IAC Archaeology

ARCHAEOLOGICAL ASSESSMENT
AT
CAPPAGH, CLONBURRIS LITTLE AND KISHOGE, DUBLIN 22,
COUNTY DUBLIN

LICENCE: 22E0438
PLANNING REF.: SDZ21A/0022

ON BEHALF OF: CAIRN HOMES PROPERTIES LTD

I.T.M.: 705779, 732439

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REPORT STATUS: DRAFT
SEPTEMBER 2022

IAC PROJECT REF.: J3803

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DOCUMENT CONTROL SHEET

DATE	DOCUMENT TITLE	REV.	PREPARED BY	REVIEWED BY	APPROVED BY
14.10.22	Archaeological Test Excavation at Cappagh, Clonburris little and Kishoge, Dublin 22, County Dublin	0	F. Murtagh	S. Delaney	T. Coughlan

ABSTRACT

IAC Archaeology has prepared this report on behalf of Cairn Homes Plc, to study the impact, if any, on the archaeological and historical resource of a proposed residential development within the Clonburris SDZ, which is located at Cappagh, Clonburris Little and Kishoge (ITM 705779, 732439). The assessment was carried out by Fergal Murtagh under licence 22E0438 and in response to planning conditions attached to the proposed development (Planning Ref.: SDZ21A/0022). It follows a previous testing report carried out by John O'Neill under licence 20E0390 regarding the infrastructure on the project and a geophysical survey on the 15th & 16th of June 2022 by Ger Dowling, under licence no 22R0200.

Archaeological testing was carried out over the course of three days from the 15th of September 2022 using a mechanical excavator fitted with a flat grading bucket. The trenches targeted geophysical anomalies and open green space to investigate the archaeological potential of the site. Testing revealed seven areas of archaeological significance, which have been designated as Archaeological Areas 1–7. These comprise:

- AA1: Charcoal spread and pit.
- AA2: Three pits containing heat-affected material.
- AA3: Three brick kilns or clamps.
- AA4: A charcoal-production pit.
- AA5: A charcoal-production pit.
- AA6: Concrete aligned with a structure depicted on the first edition OS map
- AA7: Possible paving on alignment of path/roadway depicted on first edition OS map.

Ground disturbances associated with the proposed development will have a direct impact on the archaeological remains identified in Archaeological Areas 1–7. Preservation by record should be undertaken under licence to the National Monuments Service of the Department of Housing, Local Government and Heritage (DoHLGH). It is the developer's responsibility to ensure that full financial provision is made available for the required field work and any post-excavation works.

Ground disturbances may also negatively impact on isolated archaeological features or deposits that have the potential to survive outside of the footprint of the excavated test trenches. It is therefore recommended that all topsoil stripping associated with the proposed development should 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. All proposed mitigation measures are subject to approval from the National Monuments Service of the DoHLGH.

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1 INTRODUCTION

1.1 GENERAL

The following report details the results of a programme of archaeological testing undertaken at Cappagh, Clonburris Little and Kishoge, within the Clonburris SDZ, Dublin 22 (Figure 1), 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, and in response to planning conditions attached the proposed development (Planning Ref.: SDZ21A/0022; Condition 28). The assessment was undertaken by Fergal Murtagh of IAC Archaeology (IAC), on behalf of Cairn Homes Plc and under Licence 22E0438, as issued by the National Monuments Service of the Department of Housing, Local Government and Heritage (DoHLGH).

Test trenching commenced at the site on 15th of September and continued for 3 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 21 trenches were mechanically investigated across the test area which measured 1275 linear metres in total. This report follows on from a geophysical survey carried out by Ger Dowling on the 15th and 16th of June 2022 (Licence Ref: 22R0200).

