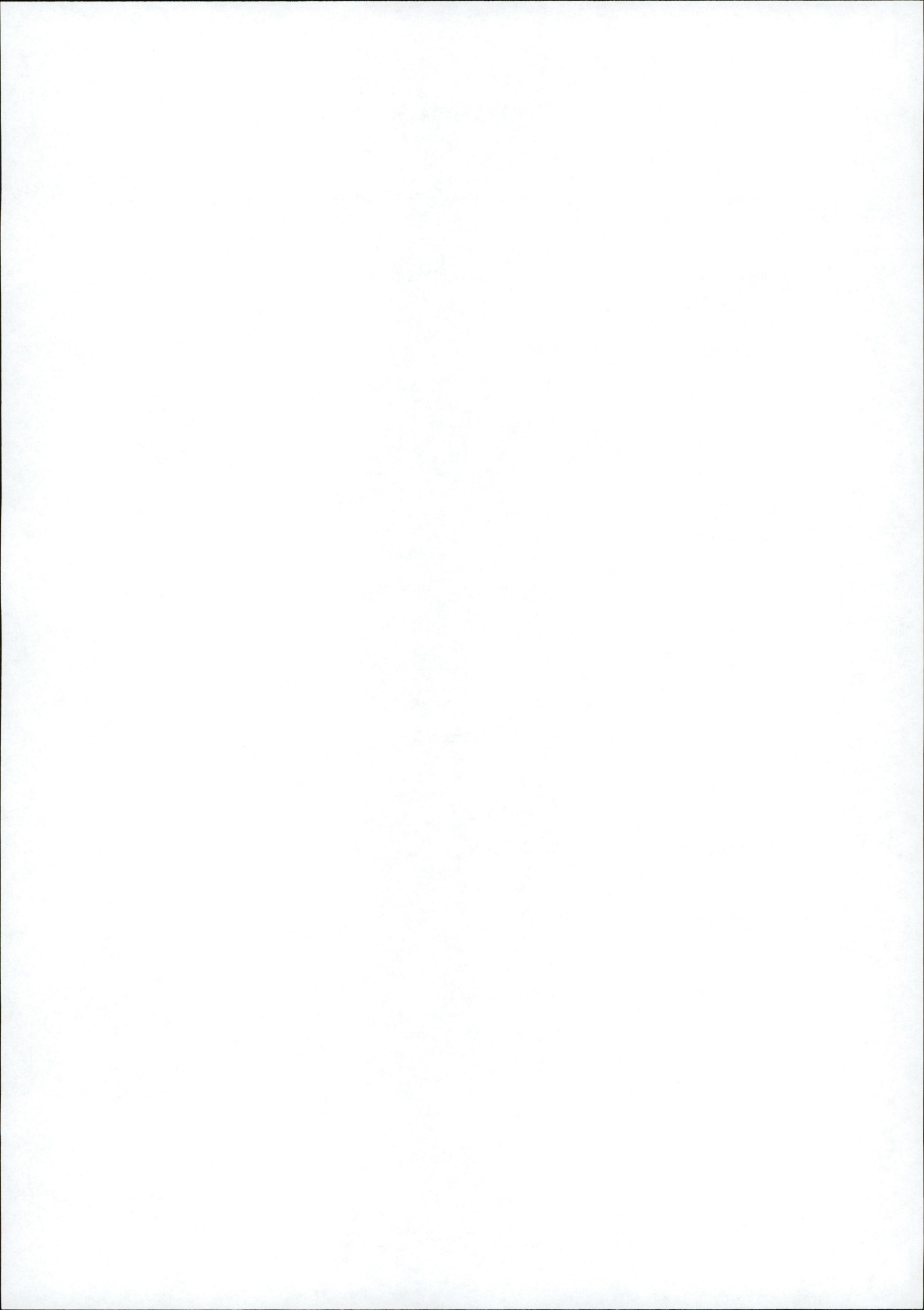


Technical Appendix 2.5: Archaeological Consultancy Services Unit, 2022, Report on Test Trenching at New Nangor Road, Ballybane, Dublin

PROJECT DETAILS

Project	Geophysical Survey at Profile Park, Grange Castle, Ballybane, Co. Dublin
Report Type	Geophysical Survey Report
Licence No.	22R0316
Townland(s)	Ballybane
RMP No.	N/A
RPS Id.	N/A
ITM Ref.	703833, 730822
Consultant	Archaeological Consultancy Services Unit, 21 Boyne Business Park, Greenhills, Drogheda, County Louth
Archaeologist	Donald Murphy
Report Authors	Donald Murphy
Report Status	Final
Report Date	30 September 2022
ACSU Ref.	2272



Revision	Date	Description	Status	Author	Reviewed	Approved
0	30.09.2022	Geophysical Survey Report	Final	D.M	M.L	D.M

NON-TECHNICAL SUMMARY

This report details the results of a Geophysical Survey carried out on a site at Profile Park, Grange Castle, Ballybane, Co. Dublin (ITM 703833, 730822). The survey was carried out at the request of the client, to assess the archaeological potential of the site and inform the planning process and test trenching programme.

The site was subject to an Archaeological Impact Assessment carried out by Donald Murphy and Jeanne Rochford of Archaeological Consultancy Services Unit Ltd (ACSU) in August 2022 (Murphy and Rochford 2022). This recommended a programme of pre-development geophysical survey and archaeological test trenching targeting the anomalies identified.

The site does not contain any Recorded Monuments listed within the Record of Monuments and Places (RMP) or Sites and Monuments Record (SMR). The nearest monument to the site is field system DU017-082---, which was identified during excavation in 2001, approximately 0.5km to the northeast. The site contains no Protected Structures, as listed within the *South Dublin County Development Plan 2022–2028*, nor structures listed within the National Inventory of Architectural Heritage (NIAH) for County Dublin. The nearest Protected Structure is Kilcarberry House (RPS ID 173; NIAH Reg. No 11209001), located c. 0.6km to the southeast of the site.

The site was not subject to archaeological investigations previously. It does, however, lie adjacent to an area that was subject to recent assessments, including geophysical surveys (Licence Nos 20R0006 and 20R0080), test trenching and excavation (Licence No. 21E0061). Under the latter, test trenching in March 2021 of the area directly adjacent and to the west and south, did not identify any features of archaeological significance. However, a sub-circular enclosure and part of an early historic field system was identified c. 210m to the southwest of the site.

The geophysical survey was conducted on two fields (Fields 1 and 2) between 29th and 30th of September 2022 by Donald Murphy, Rob Breen and Jeanne Rochford of ACSU under licence 22R0316 issued by the Department of Housing, Local Government and Heritage in consultation with the National Museum of Ireland. A full detailed gradiometer survey was undertaken throughout the application area using a Bartington GRAD 601-2 dual-sensor fluxgate gradiometer cart system.

