

Limerick WWTP Upgrade and Regional Bioresource Centre

ElAR Chapter 11 - Archaeology, Architectural and Cultural Heritage

June 2026



Formerly JB Barry Partners who became part of Egis in 2023

Table of Contents

11	ARCHAEOLOGY, ARCHITECTURAL AND CULTURAL HERITAGE.....	1
11.1	Introduction.....	1
11.1.1	Purpose of this Report.....	1
11.1.2	Outline Project Description	1
11.2	Methodology.....	2
11.2.1	Study Area	2
11.2.2	Study Methodology, Policies and Objectives	3
11.2.3	Appraisal Method for the Assessment of Effects	5
11.2.4	Data Collection and Collation	5
11.3	Baseline Environment.....	8
11.3.1	Historical and Archaeological Background.....	9
11.3.2	Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP).....	10
11.3.3	National Monuments	11
11.3.4	Previously Unrecorded Sites	11
11.3.5	Excavation Database	12
11.3.6	The Topographical Files of the National Museum of Ireland.....	12
11.3.7	Protected Structures and National Inventory of Architectural Heritage Sites	12
11.3.8	Wreck Inventory of Ireland Database.....	13
11.3.9	Cartographical Sources and Aerial Imagery.....	13
11.3.10	Site visit.....	17
11.4	Potential Effects.....	19
11.4.1	Construction Phase	19
11.4.2	Operational Phase	20
11.5	'Do-nothing' Effect	20
11.6	Mitigation Measures.....	20
11.6.1	Construction Phase	20
11.6.2	Operational Phase	21
11.7	Residual Effects	21
11.8	Cumulative Effects and Interactions	22
11.9	Difficulties encountered in Compiling Information.....	22
11.10	References	23

List of Figures

Figure 11-1	Site location map	2
Figure 11-2:	Location of the site in relation to Recorded Monuments; Protected Structures; NIAH structures; and previous excavations	3
Figure 11-3:	Site location on The Down Survey Map of 1656	14
Figure 11-4:	Extract from Grand Jury Map of County of Clare by Henry Pelham (1787), showing approximate location of site.....	15
Figure 11-5:	Extract from 1st Edition Ordnance Survey (OS) map (surveyed in 1839 -published 1842), showing location of site.....	15
Figure 11-6:	Extract from 3rd Edition Ordnance Survey (OS) map (surveyed in 1900 -published 1902), showing location of site.....	16
Figure 11-7:	Aerial view, showing location of site	16
Figure 11-8:	Limerick WWTP west end – locations of proposed AGS Tanks and Silo.....	17

Figure 11-9: Limerick WWTP South End - Locations of proposed CHP, MCC, THP Silos and Reception Area.....	18
Figure 11-10: Corcanree PS existing east end- Location of proposed storm tank PIPE work, facing northwest.....	18
Figure 11-11: Corcanree PS east end- Location of storm tank and Spillane Tower in background facing northwest.....	19

List of Tables

Table 11-1: List of monuments in the environs of the site	11
Table 11-2: List of Protected structures and NIAH sites	12
Table 11-3: Residual Effects of the Proposed Development on the archaeological, architectural and cultural heritage.....	21

Glossary and Defined Terms

Acronym	Description
AA	Appropriate Assessment
AASR	Appropriate Assessment Screening Report
ACP	An Coimisiún Pleanála
AD	Anaerobic Digestion
AGS	Aerobic Granular Sludge
AER	Annual Environmental Report
BOD	Biochemical Oxygen Demand
BC	Bioresource Centre
C	Carbon
CAFÉ	Clean Air for Europe Directive
CHP	Combined Heat and Power
DIN	Dissolved Inorganic Nitrogen
ECJ	European Court of Justice
EIAR	Environmental Impact Assessment Report
ELV	Emission Limit Value
EPA	Environmental Protection Agency
ESB	Electrical Supply Board
EU	European Union
FOG	Fats Oils and Grease
FST	Final Settling Tank
GHG	Greenhouse Gas
HGV	Heavy Goods Vehicle
MLPS	Main Lift Pumping Station
MCA	Multi-Criteria Analysis
MRP	Molybdate Reactive Phosphate
IDA	Industrial Development Agency
IFAS	Integrated Fixed-Film Activated Sludge
N	Nitrogen
NDP	National Development Plan
NHA	National Heritage Area
NIS	Natura Impact Statement
NPF	National Planning Framework
NSO	National Strategic Outcomes
NSS	National Spatial Strategy
NWSMP	National Wastewater Sludge Management Plan
P	Phosphorous
PE	Population Equivalent - The amount of wastewater received at a treatment plant (and its design capacity) is measured in units known as population equivalent (or PE). The wastewater received from all sources, e.g. industrial, tourism, commercial, residential, etc., is converted into these units, with one unit of PE representing the wastewater treatment load typically generated by a single person.
PFF	Pass Forward Flow
PFT	Picket Fence Thickener
pNHA	Proposed National Heritage Area

Acronym	Description
SEA	Strategic Environmental Assessment
SBR	Sequencing Batch Reactor
SIA	Stable Isotope Analysis
SID	Strategic Infrastructure Development
Sludge	Solid by-products of wastewater
SPA	Special Protection Area
SS	Suspended Solids
UWWTD	Urban Wastewater Treatment Directive
WFD	Water Framework Directive
WWDA	Wastewater Discharge Authorisation
WWTP	Wastewater Treatment Plant
WSPS	Water Services Policy Statement
ZTV	Zone of Theoretical Visibility
PS	Pumping Station
QI	Qualifying Interest
RAS	Return Activated Sludge
RBC	Regional Bioresource Centre
RSES	Regional Spatial and Economic Strategy
SAC	Special Area of Conservation
TDS	Total Dry Solids
THP	Thermal Hydrolysis Process

DEPARTMENTS AND STAKEHOLDERS

Departments & Stakeholders	Acronym (where applicable)
An Coimisiún Pleanála	ACP
Department of Public Expenditure and Reform	DPER
Department of Climate Action, Communication Networks and Transport	CACNaT
Department of Communications, Climate Action and Environment – Changed in 2020	DCCAE
Department of Culture, Heritage and the Gaeltacht – Changed in 2020	DCHG
Department of Finance	DoF
Department of Housing, Planning and Local Government – Changed in 2020	DHPLG
Department of Housing, Local Government and Heritage	HLGaH
Environmental Protection Agency	EPA
Geological Survey Ireland	GSI
Group Water Schemes	GWS
Inland Fisheries Ireland	IFI
Irish Rail (Iarnród Éireann)	IR
Uisce Éireann	UÉ
Limerick City & County Council	LCCC
Local Authority	LA
National Monuments Service	NMS
National Parks & Wildlife Service	NPWS
National Roads Authority	NRA
National Transport Authority	NTA
Office of Public Works	OPW
Ordnance Survey Ireland	OSi
Southern Regional Assembly	SRA

11 ARCHAEOLOGY, ARCHITECTURAL AND CULTURAL HERITAGE

11.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) consists of the findings of an archaeological, architectural and cultural heritage impact assessment carried out for Limerick Waste Water Treatment Plant Upgrade and Bioresource Centre Project (LWWTU&BCP, hereafter referred to as the Proposed Development), and was prepared for Uisce Éireann.

The proposed works are within the Limerick Waste Water Treatment Plant (Limerick WWTP) and in a field adjacent to the Corkanree Pump Station site (Corkanree PS). The works will include capacity upgrade and the construction of a Regional Bioresource Centre (RBC) at Limerick WWTP, and a new storm water tank and associated installations/pipework at Corkanree PS. A detailed project description can be found in Chapter 3 (The Proposed Development) of this EIAR.

The site was not subject to archaeological assessment previously.

This chapter was prepared by Magda Lyne (MA, MIAI) and Donald Murphy (MA, MIAI) of ACSU. Magda is an Archaeologist with over 15 years of experience, having worked in Poland, Ireland, Denmark and Norway. Her primary focus includes preparing Archaeological and Cultural Heritage Chapters for EIARs, Archaeological Impact Assessments (AIA), and Cultural Heritage Impact Assessments (CHIA). She has completed EIARs for numerous projects across Ireland, including housing, pharmaceutical plants, wastewater facilities, and public realm projects. Donald is the founder and Managing Director of ACSU and has over 30 years of experience as an archaeological consultant. He has completed EIARs for a variety of projects across Ireland and has managed the archaeological work in advance of several large infrastructural schemes, such as the M3 and M4 Motorways.

11.1.1 Purpose of this Report

This chapter aims to determine the nature of the archaeological, architectural and cultural heritage resource within the site and the immediate proximity to it. It was carried out to identify and describe the known and potential archaeological, architectural and cultural heritage constraints and where present, potential effects on these archaeological and cultural heritage assets within the site and its environs and includes mitigation measures required in order to alleviate such effects.

11.1.2 Outline Project Description

The Proposed Development will cater for future population growth and industrial development in the area, in line with population projections for Limerick as set out in the National Planning Framework (NPF) Implementation Roadmap and the Regional Spatial & Economic Strategy (RSES) for the Southern Region. It will provide 20% Headroom allowance, in line with Uisce Éireann guidelines for large urban settlements. It will also ensure the WWTP continues to comply with requirements of the EPA Wastewater Discharge License (WWDL), Urban Wastewater Treatment Regulations (UWWTR) and other relevant Uisce Éireann Guidelines.

The initial upgrade works will cater for the +10-year growth projections, increasing from 130,000 PE to 285,000 PE including a future industrial committed load of 27,500 PE. There will be provision made in the civil infrastructural development of the plant (tank sizing and pipework) for the +25-year growth projections of 325,000 PE. However, a planning review will be required before any uplift above 285,000 PE can be installed. For the detailed description of the Proposed Development refer to Chapter 3 (The Proposed Development) in Volume 2 of this EIAR.

The proximity of the sites to the river are shown in Figure 11-1.

