Viewer/WIID. The remains of the Schooner *Sarah* are believed to be covered by boulders on the south quay outside the dredge area, and it is possible that this wreck represents the loss recorded as W11326. Although this cannot be confirmed at present, in keeping with the precautionary principle, a potential direct impact on archaeological material must be considered until evidence proves to the contrary. The magnitude is considered to be **medium** (if wreck material is located in the dredge area in the vicinity of W11326) and the significance of effect is **moderate**. There are no further predicted direct impacts on any known/recorded Submerged Prehistory and Maritime and Aviation Archaeology within the proposed Dredge Areas. There are **no predicted impacts** on the known locations of W10651 as recorded on the WIID and on wreck/obstruction 9809 as recorded on the UKHO. The magnitude is considered to be **low**, and the significance of effect is **imperceptible**.

This UAIA finds that there is **low** to **negligible** potential for unknown submerged prehistoric finds and deposits; **medium** potential for unknown Maritime Archaeology Assets; and **negligible** potential for unknown Aviation Archaeology Assets to be encountered within the Dredge Areas which could be directly and negatively impacted by the proposed maintenance dredging. This determination is based on:

- The negligible to medium level of potential highlighted through the interrogation and assessment of the available data, including the known wreck location (W11326) in Wicklow Harbour; and the fact that dredging has occurred previously without encountering

archaeological material.

The absence of known or recorded Maritime Archaeology and Aviation Assets other than W11326 however does not preclude the potential for archaeological remains to survive both *ex-* and *in situ* either within the proposed Dredge Areas or in the immediate vicinity (particularly where archaeological material along the margin of a Dredge Area may be uncovered and subsequently migrate into the Dredge Area).

5.3 Potential for Positive Impacts on Cultural Heritage

The UAIA has identified no direct or indirect impacts on known/recorded archaeological assets. However, should archaeological material be encountered during dredging operations, the potential importance and significance of a discovery may warrant further investigation and research. This creates potential for indirect positive impacts through raising awareness, allowing WCC to work with local communities to enhance the potential for positive benefits during the dredging campaign.

6 Recommended Mitigation Measures

6.1 Introduction

The following presents recommendations for mitigation measures in light of the results of the assessment of Likely Impacts and Significance of Effect presented in Section 5. The Mitigation Measures also follow the key principles that ensure that any archaeology and cultural heritage impacted by the proposed maintenance dredging are suitably protected, the key being Avoidance and the preservation of an asset *in situ* where possible.

6.2 Pre-Dredging

6.2.1 Archaeological Awareness Briefing

As part of the Protocols outlined in section 6.3.2 below, it is recommended that awareness training be delivered to relevant WCC personnel and contractors to make all aware of the nature of potential archaeological discoveries during dredging operations; the circumstances in which discoveries can be made, the different types of archaeological material that may be encountered, and how to deal with such discoveries appropriately.

6.2.2 Pre-Dredge Geophysical Survey

It is recommended that any proposed pre-dredge high frequency bathymetric survey and resultant data is assessed for archaeological purposes by a suitably qualified marine archaeologist in order to ascertain the presence of anomalies of archaeological potential.

6.3 During Dredging Operations

6.3.1 Archaeological Monitoring of Dredge Areas not previously Dredged

In line with the Conditions recommended by the UAU of the NMS, all areas not previously dredged should be monitored by a suitably qualified marine archaeologist in the event that archaeological material is encountered during dredging operations. It must be noted however, that given the dredging methods proposed (TSHD, WID, Plough) — monitoring alone will have limited capability in identifying archaeological material that is either exposed on the seabed or retrieved to the onboard hopper (as per TSHD method).

6.3.2 Protocols for Unexpected Archaeological Discoveries

Where monitoring is not in place during dredging operations, a Protocol should be implemented for the duration of the dredging campaign that allows all parties to understand their roles and responsibilities, and the processes and procedures to follow should unexpected archaeological material be encountered during dredging operations. An archaeological dive team will also be sourced

during operations should potential archaeological material require ground-truthing. It is important to note that the Protocol should not be seen as a standalone mitigation measure but rather a 'safety net' implemented as part of an overall Archaeological Mitigation Plan as per section 6.2.1.