The survey identified two trends, a couple of positive responses of potential archaeological significance and a number of disturbances, particularly along the site edges. The trends were represented by two northwest to southeast aligned linears (Anomalies 1a, 1b). A scatter of positive responses (?Archaeology) that might be geological, modern in nature or represent iron in the topsoil were noted, but could equally represent cut features such as pits/post-holes, while large areas (Anomalies 2a, 2b) might represent large pits or spreads. Linear northeast to southwest aligned trends (Anomalies 3a, 3b) correspond with access to a former yard and are visible on aerial imagery, while a north to south aligned linear (Anomaly 3c) corresponds with wire fencing and represents associated ground disturbances. Bands of magnetic disturbance along the site edges, particularly the north and east extremities, are modern and derive from ground disturbance associated with road construction.

No definite signs of archaeology were identified. However, test trenching is recommended at a pre-construction phase targeting anomalies of potential archaeological significance (trends and ?Archaeology). This shall be carried out by a licence-eligible archaeologist working under licence from the Department of Housing, Local Government and Heritage. Should archaeological material be identified, further mitigation, preservation by record (excavation) or *in situ* preservation, might be recommended following discussion with the National Monuments Service.

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1. INTRODUCTION

This report details the results of a Geophysical Survey carried out on a site at Profile Park, Grange Castle, Ballybane, Co. Dublin (ITM 703833, 730822, Figures 1–2). The site is located within Profile Park, on lands to the north of Baldonnell Casement Aerodrome, c. 12km to the west-southwest of Dublin City Centre. The site is situated within the southeast extremity of the townland of Ballybane, which is within the Parish of Clondalkin, in the Barony of Uppercross.

A full detailed gradiometer survey was undertaken throughout the application area using a Bartington GRAD 601-2 dual-sensor fluxgate gradiometer cart system. The geophysical survey was conducted in September 2022 by Donald Murphy, Rob Breen and Jeanne Rochford of Archaeological Consultancy Services Unit Ltd. (ACSU) under licence 22R0316 issued by the Department of Housing, Local Government and Heritage in consultation with the National Museum of Ireland.

2. ARCHAEOLOGICAL CONDITION

The geophysical survey is to be carried out at the request of the client to inform the planning process and test trenching programme.

3. METHODOLOGY

A full detailed gradiometer survey was undertaken throughout the application area using a Bartington GRAD 601-2 dual-sensor fluxgate gradiometer system, using a cart mounted on Bartington frame. A detailed survey was conducted with a sample interval of 0.25m and a traverse interval of 1m for all the survey areas within the site of the proposed development with variations in the magnetic field between (-100nT to +107.834nT).

4. SURVEY OBJECTIVES

The aim of the survey was to establish the presence of any archaeological features within this site and to further assess the extent and the nature of monuments if present within the area to be surveyed and to inform the archaeological test trenching programme to be carried out.

5. SOILS, GEOLOGY & TOPOGRAPHY

The site subjected to a geophysical survey is roughly rectangular in plan and lies within the northeast portion of Profile Park, on lands adjacent to and south of New Nangor Road (R134); west of the internal Profile Park Access Road and within the southeast portion of the townland of Ballybane. The site consists of two greenfields, bounded

by metal fencing and mature hedges from the west and a wet ditch from the south. A house and a former farmyard are located within the western portion of the site.

The site has an elevation of c. 75m OD. The underlying geology consists of dark limestone and shale and forms part of the Lucan Formation (undifferentiated). The formation comprises dark-grey to black, fine-grained, occasionally cherty, micritic limestones that weather paler, usually to pale grey. There are rare dark coarser grained calcarenitic limestones, sometimes graded, and interbedded dark-grey calcar. The dark limestone and shale are covered by mineral, poorly drained mainly basic soils (Geological Survey Ireland).

6. ARCHAEOLOGICAL ASSESSMENT

6.1 Archaeological and historical background

The site is located within Profile Park, on lands to the north of Baldonnell Casement Aerodrome, c. 12km to the west-southwest of Dublin City Centre. The site is situated within the southeast extremity of the townland of Ballybane, which is within the Parish of Clondalkin, in the Barony of Uppercross. An examination of the Placenames Database of Ireland (www.logainm.ie) can reveal important information about an area's natural and cultural heritage. Ballybane townland (*An Baile Bán*) was first mentioned in 1326 as Balibayne (in Calendar of Archbishop Alen's Register (McNeill 1950)) and can be translated as 'white town'. It was depicted as 'Ballybawn' on Rocque's 1760 *Actual Survey of County Dublin* (Figure 3).

The remains of sites dating to the medieval period are common in this area, however, some prehistoric activity has also been discovered through recent archaeological investigations in Ballybane and surrounding townlands. Commencing in 2014, for example, archaeological test trenching and excavation (Licence No. 13E0471) within Grange Castle Business Park revealed a number of prehistoric sites within the townland of Ballybane. These include three *fulachtaí fia* or burnt mound sites, a circular Bronze Age structure, a possible Neolithic structure and an isolated cremation pit. Between 2015 and 2016, two clusters of cremations pits were also excavated (Licence No. 14E0453) in an adjacent site within the townland of Nangor. In total, approximately nine cremation burial pits were excavated, yielding a Middle Bronze Age date.

Similar to the prehistoric site-types which have been discovered in recent years, a large number of medieval sites have also been uncovered in light of the archaeological investigations which took place in the surrounding townlands. In 2001, excavation (Licence No. 01E0754) exposed a series of medieval ditches/fields systems, pits and cobbled surfaces in the townland of Nangor. Finds retrieved from the fills of these features include approximately 1,600 sherds of Leinster Cooking Ware and Dublin-type wares, as well as assorted iron finds, including nails, an armour-piercing arrowhead, a buckle, a key and an intact iron sickle. In the same townland, a cereal-drying kiln and medieval field boundaries were also excavated between 2015 and 2016 (Licence No. 14E0453), while from 2014 onwards, a large complex of ditched enclosures dating to the early medieval period



were excavated in the townland of Ballybane (Licence No. 13E0471). In 2016, a geophysical survey followed by a programme of archaeological test trenching (Licence No. 16E0531) was conducted in areas within Grange Castle South Business Park, also within the townland of Ballybane. Two of the sites surveyed had previously been identified through aerial photography and both are Recorded Monuments: a concentric enclosure (DU021-108----) and an enclosure (DU021-109----) (see Figure 2). Two more enclosure sites were also discovered during these investigations and are scheduled for inclusion in the next revision of the Record of Monuments and Places. A number of internal features associated with the sites were also recorded. More recently, geophysical surveys, test trenching and excavation (Licence Nos 20R0006, 20R0080 and 21E0061) in areas directly adjacent and to the south and west of the current site have revealed archaeological remains, including a sub-circular enclosure and part of an early historic field system.