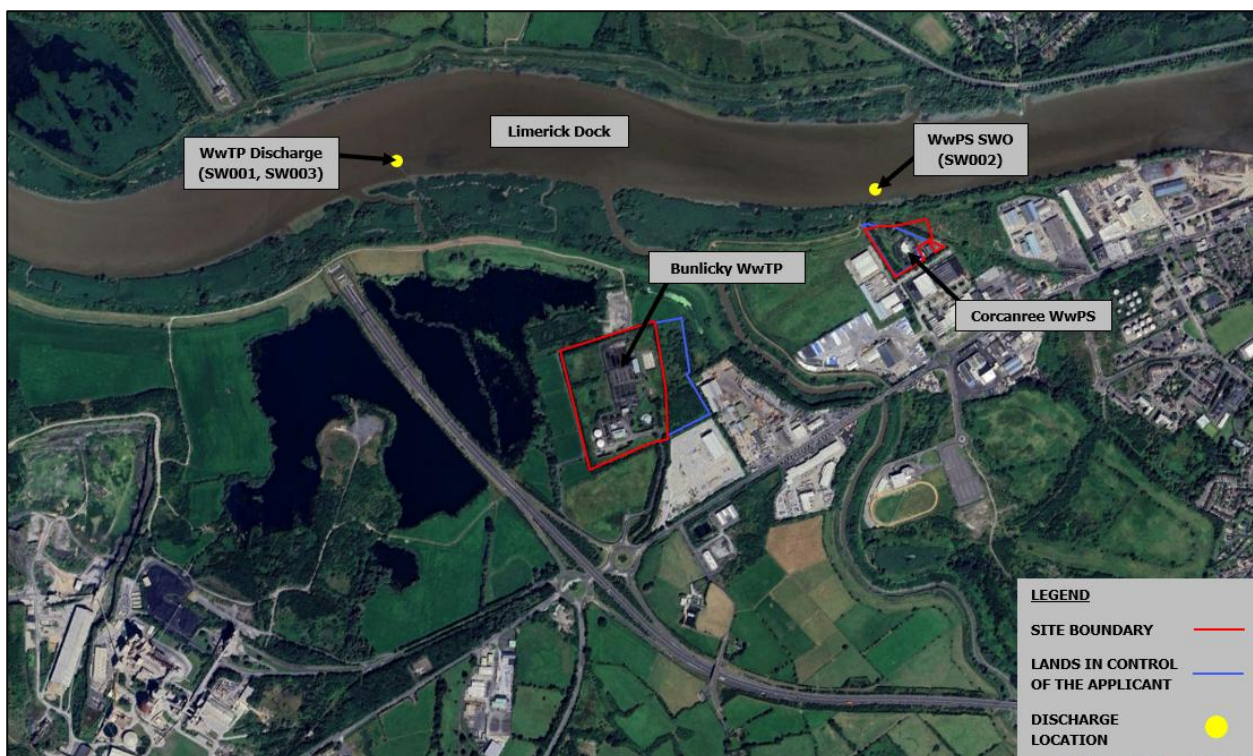


FIGURE 11-1 SITE LOCATION MAP

Decommissioning of the Proposed Development is not envisaged at this time. Given the scale of the existing infrastructure, it is anticipated that Uisce Éireann will continue phased development to salvage and re-use as much of the installed infrastructure as possible as the demand in Limerick grows. Consolidating additional infrastructure at this location is considered beneficial and will help minimise future capital investment. The proposed layouts are designed to optimise land take and preserve capacity for future expansion. On this basis, decommissioning has been screened out.

11.2 Methodology

11.2.1 Study Area

The proposed works are in relation to LWWTU&BPC Project (Figure 11-2), on the lands to the south of the River Shannon, accessible via internal roads off and to the north of Dock Road (R510) and within the historical floodplains associated with the river (Figure 11-4) and formerly agricultural land (Figure 11-5, Figure 11-6), with portions of the site industrial on made land (Figure 11-1).

The site consists of two distinct areas:

- Limerick WWTP is in the townland of Ballykeeffe (ITM 554555, 655666). It was opened in 2004 and is 3.6km to the southwest of Limerick City and adjacent to and east of the artificial Bunlicky Lake and Limerick Southern Ring Road (N18).
- Corcanree WWPS, including a portion of an adjacent field, is in the townlands of Corcanree and Courtbrack (ITM 555388, 656188). Corcanree PS was opened in 2004 and is 2.8km to the southwest of Limerick City and east of Ballinacurra Creek.

This chapter considers archaeological sites within 1km and architectural/cultural heritage sites and their settings located within a 0.5km radius of the sites listed above (Figure 11-2).

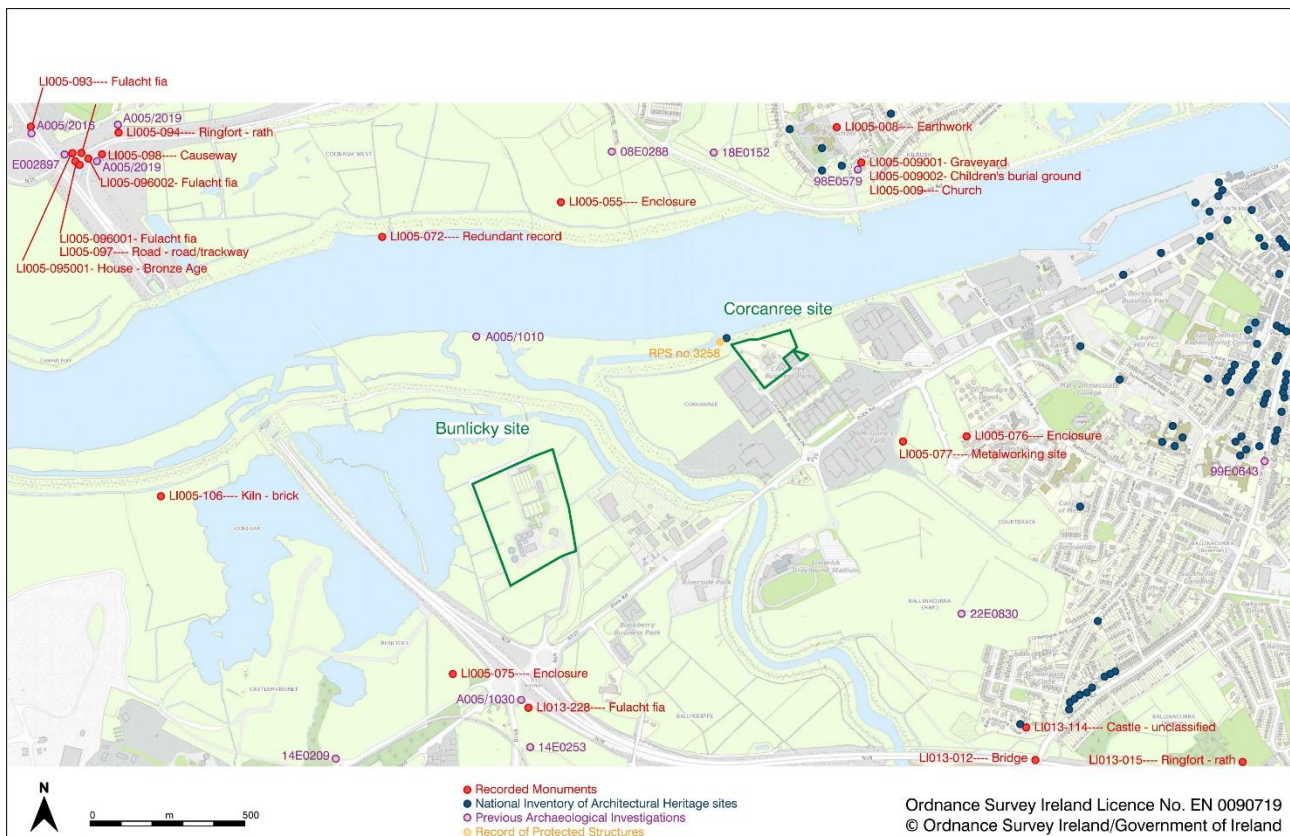


FIGURE 11-2: LOCATION OF THE SITE IN RELATION TO RECORDED MONUMENTS; PROTECTED STRUCTURES; NIAH STRUCTURES; AND PREVIOUS EXCAVATIONS

11.2.2 Study Methodology, Policies and Objectives

This chapter's methodology is guided by a legislative framework that governs how aspects of archaeological, cultural and architectural heritage are protected. It has been prepared in compliance with all relevant EIAR legislation and guidance, including 'Guidelines on the information to be contained in Environmental Impact Assessment Reports', published by the Environmental Protection Agency (2022).

Furthermore, it addresses the relevant policies and objectives of *Limerick Development Plan 2022–2028* and the Regional Policy Objectives (RPO) of the *Regional Spatial & Economic Strategy for the Southern Region*, namely:

Limerick Development Plan 2022–2028

- *Policy EH P4 Compliance with Limerick's Heritage Plan. It is a policy of the Council to place ecological and environmental issues at the centre of planning policies and decisions and in doing so, will adhere to the objectives set out in Limerick's Heritage Plan 2017-2030.*
- *Objective EH O36 Preservation of the Archaeological Heritage. It is an objective of the Council to seek the preservation of all known sites and features of historical and archaeological interest. This is to include all the sites listed in the Record of Monuments and Places as established under Section 12 of the National Monuments (Amendment) Act 1994. The preferred option is preservation in situ, or at a minimum preservation by record.*
- *Objective EH O37 Preservation of unrecorded/newly discovered Archaeological Heritage. It is an objective of the Council to protect and preserve the preservation in situ (or at a minimum by record) of all sites and features of historical and archaeological interest, discovered subsequent to the publication of the Record of Monuments and Places.*
- *Objective EH O38 Preservation of the Underwater Archaeological Heritage. It is an objective of the Council to seek the preservation (in situ, or at a minimum, preservation by record) of all known and all previously unrecorded sites and features of historical and archaeological record in wetland, riverine, lacustrine, estuarine and/or marine environments.*

- *Objective EH O39 Protection of the setting of Archaeological Monuments. It is an objective of the Council to ensure that no development shall have a negative impact on the character or setting of an archaeological monument.*
- *Objective EH O40 Proper procedures during the planning process. It is an objective of the Council to:*
 - a) *Ensure early engagement at preplanning stage is undertaken with the Local Authority Archaeologist to promote the 'preservation in situ' of archaeological remains and settings in development.*
 - b) *Adopt a policy of archaeological monitoring of developments where the scale and nature of such developments may, in the opinion of the Planning Authority, have a negative impact on previously unknown archaeological features/ artefacts.*
 - c) *Require the preparation of an Archaeological Heritage Assessment in cases where it is deemed that Archaeological Heritage would be affected by a proposed development (due to their location, size or nature). The report shall be prepared by a suitably qualified archaeologist on the archaeological implications, if any, of the proposed development either prior to a decision on a planning application or prior to commencement of development on site.*
- *Objective EH O41 Archaeological Monuments in Local Authority ownership/guardianship. It is an objective of the Council to preserve and enhance as appropriate and as funding allows monuments vested in the Local Authority.*

Regional Spatial & Economic Strategy for the Southern Region

- *RPO 206 Architectural Heritage. It is an objective to protect architectural heritage in statutory plans including a record of protected structures (RPS) and identification of groups of buildings/localities suitable to designation as Architectural Conservation Areas (ACAs). Local authorities should provide for monitoring and review of the RPS and ACAs including measures to prevent dereliction and to support re-use of built heritage*
- *RPO 207 Archaeological Investigation. Where proposed development may have implications for recorded archaeological monuments /sites, zones of archaeological potential, or undiscovered archaeology, local authorities should ensure that decisions relating to development (including infrastructure associated with broadband, telecommunications and renewable energy installation of services installation and major road/rail infrastructure) are informed by an appropriate level of archaeological investigation undertaken by qualified persons.*

Legislation, Guidelines and Policies

On 13 October 2023, the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 was enacted by the Oireachtas, which provides for the repeal of the National Monuments Acts 1930 to 2014 and related legislation. The act is now a law, Commencement Orders for certain provisions with enforcement measures are in effect and operational as of 31 May 2024 (S.I. No. 252/2024), 30 September (S.I. No. 492/2024) and 12 December 2024 (S.I. No. 663/2024). When fully enacted it will replace the previous legislation, but until that time the National Monuments Acts 1930 to 2014 and related legislation remain fully in force, with the exception of the successor provisions that are being fully brought into operation and have been subject to Commencement Orders. The new Act contains transitional provisions to enable certain aspects of the existing National Monuments Acts 1930 to 2014 to continue in operation, such as provisions enabling the Record of Monuments and Places to continue to have effect pending the establishment of the new Register of Monuments (see section 48 of the Act).