6.3.3 Archaeological Exclusion Zones (AEZs)

If archaeological material is encountered on the seabed during dredging operations, all works will be suspended until the discovery has been fully assessed and the UAU have been consulted as to the appropriate action to be taken. If the material is found to be of archaeological interest/importance and can preferably remain *in situ*, with the approval of the UAU, the discovery will be furnished with an Archaeological Exclusion Zone (AEZ) within which no dredging operations will take place.

6.4 Post-Dredging

6.4.1 Post-dredge Geophysical Survey

It is recommended that any proposed post-dredge high frequency bathymetric survey and resultant data is assessed for archaeological purposes by a suitably qualified marine archaeologist in order to ascertain the presence of anomalies of archaeological potential that may have been exposed following the dredging operation.

The above measures are subject to the agreement of the UAU of the National Monuments Service. Please note that the local and statutory authorities may issue alternative or additional measures.

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Client Reports

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Appendix 1 Recorded wrecks in Wicklow Harbour on the WIID

Wreck Name	Wreck No.	Classification	Place of Loss	Date of Loss	Description
Brunette	W02326	Schooner	Wicklow Harbour	16/04/1899	48-ton, 24-year-old wooden schooner of Dublin. Owned by J. Phillips of Wicklow, master was P. Roche. En route from Garston to Wicklow, three crew, cargo of coal. Became stranded, totally lost during a NE force 4 wind.
Dove	W02334	Schooner	Wicklow, back of the pier	08/12/1868	Schooner of Chester ran ashore, sea was breaking over the vessel at the time of report.
Elaine/Helena	W02342	Brigantine	Wicklow Harbour, 3 miles N/ Coastguards Station S. of Five Mile Point Bay, Near	09/01/1883	The Elaine - initially reported in Lloyd's List as the Helena - 233-ton, 7-year-old wooden brigantine of Newport. Owned by R.D. Richards of Barmouth, master was Richard Jones. En route from Liverpool to Para with eight crew and a cargo of salt was totally wrecked on 9 January 1883 near the Coastguard Station S. of Five Mile Point Bay, during an E force 9 gale. Crew perished. Four bodies were subsequently recovered, including that of the master. Materials salvaged from the wreck were sold for £69 on 18 January 1883.
Eliza	W02344	Schooner	Wicklow Town, Co Wicklow	12/02/1861	Schooner of Maryport, four crew, cargo of coal. Became wrecked during a violent storm, two/three crew drowned.
Gypsy	W02358	Schooner	Wicklow Harbour	06/11/1921	The schooner Gipsey, of Belfast, en route from Dunmore to Connah's Quay in ballast, was stranded in Wicklow Harbour 6 November

Wreck Name	Wreck No.	Classification	Place of Loss	Date of Loss	Description
					1921. Became badly damaged, expected to become a total wreck. No casualties. Not listed in Friday casualty returns in Lloyd's List on 11 November 1921 and 18 November 1921.
Hale	W02359	Unknown	Wicklow Harbour, rocks S of	26/02/1841	Of Runcorn, became wrecked. Master was Evans. Crew, materials saved.
Janet	W02365	Brig	Wicklow Town, Co Wicklow, rocks S of the Black Castle	16/11/1787	Brig of Greenock, en route to Dublin, captain was David Kerr. Sank on the Dublin Bar, crew drowned. Vessel towed to Wicklow on 16th November, vessel drifted ashore, became totally wrecked. Hogheads of porter, masts, rigging, pumps 'etc' were saved from plunderers. Estimated loss was £3000.
John Morrison (SS)	W02367	Barquentine	Wicklow Head, 7.1 miles N, 53 05 00N, 05 59 30W	17/12/1925	UKHO wreck no. 009100076. Chart symbol wk 18.3 m. A 202-ton, 51-year-old steam barquentine of Dublin. Built by Tracy/Treacy of Arklow. Measured L. 105.6ft x B. 25ft x D. 12.4ft. En route from Waterford to Liverpool, cargo of pit props, timber. Struck bolts projecting from pier leaving Wicklow Harbour, damaged starboard side, vessel anchored and abandoned, sinking, between Wicklow Head and Mizen Head. Vessel reported floating broadside inside the Horse Shoe Buoy, Wicklow Head, sank off Wicklow Head 18 December 1925. On 30 December she was

