ARCHAEOLOGICAL ASSESSMENT AT ADAMSTOWN, CLONBURRIS SDZ LUCAN, CO. DUBLIN

LICENCE NO.: 23E0458

ON BEHALF OF: QUINTAIN DEVELOPMENTS IRELAND LTD.

ITM: 703102, 732616

LICENCEE: FERGAL MURTAGH AUTHOR: FERGAL MURTAGH

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ABSTRACT

IAC Archaeology has prepared this report on behalf of Quintain Developments Ireland Ltd., to study the impact, if any, on the archaeological and historical resource of proposed residential development, which is located at Adamstown, Lucan, Co. Dublin (ITM 703102, 732616). The report was undertaken by Fergal Murtagh of IAC Archaeology under Licence No. 23E0458. Test trenching was carried out in fulfilment of item no. 3 of a Request for Further Information by South Dublin County Council (Planning Reg.: SDZ23A/0004). It followed a geophysical survey report carried out by Ger Dowling (Licence No. 23R0251) in June 2023.

Archaeological testing was carried out over the course of three days from 21st June 2023 using a mechanical excavator fitted with a flat grading bucket. The trenches targeted geophysical anomalies and open green space to fully investigate the archaeological potential of the site. Testing revealed two areas of archaeological significance, which have been designated as Archaeological Areas 1 and 2 (AA1 and AA2). These comprise a possible figure-of-eight shaped kiln (AA1) and a sub-circular feature containing charcoal and shattered stone (AA2).

Due to the location of the archaeological areas within the high density proposed development and their small-scale nature, preservation *in situ* would not be feasible. Consequently, it is recommended that the identified archaeological areas be preserved by record (archaeological excavation).

Furthermore, it is possible that other small-scale features of archaeological potential survive beneath the current ground surface, outside of the footprint of the excavated test trenches. It is therefore recommended that all ground disturbances associated with the proposed development be monitored by a suitably qualified archaeologist.

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1 INTRODUCTION

1.1 GENERAL

The following report details the results of archaeological testing undertaken at Adamstown, Lucan, Co. Dublin prior to a proposed residential development. This assessment has been carried out to ascertain the potential impact of the proposed development on the archaeological resource that may exist within the proposed development area. It was undertaken by Fergal Murtagh of IAC Archaeology (IAC), on behalf of Quintain Developments Ireland Ltd. and under Licence No. 23E0458, as issued by the National Monuments Service of the Department of Housing, Local Government and Heritage (DoHLGH). Test trenching was carried out in response to Item no. 3 of a Request for Further Information by South Dublin County Council (Planning Reg.: SDZ23A/0004). It follows on from a geophysical survey report carried out by Ger Dowling (Licence No. 23R0251) in June 2023.

Test trenching commenced at the site on 21st June and continued for three days. This was carried out using a 13-tonne 360-degree tracked excavator, with a flat, toothless bucket, under strict archaeological supervision. A total of 24 trenches were mechanically investigated across the test area which measured 2,205 linear metres in total. This report follows on from a geophysical survey carried out by Ger Dowling in June 2023.

The geophysical survey results were limited by significant ferrous disturbance, likely relating to modern (dumped) litter, and burnt remains. As a result, the northern fields were unsuitable for survey. In the southern fields the survey identified several 'pit type' responses of possible archaeological origin and the testing layout was altered to specifically investigate these potential features. Two areas of archaeological significance were identified during testing, designated as Archaeological Area 1 and 2 (AA1 and AA2).

1.2 THE DEVELOPMENT

The proposed development consists of 385 dwelling units (139 houses, 70 Build-to-Rent duplex/apartments, 72 duplexes/apartments and 104 apartments), ranging between two to six storeys in height. They include private rear gardens for all houses and private patios/terraces and balconies for all duplexes and apartments. Vehicular access will be off the Clonburris Southern Link Street (currently under construction) with pedestrian and cycle access to the Newcastle Road (R120) and to the Clonburris Southern Link Street. All associated ancillary site development, including infrastructural, hard and soft landscaping and boundary treatment works. Demolition of remaining walls and hardstanding of former agricultural building will be required. Minor revisions to an attenuation pond, connections to water services and connections to permitted cycle/pedestrian paths permitted under SDC Ref. SDZ20A/0021.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 BACKGROUND

The site is located within an undeveloped greenfield and partial brownfield area of c. 8.94ha, situated to the immediate south of the railway line, and west of the Newcastle Road (R120). The Griffeen River borders the east to southeast periphery of the southern field, with a Pitch and Putt Course and Grand Canal present to the south. There is one former agricultural building located in the northwestern section of the site, which is scheduled to be demolished as a part of the proposed development. The areas to be tested are divided into northern and southern portions, separated by Hayden's Lane Access, oriented east to west linking to the Newcastle Road on the west (Plates 1 and 2).

There is one recorded monument located within c. 500m of the proposed development site. This consists of a castle-tower house (DU017-029) the former site of which is situated c. 50m west of the site. The remains of the tower house were demolished in the 1960's (SMR File; Figure 1).

Prehistoric Period

Mesolithic Period (c. 7000–4000BC)

There are no known archaeological remains dating to the prehistoric period in the vicinity of the development site. This region was visited by Mesolithic communities, who used the River Liffey (flowing c. 2km to the west) as a routeway and as a food and materials resource. Excavations on the banks of the river at Cooldrinagh near Leixlip c. 3.6km to the northwest of the development area revealed a large Mesolithic flint assemblage (DU017-079) within the body of a mound (DU017-075001) which was later identified as an 18th century landscape folly (Bennett 1995:052). Further assemblages of Mesolithic flints have been recorded during archaeological investigations carried out at the Leixlip Water Treatment Plant (WTP) (Bennett 1997:091; Bennett 2005:410; Bennett 2006:585), located c. 2.8km to the north of the development area.

Neolithic Period (c. 4000–2500BC)

Archaeological excavations undertaken in advance of the Grange Castle Business Park have recorded Neolithic habitation c. 900m to the southeast in Kilshoge (Bennett 2001:438). At Cooldrinagh, c. 3.6km to the northwest, two adjacent Neolithic burial monuments were identified (DU017-075 and DU017-079). The remains consist of a denuded passage tomb flanked to the east by a circular kerbed feature, containing two cist burials and covered by cairn material (Bennett 2006:585; Consent CO14, E002034). Some human remains were identified during the excavations, although both sites had suffered heavily from disturbance. The Neolithic passage tomb likely established a tradition for burial in the area, which led to the construction of the circular cairn with later probable Bronze Age cist burials.

Bronze Age Period (c. 2500–800BC)

Bronze Age (c. 2500–800 BC) remains are often identified during the course of predevelopment archaeological investigations, commonly in the form of burnt mounds. These domestic sites are located near water and generally survive as low mounds of charcoal-enriched soil mixed with an abundance of heat-shattered stones. Three examples were recorded in Ballybane and Grange townlands, c. 750m to the south along the Griffeen river (Licence No. 04E0299, Bennett 2004:0602) and two more associated with a structure within the footprint of the Grange Castle Business Park c. 980m to the southeast (Licence No. 13E0471, Bennett 2016:083; 2020:441).

Archaeological investigations carried out c. 1km to the northwest of the development area identified a small cluster of prehistoric hearths and domestic waste pits (Whitaker and Hanbridge 2021). Post-excavation analyses are ongoing and dating is as yet unconfirmed but it is probable that they relate to Bronze Age occupation.