Below is a list of the legislation relevant to this assessment:

- Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023;
- National Monuments Acts 1930 to 2014;
- Heritage Act 1995 (as amended);
- National Cultural Institutions Act 1997;

- European Convention for the Protection of the Archaeological Heritage (Valetta Convention, 1997);
- European Convention for the Protection of the Architectural Heritage (Granada Convention, 1997);
- European Landscape Convention (Florence Convention, 2000);
- Planning and Development Act 2000 (as amended);
- UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (Paris Convention, 2003); and
- Directive 2011/92/EU of the European Parliament and of the Council on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU of the European Parliament and the Council (hereafter the EIA Directive).

Below is a list of policies, planning documents, codes of practice and frameworks relevant to this assessment:

- Framework and Principles for the Protection of the Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands 1999);
- Code of Practice for Archaeology agreed between the Minister for Arts, Heritage, Regional Rural and Gaeltacht Affairs and Transport, Infrastructure Ireland (Transport Infrastructure Ireland (TII) and Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs 2017);
- Built & Archaeological Heritage: Climate Change Sectoral Adaptation Plan (Department of Culture, Heritage and the Gaeltacht 2019);
- Limerick Development Plan 2022–2028;
- National Development Plan 2021–2030 (Department of Public Expenditure and Reform 2021);
- Archaeology in the Planning Process (Department of Housing, Local Government and Heritage (DHLGH) and Office of the Planning Regulator 2021);
- A Living Tradition: A Strategy to Enhance the Understanding, Minding and Handing On of our Built Vernacular Heritage (DHLGH 2021);
- Places for People: National Policy on Architecture (DHLGH 2022a);
- Heritage Ireland 2030: A Framework for Heritage (DHLGH 2022b); and
- National Planning Framework, First Revision (Government of Ireland and National Planning Framework 2025).

Below is a list of guidelines relevant to this assessment:

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA 2022);
- Guidelines for Cultural Heritage Impact Assessment of TII National Road and Greenway Projects (TII 2024);
- Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (EPA 2003).

11.2.3 Appraisal Method for the Assessment of Effects

The main purpose of this chapter is to identify, describe and present an assessment of the likely effects of the Proposed Development on archaeological, architectural and cultural heritage remains (known and unknown if present). An effect can be positive, negative, or neutral/none, direct or indirect. The effect may result from the construction phase and/or the operation phase of the project.

The potential effects are assessed for each component of the Proposed Development as described above, as well as cumulatively.

This chapter aims to present a precise, concise, accurate, and credible description of the likely and potentially significant effects on archaeological, architectural and cultural heritage and offer mitigation measures where a likely significant effect is predicted. The description of effects follows the EPA Guidelines (2022, Table 3.4, Figure. 3.4), whereby comparing the character of the predicted effect to the sensitivity of the receiving environment can determine the significance.

11.2.4 Data Collection and Collation

In order to create a baseline data for assessing the site and its environs for the purposes of this report, known and newly identified archaeology, architectural and cultural heritage sites were considered and include the following elements:

- Sites and Monuments Record (SMR);
- Record of Monuments and Places (RMP);
- National Monuments;
- Sites reported in the Database of Irish Excavation Reports;
- A list of stray finds (Topographical Files of the National Museum of Ireland);
- Any previously unrecorded sites (identified as a result of site visit and examination of cartographic sources and aerial imagery);
- A list of Protected Structures (Limerick Development Plan 2022–2028);
- A list of Heritage Structures (National Inventory of Architectural Heritage; NIAH);
- A list of Wrecks (Wreck Inventory of Ireland Database; WIID);
- Other documentary sources (townland, placename evidence and Griffith’s Valuation and Maritime, Military and Industrial Heritage of Limerick City and County).

11.2.4.1 Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP)

A primary cartographic source and baseline data for the assessment was consultation of the *Sites and Monuments Record* (SMR) and the *Record of Monuments and Places* (RMP) for County Limerick (<https://www.archaeology.ie/app/uploads/2025/03/Archaeology-RMP-Limerick-Manual-1997-0028.pdf>). All known/recorded archaeological monuments are listed in these records and indicated on mapping based on the 6-inch Ordnance Survey (OS) maps. The SMR and RMP paper archives are not a complete record of all monuments, however, as newly discovered sites may not appear in the lists or accompanying maps. Accordingly, in conjunction with consultation of the SMR and RMP, the digital database of recorded monuments (Historic Environment Viewer), which may be accessed through the National Monuments Service (NMS) website (<https://heritagedata.maps.arcgis.com/apps/webappviewer/>), was also consulted. This database of SMR records is updated daily. The county SMR forms the basis for the statutory RMP (established under Section 12 of the National Monuments (Amendment) Act 1994). Accordingly, all sites included in the RMP are protected under the National Monuments Acts (1930–2014).

11.2.4.2 National Monuments Service (NMS)

The National Monuments Service website lists Monuments covered by Preservation Orders and in the ownership/guardianship of the Minister for Housing, Local Government and Heritage by county; the list for County Limerick was published in 2009 (<https://www.archaeology.ie/app/uploads/2025/03/monuments-in-state-care-limerick.pdf>)

The term ‘National Monument’ is defined by the National Monuments Act (1930) as being ‘a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic, or archaeological interest attaching thereto’. The aforementioned Act states that the consent of the Minister is required for archaeological works at or near a National Monument in the ownership or guardianship of the Minister or a local authority, or to which a preservation order applies. The Minister is required to consult with the Director of the National Museum of Ireland in relation to such an application for consent.

On 13 October 2023, the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 was enacted by the Oireachtas, which provides for the repeal of the National Monuments Acts 1930 to 2014 and related legislation. At the time of writing, most of its provisions have not yet come into force, however. When fully enacted it will replace the previous legislation but until that time the National Monuments Acts (1930–2014) and related legislation remain fully in force. Under the 2023 Act, a “national monument (LA)”, in relation to a local authority, means a national monument in the ownership or guardianship of that authority; “national monument (M)”, in relation to the Minister, means a national monument in the ownership or guardianship of the Minister. In so far as is compatible with the requirements of section 75(1) and (2), the Minister may grant a lease or licence (not being a licence granted under section 151) in respect of land comprising a national monument (M) (or a local authority, with the consent of the Minister in respect of land comprising a national monument (LA)).

11.2.4.3 Excavations Database

The *Database of Irish Excavation Reports*, also known as the Excavations Database, is an annual account of all archaeological investigations carried out under an excavation licence and includes works undertaken from 1970 to the present (<https://excavations.ie/>). This database was consulted as part of the desktop research for this assessment to establish if any previous archaeological investigations under an excavation licence had been carried out in, or near the Proposed Development area.

11.2.4.4 The Topographical Files of the National Museum of Ireland

The topographical files of the National Museum of Ireland contain information pertaining to archaeological finds (mainly artefactual) and excavations throughout the country that were reported to the museum since the 1920s. While many of these find spots are not recorded monuments, they can provide an indication of past activity in a townland and consequently add to our understanding of the archaeological potential of an area.

11.2.4.5 Protected Structures and National Inventory of Architectural Heritage Sites

Protected Structures are buildings and other structures that the planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social, or technical point of view. These are protected under Part IV of the Planning and Development Act 2000, as amended, and listed in Volume 8: Record of Protected Structures in the Limerick Development Plan 2022–2028.

Heritage Structures are also recorded by the National Inventory of Architectural Heritage (NIAH), a state initiative established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. The list forms the basis for the recommendations for inclusion in the Record of Protected Structures (RPS).

11.2.4.6 The Wreck Inventory of Ireland Database

The Shipwreck Archive consists of over 18,000 paper files relating to each wreck recorded in the *Wreck Inventory of Ireland Database* (WIID) with its known location. This dataset does not define the level of legal protection that might be afforded any individual wreck under the provisions of the National Monuments (Amendment) Acts (1987 and 1994); however, all wrecks that are over 100 years old and wrecks subject to an underwater heritage order are protected by Section 3 of the National Monuments (Amendment) Act 1987. The digital database of wrecks (Historic Environment Viewer), which may be accessed through the National Monuments Service (NMS) website, was also consulted (<https://dahg.maps.arcgis.com/apps/webappviewer>).

11.2.4.7 Cartographic Sources and Aerial Imagery

Potential archaeological or cultural heritage features can also be marked on historic maps or be visible on aerial photography as cropmarks, soil marks and low earthworks. Both provide a useful resource in identifying sites, particularly if they no longer have any above ground remains and in built-up or urban areas they can help trace changes in the layouts of buildings and roads.

Several cartographic sources were consulted as part of this assessment, namely The Down Survey of County Limerick (1656), the Grand Jury Map of County Clare by Henry Pelham (1787) and the first (surveyed 1839 – published 1842) and third edition (surveyed 1900 – published 1902) and the Cassini edition (1937–38) Ordnance Survey (OS) maps (now Tailte Éireann). Aerial photographs dating between 1995 and 2018 from Tailte Éireann were also examined, as was Google Earth imagery dating between 2005 and 2025.

11.2.4.8 Site visit

A site visit aims to assess whether or not the site contains any visible evidence of any previously unrecorded areas or features of historical or archaeological significance.

11.2.4.9 Documentary research

Additional desktop research included the following resources:

- Townland and Placename Databases;

The *Irish Townlands Database* (<https://www.townlands.ie/>) and the *Irish Placename Database* (<https://www.logainm.ie/en/>) were both consulted for the associated administrative divisions (baronies, civil parishes and townlands) and the meaning of the placenames and fields within and surrounding the Proposed Development site. The Irish Placename Database was created by Gaois, Fiontar & Scoil na Gaeilge in collaboration with The Placenames Branch of the Department of Housing, Local Government and Heritage. It contains archival records and placenames research conducted by the State. Many of Ireland's geographical names are of Irish origin, while others derive from English, with a small number from Old Norse. The anglicisation process included name standardisation, which was largely carried out in the 19th century and recorded in the Ordnance Survey's work. Toponyms can provide useful historical and cultural heritage data, such as information on administrative divisions, natural and archaeological features that may have disappeared, as well as the ownership or character and origins of a settlement.