Wreck Name	Wreck No.	Classification	Place of Loss	Date of Loss	Description
					reported towed to Kilcoil, but the waterlogged dismasted wreck was visible aground and showing 8 feet above water on 2 January 1926 (Wicklow Head bearing S. by W. 1 W. six miles). A mast, 12 ft long and thought to be from the John Morrison was washed up in Greystones on 16 January 1926. Formerly marked by a buoy. Irish Lights removed buoy after dispersing the wreck to 10 fathoms.
Kate	W02372	Unknown	Black Castle, rocks S of	26/02/1841	Wrecked en route from Runcorn to Wicklow.
Leeds	W02374	Schooner	Wicklow Harbour Light, 1 mile NNE	19/08/1909	82-ton, 52-year-old wooden schooner of Bidford. Official no. 18,250. En route from Glasgow to New Ross, four crew, 155 tonnes of coal. Caught fire at anchor, became a total loss on 20 August 1909. No lives lost.
Lorne	W02377	Schooner	Wicklow Harbour, 200 yards NNW of W pier	18/03/1911	Schooner of Arklow went ashore. Crew rescued by lifeboat. Vessel filled with water, first attempt to refloat the boat failed. information available on any further attempts to refloat the vessel.
New Draper	W02395	Brig	Wicklow Harbour, Back of the Pier	06/02/1861	The New Draper, wooden brig of Whitehaven went on shore at the back of Wicklow Pier on 6 February 1861. The Wicklow lifeboat rescued the crew of 8. The vessel was reported lifted and brought into Wicklow Harbour on 7 May 1861

Wreck Name	Wreck No.	Classification	Place of Loss	Date of Loss	Description
Patrick	W02398	Smack	Wicklow, Harbour	New 27/04/1856	12-ton, 30-year-old smack of Wicklow, cargo of limestone. Struck against the new harbour wall during a NE by E force 6 wind, became stranded, wrecked. One of two on board drowned.
Rowland Hill	W02409	Schooner	Black Castle, Wicklow / near Wicklow Head	06/02/1861	64-ton, 20-year-old schooner of Whitehaven, four crew, cargo of coal. Stranded, wrecked during an ENE force 10 wind at Black Castle on 6 February 1861. Master and one man drowned
Speedwell	W02418	Smack	Wicklow Town, Co Wicklow, outside the pier	24/12/1870	Smack of Dublin, master was Cuthbert. Grounded en route from Howth to Wicklow, cargo of limestone. Became a total wreck, crew saved.
William Gibson	A. W02433	Schooner	Glen Strand, ¾ miles south of Wicklow Harbour	26/09/1876	171-ton, 5-year-old wooden schooner of St. John's, New Brunswick. Owned by J. Gibson, master was G. McIntosh. En route from St. John to Wicklow, eight crew, cargo of deals. Became stranded, totally wrecked during an easterly force 8 gale. No lives lost.
Unknown	W02438	Boat	Black Castle, Wicklow	1355/1356	On the orders of the Council, Thomas Talbot, with all his boats laden with many 'men at arms', archers and foot-soldiers went to Wicklow Castle at night to attack Irish enemies from the sea. One boat, valued at £5, was blown against the 'stone bank below the castle and broke into tiny pieces'.
Why Not	W12561	Schooner	Wicklow Harbour	18/11/1905	We regret that we are unable to supply

Wreck Name	Wreck No.	Classification	Place of Loss	Date of Loss	Description
					descriptive details for this record at present.
Bangor (SS)	W14586	Steamship	Wicklow Harbour	31/01/1910	We regret that we are unable to supply descriptive details for this record at present.
Unknown	W16504	Unknown	Wicklow Harbour, entrance to	31/07/1886	We regret that we are unable to supply descriptive details for this record at present.
Lark	W16736	Yawl	Wicklow harbour, S of	15/09/1873	We regret that we are unable to supply descriptive details for this record at present.
Louisa	W17227	Schooner	Wicklow Harbour	02/12/1869	We regret that we are unable to supply descriptive details for this record at present.
Maria Jane	W17235	Smack	Wicklow Harbour, S pier	14/12/1912	We regret that we are unable to supply descriptive details for this record at present.
Unknown	W17333	Pilot boat	Wicklow Harbour, shore near	06/01/1881	We regret that we are unable to supply descriptive details for this record at present.
Mariner	W18154	Schooner	Wicklow Harbour	14/10/1866	We regret that we are unable to supply descriptive details for this record at present.

