



Chapter 15
Archaeological
& Cultural Heritage

Contents

15. Archaeological & Cultural Heritage	1
15.1 Introduction.....	1
15.2 Methodology.....	1
15.2.1 Introduction.....	1
15.2.2 Study Area.....	3
15.2.3 Relevant Guidelines, Policy and Legislation.....	3
15.2.4 Data Collection and Collation.....	4
15.2.5 Appraisal Method for the Assessment of Impacts.....	5
15.3 Baseline Environment.....	7
15.3.1 Archaeological and Historical Background.....	7
15.3.2 Archaeological Heritage: Section 1 - Talbot Memorial Bridge to Tom Clarke East Link Bridge.....	26
15.3.3 Archaeological Heritage: Section 2 – Dodder Public Transport Opening Bridge (DPTOB).....	30
15.3.4 Archaeological Heritage: Section 3 - Tom Clarke East Link Bridge to Sean Moore Road.....	32
15.4 Potential Impacts.....	34
15.4.1 Characteristics of the Proposed Scheme.....	34
15.4.2 'Do Nothing' Scenario.....	34
15.4.3 Construction Phase.....	34
15.4.4 Operational Phase.....	44
15.5 Mitigation and Monitoring Measures.....	44
15.5.1 Construction Phase.....	44
15.5.2 Operational Phase.....	52
15.6 Residual Impacts.....	52
15.6.1 Construction Phase.....	52
15.6.2 Operational Phase.....	52
15.7 References.....	53

15. Archaeological & Cultural Heritage

15.1 Introduction

This Chapter of the Environmental Impact Assessment Report (EIAR) has considered the potential archaeological and cultural heritage impacts associated with the Construction and Operational Phases of the Ringsend to City Centre Core Bus Corridor Scheme (hereafter referred to as the Proposed Scheme).

During the Construction Phase, the potential archaeological and cultural heritage impacts associated with the development of the Proposed Scheme have been assessed. This included impacts on heritage assets, ground disturbance and degradation of the setting and amenity of heritage assets due to construction activities such as utility diversions, road resurfacing and road realignments.

During the Operational Phase, the potential archaeological and cultural heritage impacts associated with maintenance activities have been assessed.

The assessment has been carried out according to best practice and guidelines relating to archaeological and cultural heritage assessment, and in the context of similar large-scale infrastructural projects.

The aim of the Proposed Scheme, when in operation, is to provide enhanced walking, cycling and bus infrastructure on this key access corridor in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor. The objectives of the Proposed Scheme are described in Chapter 1 (Introduction). The Proposed Scheme which is described in Chapter 4 (Proposed Scheme Description) has been designed to meet these objectives.

The design of the Proposed Scheme has evolved through a comprehensive design iteration process with particular emphasis on minimising the potential for environmental impacts, where practicable, whilst ensuring the objectives of the Proposed Scheme are maintained. In addition, feedback received from the comprehensive consultation programme undertaken throughout the option selection and design development process has been incorporated, where appropriate.

15.2 Methodology

15.2.1 Introduction

The methodology was designed to provide a full understanding of the potential impact on archaeological and cultural heritage assets and on the character of the historic urban and residential streetscape and landscape. In so doing, it allowed the character of the immediate and wider historic environment to be described and facilitated the identification of individual heritage assets and locations where there is the potential to reveal subsurface archaeological features.

15.2.1.1 Defining Archaeology and Cultural Heritage

For the purpose of this Chapter the following definition from the Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) (now the Department of Housing, Local Government and Heritage (DHLGH)) Framework and Principles for the Protection of the Archaeological Heritage is applied for archaeology (DAHGI 1999):

'the study of past societies through material remains left by those societies and the evidence of their environment. The 'archaeological heritage' consists of such material remains (whether in the form of sites and monuments or artefacts in the sense of moveable objects) and environmental evidence'.

Cultural heritage as set out in the Environmental Protection Agency (EPA) Guidelines on Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the EPA Guidelines) (EPA 2022) includes archaeology, architectural heritage, folklore and history. It is a broad term that includes a wide range of tangible and intangible cultural considerations. Cultural heritage can relate to settlements, former

designed landscapes, buildings and structures, folklore, townland and place names, and historical events, as well as traditions (e.g. mass paths and pilgrim ways) and traditional practices (e.g. saints' pattern days).

Cultural heritage is part of our cultural identity and contributes to defining a sense of place. The value of a strong sense of place is likely to become more important as the world grows increasingly homogenised. Recognising the unique sense of place in our towns, villages and city, whilst also respecting the individual heritage assets, is critical.

Cultural heritage assets are valued for the important contribution they make to the understanding of the history of a place, an event or people. Sites of cultural heritage interest are often afforded protection either as recorded archaeological monuments (on the Record of Monuments and Places (RMP) / Sites and Monuments Record (SMR)) or as protected structures (on the Record of Protected Structures (RPS) in the relevant City or County Development Plan), or as structures within the National Inventory of Architectural Heritage (NIAH).

Each of these provides a unique cultural record and acts as a carrier of memory, meaning and cultural value. When considered in its wider context, they can form an essential component in the mechanism for analysing the broader cultural character and context of an area. Together, these can assist in mapping the changes that have led to the development of the modern environment. Such analysis provides insight into the communication, trade, transport, growth and associations of past societies.

There are numerous cultural heritage features that contribute to character, identity, and authenticity of Dublin City and its wider environs. These include the street plan, local architectural and archaeological monuments, the form of buildings and spaces, civic buildings within set pieces of urban design, the unique Georgian squares and streets, together with the larger areas of Victorian and Edwardian architecture north and south of the canals, and the industrial buildings and other cultural heritage sites. This unique historic character was identified and recorded throughout the EIAR process by the relevant specialists in the EIAR team (Chapter 16 (Architectural Heritage) / Chapter 17 (Landscape (Townscape) & Visual)). By identifying, recording and articulating these sensitive cultural heritage values, they can be considered, respected and protected in the context of change in the future.

Remnants of Dublin's industrial heritage can be found throughout Dublin City and its wider environs (e.g. the canals, tramlines and railways, mill buildings and mill races, breweries and factories of the 18th and 19th centuries), some of it upstanding, the rest possibly surviving below-ground. Many of Dublin's streets and roads also contain historic street furniture, such as limestone and granite kerb stones, cobblestones, cast-iron post boxes, water pumps, milestones, coal-hole covers, street lighting, statues, water troughs, railings, and protective bollards. These features all contribute to the present-day character and uniqueness of an area by reflecting its historic past and are assessed as part of the historic streetscape within Chapter 16 (Architectural Heritage).

15.2.1.2 Approach

Recognising our unique sense of place in our urban and suburban environments, while respecting the individual heritage assets was a key consideration during the development of the EIAR. A historic landscape character (HLC) approach was undertaken where not only individual heritage assets were assessed but also how they present in the landscape, their connectivity and their relationship to other heritage features. These were analysed through mapping, documentary sources and site inspection.

By using different information sources and data sets, an understanding of the historic landscape character that surrounds and is part of the Proposed Scheme has been developed. The modern landscape is a result of numerous modifications over time. Understanding how these processes occur, and how they are represented in today's urban and suburban landscape, is critical in providing an insight into the layering and development of the cultural heritage environment. It also facilitates an appreciation of an area's unique character. The process is concerned with identifying the dominant historic influences which have formed and define the present landscape. By using existing data sets such as the RPS, RMP, NIAH for example, through the use of GIS and CAD, dominant clusters of monuments, buildings and cultural heritage features begin to emerge.

Where sites are designated architectural heritage assets (NIAH / RPS), they are addressed in detail in Chapter 16 (Architectural Heritage). Where such sites are also RMP / SMR sites, they are assessed both in this Chapter and in Chapter 16 (Architectural Heritage).

Upstanding industrial heritage sites and examples of cultural heritage such as historic street furniture are discussed in Chapter 16 (Architectural Heritage). Those sites which may survive below-ground are assessed in this Chapter, as potential archaeological sites.

Where cultural heritage assets are of interest from an archaeological, historical, or cultural interest, as well as from an architectural heritage perspective, these are assessed both in this Chapter and in Chapter 16 (Architectural Heritage).

Appendices associated with this Chapter are detailed in Volume 4 of this EIAR and contain the following information:

- Appendix A15.1 – Previous Archaeological Investigations in the Vicinity of the Proposed Scheme;
- Appendix A15.2 – Inventory of Archaeological and Cultural Heritage Sites;
- Appendix A15.3 – Glossary of Impacts and Assessment Methodology;
- Appendix A15.4 – Relevant Extracts from City Development Plan;
- Appendix A15.5 – Underwater Archaeological Impact Assessment (UAIA) Dodder Public Transport Opening Bridge Project, River Dodder / River Liffey, Dublin City (ADCO 2020); and
- Appendix A15.6 – UAIA BusConnects Dublin –Bus Connects Project Proposed Boardwalks Custom House Quay and North Wall Quay, River Liffey (ADCO 2021).

15.2.2 Study Area

The area examined for this study includes the full extent of the Proposed Scheme corridor. In order to inform the likely significant impacts from an archaeological and cultural heritage perspective, a study area measuring 50m on either side of the red line boundary for the Proposed Scheme was established (refer to Figure 15.1 in Volume 3 of this EIAR). This approach is tailored to the urban and suburban streetscape and is the accepted best practice for linear infrastructural projects in built-up areas. The study area was assessed in order to identify known and recorded archaeological and cultural heritage assets within it.

The study area was wide enough to assess the immediate archaeological and cultural heritage potential of the Proposed Scheme. Professional judgement was used to determine where the study area should be extended to consider archaeological sites / monuments or historic structures that lie beyond its boundaries. As required and where appropriate, the relationship of structures, sites, monuments, and complexes that fall outside this study area were considered and evaluated. The wider landscape or urban streetscape was also considered, to provide an archaeological and historical context for the Proposed Scheme.

For historic towns and villages that have a designated zone of archaeological potential (ZAP) on the published RMP maps (Dúchas The Heritage Service 1998), these areas were considered in addition to the point data from the online Historic Environment Viewer (HEV) provided by the National Monuments Service (NMS) (NMS 2020).

15.2.3 Relevant Guidelines, Policy and Legislation

The study was informed by relevant legislation, guidelines, policy and advice notes, as listed below and in Section 15.2.4. Relevant extracts from the Dublin City Council (DCC) Dublin City Development Plan 2022 – 2028 (hereafter referred to as the Dublin City Development Plan) (DCC 2022) are contained in Appendix A15.4 Relevant Extracts from City Development Plans in Volume 4 of this EIAR.

- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999;
- Code of Practice for Archaeology agreed between the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs and Transport Infrastructure Ireland (TII) (National Monuments Service 2017);
- Convention for the Protection of the Architectural Heritage of Europe (ratified by Ireland 1997), ‘Granada Convention’ (Council of Europe 1985);
- European Convention on the Protection of the Archaeological Heritage (ratified by Ireland 1992), ‘Valletta Convention’ (Council of Europe 1992);
- Framework Convention on the Value of Cultural Heritage for Society, ‘Faro Convention’ (Council of Europe 2005);

- Framework and Principles for the Protection of the Archaeological Heritage (DAHGI 1999);
- EPA Guidelines (EPA 2022);
- Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission 2017);
- Heritage Act, 1995 (as amended);
- The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) (Historic England (2017));
- Guidance on Heritage Impact Assessments for Cultural Heritage World Heritage Properties (ICOMOS 2011);
- Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas (ICOMOS 2005);
- National Monuments Act, 1930 to 2014;
- National Roads Authority (NRA) Guidelines for the Assessment of Archaeological Heritage Impact of National Road Schemes (NRA 2005);
- Planning and Development Act 2000 (as amended);
- Historic Landscape Characterisation in Ireland: Best Practice Guidance (The Heritage Council 2013);
- The UNESCO World Heritage Convention, 1972; and
- The Heritage Ireland 2030 (Plan) (Government of Ireland, 2022).

15.2.4 Data Collection and Collation

A detailed evaluation of the archaeological and cultural heritage resource took place, comprising of a desk study of published and unpublished documentary and cartographic sources, supported by a field survey.

15.2.4.1 Desk Study

The desk study availed of the following sources:

- The National Monuments, Preservation Orders and Register of Historic Monuments lists, sourced directly from the DHLGH;
- RMP and SMR: The SMR, as revised in the light of fieldwork, formed the basis for the establishment of the statutory RMP in 1994 (RMP; pursuant to Section 12 of the National Monuments (Amendment) Act, as amended 1994). The RMP records include upstanding archaeological monuments, their original location (in cases of destroyed monuments) and the position of possible sites identified as cropmarks on vertical aerial photographs. The information held in the RMP files is read in conjunction with published constraint maps. Archaeological sites identified since 1994 have been added to the non-statutory SMR database of the Archaeological Survey of Ireland (NMS, DHLGH), which is available online (NMS 2020) and includes both RMP and SMR sites. Those sites designated as SMR sites have not yet been added to the statutory record, but are scheduled for inclusion in the next revision of the RMP;
- The topographical files of the National Museum of Ireland (NMI 2020);
- Cartographic sources, comprising pre-19th century historic maps and various editions of the Ordnance Survey (OS) six-inch maps, 25-inch maps and five-foot plans;
- Excavations Bulletins and Excavations Database (Excavations 1970 to 2020);
- Dublin County Archaeology GIS (The Heritage Council 2015);
- Dublin City Council (DCC) Dublin City Development Plan 2022-2028 (DCC 2022);
- Conservation Plan Dublin City Walls and Defences (DCC 2004);
- DCC Draft Strategic Heritage Plan 2023 – 2028 (DCC 2023);
- NIAH, Building Survey and Garden Survey, DHLGH (NIAH 2020);
- Dublin City Industrial Heritage Record (DCIHR) (DCC 2003 to 2009);
- Placenames Database of Ireland (Logainm 2020);
- Aerial imagery online: Google Earth 2001 to 2018 (Google Earth Pro 2001 to 2018), Bing 2013 (Bing 2020) and Ordnance Survey Ireland (OSI) 1995; 2000; 2005 to 2012 (OSI 2020); and

- Other documentary sources (as listed in Section 15.7).

15.2.4.2 Field Survey

A walkover survey was undertaken along the extent of the Proposed Scheme, including offline elements on 27 February 2020 and 2 June 2021. Recorded archaeological sites or monuments within the study area (and relevant monuments based on professional judgement outside of it) were inspected. The survey also took cognisance of upstanding industrial heritage sites listed in the DCIHR (DCC 2003 to 2009) that are situated within or adjacent to the Proposed Scheme. It also sought to identify any potential archaeological sites, as well as features of industrial or cultural heritage interest within the study area for the Proposed Scheme that contribute to the historic character of the area.

15.2.4.3 Mapping

The locations for all archaeological and cultural heritage assets identified in the course of the assessment have been mapped and are shown on Figure 15.1 in Volume 3 of this EIAR. The coordinates for each asset are provided in Irish Transverse Mercator (ITM) in the Inventory of Archaeological and Cultural Heritage Sites in Appendix A15.2 in Volume 4 of this EIAR.

15.2.5 Appraisal Method for the Assessment of Impacts

Archaeological and cultural heritage sites are considered to be a non-renewable resource and cultural heritage material assets are generally considered to be location sensitive. In this context, any change to their environment, such as construction activity and ground disturbance works, could adversely affect these sites. The likely significance of all impacts is determined in consideration of the magnitude of the impact and the baseline rating upon which the impact has an effect (i.e. the sensitivity or value of the cultural heritage asset). Having assessed the potential magnitude of impact with respect to the sensitivity / value of the asset (Table 15.1, Table 15.2 and Image 15.1), the overall significance of the effect is then classified as Not Significant, Imperceptible, Slight, Moderate, Significant, Very Significant, or Profound (Table 15.3).

A glossary of impact assessment terms, including the criteria for the assessment of impact significance, is contained in Appendix A15.3 Glossary of Impacts and Assessment Methodology in Volume 4 of this EIAR.

Table 15.1: Significance / Sensitivity Criteria

Sensitivity / Significance	Criteria
High	Sites of international significance: World Heritage Sites. National Monuments. Protected Structures (assessed by the NIAH to be of international and national importance), where these are also National Monuments. Undesignated archaeological and cultural heritage sites.
Medium	Recorded Monuments (RMP sites & SMR sites scheduled for inclusion in the next revision of the RMP) Protected Structures / NIAH sites (assessed by the NIAH to be of regional importance), where these are also Recorded Monuments. Newly identified archaeological sites, confirmed through archaeological investigation, to be added to the SMR. Undesignated archaeological and cultural heritage sites.
Low	Sites listed in the Dublin City Industrial Heritage Record (DCIHR) and National Inventory of Architectural Heritage (NIAH) Building for which there are no upstanding remains. Undisturbed greenfield areas and riverine environs, which have an inherent archaeological potential. Undesignated archaeological and cultural heritage sites.
Negligible	Assets with very little or no surviving archaeological and / or cultural heritage interest.

Table 15.2: Magnitude of Impact Criteria

Impact Magnitude	Criteria
High	These impacts arise where an archaeological / cultural heritage asset is completely and irreversibly destroyed by a proposed development. A change such that the value of the asset is totally altered or destroyed, leading to a complete loss of character, integrity and data about the site.

Impact Magnitude	Criteria
Medium	<p>An impact which, by its magnitude, duration or intensity alters an important / significant aspect of the environment. An impact like this would be where an archaeological / cultural heritage asset would be impacted upon leading to a significant loss of character, integrity and data about the site.</p> <p>Or an impact which by its magnitude results in the partial loss of a historic structure (including fabric loss or alteration) or grounds including the part removal of buildings or features or part removal of demesne land (e.g. severance, visual intrusion or degradation of setting and amenity).</p> <p>A permanent positive impact that enhances or restores the character and / or setting of a cultural heritage site or upstanding archaeological heritage site in a clearly noticeable manner.</p>
Low	<p>A low impact arises where a change to the site is proposed which though noticeable is not such that the archaeological / cultural heritage character / integrity of the site is significantly compromised, and where there is no significant loss of data about the site.</p> <p>A positive impact that results in partial enhancement of the character and / or setting of a cultural heritage site or upstanding archaeological heritage site in the medium to long-term.</p>
Negligible	<p>An impact which causes very minor changes in the character of the environment and does not directly impact an archaeological / cultural heritage asset or affect the appreciation or significance of the asset. There would be very minor changes to the character and integrity of the asset and no loss of data about the site.</p>

Table 15.3: Defining Significance of Impacts

Impact	Definition
Imperceptible	An impact capable of measurement but without noticeable consequences.
Not Significant	An impact which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An impact which causes minor changes in the character of the environment and does not affect an archaeological / cultural heritage asset in a moderate or significant manner.
Moderate	A moderate impact arises where a change to the site is proposed which though noticeable, does not lead to a significant loss of character, integrity and data about the archaeological / cultural heritage asset.
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 or all of a site would be permanently impacted upon, leading to a significant loss of character, integrity and data about the archaeological / cultural heritage asset.
Very Significant	An impact which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	Applies where mitigation would be unlikely to remove adverse impacts. Reserved for adverse, negative impacts only. These impacts arise where an archaeological / cultural heritage asset is completely and irreversibly destroyed by a proposed development.

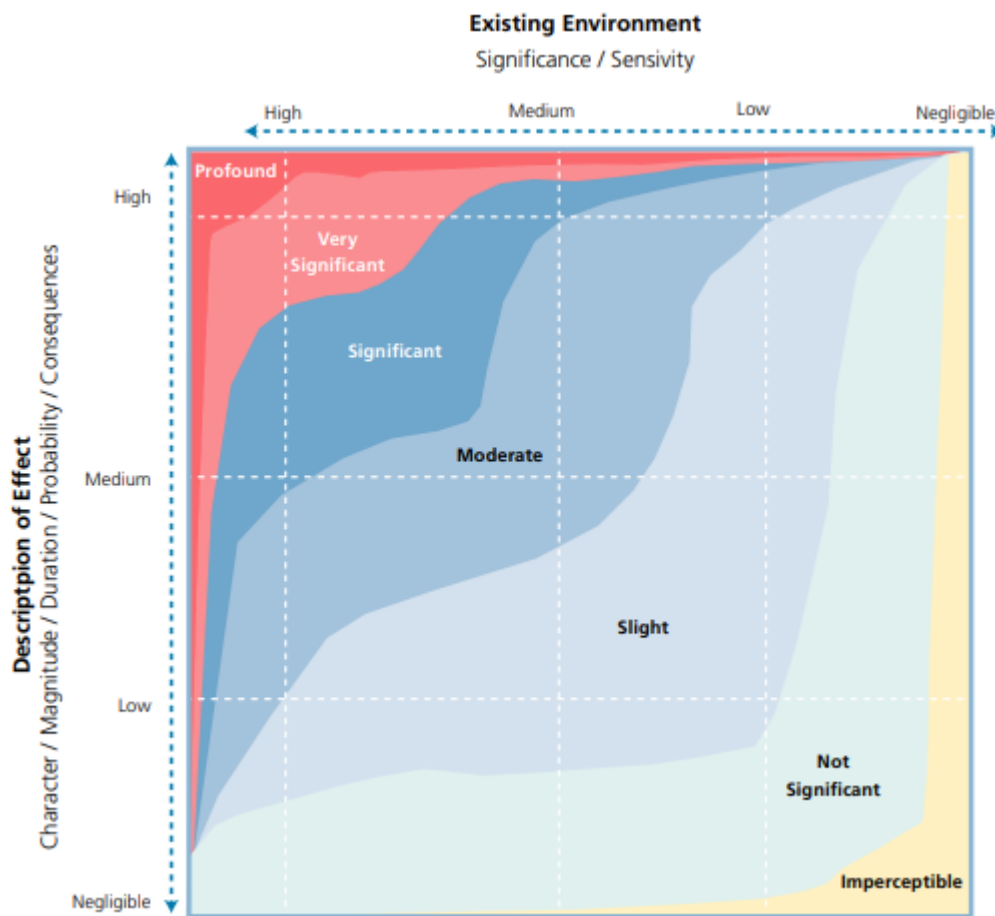


Image 15.1: Figure 3.4 Chart Showing Typical Classifications of the Significance of Effects, from the EPA Guidelines on Information to be Contained in EIAR (EPA 2022)

15.3 Baseline Environment

15.3.1 Archaeological and Historical Background

15.3.1.1 Introduction

Apart from fragmentary remains of prehistoric shoreline activity (discussed below), the archaeological and historical background of the area commences in the post-medieval period with the major reclamation project along the River Liffey in the late 17th and 18th centuries. The eastern expansion into what were formerly flood plains until the 17th century developed particularly in the 18th and 19th centuries but continued into the 20th century. The north side of the river is notable for its industrial development and later usage, which is characterised by the construction initially of the Royal Canal in the late 18th century and the subsequent development and expansion of the railway in the 19th century and associated port activity on the north docks. On the south side of the river, the focus of building and commercial enterprises was largely associated with the maritime industry, with the Grand Canal Dock project at the end of the 18th century proving less than successful.

