6.0 CULTURAL HERITAGE

6.1 Introduction

This Chapter of the EIS considers the potential and likely significant effects of the proposed alterations to the permitted development on the cultural heritage assets and potential. The purpose of this section is to identify and describe any likely significant effects upon terrestrial, intertidal and subtidal archaeological and architectural heritage sites and areas of potential as a result of the proposed alterations in the context of the permitted development.

The proposed alterations are described in detail in Chapter 3 Project Description. Part of the proposed alterations are located in the inner section of the Ringaskiddy Port, an active ferry and bulk cargo port, which has been reclaimed from the Ringaskiddy shoreline during the twentieth century. The Port is shown in Figure 6.1.

For the present assessment of the proposed alterations, a comprehensive review of existing sources was completed, and new data sets have been acquired based on non-intrusive survey and recording above and below the waterline.

The conclusion of this assessment of the proposed alterations is that these modifications will not result in any significant change to the assessment of cultural heritage risk as previously made for the permitted development.

6.2 Assessment Methodology – Permitted Development and Proposed Alterations

A sequence of work has been completed to ensure that the Cultural Heritage assessment has been comprehensive and robust. The work has included a desktop study of known archaeological and architectural sources, including marine geophysical survey conducted in 2005 and archaeological dive inspection conducted in 2006, 2012 and 2014. An Archaeological dive inspection was also carried out in 2016 to deal with a detail relating to the proposed alterations.

6.2.1 Consultations

The *Irish Antiquities Division of the National Museum of Ireland* (NMI) retains an extensive archive of small finds and objects discovered across Ireland and reported to the Museum and its predecessors since the nineteenth century. It represents a critical resource for archaeological research, where registered objects are recorded by townland in the Topographical Files. For the present project, the following townlands were assessed: Barnahely; Ballybricken; Ringaskiddy.

Department of Arts, Heritage, Rural, Regional and Gaeltacht Affairs (DAHRRGA, formerly the Department of Arts, Heritage and the Gaeltacht, DAHG) *Sites and Monuments Record files*. The information, which is also filed according to townland, provides details relating to specific monuments and sites of archaeological importance that survive or whose site area is recorded. The record generally includes only sites that pre-date *c.* 1750 AD.

DAHRRGA's Historic Shipwreck Inventory files and *Places and Ports archive*. This information relates to the archives maintained by the National Monuments Section's Underwater Archaeology Unit for shipwreck and other maritime sites of archaeological interest. The information is located regarding the nearest topographic locator, such as a town or headland, as well as site-specific grid coordinates where known. For the present project, the following landmarks were relevant: Monkstown Creek; Ballybricken Point; Ring; Ring Island; Ring Point; Ringaskiddy; Ringaskiddy Island; Paddy's Point; Rocky Island; Oyster Bank; Golden Rock.

National Inventory of Architectural Heritage (NIAH). The DAHG provides an online register of historic buildings and features/street furniture that retain architectural heritage interest, and is maintained by the DAHG's architectural section. The Inventory is organized by place and townland. The Inventory complements the archaeological inventories by including buildings and features that date from the eighteenth century and more recently.

In addition, the following sources have been consulted:

- *Cartographic sources*, including Admiralty Charts (Chart 1777) and Ordnance Survey First and Second Edition maps (6-inch Sheet Cork 87). Historic and current topographical maps represent very important sources that can reveal the progress of natural erosion and human development across a landscape/seascape over time. Such mapping in Ireland is metrically accurate from the mid-late nineteenth century;

- *Office of Public Works (OPW)* Piers and Harbour Structures files, 1708-1922 (OPW/8). This body of state records refers to port improvement works across the country and forms part of the National Archives collection;

- *Excavations Bulletin* is an annual published list of licensed archaeological intervention work conducted across Ireland. It is arranged by county and then by townland, and is currently completed to 2010 in published format, with more recent entries accessible through an on-line database supported by the DAHRRGA, (www.excavations.ie); and

- Relevant published sources.

6.2.2 Data Acquisition

The desktop review included a review of historic mapping that can reveal the development of the landscape over time, an examination of existing archival information at the NMI and the DAHRRGA in relation to the known archaeological objects and features and sites of archaeological and architectural interest, and a review of archaeological work conducted in the immediate vicinity of the proposed alterations from published and unpublished sources. The information combines to establish a baseline data source.

