

Archaeological and Built Heritage Assessment

**Carrigtwohill URDF Initiative - UEA Infrastructure -
Part 8 Planning Application**

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1. Introduction

John Cronin & Associates have been commissioned by WS Atkins Ireland Limited (on behalf of Cork County Council) to prepare an Archaeological and Built Heritage Assessment of the 'Carrigtwohill URDF Initiative – Urban Expansion Area (UEA) Infrastructure'. The Carrigtwohill Urban Expansion Area (UEA) (also known as Carrigtwohill North) is located to the north of Carrigtwohill as shown in **Figure 1** below. It covers an area of approximately 100 hectares of zoned lands which are mainly just north of the Cork to Midleton railway line. It is bounded by Wises Road to the west and Ballyadam Road to the east.

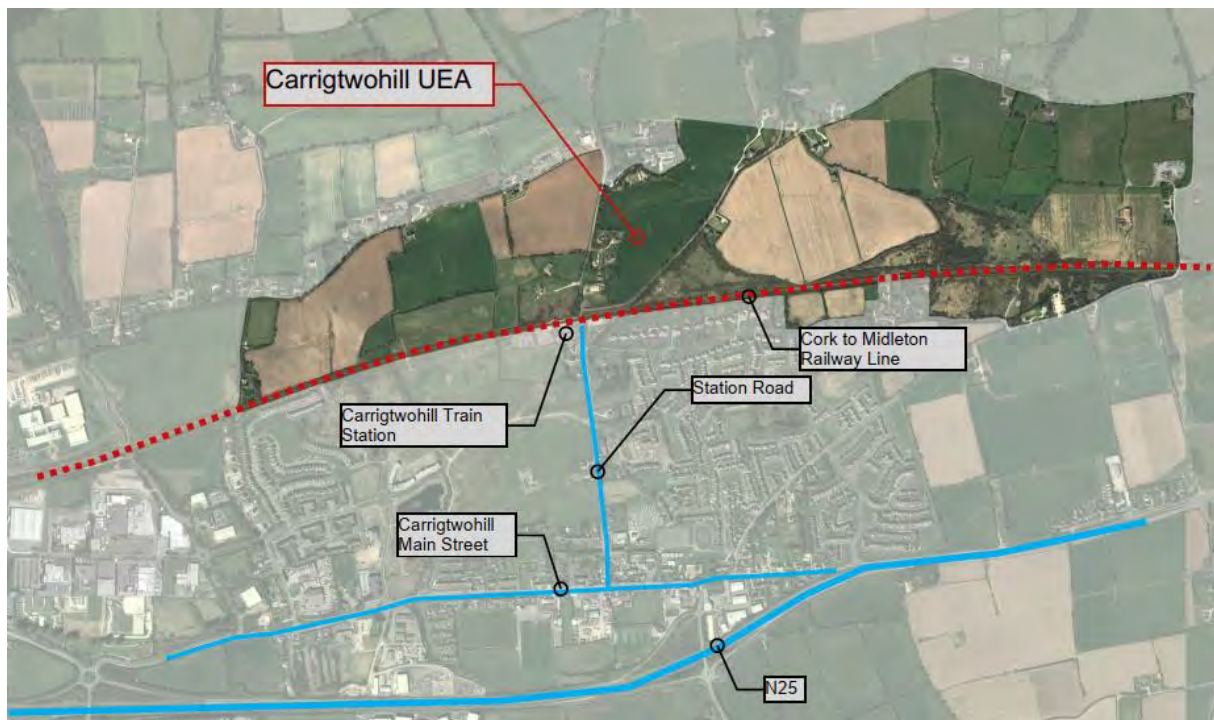


Figure 1: Carrigtwohill UEA

The aims of the proposed infrastructure works are as follows:

- To support regeneration, compact growth and sustainable development in Carrigtwohill;
- To support the achievement of a sustainable residential community and other development in the UEA by providing high quality, attractive and sustainable connectivity between the UEA and Carrigtwohill, public transport hubs (Carrigtwohill Train Station), educational facilities, existing development south of the railway line and employment centres.
- To provide pedestrian, cyclist and vehicular access and services to development lands in the Carrigtwohill UEA to facilitate the future development of housing while encouraging sustainable modes of transport by reducing car dominance and providing high quality, safe pedestrian and cyclist facilities;
- To provide for green open spaces within the proposals and to protect and enhance the areas of local biodiversity value within to serve the needs of communities and as a key contributor to climate mitigation and climate adaptation.
- Co-ordination and integration of proposals with other proposed infrastructure projects in Carrigtwohill.

In accordance with the Planning and Development Regulations, 2001 (as amended), a Part 8 Planning Application Report prepared by WS Atkins Ireland Limited details the proposed development together with accompanying drawings which together describe the nature and extent of the proposed development.

The infrastructure which makes up the Carrigtwohill URDF Initiative UEA Infrastructure is described as follows:

- A. Western (A1) and Eastern (A2) Services Corridor Link Roads connecting Wise's Road (L3616-0) on the western side of the UEA with Carrigane Road (L3617-25) on the eastern side of the UEA. The roads will also provide connectivity to Station Road (L3603-0), Leamlara Road (L3607-37) and the Ballyadam Road (L7640-0) and includes the realignment of the Carrigane Road near Ballyadam Bridge;
- B. Northern Services Corridor Link Road connecting the Western Services Corridor Link Road with the new Northern Schools Link Road via an existing vehicular underpass below the Cork to Midleton railway line;
- C. Upgrade/ re-alignment of Wises Road (C1) from north of its crossing of the Cork to Midleton Railway Line to the L3615-0 to the north of the UEA. The upgrade will also include a pedestrian/ cycle bridge (C2) across the railway line providing connectivity to Wises Road south of the railway;
- D. Upgrade/ re-alignment of Station Road (D1) from south of its crossing of the Cork to Midleton Railway Line to the L3615-0 to the north of the UEA. The upgrade will also include a pedestrian/ cycle bridge (D2) across the railway line providing connectivity to Station Road south of the railway line;
- E. Upgrade/ re-alignment of Leamlara Road from its junction with Station Road to its new western junction with the Eastern Services Corridor Link Road and from north of the UEA to its new eastern junction with the Eastern Services Corridor Link Road ;
- F. Upgrade/ re-alignment of Ballyadam Road from its new junction with the Eastern Services Corridor Link Road to the L7639-0 north of the UEA including the permanent closure of the existing Ballyadam Road between the Eastern Services Corridor Link Road and Carrigane Road to vehicular traffic including the junction of the existing Ballyadam Road and Carrigane Road;

The infrastructure will also include shared cycling/pedestrian paths connecting the new road network with the planned Carrigtwohill to Midleton Inter-urban Cycle Route, areas of green open space, underground services including surface water drainage networks including detention ponds and attenuation, foul water networks, electrical and fibre optic/ telecoms ducting and water and gas supply. Services will be connected to existing services/ infrastructure in Carrigtwohill as required.

This assessment has been prepared by John Cronin, Paudie Dunne and Peter Looney of John Cronin & Associates. The assessment is based on a programme of desktop research and fieldwork undertaken in February and March 2023.

2. Methodology

This report is based on a programme of desktop research, site inspection and desk-based assessment. The assessment commenced with a desktop study carried out in order to identify all known archaeological sites and designated architectural heritage structures within the study area. The principal sources reviewed for the known archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP). Between 1984 and 1992, the Archaeological Survey of Ireland (ASI) issued a series of county SMRs which lists known archaeological sites and places and this record formed the basis for the statutory RMP established under Section 12 of the National Monuments (Amendment) Act 1994. Similar in format to the SMRs (comprising a list and set of maps), the RMPs were issued for each county in the State between 1995 and 1998. Archaeological monuments included in the statutory RMP are legally protected and are generally referred to as ‘Recorded Monuments’.

The Archaeological Survey of Ireland (ASI) has continued to record and add entries to the SMR and has developed an online database and web viewer known as ‘Historic Environment Viewer’. This resource facilitates access to the current SMR database of the National Monuments Service’s as well as the National Inventory of Architectural Heritage (NIAH) (Source: www.archaeology.ie).

In addition, the following sources were also consulted as part of the desktop study:

- *Cartographic Sources* - The detail on cartographic sources can indicate past settlement and land use patterns in recent centuries and can also highlight the impact of modern developments and agricultural practices. This information can aid in the identification of the location and extent of unrecorded, or partially levelled, features of archaeological or architectural heritage interest. The cartographic sources examined for the study areas include the 1st edition of the six-inch Ordnance Survey (OS) maps (surveyed and published in the 1840s), the Ordnance Survey map of 1876, the 25-inch OS maps (surveyed and published 1887-1913) and later Cassini-projection six-inch maps (c.1940s and 1950s).
- *Aerial photography* - In parallel with the cartographic study, a review publicly-accessible aerial photographic sources from the Ordnance Survey, Google and Bing Maps was undertaken.
- *Development Plans* - The local authority development plan relevant to the study area was consulted as part of this assessment. These plans outline the local authorities’ policies for the conservation of the archaeological and architectural heritage resource and include the Record of Protected Structures (RPS) and any designated Architectural Conservation Areas (ACAs). The relevant development plan for the study area is the *Cork County Development Plan 2022-2028*.
- *National Inventory of Architectural Heritage* - The function of the National Inventory of Architectural Heritage (‘NIAH’) is to record built heritage structures within the Republic of Ireland and to advise local authorities in relation to structures of interest within their areas. The NIAH commissions surveys of sites of architectural significance to assist in evaluating structures to be included in the RPS. Listing on the NIAH does not necessarily carry any statutory protection but does highlight the culturally significant aspects of the structure which ought to be conserved.

3. Context

Location

Carrigtwohill is a Metropolitan Town within the County Metropolitan Strategic Planning Area. It is located in East Cork approximately 12 kilometres east of Cork City and approximately 5 kilometres west of Midleton. It is located to the north of the N25 national road which connects Cork City to Rosslare Europort. The Cork to Midleton railway line, which was re-opened in 2009, runs through the north of Carrigtwohill and Carrigtwohill Train Station is located to the north of the town.