The Proposed Scheme will extend over the confluence of the River Liffey and the River Dodder at Britain Quay and will continue along the edges of the historic settlements of Irishtown (DU018-053) and Ringsend (DU018-054).

15.3.1.2 The River Liffey Valley in the Prehistoric Period

The Mesolithic period (c. 8000 to 4000 BC) in Ireland was characterised by hunter-gatherers, preceding the introduction of farming that occurred during the Neolithic period (c. 4000 to 2500 BC). Evidence for Mesolithic activity indicates a strong preference for riverine and coastal areas. In the Greater Dublin Area, for example, large numbers of Mesolithic tools have been recovered from the Malahide and Rogerstown estuaries. Middens are also recorded at Sutton to the north of Dublin Bay and at Dalkey Island to the south. Evidence for activity in the vicinity of rivers, the sea and indeed lakes probably reflects the importance of fish in the diet of Mesolithic people, a trend observed in other European countries. Furthermore, given the absence of the large mammals hunted in mainland Europe, it is even more likely that fish and fowl were important sources of meat in Mesolithic Ireland.

There is very little evidence for prehistoric activity in the Dublin City area, although a number of artefacts recovered from excavations indicate a prehistoric presence on and around the banks of the River Liffey. The most significant evidence for such activity along the River Liffey was revealed during archaeological investigations preceding the construction of the National Convention Centre at Spencer Dock on North Wall Quay (Image 15.2). The material uncovered had been sealed beneath 18th century reclamation deposits and post-medieval structural remains and was located at the southern end of the site (near North Wall Quay), in an area formerly occupied by the River Liffey Estuary (McQuade, Excavations 2003:0576, Licence 03E0654; Myles & McQuade, Excavations 2006:634 & 2007:494, Licence 06E0668). See Appendix A15.1 Previous Archaeological Investigations in the Vicinity of the Proposed Scheme in Volume 4 of this EIAR for more details.

The excavations revealed evidence relating to prehistoric riverine activity in the silts which had accumulated to the south of the former shoreline of the Liffey (c. 13m to 16m north of North Wall Quay). This included the discovery in 2006 / 2007 of Late Mesolithic fish trap remains (radiocarbon dated to 6000 to 5840 BC) and a mid-Neolithic wattle fence (which was probably also part of a fish trap structure) and dated to 5980 to 5760 BC located at depths of -5m OD (Ordnance Datum) and c -4.66m OD respectively (McQuade 2007).

The Late Mesolithic fish traps excavated in 2006 / 2007 are similar to the very well-preserved archaeological remains of up to five finely woven wooden fish traps of Late Mesolithic date (6100 to 5720 BC) identified in 2003 / 2004 on the adjacent site to the east. The wooden remains were preserved in the silt deposit, with the activity concentrated c. 1.2m to 1.3m to the south of the early shoreline of the River Liffey and in the estuarine waters to the south at an average depth of -5m OD (McQuade 2005).

The discovery of the first fish traps was of international significance as they were the earliest dated examples recorded in either Ireland or the United Kingdom (UK). They provided the first definitive evidence for the use of fish traps in Ireland during the Mesolithic period. The subsequent discovery of another Late Mesolithic fish trap nearby illustrates that the Late Mesolithic population of the Dublin area was, over a period of up to 200 years, fishing along a 70m stretch of the Liffey intertidal zone in the area currently known as Spencer Dock. The remains of the large wooden Middle Neolithic fish trap further indicates that several millennia later, the occupants of the surrounding area were once again fishing along this part of the Liffey Estuary (McQuade 2007). Although no evidence for prehistoric settlement was uncovered at the site, the people who constructed and used the fish traps must have been living nearby.



Image 15.2: Aerial Photograph Showing Location of Prehistoric Activity Identified at Spencer Dock (OSI 2020)

There is tantalising evidence of further waterlogged wooden remains of possible prehistoric date to the north-east (Image 15.2), though unfortunately no radiocarbon dates are available. They were uncovered during archaeological monitoring of bulk excavations by Archaeological Development Services (ADS) Ltd in 2011 / 2012 in advance of the planned North Lotts pumping station. The remains comprised of two clusters of horizontal brushwoods that were identified in the sandy silt deposit at levels of between -1.39m OD and -1.43m OD, which is significantly closer to present ground level than the remains found on the National Convention Centre site. The arrangement of the surviving wood pieces did not retain the original form of the structures from which they came. In addition, there were no in-situ pegs and none of the pieces could be described as stakes. Nonetheless, the remains may represent parts of larger structures, possibly fish-traps that had been damaged and displaced by the tide (McQuade 2012; Licence 09E0375). All of the remains were preserved by record by means of archaeological excavation (McQuade 2012).

15.3.1.3 The Development of the Quays

The primary source for the post-medieval history of the area is the Calendar of Ancient Records of Dublin (CARD), the earlier volumes of which were compiled by Sir John Gilbert in the last decade of the 19th century (Gilbert 1889 to 1944). The CARD volumes record the activities of the Municipal Corporation of Dublin and, from 1708 onwards, the Ballast Office, which elected its committee of directors from the City Assembly. The other historical sources used are primarily cartographic in nature. They include the 'Map of the Strand on the North Side of the Channel of the Liffey' of 1717 (known as 'Bolton's Map' (see Image 15.15)), a pictorial representation of the notionally reclaimed area drawn up by J. Macklin during the mayoralty of Thomas Bolton and later maps drawn up for the Wide Streets Commissioners (WSC) (Macklin 1717). Other maps consulted were Bernard de Gomme's 'The city

and suburbs of Dublin, 1673' (Lennon 2008); Charles Brooking's 'A map of the city and suburbs of Dublin', which also contains 'A Prospect of the city from the North' (1728) John Rocque's 'Plan of the city of Dublin and the environs of 1757' (his better-known Exact survey of the city and suburbs of Dublin published in 1756 covers only part of North Wall Quay) (Ferguson 1998); John Taylor's 'Map of the Environs of Dublin' (1816) (Taylor 1816); the 'Modern plan of the city and environs of Dublin', including the Grand and Royal Canals, new docks, etc., published in Wilson's Dublin Directory in 1798 (Wilson 1798); and various editions of the 19th and early 20th century OS maps (OSI 2020; UCD 2020).

The relatively settled state of Ireland after the succession of James II (r. 1685 to 1688) acted as a catalyst to the continued expansion of urban centres beyond the medieval walls. New ground for building was required to ease the accommodation situation within the city of Dublin, and this coincided with the necessity of keeping the harbour open to shipping. At this time, anyone trying to enter Dublin had to navigate the treacherous and unpredictable sandbanks at the mouth of the River Liffey. These hazards were created by the confluence of the River Dodder on the southside and the River Tolka on the northside as untold numbers of vessels had run aground upon these banks. Three huge restraining walls were created on the north (North Wall) and south shores (South Wall), with a third wall to the city's north-east that would restrain the River Tolka (North Bull Wall).

A map of Dublin Harbour produced by Bernard de Gomme in November 1673 depicts the city and harbour in the period immediately prior to the reclamation of the slob lands. The map shows the sand bank and treacherous shallow channels of the Liffey, where areas of mud may have been exposed at spring tides. The shoreline north of the river roughly follows the line of the present Amiens Street / North Stand Road. To the south, the '*Road to Donnybrook*' from Lazy Hill (now known as Townsend Street) curved south / south-east along the coast, skirting the broad strand south of the main River Liffey channel and west of the River Dodder and its tributaries. De Gomme marks this area as being '*Dry at ½ Ebb*' and until the building of the South Wall and quays, the land was effectively slobland; although it was possible to cross on foot when the tide was out. The only reliable routes to Ringsend were by sea or by following the coast road around to the peninsula and crossing by a bridge marked much further south on the River Dodder (at Ballsbridge).

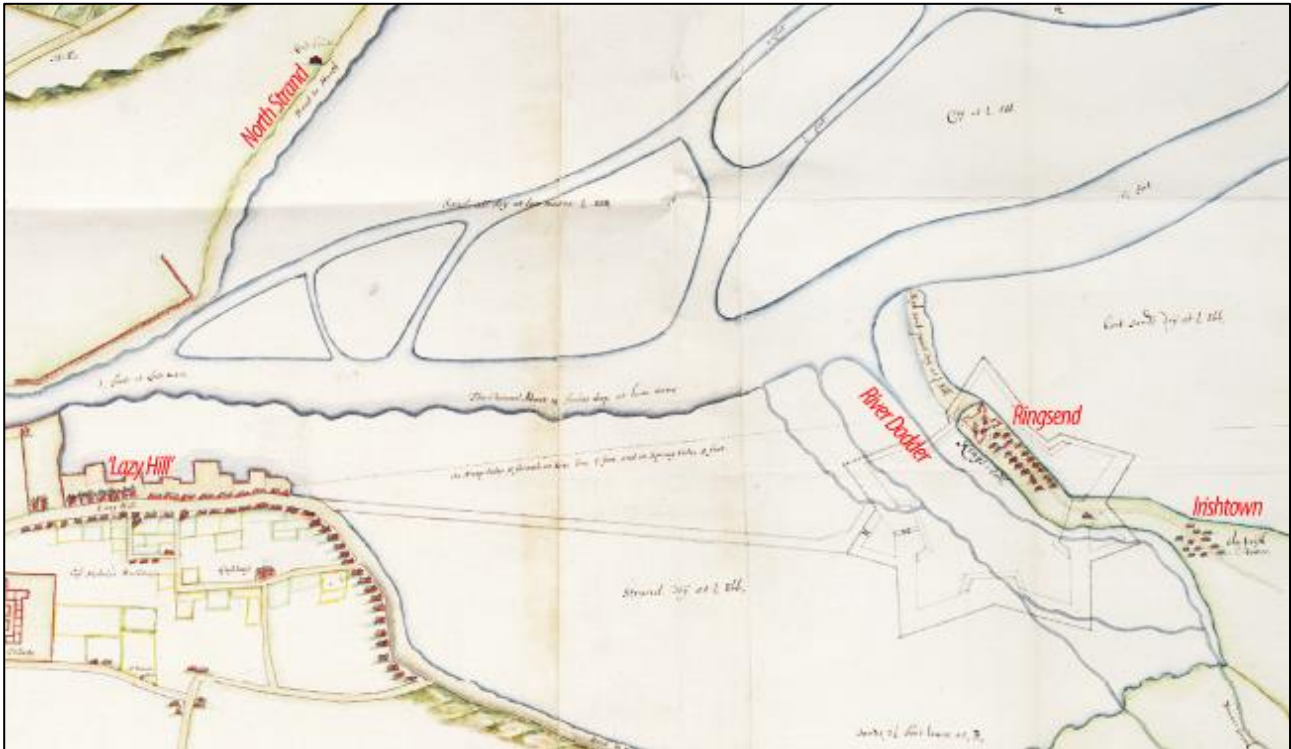


Image 15.3: De Gomme's Map of Dublin Harbour, 1673 (Lennon 2008)

15.3.1.4 Southside of the River Liffey

The earliest map of Dublin, by John Speed (1610), shows that the city was centred around Dublin Castle, with Trinity College situated within a few hundred metres of the River Liffey delta. The period leading up to the Confederate Wars of the 1640s saw interest grow in the financial possibilities of reclamation work along the southside of the river. This is reflected in the number of disputes between the City Assembly and prominent property speculators of the day. While reclamation work initially focused on the opening of a direct and secure route to Ringsend, the need for a secure harbour to advance the interest of the city's merchants and traders became paramount. William Hawkins' construction of a wall along the River Liffey as far as the present-day Townsend Street in 1662 to 1663 was a significant start but had an unforeseen adverse effect on the northern side of the river, where the force of the incoming tide would redirect the flow, causing the formation of sand banks and shallow streams that were even more hazardous to shipping (CARD vi, 402, in Gilbert 1889 to 1944).

The Corporation for Preserving and Improving The Port of Dublin, subsequently known as the Ballast Office, was established in 1707. A committee of directors was appointed by the City Assembly and was responsible for the management, maintenance and development of the port, the quay walls and the bridge structures of the River Liffey. Work started in the North Wall area in 1710, but as the quay on the northside was being erected, Alderman Sir John Rogerson was building a quay on the southern bank of the River Liffey. Sir John Rogerson, a former lord mayor (1693) and Member of Parliament, secured a fee farm grant of 133 acres of the South Strand in 1713 and commenced reclamation, beginning at Creighton Street (between Hanover Street and City Quay) and extending to Ringsend. The wall and quay were built quickly, and, by 1729, the river was embanked almost to Ringsend. Developing the land behind the quay wall was slow however, possibly due to the doubtful concerns regarding its commercial value (De Courcy 1996).

The embankment of the southside of the river was conducted to prepare the area for the South Lotts project, when the walling of City Quay was nearing completion, David La Touche bought from the city the newly made ground behind it. In 1723, the land reverted to the city, which laid out two streets running north / south and another east / west (the two north / south streets were the modern Princes Street South and Lombard Street East) from which 51 lots were placed fronting onto the river and leased. These were the original South Lotts, the name of which came to be applied to a much larger area that stretched eastward to incorporate the South Strand.

In 1715, the city undertook the task of embanking the River Liffey eastward from Moss Street along the southside of its channel to create what is now known as City Quay. The quay was to develop in parallel with George's Quay as a busy shipping area in the 18th and 19th centuries; the latter is recorded as having become an important link in the cross-channel passenger trade, whether as a direct berthing place or as a terminal for ferries bringing passengers upriver from primary landing places at and below Ringsend. Such notables mentioned as arriving at George's Quay include Dean Swift in 1723 and G. F. Handel in 1741. Little use was made of the name 'City Quay' at the time, however, and on both Rocque's (1756) and Harris's (1766) maps, Sir John Rogerson's Quay is connected directly with George's Quay (Hammond 1943; De Courcy 1996).

Brooking's map of Dublin, published in 1728, shows 'Sr John Rogerson's Key' [sic], with the continuation of the quay unnamed as far as Ringsend (Image 15.4). There is no detail in the area south of the quay wall. It is likely that the land was still prone to water logging, as the corresponding area on the northern side of the river is marked '*This Part is Walled in but as yet overflow'd by ye Tide.*' The 'Prospect of the City' that accompanies Brooking's map shows houses along Sir John Rogerson's Quay and Ringsend and what appears to be a damp or flooded area behind the quay wall.

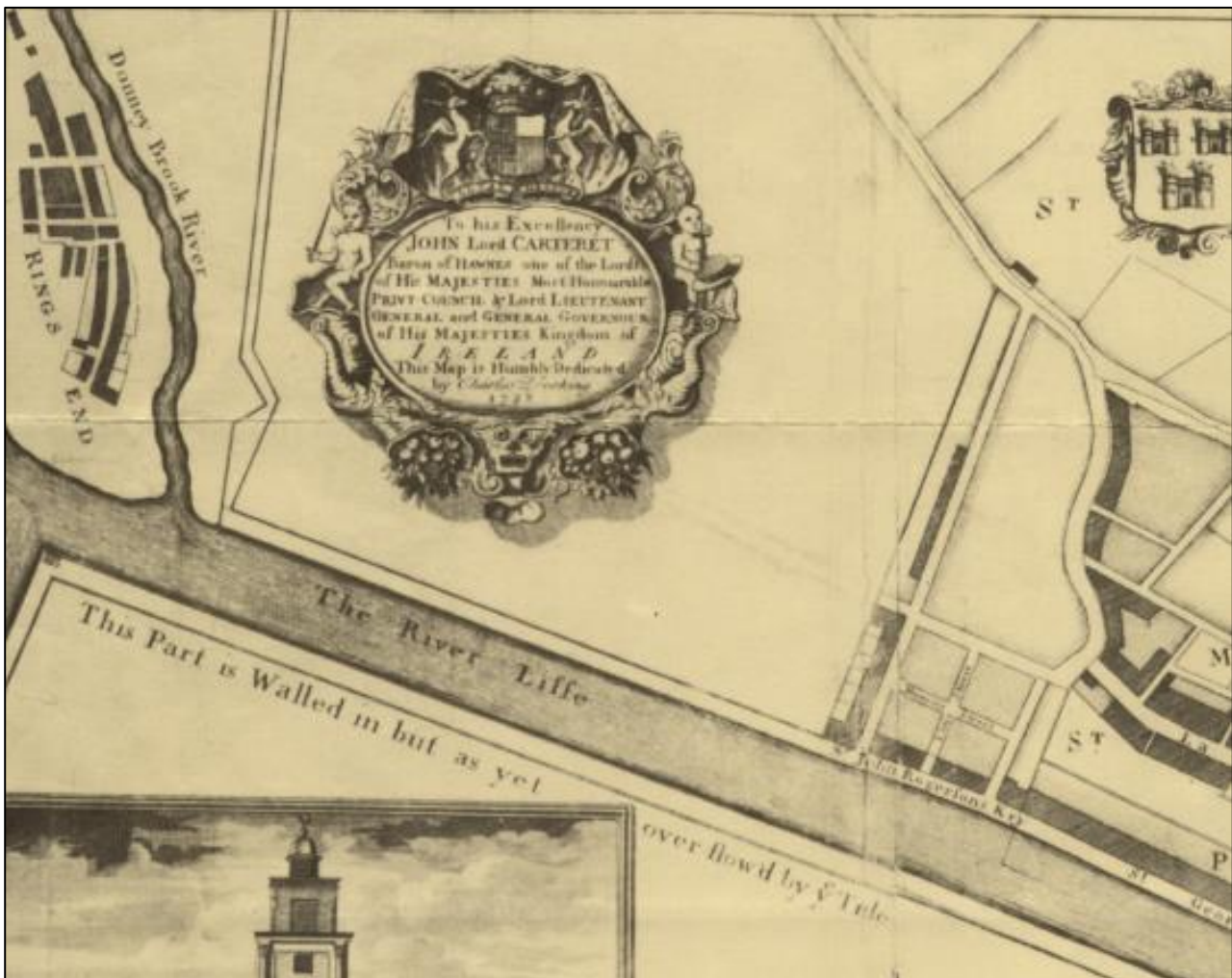


Image 15.4: Brooking's Map of Dublin, 1728 (Lennon 2008)



Image 15.5: Brooking's 'Prospect of the City', 1778 (Lennon 2008)

Sir John Rogerson also built a tavern on the quay sometime between the years 1715 and 1718. It was known as the 'Fountain Tavern' and is reputed to have been the first building erected on the quay (De Courcy 1996). Development was relatively slow, undoubtedly the result of doubts about the polder land and the safety of any commercial prospect from flood waters.

The development of the easternmost south quays can be traced on Rocque's maps of Dublin (1756 to 1760; Kissane 1988 and Ferguson 1998). His 'Plan of the city of Dublin and environs' (1757) (Image 15.6) and 'Actual survey of the county of Dublin' (1760) both show a similar picture; the continuation of 'Rogersons Quay' as the 'Horse Road to Ringsend'; the route that subsequently became Pearse Street is named 'Foot Road to Ringsend'. The South Lotts are shown as fields, with some areas still shown as wet (there is an even greater lack of development on the northside of the river). Rocque's 'Exact survey of the city and suburbs of Dublin' (1756) (Image 15.7) extends only to Sir John Rogerson's Quay and does not show the road to Ringsend. It does, however, show a level of detail in the plots then occupied on 'Rogersons Quay' (City Quay), with two large timber yards and others to the rear of buildings fronting onto the quay. The map also demonstrates the busy shipping channel along the river, showing boats and ships berthed along the quays and continuing westwards towards the Customs House at Essex Quay.