- Griffith's Valuation (1847–1864);

Griffith's Valuation (1847–1864) is a property tax survey with accompanying mapping that lists and details every taxable piece of agricultural land or built property in Ireland, published county by county (<https://www.askaboutireland.ie/griffith-valuation>).

- Maritime, Military and Industrial Heritage of Limerick City and County;

Limerick City and County Council participated in the Military, Maritime and Industrial Atlantic Heritage Project (MMIAH) (<https://www.limerick.ie/sites/default/files/media/documents/2022-05/MMIAH-Evolutionary-Study-Report-2019.pdf>). The project was funded through the European Regional Development Fund (ERDF). Nine city partners from UK, France, the Republic of Ireland, Spain and Portugal participated. A study of Limerick addressing the stages of its evolution as a consequence of its maritime, military and industrial activity was prepared; encompassing the entire shoreline of the Shannon Estuary from the border with County Kerry upriver to the border with County Tipperary at Montpelier. The report includes a full inventory of the marine, military and industrial heritage.

11.3 Baseline Environment

The Proposed Development is to the southwest of Limerick City, on the lands to the south of the River Shannon that had been an important water-way since prehistoric times. These lands consist of the historic floodplains associated with the River Shannon; the lands are marked as Flood Zone A and B in the Limerick Development Plan 2022–2028 (see Map 5: Limerick City and Suburbs (in Limerick), including Mungret and Annacotty - Flood Map), it includes formerly agricultural land with portions of the site industrial including access roads on made land.

The site consists of two distinct areas; one located at Limerick WWTP in the townland of Ballykeeffe and adjacent to and east of Bunlicky Lake and Limerick Southern Ring Road (N18) and the other at Corcanree PS, which includes a portion of an adjacent field in the townlands of Corcanree and Courtbrack, to the east of Ballinacurra Creek.

The site was not subject to any prior archaeological investigations.

The Proposed Development area has an elevation of 2–5m Ordnance Datum (OD).

Cultural Heritage is considered here to include all recorded monuments listed in the Record of Monuments and Places (RMP) and in the Sites and Monuments Record (SMR), National Monuments (i.e. those in the ownership/guardianship of the state), Protected Structures, National Inventory of Architectural Heritage (NIAH) sites, Wrecks (WIID), sites reported in the Excavations Database if not included in the RMP/SMR, find spots or sites listed in the Topographical Files of the National Museum of Ireland, and finally, previously unrecorded sites, such as those identified during a site visit, through examination of cartographic sources and aerial imagery.

11.3.1 Historical and Archaeological Background

The development is located in the townlands of Ballykeeffe, Courtbrack, Corcanree, all in the Barony of Pubblebrien. Ballykeeffe is in the Civil Parish of Mungret while Courtbrack and Corcanree are in the Civil Parish of Saint Michael's.

Ballykeeffe (*Béal an Chaoith*) comes from *beal* meaning 'opening, approach, or mouth' and translates from Irish to *the mouth of the swamp* (<https://www.logainm.ie/31180.aspx>). Courtbrack (*An Chúirt Bhreac*) from *breac* meaning 'speckled' translates from the Irish to *the speckled court* (<https://www.logainm.ie/30523.aspx>). Corcanree (*Corcach an Rí*) is believed to be a local name and translates from Irish to *the marsh of the king* (<https://www.logainm.ie/30522.aspx>).

Examination of Griffith's Valuation database, archives and relevant maps indicated that in the mid-19th century the lands at Ballykeeffe (associated with Limerick WWTP) were listed under the Bishop of Limerick, with the land mainly leased to George Gough Esquire. The Corcanree PS lands are listed under the Corporation of Limerick, with the land and embankment leased to a Garret Hugh Fitzgerald Esquire.

Prehistoric period

The site is located in close proximity to the River Shannon and is marked as Flood Zone A and B in the Limerick Development Plan 2022–2028. The River Shannon had been an important water-way since prehistoric times.

Most of the Irish coastline and the river estuaries were submerged over the past 10,000 years, since the end of the most recent ice age. The sediments that accumulated over the years buried and preserved land beneath, meaning there is a high potential for archaeological material to survive. As water preserves organic material extremely well, fish traps, platforms, boats, trackways and various structures, including houses, are often found in such areas. The North Munster Project of the Discovery Programme (O'Sullivan 1996), for example, found evidence for sea-level rise and marine transgressions based on the archaeological intertidal survey of the Shannon estuary. The Neolithic and Bronze Age archaeological remains were submerged and sealed beneath estuarine clays. Activity discovered along the rivers is usually related to human exploitation of the tidal channels and freshwater and saltwater marshes. The archaeological remains can survive deeply stratified in natural sediment accumulations, hence identification during test trenching is particularly challenging. This was also apparent during testing of alluvium in relation to Limerick Southern Ring Road Phase II (Carter, Barton 2005). Prehistoric activity was identified as a result of archaeological services associated with the N18 Limerick Tunnel PPP: Southern Contract, with two burnt mounds; Ballykeeffe 1 (Mullins 2010) and Ballykeeffe 2 (Hull, Ruttle 2010) identified and excavated. Burnt mounds/spreads, as known as *fulacht fia*, are one of the most common field monuments found in the Irish landscape. The last published survey (Power et al. 1997), carried out over 20 years ago, recorded over 7,000 burnt mound sites, while in excess of 1,000 sites have been excavated in recent years through development-led archaeological investigations (Hawkes 2018). These sites largely involved the heating or boiling of water by placing fire-heated stones into pits/troughs of water (pyrolithic technology). They are usually located where there is a readily available water source, often in proximity to a river, stream or in wetland fringes. They are generally identified as charcoal-rich mounds or spreads of heat-shattered stones; however, in many cases the sites have been disturbed by later agricultural activity and are no longer visible on the field surface. Disturbed spreads will nonetheless often preserve the underlying associated features, such as troughs, pits and water management gullies. Small shallow round-bottomed pits are also often associated with burnt mound sites and these are generally referred to as pot boiler pits or roasting pits. Larger pits may have acted as wells or cisterns.

Burnt mound sites are most commonly dated to the Bronze Age, specifically the Middle/Late Bronze Age (Brindley et al. 1989–90; Corlett 1997), however, many examples have now also been dated to the preceding Neolithic and Chalcolithic and the subsequent Iron Age (Hawkes 2018, 115–53). The most accepted theory traditionally is that they were used as cooking places. O'Kelly (1954) and Lawless (1990) both demonstrated how meat could be successfully cooked in troughs of boiling water using hot stones to heat the water. A bathing or sauna function has also been suggested for some sites as an alternative (Lucas 1965; Barfield and Hodder 1987). A more recent demonstration by Quinn and Moore (2007) showed that troughs could also have been used for brewing. This theory has been criticized, however, due to the absence of cereal remains from most burnt mound sites (McClatchie et al. 2007), though it is also rare to find animal bone on these sites to

support the idea of cooking meat. Given their widespread distribution, it is perhaps best to see them simply as water-heating sites, with as many possible uses for hot water as we have today. Thus, a specific function for a given site may only be established based on the samples taken during excavation, as well as any finds retrieved. Aside from the function of specific sites, *fulacht fia*/burnt mounds are also a reflection of prehistoric activity generally and suggestive of the presence in the nearby vicinity (likely in a drier location) of associated settlements.

Early modern period

In the 19th century, the lands are shown on historic mapping as fields, regular and rectangular, reclaimed in appearance, with Ballinacurra Creek depicted and labelled. A substantial bank along the River Shannon and Ballinacurra Creek is labelled Embankment. It traverses the site of the Corcanree PS, forming the townland boundary between Courtbrack and Corcanree. To the northwest, north and east of the Limerick WWTP site, 'Brick Holes' (related to brick making) are depicted and labelled. By the 20th century, the field boundaries are shown as regularly spaced wet ditches and some brick holes are shown but not labelled, hence likely out of use by that stage, with the area to the north of the embankment labelled as Spring Tides. The brick holes are listed in the Maritime, Military and Industrial Heritage of Limerick as Bunlicky Brick Holes (MMIAH-LK-03-Ind-S-87) and Ballinacurra Creek Brick Holes (MMIAH-LK-03-Ind-S-82), with the latter also listed as Brick Manufacture. Both are depicted on examined mapping; the Bunlicky Brick Holes are labelled on the 1839 map together with Brick Field, and illustrated, but not labelled on the 1900 map. Ballinacurra Creek Brick Holes are labelled as Old Brick Holes (east of the creek) on both maps; with some additional Brick Holes depicted and labelled on the 1839 map and depicted but not labelled by the 1900 map. A 19th-century brick kiln (now SMR LI005-106----) was previously identified to the west of the Limerick WWTP site during archaeological monitoring (02E1814; by Wiggins, in Grogan et al. 2007) of topsoil stripping for the Barnakyle to Coonagh West gas pipeline. Investigations to the north of the River Shannon, in relation to the N18 Ennis Bypass, also identified three brick making clamps near Clareabbey, Co. Clare, while archaeological works in relation to the Southern Ring Road (Phase II) similarly identified brick clamps, brick holes (clay quarries) and brickyards. The Coonagh brickfields were used to provide bricks for 18th-century and later building projects in Limerick City (Hull 2008). From the 17th to early 20th centuries, bricks in Ireland were fired in clamp kilns (Rynne 2015). By the 1840s, bricks were being made in 150 different locations in Ireland. Records show that in Drogheda and Dublin bricks used in the Georgian age buildings appear to be of English origin, imported from Bristol as ballast in ships. It is likely, however, that the need of developing towns was greater than the available supply, and so locally-produced bricks were perhaps a cheaper alternative for some. A brick clamp, also known as a temporary kiln, was a rectangular construction for firing bricks. Green bricks would have been stacked in benches (rows) on the ground, usually alternating. The gaps between lower rows were filled with fuel; depending on available sources, wood and peat were used. The gaps also provided the draught required for even firing. The clamp was then turf covered to encourage slow firing and as a result created large amounts of white smoke. The firing would take a number of days or weeks (Hull 2005a). As there was no permanent structure, very little evidence can be seen on the ground and the brick would be collected and transported away from the site. Transport was an important consideration in the location of brick clamps, and the proximity to the Shannon River was therefore an important factor in the location of Coonagh, Bunlicky and Ballinacurra Creek.