The desktop data is informed further by a programme of marine geophysical survey conducted in 2005 and archaeological diver inspection carried out in 2006, 2012 and 2014, conducted under licence from what is today the DAHRRGA, and commissioned by the Port of Cork for cultural heritage assessment of the permitted development at Ringaskiddy. The baseline data and the factual observations made in the on-site surveys are presented in detail in Appendices of the original EIS.

Additional project-specific data was acquired in 2016 to complement the earlier data sets and is focussed on a detail of the proposed alterations. This information is described in section 6.4 of the present chapter.

6.2.3 Legislation

The following legislation, standards and guidelines with particular reference to Archaeology were consulted for the purposes of this evaluation:

- National Monuments Acts, 1930-2004;
- The Planning and Development (Strategic Infrastructure) Act, 2006;
- The Heritage Act, 1995;
- Guidelines on the information to be contained in Environmental Impact Statements, 2002, EPA;
- Advice Notes on Current Practice (in preparation of Environmental Impact Statements), 2003, EPA;
- Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes, no date, NRA;
- Frameworks and Principles for the Protection of the Archaeological Heritage, 1999, Department of Arts, Heritage, Gaeltacht and Islands (now DAHG);
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 2000 and the Local Government (Planning and Development) Act 2000;
- Code of Practice between Bord Gáis Éireann and the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Department of Arts, Heritage and the Gaeltacht), 2002.

6.2.4 Classification of Impacts

Impacts are generally categorised as either being a direct impact, an indirect impact or as having no predicted impact:

- **Direct impact** occurs when an item of archaeological or architectural heritage is located within the footprint of the proposed development and entails the removal of part, or all, of the monument or feature.
- **Indirect impact** may be caused where a feature or site of archaeological or architectural interest is located in close proximity of the proposed development.
- **No predicted** impact occurs when the proposed development does not adversely or positively affect an archaeological or architectural heritage site.

These impact categories are further assessed in terms of their quality i.e. positive, negative, neutral (or direct and indirect).

- **Negative Impact** is a change that will detract from or permanently remove an archaeological or architectural monument from the landscape.
- **Neutral Impact** is a change that does not affect the archaeological or architectural heritage.
- **Positive Impact** is a change that improves or enhances the setting of an archaeological or architectural monument.

A significance rating for these impacts is then given i.e. slight, moderate, significant or profound.

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

In addition, the duration of impacts is assessed and has been sub-divided into the following categories.

- **Temporary Impact**, where an impact lasts for one year or less.
- **Short-term Impacts**, where an impact lasts one to seven years.
- **Medium-term Impact**, where an impact lasts seven to fifteen years.
- **Long-term Impact**, where an impact lasts fifteen to sixty years.
- **Permanent Impact**, where an impact lasts over sixty years.

6.3 Existing Environment

6.3.1 Overview

Ringaskiddy is located in Cork's Lower Harbour, approximately half way along the circuitous route that leads from the sea northward to Lough Mahon and Cork city (Figure 6.2). It is one of the series of natural havens that populate the edges of the wide harbour, and it is located to the west of where navigation can fork in two directions around Great Island. The maritime location defines the cultural heritage context of Ringaskiddy.

Material remains from the early stages of human occupation in Ireland have been discovered in Cork Harbour, and are manifested in a series of stone tools from the Mesolithic period which indicate the presence of Hunter-Gatherer-Fisher folk in the fourth millennium BC. At Ringaskiddy however the earliest indicators are somewhat later. Two coastal midden sites exist on the east shore overlooking the West Channel (Register of Monuments and Places [RMP], CO087-54 and -161). The middens are ancient low mounds or heaps of domestic waste, and may indicate the presence of ancient fishing places. More tangible prehistoric evidence was discovered during works associated with the N28 road scheme in Barnahely townland, when terrestrial geophysical survey revealed a complex of interlocking enclosure features indicative of unenclosed settlement sites that might be Bronze Age or Iron Age in date (RMP CO087-155. Figure 6.3 shows the location of the known archaeological monuments in the vicinity of the port complex). This relatively small area of landscape also retains sites that are more recent in date.