The geophysical survey, comprised high resolution magnetic gradiometry, was focused on five separate fields and covered an area of approximately 8ha, across Tiles 1, 2 and 3 (the tiles are in reference to how the developer has broken down the site and relates to how they intend to phase the project going forward). Despite the poor ground conditions at the site, there was extensive evidence for past agricultural activity including a series of linear anomalies [4—9] that appeared to represent a relict field system/s delimited by ditches. Two of these were potentially associated with former cultivation. Several very faint positive linear trends also hint at the potential presence of other ditches across the site; however, these were barely perceptible above the 'background' levels and their identification was highly tentative. A former watercourse was suggested by a possible paleochannel in Field 2, with modern activity not only indicated by ground disturbance and extensive ferrous litter, but also by a possible linear trench in Field 5.

1.2 THE DEVELOPMENT

The overall SDZ lands, consisting of approximately 280 hectares, are located to the west of Dublin City Centre and the M50 - within the triangle between Lucan, Clondalkin and Liffey Valley. The lands are bisected from east to west by the Kildare railway and by the Grand Canal to the south, and by two strategic roads – the Grange Castle Road (also referred to as the Outer Ring Road) in the centre of the site and the Fonthill Road to the east. The R120 Lock Road forms part of the western boundary of the lands.

The area proposed for assessment is located in the southeast of the overall SDZ lands and is targeting lands in Tile 1 (Figure 2).

The proposed development (Planning Ref.: SDZ21A/0022) will consist of the construction of 569 dwellings, a creche, an innovation hub and open space in the Clonburris South West Development Area of the Clonburris SDZ Planning Scheme 2019 as follows:

(A) 173 houses comprising 8 two-bedroom houses, 153 three-bedroom houses and 12 four-bedroom houses (147 dwellings in CSW-S4 consisting of 8 two-bedroom houses, 127 three-bedroom houses & 12 four-bedroom houses & 26 three-bedroom dwellings in CSW-S3}, all 2-storey comprising semi-detached, terraced, end terrace units (with parking and private open space);

(B) 148 duplex apartments/apartments {88 in CSW-S4 & 60 in CSW-S3) comprising 74 two-bedroom units and 74 three-bedroom units, in 16 three storey buildings. In CSW-S4 Duplex Blocks A,B,C,D,E,F,G,J,K, comprise 8 units (4 two-bed & 4 three-bed units), Duplex Block H comprises 16 units (8 two-bed & 8 three-bed units), In CSW-S3 Blocks L, N & O comprise 8 units (4 two-bed & 4 three-bed units), Block M comprises 14 units (7 two-bed & 7 three-bed units), Block P comprises 10 units (5 two-bed & 5 three-bed units), Block Q comprises 12 units {6 two-bed & 6 three-bed units), all to have terraces/pitched roof;

(C) 396 apartments as follows: within CSW-S4, Block 1 consists of 172 apartments (76 one bedroom, 91 two bedroom and 5 three-bedroom apartments), in a 2-building arrangement both 6 storeys in height. Within CSW-S3, Block 2 {4 storeys) comprises 16 one-bedroom apartments and 22 two-bedroom apartments, Block 3 (4 storeys) comprises 16 one-bedroom apartments and 22 two-bedroom apartments (all apartments to have terrace or balcony);

(D) Provision of an innovation hub (626sq.m) and creche (c. 547sq.m) in a part 3/4 storey 'local node' building in CSW-S4;

(E) Vehicular access will be from the permitted Clonburris Southern Link Street (SDZ20A/0021) and R113 to the east {along with provision of internal haul routes {for construction) to connect to the R136 to the west);

(F) Public Open Space/landscaping of c. 4.1 hectares (to include Local Park and MUGA in CSW-S3, Grand Canal Park, along the southern and eastern boundaries of the site to connect to existing Grand Canal towpath) as well as a series of communal open spaces to serve apartments and duplex units (c. 0.39 ha);

(G) all ancillary development works including footpaths, landscaping boundary treatments, public, private open space areas, car parking (656 spaces) and bicycle parking (672 spaces), single storey ESB substations/bike/bin stores, 'Gateway' entrance signage (2), solar panels at roof level of apartments, and all ancillary site development/construction works;