Historical background

The development of a settlement at Carrigtwohill area likely had its origins in the late 12th century when Barryscourt Castle was built in the lands to the south by Philip de Barry during the 1180s. Philip's grandson, David de Barry, was granted a charter in 1234 allowing him to hold a market in the 'Manor of Karrectochell' which suggests that the Barry's were developing the area as a manorial centre. While there are some historical records of Barryscourt Castle during the remainder of the medieval period, little is known of the development of the settlement at Carrigtwohill during this time other than occasional references in records, for instance it is mentioned in Papal Taxation registers in the early 14th century. In 1615 a church in the Carrigtwohill is described as having a nave in repair while the chancel was ruinous (Power 1994) and in the mid-18th century it is described as 'a small village seated on an arm of the sea' (Smith 1750). William Wenman Seward (1797) records that the settlement contained over 100 houses by the end of the 18th century while Lewis (1837) writing a number of decades later describes the village as follows:

The village consists principally of one long irregular street and contains 98 small houses indifferently built. It is a constabulary station; and fairs are held on the 12th of March and May, Aug. 26th, Sept. 19th, and Nov. 8th, chiefly for horses, Cattle, pigs, and pedlery, and, from the central situation of the place, are in general well attended

The railway line at the north end of the village formed part of the Midleton to Youghal line developed in the mid-19th century by the Cork, Youghal & Queenstown Railway company. The original Carrigtwohill railway station was opened on 2 November 1859, closed for goods traffic on 2 December 1974 and fully closed from 6 September 1976. A new station was officially opened in 2009 to the north of the town.

Since the latter decades of the 20th century Carrigtwohill has been an important economic location and was designated as a *Strategic Employment Area* in the 2014 Cork County Development Plan. The re-opening of the railway line has contributed to significant population and employment growth in the town since 2002 and Carrigtwohill has experienced the most growth in percentage terms of any towns in County Cork. Carrigtwohill is well placed to facilitate rapid but sustainable growth and development as noted in the Cork County Development Plan 2022. This is due to the ability of the town to provide a strong supply of housing and business land, the availability of a commuter rail service and the availability of water and wastewater infrastructure in the town. Carrigtwohill's target population for 2028 is 9,749 which is an increase of 4,669 people over the 2016 population. The most significant area to cater for this population

growth in Carrigtwohill is to be in the form of a new residential neighbourhood located to the north of the rail line in an area known as the Carrigtwohill Urban Expansion Area.

Archaeological Heritage

The administration of national policy in relation to archaeological heritage management is the responsibility of the National Monuments Service (NMS) which is currently based in the Department of Housing, Local Government and Heritage. The National Monuments Act of 1930, and its Amendments, are the primary means of ensuring the satisfactory protection of the archaeological resource. They include a number of provisions that are applied to secure the protection of archaeological monuments. These include the designations of nationally significant sites as National Monuments, the Register of Historic Monuments, the Record of Monuments and Places, the Sites and Monuments Record, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

Section 2 of the National Monuments Act, 1930 defines a National Monument as ‘a monument or the remains of a monument, the preservation of which is a matter of national importance’. The State may acquire or assume guardianship of examples through agreement with landowners or under compulsory orders. Archaeological sites within the ownership of local authorities are also deemed to be National Monuments. There are no National Monuments located within the study area and the nearest example is Barryscourt Castle (CO075-018001-) (Nat. Mon. 641) which is located 1.3km to the south of the proposed UEA.

The National Monuments (Amendment) Act, 1994 made provision for the establishment of the Record of Monuments and Places (RMP), which comprises the known archaeological sites within the State. The RMP, which is based on the earlier Register of Historic Monuments (RHM) and Sites and Monuments Record (SMR), provides county-based lists of all recorded archaeological sites with accompanying maps. All RMP sites receive statutory protection under the National Monuments Act 1994 and the NMS must be given two months’ notice in advance of any work proposed at their locations.

There are eight sites included on the SMR within 500 metres of the proposed development scheme, see **Table 1**. Two of these, however, are redundant records and not scheduled for inclusion in the next revision of the RMP. The six remaining recorded archaeological sites/monuments consist of a complex of two churches and a graveyard in Carrigtwohill, a lime kiln in Terry’s-Land and two *fulachtai fia* in Ballyadam, which were excavated in 2006 (see also entry from Excavations Database below). The descriptions of these sites, provided by the Archaeological Survey of Ireland (ASI), are included in the **Appendix 1**. None of the sites are affected by the proposed development scheme.

Table 1: Sites and Monuments Record (SMR) – these sites are mapped in scheme drawings in Appendix 4

SMR no.	Class	Townland	Co-ordinates
CO075-017001-	Graveyard	Carrigtwohill	582142, 573196
CO075-017002-	Church	Carrigtwohill	582152, 573199
CO075-017003-	Church	Carrigtwohill	582115, 573213
CO075-017004-	Redundant record	Carrigtwohill	582155, 573198
CO076-001----	Kiln - lime	Terry’s-Land	582519, 573644
CO076-003----	Redundant record	Terry’s-Land	582674, 573693
CO076-120----	Fulacht fia	Ballyadam (Barrymore By.)	583813 573755

<i>SMR no.</i>	<i>Class</i>	<i>Townland</i>	<i>Co-ordinates</i>
C0076-121----	Fulacht fia	Ballyadam (Barrymore By.)	583950 573565

The Excavations Database

The Database of Irish Excavation Reports (available at excavations.ie) contains summary accounts of all archaeological excavations carried out in Ireland from 1969 to present. This database was searched using map search as well as by townland names for the eight townlands that the project involves.

Nine programmes of licensed archaeological investigations have been carried out within these townlands, of which three found evidence of archaeological activity, see **Table 2**.

During works at a large site in Ballyadam (06E0612), four Bronze Age fulachtaí fia and a cluster of Iron Age pits/post-holes was found and excavated. Another fulacht fia was found at a site in Carrigtwohill (06E1141), this *fulacht fia* dated to the Bronze Age, while a medieval ditch was also excavated on the site. A kiln and pit of archaeological significance were found during testing on a site at Station Road, Carrigtwohill (15E0233). Full descriptions, as per www.excavations.ie are outlined in the **Appendix 2**.

Table 2: Licenced archaeological investigations in relevant townlands

<i>Location</i>	<i>Licence number and Author</i>	<i>Site type</i>
Anngrove, Carrigtwohill, Cork	15E0424 Margaret McCarthy	No archaeology found
Anngrove, Carrigtwohill, Cork	20E0031 Margaret McCarthy	No archaeology found
Anngrove, Cork	02E0166 Máire Ní Loingsigh	No archaeological significance
Anngrove/ Tullagreen, Cork	02E0486 Máire Ní Loingsigh	No archaeological significance
Terrysland, Carrigtwohill, Cork	04E0260 Tony Cummins	No archaeological significance
Station Road, Carrigtwohill, Cork	15E0233 Donald Murphy	Multi-period
Carrigtwohill, Cork	06E1141 Rose M. Cleary	Fulacht fiadh
Carrigane Road, Carrigtwohill, Cork	03E0265 Sheila Lane	No archaeological significance
Ballyadam, Cork	06E0612 Rose M. Cleary	Fulachta fiadh and pits

Architectural Heritage

Protection of architectural heritage is provided for through a range of legal instruments that include the Heritage Act (1995), the Architectural Heritage (National Inventory) & National Monuments (Misc. Provisions) Act (1999), and the Planning and Development Act (2000).

The Heritage Act (1995) (as amended) defines architectural heritage as including: all structures, buildings, traditional and designed, and groups of buildings including streetscapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social, or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents.

The National Inventory of Architectural Heritage (NIAH) was established under the Architectural Heritage Act (1999), to record architectural heritage structures within the State and to advise local authorities in relation to structures of architectural heritage significance within their administrative areas.

There are seven buildings/structures identified by the NIAH within 500 metres of the proposed development (see **Table 3**), three of these are also Protected Structures as outlined in the *Cork County Development Plan 2022-2028*.

Table 3: NIAH-identified buildings/structures – these sites are mapped in scheme drawings in **Appendix 4**

NIAH reg. no.	RPS no.	Name	Original use	Rating	Date	Co-ordinates
20297550	-	Barry's Bridge	Bridge	Regional	1855 - 1860	581957, 573844
20297551	-	Carrigtohill Railway Station	Railway station	Regional	1855 - 1860	581994, 573845
20297552	-	Carrigtohill Railway Station	Station master's house	Regional	1855 - 1860	582015, 573813
20297553	-	Wise's Bridge	Bridge	Regional	1855 - 1860	580961, 573576
20297554	1316	House	House	Regional	1870 - 1890	581933, 573726
20297555	1315	Station Road, Carrigtwohill	Presbytery/parochial /curate's house	Regional	1870 - 1890	582028, 573719
20297557	496	Saint Mary's Catholic Church	Church/chapel	Regional	1860 - 1900	582065, 573166

There are five Protected Structures within 500 metres of the project area (see **Table 4**), as outlined in the *Cork County Development Plan 2022-2028*. Three of these are also listed on the NIAH.

Table 4: Protected Structures – these sites are mapped in scheme drawings in **Appendix 4**

RPS no.	NIAH reg. no.	Name of Structure	Townland	Location
496	20297557	St. Mary's Catholic Church	Carrigtwohill	Carrigtwohill
854	-	Medieval Church of Ireland Tower (in ruins)	Carrigtwohill	Carrigtwohill
1315	20297555	Parochial House	Carrigtwohill	
1316	20297554	Former Dispensary	Carrigtwohill	Station Road, Carrigtwohill
1317	-	Rockville	Carrigtwohill	Station Road, Carrigtwohill

Placename evidence

Townlands are the smallest unit of land division in the Irish landscape and many may preserve early Gaelic territorial boundaries that pre-date the Anglo-Norman conquest. The boundaries and nomenclature of the Irish townlands were recorded and standardised by the Ordnance Survey during the 19th century. The Irish origins of many townland names often refer to natural topographical features, but some name elements may also give an indication of the presence of past human activity within the townland, e.g. *lios* or *rath* indicate the presence of a ringfort while names containing elements such as *kill* or *temple* are often indicative of ecclesiastical activity.