There is little historical or written information in relation to the early history of the site and the townland of Ballybane. Accordingly, an examination at the wider landscape surrounding the site is beneficial. The site is located c. 3km to the west-southwest of Clondalkin. Clondalkin is a historic town (DU017-041----) that contains 12 Recorded Monuments, such as a church, round tower, an unclassified water mill and an unclassified castle. One Recorded Monument within Clondalkin, a church (DU017-042----), was only discovered in 1962 ahead of a housing scheme by Dublin County Council. Excavation revealed that the site consisted of an irregular oval-shaped enclosure, within which were the remains of a small stone church (Rynne 1967). This ecclesiastical enclosure (DU017-042001-) was defined by a low earthen bank. Large quantities of human remains were also uncovered during the course of the investigations.

The townland of Kilbride is south of and adjacent to Ballybane. There are four Recorded Monuments within the townland; a church (DU021-005001-), an ecclesiastical enclosure (DU021-005003-), a graveyard (DU021-005002-) and a castle (DU021-004----) (see Figure 2). Kilbride church is a single cell church, which is a style that has existed in Ireland from Early Christian times and is found throughout the island. Their origins are the tiny oratories of the earliest monasteries, which were probably built of wood (Ní Mharcaigh 1997, 249). The remains of a tower are present at the western end of the church and next to this is an arched porch where a doorway would have opened into a curved recess where a spiral staircase would have been, but there are no remains of this now. This was likely the entrance to the residence of the priest (Ball 1906, 70).

This area was under the control of Leinster rulers until the 12th century when the Anglo-Normans arrived. The castle at Kilbride was built before the 16th century. There are records of a lease to John Gibbons in 1537 and then in 1570 to Thomas Bathe. In the 16th century, the Bathe family held the lands of Kilbride and Nangor. The Batches were still in possession of the Kilbride lands into the 17th century but by the time of the Restoration they had been succeeded by the family of Carberry (Ball 1906, 68). Today, this castle, within the townland of Kilbride, has no visible trace above ground.

6.2 Previous Archaeological Investigations

The site has not been subject to archaeological investigations previously, however, it is adjacent to an area subject to recent assessments, including geophysical surveys (Licence Nos 20R0006 and 20R0080), test trenching and excavation (Licence No. 21E0061). This work revealed archaeological remains, including a sub-circular enclosure and part of an early historic field system, located c. 210m to the southwest of the current site (see below for details).

The details of these investigations, derived from the Summary Accounts of Archaeological Excavations in Ireland (www.excavations.ie), are outlined below in Table 1.

Table 1: Previous archaeological investigations in the environs of the site

Excavation.ie reference	Licence No.	Site Type	Investigation type
2021:110 – Profile Park, Kilbride, Dublin	21E0061; 21E0061 ext.	Prehistoric enclosure	Test trenching and excavation
2021:111 – Profile Park, Ballybane and Kilbride, Dublin	21E0061	Non-archaeological	Test trenching
2019:755 – Milltown 1, Grange Castle West, Dublin	19E0680	Concentric enclosure, furnaces, kilns, pits, post-holes and spreads	Excavation
2019:076 and :209 – Nangor Road, Clondalkin, Dublin	19E0170	Cobbled surfaces and stone-built wall foundations associated with 18th-century house built on site of Nangor Castle	Test excavation and monitoring
2020:440 – Castlebaggot sub-station, Dublin	17E0394	Pits, post-holes, stake-holes, curvilinear ditch, and a spread of burnt stone and clay	Excavation
2016:084 – DSF, Grange Castle Business Park, Dublin 22	14E0453	Bronze Age cremation pits and medieval cereal-drying kiln	Excavation
2020:441 – Microsoft Campus, Grange Business Park, Ballybane, Dublin 2016:083 Dub06 Data Centre Grange Castle Business Park, Ballybane, Dublin 22	13E0471	Neolithic and Bronze Age features: stake-holes, post-holes, pits, curvilinear ditch, burnt mound, and a cremation	Excavation
2007:530 – Nangor, Dublin	07E0588	Early medieval enclosure (see 96E0273 below) and possible remnants of Nangor Castle and/or 18th-century house, including landscaped garden features	Monitoring and test trenching
2001:455 – Grange Castle International Business Park	01E0754	Medieval ditch complex, pits and cobbled surfaces	Excavation

In recent years, various archaeological assessments have been carried out within the Profile Park Business Park. This work, which was completed in Spring 2022, took the form of geophysical surveys, archaeological test trenching and archaeological excavation. Two large areas within the Park were subject to geophysical survey by ACSU (20R0080) and by TARGET and ACSU (20R0006). These identified the location of a number of previously unrecorded archaeological remains, including a sub-circular enclosure, part of an early historic field system and a pre-existing historic field boundary (Russell and Breen 2020). Part of the overall site was subsequently subject to test trenching and excavation (21E0061 and 21E0061 ext.) between 2020 and 2022. Test trenching in March 2021 of the land directly adjacent and to the west and south did not identify any features of archaeological significance (Murphy 2021a). The enclosure was also subject to targeted test trenching and excavation (Murphy 2021b). The latter confirmed the remains of an oval/circular enclosure, measuring 37m in length by 34m in width. Based on preliminary analysis of the pottery, the enclosure can be dated to the Bronze Age; post-excavation analyses are ongoing with a final report expected later this year.

There have also been several archaeological excavations carried out ahead of developments throughout the Grange Castle Business Park. Between 2000 and 2001, for example, excavations (01E0754) in the townland of Nangor revealed a medieval ditch complex, contemporary pits and cobbled surfaces. The excavation recovered 1,600 sherds of medieval pottery comprised of Leinster Cooking Ware and Dublin-type wares. Test trenching in 2014, followed by excavations (13E0471) that carried on intermittently until 2016 also revealed several sites of prehistoric and early medieval date. One area consisted of two prehistoric fulachtaí fia or burnt mounds, preserved in a waterlogged field and including unlined troughs, pits, stake-holes and a well. Another area comprised a series of associated ditched enclosures, one of which was 48m in diameter, included iron knives, quern stones and animal bones, and was radiocarbon dated to the mid-seventh to mid-eight century AD. This site was enclosed by an outer ditch, measuring 86m in diameter, which also contained cattle skulls and had a large D-shaped enclosure abutting the southern side. A smaller enclosure, possibly representing a roundhouse, was also uncovered, as well as two inhumation burials within a shallow grave. Between 2015 and 2016, additional excavations (14E0453) uncovered a cereal-drying kiln, medieval field boundaries and two clusters of cremation pits. There was a total of nine cremation pits containing cremated bone in two separate clusters and these were dated to the Middle Bronze Age. Renewed development at this site in 2016 resulted in the excavation (13E0471) of additional sites of a prehistoric nature. This included stake-holes, post-holes, pits, a curvilinear ditch, a truncated burnt mound, and an isolated cremation. One of the sites was a structure of likely Neolithic date in the form of post-holes and pits. The post-holes produced 38 sherds of pottery from 14 vessels of Early Neolithic type (Dunmurry-Ballymerlagh Type). They also produced numerous charred hazelnut shells and worked implements of flint, quartz, chert, sandstone, shale, and siltstone, a high proportion of which were blades. Ditch segments forming a U-shaped arrangement may also have represented the remains of a house, with three abraded sherds of pottery suggesting a Middle Bronze Age date.