The next significant evidence lies in Ballintaggart townland and is represented by a former ecclesiastical site (RMP CO87-061) belonging to the early medieval period (*c.* 500-1100 AD). The site does not survive above ground today, but it is thought to have been one of the principal church sites in the southwest. The medieval period is represented in Barnahely townland, where the ruined remains of a sixteenth-century tower house castle and its bawn survive (RMP CO087-052). Also known today as Castle Warren, the tower house was built by the De Cogans. The site lies close to and south of Barnahely Church (RMP CO087-051), whose visible remains date to the early 1700s, but which was undoubtedly associated with the castle.

A Martello tower (RMP CO087-053) was built on the highest point of Ringaskiddy promontory to the west, and represents the most prominent statement of the location's maritime heritage. The harbour had for long been strategically of great importance, and successive phases of defensive construction had been witnessed. As early as 1590, Sir George Carew, Master of the Ordnance in Ireland, observed that while 'Cork can hardly ever be fortified, yet upon the river, towards the sea, many convenient places may be found for annoying the shipping on the passage towards the town'. The great batteries and star-shaped forts at Dognose, Ramhead, and Spike Island convey the conscious attempts to protect the Harbour against invasion. A bastioned fort was also built on Haulbowline Island in 1602 under the direction of the military designer Paul Ive, who was also responsible for the fortification work at Castle Park, to protect Kinsale.

The continued if episodic threat of invasion into the nineteenth century saw a rebuilding of the Harbour's coastal defences with the construction of its Martello Towers. Such towers are named after a successful engagement by the Royal Navy at Martello in Italy, where the attackers were impressed by the defensive towers, whose substantial form presented solid rebuttals to ship-borne artillery, and whose upper platforms provided superior gun platforms that could exploit a 360-degree rotation if needs be. The Navy studied the towers and absorbed their plan into their own coastal defence systems. They have become an iconic symbol of the Napoleonic era, and were built into the defences of Ireland's major harbours at the time. Under construction in 1812-15, the Ringaskiddy tower is the largest of the Martello towers constructed around Cork Harbour as a defensive network to protect against the possibility of a French invasion.

Located on dry land to the south of Ringaskiddy East, the Ringaskiddy tower is positioned at the centre of a circular enclosure, and was associated with an avenue that was built from the tower to the shoreline, which would have served to convey ordnance. The proximities of the magazine (RMP CO087-105) stored on Rocky Island to the north of Ringaskiddy, and the slightly more distant fortifications on Haulbowline Island (CO087-059001-3), highlight the complex fortified landscape that Ringaskiddy was a part of at this time.

Haulbowline Island was known for its ship-building and was upgraded to a Naval Dockyard in 1869. The island was artificially enlarged to provide an open-water harbour protected by a breakwater that effectively doubled its area. Ringaskiddy seems to have played less of a role in subsequent naval defence. The nineteenth century also saw the growth of parklands and big houses discretely away from the more strategic coastal locations. Ballybricken House was the mansion of the Connors, and Prospect House the villa of Lieutenant-Colonel Burke. Both lay to the west of the village that developed along the former shoreline of Barnahely and Loughbeg townlands, immediately adjacent to the RIngaskiddy East area. Though known today as Ringaskiddy, having absorbed the townland's name to the east, the nineteenth-century village was also known simply as 'Ring'. Fishing was

important to the village's economy, particularly during the winter months, while Ringaskiddy also became a known summer resort.

6.3.2 Cartographic sources

The narrative of development revealed in the standing archaeological sites and features is indicated in the sequence of maps and charts that survive. The Down Survey of 1670 facilitated an assessment of land-holding across Ireland for Cromwellian interests by mapping the available lands in some detail. It accompanied a written record of such, known as the Civil Survey. A general map of the province included Cork Harbour, and the shoreline at Ringaskiddy is clearly indicated along with Haulbowline and Spike Islands, as the cartographer traces the passage of shipping to and from Cork (Figure 6.4). The barony map of Kerrycurrihy shows the coastline in greater detail but as its focus of attention was to plot the parishes within the barony it was less concerned with the accuracy of topographical detail (Figure 6.4). One begins to see the detail at parish level (Figure 6.4). Barnahely Parish, complete with its church and castle was valued at £235, and it included the townlands of Ballebricane (Ballybricken) on the shoreline to the west, and Reniskydy (Ringaskiddy) to the east. There was a small holding of the Earle of Corke on the shoreline between both townlands, while what became known in the nineteenth century as Ring Island was named Creagh on the Down Survey. The shoreline and sea area is clearly recorded but there is nothing to distinguish water depths or shoreline features, as these were not subjects that concerned the Down Surveyors.