(H) Permission is also sought for revisions to attenuation permitted under SDZ20A/0021 as well as connection to water supply, and provision of foul drainage infrastructure; this application is being made in accordance with the Clonburris Strategic Development Zone Planning Scheme 2019 and relates to a proposed development within the Clonburris Strategic Development Planning Scheme Area, as defined by Statutory Instrument No. 604 of 2015; an Environmental Impact Assessment Report accompanies this planning application; the application applies for 7-year planning permission for development at this site of c. 17 .02 hectares (on two parcels of land to include entrance area) within the townlands of Cappagh, Clonburris Little & Kishoge, Co. Dublin all on wider lands bounded generally by undeveloped lands and the Dublin-Cork railway line to the north, undeveloped lands and the Grand Canal to the south, the R113 {Fonthill Road) to the east and the R136 to the west.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 BACKGROUND/ SUMMARY OF DESKTOP ASSESSMENT

Prehistoric Period

Mesolithic Period (c. 7000–4000BC)

Although recent discoveries may provide evidence of a human presence in the southern half of Ireland from the Upper Palaeolithic (Dowd and Carden 2016), the Mesolithic period is the first time for which there is widespread evidence of human occupation across the island of Ireland. During the Mesolithic, small communities hunted, fished and foraged. Coastal and riverine resources were of particular importance, with groups migrating to exploit seasonal resources. As a result of settlement evidence dating to the Mesolithic period is rare. Often the only trace of these communities are scatters of flint artefacts or the by-products of their manufacture. Occasionally, shell middens are also uncovered dating to this period; however, there are no sites dated to the Mesolithic in the vicinity of the proposed development site.

Neolithic Period (c. 4000–2500BC)

During the Neolithic period communities became less mobile and their economy became based on the rearing of stock and cereal cultivation. This transition was accompanied by major social change. Agriculture demanded an altering of the physical landscape. Forests were cleared and field boundaries constructed. There was a greater concern for territory, which saw the construction of large communal ritual monuments called megalithic tombs, which are characteristic of the period. There are no recorded sites of Neolithic date within the immediate vicinity of the proposed development site.

Bronze Age Period (c. 2500–800BC)

The Bronze Age in Ireland was marked by the use of metal for the first time. As with the transition from Mesolithic to Neolithic, the transition into the early Bronze Age was accompanied by changes in society. The tradition of megalithic tombs ended in the early Bronze Age in favour of individual, subterranean cist or pit burials that were either in isolation or in small cemeteries. These burials contained inhumed or cremated remains and were often, but not always, accompanied by a pottery vessel. Different forms of burial barrows were also being constructed during this period, as well as ceremonial monuments such as henges. Unenclosed cemeteries are also known from this period and are termed flat cemeteries.

In general, ring-ditches date to the Bronze Age, with the earlier examples being simpler in form and later examples incorporating entrances and a wider range of burials practices. Ring-ditches appear to have continued to be built and earlier monuments re-used, during the Iron Age and early medieval period.

Bronze Age activity is often clearly identifiable in the landscape by the presence of fulachtaí fia or burnt mounds. Thousands of fulachtaí fia have been recorded in

Ireland making them the most common prehistoric monument in the country. These sites were used to heat water using hot stones. They have been interpreted as places where cooking, dyeing, brewing, or bathing took place (O' Kelly 1954, Quinn and Moore 2009). There are no identified examples in the immediate area of the proposed development.

Iron Age Period (c. 800BC – AD400)

Compared to the rest of Irish prehistory, there is little evidence in Ireland, as a whole, representing the Iron Age. There are no recorded sites of Iron Age date within the immediate vicinity of the proposed development site.