Early Medieval Period (AD400-1100)

There are two enclosures recorded in the wider vicinity of the development site (DU017-092, DU021-93), both of which were identified through aerial survey. These may represent early medieval settlement sites; however, a prehistoric origin cannot be ruled out without further investigation. An early church is recorded in Aderrig townland (DU017-028002), c. 2.5km to the northwest, situated within a circular raised graveyard (DU017-028003). It is thought that this may be associated with the remains of an early ecclesiastical enclosure (DU017-028001). Archaeological investigation undertaken c. 2km to the southeast, in advance of a data centre development, investigated a series of associated enclosures, dating from the Iron Age and early medieval periods (Bennett 2016:083; 2020:440).

Medieval Period (AD1100–1600)

The sites of several fortifications are known in the wider vicinity of the development area, including Adamstown Castle (DU017-029), c. 50m west of the site, Grange Castle (DU017-034), 920m to the southeast, and Nangor Castle (DU017-037), 1.9km to the southeast. Adamstown Castle was formally a three-storey tower house which was oblong in plan with a projecting turret and stepped crenelations (Ball 1906). The castle was demolished in the 1960s and is no longer visible above ground (SMR file). The historical town of Lucan is located c. 2.2km north of the development area (DU017-019). The town did not appear to develop great economic importance and essentially remained a manorial borough throughout this period. Lucan Castle (originally located on the site of the present Lucan House) dates to the 13th century and was first inhabited by the DePeche family.

The ecclesiastical site at Aderrig (DU017-028001-002), c. 2.5km to the northwest, was granted to St. Patrick's Cathedral in the 13th century. The earliest documentary reference to the church occurs in 1235 and it was still in use at the beginning of the 17th century (McNeill 1950, 78). An associated graveyard and field system is also present (DU017-028003-004).

Post-medieval Period (AD1600-1900)

Buildings of architectural heritage value in the vicinity of the development area include Finnstown House (NIAH 11204046) and Airlie House (NIAH 11204044) situated c. 720m and 1.2km to the northwest respectively. Airlie House was built in c. 1840 and comprises a three-bay two-story structure, whereas Finnstown House is slightly later (c. 1865) and much larger. Finnstown also known as 'Fyan's Town' originated from the Fyan family whose name derives from the Latin word 'paganus' for 'countryman' or 'peasant' (Bunbury 2022). The Fyans were citizens of high importance in Dublin in the 15th and 16th centuries. John Fyan was Mayor of Dublin in 1472 and 1479, a time that coincided with the War of the Roses in England. Thomas Fyan was one of Henry VIII's city sheriffs in 1540 and the hospitality of Richard Fyan (Fiand), Mayorin 1549 and 1564, has been extolled by local chroniclers. By 1750, the area around Finnstown, served by the River Liffey, had become particularly desirable to the Ascendancy. Much of the surrounding land was given to the growing of fruit and vegetables that would be taken by barge on the Royal Canal to the Dublin markets (Bunbury, <u>www.eneclann.ie</u>). 12th Lock bridge (NIAH 11204052) and 12th Lock (NIAH 11204053) were built in c. 1770, a single arched bridge crossing the Grand Canal and a single-stage canal lock located 170m to the south. Ballymakaily Mill (NIAH 11204054 and 11204055), a former water mill constructed c. 1860 located 160m south.

2.2 SUMMARY OF PREVIOUS ARCHAEOLOGICAL FIELDWORK

A review of the Excavations Bulletin (1970–2023) has revealed that one archaeological investigation has partly taken place within the development site, while there have been a number of investigations in the immediate vicinity of the development site (Figure 1).

One investigation has taken place, partly, within the current proposed testing boundary. A programme of test trenching was carried out on an adjacent site in the northern field and along the southern side of Haydens Lane (Trenches 1-9). Some of these trenches stretched into the current testing boundary. Works were carried out under conditions attached to Planning Ref. SDZ20A/00201, which included an extensive testing scheme stretching across Adamstown, Clonburriss Little, Cappagh, Kishoge and Grange townlands. Nothing of archaeological significance was noted within the trenches dug adjacent to/partially within the present development site. Three post-medieval brick manufacturing kilns and charcoal-production pits were identified in nearby fields (c. 300-2,500m east) as a part of this testing scheme (O'Neil 2020, Licence No. 20E0390).

There have been two additional investigations in the vicinity of the overall development zone and along the site boundary. One consisted of a programme of testing along the northeastern border of the site, during the improvement of the Kildare Rail Line in 2007. This consisted of a course of archaeological testing of compound areas carried out in advance of the construction of the rail line. One of the compound sites was located c. 60m northeast of the current development site, just on the northern side of the rail-line, but this area was not tested during this course of works due to access issues; however, the area was recommended for monitoring. No

other areas were tested within the current study area (c. 500m) as a part of this investigation scheme (Moriarty 2007, Licence No. 07E0749).

Another course of archaeological testing took place in 2005 along the Adamstown Link Road, and Haydens Lane Access, which divides the areas currently under assessment and development (c. 5m south-central). Nothing of Archaeological significance was identified in this section of the survey (Elder 2005, Licence No. 05E0477). In 2005 human remains were identified and excavated c. 40m to the northwest of the development area, along the Adamstown Link Road (Bennett 2005:379, Licence No. 05E1295). The excavated remains comprised 43 adults and one infant. The remains appear to have been previously disturbed during the construction of the rail line in the 1950s.

An archaeological excavation was carried out c. 150m south of the site in 2003, uncovering the remains of a mill building depicted on the 1843 ordnance survey map (Tobin 2004, Licence No. 03E1210). A course of monitoring was carried out c. 430m southeast of the development site in 2003. This investigation revealed one area of burning which was interpreted as a possible kiln dating to the 18th/19th century (O'Donovan 2003, Licence No. 03E0643). Several other courses of archaeological testing and monitoring were carried out in the surrounding area (Table 1) that did not reveal finds of archaeological significance.

TABLE 1: Nearby Archaeological Investigations with No Finds

REFERENCE	LICENCE NO.	DISTANCE TO DEVELOPMENT
Scally 2002	01E1147	c. 220m north-northwest
Tierney & Rooney 2006	06E1146	c. 420m west-northwest
O'Carroll 2004	04E0522	c. 500m north
Bennett 2021:267	21E0147	c. 230m south
Shine 2017	16E0471ext	c. 315m south

2.3 CARTOGRAPHIC ANALYSIS

A review of the historic cartographic sources reveals that the site has remained as open agricultural fields and remained relatively undisturbed up to present day. One of the earliest mappings of the area (Down Survey c. 1655) places the site within 'unforfeited lands' in the barony of Newcastle, County Dublin; and as such no detail is shown. John Rocque's 1760 depiction of the site situates it in agricultural fields just north of 'The New Canal' (Grand Canal), and west of 'Castle Adams' (Adamstown Castle-DU017-029). There is still very little development depicted surrounding the site in the first edition ordnance survey map of 1843. Adamstown Castle continues to be depicted on the northwestern border of the site and the Grand Canal with a Flour Mill to the south (c. 145m). Roads border the west and north eastern edges of the site, with the south-east and south perimeters formed by field boundaries and the Ballymakily and Adamstown townland boundary (Figure 3). Another major development in the area is noted by the 1910 edition ordnance survey map with the depiction of the rail line and Lucan station now illustrated on the northern border of the site. An aqueduct has also been installed within the site boundaries, cutting across

the west-central portion of the site, oriented southeast to northwest (Figure 3). Other than field boundary changes and Adamstown Castle being depicted as 'in ruins', there are no changes of note within the site boundary or its immediate environs in the last edition ordnance survey map of 1942.