11.3.2 Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP)

There are no known monuments located within the site, as listed in the Record of Monuments and Places (RMP) or Sites and Monuments Record (SMR). There are 14 monuments located within a 1km radius of the site that are listed in the RMP and SMR, five of these are on the north site of the River Shannon.

The nearest monument to Limerick WWTP is an enclosure (LI005-075----) located c. 330m to the southwest. This was identified as a cropmark anomaly on a 2018 aerial image. In addition, a *fulacht fia* (LI013-228----) was located c. 390m to the south and this was excavated as a part of the Limerick Southern Ring Road.

The nearest monument to Corcanree PS is a Metalworking site (LI005-077----) located c. 420m to the southeast. The SMR file notes that it was identified by Celie O'Rahilly during a field survey and is described as a spread of possible slag.

The following is a list of the recorded monuments located in the environs of the site. The list below is derived from the National Monuments Service Archaeological Survey Database (<http://maps.archaeology.ie/historicenvironment/>).

TABLE 11-1: LIST OF MONUMENTS IN THE ENVIRONS OF THE SITE

SMR No.	Classification	Townland	ITM E	ITM N
LI005-009----	Church	KILRUSH	555686	656832
LI005-011----	Battery	FARRANSHONE MORE	556185	656992
LI005-008----	Earthwork	KILRUSH	555609	656926
LI005-055----	Enclosure	CLONMACKEN	554723	656719
LI013-010----	Enclosure	BALLYKEEFFE	554341	654438
LI005-075----	Enclosure	BUNLICKY	554359	655184
LI005-106----	Kiln - brick	CONIGAR	553401	655744
LI005-072----	Redundant record	COONAGH WEST	554140	656584
LI005-076----	Enclosure	COURTBRAK	556030	655949
LI005-077----	Metalworking site	COURTBRAK	555830	655929
LI013-228----	Fulacht fia	BALLYKEEFFE	554609	655076
LI013-224----	House - 17th century	SKEHACREGGAUN	554305	654603
LI005-009001-	Graveyard	KILRUSH	555687	656826
LI005-009002-	Children's burial ground	LIMERICK CITY	555690	656829

11.3.3 National Monuments

No National Monuments are located on or within close proximity to the Proposed Development site. The nearest National Monument (Guardianship) is located on the north side of the River Shannon, and 1.35km and 0.58km to the northeast of Limerick WWTP and Corcanree PS, respectively. This monument is Kilrush Church, the well-preserved ruins of a small pre-Norman church (Nat. Mon. No. 366; RMP LI005-009---).

11.3.4 Previously Unrecorded Sites

A cultural heritage feature was identified on the examined cartographic sources within the Corcanree PS. It consists of an embankment depicted on the examined mapping, forming also the townland boundary between Courthbrack and Corcanree. The lines of townland divisions are often still preserved in the layout of fields and roads today. Townlands represent one of the smallest divisions of land across Ireland, and they have ancient origins, with the first written accounts found in pre-12th-century church records (Bryonie 2005). They were subsequently mapped and defined by the English administration and used as the basis for plantation grants in the 16th and 17th centuries, and for the leasing of land within large estates from the early 17th century. Accordingly, they were used as units of measurement for taxation purposes and defined in terms of how much arable land they held (Hall 1999). They became standardised from the 17th century onwards and were further clarified by the completion of the first Ordnance Survey of Ireland in the 1840s. Townland names frequently referred to an easily identifiable feature of the landscape, such as Carraig or Carrick (meaning Rock), Tulach or Tully (meaning a hill), or a botanical feature such as Eanach or Annagh (meaning marsh), other times they include family names, usually reflecting those that lived there in pre-famine times, or early ecclesiastical and secular habitations, including Rath (meaning fortification), Dun (meaning fort) or Cill/Kill (meaning church).

It appears that while the embankment was still upstanding in the early 20th century and is depicted, another embankment to the north of it and along the river was constructed, likely to replace it. There is no clear indication of the embankment within the site by the time of the first available aerial imagery (black and white) in 1995, nor is it visible on subsequent colour aerial imagery from 1996–2000, suggesting it was removed

sometime before the mid-1990s, with made ground used to raise the adjacent fields. No remains of the embankment were noted within the site during a site visit, however, it was noted that the field to the northeast is lower than the original Corcanree PS site, and the embankment along the river is still present.

11.3.5 Excavation Database

There are no archaeological investigations listed within the site on <https://excavations.ie>. The nearest assessment to the site took place in relation to the Limerick Southern Ring Road and included excavation and an underwater survey. To the south of the site, a *fulacht fia* was excavated in advance of the road development (Hull 2005b). The burnt mound spread measured 7m by 7m and was 0.35m thick, sealed by alluvium. A rectangular trough, measuring 1.8m by 0.9m by 0.3m deep, with two poorly preserved timbers was also recorded; this site is now a monument, SMR LI013-228----. The Archaeological Diving Company (ADCO) carried out an underwater assessment and survey (A005/1010; Bangerter 2005) that took place in the footprint of the development area and a 200m stretch of the southern shoreline of the River Shannon. No archaeologically significant material was revealed.

In addition, archaeological monitoring carried out to the south of the site in relation to the Bord Gáis Networks Mungret to Inchmore Gas Pipeline identified five sites. This comprised a cremation pit burial, charcoal-rich peat, and two sites that were excavated under separate licences; a Bronze Age/Iron Age house with outbuildings and a group of pits (Bohereen 1, 14E0244; Walsh 2014a) and an extensive burnt mound with large troughs and a charcoal-production kiln (Ballykeeffe 1, 14E0253; Walsh 2014b). The fifth site, another burnt mound, was identified at Ballykeeffe 1 and preserved *in situ*.

Finally, test trenching carried out at Greenpark Racecourse (22E0830; Lynch 2022) did not expose any features of archaeological significance.

11.3.6 The Topographical Files of the National Museum of Ireland

The National Museum of Ireland Topographical Files is the national archive of all known antiquities recorded by the National Museum. The files contain objects reported from 1928, and the computerised database includes finds from the 1980s onwards.

No finds are registered for the townlands of Ballykeeffe, Corcanree or Courtbrack.

11.3.7 Protected Structures and National Inventory of Architectural Heritage Sites

There are no Protected Structures, as listed in the *Limerick Development Plan 2022–2028*, located within the site, nor are there any sites listed in the National Inventory of Architectural Heritage (NIAH). The nearest such site is Spillane's Tower (RPS ID 3258; NIAH Reg. No. 21527001), listed as a beacon on the bank of the River Shannon, located c. 27m north of the edge of the Corcanree PS.

The following is a list of the Protected Structures and NIAH sites located in the environs of the site. The details are derived from the NIAH Database (<https://www.buildingsofireland.ie/>).

TABLE 11-2: LIST OF PROTECTED STRUCTURES AND NIAH SITES

RPS No.	NIAH No.	Name	Location	Description
3258	21527001	Spillane's Tower	Corcanree Business Park, Dock Road, Limerick	Tower, 36 feet high. Freestanding single-bay three-storey Gothic Revival tower, erected in 1870, and situated on the south bank of the River Shannon. Tower, 36 feet high
3369	1520006	Mary Immaculate College - Summerville Lodge	Summerville Avenue, Limerick	Detached single-storey three-bay rendered gate lodge, built c.

RPS No.	NIAH No.	Name	Location	Description
				1870, forming a rectangular plan with a gabled breakfront to each principal elevation
1617	21523001	Convent of Mercy	Westbourne, Courtback Avenue, Limerick	Attached six-bay two-storey rendered house, built c. 1890. Built in a plain Italianate manner, converted and vastly extended to accommodate a convent during the 20th Century
1651	21901310	Templemungret House	Skehacreggaun, Co. Limerick	Country house, built c. 1880

11.3.8 Wreck Inventory of Ireland Database

There are no wrecks listed in the Wreck Inventory of Ireland Database (WIID) specifically for Ballykeeffe, Corcanree or Courtbrack townland.

However, a number of wrecks are listed generally for the River Shannon. In total, 39 shipwrecks are recorded. These are mainly registered as a boat, a smack or a steamship, and the list also includes a dredger, a schooner, a longboat and a sailing ship. The greatest number of ships were lost in Shannon in the 19th century, while the two earliest ships were lost in 1691 and 1772, whereas the dredger mentioned above was the only 20th-century loss.

The registered wrecks could lie anywhere in the watercourse from the Estuary up the river, including the stretch of the river in an area adjacent to the site. As the Shannon River was never comprehensively archaeologically assessed, it is possible that many wrecks, artefacts and longboats lie undocumented in the waterway. A riverine archaeological assessment (A005/1010; Baxter 2005) did take place as part of the Limerick Southern Ring Road, with a 200m stretch of the southern shoreline of the River Shannon also completed. This included a systematic visual inspection of the riverbed, intertidal and foreshore elements of the River Shannon and a comprehensive magnetometer survey by hand-held metal detection. No archaeologically significant material was revealed.

11.3.9 Cartographical Sources and Aerial Imagery

Potential archaeological or cultural heritage features are often marked on historic maps, and they can provide a helpful resource in identifying sites, particularly if they no longer have any above ground remains. Unrecorded archaeological sites can also often be identified in aerial photographs as cropmarks or differential growth in a field, particularly during periods of drought, such as those experienced in the summer of 2018. Historical maps are also helpful in identifying other features of cultural heritage significance such as the locations of battlefields, wells, lime kilns, smithys, etc.

Both historic maps and aerial photography/imagery are also sources that can indicate areas of archaeological potential through features like curving field boundaries, while things like crop marks and soil marks on aerial imagery can provide information regarding the nature and extent of recorded archaeological sites that have become denuded since the early 19th century.

Not much detail is shown in relation to the site on the Down Survey map of 1654. The Corcanree PS site is depicted as an island, and the Limerick WWTP site is illustrated in the Parish of Mungret (Figure 11-3). The 1787 Grand Jury Map of County Clare by Henry Pelham includes the southern shores of the River Shannon and the area of the site (Figure 11-4). It illustrates the northern half of the Limerick WWTP within flood plains and the Corcanree PS fully within the flood plains of the River Shannon.

The Limerick WWTP site is depicted on all the examined Ordnance Survey (OS) maps as part of a number of fields, with the field boundaries shown as wet ditches by the time of the 1900 map. The area to the west, where Bunlicky Lake is, also known as the Bunlicky Clayfield pond, is illustrated as fields with *Brick Holes* and *Brick Fields* labelled and depicted on the 1839 map (Figure 11-5), only illustrated by the 1900 map (Figure 11-6). The pond is man-made and was formed as a result of the extraction of clay used for the cement production process between 1938 and 1981. The site is still arable fields on the 1995 aerial image, with the field system unchanged, but by the time of the 1996–2000 aerial image groundworks in relation to the construction of the treatment plant have commenced, with the facility ready by 2004, with two sludge tanks added by 2018.