Given the importance of the wider Harbour it is little surprise that other useful maps are known from an early period also. A map of the Harbour dated *c.* 1770 shows Ringaskiddy in some greater detail from a maritime perspective, lying to the south of Great Island and in association with Haulbowline and Spike islands, while indicating the natural channels of navigation (Figure 6.5). The highlights on the landscape reveal the headlands and the forts. The map is clearly focusing on maritime access to the town, and the strategic role of Haulbowline and Spike Island is conveyed, as sentinel posts either side of the narrow passage around the point at Ringaskiddy. It is clear too that certain settlement exists on Ring Island, while what becomes Ballybricken House to the west has three buildings recorded, when it was known as Ballybrillon.

A map of 1781 presents a still more strategic record (Figure 6.5). It accompanies a report of Lieutenant-Colonel Charles Vallancy on the defences of the Harbour, and was commissioned at the time of the American War of Independence, when Cork remained a key naval base to support England's efforts. The 'Survey of the harbour of Cork from the entrance to Haulboling Yards showing the range of the batteries…' highlights the integral place that Ring Point had. Recorded as 'Innishiddy Pt.' the map shows the low headland connected to the shoreline by a narrow sandy/stony bar. There is no fort on the headland but there is a small dark feature that perhaps represented a structure of some sort. A further map of 1800/1802 was completed following the French-supported United Irishmen rebellion of 1798 and indicates the strategic approaches to Cork (Figure 6.5). The channel for passage around the southwest side of Great Island is indicated running between Spike Island and Haulbowline Island. Ringaskiddy is clearly shown and labelled but there is little to indicate its fortified nature, and more to suggest its residential emphasis.

In the mid-1800s, the Ordnance Survey provides the first large-scale metrically accurate mapping, and this reveals the low-lying nature of the shoreline that is dominated by sandy shallows. Apart from the Martello tower and its associated features, the remains at Ringaskiddy are entirely residential and parklands, with a simple fishing village recorded at Ring, just south of the present-day East Basin (Ringaskiddy East) (Figure 6.6). A landing place is indicated at the foot of Ballybricken House, with a linear feature extending across the sandflats. Boathouses are shown on the shoreline close to where the demesne of Ballybricken House met the edge of Prospect Villa. There is little other structural evidence along the shoreline, while Ring Island and Ring Point show only a series of small field walls. An Ordnance Survey datum station is indicated at the tip of Ring Point. The structures that may have existed on Ring Island earlier are not shown.

Later editions of the Ordnance Survey maps show the progressive development of the shoreline. By the time of the Third Edition (*c.* 1912), the landing place at Ballybricken had been extended below the Low Water Mark and is recorded as 'Ballybricken Hard' (Figure 6.3). It reached almost across to what is today the reclaimed land of Ringaskiddy East. The boathouses belonging to Ballybricken House continued to exist, while a new linear breakwater, 'Foot's Hard', was built across the intertidal

shallows on the east side of Ring Island. Buildings are once again recorded on the island, and include a windmill. There was also a well. The locations of these features are all now beneath the reclaimed land that forms Ringaskiddy East.

Much of the landscape along the shore of Ring/Ringaskiddy has been transformed since the mid-twentieth century. The building of industrial complexes took place across the parkland of Ballytaggart in the 1960s with the development of the Pfizer pharmaceutical plant. The development of the deepwater port at Ringaskiddy has seen the progressive reclamation of the foreshore along Barnahely and Loughbeg, and the former narrow extents of Ring Island and Ring Point are absorbed under the much more extensive Ringaskiddy East area, as indicated on Figure 6.3.