Image 15.6: Rocque's Plan of the City of Dublin and Environs, 1756 (Kissane 1988)

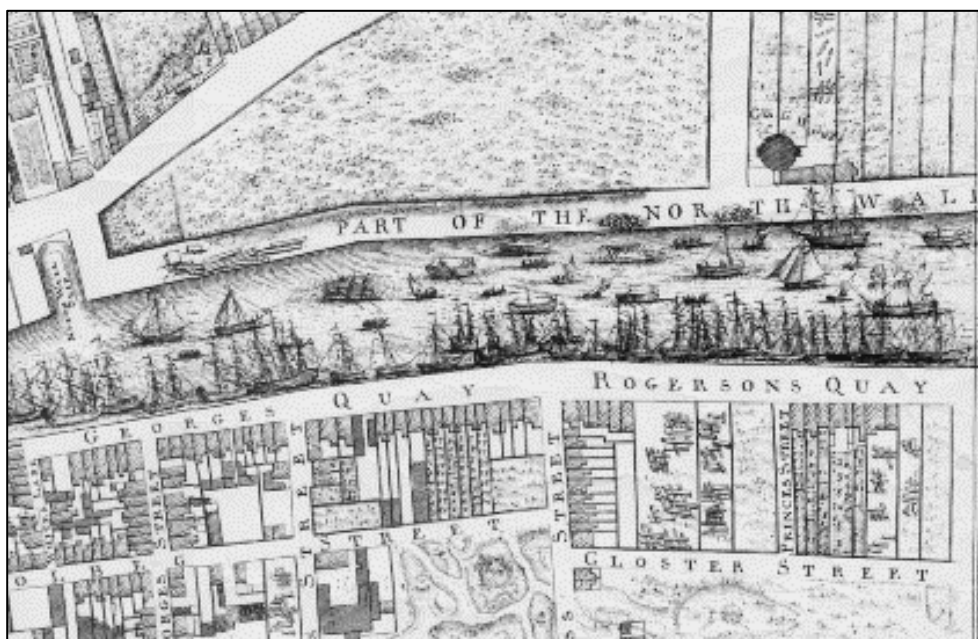


Image 15.7: Rocque's 'Exact Survey of the City and Suburbs of Dublin', 1760 (Ferguson 1998)

From 1773, Sir John Rogerson's Quay housed the Hibernian Marine School, which was built on the quay on a site between Cardiff's Lane and Lime Street. Originally opened in Ringsend in 1766 to 1767, the Marine School or Marine Nursery, was a boarding school for boys from seafaring families. Its pupils were orphans or were from families who could not pay the cost of their education and at the age of fourteen, the boys were then apprenticed to masters of ships. When the numbers seeking entrance rose rapidly, the site on Sir John Rogerson's Quay was purchased in 1768 to meet the need for increased capacity, providing a new school with a capacity for 200 pupils. The school building was partly destroyed in 1872 by fire, after which the school moved to Upper Merrion Street; the building on Sir John Rogerson's Quay served various commercial purposes before finally being demolished. According to Hammond (1943), in his essay on George's Quay and Rogerson's Quay in the 18th century, the school was flanked to the east by Cardiff's shipyards and to the west by Burnett's Marine Hotel. Williamson and Lloyd's rope-works are also mentioned as being nearby. Cardiff's yard appears to represent the eastern limit to building on the quay up to the year 1800, with building development beyond this possibly dependent on the short-lived influence of Grand Canal Dock, which opened in 1796 (De Courcy 1996).

The Cardiffs were one of four leading shipbuilding families during the 18th century, and De Courcy (1996) suggests that the yard shown on the Malton's 1796 drawing of the Marine School was probably Cardiff's (Image 15.8). This is suggested by the fact that the street close by had changed its name between 1803 and 1838 from Great Clarence Street to Cardiff's Lane. By 1838, however, the Cardiff shipping company had gone out of business. By 1881, a ferry route existed at Cardiff's Lane linking the eastern sections of the Circular Road north and south of the river.



Image 15.8: Malton's View of Sir John Rogerson's Quay showing the Marine School and Cardiff Shipyard, 1795 (Branagan 2020)

Rope making, particularly the technique of making ropes by ropewalk spinning, has a long tradition in Dublin. Lime Street, between Erne Street and Sir John Rogerson's Quay, was also known as the Rope Walk during the 1700s, from the activity there associated with Lloyd's Rope Works. A Rope Walk is still shown in the vicinity of Lime Street on the first edition OS six-inch map (1843), to the west of the Marine School, running southwards from the quays, almost as far as Great Brunswick Street (Image 15.9). Another Rope Walk is shown between Charlotte Quay and Ringsend Road, with two more indicated in Ringsend, demonstrating the continued importance of maritime industry in this part of the city. This earliest OS map also depicts the considerable development in the area since Rocque's map, as well as its industrial focus, with numerous mills, gas works, ship yards and timber yards, as well as Lime and Salt Works in Ringsend. In addition to the Maritime School on the quay front, there was a Mariners' Church on Forbes Street, reflecting the maritime occupations of the area's residents.

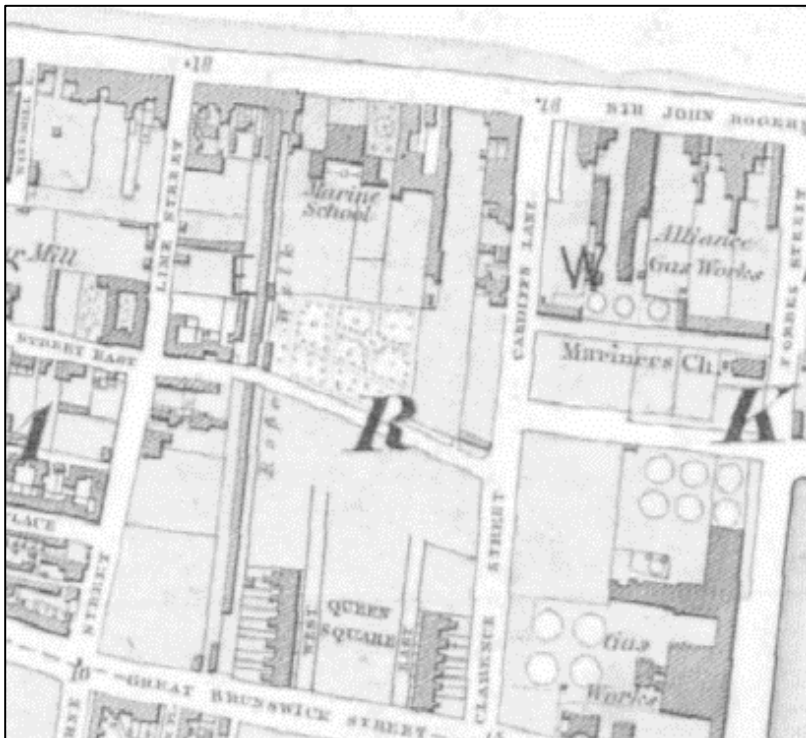


Image 15.9: Malton's View of Sir John Rogerson's Quay Showing the Marine School and Cardiff Shipyard, 1795 (Branagan 2020)

The Grand Canal Dock project, designed by William Jessop, was begun in 1792 and opened in 1796 in the South Strand, west of Ringsend (Delany 1973). The quay walls along the River Dodder and River Liffey had allowed the land between to dry out and be reclaimed. The project entailed the construction of two basins containing a total of ten hectares (25 acres) of water nearly five metres (16 feet) deep, capable of accommodating 600 vessels (the docks and dock yards are depicted on the first edition OS six-inch map (Image 15.10). At the time, controlled deep water berths were available only in Grand Canal Dock and in the Old Dock, also completed in 1796, east of the new Custom House, and to a limited extent in the Royal Canal Dock (now known as the Royal Canal formerly Spencer Dock off North Wall Quay). There were also several dry docks or graving docks; structures similar to locks that could be drained to allow ships' hulls to be examined and repaired. It would appear that the deep-water docks of the River Liffey built up to 1830 were not particularly successful. Some ship owners apparently found it more profitable to endure the tidal fluctuations of the riverside quays, as shown on Duncan's c. 1850 map (UCD 2020), which shows a near continuous line of ships docked along both the north and south quays, with a very limited number moored within Grand Canal Dock itself.

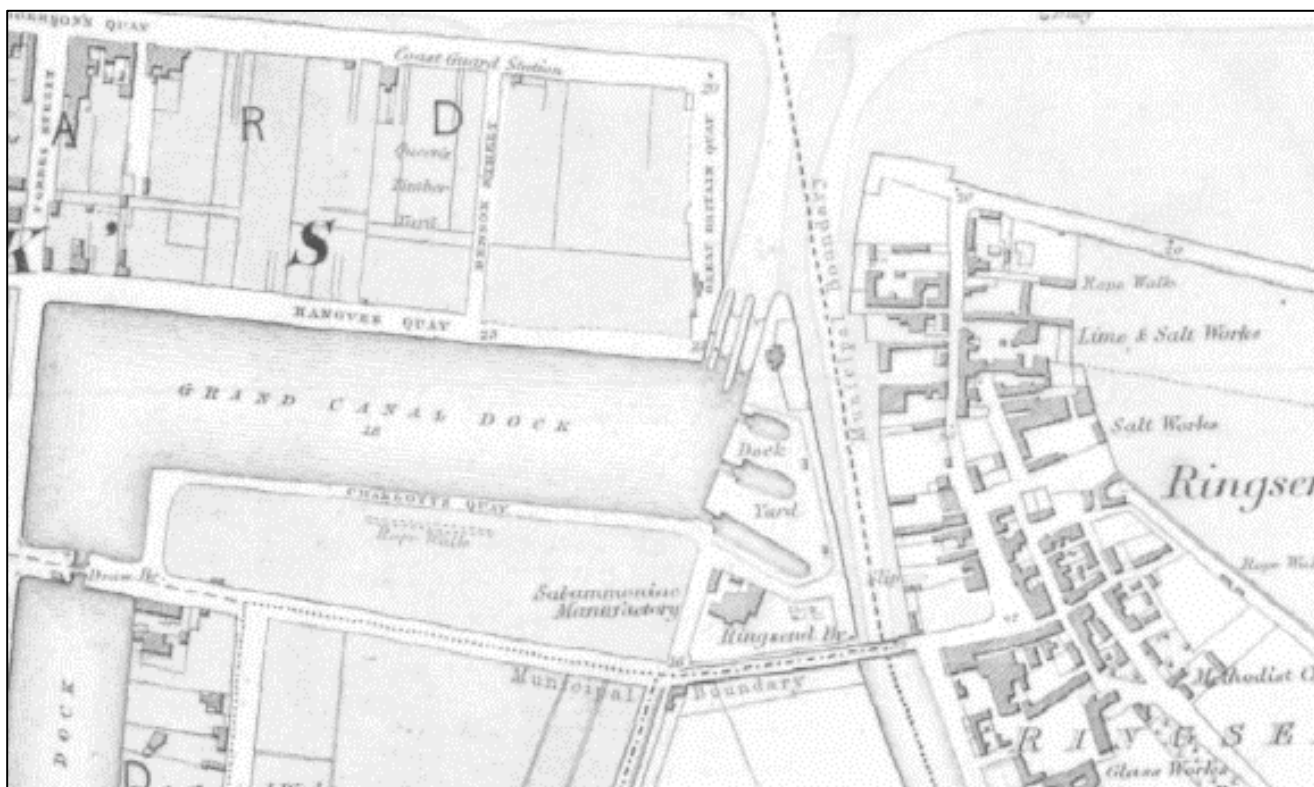


Image 15.10: First Edition Ordnance Survey Six-Inch Map, 1843, Showing Grand Canal Dock and Ringsend (UCD 2020)

The success of the Grand Canal Dock was further hampered by the arrival of the Dublin to Kingstown (Dún Laoghaire) railway line, which opened in 1834. The line crossed the Grand Canal Dock on its way into Westland Row (now Pearse) Station, resulting in the partial infilling of the L-shaped dock. There were also problems with silting from the River Dodder, particularly in Camden Lock, Westmoreland Lock and Buckingham Lock (Cox and Gould 1998; De Courcy 1996). Increased shipping in the 19th century required further work on Dublin's port. The result was the levelling of the River Liffey bed and the deepening of the quay walls to accommodate the steam ships arriving into Dublin from 1815. By 1838, the modern street plan in the South Strand was largely complete, with the area dominated by the Grand Canal Dock, the Dublin and Kingstown railway and the city's proliferating gasworks, although much of the land remained under-developed and was seamed with drainage ditches or rivulets, all leading to the River Dodder. The large numbers of ships and the intensive use of the shipping lanes of Dublin port led to inevitable accidents, and there are fourteen shipwrecks recorded in the mouth of the River Liffey. Two ships were lost within days of each other at Sir John Rogerson's Quay in 1851.

By the late 19th and early 20th centuries (Image 15.11), previously vacant plots had been taken in hand and the area was dense with industrial works. Terraces of worker's houses had also been constructed, largely in the streets to the rear of the quays or those running south from them.

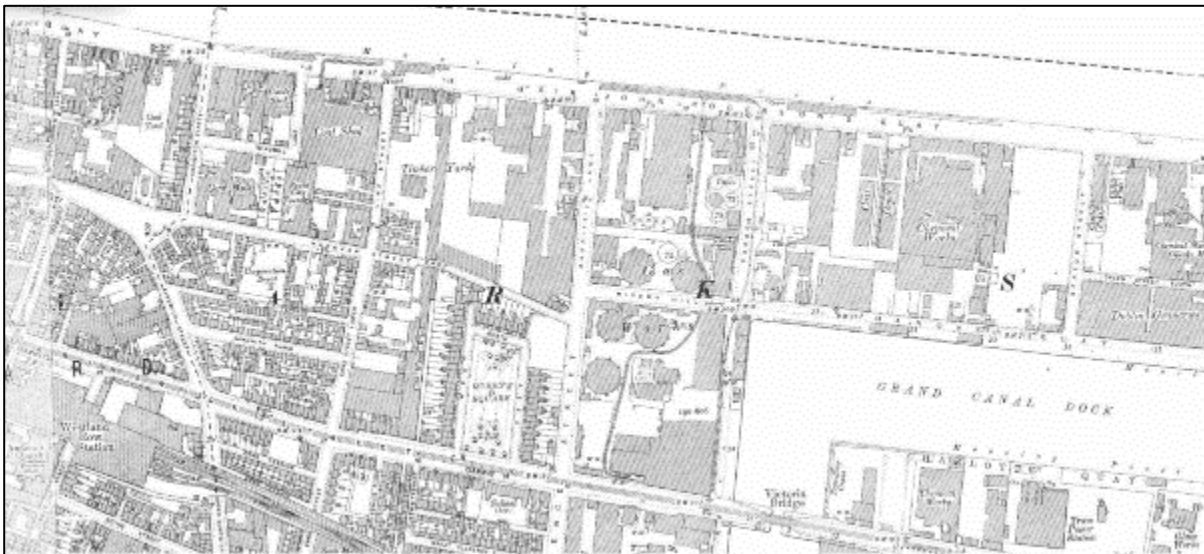


Image 15.11: Revised Edition Ordnance Survey Six-Inch Map, 1906-09, Showing Sir John Rogerson's Quay (UCD 2020)

15.3.1.5 Northside of the River Liffey

In 1682, the City Assembly had commissioned a survey of the area stretching eastwards to the present-day East Wall Road. As the shoreline had been included in the riding of the franchises as early as 1488, any land reclaimed was ostensibly in the hands of the city, though private development would be encouraged with preferential rents and leases. This resulted in the division of a notional area north of the river comprising 'the strand between Mabbot's Mill (in the area of Connolly Station) and the Furlong of Clontarf' into 152 lots, which were to be granted to the mayor, recorder, aldermen, sheriffs, sheriff's peers and remainder of the common council, along with one lot each to the clerk of the Tholsel and the city surveyor. The lots were to be drawn from a hat after the lord mayor and recorder had made their choice, and the rent was set at 12 pence sterling per annum (CARD v, 328, in Gilbert 1889 to 1944).

The area was still subject to flooding at high tide, and it was a condition of the allocations that each owner would protect his lot against inundation. The obligation *'to take in and improve'* the plots does not appear to have secured the new land from the sea, however, as four years later the assembly annulled the granting of the strand *'forasmuch as there were great disorders in doing the same'* (CARD v, 383 to 384, in Gilbert 1889 to 1944). This decision may indicate that such a huge reclamation undertaking was beyond the efforts of the individual leaseholders and that a more systematic effort would be necessary, perhaps backed by a municipal authority, in order to save and reclaim the area from the sea. A committee was established by Dublin Corporation known as the Ballast Office Committee to carry out this work. It commenced work in the North Wall area in 1710, and in 1712 a report from the committee noted that it had *'laid down on the north side of the channel 686 Kishes (wickerwork baskets) well filled with stones piled to the front and backed with gravel and shingle from Clontarfe Bar'*. Essentially when the wall was first built it was a construction of interwoven baskets of stones and gravel on top of, beside and behind one another, interlocked for strength. By the nature of its construction, it was porous even though the water side of this structure was formed by larger stones. Over time, this construction was gradually replaced by stone walling.

A grid of streets was plotted out and given grand civic titles such as Mayor Street and Guild Street, as well as Commons Street, Wapping Street, Fish Street, Sheriff Street, West Road, Church Road and East Road. The details of the purchasers and of each lot were contained on a map drawn by J. Macklin and named after the mayor at the time, Thomas Bolton. The Ballast Council divided the reclaimed land into 263 plots ranging in size from three-and-a-half acres to half an acre. These were known as the North Lotts (Conlin and DeCourcy 1988). In April 1724, the Ballast Committee informed the City Assembly of its financial difficulties in carrying on projects on both sides of the river simultaneously. A subsequent vote was carried to extend funding to complete the North Wall before moving on to the piling for the South Wall (CARD vii, 257 to 259, in Gilbert 1889 to 1944). This vote indicated the importance being placed on northside development at that time by the members of the assembly (many of whom were lot holders).

To a greater extent, the urban project at the North Lotts was eclipsed by developments happening elsewhere in the city. From the 1740s onwards, the northside estates of Luke Gardiner had attracted those with sufficient funds to invest in property at the upper end of the market. The focus for such investment was soon to shift to the southside again following the construction of Leinster House and the development of the Fitzwilliam Estate a decade later, and this area has remained the most fashionable in Dublin until the present day. The Act of Union and the resultant exodus of the fashionable classes to London emptied many of the large houses, which soon fell prey to speculative landlords, thus becoming tenements. This phenomenon was particularly evident in the Gardiner Estates adjacent to the North Lotts.

The slowing demand for accommodation at the upper end of the market was probably detrimental to the development of the North Lotts and perhaps retarded the progress of the works. Charles Brooking's 'A Map of the City and Suburbs of Dublin', which included 'A Prospect of the City of Dublin from the North', purports to show the development in 1728. H. A. Gilligan, an authority on the port of Dublin, however, considers this depiction to be premature (Gilligan 1988).

Brooking's map of 1728 shows the North Wall '*Walled in but as yet overflow'd by ye Tide*' (Image 15.4), while his prospect of the same date shows ships on the river, their reflections evident on the water behind the North Wall. There remained little or no development in the area by the time of Rocque's maps (Image 15.6 and Image 15.7), though he does capture the new grid-like street pattern, the uniformity of which contrasts with the sprawling medieval city to the south-west. The map names the area as '*The North Lotts*', bounded by the great North Wall (depicted by Rocque as having an underlying strand extending eastwards for over half its length), fronting a wide quayside, with Mayor Street running parallel to the north. These two thoroughfares were linked by six streets, spaced at regular intervals: an unnamed street to the west, Commons Street, Guild Street, Wapping Street, Fish Street and the East Wall. The areas in between were divided into long, narrow property plots as indicated on the earlier Bolton's Map (Macklin 1717) (Image 15.15). A pool of water is depicted in the very north-east corner of the polder (not shown), with streams shown flowing through the northern part of the area, indicating the unfinished state of the reclamation work.

Given the slow pace of development within any of the plots, it would seem likely that the impetus to reclaim the North Lotts came more from the necessity of providing a safe channel for shipping, rather than as an attempt to provide more building ground for the city. The changing political situation at the turn of the 19th century dealt the final blow to any possibility of aristocratic or other major residential settlement on the polder. By the time the OS was first published in 1843, the industrial nature of the area was becoming increasingly obvious.

The North Wall area was in constant need of repair throughout the 18th century; as early as 1731, the Ballast Office was repairing the wall. The original wall had been shoddily built and was a constant source of vexation to landowners in the area, a fact noted by Gandon when he began work on the Custom House in the 1780s (Bunbury 2009). During 1744, the wall is described as being in a '*Ruinous state and the Ballast Office owes a large quantity of ballast to the said wall which will be delivered as soon as possible to prevent any further damage*' (CARD ix 148 in Gilbert 1889 to 1944). In 1786, the control of the port was transferred from Dublin Corporation to a new authority, the Ballast Board which was controlled by merchants and property owners. Francis Tunstall, the Ballast Board's first inspector of works, proposed the demolition and reconstruction of the entire wall east of the Custom House, though nothing was done at that time. In the 1830s, William Cubitt, one of the greatest civil engineers of the day, came to much the same conclusion in a report on the North Wall's deep-water berthage capabilities. A complete rebuild would prove to be too expensive, however, and in 1840 a short-term solution was to front the quay with timber wharves which extended into the channel and were supported by piling. By the 1840s, not long after the first OS of the area, the North Wall was described as a dismal swamp and had sunk from 10 to 15 feet below the level of the roadway. The gap was filled with the refuse from the streets and the dredging of the river and there was scarcely a building of any kind left on it (Bunbury 2009).

As on the southside of the river, the introduction of the canal brought gradual growth to the area. The construction of the Royal Canal began after 1789, and the map published in Wilson's Dublin Directory in 1798 (not shown) depicts the connection to the River Liffey through a system of locks. This work cannot, however, have been undertaken before 1806, when an appeal was made by the Royal Canal Company (RCC) for more funding to bring the canal to the river. Two berthing pools, the Royal Canal Docks, lay between the riverfront and Mayor Street and between Mayor Street and Sheriff Street, while a spur extended to the west from the northern pool (although depicted on Taylor's map of 1816, this was filled-in by the time of the first edition OS in the 1830s). The gradual growth of industrial activities can be seen on the 1843 OS map, no doubt influenced by the increased

trade and ease of transport at the Royal Canal Docks. This is particularly evident in the cluster of buildings arrayed along the canal banks and in the plots fronting the North Wall Quay, including several Vinegar Works and a Vitriol Works.

The canal enjoyed a relatively short period of success before the advent of the railways in Ireland in the mid-19th century (Delaney 1992). An association between railway and canal occurred in 1845, when the Midland Great Western Railway Company (MGWR) acquired a majority interest in the RCC with the intention of closing the canal and running the tracks along the bottom, thus saving on land purchase and surveying costs. The RCC had, however, acquired enough land for the railway to run alongside the canal, at least initially, and the MGWR kept it open without investing further in its operation.

As happened elsewhere however, the development of the railway system eventually rendered the canals practically obsolete. By the 1870s, British coal was heating houses throughout Ireland and although the MGWR were making considerable money from this business, the Royal Canal Docks were simply too small to accommodate the huge new coal ships and the company was losing ground to the Grand Canal Docks on the southside of the River Liffey (Bunbury 2009).