Early Medieval Period (AD400–1100)

Ireland, as depicted in the surviving sources, was entirely rural in the early medieval period. Ireland at this time was a patchwork of larger and smaller kingdoms known as *túath* and *trícha cét* respectively. Byrne (1973) estimates that there were as many as 150 kings in Ireland at the time, each ruling over a basic territorial unit known as the túath. If estimates placing the population of Ireland in the early medieval period at quarter to half a million people are accurate, then each king would have ruled over between 1,700 and 3,300 subjects within his túath (Stout 2017). From the 6th century, many of these subjects would have lived in enclosed settlements such as ringforts.

Secular habitation sites in the early medieval period include crannógs, cashels and ringforts, which are largely defined as circular enclosures surrounded by banks and ditches. In addition to these, there is some evidence for unenclosed settlements which are more difficult to identify in the archaeological record. The ringfort or ráth is considered to be the most common indicator of settlement during the early medieval period. Ringforts are strongly associated with agricultural land and, as such, are rarely situated at higher altitudes. Ringforts and potential ringforts are the most common archaeological sites recorded across the Irish landscape. Sites recorded as enclosures, in many cases, represent damaged or denuded ringforts or similar early medieval sites though some do date to prehistoric times. A number of enclosures (DU017-035/36) are located in close proximity the proposed development area.

Medieval Period (AD1100–1600)

The medieval period began with the arrival of the Anglo-Normans in Ireland in support of the deposed King of Leinster, Diarmait MacMurchadha. By the end of the 12th century the Normans had succeeded in conquering much of the country (Stout and Stout 1997). Leinster, including Dublin and Meath, was 'sub-infeudated', meaning that great swathes of land were parcelled out among the Anglo-Norman elites. The Anglo-Norman tenurial system more or less appropriated the older established land units known as túaths in the early medieval period but described the territories as manors (MacCotter 2008).

Post-medieval Period (AD1600-1900)

The 17th century witnessed the systematic reduction of all of Ireland to English authority, largely through conflicts and the forced settlements, 'The Plantations'. As

part of the process of achieving colonial dominion a number of surveys and mapping programmes were completed throughout the post-medieval period. Simington's Civil Survey of 1654–56, was an inquisition that visited each barony (land division) and took depositions from landholders based on parish and townland, with written descriptions of their boundaries to facilitate the transfer of lands. Subsequent to the Civil Survey, a project known as the Down Survey 1656–58, used the collected cadastral information to map all forfeited lands. This survey was overseen by the surgeon-general of the English army, William Petty, and a number of former soldiers. It was not just a project of mapping but of social engineering that was underpinned by a massive transfer in landownership from Irish Catholics to English Protestants. This survey is the first ever detailed land survey on a national scale anywhere in the world and gives great insight in Ireland at this time. The castle (DU017-032001) at Neilstown located c.670m to the northeast of the proposed development is shown and labelled as 'old castle', suggesting that the castle was already of substantial age by the time of this map. It is shown in association with a second smaller structure which may represent the 16th/17th century house (DU017-032002).

The 17th century also saw a dramatic rise in the establishment of large residential houses around the country. The large country house was only a small part of the overall estate of a large landowner and provided a base to manage often large areas of land that could be located nationwide. Lands associated with the large houses were generally turned over to formal gardens, which were much the style of continental Europe. By the mid-18th century more natural parkland landscapes were in favour although the creation of these required considerable effort, including moving earth, removal of field boundaries, culverting streams to form lakes and quite often roads were completely diverted to avoid travelling anywhere near the main house or across the estate.