The footprint of the modern port shows the need to undertake extensive reclamation to reach the deep waters of the main channel. This is evident in Ringaskiddy West where the former shoreline of Ballybricken has been buried. The reclamation work has been far greater in Ringaskiddy East, where the large area of low-lying land that included Ring Island and Ring Point, and the sandy shallows that connected these locations with the shoreline, are beneath the current port surface. None of the original natural shoreline remains exposed within port lands.

6.3.3 Architectural evidence

The Martello tower and Barracks (NIAH 20908747) are recorded as features of architectural heritage interest, and are also recorded as a complex of archaeological features (CO087-059001-3). The site area lies 1.1km away from the current development and will be not impacted by it.

A section of estate boundary wall runs along the western side of the R613 roadway, where it is intended to tie-in the improved road network of the Port to that outside. The wall defines the eastern boundary of Prospect Villa (NIAH CO-87-W-774641). A modern factory has been built on the site of the villa.

There is no entry made for Ringaskiddy in the OPW Ports and Harbours record files, 1708-1922, indicating that no state-financed harbour work took place there between those dates.

6.3.4 Historic Shipwreck Inventory

Neither the Ordnance Survey maps nor the Admiralty Charts indicate the presence of shipwrecks at Ring/Ringaskiddy. The Historic Shipwreck Inventory maintained by the National Monuments Section of DAHG, contains information on 150 shipwrecking events within Cork Harbour. The Inventory is a robust source for wrecking since the mid-1700s when records were made consistently. There are no references to wreckage at Ringaskiddy. When the Inventory is examined in detail with reference to recorded places of loss, there are only four possible instances of wreckage that occur close to Ringaskiddy.

The nearest locations are to the north at Cobh, or to the northeast at Haulbowline Island where, for instance, an unnamed wooden rowing boat collided with the steamship *Cambridge* on 20th October 1898 ‘off Haulbowline’, and was lost with five of the 16 workmen aboard being drowned. The *Maria* was lost in 1900 at Rocky Island, which lies to the east of the main development, but is close to Paddy’s Point. The existing record does not reveal further insight to what type of vessel the *Maria* was, or where she wrecked on the island. The absence of reported wrecking events at or immediately adjacent to Ringaskiddy may suggest the low potential for new discovery, but it is necessary to observe that the Inventory of Shipwrecks does not claim to be representative of wrecking events that occurred before *c*. 1750.

6.3.5 Primary Data Acquisition (2005) – Marine Geophysical Survey

The marine geophysical survey was conducted by Hydrographic Surveys Ltd, a leading marine survey company in Ireland with a detailed knowledge of the project area. In addition to ongoing bathymetric survey to monitor seabed levels, new survey was carried out. Seismic survey would principally inform geotechnical aspects, while cultural heritage issues were more directly addressed by undertaking side-scan sonar survey and magnetometer survey. The work was focused on two areas; one area at Oyster Bank and Ringaskiddy East where the permitted development and the proposed alterations

are located, and a large area that extended either side of the ADM Jetty in Ringaskiddy West where parts of the permitted development is located also (Figure 6.7). The work identified a series of anomalies on the seabed, and these were subsequently inspected by diving to assess further their archaeological potential (the work conducted under licence 06D026). None of the anomalies proved to be archaeological in nature, and referred to former mooring features or debris.

A C-Boom sub-bottom profiler was used to ascertain the nature of the seabed layers. The survey concluded that the seabed at Oyster Bank and the ADM Jetty is characterised by sand, silt, shells, gravel, and clay, with peat also being noted at Oyster Bank, and that the thickness of subsurface material can range from 0m to 11.9m. The sub-bottom profiles at part of Ringaskiddy East reveal a coarse seabed littered with boulders lying on and extending through the sediment.

A CMax 800 dual frequency side-scan sonar device was used with range settings of 50m and 100m per channel. No indication of significant debris was observed but a series of small-scale anomalies were identified, and these locations were subsequently inspected by archaeological divers to clarify their nature and extent, as described in section 6.3.6.

An AX2000 Proton magnetometer was used. No indication of significant debris was observed but a series of small-scale anomalies were identified, and these locations were subsequently inspected by archaeological divers to clarify their nature and extent, as described in section 6.4.2.