The increase in passenger traffic to North Wall was promoted by the use of larger, faster steam-powered vessels, which required deeper berthage than that provided at the railway terminus. Although the port was to develop deeper berthages down river, the problem of shallow water had been anticipated by 1842, when wooden wharves were constructed against the quay wall for 500 yards (c. 457m) on either side of the opening of the Grand Canal Docks (Gilligan 1988). Increased competition for berthage led to the extension of the timber wharves from the Custom House Dock to the present-day Castleforbes Road by the early 1860s (Gilligan 1988), but the problem of berthing at North Wall at low water remained an issue.

The solution involved the construction of a new masonry quay wall several metres further out into the river. The potential (and real) profits available from the coal trade also undoubtedly acted as an impetus for the rebuilding of the North Wall Quay (RMP DU018-020564), which was finally and formidably rebuilt. By the late 1860s, a section 740 feet (c. 225m) long had been built west of the junction of the North and East Walls for the use of 'deeply laden vessels from foreign ports with cargoes of grain and timber,' which required sixteen to eighteen feet at low water (Gilligan 1988).

The new dock was planned and built and in 1872, the canal bank between Sheriff Street and North Strand Road was developed by the MGWR company, which invested £71,961 in the new wharves and cranes. The new facility enabled coasters of up to 500 tonnes to discharge coal directly into railway wagons. The lord lieutenant, Earl Spencer, performed the opening ceremony on April 15, 1873, and gave his name to the wharves and sidings. That same year, the four major railway companies united to form a general railway centre at the North Wall (i.e. the MGWR, along with the Great South Western, Great Northern and the London and Northwestern Railway Company (LNWR) (the LNWR had formerly operated out of Kingstown, now Dún Laoghaire)). This was completed more than ten years later when the so-called Loop Line was constructed connecting Westland-Row (Pearse Street) with Amiens Street (Connolly Station).

By the time of the publication of the second edition of the OS in 1876 (Image 15.12), the impact of the new railway lines and associated works can be seen in the area. There were extensive railway marshalling yards extending back from the quays, most tracks running alongside the canal and across the north inner city, with a connection along West Road to the Belfast line and a spur extending eastwards towards a large Goods Station (now the 3 Arena). The surrounding area was becoming increasingly developed and much of the North Lotts area south of Sheriff Street housed industrial works, with cattle yards, timber yards, iron works, sawmills, a Vinegar and Charcoal Works, an 'Old Stores', and numerous goods sheds.

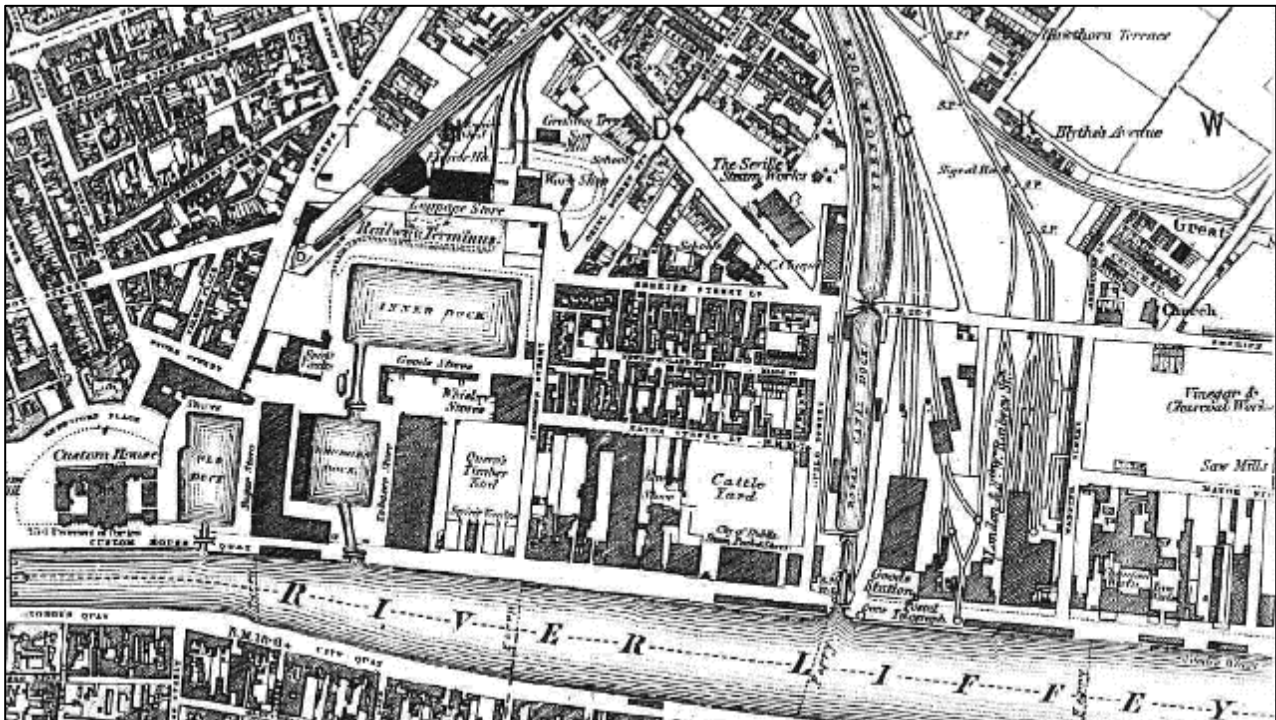


Image 15.12: Revised Edition Ordnance Survey Six-Inch Map, 1876, Showing Custom House Quay and North Wall Quay (UCD 2020)

Among the buildings that had been constructed along the quay in the later 19th century were the LNWR Hotel, the Iarnród Éireann Freight Offices and the Wool Store. In 1883, increasing passenger traffic had encouraged the company to purchase the Prince of Wales Hotel on the junction of (old) Wapping Street and North Wall Quay. A new hotel was constructed behind the existing one, which was soon demolished. The new building was extended to the North Wall and renamed the Northwestern Hotel. It stands today as the Former British Rail Hotel, now Córas Iompair Éireann offices. Increased traffic also required increased storage for goods awaiting discharge or loading and new expansive Goods Sheds are depicted along the southside of North Wall Quay.

By the early 20th century, the development of the Alexandra Basin downstream of the North Wall enabled ships of greater tonnage to discharge their cargoes at all stages of the tide, thus restricting the amount of traffic docking at the railway terminus. Coal continued to be discharged along Spencer Dock, primarily to feed the railway locomotives. The outbreak of the First World War brought renewed passenger activity to the immediate area, and the railway yards were used for troop movements. Railway workers still refer to a railway siding alongside Church Road as 'The Dardanelles.'

The political instability at the beginning of the 1920s led to the military zoning of the area, and there is much local folklore concerning Irish Republican Army (IRA) activity (little of it substantiated). The Northwestern Hotel on the quays, for example, seems to have been a haunt of British intelligence officers, while the tunnels connecting the passenger station and the quayside were used to surreptitiously evacuate casualties (Myles 2000). Independence saw the passenger terminal and hotel handed back to the LNWR (which had become the London, Midland and Scottish (LM&S) Railway Company in 1921) and the goods station returned to the MGWR, later to be amalgamated into the Great Southern Railway (GSR) Company. On 25 May 1921 during the War of Independence, the Custom House was occupied and set on fire by the IRA resulting in the loss of life and valuable records. Three civilians and five IRA volunteers died as a result of the action and many more were arrested. The armed conflict was brought to an end on 11 July 1921 and negotiations were opened which would pave the way for the Anglo-Irish Treaty in December of that year. The Custom House was re-roofed and restored after the end of the war.

The railway continued to be an important driver of trade and change in the area. As the cattle export trade grew in importance in the 1920s, the LM&S North Wall Station was converted to a freight station and cattle pens were built to the rear (on its eastern side). Little had changed by the time of the revised edition OS map surveyed in the

mid-1930s, which shows City Quay and Custom House Quay as the southern boundary of a densely packed industrial and transport hub (Image 15.13).

The construction of the LUAS Line C1 from Connolly Station to the 3 Arena (then the Point) was archaeologically monitored (Licence No. 07E0167) for below ground heritage remains in 2008. The partial wall foundations for structures depicted on the historic maps as well as brick line sewers dating to the 19th century along sections of Mayor Street Upper and Lower were encountered. Post medieval finds in the form of glazed pottery fragments and clay pipe stems were recovered.

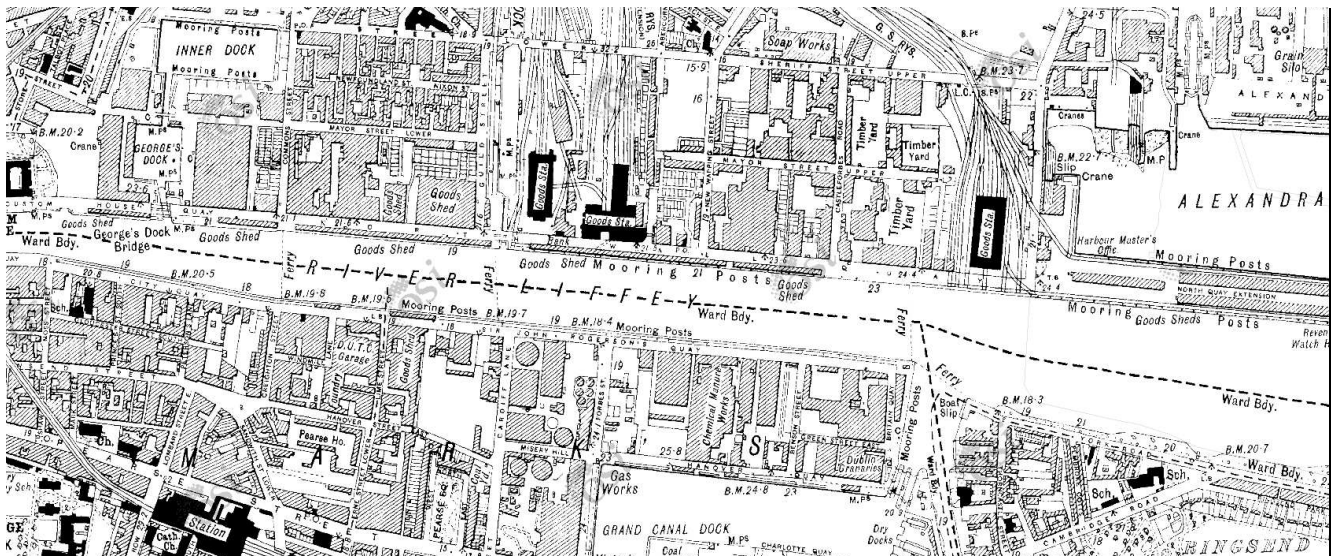


Image 15.13: Revised Edition Ordnance Survey Six-Inch Map, 1935 to 38, Showing North and South Quays (UCD 2020)

15.3.1.6 The Campshires

The stretches of land between the quay and road on both the north and south quays in Dublin are known as the campshires. These were so-named because a number of British military regiments, such as the Gloucestershires or Leicestershires, would camp there before setting off or returning from overseas, making 'campshire' a portmanteau of 'camp' and '-shire'. Before the Dublin Port facilities moved down river, this was the area of the quays where ships were loaded and unloaded. As a result, the area had a number of storage warehouses and travelling cranes. The campshires were renewed and subject to public realm improvements between 2000 and 2005 by the now-defunct Dublin Docklands Development Authority and more recently from 2018 to 2020, adding walkways and cycleways on both sides of the River Liffey. During archaeological monitoring of the construction of a new flood defence system in 2014, no archaeology was encountered along the south quay campshires (Licence 14E0393, Excavations 2014). Other linear developments along the quays such as flood defences, flood protection schemes and sewerage schemes have revealed modern and post medieval deposits associated with foundations of structures. No features or finds of a pre-18th century date have been uncovered.

15.3.1.7 Ringsend

Ringsend takes its name from its location on the dry spit of land formed by the easternmost channel of the River Dodder delta at its confluence with the River Liffey, today known as 'An Rinn', the point (Flynn 1990). The Anglo-Irish hybrid 'Ringsend', is not documented until the 15th century, when a description of the route of the franchise-riders in 1488 states '*by Ampnylffy is side tyll they came to the Rynges ende*' (De Courcy 1996).

De Courcy suggests that from early times there were at least two fords across the lower River Dodder. One was located near Ballsbridge on the Dalkey road where the river flowed in one channel. The channel was navigable except in times of flooding. The other, which crossed the mainstream of the River Dodder delta at Ringsend, was liable to flooding and closed twice a day by high tide. In 1623, a petition was made by Richard Morgan to the Dublin Corporation to erect a bridge '*going to Ringsend*'. The Dublin Corporation did not help but a bridge was built at the Ballsbridge ford. In 1641, Boate recorded that '*a stone bridge hath been built over that brook upon the*

way betwixt Dublin and Rings-end'. However, de Courcy suggests that there was no evidence of the bridge on maps between 1654 and 1728.

In spite of the relatively restricted nature of access to the port and river, the Custom House for the city's port and the main quay were at Essex (Grattan) Bridge 2km (kilometre) upstream. This necessitated the development of the lower river down towards Ringsend to facilitate the unloading of the city's merchandise. By 1760, Rocque shows both a bridge at Ringsend and a foot road from it across the new ground to Lazars Hill (Image 15.7). The first bridge collapsed in c. 1782, and a new bridge was built in 1789. It collapsed in 1802 with the present single-arch stone bridge built in 1803.



Image 15.14: Rocque's Map of Dublin, 1760, Showing Ringsend and Irishtown (Ferguson 1998)

Ringsend was primarily a fishing community utilising the shallow waters of the bay for shell fishing. They then sold their cargo upriver in the markets between Wood Quay and Christ Church. Much competition took place between the fishing community at Ringsend and Herringtowne (Clontarf) throughout the 16th and 17th centuries. By the end of the 16th century, Ringsend was becoming an important point for the distribution of merchandise into Dublin and a landing place for passengers. In 1582, the Dublin Corporation identified the need to collect revenues from the ships entering Dublin and they took steps for the erection of a fort, though none was built at that time. Orders were given for the erection of a tower, which was not built. By 1620, a Customs Officer, Thomas Cave, was stationed at Ringsend and a house was built for him. In 1622, a better landing area for cargo was built sponsored by two financiers, Edward Gough and James Sedgraw to establish herring fishing in the bay but there was '*greevous exaction and uncivill opposicion*' by George King (De Courcy 1996). However, this opposition was later settled when herring fishing died out in the bay during the 18th century.

Near the end of the 16th century, Ringsend surpassed Dalkey as the deep-water port of Dublin despite the dangerous stormy nature of the water in the bay. However, this overseas avenue for transportation was considered better than the costly and slow transportation of goods from Dalkey to Dublin by road. The first bridging of the River Dodder in 1640 was an important step in laying the foundations for a vehicle and horse link between Ringsend and Dublin.

Navigation upstream from Ringsend continued for another 200 years dependent entirely on the tides. Oliver Cromwell reached Ringsend in 1649 with a large army. It is thought that he landed near the present junction of Thorncastle Street and York Road with a flight of steps leading to the riverbed known as 'Cromwell's Steps'. The population at that time numbered 59 English and 21 Irish in the village of Ringsend. De Courcy suggested that the present steps, now partially buried by the East Link Toll Bridge, were more likely to be part of the later development of the South Wall in the 18th century than of any earlier date.

By 1655, a strong bastioned fort 60m square was located at Ringsend across the spit blocking off Thorncastle Street from the point. This castle is depicted on de Gomme's map of the city and on Greenville Collin's map of 1686 and on subsequent manuscript maps (the great citadel and route across the strand that De Gomme also indicates on his map were never built (Kerrigan 1980)). After Cromwell had restored the Lord of Merrion (Colonel Oliver Fitzwilliam) to his lands in 1655, he was given permission to demolish the fort on his lands. The fact that the fort is not shown on any 18th century map, may indicate it was indeed demolished sometime in the interim. A 'revenue watch house' was maintained near the point of Ringsend until 1793, when the Ballast Board provided the customs authorities with a site for a replacement at the 'New Bason'; and the derelict building was still standing in Ringsend in 1812, when the Board sought to demolish it to open the route for its proposed wooden bridge (De Courcy 1996).

Rocque's map of 1760 identifies the high tide at the back of the Ringsend houses on what is now Thorncastle Street (Image 15.7), and so it is no surprise that towards the end of the previous century (in 1670) the village was recorded as being flooded by the sea. In 1716, Dublin Corporation recorded that '*the ground on the south side of the channel below Ringsend is staked out*'. This was the beginning of the construction of the South Wall (De Courcy 1996). Builder's stores, workshops and a boat-yard were erected by the Ballast Office in Ringsend. Dry land cropped up east of the town to the south of the new wall, at the end of which was where the Pigeon House harbour would be later built. By the end of the 18th century the village had suffered a decline, despite the attractions of the baths along the east side of the village, considerably with the boatyards lying obsolete. However, in 1816 Messrs, J and W Clarke established an iron-founders, which led to a decision by the Dublin Corporation to supply the city with a piped water supply. The 19th century led to better and improved road-links between Ringsend and the City Centre, and the shoreline was gradually pushed eastwards, as more land was reclaimed and put to use. At the beginning of the 20th century, landfilling was in progress, and the shoreline was eventually pushed out by 1.5km east of Thorncastle Street, with the village of Ringsend developing as a suburb of Dublin.

15.3.1.8 Irishtown

De Gomme's map of 1673 (Image 15.3) is one of the earliest maps showing the positions of both Irishtown and Ringsend, isolated on a peninsula between Dublin Bay and the delta of the River Dodder. The recorded settlement of Irishtown (RMP DU018-054) includes a church and graveyard and a number of possible dwellings. According to De Courcy (1996), there was human habitation on the peninsula of Ringsend and Irishtown from at least the 9th or 10th centuries. A separately named settlement of 'Irishtown' may have originated during the political turmoil of the mid-15th century, when the Dublin Corporation ordered the expulsion of all 'men and women of Irish blood' from within the city gates (Bennett 1991). Alternatively, it may have arisen following the Reformation a century later, as elsewhere in Ireland (De Courcy 1996). The first documentary reference is in the census of 1659, which recorded 59 English and 21 Irish living in Ringsend, and 23 English and 75 Irish living in Irishtown (Ibid.). De Gomme's map of 1673 also shows two distinct settlements, named 'Rings-end' and 'the Yrish Town'.

In the early 18th century, the newly built St. Matthew's Church, although located in Irishtown, was referred to as '*the Royal Chapel of St Matthew at Ringsend*'. Nonetheless the place-name Irishtown does appear on 18th and 19th century maps (e.g. Bolton's map of 1717 (Image 15.15), and Rocque 1760 (Image 15.7)) and appears to have been in general use. St. Matthew's Church was built by Dublin Corporation between 1703 and 1706. A tower was added in 1713 and the present church on the site is the 1878 to 1879 rebuild (Bennett 1991). By the time of the first edition of the OS mapping in 1843 (Image 15.10), the village was still relatively contained as a nucleated settlement focused on Bath Street, to the rear of which was the foreshore. In contrast to Ringsend, there were no industrial works, and this made it a more attractive prospect for those wishing to escape the confines of the city. This is attested by the presence of several small villas and lodges, as well as Murphy's Baths and Cranfield's Baths. Sea bathing would remain a focus well into the 20th century.