To the far northwest of the current site, excavation (19E0680) in 2019 in advance of the construction of an access road associated with the Grange Castle West Business Park, also revealed two concentric enclosures. This

comprised an outer ditch that was sub-circular in plan and enclosed an area measuring 32m in length by 28.6m in width. The inner ditch enclosed an area measuring c. 11m in diameter. The area between the two ditches had several features present, including a number of furnaces, kilns, pits, post-holes and deposits that all appeared to relate to metalworking. Preliminary interpretation is that this site dated to the early medieval period, and post-excavation analysis is ongoing.

6.3 Recorded Monuments

The site does not contain any Recorded Monuments listed within the Record of Monuments and Places (RMP) or Sites and Monuments Record (SMR). The nearest monument to the site is a field system (DU017-082----) identified during excavation in 2001.

The following is a list of the Recorded Monuments located within the site (Figure 2, Table 2). These descriptions are derived from the National Monuments Service Archaeological Survey Database (<http://maps.archaeology.ie/historicenvironment/>).

Table 2: Recorded Monuments in the environs of the site

RMP/SMR No.	Class/Site Type	Description
DU017-082----	Field system	Excavations in 2001 revealed a medieval ditch complex. This appeared to represent the remains of medieval field boundaries with associated water management gullies. Some 1,600 sherds of local medieval pottery were recovered and two sherds of imported ware.
DU021-108----	Concentric enclosure	Not indicated on any OS map, a large concentric enclosure is visible as a crop-mark on an aerial photo. A second enclosure (DU021-109----) is visible to the SW.
DU021-109----	Enclosure	Not indicated on any OS map, this enclosure is as a crop-mark on an aerial photo. A second larger enclosure (DU021-108----) is visible to the NE.
DU021-004	Castle – unclassified	Situated in a narrow valley. There are farm buildings on the site. There is no visible trace above ground (Ball 1906, 66).
DU021-005001-	Church	Located in a circular raised graveyard (L 42m, Wth 30m) on the edge of a valley (DU021-005002-). This may be the remains of an early ecclesiastical enclosure (DU021-005003-). In 1228 the archbishop of Dublin granted the church of Kilbride to Andrew de Monevea as a prebend and later conferred it on the Canons of St Patrick's Cathedral (McNeill 1950, 75). In 1630 it was described as ruinous (Ronan 1941, 80). This church was attached to St. Patrick's Cathedral and was described at the dissolution in 1547 as an old chapel (Ball 1906, 68–70). Consists of a small rectangular building (int. dims L5.8m, Wth 3.63m, T 0.85m) with a NW turret in ruinous condition. Formerly entered through an opening in the W end (now damaged). Built of randomly coursed masonry. There is an aumbry in the E end of the N wall of the church. The E window has a S jamb of tufa. There are remnants of another window in the W end of the S wall. The NW turret (L 1.35m, Wth 0.77m, H

RMP/SMR No.	Class/Site Type	Description
		1.78m) is entered through a lintelled doorway off the church. It has a corbelled roof. There are traces of a stairwell on the S side of the turret (Ni Mharcaigh 1997, 268–9).
DU021-005002-	Graveyard	Located in a circular raised graveyard (L 42m, Wth 30m) on the edge of a valley. Encloses the remains of a medieval church (DU021-005001-).
DU021-005003-	Ecclesiastical enclosure	The church of Kilbride is located in a circular raised graveyard (L 42m, Wth 30m) on the edge of a valley. This may be the remains of an early ecclesiastical enclosure.
DU017-037----	Castle – unclassified	<p>Located in flat terrain. Named 'Nangor castle' on the 1837 edition OS 6-inch map and 'Nangor castle on site of castle' in the later edition. This indicates that the castle had been incorporated into an 19th-century mansion. All buildings on the site have been recently demolished leaving no surface trace of the earlier building. In 1532 Ffinian Bassenett was residing at Nangor (Ball 1906, 112; Healy 1974, 22; D'Alton 1976 (2nd ed.), 345). There are earthworks in the field to the south of the castle. Pre-development testing in the vicinity of the castle in 1996 produced evidence for a substantial ditch and an associated shallower linear feature of uncertain date.</p> <p>Trial-trenching in the field bounding the castle site to its south uncovered several lignite cores and slivers, early medieval pottery and metal slag suggesting a date in at least the early medieval period - twelfth/thirteenth century. Several trenches cut through a large ditch located on both the east and west of the field. Human skeletal remains were also uncovered, as were numerous charcoal-flecked irregular features (McConway 1997, 17).</p>

6.4 Protected Structures and National Inventory of Architectural Heritage (NIAH)

The site contains no Protected Structures, as listed within the *South Dublin County Development Plan 202216–2028*, nor any structures listed in the National Inventory of Architectural Heritage for County Dublin. The nearest Protected Structure is Kilcarberry House (RPS ID 173; NIAH Reg. No 11209001), located c. 0.6km to the southeast of the site (Figure 2).

6.5 Finds listed within the Topographical Files of the National Museum of Ireland

No archaeological finds are listed within the Topographical Files of the National Museum of Ireland for the townland of Ballybane. However, four are listed in relation to the adjacent townland of Kilbride, and these include pottery (NMI ID 1873:29.1), human remains (NMI ID 1873:29.2 and NMI ID 4530:Wk176.2), and an urn (NMI ID 2676:Wk176.1). They are all noted as found at the 'Valley of the River Liffey near Kilbride'. Kilbride is located directly southeast of Ballybane.

6.6 Cartographical evidence

A review of available historic mapping for the area was carried out to include the Rocque map of 1760 and various editions of those compiled by the Ordnance Survey of Ireland, including the 6-inch (1836 and 1935–38) and 25-inch (1908) maps. Potential archaeological or cultural heritage features are marked on such maps and provide a useful resource in identifying sites, particularly if they no longer have any above-ground remains.