The Irish language root of the names of all eight townlands within the scope of this project were reviewed. **None of these names give indication of any archaeological monuments**, most are related to topography or to more recent land use; field, garden, town etc., see Table 5.

Table 5: Placename details for townlands (logainm.ie)

Name	Irish Language	Translation	Indication of Archaeology?
Anngrove	Baile na Speire	<i>baile</i> - townland, town, homestead 1918 note - Annegrove, Baile na Speire. Meaning unknown. Speire, David Barry of Carrigtohill, informs me, would mean a lot of business involving worry or vexation.	No
Terry's-Land	Fearann an Tiarraigh	<i>fearann</i> - land	No
Carrigtwohill	Carraig Thuathail	<i>carraig</i> - rock	No
Fahydorgan	Faiche Uí Dheargáin	<i>faiche</i> - green (ainmfhocal/noun) 1841 note - Faithche Ui Deargáin, 'O'Dorgan's green'	No
Gortnamucky	Gort an Mhuicí	<i>gort, gart</i> - field 1841 note - Gort na muice, 'garden or field of the pig'	No
Poulaniska	Poll an Uisce	<i>poll</i> - hole, pool, (tidal-)stream? <i>uisce</i> - water	No
Ballyadam	Baile Adaim	<i>baile</i> - townland, town, homestead	No
Carrigane	An Carragán	1841 note - Carragán, 'rocky land'	No

Cartographic Review

The detail on historic cartographic sources demonstrates the nature of past settlements and land use patterns in recent centuries and can also highlight the impacts of modern developments and agricultural practices. This information can aid in the identification of the location and extent of unrecorded or partially levelled features of archaeological or architectural heritage interest. The cartographic sources examined for the study area include the First Edition (1:10,560 or “6-inch”) Ordnance Survey (OS) map (see **Figures 2 & 3**) which was surveyed in 1841, and the later 1:2500 (or “25-inch”) edition OS map (surveyed in 1897).

The 1841 map was surveyed just four years after Lewis' description of Carrigtwohill was published. He described Carrigtwohill village as consisting principally "of one long irregular street and contains 98 small houses indifferently built". Describing the land use in the wider parish, he said that most of it was farmland, with arable being favoured over pasture. The remainder was woodland or waste. In the 1841 map, most of the land is divided into small fields for agricultural use (though this map does not give indication of whether any particular field is in use as arable or pasture), one small section in the centre of the development is depicted as wooded, this is in lands formerly associated with a house labelled *Greenville* in Gortamucky townland. It is expected that the *waste* areas mentioned by Lewis are those areas unsuitable for farming. The former parkland extent of Greenville is much diminished, and the amenity grounds have retreated to the immediate area of the house which has been a residential care home since 1991. During the course of the twentieth century and prior to the establishment of Greenville as a residential care home, the southern and eastern tree belts were removed, lands were sold and the former parkland was converted to intensive agricultural use and housing has been built in the southern portion of the former parkland.

The most significant change to the area by 1897, when the 25-inch edition was surveyed, was the construction of the rail line to the south of the proposed UEA. The rail line and associated infrastructure were built in 1859. A station was included at Carrigtwohill, c.750m to the north of Main Street. The rest of the landscaped remained unaltered to a large extent, apart from some minor changes in field boundaries.

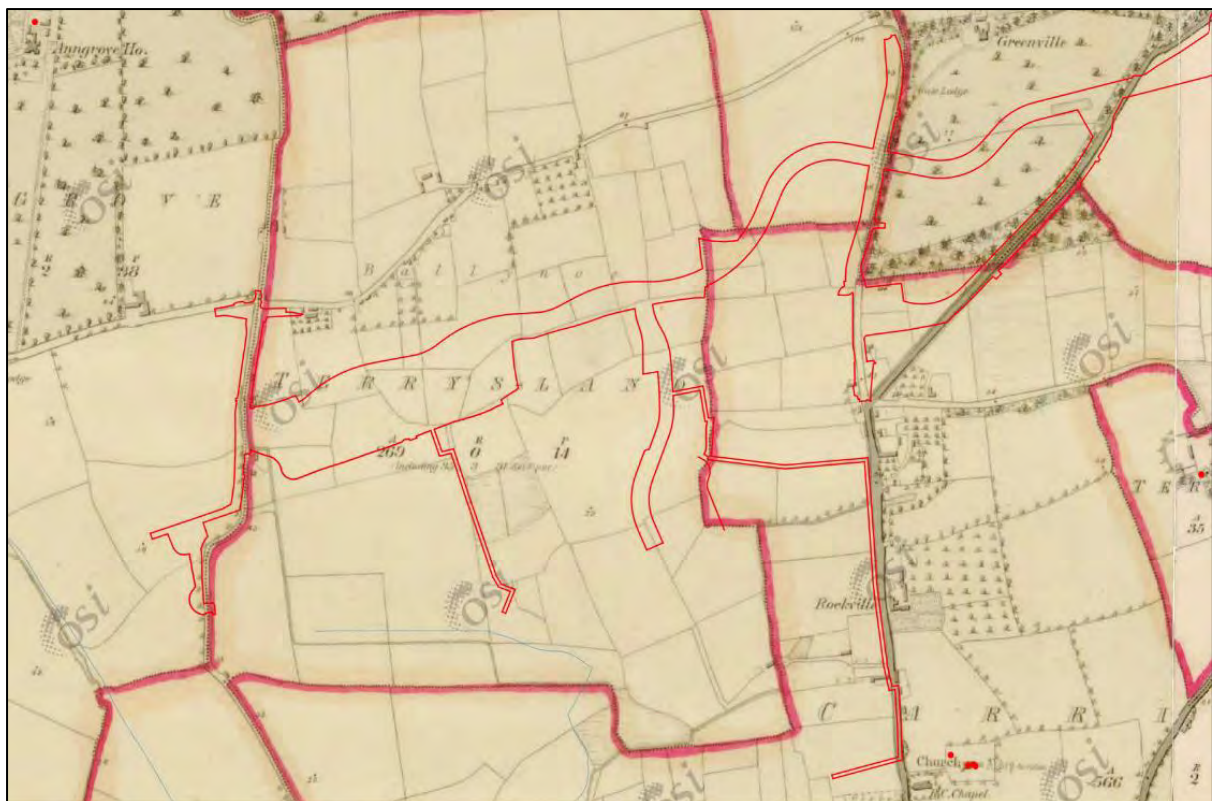


Figure 2: Western portion of the Carrigtwohill UEA superimposed on an extract of the 1:10,560 OS map from 1841 (Source: Ordnance Survey of Ireland)

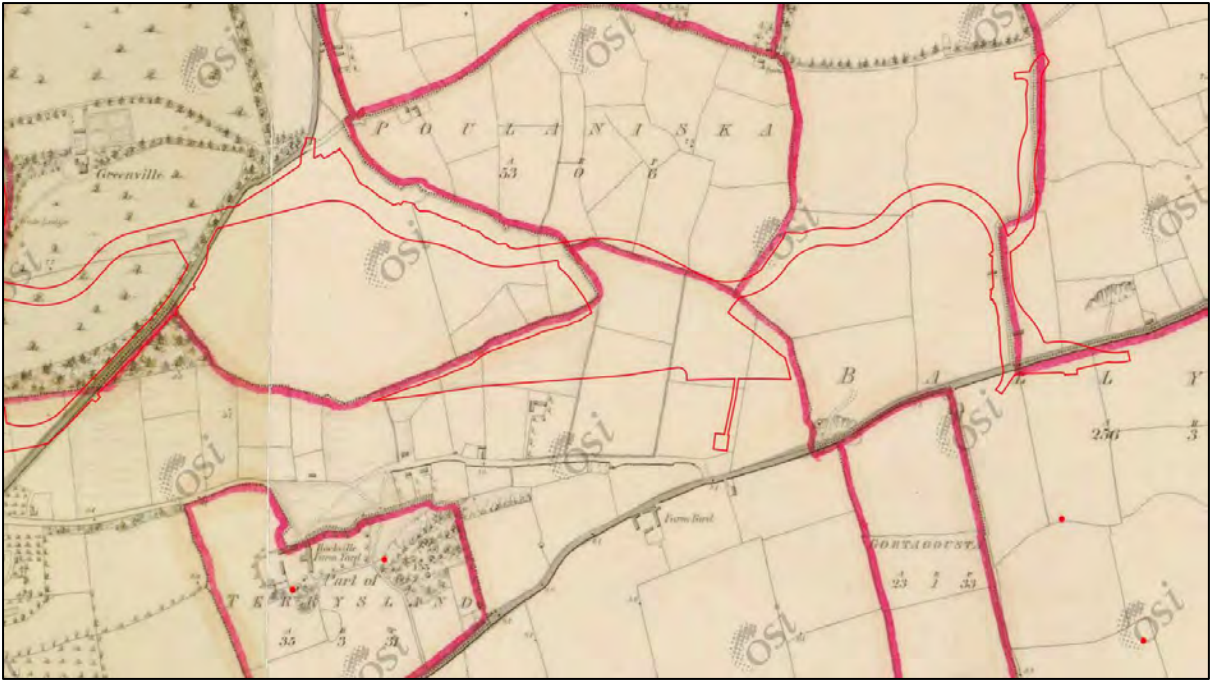


Figure 3: Eastern portion of the Carrigtwohill UEA superimposed on an extract of the 1:10,560 OS map from 1841 (Source: Ordnance Survey of Ireland)

4. Inspection of the Urban Expansion Area

An inspection of the Urban Expansion Area (UEA) was undertaken on the 15th of February 2023 in generally clear weather conditions that provided good landscape visibility. The inspection entailed an appraisal of the general landscape within the UEA combined with surveys of the environs of road network. The UEA was assessed in terms of landscape setting, existing and historic land uses, vegetation cover and the potential for the presence of unrecorded archaeological and architectural heritage features. A photographic record of the site inspection was compiled, and extracts are presented in **Appendix 3** of this report. For the purposes of the site inspection, the UEA was divided into twenty-three land parcels (see **Figure 4** below).