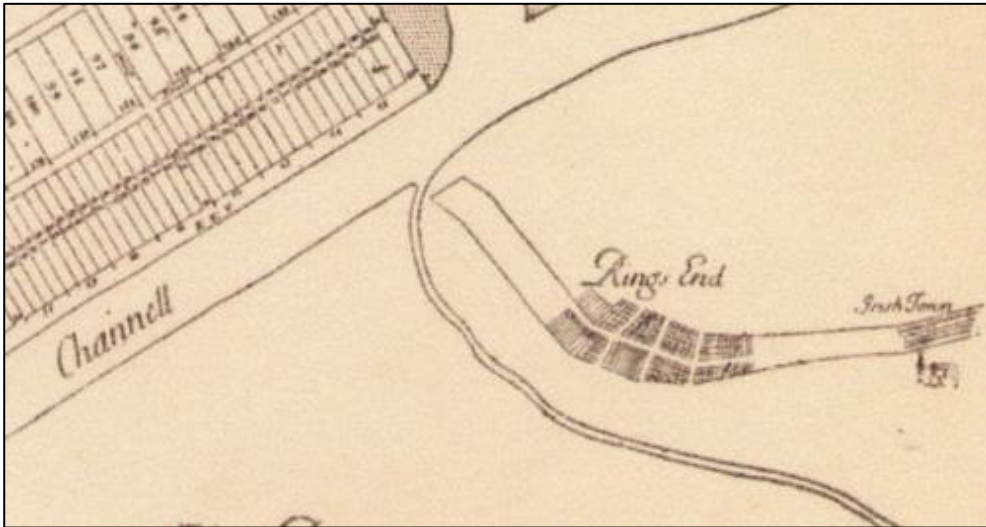


Image 15.15: Extract From Bolton's Map of the North Lotts in 1717, Showing Ringsend and Irishtown (Lennon 2008)

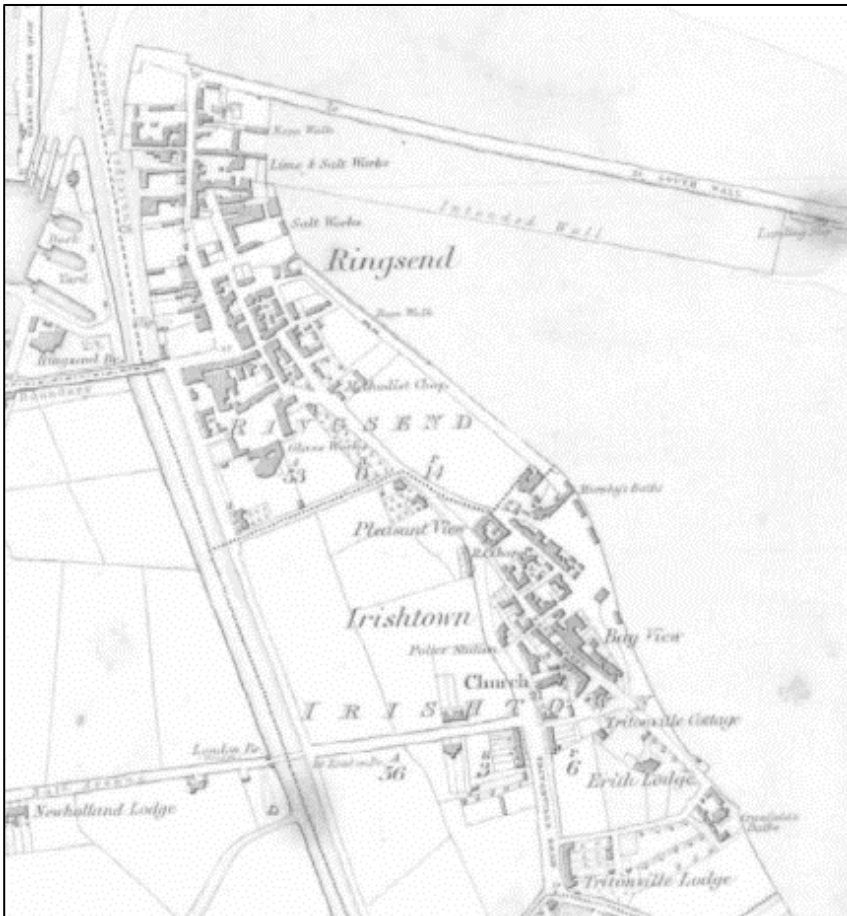


Image 15.16: First Edition Ordnance Survey Six-Inch Map, 1843, Showing Ringsend and Irishtown (UCD 2020)

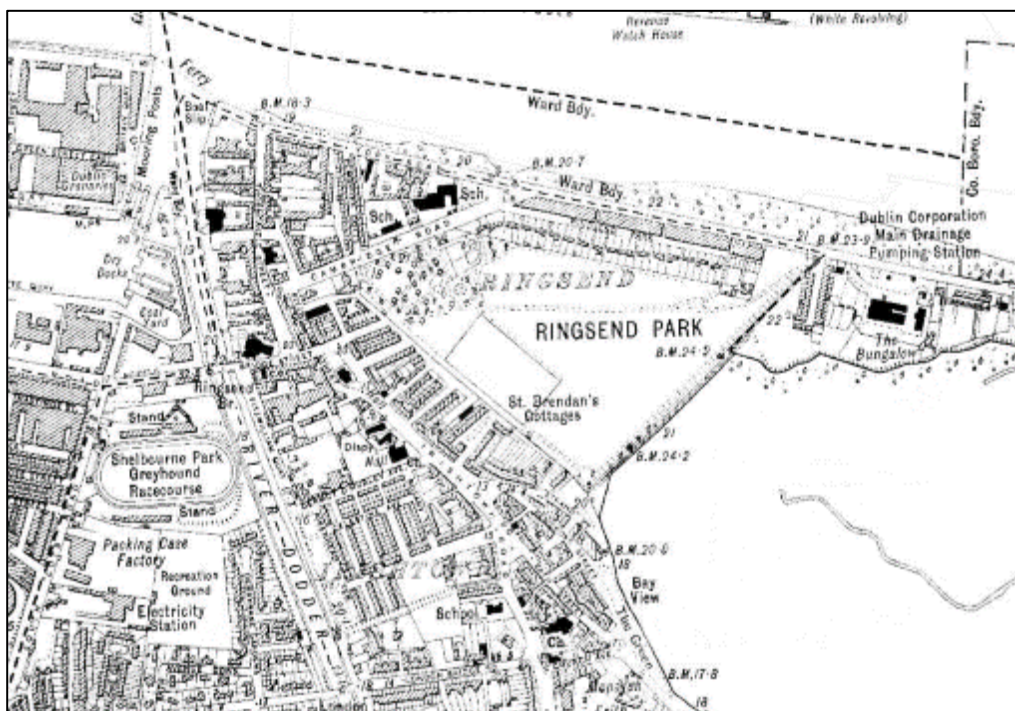


Image 15.17: Revised Edition Ordnance Survey Six-Inch Map, 1935-38, Showing Ringsend and Irishtown (UCD 2020)

15.3.2 Archaeological Heritage: Section 1 - Talbot Memorial Bridge to Tom Clarke East Link Bridge

15.3.2.1 National Monuments

There are no National Monuments or sites under preservation order situated within or in the vicinity of this section of the Proposed Scheme.

15.3.2.2 Recorded Archaeological Monuments (RMP / SMR Sites)

This section of the Proposed Scheme is located within the RMP ZAP for the Historic City of Dublin (RMP DU018-020; Figure 15.1 (Sheet 1 to 3 of 5) in Volume 3 of this EIAR and Image 15.18). This ZAP includes Sir John Rogerson's Quay and City Quay along the southside of the River Liffey, and Custom House Quay and North Wall Quay on the northside. The only other individual RMP site within this area is the site of a glasshouse (see Table 15.4 and Figure 15.1 in Volume 4 of this EIAR). The latter is post-medieval in date, as are the quays. This section of the Proposed Scheme forms part of the industrial docklands, which was developed following a land reclamation scheme initiated in the late 17th century, with the construction of warehouses and stores beginning in earnest following the building of the Custom House a century later.

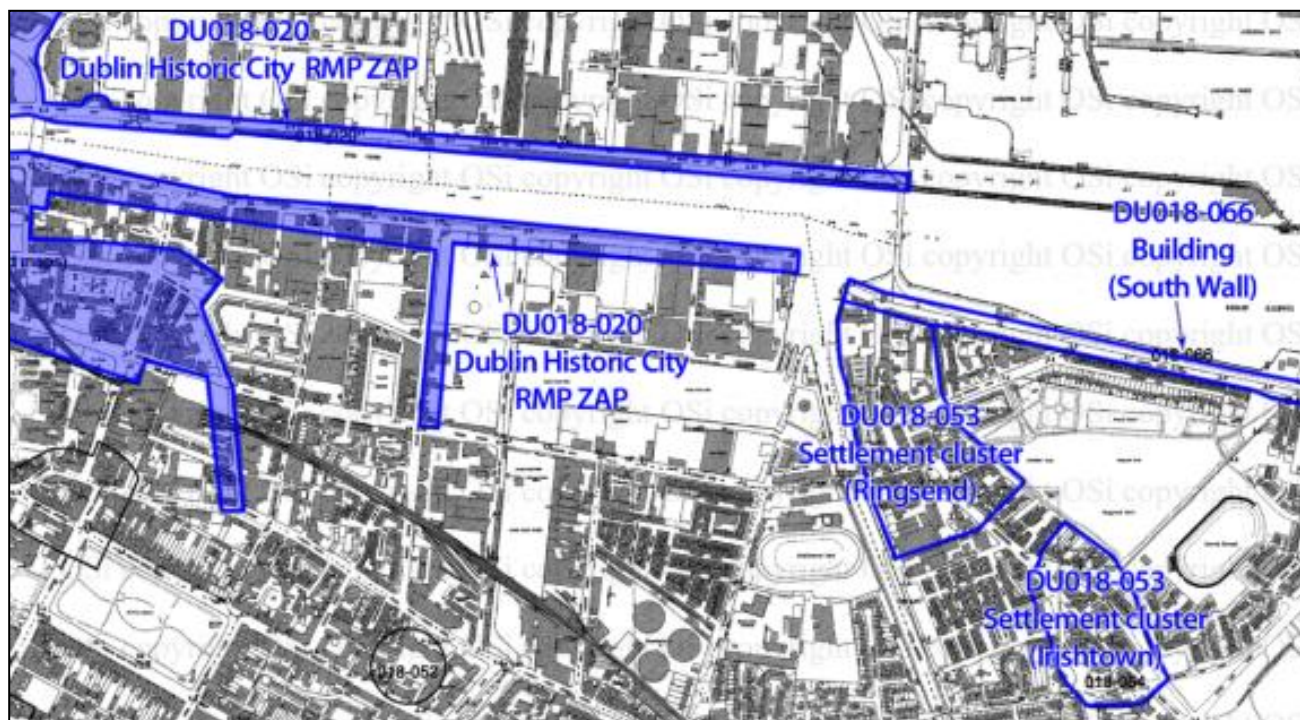


Image 15.18: RMP Map Showing Designated ZAP for Dublin Historic City, Ringsend and Irishtown (The Heritage Council 2020)

Table 15.4: RMP / SMR Sites Within c.50m of the Proposed Scheme: Talbot Memorial Bridge to Tom Clarke East Link Bridge

ID No.	Name / Type	Townland / Street Address	ITM
DU018-020	Historic City of Dublin	City Quay/ Sir John Rogerson's Quay, Custom House Quay, North Wall Quay	716722 734403
DU018-020201	Quay	Sir John Rogerson's Quay	717208, 734319
DU018-020564	Quay	Custom House Quay/ North Wall Quay, North Wall Ext	717709, 734434
DU018-020152	Glasshouse	Custom House Quay	716519, 716519
DU018-020505	Sea Wall (site house)	Custom House Quay	716400 734652
DU018-020479	Quay	City Quay	716578, 716578
DU018-020458	Quay	George's Quay	716299 734450

15.3.2.3 Topographical Files, National Museum of Ireland (NMI)

A horseshoe (NMI 2006:00) is recorded on Sir John Rogerson's Quay and an iron knife shaped object (NMI 1954:168) is recorded on North Wall Quay. All other finds that have been revealed to date are associated with archaeological investigations that were conducted on the lands in the vicinity of the Proposed Scheme.

Previous archaeological investigations have been carried out in the vicinity of the Proposed Scheme along both sides of the quays and within the RMP ZAP for Dublin (DU018-020). These investigations have revealed evidence for activity from the prehistoric to the medieval periods and are listed in Table 1 of Appendix A15.1 Previous Archaeological Investigations in the Vicinity of the Proposed Scheme in Volume 4 of this EIAR, with relevant investigations summarised in Section 15.3.2.6.2, Section 15.3.3.7.2 and Section 15.3.4.7.2.

15.3.2.4 Industrial Heritage

There are 14 industrial heritage sites listed in the DCIHR (DCC 2003 to 2009) located within the Proposed Scheme, and these are all listed in the Table 15.5. The number of industrial heritage sites indicates the industrial nature and historic character of the quays and the docklands area. Of these, three sites have upstanding remains,

including the Scherzer Bridges (RPS 896, 912) and George's Lock (RPS 3173), and compliment the quay and quay walls recorded in the RMP (DU018-020564 and DU018-020479). All these sites are shown in Figure 15.1, (Sheet 1 to 3 of 5) in Volume 3 of this EIAR, and detailed in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR.

Table 15.5: Industrial Heritage Sites Within the Proposed Scheme; Talbot Memorial Bridge to Tom Clarke East Link Bridge

ID No.	Name / Type	Townland / Street Address	ITM
RPS 896, DCIHR 18-11-115, NIAH 50010001	The Scherzer Bridges	George's Dock, Custom House Quay	716580 734526
CBC0016AH005	The Old Dock (site of)	Custom House Quay	716430, 734580
DCIHR 18-11-159	Lock (site of)	Custom House Quay	716417 734548
DCIHR 18-11-158	Swivel Bridge (site of)	Custom House Quay	716249 734548
RPS 3173 DCIHR 18-11-154 NIAH 50010131	Lock	George's Dock, Custom House Quay	716584 734554
DCIHR 18-12-060	Royal Canal Office (site of)	North Wall Quay	717120 734512
RPS No. 912 DCIHR 18-12-063 NIAH 50010009	The Scherzer Bridges	The Royal Canal / Spencer Dock, North Wall Quay	717144 734483
DCIHR 18-11-152 NIAH 50010002	Goods Sheds (site of)	Custom House Quay	716518 734514
DCIHR 18-12-006	Goods Sheds (site of)	North Wall Quay	716721 734508
DCIHR 18-12-058	Wooden Wharf	North Wall Quay	716930 734483
DCIHR 18-12-011	Goods Shed site of)	North Wall Quay	716990 734483
DCIHR 18-12-073	Goods Shed (site of)	North Wall Quay	717353 734453
DCIHR 18-12-076	Goods Shed (site of)	North Wall Quay	717617 734427
DCIHR 18-12-092	Light House (site of)	North Wall Quay	718058 734412

15.3.2.5 Cultural Heritage

Features of cultural heritage interest identified within the Proposed Scheme include a variety of historic street furniture, such as lamp posts, and granite paving and kerb stones which are discussed in Chapter 16 (Architectural Heritage). Memorials and features which contribute to the historic sense of place are listed in Table 15.6, shown in Figure 15.1 (Sheet 1 and 2 of 5) in Volume 3 of this EIAR, and described in Appendix A15.2 Inventory of Archaeology and Cultural Heritage Sites in Volume 4 of this EIAR.

Table 15.6: Cultural Heritage Sites Within the Proposed Scheme; Talbot Memorial Bridge to Tom Clarke East Link Bridge

ID No.	Name / Type	Townland / Street Address	ITM
NIAH Ref. 50010002	Famine Memorial	Custom House Quay	716518 734514
CBC0016CH009	Statue Matt Talbot	City Quay	716430 734444
CBC0016CH010	Statue 'the Linesman'	City Quay	716577 734416
CBC0016CH011	Memorial	City Quay	716638 734378
CBC0016CH012	Statue Admiral William Brown	Sir John Rogerson's Quay	717170 734334

15.3.2.6 Field Survey

A field survey was undertaken on 27 February 2020 and 2 June 2021. Archaeological and cultural heritage sites identified along the Proposed Scheme are detailed in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR. The field survey was informed by the desk study undertaken for this

assessment. This Section summarises the historic character and archaeological potential of this section of the Proposed Scheme, based on observations made during the field survey. Detail of all relevant sites is contained in the Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR.

15.3.2.6.1 Physical and Cultural Environment

Apart from fragmentary remains of prehistoric shoreline activity, the archaeological and historical background of the area of the Proposed Scheme commences in the post-medieval period with the major reclamation project along the River Liffey in the late 17th and 18th centuries. The eastern expansion into what were formerly flood plains until the 17th century developed particularly in the 18th and 19th centuries but continued into the 20th century. The northside of the River Liffey is notable for its industrial development and later usage, which is characterised by the construction initially of the Royal Canal in the late 18th century and the subsequent development and expansion of the railway in the 19th century and associated port activity on the north docks.

On the southside of the River Liffey, the focus of building and commercial enterprises was largely associated with the maritime industry, with the Grand Canal Dock project at the end of the 18th century proving less than successful. Public realm initiatives and new building developments have enhanced the urban setting and maritime heritage of the area creating a distinctive character for this district of the city. Sir John Rogerson's Quay and North Wall Quay form tangible reminders of that maritime industrial past.

The historic character of the area is dominated by the maritime heritage of the quays and an association with the River Liffey and the River Dodder.

15.3.2.6.2 Archaeological Potential

The Proposed Scheme is located within the Historic City of Dublin (DU018-020) and encompasses six recorded archaeological sites, these all relate to the industrial and maritime nature of the area namely, the quays, including City Quay (DU018-020479), Custom House Quay, North Wall Quay and North Wall Ext. (DU018-020564), Sir John Rogerson's Quay (DU018-020201) and George's Quay (DU018-020458), sea wall (site of) (DU018-020505) and the site of a glass house (DU018-020152) (see Figure 15.1 (Sheet 1 and 2 of 5) in Volume 3 of this EIAR for location reference).

Archaeological excavation has revealed reclamation deposits overlaid by post medieval deposits relating to industrial structures dating to the 19th and 20th centuries (refer to Appendix A15.1 Previous Archaeological Investigations in the Vicinity of the Proposed Scheme in Volume 4 of this EIAR). Bulk excavation on both sides of the River Liffey has revealed interesting sites at a considerable depth, for example fish traps dating to the Late Mesolithic period and a mid-Neolithic wattle fence (Licence 06E0668) at Spencer Dock located at depths of -5m OD and approximately -4.66m OD respectively, a 17th century horizontal mill and an adjacent late 18th century foundation platform comprising reused ship timbers on the corner of Sir John Rogerson's Quay and Creighton Street (Licence 14E0438).

Archaeological assessment for a Bus Priority Scheme on North Wall Quay in 2012 revealed a series of walls (Licence 12E0126) including a wall which ran the length of the development works (c. 460m in length) and c. 25m north to the current quay face. The wall was identified c. 0.55m beneath the current ground surface.

Other linear developments along the quays such as flood defences, flood protection schemes and sewerage schemes have revealed modern and post medieval deposits associated with foundations of structures. No features or finds of a pre-18th century date have been uncovered.

An underwater archaeological survey (ADCO 2021) of the riverbed and quayside has been undertaken in the River Liffey along Custom House Quay and North Wall Quay, where it is proposed to install and construct two pedestrian boardwalks as part of the Proposed Scheme (Dive Licence 21D050 and Detection Device 21R0110). This dive and inspection survey was undertaken to understand the archaeological potential of the area where proposed interventions are required due to the development of two pedestrian boardwalks. No archaeological material, structures or deposits were encountered as part of the underwater survey. A deep deposit of silty-clay forms the surface layer of the riverbed alongside the quay walls and this deposit obscures both the quay's foundation elements and any underlying deposits that are likely to retain material of archaeological interest. Detailed recording in the form of laser scanning of the upper parts of the quay wall, covering the area of the

Proposed Scheme took place (refer to Figure 9-12 in Appendix A15.6 UAIA BusConnects Dublin –Bus Connects Project Proposed Boardwalks Custom House Quay and North Wall Quay, River Liffey (ADCO 2021) in Volume 4 of this EIAR). The quayside was noted to be in a good state of preservation with several repairs noted on the quay. An inspection of the above water elements of the quays was also carried out. This included the quay facades, cap-stones and associated fixtures and fittings. Full details of this underwater archaeological survey are detailed in Appendix A15.6 UAIA BusConnects Dublin –Bus Connects Project Proposed Boardwalks Custom House Quay and North Wall Quay, River Liffey (ADCO 2021) in Volume 4 of this EIAR.

Two areas of archaeological potential have been identified during the course of research for the Proposed Scheme. As described above, a dive and inspection survey took place to assess the impact of a proposed boardwalk along North Wall Quay (first site of archaeological potential). The second area is located at Mayor Street where monitoring of the Luas Line took place in 2008 and revealed post medieval and industrial remains. As part of the Proposed Scheme, it is considered necessary to upgrade the junction of Mayor Street Upper and the Convention Centre Dublin, and as such, it is considered that if ground reducing works take place there is the potential to reveal additional post medieval remains in this area.

Table 15.7 Areas of Archaeological Potential within the Proposed Scheme

ID No.	Name / Type	Townland / Street Address	ITM
CBC0016AH004	Area of Archaeological Potential – Quay Wall	North Wall Quay and River Liffey	716730 734492
CBC0016AH006	Area of Archaeological Potential – Post medieval and industrial remains	Spencer Dock and Mayor Street	717295 734630

15.3.3 Archaeological Heritage: Section 2 – Dodder Public Transport Opening Bridge (DPTOB)

15.3.3.1 National Monuments

There are no National Monuments or sites under preservation order situated within or in the vicinity of this section of the Proposed Scheme.

15.3.3.2 Recorded Archaeological Monuments (RMP / SMR Sites)

This section of the Proposed Scheme includes the ZAP for the Historic City of Dublin (DU018-020) and the ZAP for the line of the sea wall (DU018-066), as outlined in Table 15.8, shown in Figure 15.1 in Volume 3 of this EIAR and described in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR.

Table 15.8: RMP / SMR Sites Within the Proposed Scheme

ID No.	Name / Type	Townland / Street Address	ITM
DU018-020	Historic City of Dublin	City Quay/ Sir John Rogerson's Quay, Custom House Quay, North Wall Quay	716722 734403
DU018-066	Building – line of sea wall (South Wall)	York Road (South Wall)	718505, 718505

15.3.3.3 Topographical Files, National Museum of Ireland (NMI)

No stray finds are recorded along or in the vicinity of this section of the Proposed Scheme.

15.3.3.4 Previous Archaeological Investigations

Underwater archaeological surveys of the riverbed and quayside have taken place at the confluence of the River Dodder and the River Liffey (Licence number 19D0022 and 19R0052), where it is proposed to locate the Dodder Public Transport Opening Bridge (DPTOB) (ADCO 2020). Full details of this underwater archaeological survey

are detailed in Appendix A15.5 Underwater Archaeological Impact Assessment (UAIA) Dodder Public Transport Opening Bridge Project, River Dodder / River Liffey, Dublin City (ADCO 2020) in Volume 4 of this EIAR.

No archaeological material, structures or deposits were encountered as part of the underwater or intertidal surveys at the DPTOB site. However, given that deep deposits of silty-clay have been observed forming the riverbed across these areas, within which frequent modern debris is present at depth, it is likely that any potential archaeological material present is limited to deeper / older layers of soil, located at depths greater than 2m below the existing riverbed surface.

15.3.3.5 Industrial Heritage

The quays on either side of the River Dodder have also been identified as industrial heritage interest and have been given a unique identification number. These sites are all listed in Table 15.9 and are shown in Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR and detailed in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR.

Table 15.9: Industrial Heritage Sites Within the Proposed Scheme

ID No.	Name / Type	Townland / Street Address	ITM
DCIHR 18-12-118	Slip way	Thorncastle Street / York Road	717921 734196
CBC0016AH001	Quay and Quay Wall	Britain Quay and Sir John Rogerson's Quay	717835 734255
CBC0016AH002	Quay-unnamed and Quay Wall	Thorncastle Street / York Road	717921 734198

There is one industrial heritage site listed in the DCIHR (DCC 2003 to 2009), located immediately adjacent to the Proposed Scheme. This is a slip way (DCIHR 18-12-118), as shown in Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR.