6.3.6 Archaeological Inspection of Marine Geophysical Survey Anomalies (2006)

The marine geophysical survey identified 22 anomalies at Oyster Bank and 11 anomalies at the ADM Jetty site. The anomalies inspected underwater by archaeological divers sought to clarify their nature and extent. The diver would locate on site underwater and conduct a search pattern around the anomaly location, extending up to 30m from it, to ensure that the target area was fully identified and inspected. Record was made of the topographical context of the anomaly as well as of the feature itself, and an underwater metal-detector was employed to further assist in the survey work.

The seabed at Oyster Bank is dominated by a fine silt-sand mix that is up to 1m in thickness and lies over a silt-clay substrate. Occasional concentrations of rock and gravel were evident. The seabed at the ADM site is dominated by a similar fine silt-sand mix, which lies 40cm thick over a harder silt-clay mix. Linear undulations running parallel with the shore may result from vessel prop-wash, while certain dredge scars were visible resulting from maintenance dredging of the basin.

Of the 33 anomalies identified in the marine geophysical survey data, 31 were positively identified underwater, and the remaining two targets were thought to have represented mobile objects that had been moved by the tides. No material of archaeological significance was observed.

6.3.7 Intertidal Survey (2006)

The Oyster Bank area was also inspected and metal-detected at Low Water as an intertidal exercise. The work confirmed the presence of a rock-armoured shoreline associated with the present quay area, and soft featureless sediment along its base. While large numbers of metallic debris were identified littering the shoreline, they were noted to be modern in date, and no features of archaeological interest were observed.

6.3.8 Land Assessment (2014)

Field-walking was undertaken in the Ringaskiddy East area in the locations on land within the development footprint. The reclaimed nature of the land area is clear (Figure 6.10). There is no indication of the former island that underlies this large area of fill, or of related features recorded on the First Edition Ordnance Survey and earlier maps. No material of archaeological significance was observed.

The tie-in point between the Port's proposed internal road upgrades, and the external road link to the N28 was inspected. Section of an estate wall (measuring *c.* 40m in length) survives where the road network tie-in runs along the R613. The wall is associated with the site of Prospect Villa (CO-87-W-774641). The wall is substantial in construction, measuring over 4m in height, and comprises a

mixture of dressed-, semi-dressed, and rough-cut sandstone. An approximately 10m-long section has been removed from its northern end, as part of the development for the existing road network. Frequent repairs, both modern and old, are visible along the surviving extent of estate wall. The originally capping is obscured by heavy ivy growth.

6.3.9 Intertidal and Underwater inspections (2012 and 2014)

On-site work in 2012 combined intertidal inspection and sub-tidal dive inspection to focus on three areas that had not been considered in detail previously, relative to the development proposals of the permitted development (Figure 6.8). The work was completed under licence from the DAHG (12D016, 12R073). The intertidal survey was conducted during Low Water, and throughout the surveys the weather was clear, the sea state calm, and underwater visibility was good at 2m. The underwater work was completed using Surface Supplied Diving Apparatus. Further underwater assessment was carried out in 2014 of the proposed new Public pier and slipway at Paddy's Point, upstream of the bridge to Haulbowline Island.

The intertidal work was completed in the Ringaskiddy West area, extending west along the shoreline at Ballintaggart, and east beside the ADM Jetty (Figure 6.8). This landscape bears witness to the significant level of modern development; the shoreline is covered in rock armour except to the west along Ballintaggart, outside the Port of Cork lands. In this location, which extends into Monkstown Creek, a wooded landscape extends to the High Water Mark, and a gently sloping shingle shore over sand extends seawards (Figure 6.11).

Within the Port of Cork lands, soft sand and silt extends from the toe of the rock armour. A few patches of hard shingle are deposited close inshore on the north side of the ADM Jetty, but elsewhere the surface is featureless sand. The breakwater to the north is newly made and surfaced with rock armour.

Metal-detection noted a series of small anomalies that were revealed as modern debris. No material of archaeological significance was observed.

The underwater inspection was completed at five locations (Figures 6.8, 6.14). The archaeological diver was towed in a systematic manner to and fro across each area to ensure that the same area of seabed was inspected from different angles. He was equipped with an underwater camera and a metal detector to assist in the recording of observations.