2.2 SUMMARY OF PREVIOUS ARCHAEOLOGICAL FIELDWORK

Archaeological testing and metal detection has recently been carried out in advance of the infrastructure development within the Clonburris SDZ under licences 20E0390 and 20R0168 and a number of the test trenches were excavated within the boundary of the proposed development area and immediately adjacent. A number of archaeological areas were identified within the wider tested area. Of particular significance to the current development area are AA1 and AA2 (O' Neill 2020). AA1 comprises three pits (C55.1, C55.2 and C55.3), with evidence for burning and charcoal, identified in Trench 55 in Cappagh to the east of the R113. No dating evidence was recovered from these pits during testing. AA2 comprises a single large pit (C57.1), capped in clay and containing charcoal. The pit was identified in Trench 57 in Cappagh to the east of the R113. This may be the site of a charcoal-production pit. No dating evidence was recovered during testing. AA2 lies across the existing field boundary to the east of AA1 in the field to the west. In addition, post-medieval features were identified within the area of the haul route of the proposed development area. These features were recorded as 'Kiln Area 3'. Previously unrecorded post-medieval brick manufacture was evident in Trenches 27 and 28 in Kishoge, in the fields just to the east of the R136. An area of substantial brick debris and burning (C27.1/C28.1) was identified that is potentially derived from a post-

medieval brick manufacturing kiln. The debris and burning extended over an area measuring 14m (east-west) by 30m (north-south). Two further brick kilns were identified during testing further to the west in the townland of Grange and AA3 was identified to the east in the townland of Cappagh and consisted of a possible charcoal production pit.

Archaeological features identified as part of the infrastructure investigations will be preserved by record as part of the now permitted infrastructure development.

Archaeological testing was also carried out c. 100m east of the proposed development area under licence 21E0084. This phase of testing did not identify any additional features of archaeological potential, although a number of linear features, interpreted as modern drains and field boundaries, were noted (O' Neill et. al. 2021).

Test trenching was carried out c. 500m to the northeast of the development site. Human remains were identified during the first phase of testing and subsequent excavation was carried out. It was noted that the human remains were in poor condition, the remains were probably female 25-29 years at time of death and 1.6m in height. No other features of finds were discovered during investigations (Bennett 2014:342, Licence ref.: 16E0409ext).

2.3 CARTOGRAPHIC ANALYSIS

Down Survey Maps of the Barony of Newcastle, c. 1655

The Down Survey maps were created as a means to identify land ownership and while they are often scant in detail, major topographical features and occasional notable man-made landmarks are depicted. The castle (DU017-032001) at Neilstown is shown and labelled as 'old castle', suggesting that the castle was already of substantial age by the time of this map. It is shown in association with a second smaller structure which may represent the 16th/17th century house (DU017-032002).

Rocque's An Actual Survey of County Dublin, 1760

Rocque's map of 1760 depicts a largely agricultural landscape with dispersed settlement. The Grand Canal is visible as 'New Canal'. A small demesne is present to the east called 'Cappoh'. A group of structures is shown at the location of the castle at Neilstown but the castle is not annotated. To the west, 'Castle Adams' is depicted which may correlate to the tower house (DU017-029) in Adamstown.

John Taylor's Map of the County of Dublin, 1816

By the time of Taylor's map of 1816, the demesne at Cappagh is shown once more. A number of residences are also marked, including Springfield, immediately north of the Grand Canal, and Kishoge House. 'Castle Adams' is depicted once again possibly correlating to the tower house (DU017-029) in Adamstown. A number of locks are indicated along the Grand Canal to the south.

First Edition Ordnance Survey Map, 1843, scale 1:10,560 (Figure 3)

The first edition OS map of 1843 is the first accurate depiction of the proposed development area. While much of the Clonburris SDZ lands remain agricultural in nature, a number of residences and small demesnes have been established. A small demesne associated with Clonburris Cottage is shown to the west of the proposed development site. Its grounds extend south towards the Grand Canal and a gate lodge is annotated immediately north of the towpath. Further to the west of Clonburris Cottage, a quarry is marked. The proposed development site crosses number of townland boundaries, including the Cappagh-Clonburris Little boundary and the Clonburris Little-Kishoge boundary. The Clonburris Little-Kishoge townland boundary also marks the Barony boundary between Uppercross and Newcastle. There is no trace of either enclosure DU017-036 or DU017-035 within the SDZ lands. There are a number of small structures immediately north of the Grand Canal, which are located partially within the proposed development area. These are likely to represent vernacular houses, accessed from the canal path.