Table 15.10: Industrial Heritage Site Adjacent to the Proposed Scheme

ID No.	Name / Type	Townland / Street Address	ITM
DCIHR 18-12-118	Slip way	Thorncastle Street / York Road	717921 734196

15.3.3.6 Cultural Heritage

Features of cultural heritage interest identified within the Proposed Scheme include a variety of historic street furniture, such as lamp posts, and granite paving and kerb stones which are discussed in Chapter 16 (Architectural Heritage). Memorials and features which contribute to the historic sense of place are listed in Table 15.11, shown in Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR and described in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR.

Table 15.11: Cultural Heritage Sites Within the Proposed Scheme

ID No.	Name / Type	Townland / Street Address	ITM
CBC0016CH016	St Patrick's Rowing Club	Thorncastle Street / York Road	718004 734186
CBC0016CH017	Maritime Memorial	Thorncastle Street / York Road	717979 734196
CBC0016CH018	Decorative Metal Buoy	Tom Clarke East Link Bridge	718009 734218

15.3.3.7 Field Survey

A field survey was undertaken on 27 February 2020 and 2 June 2021. Archaeological and cultural heritage sites identified along the Proposed Scheme are detailed in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR. The field survey was informed by the desk study undertaken for this assessment. This Section summarises the historic character and archaeological potential of this section of the Proposed Scheme, based on observations made during the field survey. Detail of all relevant sites is contained in the inventory.

15.3.3.7.1 Physical and Cultural Environment

The embanking of the River Dodder is attributed to having occurred before 1798 (Branagan 2020) with the walling of Britain Quay (formerly known as Great Britain Quay) occurring in the 1790s as part of the opening of the Grand Canal Docks (De Courcy 1966). Britain Quay is located on the south bank of the River Liffey between Sir John Rogerson's Quay and the confluence of the River Liffey, River Dodder and Grand Canal. The two landlords in the 18th century were Rogerson and Fitzwilliam and their influence is still evident today. Rogerson promoted the walling of the River Liffey and the River Dodder and the reclamation of the land behind it while the layout and design of the Pembroke Estates within Ringsend and the reclamation of the land is attributed to Fitzwilliam. In the 1870s, the quay was widened with further works to dredge and deepen the riverbed undertaken alongside the quay wall at Britain Quay.

The marine aspect is now dominated by the Tom Clarke East Link Bridge which takes traffic over the River Liffey to Dublin Port on the northside. Memorials and sculptures in the area reflect the maritime heritage, for example the decorative metal buoy (CBC0016CH018) and the memorial to the fishermen dockers and seamen that have passed this point (CBC0016CH017). St Patrick's Rowing Club (CBC0016CH016) was established in 1936 in Ringsend. The club is of cultural heritage interest as it celebrates and is associated with a strong local tradition of rowing.

15.3.3.7.2 Archaeological Potential

Previously unrecorded archaeological features, deposits or artefacts which survive within the estuarine silts of the riverbed or the more recent reclamation deposits could be disturbed or impacted by in-stream structural works for the DPTOB. This would be caused by excavation and removal of materials to facilitate the construction of bridge piers, reclamation of land for the eastern landing point and any related services beneath the modern overburden.

Three specific areas of archaeological potential were identified as a result of research, site inspections and surveys conducted for the DPTOB. These are listed in Table 15.12, shown in Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR, and described in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR.

Table 15.12: Areas of Archaeological Potential Within the Proposed Scheme

ID No.	Name / Type	Townland / Street Address	ITM
CBC0016AH001	Quay and Quay Wall	Britain Quay and Sir John Rogerson's Quay	717835 734255
CBC0016AH003	Area of Archaeological Potential	River Dodder	717883 734240
CBC0016AH002	Quay - unnamed	Thorncastle Street / York Road	717921 734198

15.3.4 Archaeological Heritage: Section 3 - Tom Clarke East Link Bridge to Sean Moore Road

15.3.4.1 National Monuments

There are no National Monuments or sites under preservation order within or in the vicinity of this section of the Proposed Scheme.

15.3.4.2 Recorded Archaeological Monuments (RMP/ SMR Sites)

There are two recorded historic settlement clusters at the eastern end of this section of the Proposed Scheme, Ringsend and Irishtown. The Proposed Scheme passes through the ZAP associated with both settlements, Ringsend (RMP DU018-053) and Irishtown (RMP DU018-054) (see Image 15.18), as outlined in Table 15.13, shown in Figure 15.1 (Sheet 3 and 5 of 5) in Volume 3 of this EIAR and described in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR.

Until the large-scale reclamation projects of the 17th and 18th centuries, this area formed part of the slob lands of the broad River Liffey Estuary. The process began with the construction of the quays, the North Wall and the

South Wall, the latter being recorded as a building (RMP DU018-066) (refer to Figure 15.1 (Sheet 3 and 4 of 5) in Volume 3 of this EIAR.

Table 15.13: RMP / SMR Sites Within the Proposed Scheme

ID No.	Name / Type	Townland / Street Address	ITM
DU018-053	Settlement Cluster	Ringsend	718006, 734002
DU018-054	Settlement Cluster	Irishtown (Dublin By.)	734002, 733556
DU018-066	Building – line of south wall	York Road (South Wall)	718505, 718505

15.3.4.3 Topographical Files, National Museum of Ireland

No stray finds are recorded along or in the vicinity of this section of the Proposed Scheme.

15.3.4.4 Previous Archaeological Investigations

Previous archaeological investigations along this section of the Proposed Scheme are described in Appendix A15.1 Previous Archaeological Investigations in the Vicinity of the Proposed Scheme in Volume 4 of this EIAR. Monitoring and dredging works took place under archaeological supervision at the Poolbeg Yacht and Boat Club at Pigeon House Road in 2004 (Licence number 04E740). Nothing of archaeological interest was revealed.

15.3.4.5 Industrial Heritage

There is one industrial heritage site listed in the DCIHR (DCC 2003 to 2009) that is located within this section of the Proposed Scheme. This is the Syphon House (DCIHR 18-12-151) off Pigeon House Road at the entrance of Ringsend Park, and as this is an upstanding building, it is assessed in Chapter 16 (Architectural Heritage).

15.3.4.6 Cultural Heritage

There are two cultural heritage sites along this section of the Proposed Scheme (refer to Figure 15.1 (Sheet 3 and 4 of 5) in Volume 3 of this EIAR).

Table 15.14: Cultural Sites within the Proposed Scheme

Other Ref.	Name / Type	Townland / Street Address	ITM
CBC0016CH019	Sculpture	R131	718073 734168
CBC0016CH021	Ringsend / Irishtown Park	Ringsend / Irishtown Park	718410 733902

15.3.4.7 Field Survey

A field survey was undertaken on 27 February 2020 and 2 June 2021. Archaeological and cultural heritage sites identified along the Proposed Scheme are detailed in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR. The field survey was informed by the desk study undertaken for this assessment. This Section summarises the historic character and archaeological potential of this section of the Proposed Scheme, based on observations made during the field survey. Detail of all relevant sites is contained in the inventory.

15.3.4.7.1 Physical and Cultural Environment

This area was reclaimed in the 18th century, when a double stone wall was constructed at Ringsend in 1759. Pigeon House Road is named after the wooden house of John Pigeon, one of the South Wall workers, which was a store for building materials. Pigeon also ran boat-trips around Dublin Bay for English visitors staying at the hotel built between 1793 and 1795 (Bennett 1991). Ringsend takes its name from its location on the dry spit of land formed by the easternmost channel of the River Dodder delta at its confluence with the River Liffey, today known as ‘An Rinn’ (i.e. ‘the point’). Ringsend was primarily a fishing community utilising the shallow waters of the bay for shell fishing. According to De Courcy (1996), there was human habitation on the peninsula of Ringsend (and Irishtown) from at least the 9th or 10th centuries. A separately named settlement of ‘Irishtown’ may have originated

during the political turmoil of the mid-15th century, when the Dublin Corporation ordered the expulsion of all ‘men and women of Irish blood’ from within the city gates (Bennett 1991). Alternatively, it may have arisen following the Reformation a century later, as elsewhere in Ireland (De Courcy 1996). The first documentary reference is in the census of 1659, which recorded 59 English and 21 Irish living in Ringsend, and 23 English and 75 Irish living in Irishtown (Ibid.)

At the beginning of the 20th century, landfilling was in progress, and the shoreline was eventually pushed out by 1.5km east of Thorncastle Street, with the village of Ringsend developing as a suburb of Dublin.

15.3.4.7.2 Archaeological Potential

To the east of the River Dodder, there is the presence of a sea wall (DU018-066) and historic settlement clusters in the form of Ringsend (DU018-053) and Irishtown (DU018-054) established on reclaimed land which are of archaeological interest and potential.

15.4 Potential Impacts

This Section presents potential impacts that may occur due to the Proposed Scheme, in the absence of mitigation. This informs the need for mitigation or monitoring to be proposed (refer to Section 15.5). Predicted ‘residual’ impacts, taking into account any proposed mitigation, are presented in Section 15.6.

15.4.1 Characteristics of the Proposed Scheme

Ground breaking works required for the construction of the Proposed Scheme may cause impacts to archaeological heritage. From an archaeological perspective, ground breaking works (for the purpose of the Proposed Scheme) refers to the following activities:

- Pavement construction, repairs and reconstruction works;
- Road resurfacing works;
- Any excavations of soil, including landscaping works; and
- Any ground disturbance for utility works.

15.4.2 ‘Do Nothing’ Scenario

In the ‘Do-Nothing’ scenario, the Proposed Scheme would not be implemented and there would, therefore, be no adverse impacts to any of the known or as yet undiscovered subsurface archaeological deposits, features or finds, and no adverse impacts on cultural heritage. It is acknowledged that in the absence of the Proposed Scheme, other developments requiring road alteration will take place. These alterations may cause adverse impacts to below ground archaeological heritage assets.

15.4.3 Construction Phase

15.4.3.1 Section 1 - Talbot Memorial Bridge to Tom Clarke East Link Bridge

15.4.3.1.1 Archaeological Heritage

15.4.3.1.1.1 National Monuments

There are no National Monuments or sites under preservation order situated within or in the vicinity of this section of the Proposed Scheme, and as such, there are no impacts anticipated.

15.4.3.1.1.2 Recorded Archaeological Sites / Monuments (RMP / SMR sites)

This section of the Proposed Scheme traverses the ZAP for the Historic City of Dublin (RMP DU018-020) where it travels along the quays (Custom House Quay and North Wall Quay on the north quays and City Quay, Sir John Rogerson’s Quay and Britain Quay on the south quays). This is an area of archaeological potential (RMP DU018-020). Its location and extent is presented on Figure 15.1 (Sheet 1 to 3 of 5) in Volume 3 of this EIAR. There is the

potential for the discovery of previously unknown below ground archaeological features, materials, and deposits within the ZAP. The RMP site has a medium sensitivity value, and the magnitude of impact is considered to be medium as there is the potential to reveal archaeological features even though only a small part of the extensive Historic City of Dublin ZAP is affected. Therefore, the potential impact of the Construction Phase will be Negative, Moderate and Permanent.

The presence of six recorded archaeological sites (DU018-020152, DU018-020564, DU018-020479, DU018-020458, DU018-020201 and DU018-020505) in the form of quays, quay walls, a sea wall and the site of an historic glass house (no longer standing) on or alongside this zone (see Table 15.4), all form part of the industrial maritime scape and provide an indication of the below ground potential of the area in which the Proposed Scheme is situated.

There will be no impact to the former sea wall at Custom House Quay (DU018-020505) as no works are proposed in proximity to the site of this structure.

The site of a glasshouse (RMP DU018-0020152) at Custom House Quay has a medium sensitivity value and the magnitude of impact is low, as there are no upstanding remains and the site has been built over, while the location of the site as identified from Rocque's mapping (1756) is outside the works for the Proposed Scheme. Therefore, the potential impact of the Construction Phase will be Negative, Slight and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The recorded monument (DU018-20458) at George's Quay has a medium sensitivity value and no magnitude of impact is anticipated as the works for the Proposed Scheme will not impact the quay or quay walls in this area. Therefore, there is no potential impact during the Construction Phase (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR). The quays and quay walls (DU018-020564, DU018-020479 and DU018-020201) (see Figure 15.1 (Sheet 1 to 3 of 5) in Volume 3 of this EIAR) extend along the River Liffey at Custom House Quay, North Wall Quay (and North Wall Ext.), City Quay, and Sir Rogerson's Quay. It is therefore possible that associated features or earlier quay walls survive beneath the current road and quay surface within the extent of the Proposed Scheme and have the potential to be affected by any ground breaking or intervention works. The recorded monument (DU018-020479) at City Quay has a medium sensitivity value and the magnitude of impact is considered to be medium. Therefore, the potential impact of the Construction Phase to the quay will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The recorded monument (DU018-020201) at Sir John Rogerson's Quay has a medium sensitivity value and the magnitude of impact is considered to be medium. Therefore, the potential impact of the Construction Phase to the quay will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The development of two pedestrian boardwalks at Custom House Quay and at Excise Walk / North Wall Quay will impact locally the quay wall (DU018-020564) where the structures have to be affixed to the quay. Each proposal has been designed to minimise the impact on the quay. At Custom House Quay, the presence of three in-stream piles in the River Liffey will ensure the structural stability of the boardwalk. The depth of the piles are anticipated to be in the region of 15m. As such, there will be a spreading beam with a grout or pad separator above the capping stones supporting the boardwalk. There will be no impact on the capping stones themselves. The boardwalk will be tied back into the adjacent building. The boardwalk will be 6m wide, narrowing to 4.25m at the eastern end over the proposed monopiles in the river. The structure is to be made from steel.

At Excise Walk / North Wall Quay, the design proposal is to create a pedestrian boardwalk that is 7.10m wide with a footpath surface overhanging the quay wall for a distance of 3.2m. The existing railing will be removed, and the finished wooden surface will be placed over the existing quay. The boardwalk will extend for a distance of 58.33m and 10 anchors will be attached to the existing quay wall underneath the proposed structure. A steel beam will pass through the coping stone and a concrete counterweight and pile cap will be placed to the north of the coping stone and quay. Similar structures have been successfully integrated and placed along the quay side further upstream of the River Liffey at Ormond Quay Lower and Bachelor's Walk.

The recorded monument (DU018-020564), a quay and quay wall (along Custom House Quay and North Wall Quay (and North Wall Extension), has a medium sensitivity value, and the magnitude of impact is considered to

be medium as the impact will be localised. The potential of working in the River Liffey was also considered and a dive inspection and detection survey (ADCO 2021, Licence 21D0050 and 21R0110) was carried out to assess the impact of the proposed three in-stream piles as well as the proposed boardwalk structures on the quayside more widely. Within the River Liffey, nothing of archaeological significance was revealed. However, deep deposits of silty clay forming a surface layer of the riverbed alongside the quay walls was encountered. Both of the historic quays were subject to detailed archaeological recording and a series of quayside fixtures and fittings such as mooring hooks, river and access ladders were identified (refer to Figure 8 in Appendix A15.6 UAIA BusConnects Dublin – Bus Connects Project Proposed Boardwalks Custom House Quay and North Wall Quay, River Liffey (ADCO 2021) in Volume 4 of this EIAR). A number of these will require removal before the site preparation stage for the proposed boardwalks to secure storage and will be reinstated once the project is completed (refer to Table 5 in Appendix A15.6 UAIA BusConnects Dublin –Bus Connects Project Proposed Boardwalks Custom House Quay and North Wall Quay, River Liffey (ADCO 2021) in Volume 4 of this EIAR). Therefore, the potential impact of the Construction Phase will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The Scherzer Bridges at George's Dock, Custom House Quay and the Royal Canal / Spencer Dock, North Wall Quay are protected structures (RPS 896 and RPS 912). They are also recorded in the DCIHR (DCIHR18-11-115 and 18-12-063) and the NIAH (NIAH 50010001 and 50010009). As these are features of architectural and technical significance, the impact of the proposed interventions, repair works, and relocation of the bridges is assessed in Chapter 16 (Architectural Heritage).

However, in order for these works to be carried out, ground breaking and reduction works will occur at both locations, with works taking place within the ZAP for the Historic City of Dublin (DU018-020) and along the archaeologically recorded quay (DU018-0200564). It is at this stage that below ground remains of archaeological interest could be detected or recorded archaeological sites that are adjacent and form part of the quay structure could be affected by the Proposed Scheme works. It is anticipated the 60 Continuous Flight Auger (CFA) piles (20 for each relocated Scherzer Bridge and another 10 for each replacement road carriageway structure) at a depth of 8m will be required as part of the relocation process to support the structures in their new positions. The Scherzer Bridges have a high sensitivity value, and the magnitude of the impact is considered to be high as there is a significant potential to reveal remnants of former swivel bridges or features of an industrial heritage interest associated with the bridges. Therefore, the potential impact of the Construction Phase will be Negative, Significant and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

As a result of the relocation of the Scherzer Bridge at George's Dock, Custom House Quay, ground breaking works will take place on either side of the lock at George's Dock, a protected structure (RPS 3173, DCIHR 18-11-154, NIAH 50010131). As a feature of architectural heritage significance, the impact to the lock is assessed in Chapter 16 (Architectural Heritage). However, there is the potential to disturb subsurface remains associated with the lock or earlier structures within this area as a result of the ground breaking and excavation activities required to relocate the Scherzer Bridges. This localised investigation within the ZAP for the Historic City of Dublin (DU018-020) has a medium sensitivity value and the magnitude of impact is considered to be medium. Therefore, the potential impact of the Construction Phase will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.1.1.3 Non-Designated Archaeological Sites

The Old Dock (site of) (CBC0016AH005; Figure 15.1 (Sheet 1 of 5) in Volume 3 of this EIAR) at the junction of Memorial Road and Custom House Quay was recorded in the DCIHR but was not given an identification number. This area has since been filled in and developed, currently housing the Irish Financial Services Centre (IFSC). The non-designated archaeological site has a low sensitivity value, and the magnitude of impact is considered to be negligible. Therefore, the potential impact of the Construction Phase will be Negative, Not Significant and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The site of a swivel bridge and lock at Custom House Quay (DCIHR 18-011-0158 and 18-11-159) (Figure 15.1 (Sheet 1 of 5) in Volume 3 of this EIAR) have no visible trace. These non-designated sites have a low sensitivity value as they have been previously removed, filled in and replaced by a busy road junction and the magnitude of impact is considered to be negligible as there are no works required within this area (refer to Appendix A15.2

Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR). Therefore, the potential impact on DCIHR 218-011-0158 and 18-11-159 will be Negative, Not Significant and Permanent.

A number of Good Sheds were noted along Custom House Quay and North Wall Quay from the Ordnance Survey mapping and have been added to the DCIHR. These Goods Sheds were largely temporary structures and built of timber and include DCIHR 18-11-152 and 18-12-006 at Custom House Quay, and on North Wall Quay, DCIHR 18-12-011, 18-12-073 and 18-12-076. There is no visible trace of these structures and the areas where they were located have been built over. The site of the Goods Shed (DCIHR 18-11-152) at Custom House Quay is located at the Famine Memorial, and as such, no impact is anticipated as the site is currently occupied. The site of the Goods Shed (DCIHR 18-12-006) at Custom House Quay is located outside the Proposed Scheme and no impact is anticipated. At North Wall Quay, no impact is anticipated for DCHIR 18-12-076, as it is also located outside of the Proposed Scheme.

The remaining good sheds that are non-designated sites have a low sensitivity value as they have been previously removed and the areas where they once stood have been developed. The magnitude of impact is considered to be low (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR). Therefore, the potential impact on DCHR 18-12-011 and 18-12-073 at North Wall Quay which are located within the boundary of the Proposed Scheme will be Negative, Slight and Permanent.

The site of the Royal Canal Office (DCIHR 18-12-060) at North Wall Quay has been completely regraded and there is no visible trace of this former structure. The area has experienced a lot of disturbance over the years and now presents as a linear park and bicycle depot along and to the west of the Royal Canal. Due to the level of disturbance and ground reducing works at this site (this area is proposed as Construction Compound R2), the magnitude of the impact is considered to be low, and the significance of the impact is low (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR). Therefore, the potential impact on DCIHR 18-12-060 will be Negative, Slight and Permanent.

DCIHR 18-12-058 is recorded in the DCIHR as a 'Wooden Wharf (site of)'. There is no visible presence of this today and it is remembered through its name. A pedestrian boardwalk proposed for this area of the quay side will impact on the quay wall (DU018-020564) (as discussed in Section 15.4.3.1.1.1). Works have been designed to minimise the impact to the existing quay and there are no in-stream works proposed. The non-designated industrial heritage asset has a low sensitivity value, and the magnitude of the impact is negligible. Therefore, the potential impact on the site of the wharf will be Negative, Not Significant and Permanent.

There is no impact anticipated to DCIHR 18-12-092, a lighthouse (site of), located off North Wall Quay, as no works are proposed in vicinity of this site.

15.4.3.1.1.4 Areas of Archaeological Potential

Works within / adjacent to the River Liffey at Custom House Quay and within the area of archaeological potential (CBC0016AH004) has the potential to encounter archaeological material and will impact on previously unrecorded archaeological features, deposits or artefacts which may survive within the estuarine silts. The dive survey and visual inspection (ADCO 2021) noted no features or artefacts of archaeological potential in the vicinity of the proposed works for the boardwalks at the time of survey. However, due to the dynamic estuarine environment, this undesignated area of archaeological potential has a medium sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of the Construction Phase will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

Archaeological monitoring during the LUAS works in 2008 revealed post-medieval foundation remains of structures depicted on the revised OS mapping dating to the 19th century along sections of Mayor Street (CBC0016AH006). Also, the works will take place in the environs of the Midland Great Western Railway (North Wall Extension) (site of) (DCIHR 18-12-069) as shown on the 1864, 1910 and 1940 OS mapping editions. For the proposed upgrade of the junction at Mayor Street Upper and the Convention Centre, the potential to encounter subsurface post medieval and industrial remains will be localised and dependant on the extent of ground reducing works. It is unlikely that excavation in this area will go below road formation level. However, on a precautionary basis, it is anticipated that the archaeological potential has a low sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase will be Negative, Slight and

Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.1.2 Cultural Heritage

Upstanding industrial heritage sites, historic street furniture and cultural heritage sites of architectural interest that contribute to the present-day character and uniqueness of the area are assessed in Chapter 16 (Architectural Heritage).