2.4 SUMMARY OF GEOPHYSICAL RESULTS

A geophysical survey was carried out within the development site in June 2023 under Licence No. 23R0251 (Dowling 2023; Appendix 1). The northern fields were unsuited to the survey methods. No features of definitive archaeological potential were identified in the southern fields. Several anomalies of uncertain origin were noted including several 'pit-type' responses highlighted in a light blue colour as seen on Figure 4 and several ferrous and linear responses potentially linked to modern farming activities.

2.5 AERIAL PHOTOGRAPHIC ANALYSIS

Inspection of the aerial photographic coverage and satellite imagery of the proposed development area held by the Ordnance Survey (1995-2018) Google Earth (2005-2023) and Bing Maps revealed that the site has remained relatively unchanged and undisturbed in recent years. There presently stands an building/compound area in the northwestern extent of the site accessible by a small road. The access road and building existed on the site from at least 1995 through to 2007 when the Haydens Lane Access Road was built across the site replacing the small access road; the agricultural building is phased to be demolished as a part of the development works. Two large electrical towers/pylons have been installed along the northern boundary of the site by 2004. Assessment of the aerial imagery revealed paleo-channel activity across the site, particularly concentrated in the southern fields. Furthermore, there appears to be remains of former field boundaries and a northwest-southeast oriented ditch located in the northwestern corner of the site (Google Earth April 2020 and March 2022), some of which align with field boundaries and an aqueduct seen on the ordnance survey map of 1910. The excavated test trenches from the 2020 survey are also observable in the 2021 satellite imagery (Google Earth April 2021). No previously unidentified features of archaeological significance were identified during analysis of the aerial imagery.

2.6 TOPOGRAPHICAL FILES

Information on artefact finds from the study area in Dublin has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area. There are no files relating to the townlands surrounding the Study Area recorded by the National Museum of Ireland regarding artefact discoveries.

3 ARCHAEOLOGICAL TESTING

3.1 GENERAL

Test trenching took place from the 21st to 23rd June 2023 of June, using a 13 tonne 360 degree tracked excavator equipped with a flat, toothless bucket under strict archaeological supervision. Any investigated deposits were preserved by record. This was by means of written, drawn and photographic records.

A total of 24 trenches (measuring 2,205 linear meters) were excavated across the site targeting identified geophysical anomalies and open green space (Figure 5). The site was generally flat with a slight slope to the south of the tested area. The area around the abandoned farm building (northwest boundary) was heavily overgrown with significant debris dumped at this location from the nearby road construction (Plates 1 and 2).

The test trenches were excavated to determine, as far as reasonably possible, the location, extent, date, character, condition, significance and quality of any surviving archaeological remains threatened by the proposed development. Test trenching was also carried out to clarify the nature and extent of existing disturbance and intrusions and to assess the degree of archaeological survival in order to formulate further mitigation strategies. These are designed to reduce or offset the impact of the proposed development scheme.

3.2 TESTING RESULTS

Topsoil consists of a mid-brown clayey silt with an average depth of 0.30m. This was occasionally overlain by a deposit of modern debris, measuring up to 0.70m in depth. Evidence was also uncovered that, in these areas, the topsoil was cleared to plough soil level before this modern material was dumped and buried, especially when in close proximity to the adjacent roadways. The modern disturbance, and undisturbed topsoil, overlay a plough soil present throughout most of the site. This consists of a sandy silt that was very compact when overlain by the modern disturbance. It has an average depth of 0.40m (Plates 3-5). The south eastern field had deeper depressions which had held water in the past, and contained a mid-grey marl or clay overlying the natural subsoil. Subsoil generally consisted of a light brown silty clay with frequent small angular stones, varying to bedrock deposits within the silty clays. Where present the marl or grey clay was overlay compacted gravel strata.

Detailed test trench results and context descriptions are available in Appendices 2 and 3 although a summary of the archaeological features identified is included below.

Archaeological Features

Testing revealed two areas of archaeological significance, which have been designated as Archaeological Areas 1 and 2 (AA1 and AA2; Figure 6).

AA1: A possible figure-of-eight shaped kiln (C14.1) was identified in the northwestern annex of Trench 14. This had been highlighted in the geophysical survey as an

anomaly of possibly archaeological significance. On excavation of the trench evidence of in-situ burning was noted on the surface of the feature. Limited investigation by hand identified that the kiln measures c. 2.4m long and 0.74m wide, with a depth of 0.27m. At least two layers were identified within the feature. These comprise an upper fill (C14.2), which consist of a dark brown clay with frequent flecks of charcoal and burnt stone inclusions (c. 0.21m deep); and a basal fill, comprising a yellowish-brown silty clay with occasional flecks of charcoal (C14.3; c. 0.06m deep) (Plates 6 and 7).

AA2: A small circular spread of charcoal-rich material containing heat-shattered stones (C16.1) was identified in the southeastern annex of Trench 16. It measures c. 0.30m in diameter and 0.02m in depth (Plate 8).

3.3 CONCLUSIONS

An archaeological assessment was carried out at Adamstown, Lucan, Co. Dublin in response to a Request for Further Information with regard to a planning application for a proposed residential development. This comprised a geophysical survey and a subsequent programme of test trenching which targeted greenfield areas and geophysical anomalies of archaeological potential. There are no recorded monuments located within the proposed development area, although the site of Adamstown Castle (DU017-029) lies c. 50m to the west. Evidence for extensive previous ground disturbances was noted during field inspection, and by the geophysical and testing surveys. The presence of two high voltage pylons and upstanding building in the northern field limited the extent of the ground investigations.

The archaeological assessment has identified two previously unrecorded areas of archaeological potential (designated as AA1 and AA2). These comprise two relatively small-scale archaeological features; a possible figure-of-eight kiln (AA1) and a circular spread of charcoal-rich material and heat-shattered stones (AA2).

4 IMPACT ASSESSMENT AND MITIGATION STRATEGY

Impacts can be identified from detailed information about a project, the nature of the area affected and the range of archaeological resources potentially affected. Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping; disturbance by vehicles working in unsuitable conditions; and burial of sites, limiting access for future archaeological investigation.

4.1 IMPACT ASSESSMENT

- Geophysical survey and archaeological test trenching have identified two small features of archaeological potential (AA1 and AA2) within the proposed development footprint. Ground disturbances associated with the proposed development will have a direct negative impact on the archaeological remains identified in AA1 and AA2.
- Furthermore, there may be an adverse impact on previously unrecorded small-scale archaeological feature or deposits that have the potential to survive beneath the current ground level outside of the footprint of the excavated test trenches. This will be caused by ground disturbances associated with the proposed development.