Figure 4: Land parcels numbered system.

A brief description of each land parcel is provided in the table below (see **Table 6**). In general, the fields are large, sub-rectangular in shape, moderately to sharply south sloping, and enclosed by stone faced earthen banks or hedgerows with flanking drainage ditches. The northern fields were well drained good quality tillage land. The southern fields were more marginal, being soft underfoot and waterlogged in places and have extensive ground disturbance due to the presence of the adjacent railway line. Surface undulations were much more prevalent within the northern fields which also contain natural ridges and hollows.

Four fields (Fields 2, 3, 9 and 19) are classed as of heightened archaeological potential due to the presence of potential burnt mound activity (in Fields 2, 3 and 19) and a possible crop mark (in Field 9). These areas warrant pre-development archaeological investigation to minimise the risk of delays to the construction phase of the project.

During fieldwork, some incidental features of built heritage interest were noted. These included a former forge (or “smithy”) in the townland of Terry’s-land (known locally as “Barrett’s forge”) (see **Plate 6** in **Appendix 3**), incidental sections of stone boundary walls, the prevalence of stone-built culverts within Field 3 and a large railway line culvert along the southern boundary.

Secondly a portion of the scheme will traverse the former southern extent of parkland associated with Greenville House in the townland of Gortnamucky. The parkland visible on the first edition OS map is no longer extant and the lands to the south of Greenville consist generally of open agricultural fields. The historic landscape value of the former parkland within the footprint of the proposed development scheme is low.

Table 6: Summary of field inspection

Parcel	Description	Archaeological potential
1	Located within Terrys-land townland and shown as portions of two larger fields on the first edition OS map and like current form on the later 25-inch OS map. Two structures shown on the 25-inch are incorporated into an existing building at the southwestern corner of the field. Road to the west of the field is the townland boundary. This is formed by a semi-mature tree line uniform in height and augmented with thickets of brambles. Field is improved pastureland and is relatively flat except to the north where there is a moderate rise. Perimeter of the field is enclosed by thickets of brambles and small surface undulations define the interior.	Low – No evidence of significant ground disturbance
2	Located within Terrys-land townland and shown as 10 complete fields and 3 portions of larger fields on the 1st edition OS map and 3 full fields and two portion of larger fields on the 25-inch map. Townland boundary at the west. A large rolling tillage field with a sharp rise to the north. Ploughed at the time of inspection and soft underfoot along the southern boundary which is form by existing railway line. Isolated ridges and hollows throughout and the drainage ditch of a partial removed former field boundary runs N-S though the centre. A large circle area of ground disturbance was present towards the north-eastern portion of the field which appears to be related to modern quarrying. Ground disturbance visible on 2007 aerial image of the field -possible reflects the construction of a wayleave through the centre of the field. Some isolated deposits of charcoal and burning within the upper surface of the plough soil may be reflective of sub-surface archaeological features. Actual location not accessible due to dense vegetation coverage within the existing forest access tracks but view suggest the area is covered mature forestry.	High – Potential deposits visible within the ploughs oil. Southern end has poor drainage reflected in surface water pooling here.
3	Located within Terrys-land townland and current field layout does not conform to the layout depicted on both historical maps. Ploughed tillage field flat to the south with a sharp rise to the northeast. Ridges and hollows evident throughout. Aerial images indicate modern quarrying to the northeast and a possible service leeway at its western boundary. Some dark spread of plough soil were noted throughout may be drainage related but an archaeological origin cannot be ruled out at this stage. In addition, a railway culvert is present along the eastern end of the southern boundary and should be buffered from the development.	High – Waterlogged at south and with numerous areas of discoloration in the ploughs oil.
4	Located within Terrys-land townland and depicted as the same as current form on both editions of the historic maps. Flat tillage field, Fallow at the time of inspection with cereal stubble and small surface undulation throughout. Nothing of archaeological significance was noted at the area of the UEA	Moderate – Field is intact since 1840's with same boundaries.
5	Located within Terrys-land townland depicted as 4 complete fields on the 1st edition map and 1 complete field and a portion of a larger field on the later 25-inch map. No current access to field as it is currently accessed through an adjacent development. Aerial photographs show extensive field disturbance from 2007 onwards.	Low – Aerial images suggest extensive ground disturbance

Parcel	Description	Archaeological potential
6	Located within Terrys-land townland depicted as nine fields and an orchard on the 1st edition map and 3 complete fields and a portion of a larger field on the later 25-inch map. Current field is terraced to the north with a sharp slope to the south. Tillage field fallow with cereal stubble at the time of inspection. Nothing of archaeological significance was noted in the area of the UEA.	Moderate – Undisturbed tillage field.
7	Located within Carrigtwohill townland and current field layout does not confirm to the layout depicted on both historical maps. Current field is a relative flat scrubby improved pasture field with small surface undulations throughout. Thickets of brambles and blackthorn, reeds and rushes interspersed throughout the interior. Post 2007 aerial images show groundworks/or topsoil spreading within this field. Nothing of archaeological significance noted.	Low – aerial images suggest extensive ground disturbance
8	Located within Fahydorgan townland and shown as the same as current form on both historical OS maps. The western and southern boundaries of this field are also townland boundaries. Both are formed by stone faced earthen banks topped with semi mature trees and augmented with field clearance boulders. A large relatively flat tillage field ploughed at the time of inspection which a moderate rise in terrain to the north. Nothing of archaeological significance was noted at the area of the UEA.	Moderate - no ground disturbance noted.
9	Located within Gortnamucky townland and shown as the same as current form on both OS maps. Greenville House is located to the north; the scheme extends through the former parkland. Townland boundary at the west which is a post-medieval stone wall flanking the local road and is most likely part of the demesne wall associated with Greenville. A large relatively flat tillage field; ploughed at the time of inspection. A moderate rise in terrain to the north.	High - Field systems predating the historical maps visible on aerials.
10	Located within Gortnamucky townland and shown part of a larger field on both historic maps. Good quality pasture field relatively flat with some small surface undulations. Rudimentary farm access track. Stream at the boundary increases the potential for burnt mound activity. Nothing of archaeological significance was noted with the UEA scheme area. The UEA scheme area will only encroach along the northern boundary of this field.	Moderate – No evidence of significant ground disturbance.
11	Located within Gortnamucky townland and current field layout does not confirm to the layout depicted on both historical maps. Townland boundaries to the south and northeast. Route will extend through the townland boundary at the northeast which is formed by a tree lined former access avenue which breaks into a tree line earthen bank to its southeast. A large flat pasture field with a gentle slope to the south. Overhead pylons traverses the UEA scheme area within this field. Nothing of archaeological significance was noted in this field.	Moderate: Good quality farmland. Not suitable for geophysics due to the presence of OHL
12	Located within Carrigtwohill townland and current field layout does not conform to the layout depicted on historical OS maps. Fallow scrub land, relatively flat and marshy in places. Appears to have been disturbed recently by development. Nothing of archaeological significance was noted in this field.	Low: Land disturbed by ground works.
13	Located within Gortnamucky townland and current field layout does not confirm to the layout depicted on historical OS maps. Townland boundaries to northeast. Route will extend through the Townland Boundary at the northeast which is formed by a tree line earthen bank. A large flat pasture field with a gentle slope to the south. Overhead pylons traverses the scheme area within this field. Nothing of archaeological significance was noted.	Moderate: No aerial or visual ground disturbance

<i>Parcel</i>	<i>Description</i>	<i>Archaeological potential</i>
14	Located within Carrigtwohill townland and the current field layout is similar to the layout depicted on historical OS maps. The only addition of note is the presence of the railway line extending through the southern portion on the 25-inch map. Townland boundary at the north. Marshy scrubland with water pooling in the interior appears to have been previously disturbed. Townland boundary to be retained within the UEA scheme area. Nothing of archaeological significance was noted in this field.	Low: Aerial images suggest extensive groundworks
15	Located within Carrigtwohill townland and current field layout does not confirm to the layout depicted on historical OS maps. Northern boundary is the townland boundary, but it is mostly destroyed-coppiced to a low denuded field bank. Marginal pastureland that gently slopes to the south, dominated by scrub vegetation, boundaries removed in places and a stand of trees to the southwestern corner. Nothing of archaeological significance was noted in this field.	Low: Extensive ground disturbance noted on the ground and on aerial imagery.
16	Located within Poulanska townland and shown as part of a larger field system on the 1st edition OS map and the same as current form on the 25-inch map. Townland boundary to south will not be affected by the UEA. Good quality pasture field with a gentle slope to the south. Stand of trees to the south also which was previously grazed as a separate field. Nothing of archaeological significance noted within the UEA scheme area.	Moderate: No obvious significant ground disturbance
17	Located within Ballyadam townland and similar to the current field layout depicted on both historical maps. Townland boundary to south will not be affected by the UEA. Good quality small pasture field with a gentle slope to the south. Northern boundary is overgrown with gorse which extends internally. Townland boundary is a low hedgerow interspersed with mature trees. Nothing of archaeological significance noted within the extent of the UEA.	Moderate: No obvious significant ground disturbance
18	Located within Ballyadam townland and depicted as the same as current form on the 1st edition OS map and two complete field on the 25-inch map. Townland boundary to the west will be traversed by the UEA scheme; it is formed by a small stream channel flanking a moderate earthen bank interspersed with coppiced trees and bushes. Plough tillage field with a gentle slope to the south. Powerlines traverse E-W across the northern portion. Nothing of archaeological significance noted within the extent of the UEA.	Moderate: Undeveloped farmland
19	Located within Ballyadam townland and current field layout does not confirm to the layout depicted on both historical maps. Townland boundaries to southwest is the same as described in Field 18, although it will not be affected by the UEA. Plough tillage field with a gentle slope to the south, left to scrubland at the south and southeast which may have been affected by groundworks. Black band of soil discoloration noted along the southern boundary (from drone photographs) – this may be drainage-related but may need require further investigation.	High: Soil discoloration noted on drone photographs
20	Located within Ballyadam townland and current field layout does not confirm to the layout depicted on both historical maps. Townland boundary to the east will be impacted by road works although this appears to be the alignment of the local road. Large field sub divided into various uses but predominately tillage with the northern portion ploughed. A hardstand is present at the southwestern corner which will be traversed by the scheme and a large mound of topsoil is present at the southwestern corner. Nothing of archaeological significance was noted in this field.	Moderate to low: The section of the field affected by the UEA appears to have been subject to ground disturbance.