There are a number of sculptures and memorials located on the campshires and these reflect the maritime nature of the quays (see Table 15.6). These are itemised in the inventory in Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

A famine memorial (NIAH Ref. 50010002) is located on Custom House Quay within the redline boundary of the Proposed Scheme. The memorial has a medium sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase will be Negative, Slight and Temporary (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

A statue of Matt Talbot (CBC0016CH009; Figure 15.1 (Sheet 1 of 5) in Volume 3 of this EIAR) is located on City Quay within the redline boundary of the Proposed Scheme. The statue has a low sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase will be Negative, Slight and Temporary (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

A statue of 'the linesman' (CBC0016CH010; Figure 15.1 (Sheet 1 of 5) in Volume 3 of this EIAR) is located on City Quay outside the boundary of the Proposed Scheme. Therefore, no potential impact is anticipated (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

A memorial (CBC0016CH011); Figure 15.1 (Sheet 1 of 5) in Volume 3 of this EIAR) is located on City Quay at the outer edge of the boundary of the Proposed Scheme. No potential impact is anticipated at this location (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

A statue of Admiral William Brown (CBC0016CH012; Figure 15.1 (Sheet 2 of 5) in Volume 3 of this EIAR) is located on Sir John Rogerson's Quay within the redline boundary of the Proposed Scheme. The cultural heritage feature has a low sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase will be Negative, Slight and Temporary (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The diving bell (NIAH 5020468); Figure 15.1 (Sheet 2 of 5) in Volume 3 of this EIAR) is located on Sir John Rogerson's Quay to the north of the boundary of the Proposed Scheme. No potential impact is anticipated at this location (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.2 Summary of Impacts for Section 1 – Talbot Memorial Bridge to Tom Clarke East Link Bridge

The potential pre-mitigation impacts during construction are summarised in Table 15.15, which should be read in conjunction with Figure 15.1 in Volume 3 of this EIAR.

Table 15.15: Summary of Potential Construction Phase Impacts (Section 1 - Talbot Memorial Bridge to Tom Clarke East Link Bridge)

Assessment Topic	Potential Impact
RMP DU018-020, Dublin Historic City	Negative, Moderate and Permanent.
RMP DU018-0020152 Glass House (site of) at Custom House Quay	Negative, Slight and Permanent.
RMP DU018-20458, George's Quay	No impact
RMP DU018-0200564, DCIHR 18 12 005, NIAH 50060556, Custom House Quay and North Wall Quay (and North Wall Ext.) (Quay and Quay Wall)	Negative, Moderate and Permanent.

Assessment Topic	Potential Impact
RMP DU018-020479 DCIHR 18-12-014 City Quay (Quay and Quay Wall)	Negative, Moderate and Permanent.
RMP DU018-020201 Sir John Rogerson's Quay (Quay and Quay Wall)	Negative, Moderate and Permanent.
RPS 896, DCIHR 18-11-115, NIAH 50010001 Scherzer Bridges, George's Dock, Custom House Quay	Negative, Significant and Permanent.
RPS 912, DCIHR 18-12-063; NIAH 50010009 Scherzer Bridges, at the Royal Canal / Spencer Dock, North Wall Quay	Negative, Significant and Permanent
RPS 3173, DCIHR 18-11-154, NIAH 50010131, Lock at George's Dock	Negative, Moderate and Permanent
CBC016AH005, Old Dock (site of) at the junction of Memorial Road and Custom House Quay	Negative, Not Significant and Permanent
DCIHR 18-11-159, Lock (site of) at Custom House Quay	Negative, Not Significant and Permanent
DCIHR 18-11-158, Former Swivel Bridge (site of) at Custom House Quay	Negative, Not Significant and Permanent
DCIHR 18-12-060, Royal Canal Office (site of) at North Wall Quay	Negative, Slight and Permanent
DCIHR 18-12-006, Goods Shed (Site of), Custom House Quay	No Impact
DCIHR 18-11-152, Goods Shed (site of) Custom House Quay	No impact
DCIHR 18-12-011, Goods Shed (site of), North Wall Quay	Negative, Slight and Permanent
DCIHR 18-12-073, Goods Shed (site of) North Wall Quay	Negative, Slight and Permanent
DCIHR 18-12-076, Goods Shed (site of), North Wall Quay	No Impact
CBC016AH004, Area of Archaeological Potential, River Liffey	Negative, Moderate and Permanent
CBC0016AH006, Area of Archaeological Potential, Mayor Street	Negative, Slight and Permanent
DCIHR 18-12-058, 'Wooden Wharf' (site of), at North Wall Quay	Negative, Not Significant and Permanent
NIAH Ref. 50010002, Famine Memorial at Custom House Quay	Negative, Slight and Temporary
CBC0016CH009, Statue of Matt Talbot at City Quay	Negative, Slight and Temporary
CBC0016CH012, Statue of Admiral William Brown at Sir John Rogerson's Quay	Negative, Slight and Temporary
DCIHR 18-12-092, Light House, North Wall Quay	No Impact
'The Linesman' Statue (CBC0016CH10)	No impact
Memorial (CBC0016CH011)	No impact
Diving Bell (NIAH 5020468)	No impact

15.4.3.3 Section 2 – River Dodder Public Transport Opening Bridge (DPTOB)

15.4.3.3.1 Archaeological Heritage

15.4.3.3.1.1 National Monuments

There are no National Monuments or sites under preservation order situated within or in the vicinity of this section of the Proposed Scheme, and as such, there are no impacts anticipated.

15.4.3.3.1.2 Recorded Archaeological Sites / Monuments (RMP / SMR sites)

The area proposed to accommodate the DPTOB is partially situated within the ZAP for Sir John Rogerson's Quay (DU018-020201) and the South Sea Wall (DU018-066), as well as partly within the ZAP for the historic city of Dublin (DU018-020) (Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR). The DPTOB will cross the River Dodder at its confluence with the River Liffey, linking Britain Quay with the R131 (York Road).

This section of the Proposed Scheme traverses the ZAP for Sir John Rogerson's Quay (DU018-020201) (Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR). There has been extensive development in this area from the 18th century onwards, however, despite modern disturbances, ground breaking works have the potential to reveal features associated with the historic development of the quay. This recorded monument has a medium sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of the Construction Phase to Sir John Rogerson's Quay (DU018-020201), as well as the segment within the ZAP for the

historic city of Dublin (DU018-020) will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The Proposed Scheme traverses the ZAP for the South Sea Wall (recorded as a building (site of)) along York Road (DU018-066) (Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR)). There have been extensive reclamation works in this area from the 18th century onwards, however, despite more recent disturbances, ground breaking works have the potential (albeit very low, given the type of work proposed) to reveal features associated with the historic development of sea defences in this area. This recorded monument has a medium sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase to the South Sea Wall (DU018-066) will be Negative, Slight and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.3.1.3 Non-Designated Archaeological Sites

Britain Quay was extended in the late 19th century, and it is this structure on which the western abutment of the DPTOB will be constructed. The eastern abutment of the DPTOB is situated within partially reclaimed deposits and the riverbed. For the purpose of assessment, Britain Quay has been assigned an identification number (CBC0016AH001) as well as the unnamed quay at Thorncastle Street / York Road (CBC0016AH002). The River Dodder, as an area of archaeological potential, has been assigned a unique identification number (CBC0016AH003) (Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR).

At Britain Quay (CBC0016AH001), the impact to the quay wall will be localised. The undesignated archaeological site has a medium sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of the Construction Phase will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

At the unnamed quay at Thorncastle Street / York Road (CBC0016AH002), reclamation works are proposed to accommodate the western abutment of the DPTOB, and as a result, the quay wall will be retained. However, 15m of it will be lost from view. The undesignated quay site has a medium sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of the Construction Phase will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

Works within the River Dodder and within the area of archaeological potential (CBC0016AH003), such as the excavation and removal of materials to facilitate the construction of bridge piers, reclamation of land for the eastern landing point, disturbance of estuarine deposits, and any related services beneath the modern overburden, have the potential to encounter archaeological material and will impact on previously unrecorded archaeological features, deposits or artefacts which may survive within the estuarine silts. The visual (dive survey) and metal detection survey of the riverbed (ADCO 2019) noted no features or artefacts of archaeological potential in the vicinity of the DPTOB at the time of survey. Due to the dynamic estuarine environment this undesignated area of archaeological potential has a medium sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of the Construction Phase will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

DCIHR 18-12-118, a concrete slip way (c.1920-30), located off York Road is located immediately to the south of the working area for the DPTOB and will remain intact with no impact anticipated to the structure.

15.4.3.3.2 Cultural Heritage

A maritime memorial dedicated to the hobbler's, the fishermen, the docker's and the seamen is located on Thorncastle Street / York Road (CBC0016CH017; Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR). This memorial is of local interest and has a low sensitivity value and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase will be Negative, Slight and Temporary (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

A decorative metal buoy (CBC0016CH018; Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR) is located to the west of the Tom Clarke East Link Bridge. This decorative buoy is a reminder of the maritime heritage of the area and has a low sensitivity value and the magnitude of impact is considered to be low. Therefore, the potential

impact of the Construction Phase will be Negative, Slight and Temporary (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

St Patrick's Rowing Club (SPRC) was established in 1936 in Ringsend (CBC0016CH016; Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR) on Thorncastle Street. The relocation of the structure and berthing facilities is required in order to accommodate the DPTOB, with a new club house and new facilities for the SPRC to be provided on an area of reclaimed land on the eastern bank that will accommodate the eastern abutment of the bridge, ensuring the continuation of the tradition of rowing in the area. So, even though the existing structure will be demolished, it will be replaced with new purpose-built facilities, very close to its original location, neutralising the initial impact. The SPRC has a medium sensitivity value given the tradition of rowing within the area and the magnitude of impact is considered to be medium as the structure will be removed and replaced. Therefore, the potential impact of the Construction Phase will be Negative, Moderate and Permanent as the existing facilities will be removed (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.4 Summary of Impacts for Section 2 – River Dodder Public Transport Opening Bridge (DPTOB)

The potential pre-mitigation impacts during construction are summarised in Table 15.16, which should be read in conjunction with Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR.

Table 15.16: Summary of Potential Construction Phase Impacts (Section 2 - DPTOB)

Assessment Topic	Potential Impact
RMP DU018-020, Dublin Historic City	Negative, Moderate and Permanent.
RMP DU018-020201 Sir John Rogerson's Quay (Quay and Quay Wall)	Negative, Moderate and Permanent.
RMP DU018-066, South Sea Wall	Negative, Slight and Permanent
CBC016AH001; Britain Quay	Negative, Moderate and Permanent
CBC016AH002, unnamed quay	Negative, Moderate and Permanent
CBC0016AH003, Area of Archaeological Potential, River Dodder	Negative, Moderate and Permanent.
DCIHR 18-12-118, A Concrete Slip-way	No impact
CBC0016CH017, Maritime Memorial	Negative, Slight and Temporary
CBC0016CH018, A Decorative Metal buoy	Negative, Slight and Temporary
CBC0016CH016, SPRC	Negative Moderate and Permanent

15.4.3.5 Section 3 - Tom Clarke East Link Bridge to Sean Moore Road

15.4.3.5.1 Archaeological Heritage

15.4.3.5.1.1 National Monuments

There are no National Monuments or sites under preservation order situated within or in the vicinity of this section of the Proposed Scheme, and as such, there are no impacts anticipated.

15.4.3.5.1.2 Recorded Archaeological Sites / Monuments (RMP / SMR sites)

It is anticipated that the settlement clusters of Ringsend and Irishtown (RMP DU018-053 and DU018-054), while within the Proposed Scheme, will remain unaffected. This is due to the fact that a pedestrian and cycle track is proposed for Ringsend / Irishtown Park and will have a minimal disturbance in terms of earth moving and ground reduction works. Up until 1843 (Image 15.10), this was a coastal environment and the western extent of the ZAP surrounding these settlement clusters reflects the former coastal boundary. Historically, these areas were undeveloped up until the early 20th century when the reclamation process of infilling the area with dump material to create Ringsend Park took place. Works proposed for these areas include quiet street treatment along streets that are adjacent to the ZAP for Ringsend, namely, Pembroke Cottages and Cambridge Park. An improved shared user track is proposed along the western boundary of Ringsend Park.

The historic settlement of Ringsend (RMP DU018-053, Figure 15.1 (Sheet 3 and 5 of 5) in Volume 3 of this EIAR) has a medium sensitivity value and the magnitude of impact is considered to be low as limited works (as described above) are envisaged for the area. Therefore, the potential impact of the Construction Phase on the ZAP for the historic settlement will be Negative, Slight and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The historic settlement of Irishtown (RMP DU018-054, Figure 15.1 (Sheet 5 of 5) in Volume 3 of this EIAR) has a medium sensitivity value and the magnitude of impact is considered to be low as limited works (as described above) are envisaged for the area. Therefore, the potential impact of the Construction Phase on the ZAP for the historic settlement will be Negative, Slight and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

The site of or line of the south wall (RMP DU018-066, building (site of) sea wall) (continuation of RMP DU019-029—2) (Figure 15.1 (Sheet 4 of 5) in Volume 3 of this EIAR) will largely remain unaffected by the Proposed Scheme. This feature is clearly annotated on the historic maps such as Rocque, 1760 and the first edition Ordnance Survey six-inch map, 1843. An opening is required in the existing up standing wall (at the junction of Pembroke Cottages and York Road) to facilitate access of a cycle track and pedestrian footpath. The site of the sea wall, a recorded monument has a medium sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase on this recorded monument will be Negative, Slight and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.5.1.3 Non-Designated Archaeological Sites

There are no non-designated archaeological sites within or in the vicinity of this section of the Proposed Scheme, and as such, there are no impacts anticipated.

15.4.3.5.2 Cultural Heritage

A sculpture (CBC0016CH019; Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR) is located to the east of the Tom Clare East Link Bridge. As outlined in Section 15.4.3.1.2, sculptures can be moved for the duration of works, stored securely at an agreed location and subsequently reinstated (in original position or as close to it as possible). The sculpture has a low sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase will be Negative, Slight and Temporary (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

Ringsend Park (CBC0016CH021; Figure 15.1 (Sheet 4 of 5) in Volume 3 of this EIAR) is an enclosed green area located on reclaimed land and considered to be of cultural heritage interest as an amenity area for the local area. This cultural heritage feature has a low sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of the Construction Phase will be Negative, Slight and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.6 Summary of Impacts for Section 3 - Tom Clarke East Link Bridge to Sean Moore Road

The potential pre-mitigation impacts are summarised Table 15.17, and should be read in conjunction with Figure 15.1 (Sheet 3 to 5 of 5) in Volume 3 of this EIAR.

Table 15.17: Summary of Potential Construction Phase Impacts (Section 3 - Tom Clarke East Link Bridge to Sean Moore Road)

Assessment Topic	Potential Impact
RMP DU018-053, Settlement Cluster Ringsend	Negative, Slight and Permanent.
RMP DU018-054, Settlement Cluster - Irishtown	Negative, Slight and Permanent.
RMP DU018-066, Building (site of), South (Sea) Wall	Negative, Slight and Permanent.
CBC0016CH019, Undesignated, Sculpture, Tom Clarke East Link Bridge	Negative, Slight and Temporary.
CBC0016CH021; Ringsend Park (Undesignated)	Negative, Slight and Permanent.

15.4.3.7 Proposed Construction Compound Locations

Construction Compounds for the Proposed Scheme will be located on either side of the lock at George's Dock (Construction Compound R1) (Figure 15.1 (Sheet 1 of 5) in Volume 3 of this EIAR), at the Royal Canal, off North Wall Quay (Construction Compound R2) (Figure 15.1 (Sheet 2 of 5) in Volume 3 of this EIAR) and at the DPTOB (Construction Compound R3A/R3B and R4) (Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR). The largest and main Construction Compounds will be located at Thorncastle Street (Construction Compound R4), followed by the secondary Construction Compound at Sir John Rogerson's Quay (Construction Compound R3B). All Construction Compound areas are to be located within the defined redline boundary and located in close proximity to the majority of major works within the Proposed Scheme. Construction Compound R1 and Construction Compound R2 will facilitate the relocation of the Scherzer Bridges, and the construction of the new replacement carriageway bridge to carry the road lanes. Construction Compound R3B and Construction Compound R4 will facilitate the construction of the DPTOB and will facilitate construction of either side of the DPTOB.

The Construction Compounds will be used to store materials, plant and equipment, to manage the activities from, and to provide welfare facilities for construction personnel. Limited car parking will also be provided at Construction Compound R3A/R3B and Construction Compound R4. Following completion of the construction works, the Construction Compound areas will be cleared and fully reinstated to match existing conditions.

15.4.3.7.1 Archaeological Heritage

15.4.3.7.1.1 National Monuments

No national monuments will be impacted by the location of the proposed Construction Compounds.

15.4.3.7.1.2 Recorded Archaeological Sites/ Monuments (RMP/ SMR sites)

Construction Compound R1, R2 and R3A/R3B will be located within the ZAP for the Historic City of Dublin (RMP DU018-020). Site preparation works within the designated ZAP for Dublin City may impact on previously unknown archaeological sites or features that survive below ground. The RMP ZAP has a high to medium sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of Construction Compound R1, R2 and R3A/R3B will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

Construction Compound R3A/R3B will also be located on Sir John Rogerson's Quay within the ZAP for DU018-020201 (a quay). Site preparation works within the designated ZAP for the quay may impact on previously unknown archaeological sites, reclamation deposits or features that survive below ground. The RMP ZAP has a medium sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of Construction Compound R3A/R3B will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

Construction Compound R4 will be located with the ZAP for the sea wall (building site of) (DU018-066). Site preparation works within the designated ZAP for the sea wall may impact on previously unknown archaeological sites, reclamation deposits or features that survive below ground. The RMP ZAP has a medium sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of Construction Compound R4 will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.7.1.3 Non-Designated Archaeological Sites

Construction Compound R2 will be located on either side of the Royal Canal. The Construction Compound on the west side of the canal is located on the former site of the Royal Canal Office (DCIHR 18-12-060), and the area is now landscaped as part of the existing urban realm for the Royal Canal. As this site has been previously disturbed and regarded, it is unlikely that site preparation will impact on features that survive below ground. This non-designated industrial heritage asset has a low to medium sensitivity value, and the magnitude of impact is considered to be low. Therefore, the potential impact of Construction Compound R2 will be Negative, Slight and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

Construction Compound R3A/R3B and R4 will be located on either side of the DPTOB, along Britain Quay (CBC016AH001) and an unnamed quay at Thorncastle Street / York Road (CBC0016AH002). Site preparation works around these quay walls may impact on previously unknown archaeological sites, reclamation deposits or features that survive below ground. These undesignated heritage assets have a low sensitivity value, and the magnitude of impact is considered to be medium. Therefore, the potential impact of Construction Compound R3A/R3B and R4 will be Negative, Moderate and Permanent (refer to Appendix A15.2 Inventory of Archaeological and Cultural Heritage Sites in Volume 4 of this EIAR).

15.4.3.7.1.4 Greenfield Potential

Greenfield potential is defined as areas that have experienced no previous disturbance, and hence, they are usually covered with a natural vegetated layer. Within this urban context, while there are green spaces and linear parklands, they have all been previously disturbed. No areas of greenfield potential will be impacted at the location of the proposed Construction Compounds.

15.4.3.7.2 Cultural Heritage

Three features of cultural heritage interest are noted within the area proposed for Construction Compound R4. These are SPRC (CBC0016CH016), a memorial (CBC0016CH017) and a decorative metal buoy (CBC0016CH018). The impacts to these cultural heritage assets have been addressed in Section 15.4.3.3.2.

15.4.3.8 Summary of Impacts for the Proposed Construction Compounds for the Proposed Scheme

The potential pre-mitigation impacts are summarised in Table 15.18, and should be read in conjunction with Figure 15.1 (Sheet 1 to 3 of 5) in Volume 3 of this EIAR.

Table 15.18: Summary of Potential Construction Phase Impacts (Proposed Construction Compound Locations)

Assessment Topic	Potential Impact
Construction Compound R1	Negative, Moderate and Permanent
Construction Compound R2	Negative, Moderate and Permanent
Construction Compound R3A/R3B	Negative, Moderate and Permanent
Construction Compound R4	Negative, Moderate and Permanent

15.4.4 Operational Phase

No Operational Phase impacts were identified as all archaeological and cultural heritage issues will be resolved at the Construction Phase of the Proposed Scheme.

15.5 Mitigation and Monitoring Measures

15.5.1 Construction Phase

15.5.1.1 Archaeological Heritage

Archaeological mitigation measures can avoid, prevent, reduce or offset negative effects and these are achieved by preservation in-situ, by design and / or by record.

The NTA will procure the services of a suitably-qualified archaeologist as part of its Employer's Representative team administering and monitoring the works.

The appointed contractor will make provision for archaeological monitoring to be carried out under licence to the DHLGH and the NMI, and will ensure the full recognition of, and the proper excavation and recording of, all archaeological soils, features, finds and deposits which may be disturbed below the ground surface. All archaeological issues will have to be resolved to the satisfaction of the DHLGH and the NMI. The appointed contractor will ensure that the archaeologist will have the authority to inspect all excavation to formation level for

the proposed works and to temporarily halt the excavation work, if and as necessary, having conferred with the NTA. They will be given the power to ensure the temporary protection of any features of archaeological importance identified having conferred with the NTA. The archaeologist will be afforded sufficient time and resources to record and remove any such features identified in accordance with the licensing requirements agreed.