4.2 MITIGATION

- Due to the location of the archaeological areas within the high density proposed development, and their small-scale nature, preservation in situ would not be feasible. Consequently, it is recommended that the features at AA1 and AA2 be preserved by record (e.g. archaeological excavation) in advance of construction. Excavation should be carried out by a suitably qualified archaeologist under licence from the National Monuments Service of the DoHLGH.
- It is recommended that all ground disturbances associated with the proposed development be monitored by a suitably qualified archaeologist. If any features of archaeological potential are discovered during the course of the works further archaeological mitigation may be required, such as preservation *in-situ* or by record. Any further mitigation will require approval from the National Monuments Service of the DoHLGH.

It is the developer's responsibility to ensure full provision is made available for the resolution of any archaeological remains, both on site and during the post excavation process, should that be deemed the appropriate manner in which to proceed.

Please note that all recommendations are subject to approval by the National Monuments Service of the Heritage and Planning Division, Department of Housing, Local Government and Heritage.

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CARTOGRAPHIC SOURCES

William Petty, Down Survey Map of the Barony of Newcastle in County of Dublin (c. 1655)

John Rocque, An Actual Survey of the County of Dublin, 1760 Ordnance Survey maps of County Dublin, 1843, 1910 & 1942

ELECTRONIC SOURCES

www.excavations.ie - Summary of archaeological excavation from 1970-2023.

www.archaeology.ie - DoHLGH website listing all SMR/RMP sites.

www.heritagemaps.ie – The Heritage Council web-based spatial data viewer which focuses on the built, cultural and natural heritage.

www.geohive.ie— Ordnance Survey Ireland National Townland and Historical Map Viewer (including Aerial imagery 1995, 2000, 2005 and 2013)

www.googleearth.com - Satellite imagery (2005–2023).

www.turtlebunbury.com - Bunbury, T. 2022. 'Finnstown House, Lucan, County Dublin'.

APPENDICES

APPENDIX 1 GEOPHYSICAL SURVEY REPORT

Geophysical Survey Report, Adamstown, Lucan, Co. Dublin; Part 1: Survey Information (Licence No. 23R0251).

Ger Dowling, PDH MIAI, June 2023

Summary

This report details the results of a geophysical survey (Licence No.: 23R0251) at lands at Adamstown townland, Lucan, Co. Dublin. The survey was conducted as part of a Request for Further Information issued by South Dublin County Council in respect of a planning application.

The investigation, comprising high resolution magnetic gradiometry, was implemented over two adjoining fields and encompassed about 5 ha. Nothing of obvious archaeological interest was identified by the survey. Evidence for probable modern dumping and former cultivation was detected.

Parish: Aderrig

Barony: Newcastle

Survey Details

Site Name: Adamstown
Townland: Adamstown

County: Dublin RMP/SMR No.: N/A

ITM (centroid): 703100, 732550

Land use: Tillage

Geology: Dark limestone and shale ('Calp') (Lucan Formation)

Soils: Fine loamy drift with limestones (Elton Series)

Detection License No.: 23R0251

Planning Reference No.: See Part 2 of this report

Survey Type & Instrument: Fluxgate Gradiometer - Five-channel magnetometer

Sample/Transverse Interval: 0.10m/0.5m

Area Surveyed: c.5 ha Survey Dates: 06 June 2023 License Holder: Ger Dowling Report Author: Ger Dowling Report Date: 07 June 2023

Abbreviations

DU Dublin

GPS Global Positioning System ITM Irish Transverse Mercator

nT nanoTesla (unit of magnetic measurement)

OS Ordnance Survey

QGIS Quantum Geographical Information Systems

SMR Sites and Monument Record
RMP Record of Monument and Places

Coordinate System

All GPS coordinates given in this report are in Irish Transverse Mercator (ITM)

1 Introduction

This report details the results of a geophysical survey (Licence No.: 23R0251) at lands at Adamstown townland, Lucan, Co. Dublin. The survey, comprising high resolution magnetic gradiometry, was focused on two adjoining fields that measured approximately 6 hectares in total size. However, ground conditions and other constraints meant that only about 5 ha was suitable for survey. The investigation was conducted as part of a Request for Further Information issued by South Dublin County Council in respect of a planning application.

The investigation aimed to help identify and map any subsurface archaeology that may be present.

2 Site Location

The survey is located in the townland of Adamstown, Co. Dublin (Figure 1). The site, which lies on the southern outskirts of Lucan, is in the Civil Parish of Aderrig and the Barony of Newcastle (logainm.ie).

3 Survey Background

The survey was conducted in response to a Request for Further Information issued by South Dublin County Council.

Details on the Request for Further Information as it relates specifically to archaeology are found in Part 2 of this report.

4 Archaeological Background

4.1 Recorded/Known Archaeology

There are no recorded archaeological monuments within the lands of the survey area (Figure 2). The nearest recorded site is a tower house (SMR DU017-02) about 110m to the northwest (Archaeology.ie). The tower house was demolished in the 1960s and no surface trace of it survives today (Ibid.) There are no other recorded sites in the immediate locality of the target land (Ibid).

The survey area is shown as farmland on early historic maps (Figures 3 & 4).

4.2 Previous Investigations

No recorded archaeological investigations have previously been conducted at the survey area or within the surrounding area (excavations.ie).

5 Survey Location and Aims

The investigation, comprising high resolution magnetic gradiometry, focused on two neighbouring fields and encompassed an area of approximately 6 ha (Figure 5). However, due to ground conditions, modern disturbances and dense vegetation only about 5 ha was suitable for survey (See Section 8.1 below).

The fields have most recently in tillage but have been left uncultivated for some time and are today densely covered by grasses and weeds (Plates 1 & 2). The fields are bounded by tree-lined hedgerows supplemented in places by post-and-wire fences. Flanking the area to the west is the R120 road, which connects Lucan with the village of Newcastle, while a minor road extends east/west along the northern site boundary. Immediately north of the latter road are two neighbouring fields (c.3 ha in combined size) that also form part of the proposed development site. These fields, however, are unsuitable for geophysical prospection, owing to building remains and overgrown, disturbed terrain, as well as the presence of a large electricity pylon (Plates 3 & 4; see Figure 5 for extent of unsurveyable lands).

The underlying bedrock of the locality comprises dark limestone and shale ('Calp') (Lucan Formation) (Geological Survey of Ireland). The soils are dominated by fine loamy drift with limestones (Elton Series) (Irish National Soils Map).

The geophysical investigation sought to:

- identify any geophysical anomalies of possible archaeological origin within the specified survey area
- accurately locate these anomalies and present the findings in map form
- describe the anomalies and discuss their likely provenance in a written report
- incorporate all of the above in a report to the Client

6 Survey Methodology and Instrumentation

The survey involved high-resolution magnetic gradiometry survey (Table 1). This technique measures changes in the magnetic properties of the soil and is widely used in modern investigations due to its ability to detect a broad range of sub-surface archaeological remains, including ditches and pits, and industrial features associated with metalworking and pottery production.

The magnetic survey was conducted using a five-channel fluxgate magnetometer system, combining two Foerster Ferex 4.034 dataloggers and Foerster MG-10-550 probes, with cm-precision GPS (Trimble TSC5 controller and R12 antenna) georeferenced to Irish Transverse Mercator and Ordnance Datum. Mounted on a cart and pulled by a quad bike, the system records magnetometer and GPS data simultaneously into a single data file. The data capture strategy involved logging readings every 0.10m intervals along transects spaced 0.5m apart, with a maximum traverse width of 2.5m. The sampling strategy produces a high-resolution dataset, giving clarity to any archaeological features detected.