The 1760 map (Figure 3) shows the site within a pasture field, within the townland of 'Ballybawn', to the south side of the 'New Canal', between the settlements of 'Mill Town' and 'Nanger'. The area is depicted as predominantly pastureland. A road, originating southwest of the study area, leads from 'Mill Town' through 'Ballybawn' and passes 'Church in Ruins', which represents DU021-005001-. To the south of the church, the area is labelled as 'Killbride'.

On the Ordnance Survey maps of 1836, 1908 and 1935–38, the site is shown adjacent to and south of Nangor Road (Figures 4–6). The south boundary of the site is formed by a stream that is also a townland boundary between Ballybane and Kilbride. No buildings are shown within the site on examined mapping. The site is shown as part of a large field that remains unchanged from the mid-19th century onwards. Griffith's Valuation of 1847–64 records this as Church land, belonging to the Dean and Chapter of St. Patrick's (a Thomas Kiernan Esq.) and leased by Alexander Graydon Esq. of Newcastle, for grazing horses and cows.

No monuments of archaeological significance were identified during the examination of cartographical sources.

6.7 Aerial photography

A review of the available aerial photography for the area was also undertaken as part of this assessment. Aerial photographs dating between 1995 and 2013 from the Ordnance Survey of Ireland and Google Earth imagery dating between 2009 and 2022 were assessed. Unrecorded archaeological sites can often be identified in aerial photographs as cropmarks or differential growth in a field. No such cropmarks were noted on the proposed development site or in any of the surrounding fields.

The site appears to be largely unchanged since the 1995 aerial photograph. In this, modern outbuildings with a yard are shown along the west boundary of the site and a dwelling is visible in the northwest corner of the site, surrounded by mature hedgerows. By 2003, a roundabout was added on New Nangor Road, with access to the south, and by 2009 the internal access road to the Profile Park was constructed. The site lies adjacent to and west of this inner road. The Google Earth aerial imagery from March 2022 shows excavated test trenches directly west of the site, as well as the enclosure to the south-west being excavated under Licence No. 21E0061.

7. METHOD OF DATA INTERPRETATION

The gradiometer survey was conducted with a Bartington GRAD 601-2 dual-sensor fluxgate gradiometer cart system. A detailed survey was conducted with a sample interval of 0.25m and a traverse interval of 0.5m for all the survey area (Figure 7). This allows the detection of potential archaeological responses.

The Bartington GRAD 601-2 instrument is a specifically designed gradiometer for use in archaeological prospection. Extremely sensitive, these instruments can detect variations in soil magnetism to 0.01nT, affording diverse applications throughout a variety of archaeological, soil morphological and geological conditions. The survey was geo-referenced with a Trimble R10 unit accurate to within 1cm.

A constant high quality of data was assured by experienced field staff operating in accordance with English Heritage guidelines *Geophysical Survey In Archaeological Field Evaluation* (2008) and *EAC Guidelines for the use of Geophysics in Archaeology* (Schmidt et al. 2016).

8. SURVEY RESULTS

The geophysical survey was conducted by Donald Murphy, Rob Breen and Jeanne Rochford of ACSU in September 2022 under licence 22R0316 (Figures 7–8). A full detailed gradiometer survey was undertaken throughout the application area using a Bartington GRAD 601-2 dual-sensor fluxgate gradiometer system mounted on a Bartington cart. A detailed survey was conducted with a sample interval of 0.25m and a traverse interval of 1m for all the survey areas within the site with variations in the magnetic field between (-100nT to +107.834nT).

The portion of the site suitable for geophysical survey consisted of two pasture fields; the southwest portion of the site was not suitable to survey.

The survey identified two trends, a couple of positive responses of potential archaeological significance and a number of disturbances, particularly along the edges of the site. The trends were represented by two northwest to southeast aligned linears (Anomalies 1a, 1b). A scatter of positive responses (?Archaeology) that might be geological, modern in nature or represent iron in the topsoil were noted, but could equally represent cut features such as pits/post-holes, while large areas (Anomalies 2a, 2b) might represent large pits or spreads. Linear northeast to southwest aligned trends (Anomalies 3a, 3b) correspond with access to the former yard and are visible on aerial imagery, while a north to south aligned linear (Anomaly 3c) corresponds with wire fencing and represents associated ground disturbances. Bands of magnetic disturbance along the site edges, particularly the north and east extremities, are modern and derive from ground disturbance associated with road construction.

No definite signs of archaeology were identified.

9. CONCLUSIONS & RECOMMENDATIONS

The geophysical survey of a site at Profile Park, Grange Castle, Dublin 22, was carried out to assess the archaeological potential of the site.

No definite signs of archaeology were identified. However, test trenching is recommended at a pre-construction phase targeting anomalies of potential archaeological significance (trends and ?Archaeology). This shall be carried out by a licence-eligible archaeologist working under licence from the Department of Housing, Local Government and Heritage. Should archaeological material be identified, further mitigation, preservation by record (excavation) or *in situ* preservation, might be recommended following discussion with the National Monuments Service.

10. REFERENCES

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South Dublin County Development Plan 2022-2028

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South Dublin Historical Mapping – Fourth Edition Six Inch Maps (1938).

Appendix 1 - Summary Technical Information & Glossary of Terms

Fluxgate Gradiometer Survey is a non-intrusive method of archaeological prospection that is most often used in Irish Archaeology. This method allows for rapidly mapping archaeological objects, structures, deposits and other features, including geological anomalies, that survive beneath the ground. It allows the most rapid ground coverage and records a variety of anomalies caused by human activity and changes in the natural subsoil. The results are presented as a greyscale map of anomalies detected that are interpreted by an experienced archaeologist.

Surveys are undertaken using GPS based lightweight Bartington Grad 601-2 mounted on Bartington Cart system. Ground cover has to be 0.30m or less. The instrument used is operated by an experienced, skilled geophysical survey technician. The data is collected by hand wheeling the cart over the survey area in evenly spaced parallel transects. The equipment was specifically designed for archaeological prospection. It includes sensors that are highly stable, minimizing requirements for excess data processing. The instrument has a vertical 1 m sensor separation permitting finite resolution of buried archaeological features. Surveys can be undertaken in scan or detailed (zig-zag traverse) modes for reconnaissance or high-density mapping. The fluxgate enables reliable flexibility during fieldwork. Frequent realignment of the instruments and zero drift correction ensure a constant high quality of data. These extremely sensitive instruments can detect variations in soil magnetism to 0.1nT, affording diverse application throughout a variety of archaeological, soil morphological and geological conditions.