The Corcanree PS site was a portion of three fields on all the examined OS maps. The current Corcanree PS site is located adjacent to and south of the depicted Embankment, which also forms the townland boundary and traverses the Proposed Development site. The additional area to the north is labelled *Flooded/ Spring Tides* (Figure 11-5).

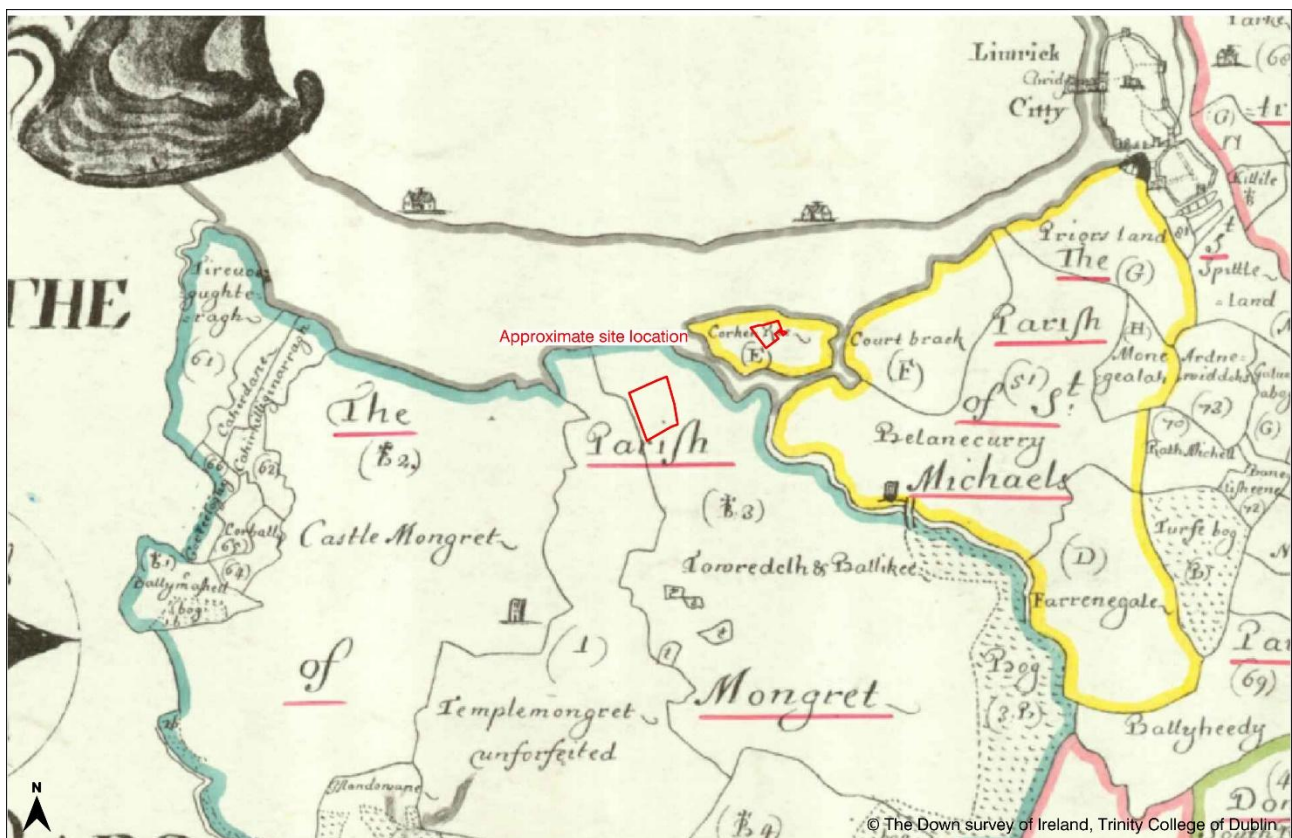


FIGURE 11-3: SITE LOCATION ON THE DOWN SURVEY MAP OF 1656



FIGURE 11-4: EXTRACT FROM GRAND JURY MAP OF COUNTY OF CLARE BY HENRY PELHAM (1787), SHOWING APPROXIMATE LOCATION OF SITE

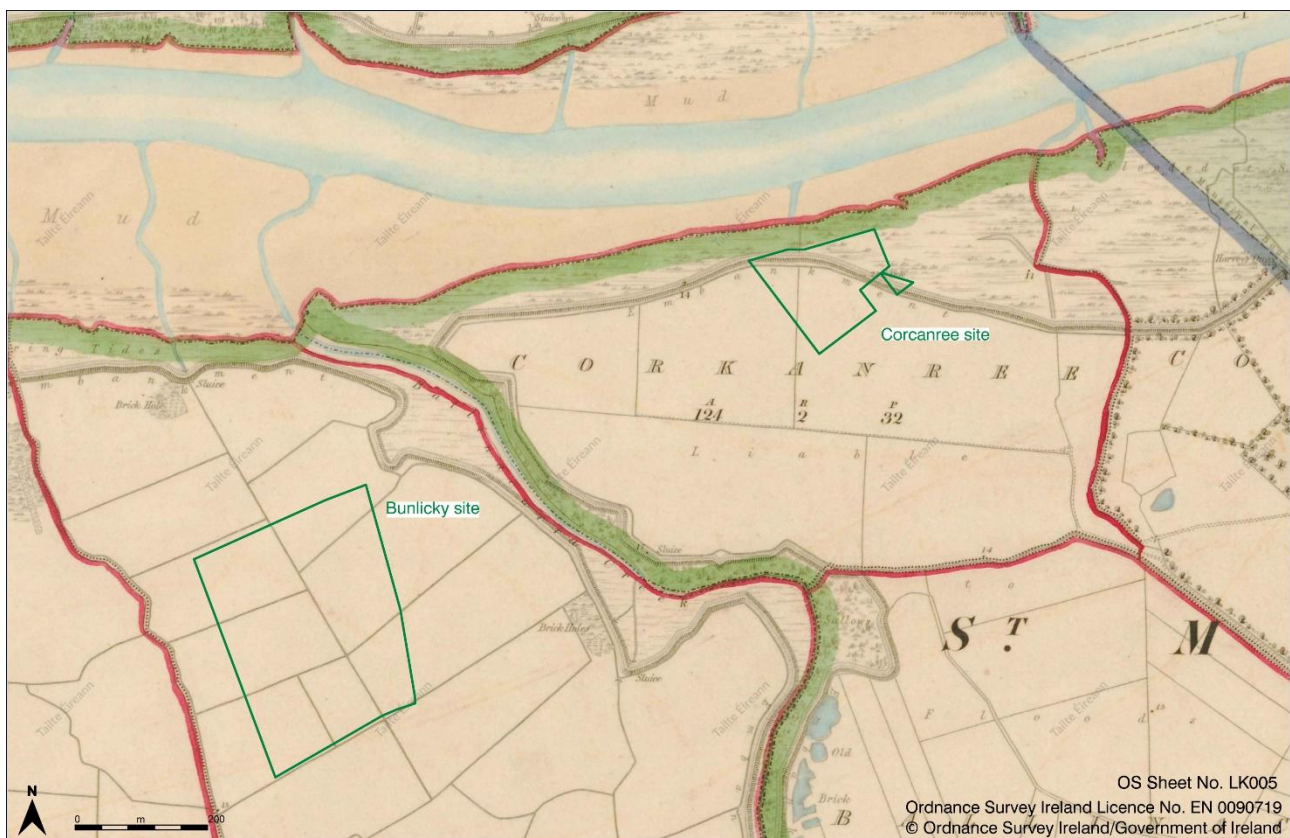


FIGURE 11-5: EXTRACT FROM 1ST EDITION ORDNANCE SURVEY (OS) MAP (SURVEYED IN 1839 - PUBLISHED 1842), SHOWING LOCATION OF SITE

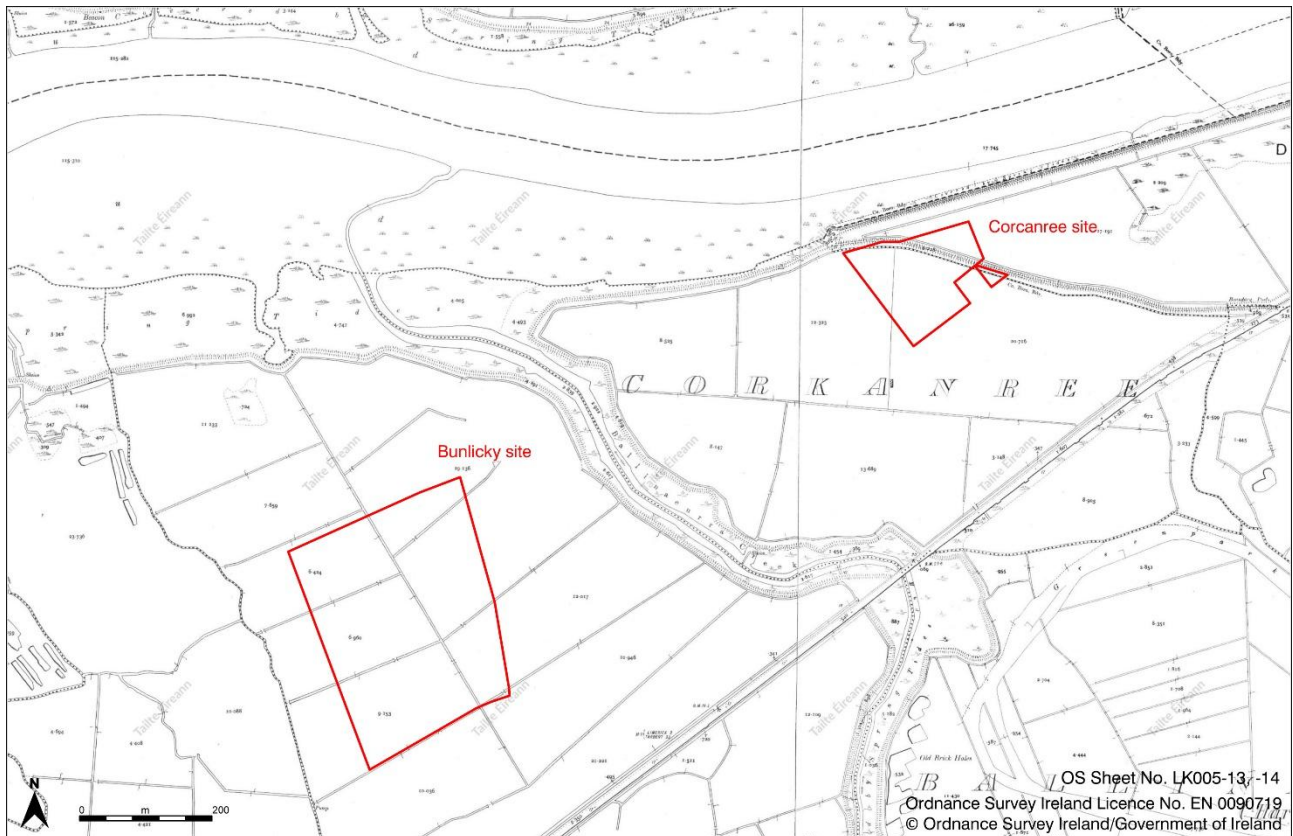


FIGURE 11-6: EXTRACT FROM 3RD EDITION ORDNANCE SURVEY (OS) MAP (SURVEYED IN 1900 -PUBLISHED 1902), SHOWING LOCATION OF SITE



FIGURE 11-7: AERIAL VIEW, SHOWING LOCATION OF SITE

By the time of the 1900 map (Figure 11-6), a wet ditch is also depicted within the site, with the embankment also labelled as 'Co. Boro. Bdy'. By this time a building representing the beacon is also shown and labelled as a tower by the time of the 1937-38 map. To the south of the site, Ballinacurra Creek Brick Holes are labelled as Old Brick Holes (east of the creek) on both maps; with some additional *Brick Holes* depicted and labelled on the 1839 map and depicted but not labelled by the 1900 map with some no longer shown. The site is still rough pasture on the 1995 aerial image, with groundworks apparent by the time of the 1996–2000 aerial image and the Pump Station built by 2004; the site remains unchanged since.