The highly accurate positioning of the survey data provides strong confidence when integrating the geophysical results with other datasets such as aerial imagery in GIS, and also ensures repeatability should further investigation of anomalies (e.g., test excavation) be required.

TABLE 1: GEOPHYSICAL SURVEY DETAILS

TECHNIQUE	INSTRUMMENTATION	SENSOR SPACING	SAMPLE RATE	SURVEY AREA	NUMBER OF RECORDED DATA
Magnetic	Five-channel	0.5m	50 Hz	c.5 ha	1,098,640
Gradiometry	fluxgate				
	gradiometer array				

7 Data Management, Processing and Interpretation

Gradiometry data was logged to a laptop computer and archived daily to an external hard drive. The collated data was prepared in Data2line software using the following methodology:

- Real-time positioning of magnetometer data based on GPS measurements;
- Track correction (compensation) of collated magnetometer data;
- Interpolation in the X- and Y-direction to improve visual quality of the dataset;
 and
- Export of georeferenced greyscale images at optimum visual range

The processed data was imported into QGIS for final image production (Figures 6 & 7). Final geophysical datasets have been formatted as raster data models/GeoTiffs (projected to ITM, EPSG:2157) to enable subsequent geospatial analysis. Fieldwork, data processing and reporting adhered to the most up-to-date guidelines for conducting archaeo-geophysical surveys (Schmidt et al. 2016) All geophysical raster datasets will be digitally archived to best practice (Niven 2012).

8 General Considerations and Complicating Factors

8.1 Access and Ground Conditions

The survey area comprises two adjoining field separated by a tree-lined hedgerow. The fields are densely overgrown with grasses, weeds and other vegetation that were especially thick near field edges. The latter areas, which also contained occasional large rocks and modern dumped debris, were avoided by the survey. The terrain is generally flat, though deep vehicle ruts and other ground disturbances were encountered in places throughout. A low earthen bank (Plate 5) that extends east/west across the approximate centre of the eastern field was also avoided by the survey.

8.2 Modern Interference

Extensive 'ferrous-type' (dipolar) responses are evident in the results from the gradiometry survey. These are a common occurrence in magnetic data and in most cases represent modern metal debris and other magnetised material (e.g., fired brick) contained within the topsoil. Large areas of ferrous disturbance were registered by the survey across the northern portion of the eastern field and the western sector of the western field. These responses probably reflect buried iron and other burnt/fired debris that may relate to modern dumping.

Small areas of magnetic disturbance deriving from survey in proximity to field fences were recorded in places around the edge of the survey area.

8.3 Former Land Use

Ploughing associated with several different episodes of cultivation is evident in the survey results. The earliest pattern is apparent in the western field as a series of closely spaced, parallel, positive/negative linear anomalies, oriented roughly northeast—southwest. A second pattern of cultivation trends, defined by a series of parallel positive lineations that extend from north to south across the western field and roughly east—west and northeast—southwest across the eastern field, probably attests to modern tillage farming.

9 Survey Results

TABLE 2 SURVEY RESULTS

AREA		Adamstown			
ITM (CENTROID)		703100, 732550			
AREA SURVEYED		c.5 ha			
FIGURE NUMBERS	6 & 7				
FORM/NATURE OF ANOMALY	POSSIBLE SOURCE(S) OF ANOMALY Possible archaeology/agricultural/ natural/modern		INTERPRETIVE DISCUSSION		
Several 'pit-type' reponses			Likely reflects localised natural variations in soils and/or disturbance from recent land use and/or modern ferrous debris. An archaeological origin for some anomalies in this group cannot be ruled out.		
Multiple ferrous responses	Modern		Ferrous debris and other magnetised material (e.g., fired brick) in topsoils.		
Multiple, closely spaced, parallel, positive—negative linears	Agricultural		Former cultivation. Extends roughly NE–SW across the western field.		
Multiple, closely spaced, parallel, positive linears	Agricultural		Modern cultivation, orientated N–S (West field) and E–W/NE–SW (eastern field). Not marked on Figure 7		
Areas of magnetic disturbance	Modern		Disturbance from adjacent field fences.		

10 Conclusion

The geophysical investigation at Adamstown townland did not identify anything of obvious archaeological potential.

The results have been much affected by ferrous disturbance, likely relating to modern (dumped?) iron litter and other magnetised material (e.g., burnt/fired remains). The significance of the few 'pit-type' anomalies mapped by the survey is uncertain. While anomalies of this sort can be regarded as being of archaeological potential (e.g., pits/spreads), such an interpretation is tentative and they may have a modern (e.g., agricultural/ferrous) origin or reflect natural variations in the underlying soils. Former cultivation was also detected

10.1 Statement of Indemnity

The geophysical properties of sub-surface features must contrast sufficiently with the surrounding soils/background variation to enable them to be detected and mapped using geophysical methods. As such, the clarity and definition of buried features can vary considerably, with some having well-defined signatures while others are only barely visible, or not discernible, in geophysical imagery. A lack of geophysical anomalies cannot be taken to imply the absence of archaeological features.

The interpretations presented here are invariably provisional and further work (e.g., test trenching) is required to fully assess the nature and archaeological potential of the anomalies identified by the present investigation.

11 References

Niven, K. 2012. Raster Images: A Guide to Good Practice. Archaeology Data Service/Digital

Schmidt A., Linford P., Linford N., David, A., Gaffney C., Sarris A., and Fassbinder J. 2016. *EAC Guidelines for the Use of Geophysics in Archaeology: Questions to Ask and Points to Consider*. EAC Guidelines 2. [Online] Available from:

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9edf5000e2bef85b.filesusr.com/ugd/881a59_fdb1636e95f64813a65178895aea87cf pdf

Electronic Sources

Https://www.logainm.ie/en/17109: accessed on 16 May 2023.

Historic Environment Viewer (archaeology.ie): accessed on 16 May 2023.

https://excavations.ie/: accessed 16 May 2023.

Geological Survey of Ireland Spatial Resources, Public Data Viewer Series:

https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0 ab2fbde2aaac3c228 [accessed on 16 May 2023].

rish National Soils Map, 1:250,000k, V1b (2014): http://gis.teagasc.ie/soils/map.php [accessed on 16 May 2023].

12 Figures



Figure 1: Site location map, showing survey area highlighted in blue.