<i>Parcel</i>	<i>Description</i>	<i>Archaeological potential</i>
21	Located within Ballyadam townland and the current field layout does not confirm to the layout depicted on both historical maps. Townland boundaries to southwest is the same as described in Field 18, although it will not be affected by the UEA scheme area. Scrubland land associated within railway development and previous ground disturbance. A stand of semi-mature trees from the southern boundary flanking the railway embankment and the terrain is waterlogged in places. Nothing of archaeological significance was noted in this field.	Low: Aerial images suggest extensive recent ground disturbance
22	Located within Ballyadam townland and the current field layout does not confirm to the layout depicted on both historical maps. Townland boundaries to south and east. A townland boundary will be affected by the UEA; it consists of a low stone-built wall flanked by a mature tree line. The field in turn consist of a large tillage field ploughed at the time of inspection with a gentle slope to the slope where it adjoins the railway line.	Moderate: Undeveloped farmland
23	Located within Carrigtohill townland and current field layout does not confirm to the layout depicted on both historical maps. Marginal pastureland that gently slopes to the south dominated by scrub vegetation, boundaries removed in places and a stand of trees to the southwestern corner. Originally taught to be a part of Field 15, but an open field drain subdivides it into a separate field/land block. Nothing of archaeological significance was noted in this field.	Low: Extensive disturbance noted on the ground and on aerial imagery.
24	Located within Poulnaniska townland and current field layout does not confirm to the layout depicted on both historical maps. Townland boundary is unlikely to be impacted by the scheme. Good quality pasture field with a moderate slope to the south. Nothing of archaeological significance was noted in this field.	Moderate: Undeveloped farmland

5. Assessment of impact

No recorded sites on the Sites and Monuments Record for County Cork are directly or indirectly impacted by the proposed UEA infrastructure.

All undisturbed green field locations retain the potential to contain unrecorded features of archaeological origin. Four fields (Fields 2, 3, 9 and 19) have been identified as areas of heightened archaeological potential. A programme of pre-construction geophysical survey and licensed archaeological testing is required to establish if any archaeological features exist within the four green fields. It is noted that relatively small sections of the four green fields will be impacted by the proposed infrastructure. In the event that any previously unrecorded archaeological remains are identified during these site investigations, they will be recorded in situ and the Planning Authority and the National Monuments Service will be consulted in relation to any required further mitigation, i.e., preservation in situ (avoidance) or preservation by record (archaeological excavation). Preservation in situ will be undertaken, if possible. This would allow for a negligible magnitude of effect resulting in a potential not significant/imperceptible significance of residual effect on the unrecorded, potential archaeological resource. In the event that preservation in situ is not possible preservation by record will be undertaken. This would result in a high magnitude of effect, albeit ameliorated by the creation of a full and detailed archaeological record, the results of which would be publicly disseminated. This would result in a potential moderate significance of effect in the context of residual impacts on the unrecorded archaeological resource. Overall, it is considered that the probability that features of archaeological significance will be uncovered below the footprint of the road and that mitigation by preservation in-situ is not possible is low and it is considered unlikely that there will be significant effects on the archaeology of the site.

The proposed development will not *directly* impact any structures identified by the NIAH or that are included in the Record of Protected Structures (RPS). However, a separate pedestrian/cycle bridge is proposed to be installed to the east of Barry's Bridge, a road-over-railway bridge that is recorded on the NIAH (Reg. No. 20297550). The former railway station (NIAH Reg. No. 20907551) and former station master's house (Reg. No. 20297552) are located to the east of the proposed new pedestrian/cycle bridge. The new structure will have a *slight* negative indirect impact of the setting of the former railway station complex.

Furthermore, the scheme appears to directly impact a former forge and associated dwelling (which is of less significance) in the townland of Terry's-land. The forge is of local heritage significance. The scheme has been amended to ensure the preservation of the forge. Demolition of the associated dwelling is unavoidable, and it is recommended that a detailed Building Survey should be undertaken in order to compile a full record of the extant structure(s) in written, drawn and photographic formats.

The UEA Infrastructure will require the removal of sections of field boundaries some of which include sections of townland boundaries. Whilst none of the field boundaries are designated of archaeological or cultural heritage significance, it is recommended that the boundaries be documented and described prior to their removal.

6. Conclusions and recommendations

The Carrigtwohill Urban Expansion Area (UEA) is located to the north of Carrigtwohill in County Cork. It covers an area of approximately 100 hectares of zoned lands which are mainly just north of the Cork to Midleton railway line. It is bounded by Wisers Road to the west and Ballyadam Road to the east. The UEA will not directly impact any designated or protected archaeological or built heritage sites or structures.

The greenfield areas of the UEA do have the potential to contain previously unrecorded subsurface sites and features of archaeological significance. A programme of pre-construction geophysical survey and licensed archaeological testing shall be undertaken.

The proposed development will not *directly* impact any structures identified by the NIAH or that are included in the Record of Protected Structures (RPS). However, a separate pedestrian/cycle bridge is proposed to be installed to the east of Barry's Bridge, a road-over-railway bridge that is recorded on the NIAH (Reg. No. 20297550). The former railway station (NIAH Reg. No. 20907551) and former station master's house (Reg. No. 20297552) are located to the east of the proposed new pedestrian/cycle bridge. The new structure will have a *slight* negative indirect impact of the setting of the former railway station complex.

A former forge (and associated dwelling which is of less significance), located in the townland of Terry's-land, is of local heritage interest (it is known locally as "Barrett's Forge"). The proposed UEA Infrastructure has been designed so as to preserve the forge building. Demolition of the associated dwelling will be required.

Finally, the proposed UEA Infrastructure will require the removal of localised sections of field boundaries, including sections of townland boundaries and roadside stone walling.

Recommendations

Given the predominantly linear nature of much of the proposed UEA Infrastructure, a programme of pre-construction archaeological geophysical survey and licenced archaeological testing would provide greater clarity on the archaeological significance of the greenfield areas. This would reduce the potential and risk of archaeological discoveries to cause delay to the construction phase of the UEA infrastructure. It should be noted that a number of factors would negate the wholesale application of geophysical survey to the scheme, namely: the proximity of the proposed road corridor to existing boundaries and overhead lines, marsh/disturbed land, and overall enclosed nature of the UEA infrastructure scheme area. A pre-development programme of geophysical survey of the accessible green field areas of the development is recommended; Fields 2, 3, 9 and 10 as identified in this report should be treated as priority areas.

A programme of pre-development archaeological testing on any geophysical anomalies identified would be required to establish the nature and extent of these anomalies.

A programme of pre-development archaeological testing will be required in areas where geophysical survey is not feasible.

In addition, a programme of licenced archaeological monitoring will be required in areas where pre-development archaeological testing is not feasible and further monitoring may be required depending on the results of the geophysical survey and archaeological testing. This construction-phase of monitoring will focus on topsoil stripping for minor linear works for underground services including surface and foul water networks, electrical and fibre optic/ telecoms ducting and water and gas supply.

In the event that any previously unrecorded archaeological remains are identified during these archaeological investigations, they will be recorded in situ and the Planning Authority and the National Monuments Service will be consulted in relation to any required further mitigation, i.e., preservation in situ (avoidance) or preservation by record (archaeological excavation).

The former forge in Terry's-land is of local heritage significance and, the scheme has been designed to allow its preservation. Demolition of the associated dwelling (which is of less significance) is unavoidable. It is recommended that a detailed Heritage Building Survey should be undertaken in order to compile a full record of the former dwelling in written, drawn and photographic formats. This should be prepared for review and approval by Cork County Council's Executive Archaeologist. The Survey shall include:

- A detailed history of the proposed development site. All available historical sources are to be consulted (including photographic material), this should also be supported by cartographic evidence which will aid in evaluating the development of the site.
- A detailed written description of the existing building and any associated features or structures. This should include information on the materials used in the construction of the building as well as all architectural features, fixtures and fittings.
- A detailed written description of the existing building and any associated features or structures. This should include information on the materials used in the construction of the building as well as all architectural features, fixtures and fittings.
- The report should be cross referenced and supported by appropriate illustrations such as scaled drawings (plans, sections, elevations @ 1:50 and/or 1:100) and a clearly labelled photographic record. Where a building is multi-phased a plan indicating the different phases shall also be submitted.

It is recommended that the sections of boundaries to be removed be documented and described prior to their removal. Therefore, prior to commencement of any site development works, an assessment and record of all historic boundaries directly affected by the proposed scheme will be prepared for review and approval by Cork County Council's Executive Archaeologist.