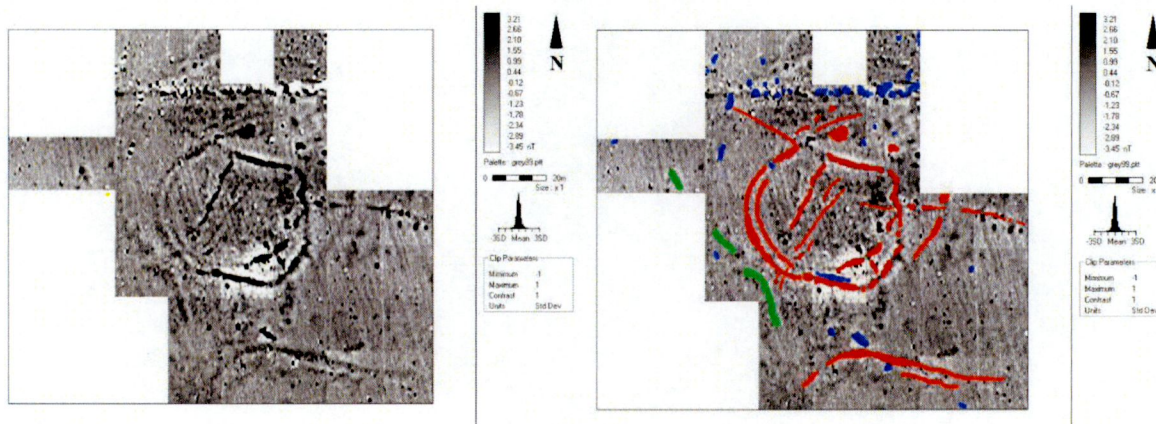
The instrument can be employed in both commercial and research-based investigations allowing for the completion of projects within short timescales. Regular grid sample densities from standard 1600 readings to 12800 readings per 20m by 20m grid are permitted. A constant high quality of data is assured by experienced field staff operating in accordance with English Heritage guidelines *Geophysical Survey In Archaeological Field Evaluation* (2008) and *EAC Guidelines for the use of Geophysics in Archaeology* (Schmidt et al. 2016).



Bartington Grad 601-2 mounted on Bartington Cart system

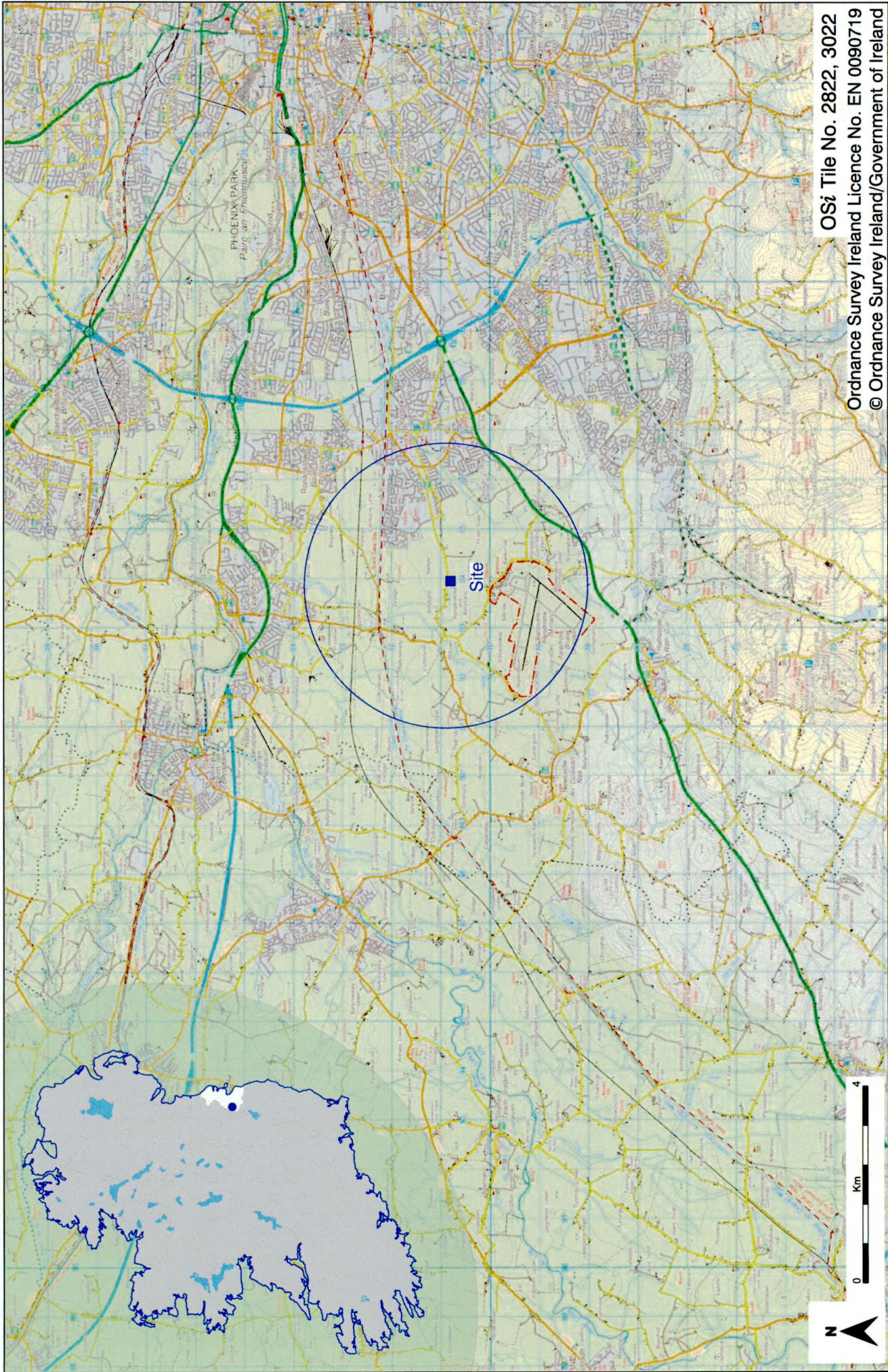
Data Display Format

Greyscale: The greyscale format assigns a cell to each datum according to its location on the grid. The display of each data point is conducted at very fine increments, allowing the full range of values to be displayed within the given data set. This display method also enables the identification of discrete responses that may be at the limits of instrument detection.



Early medieval enclosure greyscale

Dot Density Plot : Each datum is assigned a cell in which the intensity or number of dots displayed is proportional to the magnitude of the individual response. The visibility or presentation of responses within a given survey area is governed by numeric parameters specific to both soil morphological and archaeological conditions observed on site. Typically, the range of weak to strong responses is manifested by a low to high level of dot density. The format is useful for displaying gradiometer and resistance data particularly for identifying low-level responses.