Appendix 2 Recorded SMR sites in proximity to Wicklow Harbour

Reference	Designation	Site Type	Townland	ITM East	ITM North	Distance ??
WI025-012- ---		Historic town	CORPORATION LANDS, GLEBE	731409	694022	
WI025- 012001-		Castle - motte	CORPORATION LAND (1st division)	731199	694367	
WI025- 012002-		Religious house - Franciscan friars	WICKLOW	731186	694074	
WI025- 012003-		Church	GLEBE (Newcastle By., Wicklow Urban ED) (Detached portion)	731240	694282	
WI025- 012004-		Graveyard	WICKLOW	731253	694267	
WI025- 012005-		Architectural feature	GLEBE (Newcastle By., Wicklow Urban ED) (Detached portion)	731221	694275	
WI025- 012006-		Font (present location)	GLEBE (Newcastle By., Wicklow Urban ED) (Detached portion)	731230	694288	
WI025- 012007-		Redundant record	GLEBE (Newcastle By., Wicklow Urban ED) (Detached portion)	731220	694289	
WI025- 012008-		Architectural fragment	GLEBE (Newcastle By., Wicklow Urban ED) (Detached portion)	731231	694284	
WI025- 012009-		Headstone	GLEBE (Newcastle By., Wicklow Urban ED) (Detached portion)	731238	694275	
WI025- 012010-		Headstone	GLEBE (Newcastle By., Wicklow Urban ED) (Detached portion)	731248	694274	

Reference	Designation	Site Type	Townland	ITM East	ITM North	Distance ??
WI025-012011-		Headstone	GLEBE (Newcastle By., Wicklow Urban ED) (Detached portion)	731252	694258	
WI025-012012-		Promontory fort - coastal	CORPORATION LANDS	732194	694069	
WI025-012015-		Excavation - miscellaneous	WICKLOW	731390	694098	
WI025-012016-		Habitation site	WICKLOW	731315	694115	
WI025-013- ---		Castle - Anglo- Norman masonry castle	CORPORATION LANDS	732231	694077	