Archaeological excavation ensures that the removal of any archaeological soils, features, finds and deposits is systematically and accurately recorded, drawn and photographed, providing a paper and digital archive and adding to the archaeological knowledge of a specified area (i.e. preservation by record). As archaeological excavation involves the removal of the archaeological soils, features, finds and deposits, following this mitigation measure, there is no further impact on the archaeological heritage.

In the case of cellars, coal cellars and / or basements, the appointed contractor, in consultation with the archaeologist engaged by them, will make provision for a geodetic survey and recording of each individual structure which will be subject to impact. The only tunnels in the area of the Proposed Scheme are the Liffey Services Tunnel which runs underneath the Tom Clarke East Link Bridge and the 2008 Service Tunnel. Neither of these structures will be impacted by the Proposed Scheme.

The appointed contractor will make provision to allow for archaeological monitoring, inspection and excavation works that may arise on the site during the Construction Phase.

15.5.1.1.1 Archaeological Heritage Management

An experienced and competent licence-eligible archaeologist will be employed by the appointed contractor to advise on archaeological and cultural heritage matters during construction, to communicate all findings in a timely manner to the NTA and statutory authorities, to acquire any licenses / consents required to conduct the work, and to supervise and direct the archaeological measures associated with the Proposed Scheme.

Licence applications are made by the licence-eligible archaeologist on behalf of the client to the National Monuments Service at the DHLGH. In addition to a detailed method statement, the applications must include a letter from the NTA that confirms the availability of adequate funding. There is a prescribed format for the letter that must be followed. Other consents may include a Dive Survey Licence to conduct archaeological dive work, a Detection Device Licence to use a metal-detector or to carry out a non-invasive geophysical survey.

The archaeologist will be provided with information on where and when the various elements and ground disturbance will take place.

As part of the licensing requirements, it is essential for the client to provide sufficient notice to the archaeologist(s) in advance of the construction works commencing. This will allow for prompt arrival on-site to undertake additional surveys and to monitor ground disturbances. As often happens, there may be down time when no excavation work is taking place during the Construction Phase. In this case, it will be necessary to inform the archaeologist(s) as to when ground breaking works will recommence.

In the event of archaeological features or material being uncovered during the Construction Phase, all machine work will cease in the immediate area to allow the archaeologist(s) time to inspect and record any such material.

Once the presence of archaeologically significant material is established, full archaeological recording of such material is recommended in accordance with the licensing requirements. If it is not possible for the construction works to avoid the material, full excavation of the archaeologically significant material will be recommended. The extent and duration of excavation will be advised by the client's archaeologist and will be a matter for discussion between the NTA and the licensing authorities.

Secure storage for artefacts recovered during the course of the monitoring and related work will be provided by the appointed contractor.

As part of the licensing requirement and in accordance with the funding letter, adequate funds to cover excavation, post-excavation analysis, and any testing or conservation work required will be made available.

During construction, all construction traffic and the management of materials will be restricted where practicable by the appointed contractor so as to avoid any newly revealed archaeological or cultural heritage sites and their environs to ensure no damage to a site of archaeological interest.

15.5.1.2 Cultural Heritage

Features of a cultural heritage interest that are required to be removed on a temporary basis or for a short-term period will be removed under archaeological supervision and in accordance with a method statement in consultation with the NTA and the relevant statutory authorities. This will protect the heritage asset from any adverse impacts and ensure that it is stored safely at an agreed location prior to its reinstatement.

Mitigation measures for upstanding industrial heritage sites, historic street furniture, and cultural heritage sites of architectural interest are provided in Chapter 16 (Architectural Heritage).

15.5.1.3 Section 1 – Talbot Memorial Bridge to Tom Clarke East Link Bridge

15.5.1.3.1 Archaeological Heritage

15.5.1.3.1.1 National Monuments

There are no National Monuments along this section of the Proposed Scheme and therefore no mitigation measures are required.

15.5.1.3.1.2 Recorded Archaeological Sites and Monuments (RMP/ SMR sites)

Archaeological monitoring (as defined in Section 15.5.1.1) under licence will take place where any preparatory ground breaking or ground reduction works are required (as defined in Section 15.4.1) at the following locations:

- In areas of archaeological potential identified in Table 15.4, namely within the designated ZAP for the Historic City of Dublin (RMP DU018-020) which encompasses the recorded archaeological sites DU018-0020152 (glasshouse site of), DU018-0200564 (quay), RMP DU018-020479 (quay) and RMP DU018-020201 (quay) (Figure 15.1 (Sheet 1 to 3 of 5) in Volume 3 of this EIAR).

It is in this area that there is a possibility to disturb intact archaeological layers and material. Licensed archaeological excavation, in full or in part, of any identified archaeological remains (preservation by record) or preservation in-situ will be undertaken. Once these strategies are employed, this will result in any archaeological remains being identified, recorded and excavated out of the ground or being left in-situ as a design solution with the result that there will be no significant impact post mitigation (Table 15.19).

The works at Excise Walk and North Wall Quay, and Custom House Quay will be as outlined in Chapter 5 (Construction). The archaeologist engaged by the appointed contractor will undertake archaeological monitoring during the preparatory works to the quay walls and when any construction activities in regard to them are planned. This will allow an assessment and full recording of any internal fabric of the quay structures should they be exposed during the course of the proposed works. For any fixtures and fittings that need to be removed, this will be undertaken by the appointed contractor in consultation with the archaeologist. Items removed will be stored in a secure location and reinstated as appropriate by the appointed contractor.

The works at the Scherzer Bridges will be as outlined in Chapter 5 (Construction). The appointed contractor will ensure that a full and complete photographic and detailed industrial heritage record survey is undertaken (the scope of the record survey will be identified through liaison between the appointed contractor and the archaeologist and architectural heritage specialist engaged by the appointed contractor). Ground reduction work undertaken as part of these works has the potential to impact on below ground archaeological remains (associated with the historic city of Dublin (RMP DU018-020) and the historic quay (DU018-020564) and subsurface features associated with the workings of the Scherzer Bridges.

15.5.1.3.1.3 Non-Designated Archaeological Sites

Archaeological monitoring under licence (as defined in Section 15.5.1.1) will take place at the preconstruction stage and early stages of construction, as appropriate, where any preparatory ground breaking or ground reduction works are required (as defined in Section 15.4.1). This will be undertaken in order to establish the presence or absence, as well as the nature and extent, of any archaeological deposits, features or sites that may be present within the boundary of the Proposed Scheme.

Archaeological monitoring will take place at the following locations:

- At all undesignated archaeological heritage sites identified from historic mapping and the DCIHR (DCC 2003 to 2009), as listed in Table 15.7, and shown in Figure 15.1 in Volume 3 of this EIAR).

Potential impacts will be ameliorated through preservation by record, design or in-situ. Once these strategies are employed, this will result in any archaeological remains being identified, recorded and excavated out of the ground or being left in-situ.

As a result of these interventions, post mitigation and monitoring, no significant impact is predicted on these archaeological features during construction (Table 15.19).

15.5.1.3.1.4 Areas of Archaeological Potential

Archaeological monitoring under licence (as defined in Section 15.5.1.1) will take place at the preconstruction stage and early stages of construction, as appropriate, where any preparatory ground breaking or ground reduction works are required (as defined in Section 15.4.1). This will be undertaken in order to establish the presence or absence, as well as the nature and extent, of any archaeological deposits, features or sites that may be present within the boundary of the Proposed Scheme.

Archaeological monitoring will take place at the following locations:

- At the two areas identified as having an archaeological potential to reveal below ground industrial heritage features and finds as identified previously from historic mapping and investigations at CBC0016AH004 and CBC0016AH006 (as listed in Table 15.7 and shown in Figure 15.1 (Sheet 1 and 2 of 5) in Volume 3 of this EIAR).

Potential impacts will be ameliorated through preservation by record, design or in-situ. Once these strategies are employed, this will result in any archaeological remains being identified, recorded and excavated out of the ground or being left in-situ.

As a result of these interventions, post mitigation and monitoring, no significant impact is predicted on these archaeological features during construction (Table 15.19).

15.5.1.3.2 Cultural Heritage

Sculptures and memorials, namely the famine memorial (NIAH Ref. 50010002), the statue of Matt Talbot (CHC0016CH009), and the statue of Admiral William Brown (CBC0016CH009), will be protected in accordance with the mitigation measures set out in Chapter 16 (Architectural Heritage).

Potential impacts will be ameliorated through mitigation measures that will be designed and undertaken to identify, record and protect features of a cultural heritage interest.

As a result of these interventions, post mitigation and monitoring, no significant impact is predicted on these cultural heritage features during construction (Table 15.19).

Table 15.19: Summary of Predicted Construction Phase Impacts Following the Implementation of Mitigation and Monitoring Measures (Section 1 - Talbot Memorial Bridge to Tom Clarke East Link Bridge)

Assessment Topic	Potential Impact (Pre-Mitigation and Monitoring)	Predicted Impact (Post Mitigation and Monitoring)
RMP DU018-020, Dublin Historic City	Negative, Moderate and Permanent	No significant impact
RMP DU018-0020152, Glass House (site of) at Custom House Quay	Negative, Slight and Permanent	No significant impact
DU018-0200564, DCIHR 18 12 005, NIAH 50060556, Custom House Quay and North Wall Quay (and North Wall Ext.) (Quay and Quay Wall)	Negative, Moderate and Permanent	No significant impact
RMP DU018-020479 DCIHR 18-12-014 City Quay (Quay and Quay Wall)	Negative, Moderate and Permanent	No significant impact
RMP DU018-020201 Sir John Rogerson's Quay (Quay and Quay Wall)	Negative, Moderate and Permanent	No significant impact
RPS 896, DCIHR 18-11-115, NIAH 50010001 Scherzer Bridges, George's Dock, Custom House Quay	Negative, Significant and Permanent	No significant impact
RPS 3173, DCIHR 18-11-154, NIAH 50010131, Lock at George's Dock	Negative, Moderate and Permanent	No significant impact
RPS 912, DCIHR 18-12-063; NIAH 50010009 Scherzer Bridges at the Royal Canal / Spencer Dock, North Wall Quay	Negative, Significant and Permanent	No significant impact
CBC016AH005, Old Dock (site of) at the junction of Memorial Road and Custom House Quay	Negative, Not Significant and Permanent	No significant impact
DCIHR 18-11-159, Lock (site of) at Custom House Quay	Negative, Not Significant and Permanent	No significant impact
DCIHR 18-11-158, Former Swivel Bridge (site of) at Custom House Quay	Negative, Not Significant and Permanent	No significant impact
DCIHR 18-12-060, Royal Canal Office (site of) at North Wall Quay	Negative, Slight and Permanent	No significant impact
DCIHR 18-12-011, Goods Shed (site of), North Wall Quay	Negative, Slight and Permanent	No significant impact
DCIHR 18-12-073, Goods Shed (site of) North Wall Quay	Negative, Slight and Permanent	No significant impact
CBC016AH004, Area of Archaeological Potential, River Liffey	Negative, Moderate and Permanent.	No significant impact
CBC0016AH006, Area of Archaeological Potential, Mayor Street	Negative, Slight and Permanent	No significant impact
DCIHR 18-12-158, 'Wooden Wharf' (site of), at North Wall Quay	Negative, Not Significant and Permanent	No significant impact
NIAH Ref. 50010002, Famine Memorial at Custom House Quay	Negative, Slight and Temporary	No significant impact
CBC0016CH009, Statue of Matt Talbot at City Quay	Negative, Slight and Temporary	No significant impact
CBC0016CH012, Statue of Admiral William Brown at Sir John Rogerson's Quay	Negative, Slight and Temporary	No significant impact

15.5.1.4 Section 2 – Dodder Public Transport Opening Bridge (DPTOB)

15.5.1.4.1 Archaeological Heritage

15.5.1.4.1.1 National Monuments

There are no National Monuments along this section of the Proposed Scheme and therefore no mitigation measures are required.

15.5.1.4.1.2 Recorded Archaeological Sites and Monuments (RMP / SMR sites)

Archaeological monitoring (as defined in Section 15.5.1.1) under licence will take place where any preparatory ground breaking or ground reduction works are required (as defined in Section 15.4.1) at the following locations:

- Within the ZAP for the historic settlement of Dublin City (RMP DU018-020), the ZAP for Sir John Rogerson's Quay (DU018-020201) and the ZAP for the sea wall (DU018-066) (Figure 15.1 (Sheet 3 and 4 of 5) in Volume 3 of this EIAR), to include the full extent of land take for the Proposed Scheme. The monitoring of ground breaking and reduction works, and excavation works across this whole area will be carried out as an archaeological exercise.

15.5.1.4.1.3 Non-Designated Archaeological Sites

Archaeological monitoring under licence will take place:

- Within the River Dodder and the area of archaeological potential (CBC0016AH003). Archaeological monitoring will take place within the riverine environment for all works on the riverbed, on the quayside of Britain Quay (CBC0016AH001) and in the proposed reclamation area at Thorncastle Street / York Road (CBC0016AH002). Full provision will be made for the resolution of any features and deposits that are revealed as a result of the work (Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR).

In order to create a record of the features of the quay and quay wall on Britain Quay (CBC0016AH001), a photogrammetry survey will be undertaken by the appointed contractor prior to the commencement of construction works.

In order to create a record of the features on the unnamed quay at Thorncastle Street / York Road (CBC0016AH002), a photogrammetry survey will be undertaken by the appointed contractor prior to the commencement of construction works and the proposed reclamation of the area.

Potential impacts will be ameliorated through preservation by record, design or in-situ. Once these strategies are employed, this will result in any archaeological remains being identified, recorded and excavated out of the ground or being left in-situ.

As a result of these interventions, post mitigation and monitoring, no significant impact is predicted on these archaeological features during construction (Table 15.20).

15.5.1.4.2 Cultural Heritage

Sculptures and memorials, namely the maritime memorial (CBC0016CH017) and a decorative buoy (CBC0016CH018), will be protected in accordance with the mitigation measures set out in Chapter 16 (Architectural Heritage).

SPRC (CBC0016CH016; Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR) and the berthing area is to be relocated to new specifically designed facilities to the reclaimed land west of the Tom Clarke East Link Bridge in the immediate area, thereby preserving the tradition and practice of rowing in the local area. There is no significant impact anticipated post mitigation.

Potential impacts will be ameliorated through the implementation of the mitigation measures to identify, record and protect features of a cultural heritage interest.

As a result of these interventions, post mitigation and monitoring, no significant impact is predicted on these cultural heritage features during construction (Table 15.20).

Table 15.20: Summary of Predicted Construction Phase Impacts Following the Implementation of Mitigation and Monitoring Measures (Section 2 - DPTOB)

Assessment Topic	Potential Impact (Pre-Mitigation and Monitoring)	Predicted Impact (Post Mitigation and Monitoring)
RMP DU018-020, Dublin Historic City	Negative, Moderate and Permanent	No significant impact
RMP DU018-066, Sea Wall	Negative, Slight and Permanent	No significant impact
RMP DU018-020201 Sir John Rogerson's Quay (Quay and Quay Wall)	Negative, Moderate and Permanent	No significant impact
CBC016AH001; Britain Quay	Negative, Moderate and Permanent.	No significant impact
CBC016AH002, unnamed quay	Negative, Moderate and Permanent	No significant impact
CBC0016CH017, A Maritime Memorial	Negative, Slight and Permanent	No significant impact
CBC0016CH018, A Decorative Metal Buoy	Negative, Slight and Temporary	No significant impact
CBC0016CH016, SPRC	Negative, Moderate and Permanent	No significant impact

15.5.1.5 Section 3 – Tom Clarke East Link Bridge to Sean Moore Road

15.5.1.5.1 Archaeological Heritage

15.5.1.5.1.1 National Monuments

There are no National Monuments along this section of the Proposed Scheme and therefore no mitigation measures are required.

15.5.1.5.1.2 Recorded Archaeological Sites and Monuments (RMP/ SMR sites)

Archaeological monitoring under licence (as defined in Section 15.5.1.1) will take place where any preparatory ground breaking or ground reduction works are required (as defined in Section 15.4.1) at the following locations:

- Within the ZAP for the settlement clusters for Ringsend (DU018-054) and Irishtown (DU018-053) (Figure 15.1 (Sheet 3 and 5 of 5) in Volume 3 of this EIAR); and
- In the vicinity of the south wall (DU018-066), a recorded monument and linear structure that extends from Ringsend to Poolbeg Light House (Figure 15.1 (Sheet 3 and 4 of 5) in Volume 3 of this EIAR).

It is in this area that there is a possibility to disturb intact archaeological layers and material. Licensed archaeological excavation, in full or in part, of any identified archaeological remains (preservation by record) or preservation in-situ will be undertaken.

Potential impacts will be ameliorated through preservation by record, design or in-situ. Once these strategies are employed, this will result in any archaeological remains being identified, recorded and excavated out of the ground or being left in-situ. As a result of these interventions, post mitigation and monitoring, no significant impact is predicted on these archaeological features during construction (Table 15.21).

15.5.1.5.2 Cultural Heritage

The sculpture (CBC0016CH019) (Figure 15.1 (Sheet 3 of 5) in Volume 3 of this EIAR) will be handled in accordance with the mitigation measures set out in Chapter 16 (Architectural Heritage).

At Ringsend Park (CBC0016CH021) (Figure 15.1 (Sheet 5 of 5) in Volume 3 of this EIAR), should any subsurface archaeological stratigraphy associated with a heritage asset be encountered, an appropriate ameliorative strategy will be implemented. This will entail licensed archaeological excavation in full or in part, of any identified archaeological remains (preservation by record). A full measured, written, drawn and photographic survey of any

features of a cultural heritage significance will be undertaken prior to removal by the archaeologist engaged by the appointed contractor.

As a result of these interventions, post mitigation and monitoring, no significant impact is predicted on these cultural heritage features during construction (Table 15.21).

Table 15.21: Summary of Predicted Construction Phase Impacts Following the Implementation of Mitigation and Monitoring Measures (Section 3 - Tom Clarke East Link Bridge to Sean Moore Road)

Assessment Topic	Potential Impact (Pre-Mitigation and Monitoring)	Predicted Impact (Post Mitigation and Monitoring)
RMP DU018-053, Settlement Cluster Ringsend	Negative, Slight and Permanent	No significant impact
RMP DU018-054, Settlement Cluster - Irishtown	Negative, Slight and Permanent	No significant impact
RMP DU018-066, Building (site of), South (Sea) Wall	Negative, Slight and Permanent	No significant impact
CBC0016CH019, Undesignated, Sculpture, Tom Clarke East Link Bridge	Negative, Slight and Temporary	No significant impact
CBC0016CH021; Ringsend Park (undesignated)	Negative, Slight and Permanent	No significant impact

15.5.1.6 Proposed Construction Compound Locations

15.5.1.6.1 Archaeological Heritage

15.5.1.6.1.1 National Monuments

There are no National Monuments located at the proposed Construction Compound locations and therefore no mitigation measures are required.

15.5.1.6.1.2 Recorded Archaeological Sites and Monuments (RMP / SMR sites)

A programme of archaeological monitoring will take place at the preconstruction stage and early stages of construction, as appropriate, during the site preparation and earthmoving works, in built-up sites, and where any preparatory ground reduction works are required at the proposed locations of the Construction Compounds. This will be designed in order to establish the presence or absence, as well as the nature and extent, of any archaeological deposits, features or sites that may be present within the Proposed Scheme.

It is in this area that there is a possibility to disturb intact archaeological layers and material. Licensed archaeological excavation, in full or in part, of any identified archaeological remains (preservation by record) or preservation in-situ will be undertaken. Following mitigation of archaeological monitoring, and any resultant recording and investigation works, it is anticipated that there will be no significant impacts after mitigation strategies are applied (Table 15.22).

15.5.1.6.1.3 Non-Designated Archaeological Sites

As outlined in Section 15.5.1.6.1.2, and detailed in Section 15.5.1.3.1.3 and Section 15.5.1.4.1.3, following mitigation of archaeological monitoring, and any resultant recording and investigation works, it is anticipated that there will be no significant impacts (Table 15.22).

15.5.1.6.2 Cultural Heritage

Cultural heritage features are located within Construction Compound R4 and mitigation measures for these cultural heritage assets are detailed in Section 15.5.1.4.2. Following mitigation of archaeological monitoring, and

any resultant recording and investigation works, it is anticipated that there will be no significant impacts (Table 15.22).

Table 15.22: Summary of Predicted Construction Phase Impacts Following the Implementation of Mitigation and Monitoring Measures (Proposed Construction Compound Locations)

Assessment Topic	Potential Impact (Pre-Mitigation and Monitoring)	Predicted Impact (Post Mitigation and Monitoring)
Construction Compound R1	Negative, Moderate and Permanent	No significant impact
Construction Compound R2	Negative, Moderate and Permanent	No significant impact
Construction Compound R3A/R3B	Negative, Moderate and Permanent	No significant impact
Construction Compound R4	Negative, Moderate and Permanent	No significant impact

15.5.2 Operational Phase

All archaeological and cultural heritage issues will be resolved by mitigation at the pre-Construction Phase or Construction Phase, in advance of the Operational Phase, through one or more of the following:

- Preservation by record (including archaeological excavation, photogrammetry survey, etc.);
- Preservation in-situ;
- Preservation by design; and
- Archaeological monitoring.

There are therefore no predicted impacts as a result of the Operational Phase of the Proposed Scheme and no mitigation measures are required.

15.6 Residual Impacts

No significant residual impacts have been identified either in the Construction or Operational Phase of the Proposed Scheme, whilst meeting the scheme objectives set out in Chapter 1 (Introduction).

15.6.1 Construction Phase

No significant residual impacts were identified in the Construction Phase of the Proposed Scheme.

15.6.2 Operational Phase

All archaeological and cultural heritage issues will be resolved by mitigation during the pre-Construction Phase or Construction Phase, in advance of the Operational Phase, and therefore, no residual impacts have been identified.

15.7 References

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