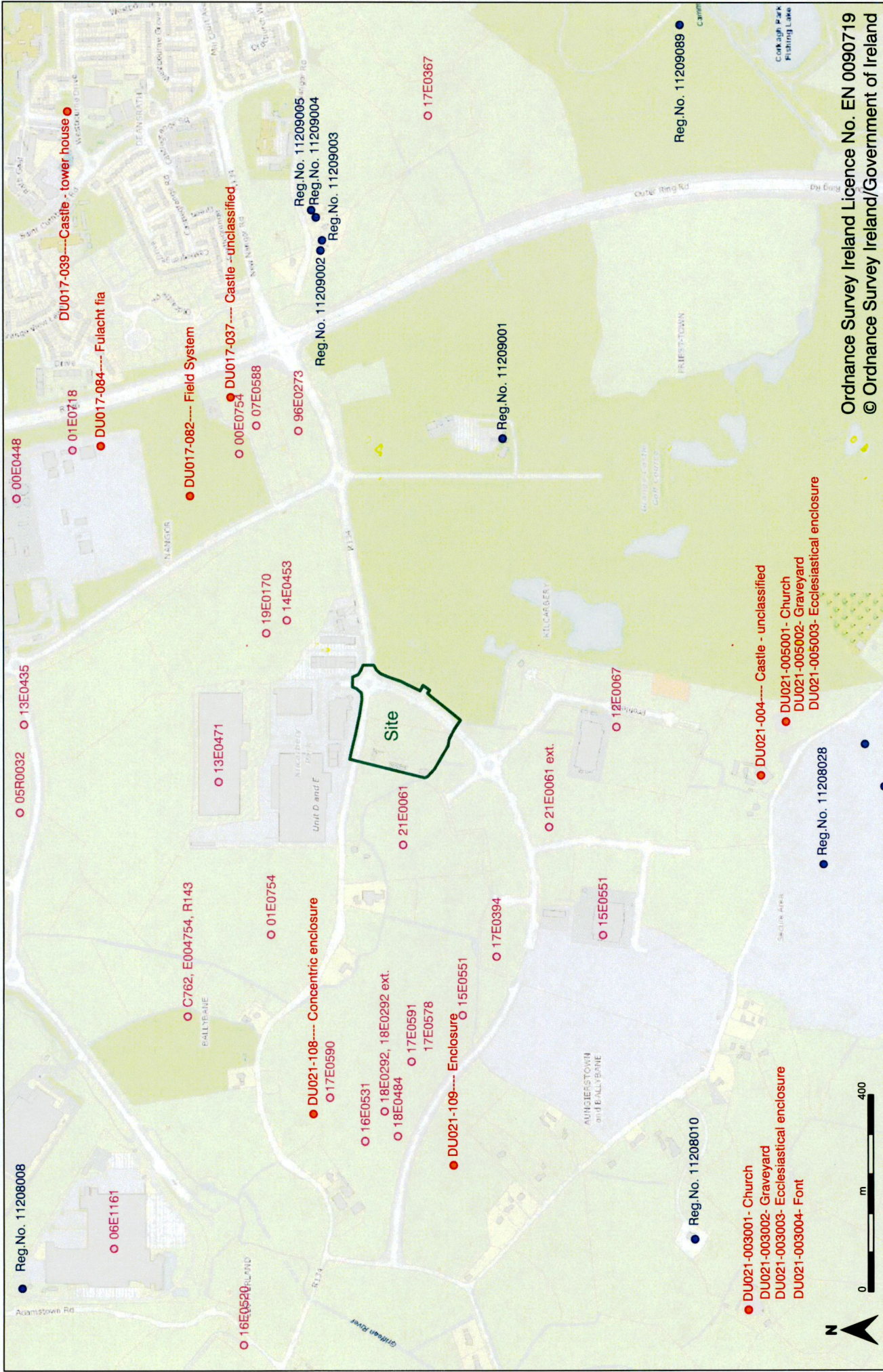


OSi Tile No. 2822, 3022
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Drawing No. 2272_C1011
 Scale 1:100,000 @ A4

Date October 2022
 Project Northeast Profile Park, Grange Castle, Dublin 22
 Figure 1 Location of site



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Drawing No. 2272_C1012
 Scale 1:10,000 @ A4