7. References

- Carrigtwohill Parish Website: <https://carrigtwohillparish.ie/history/parish-history/>
- Cleary, R. M. and Hawkes, A. (2013) 'The excavation of four fulachtaí fia and Iron Age pits at Ballyadam, Carrigtwohill, Co. Cork'. *Journal of Cork Historical and Archaeological Society*, 118
- Cork County Development Plan 2002-2028: <https://www.corkcoco.ie/en/resident/planning-and-development/cork-county-development-plan-2022-2028> [Accessed on 28/02/2023]
- Database of Irish Archaeological Excavations: <http://www.excavations.ie/> [Accessed on 28/02/2023]
- Geohive Mapviewer Resource: <http://www.geohive.ie/> [Accessed on 28/02/2023]
- Government of Ireland's Historic Environment Viewer:
<http://webgis.archaeology.ie/historicenvironment/> [Accessed on 01/03/2023]
- Heritage Map Viewer: <https://heritagemaps.ie/WebApps/HeritageMaps/index.html> [Accessed on 01/03/2023]
- Lewis, S. (1837) *A Topographical Dictionary of Ireland*
- National Inventory of Architectural Heritage (NIAH):
<http://www.buildingsofireland.ie/Surveys/Buildings/> [Accessed on 28/02/2023]

Appendix 1: Descriptions of recorded monuments

<i>SMR no.</i>	<i>Class</i>	<i>Townland</i>	<i>Description</i>
CO075-017001-	Graveyard	Carrigtwohill	On N side of Carrigtwohill village, rectangular graveyard (c. 60m N-S; c. 80m E-W) enclosed by stone wall. In centre, partially roofed remains of late medieval parish church of Carrigtwohill (CO075-017002-); in NW corner C of I church (CO075-017003-) built in 1905 (Coleman 1908, 8). Oldest burials on S side, earliest inscribed headstone noted dates from 1767, though Power (1918,196) records headstone dated 1723, whilst O Buachalla and Henchion (1965) noted '233 stones, all but a few being at least a century old', the oldest dated 1704; many headstones and fragments of headstones now lie in pile to W of church tower. Memorials to Cotter and Dobson families on W wall of church (see CO075-01702-). Still in use; recent extension to N.
CO075-017002-	Church	Carrigtwohill	In centre of graveyard (CO075-017001-), remains of nave and chancel of parish church of Carrigtwohill, with tower at SW corner. By 1615 nave in repair but chancel ruinous (Brady 1863, vol. 2, 91); chancel still a ruin but nave maintained as C of I church until new church built in NW corner of graveyard in 1905 (Coleman 1908, 8); nave still roofed and used as hall with recent flat-roofed extension on W side. Chancel interior (int. 13.6m E-W; 6m N-S) partially overgrown and used for burial with headstones dating to 1815. N and S walls ivy-clad; surviving portion of E wall inserted inside line of earlier wall. Inserted door ope in S wall; splayed window embrasures, missing lights, in N and S walls. Junction of nave and chancel now blank wall functioning as E gable of hall; according to Power (1918,196) 'chancel-arch was transformed into east window' of C of I church date of this transformation not known but probably took place before church reported 'in good repair' in 1694 (Brady ibid, 92-3). Roofed section of nave (16.5m E-W; int. 8m N-S) extends to E wall of tower but earlier nave extended at least to W wall of tower (a further 4.65m). N wall built on battered lower courses of older wall. Blocked window opes in N and S walls and door opes all of relatively recent appearance. Four-storey rectangular tower (6m N-S; 4.65m E-W) stood attached to W end of S wall of nave. It stands to full height but crenellations gone; bellcote added to top of N wall, bell still in position. Access to interior not gained. Lit by rectangular flat-headed lights; series of slit windows near NW corner suggest spiral stone staircase in this position. Blocked arched opening at ground level in S wall and at 1st floor level in E wall appear later insertions. At ground floor level, on W face of tower, oval plaque erected in 1688 by Sir James Cotter (Coleman 1901-3a, 163-4; see photo Coleman 1908b, facing p.8), nearby recently vandalised aediculated memorial of Dobson family dated 1789 (Coleman 1917-20a, 268-9); both lived at Anngrove House (CO075-051---). Tower appears late medieval in date, as presumably was this larger-than-usual parish church of Carrigtwohill, associated with nearby Barryscourt castle (CO075-01801-), seat of the Barry family. Though named 'Abbey' on 1842 OS 6-inch map not listed in Gwynn and Hadcock (1988).

SMR no.	Class	Townland	Description
CO075-017003-	Church	Carrigtwohill	In the NW corner of a graveyard (CO075-017001-) is a C of I church built in 1905 (Coleman 1908, 8).
CO075-017004-	Redundant record	Carrigtwohill	Listed as an 'abbey' in the SMR (1988) and the RMP (1998) based on the fact that the words 'Abbey (in Ruins)' appear here on the 1842 OS 6-inch map. No such abbey is listed in Gwynn and Hadcock (1988) and the remains are those of a late medieval parish church and tower (CO075-017001-). The evidence is not sufficient to warrant accepting this as the location of an archaeological monument.
CO076-001----	Kiln - lime	Terry's-Land	In quarry, built against rock outcrop. Large structure (H 10m; Wth 12.45m) facing NW incorporating 3 kilns with three arched recesses all of similar dimensions (H 1.6m; Wth 1.4m; D 2m). Arch of each recess filled with masonry formerly supported by wooden lintel. Kilns are separated from each other by projecting wall 1.6m; joist holes indicate these supported cover in front of kilns. Top of kiln enclosed by wall with three window opes in front elevation, access to rear. Buttresses against E and W walls. Funnels (diam. 1.4m) all stone lined and beaker-shaped in section. Ope (Wth 1.85m) in S wall. Remains of ramp to S.
CO076-003----	Redundant record	Terry's-Land	Limestone cave system explored by Coleman (1934, 76-78); 'old cave' section subsequently excavated (Coleman 1944, 228); wolf skull and 'recent domestic fauna' recovered.
CO076-120----	Fulacht fia	Ballyadam (Barrymore By.)	In low-lying wet ground. A low mound (20m E-W; 15m N-S; H 0.4m) of heat-shattered stones and charcoal-enriched soil was discovered in 2007 during archaeological monitoring in advance of the construction of an industrial development. The burnt stones were predominantly sandstone and were sourced at some distance from the monument. The S part of the mound overlay charcoal-rich peaty clay that extended into a pond (10m E-W; 8m N-S; D 0.9m) which was probably the water source for the fulacht fia. The pond was infilled with peat lenses and heat-shattered stone. Twelve pits were recorded, three of which were outside the limit of the stone spread. Two large pits were interpreted as troughs. The pits were in two main clusters to the N of the pond; two pits were to the E and single pit lay to the W. It is possible that each concentration of pit activity is related to discrete use of the troughs. This fulacht fia was radiocarbon dated to 2283-2146 cal. BC (3788±30BP) (UBA 8449). Another fulacht fia (CO076-121----) lies c. 220m to the SSE. (pers. comm. Rose M. Cleary)
CO076-121----	Fulacht fia	Ballyadam (Barrymore By.)	in 2007 during archaeological monitoring in advance of the construction of an industrial development. Three post-holes were recorded to the NW of the trough and ten stake-holes were to the S of a pit. The trough was c. 4m S of the pond. The pit was irregular in plan and the edges sloped into a second steep-sided pit that probably housed the trough lining. The fill comprised layers of heat-shattered stones and charcoal-rich silt and charcoal. This fulacht fia was radiocarbon dated to 996-920 cal. BC (2804±31) (UBA 8452). A second fulacht fia (CO076-120----) lies c. 220m to the NNW. (pers. comm. Rose M. Cleary)

Appendix 2: Details of relevant licensed excavations

<i>Location</i>	<i>Licence and Author</i>	<i>Description</i>
Anngrove, Carrigtohill, Cork	15E0424 – Margaret McCarthy	A programme of pre-development archaeological testing was undertaken in advance of constructing an extension to a biomedical production facility in Carrigtohill. This area of Cork harbour is part of a landscape which has attracted human settlement from early prehistoric times, and continuity of settlement is illustrated by numerous monuments from the medieval and post-medieval periods. A total of seven trenches were excavated to the surface of the natural ground and no archaeological features or finds were discovered. Non-archaeological features identified during testing and subsequent monitoring included numerous cultivation furrows, modern drains and a north-south orientated field boundary indicated on the historic mapping for the area. All the exposed linear features are interpreted as having an agricultural function based on their shared dimensions and orientation.
Anngrove, Carrigtohill, Cork	20E0031 – Margaret McCarthy	A programme of pre-development archaeological testing was undertaken in advance of constructing an additional extension to the existing facility in Anngrove, Carrigtohill. This part of Cork harbour is part of a landscape which has attracted human settlement from early prehistoric times, and continuity of settlement is illustrated by numerous monuments from the medieval and post-medieval periods. A total of ten trenches were excavated to the surface of the natural ground and the only features of anthropogenic origin were two stone-filled modern drains. Monitoring of all topsoil removal during the initial groundworks phase of the development revealed nothing of archaeological importance.
Anngrove, Cork	02E0166 – Máire Ní Loingsigh	Monitoring of roadworks at an IDA industrial estate took place at the site of road realignment and construction of a new roundabout. Much of the area monitored had been disturbed during construction of the estate; no archaeological features were noted in the undisturbed areas or in the orange/brown subsoil.
Anngrove/Tullagreen, Cork	02E0486 – Máire Ní Loingsigh	Groundworks associated with extending a factory in an industrial estate c. 1km west of Carrigtohill village were monitored. Much of the site had been disturbed during the construction of the existing factory. Stratigraphy at the site consisted of 0.1–0.4m of disturbed topsoil, containing modern building debris and 18th-/19th-century pottery , over a yellow/ brown, featureless subsoil. A field boundary, which separated the townlands of Anngrove and Tullagreen, was evident as a dark brown band of soil; there were no finds associated with this boundary. The site was otherwise featureless.
Terrysland, Carrigtwohill, Cork	04E0260 – Tony Cummins	Monitoring of topsoil-stripping was carried out during the construction of a housing development in a greenfield site located on the west side of Carrigtwohill village in the townland of Terrysland, Co. Cork. There were no archaeological features or finds uncovered during the course of this monitoring project.
Station Road, Carrigtohill, Cork	15E0233 – Donald Murphy	Multi-period An assessment (with test trenching) took place of the site of a proposed Post-Primary school and an amalgamated National school at Carrigtohill and Terrysland Townlands, Carrigtohill, Co. Cork behalf of the Department of Education and Skills, Portlaoise Road, Tullamore, Co. Offaly.