Figure 2: Location of recorded archaeological sites in the vicinity of the survey area

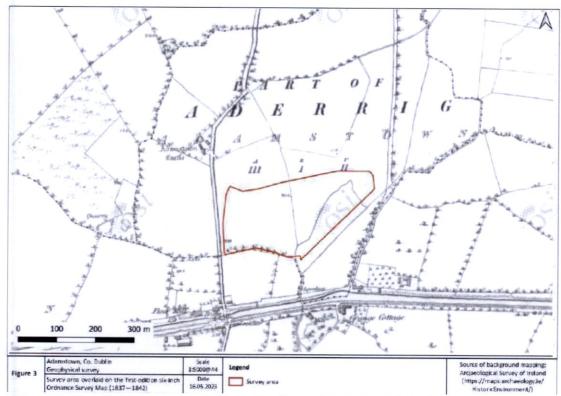


Figure 3: The survey area overlaid on the first-edition six-inch Ordnance Survey Map (1837-1842)

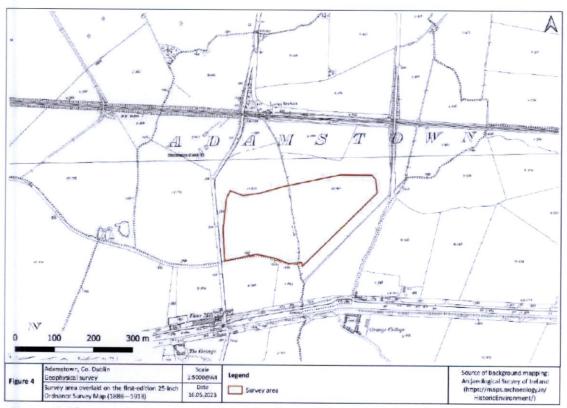


Figure 4: The survey area overlaid on the first-edition 25-inch Ordnance Survey Map (1888-1913)



Figure 5: Survey Area



Figure 6: Greyscale image of gradiometry results

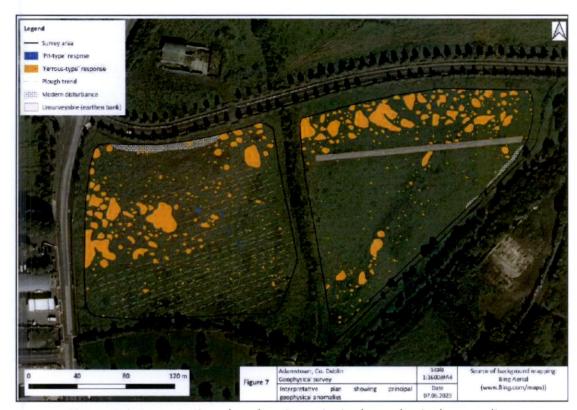


Figure 7: Interpretative plan showing principal geophysical anomalies

13 Plates



Plate 1- Survey area, western field, viewed from east



Plate 2- Survey area, eastern field, viewed from west



Plate 3- Building remains in western field to north of survey area, looking northwest



Plate 4- Overgrown, disturbed terrain to north of survey area, with electricity pylon in background, looking north



Plate 5- Looking east along the line of a low earthen bank in the eastern field of the survey area.

APPENDIX 2 TRENCH RESULTS

TRENCH	LENGTH (m)	WIDTH (m)	DEPTH (m)	ORIENTATION	DETAILS
1	65	2	0.8	North-south	No archaeology found. A modern pipe orientated east west was noted crossing the middle of the trench. Figure 5.
2	70	2	0.93	North-south	No archaeology found. A modern machine cut backfilled with scrap metal and waste trees was noted at the southern end of the trench. Figure 5, Plate 4
3	45	2	0.7	North-south	No archaeology found. Figure 5.
4	65	2	0.75	North-south	No archaeology found. A field drain was noted to the north orientated east—west, and a hose pipe on a similar orientation was noted to the south likely associated with the nearby and disused farm building. Figure 5.
5	70	2	0.7	East-west	No archaeology found. Figure 5.
6	90	2	0.7	North-south	No archaeology found. A modern drain crosses the trench orientated east—west. Figure 5.
7	80	2	0.55	North-south	No archaeology found. A modern drain crosses the trench orientated east—west and a second of similar design is orientated northeast—southwest Figure 5.
8	125	2	0.8	North-south	No archaeology found. Modern concrete and buried tarmacadam were noted in this trench Figure 5, Plate 3.
9	115	2	0.85	North-south	No archaeology found. Figure 5, Plate 5
10	115	2	0.77	North-south	No archaeology found. Figure 5
11	115	2	0.65	North-south	No archaeology found. Figure 5
12	115	2	0.65	North-south	No archaeology found. Figure 5
13	115	2	0.55	North-south	No archaeology found. Figure 5
14	80	2	0.67	Northwest– southeast	A figure of 8 shaped kiln, C14.1, with in situ burning was recorded in the northern annex of this trench. It measures 2.4m in length, 0.74m in width and 0.27m in depth. The upper fill of this Kiln, C14.2, consists of a dark brown clay with frequent flecks of charcoal and burnt stone present. It has a depth of 0.21m. The basal fill of the kiln, C14.3, consists of a yellow brown silty clay with occasional flecks of charcoal present. It has a depth of 0.06m. Figure 5 and 6, Plates 6 and 7.
15	45	2	0.47	North-south	No archaeology found. A north–south orientated drain was noted at the western end of this trench. Figure 5.

TRENCH	LENGTH (m)	WIDTH (m)	DEPTH (m)	ORIENTATION	DETAILS
16	125	2	0.53	North-south	A small circular spread of charcoal, C16.1, with some heat shattered stone present. It measures 0.3m in diameter and 0.02m in depth. Some drains orientated northeast—southwest were also noted in this trench. Figure 5 and 6, Plate 8.
17	105	2	0.53	North-south	No archaeology found. Figure 5.
18	100	2	0.5	North-south	No archaeology found. A field drain was noted within this trench within a natural depression that had silted up over time. This hollow reached a depth of 0.9m. Figure 5.
19	90	2	0.71	North-south	No archaeology found. The southern end of this trench was gradually getting deeper with a maximum recorded depth of 0.88m. A northwest—southeast field drain was noted within this trench. Figure 5.
20	75	2	0.74	North-south	No archaeology found. The centre of this trench was deeper with a maximum depth of 0.88m. A field drain with a plastic pipe and pea gravel surround was noted here. A shallow channel, width 0.9m and a depth of 0.1m, orientated north—south was also noted at the northern end of the trench. Figure 5.
21	60	2	0.6	North-south	No archaeology found. Field drains orientated east—west were noted at the northern end of this trench. They have an average width of 0.6m and depth of 0.1m. Figure 5.
22	60	2	0.82	Northeast– southwest	No archaeology found. An northwest–southeast field drain measuring 1.2m in width and 0.25m in depth was noted within this trench. Figure 5.
23	150	2	1	East-west	No archaeology found. This trench was particularly deep at the eastern end with a maximum depth of 1.2m. Field drains were noted here orientated northeast—southwest. Figure 5.
24	150	2	0.84	East–west	No archaeology found. This trench was also deeper at the eastern end with a maximum depth of 1.2m. Figure 5.

APPENDIX 3 CONTEXTS

CONTEXT NO.	FILL	LENGTH (m)	WIDTH (m)	DEPTH (M)	BASICDESCRIPTION
14.1	N/A	2.4	0.74		A figure of 8 shaped kiln with in situ burning visible. It measures 2.4m in length, 0.74m in width and 0.27m in depth (Plates 6 and 7)
14.2	C14.1	-			A dark brown clay with frequent flecks of charcoal and burnt stone present.
14.3	C14.1	-	-	1	A yellow brown silty clay with occasional flecks of charcoal present.
16.1	N/A	0.3	0.3		A small circular spread of charcoal, with some heat shattered stone present (Plate 8).