11.3.10 Site visit

The site visit was carried out by Magda Lyne of Archaeological Consultancy Services Unit on 26 September 2021. The site consists of two areas located off Dock Road and to the south of the River Shannon, to the southwest of the Limerick City Centre.

The Limerick WWTP site consists of a gated and operating facility, with the northwestern portion of the site not developed, low lying and marshy, the developed portion of the site is on raised ground. The Proposed Development is within the western portion of the site (Figure 11-8; Figure 11-9).

The Corcanree PS site is also a gated and operating facility, the Proposed Development is within an adjacent grassed field used as a pasture. The field appears to be on a lower ground than the existing facility. Some piping is proposed within the existing facility (Figure 11-10; Figure 11-11). Furthermore, within the very southeast portion of the Corcanree PS site, a large wooden sea boat resting on supports and covered by a roof is stored.



FIGURE 11-8: LIMERICK WWTP WEST END – LOCATIONS OF PROPOSED AGS TANKS AND SILO



FIGURE 11-9: LIMERICK WWTP SOUTH END - LOCATIONS OF PROPOSED CHP, MCC, THP SILOS AND RECEPTION AREA



FIGURE 11-10: CORCANREE PS EXISTING EAST END- LOCATION OF PROPOSED STORM TANK PIPE WORK, FACING NORTHWEST



FIGURE 11-11: CORCANREE PS EAST END- LOCATION OF STORM TANK AND SPILLANE TOWER IN BACKGROUND FACING NORTHWEST

11.4 Potential Effects

11.4.1 Construction Phase

11.4.1.1 Archaeological Heritage

There will be no effects, direct or indirect, on recorded archaeological monuments. There are no monuments, as listed in the Record of Monuments and Places (RMP) or in the Sites and Monument Record (SMR), located within the site.

A potential direct effect on the archaeological resource lies in the uncovering of subsurface archaeological features during groundworks associated with the Proposed Development and related infrastructure within all undisturbed areas of the site.

The site was not subject to any prior archaeological investigations although groundworks were undertaken at both areas previously; associated with the construction of Limerick WWTP and Corcanree PS in 2004. The site is within the historical flood plains of the River Shannon (Figure 11-4) and Flood Zone A and Flood Zone B (see Map 5 of Limerick Development Plan 2022-2028), however, and the results of investigations in the proximity of the site suggests archaeological remains could survive submerged and sealed beneath estuarine clays, deeply stratified in natural sediment accumulations. These type of monuments and features could consist of fish traps, platforms, boats, trackways and various structures, including houses, as water creates anaerobic conditions that result in the preservation of organic material. The archaeological remains identified in proximity to the site to date consist of burnt mounds, which also favour the margins of wetland areas.

Should previously unknown archaeological features be present within the site, the Proposed Development would have a direct, negative, permanent and profound or very significant effect on such remains.

11.4.1.2 Architectural and Cultural Heritage

There will be no effects, direct or indirect, on recorded architectural heritage as no Protected Structures or sites listed within the National Inventory of Architectural Heritage (NIAH) are located within the site.

A cultural heritage feature depicted on the examined Ordnance Survey mapping of 1840 and 1903 was detected within the current Corcanree PS site. It consists of an embankment that is also a townland boundary. However, based on aerial imagery it appears that the embankment was gone by at least the mid-1990s.

The Proposed Development (Corcanree PS Site – proposed Storm Tank and associated services) will have a direct, negative, permanent and profound effect on any subsurface remains of the embankment and any associated features if present.

11.4.1.3 Indirect Effects

Indirect effects are those whereby the Proposed Development may have a negative (or positive) effect on the wider archaeological landscape or surrounding architectural and cultural heritage assets. Indirect effects may include a visual impact on the surrounding archaeological and/or architectural landscape.

The introduction of the Proposed Development to the area will result in no effect on the setting of any Recorded Monuments or Protected Structures as none are present within the site. There is a potential for a slight visual impact of the Proposed Development on Spillane's Tower (RPS ID 3258; NIAH Reg. No. 21527001), however, given the presence of the already operating Corcanree PS and the tree cover present, the effect will be negligible.

11.4.2 Operational Phase

The effect on archaeological, architectural/cultural heritage will be mitigated during the Construction Phase.

There will be no effect on archaeological, architectural and cultural heritage during the Operational Phase.

11.5 'Do-nothing' Effect

If the proposed development were not to proceed there would be no negative impact on the archaeological, architectural or cultural heritage resource of the proposed development area.

11.6 Mitigation Measures

11.6.1 Construction Phase

11.6.1.1 Archaeological Heritage

The predicted effects on the known archaeological heritage (SMRs/RMPs) are regarded as being none. There will be no indirect or visual effects on Recorded Monuments as none are present within the site.

A potential direct effect on previously unknown archaeological heritage lies in the uncovering of subsurface remains. Accordingly, the following mitigation measures will be carried out subject to the approval of the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH), and further mitigation may be sought by the NMS:

- Archaeological monitoring of all groundworks shall be undertaken by an experienced, licence-eligible archaeologist working under licence from the DHLGH. Test trenching is not feasible as the site is located within historic flood plains, with the potential for archaeological remains to survive deeply stratified in natural sediment accumulations, hence identification during test trenching would be particularly challenging;
- Any archaeological features, deposits or artefacts identified during monitoring will require mitigation. Groundworks within that area should be halted and the appropriate authorities informed. The archaeological remains will be preserved *in situ* or by record (excavation) following consultation with the National Monuments Service. Adequate time and resources will be provided by the developer for the

resolution of any archaeology identified within the development site that will be directly impacted by groundworks. Time and resources will also be allowed for any post-excavation work and specialist analysis necessary following any archaeological excavation that takes place;

- A report is required to be compiled on completion of any archaeological monitoring and excavation and will be submitted to the relevant authorities.

11.6.1.2 Architectural and Cultural Heritage

The predicted effects on the known architectural heritage are regarded as being none. There are no effects on Protected Structures (RPS) or sites in the National Inventory of Architectural Heritage (NIAH) as none are present within the site. An indirect visual effect on the nearest such site, Spillane's Tower (RPS ID 3258; NIAH Reg. No. 21527001), located outside the Proposed Development site boundary, was noted, with slight visual impact predicted. However, given the presence of the already operating Corcanree PS and the tree cover present, the effect will be negligible.

The presence of an embankment, also forming a townland boundary, was noted within the current Corcanree PS site. The embankment is depicted since the 1840 OS map but is not visible by the time of the aerial imagery in the mid-1990s, and the results of the site visit suggest it was levelled and used to raise the ground in the area. Subsurface remains of the embankment and any associated features might still be present, however.

Potential direct effects on previously unknown architectural/cultural heritage was therefore identified, and the following mitigation measures will be carried out:

- The subsurface remains of the embankment and any associated features shall be recorded during monitoring.

11.6.2 Operational Phase

The effect on archaeological and architectural/cultural heritage will be mitigated during the construction phase.

There will be no mitigation required in relation to archaeological, architectural or cultural heritage during the operational phase.

11.7 Residual Effects

The residual effects are likely to be neutral and none to imperceptible if the mitigation measures are implemented. The Table 11-3 below summarises the residual effects of the Proposed Development on the archaeological, architectural and cultural heritage. Residual effects are defined as the overall effect of the development on archaeology, architectural and cultural heritage, on the basis of implementing the mitigation measures outlined in this report.

TABLE 11-3: RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT ON THE ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

Potential Effect	Mitigation Strategy	Residual Effect
Construction Effects		
Effects on Recorded Monuments - none	No effect, as no Recorded Monuments are within the site.	None
Effects on previously unknown archaeological, architectural and cultural heritage sites – Overgrowth clearance and topsoil removal associated with development. Groundworks and service trenches, etc.	Archaeological monitoring during all groundworks. Consultation with the Licensing Section of the National Monuments Service should be undertaken if archaeological sites or features are uncovered. Excavation and recording of any archaeological features identified, including any remains of embankment or associated features, thus preserving them by record.	None
Effects on Protected Structures - none	No effect, as no Protected Structures are within the site.	None

Operational Effects		
None	None	None

11.8 Cumulative Effects and Interactions

Cumulative effects include the combined effects of multiple developments or activities on a range of receptors, in this case, archaeological monuments and architectural/cultural heritage sites.

There are no significant cumulative effects on the archaeological and architectural/cultural heritage resource of the area as a result of the Proposed Development. There are no predicted effects on the known archaeological and architectural/cultural heritage features of the site and the surrounding landscape.

In recent years, a number of small and large-scale developments were proposed, approved and refused in the environs of the site by Limerick County Council (Corcanree PS site 221280, 237021, 05770226, 01770078; Limerick WWPS 2561339, 19672). These refer to lands adjacent or in the immediate proximity to the site.

Of relevance to the Corcanree PS site is Planning Ref. No. 221280 with monitoring conditioned (no record of it as of yet taking place on excavations.ie or in the public domain). Of relevance to the Limerick WWPS site is Planning Ref No. 2661339, currently at further information request with no request of an archaeological item included.

All related due diligence will be undertaken by the client, who will ensure the completion of the required archaeological and architectural/cultural heritage mitigation measures.

Subject to the implementation of the appropriate mitigation measures during the Construction Phase, it is predicted that there will be no residual effects on the archaeological, architectural and cultural heritage and therefore no possibility of cumulative effects in combination with other plans or projects.