Figures



Figure 1: Site location



Figure 2: Proposed dredging areas

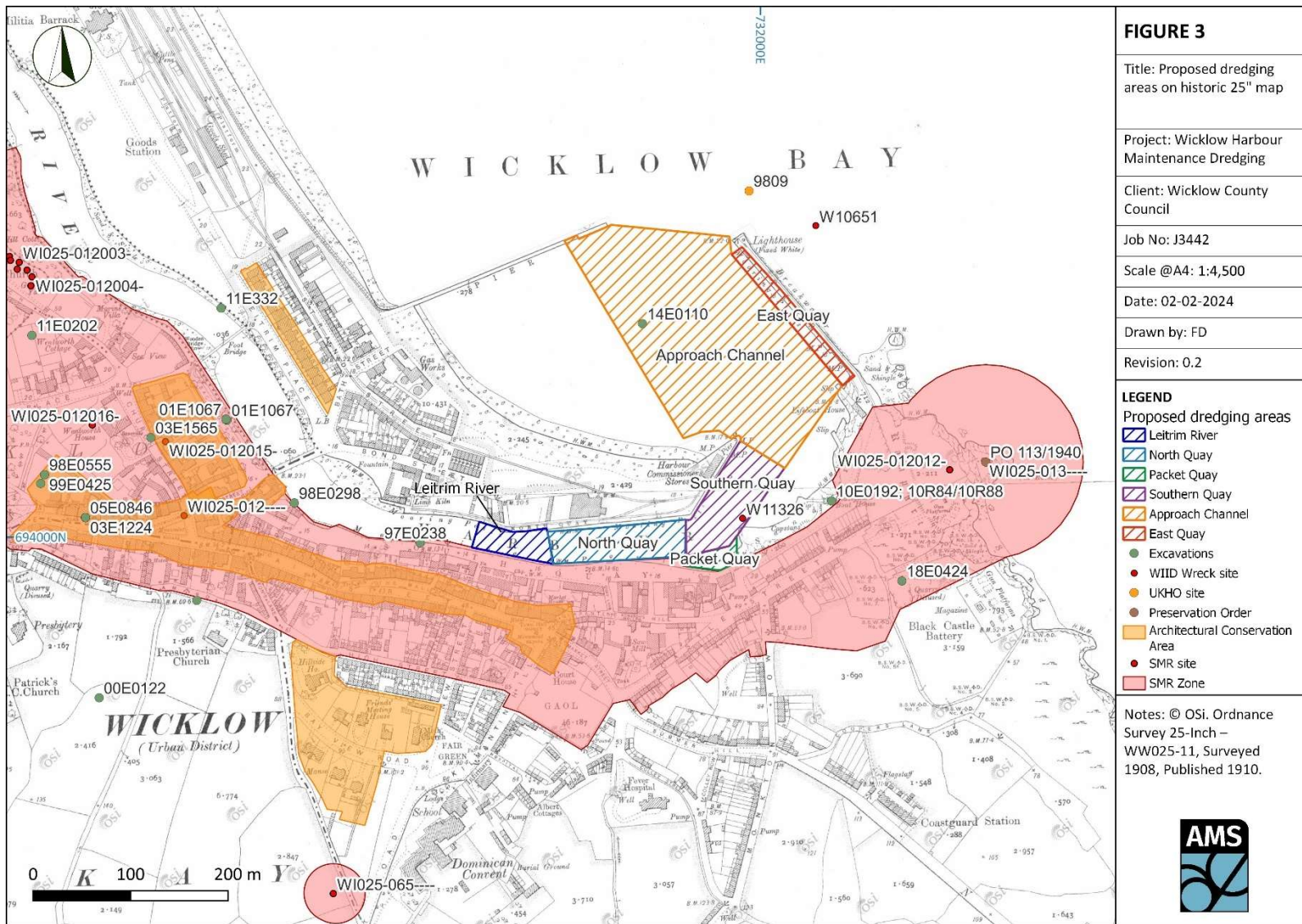


Figure 3: Proposed dredging areas on historical 25" map

Plates

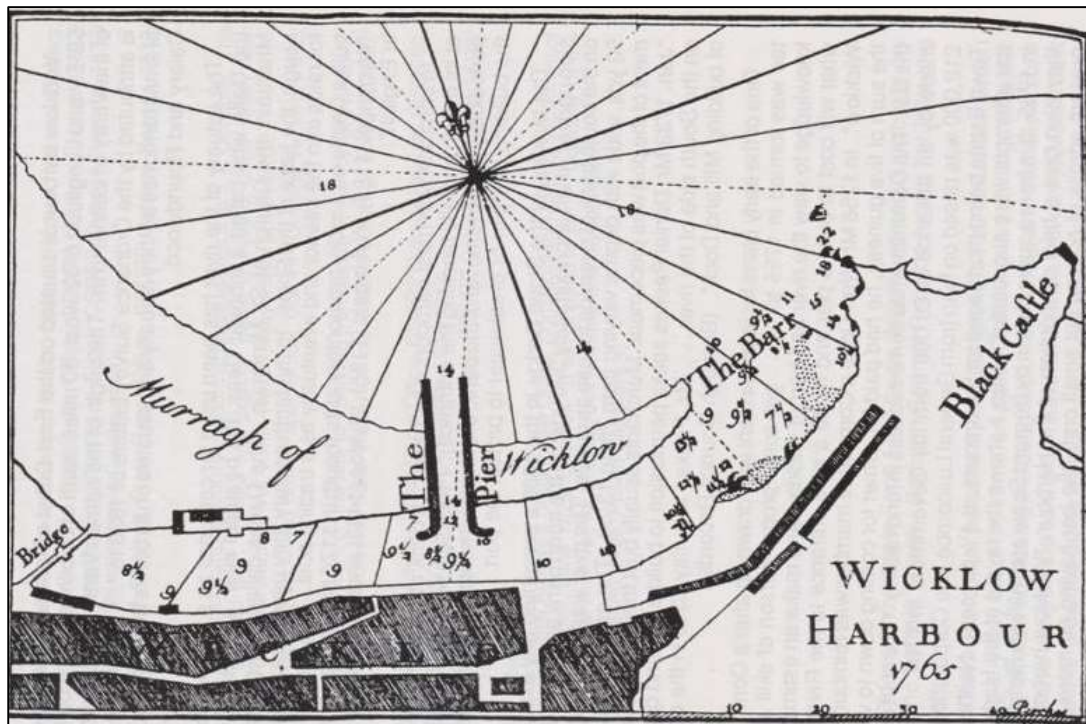


Plate 1: Wicklow Harbour c.1765

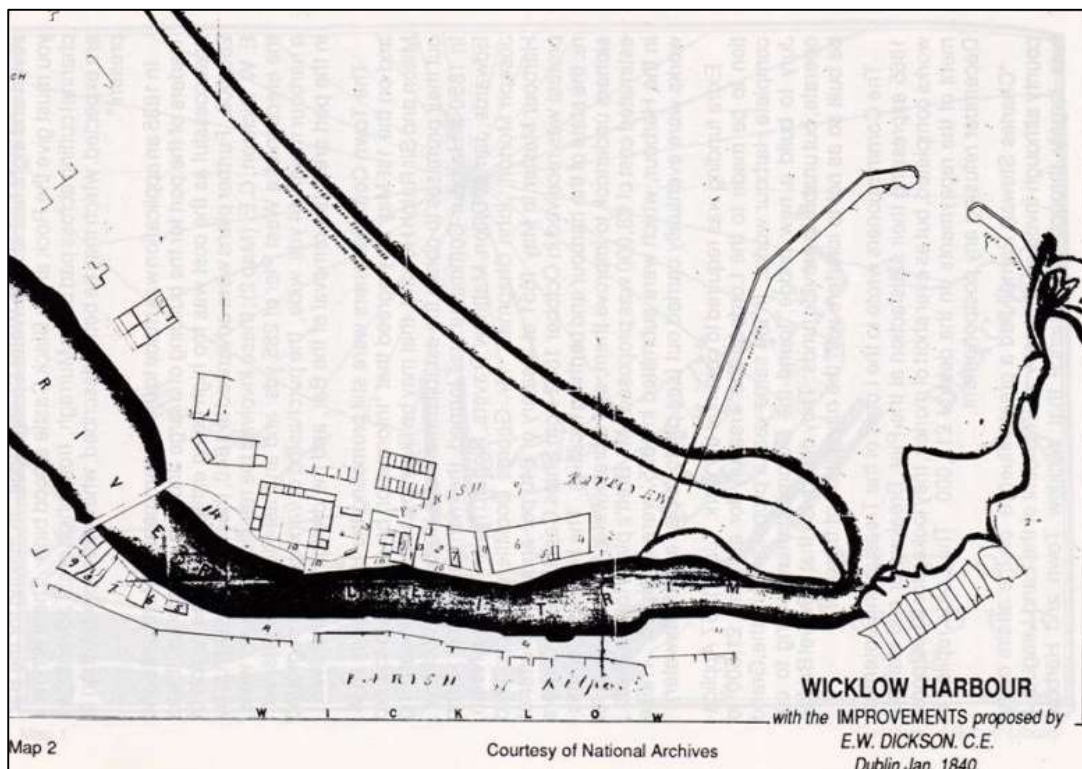


Plate 2: Wicklow Harbour January 1840. Both plates are available online here https://heritage.wicklowheritage.org/places/county_wicklow_historical_societies/wicklow_historical_society/1990_wicklow_historical_society_journal/wicklow_harbour (Accessed: 5 February 2024).