APPENDIX 4 RMP SITES WITHIN THE SURROUNDING AREA

SMR NO.:	DU017-029
RMP STATUS:	Yes
TOWNLAND:	Adamstown
PARISH:	Aderrig
BARONY:	Newcastle
I.T.M.:	702836, 732705
CLASSIFICATION:	Castle - tower house
DIST. TO SITE:	c.50m west
DESCRIPTION:	Located on flat ground between the canal and the railway. A three-storey tower house, which was oblong in plan with a projecting turret and stepped crenellations. Demolished in the 1960s. Not visible at ground level. (McDix 1897, 12; Ball 1906, 58-60; Healy 1974, 22).
REFERENCE:	www.archaeology.ie/ SMR File

APPENDIX 5 LEGISLATION PROTECTING THE ARCHAEOLOGICAL RESOURCE

PROTECTION OF CULTURAL HERITAGE

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht and the Islands 1999, 35). This is undertaken in accordance with the provisions of the *European Convention on the Protection of the Archaeological Heritage* (Valletta Convention), ratified by Ireland in 1997.

THE ARCHAEOLOGICAL RESOURCE

The National Monuments Act 1930 to 2014 and relevant provisions of the National Cultural Institutions Act 1997 are the primary means of ensuring the satisfactory protection of archaeological remains, which includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. A National Monument is described as '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' (National Monuments Act 1930 Section 2). A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

OWNERSHIP AND GUARDIANSHIP OF NATIONAL MONUMENTS

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

REGISTER OF HISTORIC MONUMENTS

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

PRESERVATION ORDERS AND TEMPORARY PRESERVATION ORDERS

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site

illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

RECORD OF MONUMENTS AND PLACES

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for Housing, Local Government and Heritage) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the proposed development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Housing, Local Government and Heritage) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Housing, Local Government and Heritage to carry out work and shall not, except in case of urgent necessity and with the consent of the Minister, commence the work until two months after giving of notice'.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition they are liable for costs for the repair of the damage caused.

In addition to this, under the *European Communities (Environmental Impact Assessment) Regulations 1989*, Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the proposed development will have on the existing environment, which includes the cultural, archaeological and built heritage resources. These document's recommendations are typically incorporated into the conditions under which the proposed development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

THE PLANNING AND DEVELOPMENT ACT 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning

and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

South Dublin County Council Development Plan 2022-2028

South County Dublin contains a large number of buildings, structures and sites of architectural, historic and/or artistic importance, in addition to numerous archaeological sites. This significant archaeological and architectural heritage is a valuable resource adding to the historical and cultural character of the County. The Development Plan contains policies which are intended to ensure the protection of this heritage. Village Design Statements can be utilised as a tool to guide development in smaller centres. It should be noted that archaeological sites and archaeological zones of interest are identified by a recorded monument reference number on the land use zoning maps. The recorded monument reference numbers are taken from the Record of Monuments and Places for Dublin, published by Department of the Environment, Heritage and Local Government.

Policy NCBH13: Archaeological Heritage

Manage development in a manner that protects and conserves the Archaeological Heritage of the County and avoids adverse impacts on sites, monuments, features or objects of significant historical or archaeological interest.

NCBH13 Objective 1:

To favour the preservation in-situ of all sites, monuments and features of significant historical or archaeological interest in accordance with the recommendations of the Framework and Principles for the Protection of Archaeological Heritage, DAHGI (1999), or any superseding national policy document.

NCB13 Objective 2:

To ensure that development is designed to avoid impacting on archaeological heritage including previously unknown sites, features and objects.

NCBH13 Objective 3:

To protect and enhance sites listed in the Record of Monuments and Places and ensure that development in the vicinity of a Recorded Monument or Area of Archaeological Potential does not detract from the setting of the site, monument, feature or object and is sited and designed appropriately.

NCBH13 Objective 4:

To protect and preserve the archaeological value of underwater archaeological sites including associated features and any discovered battlefield sites of significant archaeological potential within the County.

NCBH13 Objective 5:

To protect historical burial grounds within South Dublin County and encourage their maintenance in accordance with conservation principles.

APPENDIX 6 IMPACT ASSESSMENT & THE CULTURAL HERITAGE RESOURCE

POTENTIAL IMPACTS ON ARCHAEOLOGICAL AND HISTORICAL REMAINS

Impacts are defined as 'the degree of change in an environment resulting from a development' (Environmental Protection Agency 2003: 31). They are described as profound, significant or slight impacts on archaeological remains. They may be negative, positive or neutral, direct, indirect or cumulative, temporary or permanent.

Impacts can be identified from detailed information about a project, the nature of the area affected and the range of archaeological and historical resources potentially affected. Development can affect the archaeological and historical resource of a given landscape in a number of ways.

- Permanent and temporary land-take, associated structures, landscape mounding, and their construction may result in damage to or loss of archaeological remains and deposits, or physical loss to the setting of historic monuments and to the physical coherence of the landscape.
- Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping and the passage of heavy machinery; disturbance by vehicles working in unsuitable conditions; or burial of sites, limiting accessibility for future archaeological investigation.
- Hydrological changes in groundwater or surface water levels can result from construction activities such as de-watering and spoil disposal, or longer-term changes in drainage patterns. These may desiccate archaeological remains and associated deposits.
- Visual impacts on the historic landscape sometimes arise from construction traffic and facilities, built earthworks and structures, landscape mounding and planting, noise, fences and associated works. These features can impinge directly on historic monuments and historic landscape elements as well as their visual amenity value.
- Landscape measures such as tree planting can damage sub-surface archaeological features, due to topsoil stripping and through the root action of trees and shrubs as they grow.
- Ground consolidation by construction activities or the weight of permanent embankments can cause damage to buried archaeological remains, especially in colluviums or peat deposits.
- Disruption due to construction also offers in general the potential for adversely affecting archaeological remains. This can include machinery, site offices, and service trenches.

Although not widely appreciated, positive impacts can accrue from developments. These can include positive resource management policies, improved maintenance and access to archaeological monuments, and the increased level of knowledge of a site or historic landscape as a result of archaeological assessment and fieldwork.

PREDICTED IMPACTS

The severity of a given level of land-take or visual intrusion varies with the type of monument, site or landscape features and its existing environment. Severity of impact can be judged taking the following into account:

- The proportion of the feature affected and how far physical characteristics fundamental to the understanding of the feature would be lost;
- Consideration of the type, date, survival/condition, fragility/vulnerability, rarity, potential and amenity value of the feature affected;
- Assessment of the levels of noise, visual and hydrological impacts, either in general or site specific terms, as may be provided by other specialists.

APPENDIX 7 MITIGATION MEASURES & THE CULTURAL HERITAGE RESOURCE

POTENTIAL MITIGATION STRATEGIES FOR CULTURAL HERITAGE REMAINS

Mitigation is defined as features of the design or other measures of the proposed development that can be adopted to avoid, prevent, reduce or offset negative effects.

The best opportunities for avoiding damage to archaeological remains or intrusion on their setting and amenity arise when the site options for the development are being considered. Damage to the archaeological resource immediately adjacent to developments may be prevented by the selection of appropriate construction methods. Reducing adverse effects can be achieved by good design, for example by screening historic buildings or upstanding archaeological monuments or by burying archaeological sites undisturbed rather than destroying them. Offsetting adverse effects is probably best illustrated by the full investigation and recording of archaeological sites that cannot be preserved *in situ*.