<i>Location</i>	<i>Licence and Author</i>	<i>Description</i>
		<p>The testing is being carried out at a pre-planning stage as the site is located close to a medieval church and graveyard (CO075-001-2). A desktop survey highlighted the site as a suitable location for fulachtaí fia though none were specifically discovered. The site is flat and low-lying and would have been marshy and wet in the past though appears to have been reclaimed in modern times. The stream/river running north-south through the site forms the townland boundary between Terrysland and Carrigtohill and aids in the drainage of the site. A farmyard and some old farm buildings and a derelict house occupy the south-east corner of the site.</p> <p>Between 27 and 29 May 2015 a total of forty-five test trenches with a combined total of 3,013 linear metres (6,026 sq. m) were excavated within the site. The trenches were excavated in all cases to natural deposits which varied across the site from grey to pale cream marl to a rusty orange/brown gravel boulder clay. The topsoil varied in depth from 0.2m to 0.5m but for the most part maintained an average 0.3m in thickness. A series of stone-filled drains were evident below the topsoil in all parts of the site indicating that significant drainage and land reclamation has taken place over the last two hundred years and is probably associated with the farm on the south-east corner of the site. Only two features of interest were exposed, two linear ditches measuring approximately 2m in width and aligned roughly east-west. Both ditches were filled with a brown clay containing post-medieval pottery and glass and are on the same alignment as two field boundaries marked on the 25 inch OS map and obviously formed part of the farm. Despite the potential for fulachtaí fia within the site, none were identified. No features of archaeological significance were exposed during the testing and the only finds recovered consisted of post-medieval pottery and glass from the topsoil.</p> <p>A circular stone-lined well which has been partly covered by a concrete cap is evident towards the south end of the site and is marked on the 25 inch OS map (c. 1929). Though not marked specifically on the first edition OS map (c. 1841), the stream leading from the well towards the river is marked and the well could have been in existence from before this date.</p> <p>In field 2, the gas pipeline had previously been stripped along the east and southern boundaries and prohibited testing in these areas. The topsoil stripping of the route for the pipeline was monitored at the time and no features were exposed in this field. During the present testing a gravel path was exposed below the topsoil in Trenches 18 and 29. The path was aligned roughly east-west, measured 1.5m in width and had multiple inclusions of glass and modern pottery. It obviously represents an old path leading to the well or pump which is indicated on the 25 inch OS map (c. 1920). The path itself is not marked on any of the OS editions. No other features of archaeological significance were exposed in Field 2 and no finds other than the glass and modern pottery were recovered.</p> <p>The kiln and pit exposed in Field 1 are of archaeological significance and both will require full excavation prior to the</p>

<i>Location</i>	<i>Licence and Author</i>	<i>Description</i>
		construction phase. Despite stripping an area of topsoil around both the kiln and pit, no additional features were exposed.
Carrigtwohill, Cork	06E1141 – Rose M. Cleary	<p>Fulacht fia Excavations were undertaken in 2007 during the construction of a new sewerage scheme in the environs of Carrigtwohill village. The remains of a burnt-stone and charcoal-rich soil spread were uncovered directly under the topsoil at depths of 0.35–0.7m below the modern surface and the site included a circular ditch, pits, a spread of burnt stone and a linear ditch. The circular ditch was stratigraphically the earliest recorded feature and lay under the spread of burnt stone. The ditch had an overall maximum diameter of 6.74m and an internal diameter of 5.1m. The ditch was widest on the east side, where it was 0.82m and narrowed to 0.42m, and was less well defined along the northern perimeter. The depth varied from 0.2m to 0.4m and the fill comprised heat-shattered stone, charcoal and clay. Hazel (<i>Corylus avellana</i>) charcoal from the fill returned a 14C determination of 891–803 cal bc; 2679±33 (uba 8457). The ditch appeared to surround a central pit that was sub-oval in plan and the excavated measurements were 3.6m east–west by 1.75m by 0.4m deep. The fill was a mixture of heat-shattered stones, charcoal and clay and a lignite bracelet fragment was recovered from part of the basal fill. The burnt stone from mound material infilled the upper level of the pit.</p> <p>Five pits were excavated and all had fills of burnt stone. Two pits were conjoined. One large pit had an overall length of 8.5m (north-west/south-east) and a maximum width of 4.2m (east–west). The south-eastern end was shallow with a maximum depth of 0.4m and the north-west end was 0.7m deep. Six stakes were driven into the base of the pit and one oak post remained in situ. The stakes extended across a length of 1.5m, forming a W-shaped plan, and ranged in diameter from 0.1m to 0.2m. A 1.1m-wide channel drained into the eastern side of the pit and may have carried surface water into it. The channel was 0.25m deep with a rounded U-shaped base and extended eastwards for 7.3m.</p> <p>The mound comprised a spread of burnt stones and charcoal-rich clay which was irregular in plan, extending over an area measuring 18m east–west by 12m, and was up to 0.3m thick. The spread was thickest towards the south, adjacent to the modern road, and spread out more thinly to the north and east. The mound material had been cut through by a later ditch. The mound material varied in composition and included compact lenses of stone and mixed clay, charcoal and stone. Hazel ash (<i>Fraxinus excelsior</i>) charcoal from the mound material returned a 14C determination of 917–841 cal bc; 2749±33 (uba 8455).</p> <p>A medieval ditch traversed the site on an east–west axis and cut through the spread of burnt stones and charcoal. The ditch was 1.45m wide by 0.4m deep and the excavated length was 14m. The sides sloped to a rounded base and the ditch was infilled with material from the fulacht fiadh mound along the sides, where presumably mound material had slipped into the ditch once it was cut. A 0.25m-thick layer of stony sandy soil overlay the slippage and infilled the ditch. Alder (<i>Alnus glutinosa</i>) charcoal from the base of the ditch fill</p>

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		returned a 14C determination of cal ad 1033–1152; 9426bp (uba 8456)
Carrigane Road, Carrigtwohill, Cork	03E0265 Sheila Lane	Planning permission was granted for the development of 317 dwelling-houses at Carrigane Road, Carrigtwohill, Co. Cork, with a condition which required monitoring. The southern edge of the development site lies within the zone of archaeological potential for a linear earthwork. Topsoil was stripped by machine to a depth of 0.3m, as the houses are to be constructed on a platform foundation. No finds or features of archaeological significance were noted during monitoring.
Ballyadam, Cork	06E0612 – Rose M. Cleary	<p>Ballyadam 1 – pits and post-hole Five pits were recorded in close proximity to each other and a post-hole was recorded 0.15m to the east. Two pits (C3A and B) had lenses of charcoal-enriched soil and oxidised clay in the fills and the general impression was that the material was dumped into the pits from activity elsewhere rather than in situ burning. Burnt animal bone, a stone axehead fragment and a shaped stone were recovered from C3A. The overall length of C3A–B was 1.6m and the long axis was north–south. The pits were conjoined and probably dug at the same time. A thin layer of sandy clay extended across both pits and covered the charcoal-enriched clay in C3A and abutted the oxidised clay in C3B. Blackthorn/cherry (<i>Prunus</i> spp) charcoal from the basal fill of C3B returned a 14C determination of 94–231 cal ad; 1847645 (uba 8450). A 0.05–0.08m thick layer of oxidised clay and charcoal occurred on the southern lip of C3B and is interpreted as in situ burning. Hazel (<i>corylus avellana</i>) charcoal from C11 yielded a 14C determination of 88–178 cal ad; 1862±29 bp (uba-8448).</p> <p>Three other pits were excavated in close proximity. One pit measured 0.62m wide (maximum) by 0.2m deep and the fill was charcoal-enriched soil with minute burnt-bone fragments. Two other pits were of similar size (0.6m diameter) and had charcoal-enriched stony soil fill. The post-hole was circular in plan: diameter 0.12m, depth 0.08m.</p> <p>Ballyadam 2 – fulacht fiadh The shattered stone spread was dispersed over an area measuring 20m east–west by 15m. A mixture of alder (<i>Alnus glutinosa</i>), hazel and apple-type (<i>Pomoideae</i>) returned a 14C determination of 2283–2146 cal bc; 3788±30 bp (uba 8449). The maximum extant height towards the north end was 0.4m and the stone tailed off towards the south. The stone was predominately sandstone that was sourced at some distance from the site. The southern area of the stone spread overlay charcoal-rich peaty clay that extended into a pond. This clay appeared natural in origin and may reflect localised wet ground conditions when the site was in use. This low-lying area is interpreted as a natural pond and this was probably the water source for the activity on site. The pond was 10m east–west by 8m and was infilled with peat lenses and heat-shattered stone. The maximum depth was 0.9m and this was due to the natural topography of the landscape rather than an artificially enhanced feature. The stone infilling may be a post-use phase when the mound material was dispersed.</p> <p>Twelve pits were recorded on the site and three were outside the limit of the stone spread. Two large pits are interpreted as the locations of troughs. The pits were in two main clusters to the north</p>