Second Edition Ordnance Survey Map, 1871, scale 1:10,560

There is little change by the time of this map, with the exception of the addition of the Great Southern and Western Railway, which opened in 1846 and runs immediately north of the northern extents of the proposed development area.

Ordnance Survey Map, 1906–9, scale 1:2,500

There are no significant changes to the proposed development area depicted within this map.

Third Edition Ordnance Survey Map, 1937, scale 1:10,560 (Figure 3)

There are no major changes to note within the cartography of this map with the exception that a house, marked as Cappagh Villa, is shown within the eastern section of the proposed development area, accessed from the canal.

2.4 SUMMARY OF GEOPHYSICAL RESULTS

Geophysical survey was carried out by Ger Dowling on the 15th and 16th of June 2022, under licence 22R0200. The geophysical survey, comprising high resolution magnetic gradiometry, was focused on five separate fields and covered an area of approximately 8ha. Despite the poor ground conditions at the site, the investigation revealed a number of features of potential archaeological significance, mostly centred in Field 3. A semi-circular, positive anomaly [1] may depict the eastern circuit of a small, sub-circular enclosure, measuring some 36m in diameter (north—south). This feature, may correspond to cropmark enclosure DU017-036, which appears to be bisected, east to west, by a possible ditch [2] (this lies to the immediate north of the boundary for this phase of testing) and is conceivably associated with several possible pits/spreads [3].

There is extensive evidence for past agricultural activity including a series of linear anomalies [4—9] that appear to represent a relict field system/s delimited by ditches. Two of these, namely [4] and [6], are potentially associated with former cultivation. Several very faint positive linear trends also hint at the potential presence of other

ditches across the site; however, these are barely perceptible above the 'background' levels and their identification is highly tentative. A former watercourse is suggested by a possible paleochannel in Field 2, with modern activity not only indicated by ground disturbance and extensive ferrous litter, but also by a possible linear trench in Field 5.

2.5 AERIAL PHOTOGRAPHIC ANALYSIS

An inspection the aerial photography available has shown that the 1995 (OSI) shows a largely undeveloped area. By 2000, the Fonthill Road has been constructed and the R136 further west is under construction. The construction of the Clondalkin Fonthill Railway Station and associated car park is visible to the east in the aerial imagery of 2008 (Google Earth). A potential archaeological feature is present in the southern section of the proposed development area, adjacent to the canal. This consists of a possible double ditched enclosure, with a diameter of c. 28m. The feature is only visible within the 2008 Google Earth coverage and is located within the proposed development area and targeted by trenches 13–15 in this report. This site was subsequently inspected, and no obvious features of archaeological potential were noted. As such, the anomaly within the aerial coverage is likely due to modifications in the vegetation possibly caused by vehicles.

2.6 TOPOGRAPHICAL FILES

Information on artefact finds from the study area in County Dublin has been recorded by the National Museum of Ireland since the 19th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area. A bronze axehead (IA/163/1996) is recorded in the topographical files of the National Museum of Ireland as potentially originating from within the Clonburris SDZ, although no detail as to the circumstances of the find is contained in the record.

3 ARCHAEOLOGICAL TESTING

3.1 GENERAL

Test trenching took place between the 15th and 20th of September, 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 21 trenches were excavated across the site measuring 1,275 linear metres (Figure 3–6, Plates 1–15, Appendix 1 & 2). Trenches were placed to target known geophysical anomalies and open green space that was unsuitable for geophysical analysis. One trench (T21) was moved to the southeast to avoid overhead powerlines in the vicinity. The site was heavily overgrown and rough underfoot but mainly dry at the time of excavation.

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 loose light to mid-brown or greyish brown clayey sand. The depth of the topsoil varies cross the site with a maximum depth of 0.7m and a minimum depth of 0.2m. Subsoil varied across the site but primarily consisted of a mid-orange or brownish clay with occasional patches of light grey clays, pale orange sands and dark grey gravels.

Trenches and archaeological contexts are described in detail in Appendix 1 and 2.