DEFINITION OF MITIGATION STRATEGIES

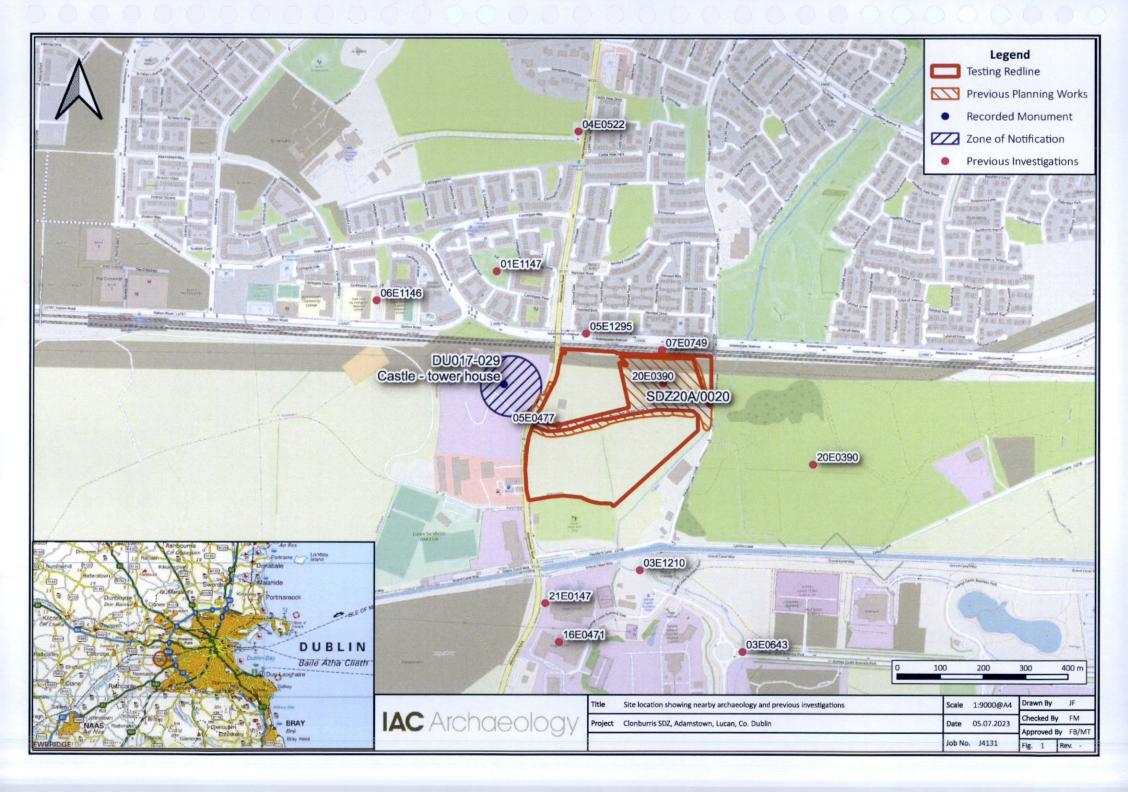
ARCHAEOLOGICAL RESOURCE

The ideal mitigation for all archaeological sites is preservation *in situ*. This is not always a practical solution, however. Therefore a series of recommendations are offered to provide ameliorative measures where avoidance and preservation *in situ* are not possible.

Full Archaeological Excavation involves the scientific removal and recording of all archaeological features, deposits and objects to the level of geological strata or the base level of any given development. Full archaeological excavation is recommended where initial investigation has uncovered evidence of archaeologically significant material or structures and where avoidance of the site is not possible. (CIFA 2014b)

Archaeological Test Trenching can be defined as 'a limited programme... of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land or underwater. If such archaeological remains are present test trenching defines their character and extent and relative quality.' (CIFA 2014a)

Archaeological Monitoring can be defined as a 'formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons within a specified area or site on land or underwater, where there is possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.' (CIfA 2014c)





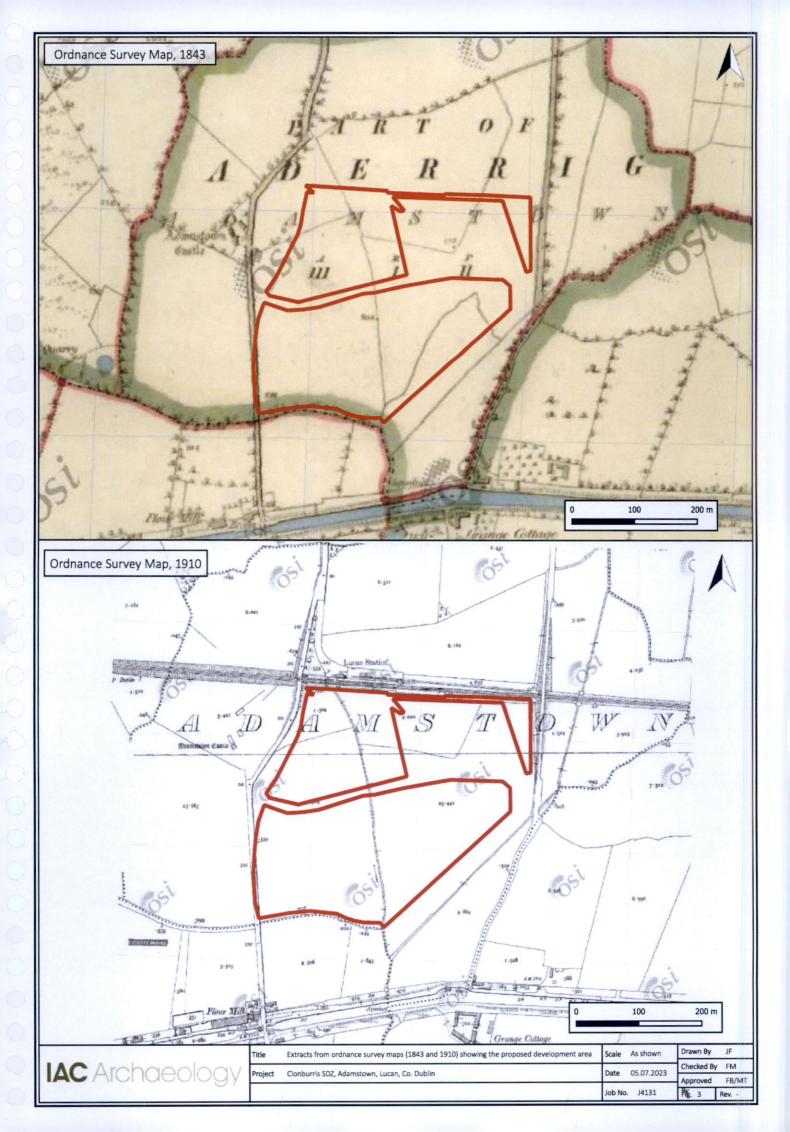






Plate 5- Stratigraphy typical across site, Trench 9, facing east



Plate 7- C14.1 (AA1), with investigatory slot inserted, facing northnorthwest



Plate 6- Possible kiln feature (C14.1; AA1), Trench 14, facing northnorthwest



Plate 8- Circular feature (C16.1; AA2), Trench 16, facing northnortheast



Plate 1 – Southeastern field on site, facing southeast



Plate 3 – Modern concrete and buried tarmacadam, Trench 8, facing northeast



Plate 2 – Derelict farm building on northwest of site, facing northwest



Plate 4- Machine cut trench backfilled with scrap metal and waste trees, Trench 2, facing north-northeast