11.9 Difficulties encountered in Compiling Information

No difficulties were encountered in compiling the information for the assessment.

11.10 References

- Barfield, L. and Hodder, M. (1987) Burnt mounds as saunas and the prehistory of bathing. *Antiquity* 64, 370–379.
- Bangerter, R., 2005 2005:970 - RIVER SHANNON, Castlemungret and Bunliky, Limerick. In: Database of Irish Excavation Reports (<https://excavations.ie/report/2005/Limerick/0013976/>, accessed July 2025)
- Brindley, A. L., Lanting, J. N. and Mook, W. G. (1989–90) Radiocarbon dates from Irish fulachta fiadh and other burnt mounds. *The Journal of Irish Archaeology* 5, 25–33.
- Bryonie, R. (2005) Identity, locality and the townland in Northern Ireland. In B. Graham and G.J. Ashworth (eds), *Senses of Place: Senses of Time*, 47–60. Routledge, London
- Carter S., Barton K., Limerick Southern Ring Road Phase II. Archaeological Testing of the Estuarine Alluvium. Unpublished report
- Corlett, C. (1997) A fulacht fiadh site at Moynagh Lough, County Meath. *Ríocht na Mídhe* 9 (3), 46–49. Database of Irish Excavation Reports (www.excavations.ie, accessed July 2025).
- Department of Arts, Heritage and the Gaeltacht. (2011) Architectural Heritage Protection: Guidelines for Planning Authorities (<https://assets.gov.ie/static/documents/architectural-heritage-protection-guidelines-for-planning-authorities-2011.pdf>; accessed February 2026).
- Department of Arts, Heritage, Gaeltacht and the Islands. (1999) Framework and Principles for the Protection of the Archaeological Heritage (<https://www.archaeology.ie/collections-and-publications/publications/framework-and-principles-for-the-protection-of-the-archaeological-heritage/>; accessed February 2026).
- Department of Culture, Heritage and the Gaeltacht. (2019) Built & Archaeological Heritage: Climate Change Sectoral Adaption Plan (<https://www.gov.ie/pdf/?file=https://assets.gov.ie/246863/2660361a-6b77-4b58-b040-aea8fd960606.pdf#page=null>; accessed February 2026).
- Department of Housing, Local Government and Heritage. (2021). A Living Tradition: A Strategy to Enhance the Understanding, Minding and Handing on of Our Built Vernacular Heritage (<https://www.buildingsofireland.ie/app/uploads/2021/12/A-Living-Tradition.pdf>; accessed February 2026).
- Department of Housing, Local Government and Heritage. (2022a). Places for People: National Policy on Architecture (<https://assets.gov.ie/static/documents/places-for-people-national-policy-on-architecture.pdf>; accessed February 2026).
- Department of Housing, Local Government and Heritage. (2022b). Heritage Ireland 2030: A Framework for Heritage (<https://assets.gov.ie/static/documents/heritage-ireland-2030.pdf>; accessed February 2026).
- Department of Housing, Local Government and Heritage and Office of the Planning Regulator. (2021) Archaeology in the Planning Process (<https://www.opr.ie/wp-content/uploads/2022/10/Planning-Leaflet-13-Archaeology-in-the-Planning-Process.pdf>; accessed February 2026).
- Department of Public Expenditure and Reform (2021) National Development Plan 2021–2030 (<https://assets.gov.ie/static/documents/national-development-plan-2021-2030.pdf>; accessed February 2026).
- Evolutionary Study Report on the Maritime, Military and Industrial Heritage of Limerick City and County (<https://www.limerick.ie/sites/default/files/media/documents/2022-05/MMIAH-Evolutionary-Study-Report-2019.pdf>, accessed July 2025)
- Environmental Protection Agency (2003) Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (https://www.epa.ie/publications/monitoring--assessment/assessment/EPA_Advice_Notes-on_Current-Practice-on-prep-EIS_2003.pdf;
- Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf; accessed July 2025).
- Geological Survey Ireland Spatial Resources, Department of the Environment, Climate and Communications(<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228>, accessed July 2025).
- Government of Ireland and National Planning Framework. (2025) National Planning Framework. First Revision (<https://cdn.npf.ie/wp-content/uploads/National-Planning-Framework-First-Revision-April-2025-1.pdf>; accessed February 2026).

- Griffiths Valuation by the National Library of Ireland (<https://www.askaboutireland.ie/griffith-valuation/>, accessed July 2025).
- Grogan, E., O'Donnell, L. and Johnston, P. 2007 The Bronze Age landscapes of the pipeline to the West. Bray. Wordwell
- Hall, M. (1999) The obliteration of townland boundaries. Tipperary Historical Journal 1999, 43.
- Hawkes, A. (2018) The Archaeology of Prehistoric Burnt Mounds in Ireland. Archaeopress, Oxford.
- Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 (<https://www.irishstatutebook.ie/eli/2023/act/26/enacted/en/html>, accessed February 2026)
- Historic Environment Viewer (<https://heritagedata.maps.arcgis.com/apps/webappviewer>, accessed July 2025).
- Hull, G. (2005a) 'Brick Kilns', *Archaeology Ireland*, Vol. 19 (4), 31-33
- Hull, G., 2005b '2005:962 - BALLYKEEFE, Limerick'. In: Database of Irish Excavation Reports (<https://excavations.ie/report/2005/Limerick/0013968/>, accessed July 2025)
- Hull, G. 2008 Brick Kilns in Counties Limerick and Clare; unpublished article submitted to History and Folklore Project, Limerick Civic Trust (https://www.limerick.ie/sites/default/files/atoms/files/brick_kilns_in_counties_limerick_and_clare_by_gra_ham_h.pdf, accessed July 2025)
- Hull, G., Ruttle, E., 2010 Limerick Southern Ring Road, Phase II E2120, Ballykeeffee Site 2, Co. Limerick (<https://repository.dri.ie/catalog/5t356046g>, accessed July 2025)
- Institute of Archaeologists of Ireland. 2006. IAI Code of Professional Conduct. Dublin: IAI.
- Irish Townland and Historical Map Viewer (<https://osi.maps.arcgis.com/apps/webappviewer/>, accessed July 2025).
- Lawless, C. (1990) A fulacht fiadh Bronze Age cooking experiment at Turlough, Castlebar. Cathair na Mart 10, 1-10.
- Limerick Development Plan 2022-2028 (<https://www.limerick.ie/council/services/planning-and-placemaking/development-plan-strategies/limerick-development-plan-0>, accessed July 2025)
- Lucas, A. T. (1965) Washing and bathing in ancient Ireland. *Journal of the Royal Society of Antiquaries of Ireland* 96, 65-114.
- Lynch, E., 2022 '2022:409 - Greenpark Racecourse, Ballinacurra (Hart), Limerick, Limerick'. In: Database of Irish Excavation Reports (<https://excavations.ie/report/2022/Limerick/0031941/>, accessed July 2025)
- McClatchie, M., Brewer, A., Dillon, M., Johnston, P., Lyons, S., Monk, M., Stewart, K. and Timpany, S. (2007) Brewing and fulachta fiadh. *Archaeology Ireland* 21 (4), 46.
- Mullins, G., 2010 Archaeological excavation of development at Limerick Tunnel PPP: Southern Contract: Ballykeeffee Site 1 (A005/000; E3939) (<https://repository.dri.ie/catalog/fx71q2341> accessed July 2025)
- National Monuments Act 1930 (<https://www.irishstatutebook.ie/eli/1930/act/2/enacted/en/print.html>; accessed February 2026).
- National Inventory of Architectural Heritage Database (<https://www.buildingsofireland.ie/>, accessed July 2025).
- National Inventory of Architectural Heritage Handbook 2024 (<https://www.buildingsofireland.ie/app/uploads/2024/05/NIAH-Handbook-Edition-May-2024.pdf>)
- National Inventory of Intangible Cultural Heritage (<https://nationalinventoryich.ccs.gov.ie/>; accessed February 2026).
- National Monuments in State Care: Ownership and Guardianship, Limerick (2009) (<https://www.archaeology.ie/app/uploads/2025/03/monuments-in-state-care-limerick.pdf>, accessed July 2025).
- National Monuments Service (<https://www.archaeology.ie/>, accessed July 2025).
- National Planning framework (<https://www.gov.ie/en/department-of-housing-local-government-and-heritage/publications/national-planning-framework-first-revision/>, accessed February 2026)
- O'Kelly, M. J. (1954) Excavations and experiments in ancient Irish cooking-places. *Journal of the Royal Society of Antiquaries of Ireland* 84, 105-155.
- O'Sullivan, A. 1996 "Later Bronze Age inter-tidal discoveries on North Munster estuaries: Interim Report," in *Discovery Programme Reports 4: Project results and reports 1994*, 63, Royal Irish Academy / Discovery Programme, Dublin.
- Power, D., Byrne, E., Egan, U., Lane, S. and Sleeman, M. (1997) Archaeological Inventory of County Cork. Volume III-Mid Cork. The Stationery Office, Dublin.
- Placenames Database of Ireland (<https://www.logainm.ie/en/>, accessed July 2025).

Record of Monuments and Places for County Limerick (1997) (<https://www.archaeology.ie/app/uploads/2025/03/Archaeology-RMP-Limerick-Manual-1997-0028.pdf>, accessed July 2025).

Record of Protected Structures; Volume 3a (<https://www.limerick.ie/sites/default/files/media/documents/2025-04/3a-record-of-protected-structures-metropolitan-district-rev-a-0.pdf>, accessed July 2025).

Regional Spatial & Economic Strategy for the Southern Region (https://www.southernassembly.ie/uploads/general-files/Regional_Spatial_Economic_Strategy_for_the_Southern_Region_LOW_RES.pdf accessed February 2026).

Rynne, C., 2015 Industrial Ireland 1850-1930 An Archaeology. The Collins Press, Cork.

Topographical files of the National Museum of Ireland

The Down Survey of Ireland by Trinity College Dublin (<https://downsurvey.tchpc.tcd.ie/index.html>, accessed July 2025).

Quinn, B. and Moore, D. (2007) Ale, brewing and fulachta fiadh. Archaeology Ireland 21 (3), 8–10.

Walsh, F., 2014a '2014:218 - BGN Bohereen 1, Limerick'. In: Database of Irish Excavation Reports (<https://excavations.ie/report/2014/Limerick/0024101/>, accessed July 2025)

Walsh, F., 2014b '2014:222 - BGN Ballykeeffe 1, Limerick'. In: Database of Irish Excavation Reports (<https://excavations.ie/report/2014/Limerick/0024107/>, accessed July 2025)

Wreck Inventory of Ireland Database (<https://dahg.maps.arcgis.com/apps/webappviewer>, accessed July 2025)

eg

Ireland

www.egis-group.com