The dive area along Ringaskiddy East extended within the perch buoys that define the edge of the dredged channel. The shore is defined by rock armour (Figure 6.12). The seabed is composed of clean sand that slopes gently from a depth of *c*. 2m at the toe of the rock armour to some 10-11m at the edge of the dredged channel, where the seabed then slopes significantly into the dredged area. There were only two objects of debris noted; a modern coffee cup, and a tyre. No material of archaeological significance was observed.

The dive area within the No. 2 ramp dolphins represents a quiet area of the modern port close inshore. Rock armour lines the shoreline, while the dolphin ramps are made from large concrete piles. The seabed is rocky inshore (Figure 6.13). Such rock is not associated with the rock armour but extends outwards from the shoreline and is considered to represent the natural shore. Kelp and seaweed fronds represent a light vegetation cover. The rocky sub-tidal shore quickly gives way to sand, which occupies the remaining area out to the dolphin ramps. The sand lies quite high in the seabed but slopes significantly at the piles, where large hollows are a feature around the piles, representing scour pockets. No material of archaeological significance was observed.

6.3.10 Underwater Inspections (2016)

An underwater archaeological assessment of the footprint for the relocation of three dolphin moorings as part of the alterations to the permitted development was carried out as licences 14D0004 Ext. and 14R0003 Ext. The assessment covered an area measuring 100m by 20m; extending beyond the impact area associated with the proposed dolphins. The seabed is composed of a medium-to-loose silty-clay with a hand-penetration depth ranging between 500mm and 1m+ in depth. The seabed was sterile of visible modern surface debris, although a consistent metal-detection target ratio of 1-2 hits

per m² was overserved, suggesting the presence of subsurface metallic objects. In general, the seabed was flat and featureless, although a gentle southwest slope (15º -20º angle) was noted along the north side. A localised depression in the seabed, formed as a result of prop-wash from the adjacent ferry dock was also observed along the south-east side. No material, structures, or deposits of archaeological or historical significance were encountered as part of the underwater assessment.

6.3.11 Summary of existing environment

The intertidal and dive work did not observe any of the features relating to the former seashore recorded on the nineteenth century Ordnance Survey First Edition maps. The work observed a seabed characterised by sand and silt which would provide a good holding content for buried material if it exists. No features or objects of archaeological significance were observed lying on the seabed surface or protruding from it. It remains possible that archaeological material lies buried in the covering sediments.

It is possible to conclude that the cultural heritage baseline characterisation has been extensive and comprehensive, employing a wide range of resources and non-intrusive survey to facilitate a comprehensive description of the cultural heritage associated with the proposed alterations. The boundary wall of Prospect Villa is standing. There are otherwise no upstanding remains of archaeological or architectural significance within the port area. There are no remains of archaeological or architectural significance within the proposed alterations area. This location remains an area of cultural heritage potential.

6.4 Licensed Archaeological Excavation Work

Certain archaeological excavation work has been carried out, exposing the buried strata beneath the ground surface. In general, however, despite the number of different opportunities to monitor and investigate the soils on land and at sea in the area around the port, little significant new insight has emerged. This may be due in part to the limited and discrete nature of most of the investigations. The discovery of the possible Bronze Age or Iron Age settlement enclosures made during work associated with the N28 road scheme in Barnahely townland is the notable exception, and the fact that this work necessitated the investigation of a relatively large area may be a factor in the discovery. It may therefore be anticipated that new works that are carried out over large areas, increase the archaeological risk of new discovery in what is a landscape and seascape of known and significant cultural heritage activity.

Archaeological monitoring has taken place within the Port as part of the advanced works in 2016 for the permitted development. The work required reclamation on the foreshore using imported quarry material that was in turn to be protected with rock amour. Seabed disturbance activities were monitored archaeologically as part of the conditions for the permitted development. A series of timbers were observed and determined to be natural in origin and use and not of archaeological significance. No material of archaeological significance was recorded.

6.5 Impact Assessment – Proposed Alterations

6.5.1 Impacts during Construction Phase

The proposed alterations are described in Chapter 3 of this EIS. Revisions to the geometry of container berth 1 include a minor modification to the shape of the southern end of the berth, but due to the reconfiguration of the shape of the quay return wall, piling and construction activity is effectively in the same location as in the permitted development (refer EIS Figure 3.12). Berth 2 is unchanged.