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		<p>of the pond; two pits were to the east and a single pit lay to the west. It is possible that each concentration of pit activity is related to discrete use of the troughs.</p> <p>Ballyadam 3 – fulacht fiadh This site was 250m to the south-east of Ballyadam 2 (fulacht fiadh 1) and was similarly located in low-lying wet ground. Ballyadam 3 comprised a dispersed spread of heat-shattered stones over a series of pits, including a trough, to the south of a naturally occurring pond. The pond had been infilled in modern times with gravel. Three post-holes were recorded to the north-west of the trough and ten stake-holes were to the south of a pit. The trough was due south of the pond at a distance of c. 4m. The pit was the largest on site, irregular in plan, and the edges sloped into a second steep-sided pit that probably housed the trough lining. The fill comprised layers of heat-shattered stones and charcoal-rich silt and charcoal. Alder charcoal from the basal layer yielded a 14C determination of 996–920 cal bc; 2804±31 (uba 8452).</p> <p>Ballyadam 4 – burnt-stone spread This site was located 50m to the south of a fulacht fiadh (Ballyadam 5) and comprised a spread of heat-shattered stone and three pits. The site was relatively small-scale in comparison to the fulachta fiadh at Ballyadam 2, 3 and 5 and, although heating of stones and other activity took place, the site did not have a feature that can be identified as a trough. The stone spread was irregular in plan and measured 6.8m east–west by 6.3m with a maximum central thickness of 0.25m. The spread tailed off around the edges. The basal layer comprised a charcoal-enriched soil with some heat-shattered stones; this was overlain by a thin (0.05m thick) layer of charcoal-enriched silt. Two pits were recorded under the stone spread. One was oval in plan, 1.1m east–west by 1.6m by 0.5m deep. The basal fill was a 0.1m-thick layer of charcoal-enriched silt with infrequent heat-shattered stones. This layer may have accumulated naturally when the pit was open. Hazel charcoal returned a 14C date of 2197–2042 cal bc; 3726±33 bp (uba 8453). The upper layers appeared to be deliberate infill of heat-shattered stones with variations in the amount of charcoal and stones between the layers. The other pits were in a figure-of-eight plan with the northern section being wider. The overall length was 2m and the maximum width was 1.1m. The pit was 0.15m deep but was shallower in the central section. There was a single fill of heat-shattered stones.</p> <p>Ballyadam 5 – fulacht fiadh 3 Similar to the other fulachta fiadh at Ballyadam, this was located in low-lying ground and comprised a spread of heat-shattered stones over a trough and eight pits. The pits were located to the north and south of the trough.</p> <p>The trough was the largest on site, was roughly oval in plan and the edges were irregular on the north side. The overall length was 2.65m (east–west) and the width varied from 1.6m to 2.2m. The depth was at maximum 0.45m and the sides were vertical down to a flat base. The trough fill comprised a layer of heat-shattered stones and charcoal that represented a single infill. This may be mound slippage rather than the final cooking activity at the site, where it is unlikely</p>

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		<p>that the amount of stones used filled the trough in entirety. Six stake-holes were recorded at the base of the trough. Three occurred on the north and south sides and one stake-hole was recorded adjacent to the southern trough pit edge. The stake-holes were all V-shaped in profile, with diameters of 0.08–0.11m and driven to depths of 0.08–0.13m. The stake-hole at the edge was 0.08m in diameter and 0.09m deep. The fills were stony charcoal-flecked silt. It is probable that the stake-holes within the trough pit functioned as pegs to secure the trough lining in place. A post-hole was located 0.3m from the north-western edge of the trough pit (C3) and may have held a post related to trough use. The post-hole was oval in plan, 0.3m north–south by 0.5m by 0.31m deep, U-shaped in profile with a silt fill. Two large packing stones remained in situ on the north side and a series of smaller stones along the remaining edges may also have held the post in place. A second post-hole was located 0.45m from the trough edge. This was oval in plan, 0.26m east–west by 0.31m by 0.21m deep, U-shaped in profile and had charcoal-enriched clay fills. A mixture of hazel, apple-type and birch (<i>Betula</i> spp) charcoal returned a 14C determination of 2192–2938 cal bc; 3714±34 bp (uba 8454).</p>

Appendix 3: Photographic record



Plate 1: Drone view of the western portion of the UEA scheme, showing fields 1-6, facing northeast



Plate 2: Drone View fields 7 and 8, facing east



Plate 3: Drone View fields 7 and 8, facing east



Plate 4: Drone View of Field 1 and adjacent road carriageway, facing north



Plate 5: Field 1, facing northeast



Plate 6: View of former forge/smithy (and adjoining dwelling to the right of the photograph) – the forge is known locally as “Barrett’s forge”.



Plate 7: Drone View of Field 2, facing east



Plate 8: View of charcoal rich deposits on the surface of the ploughsoil within Field 2



Plate 9: Field 2 as above, looking northeast



Plate 10: View of Field 2, facing east



Plate 11: View of Field 3, facing northeast



Plate 12: View of railway culvert along the southern boundary of Field 3



Plate 13: Drone view of Field 4 (left of frame) and Field 3(right of frame), facing southwest



Plate 14: View of Field 4, facing north -note overhead powerlines extending into Field 3



Plate 15: Drone view of Field 5-note extensive ground disturbance from previous developments



Plate 16: Drone view of lands to the south of the UEA scheme – showing extensive groundworks within this area



Plate 17: View of southern boundary of Field 6, facing west-north



Plate 18: View of Field 7, facing northeast



Plate 19: Drone view of Field 8, facing north



Plate 20: Field 8, facing northeast



Plate 21: Drone view of Field 9, facing southwest-note warehouse to bottom right of frame due for demolition.



Plate 22: Drone view of cropmarks within Field 9 -no current known origin for rectangular crop marks but may be related to ESB pylon construction. Circular crop marks also visible on 2014 Google Earth image



Plate 23: View north showing entrance to Greenville House. The gate lodge and entrance gates are modern. The roadside wall continues to the south and is the townland boundary



Plate 24: Drone view of the Eastern land block showing Fields 09-14, facing southeast



Plate 25: Drone view Fields 11-19 and 24, facing southeast



Plate 26: Drone view Fields 18-23, facing northwest



Plate 27: View east along the field boundary of Field 10-note culverted stream course



Plate 28: Intersection of local roads adjacent to Field 10 (left of frame)-route cross from western to eastern blocks here



Plate 29: View of Field 11. Facing south



Plate 30: General view southwest showing fields 15 (foreground) and fields 14 and 12 (background)



Plate 31: View of Field 13, facing northeast



Plate 32: View of Field 16, facing northwest



Plate 33: View of Field 17, facing east



Plate 34: View of Field 18, facing south



Plate 35: Drone View of Field 19, note the black band of soil discolouration at junction of ploughing and stream



Plate 36: View of Field 20, facing southeast



Plate 39: Drone view of Field 22, looking west, -note existing road network and railway crossing at Ballyadam Bridge to left of frame



Plate 40: View of Field 23, facing southwest



Plate 41: View of Field 24, facing northwest

Existing Road carriageways to be upgraded as part of the UEA



Plate 42: View across Ballyadam bridge, facing south



Plate 43: Portion of local road for upgrading at the eastern end of the UEA scheme



Plate 44: View northwards over Wise's Bridge



Plate 45: Wise's Bridge, facing north



Plate 46: Cross roads for upgrading at the far north-western portion of the UEA scheme



Plate 47: T-junction for upgrading to the north of Greenville house – note the demesne wall



Plate 48: As above, facing south past Greenville House

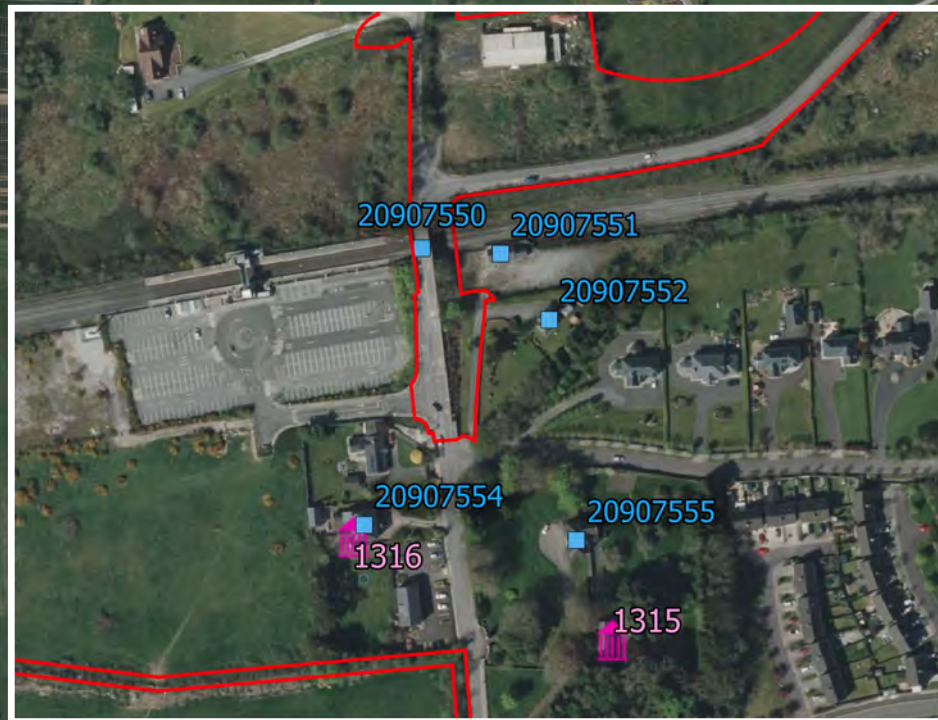


Plate 49: View south across Barry's Bridge



Plate 50: Drone view of intersection point of the scheme and the main road

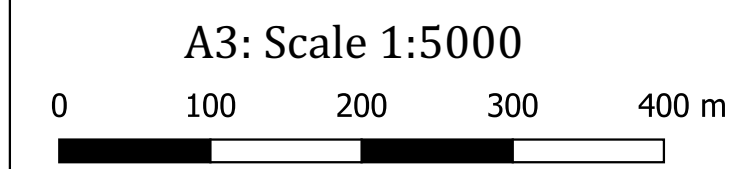
Appendix 4: Scheme mapping



- Site Boundary
- Sites and Monuments Record (SMR)
- SMR Zone of Notification
- Record of Protected Structures
- National Inventory of Architectural Heritage (NIAH)

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