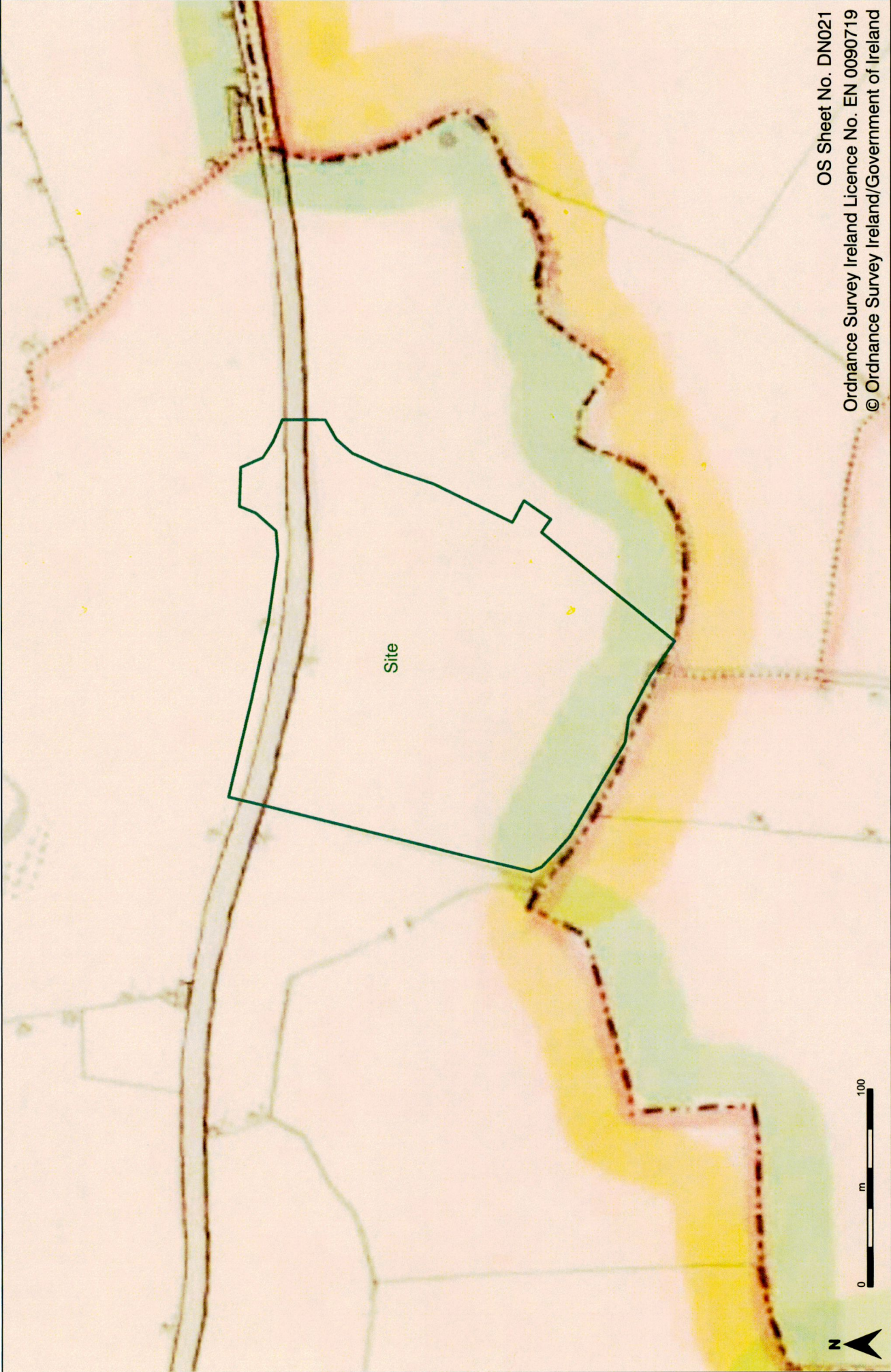
Date October 2022

Project Notheast Profile Park, Grange Castle, Dublin 22
 Figure 2 Location of site, previous archaeological investigations and nearby Sites and Monuments Record sites



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	Drawing No. 2272_C1013 Scale Not to scale	Date October 2022	Project Northeast Profile Park, Grange Castle, Dublin 22 Figure 3 Extract from An actual survey of the county of Dublin by John Rocque - southeast sheet (1760), showing approximate location of site
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Site

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Drawing No. 2272_C1014
 Scale 1:2,500 @ A4

Date October 2022

Project Notheast Profile Park, Grange Castle, Dublin 22
 Figure 4 Extract from 1st edition Ordnance Survey (OS) 6-inch map (surveyed 1836 - published 1843), showing location of site



OS Sheet No. DN021-02
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Project	Nottheast Profile Park, Grange Castle, Dublin 22
Date	October 2022
Drawing No.	2272_C1015
Scale	1:2,500 @ A4
Figure 5 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1908 - published 1910), showing location of site	



OS Sheet No. DN021
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Project Northeast Profile Park, Grange Castle, Dublin 22

Date October 2022

Drawing No. 2272_C1016

Figure 6 Extract from Cassini edition Ordnance Survey (OS) 6-inch map (1935-38), showing location of site



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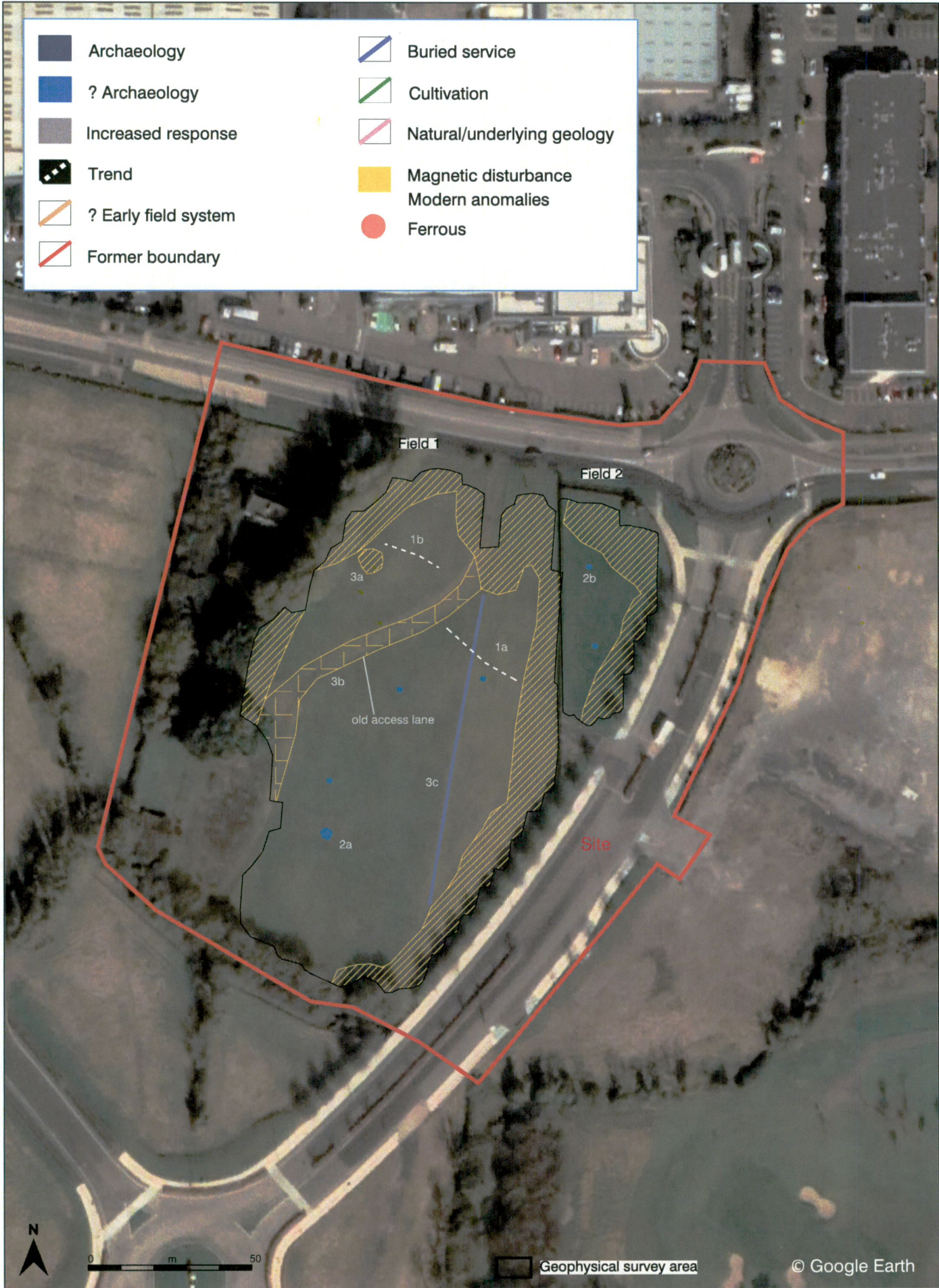
Date October 2022

Figure 7 Aerial view of site, showing geophysical survey results (greyscale image)



Scale 1:1,500 @ A4

Drawing No. 2272_C1017



Project Northeast Profile Park, Grange Castle, Dublin 22

Date October 2022

Figure 8 Aerial view of site, showing geophysical survey interpretation



Scale 1:1,500 @ A4

Drawing No. 2272_C1018