Dredging is proposed in Ringaskiddy East at the southern tip of the container berth 1 and will extend from the current level of *c.* -1.5m CD at the shoreline to a level of -13m CD, which is 1.25m below the general basin level of 11.75m. The volume of additional material to be removed as part of the alterations is estimated to be 15,000m^3.

The fact that the landward sides of the additional dredging area are on land reclaimed in the twentieth century suggests it is unlikely that new work will encounter levels of archaeological interest. The absence of discernible archaeological levels on the foreshore may be noted as one observation from

the archaeological monitoring completed as part of the advanced works for the permitted development.

Three new mooring dolphins are proposed as part of the alterations and will be similar in scale and massing to the existing two dolphins. The three proposed dolphins will require 8 piles each, a total of 24 piles, measuring 0.9m diameter each.

No significant cultural heritage effects are predicted to occur as a result of the proposed alterations in the context of the permitted development.

6.5.2 Impacts during Operation and Aftercare

No potential impacts are identified during the operational phase as it is anticipated that the archaeological environment will have been resolved during the construction phase. As such, no significant adverse cultural heritage effects are predicted to occur as a result of the proposed alterations in the context of the permitted development.

6.6 Mitigating Measures

The mitigation measures that formed part of the An Bord Pleanála approval of the permitted development of the Ringaskiddy Port Redevelopment remain entirely appropriate.

6.7 Cumulative Effects

Cumulative impacts consider the following projects and proposed projects from a cultural heritage perspective:

- M28 Upgrade
- Dunkettle interchange
- East Tip Remediation project
- Indaver incinerator
- DePuy turbine
- Martello Tower site reprofiling
- Steelwork's site
- Industrial/commercial developments in the area
- Shannonpark roundabout
- Cobh marina
- Monkstown Marina
- Cobh Cruise Berth Upgrade/Mooring Dolphins
- Spike Island Masterplan
- Cobh Second Cruise Berth
- Whitepoint marina

The cultural heritage narrative of the Lower Harbour area is informed by the standing remains of coastal defensive works and related structures. Among the specific projects identified, including Ringaskiddy, the most substantial cultural heritage assets are on the islands of Haulbowline and Spike, where the historic forts and their later developments remain centrally important to the present-day landscapes, and the proposed reprofiling of landscape at the Martello tower in Ringaskiddy.

The East Tip Remediation Project on Haulbowline Island will be meeting conditions required to preserve the archaeological heritage during construction works, and this can be expected as part of the Spike Island Masterplan and the reprofiling of the Martello tower in Ringaskiddy as well.

The archaeological potential at all of these project locations also lies in the buried sediments on land and at sea. The potential remains unqualified. To address this issue, and where construction impacts will be significant, the implementation stages of the projects will have comprehensive archaeological monitoring programmes as part of their construction management plans.

Archaeological monitoring that is licensed by the Department of Arts, Heritage Rural, Regional and Gaeltacht Affairs (DAHRRGA), is the single most useful mitigation when working in locations that do

not have visible or known archaeological features in the immediate area, as it safeguards any cultural heritage material that may be discovered as a result of new construction works, and it ensures that such material is recorded and archived in the most effective manner. Such measures are in fulfilment of requirements set by the National Monuments Section of the DAHRRGA, which are made on the basis of conserving the archaeological heritage of a site and securing the preservation and protection of any remains that may exist within the site.

The cumulative impact of this mitigation strategy across the projects will be to generate a new baseline of information that will inform the wider cultural heritage narrative of Cork Harbour. This impact can be considered a positive long term result.

6.8 Residual Impacts

Based on the impact assessment of the proposed alterations, there are no residual impacts of the proposed alterations to the permitted development on the cultural heritage resource of the area. Any archaeology encountered will be resolved in the construction stage of the proposed redevelopment.

6.9 Conclusions

The conclusion of this assessment of the proposed alterations is that these modifications will not result in any significant change to the assessment of cultural heritage risk as previously made for the permitted development.

The mitigation measures enshrined in the extant approval remain fully applicable to the proposed alterations.