Archaeological Features

There are seven areas of archaeological interest (AA) across the site identified during the course of these works (Figure 5).

AA1

AA1 is centred on Trench 5 and consists of a shallow circular pit (C5.1) measuring 0.80m long, 0.54m wide and 0.03m deep (Plate 1). It contains a sandy clay fill (C5.2). An area of surface/*in situ* burning (C5.3) (Plate 2) measuring 1.8m in length, 1.17m in width and 0.03m deep, orientated east–west was also recorded beside the pit. A localised clayey spread of charcoal rich material (C5.4) measuring 0.95m long, 0.70m wide and 0.06m deep was recorded with some *in situ* burning also present (Plate 3). A shallow linear feature (C5.5) measuring 0.75m in width and 0.19m in depth orientated east–west was filled by a light greyish brown silty clay (C5.6) (Plate 4).

AA2

AA2 is centred on Trench 7 and consists of a shallow spread of heat-affected material (C7.1) measuring 1.2m in length, 0.9 in width and 0.07m in depth. It consists of a light grey clay with frequent heat-shattered stones (Plate 5). A possible sub-circular pit (C7.2) measuring 0.6m in length, 0.42m in exposed width and 0.13m in depth was identified. The basal fill (C7.3) consists of heat-shattered stone. It measures 0.1m in depth. The upper fill (C7.4) measuring 0.04m deep is a light brown firm clay. A small shallow depression (C7.5) filled with heat-affected material measuring 0.4m in exposed length, 0.26m in width and 0.08m deep was exposed. It is filled by a dark grey clayey silt with heat-shattered stone (C7.6) (Plate 6).

AA3

AA3 is centred on Trench 8 and consists a possible brick clamp (C8.3) measuring 3m in exposed length, 1.42m in with and 0.05m in depth aligned north–south (Plate 7) was exposed. It is filled by C8.4, a firmly compacted dark-orange clay with frequent inclusions of crushed brick. A second possible brick clamp (C8.5) measuring 3.2m in length, 2.58m in width and 0.06m deep was also identified. It has an irregular shape in plan. It is filled by C8.6 a dark orange–brown clay with crushed brick and charcoal flecks throughout. A third possible brick clamp (C8.7) measuring 4.3m in length and 2m in width was recorded in the southern trench annex. The upper fill consists of the same compact dark orange clay with crushed brick and charcoal flecks. The final feature identified was a northwest–southeast aligned furrow (C8.1) measuring 0.52m in width and 0.07m deep. It is filled by C8.2, a mid-brown silty clay with crushed brick and charcoal present

AA4

AA4 is centred on Trench 17 and consists of a charcoal-rich pit, C17.1, measuring 1.55m in length, 1.4m in width and 0.19m deep. It has three fills C17.2–C17.4 (Plate 8). The uppermost fill (C17.2) consists of a dark grey clay 0.07m thick. The middle fill (C17.3) consists of a light grey clay 0.05m thick with occasional to moderate charcoal present. The basal fill, C17.4, consists of a charcoal rich layer 0.08m thick.

AA5

AA5 is centred on Trench 20 and consists of a shallow sub-oval pit, C20.3, measuring 1.30m in length, 0.7m in width and 0.14m deep. It is filled by C20.4, a dark greyish black charcoal rich clay (Plate 9).

AA6

AA6 is centred on Trench 11 and consists of a rough concrete slab (Plate 10) c. 5m in width that has a direct overlap with buildings evident on first edition historic mapping.

AA7

AA7 is centred on Trench 21 and consists of a layer of yellow brick on a north–south alignment measuring 4m in width and 0.1m (Plate 11).

Non-Archaeological Features

Field drains

A number of field drains and linear features were identified across the site. Trench 2 and Trench 4 had a north–south field drain and in Trench 3 a single northeast–southwest field drain was noted. There were 2 field drains noted in Trench 6 a north–south field drain and a northeast–southwest field drain. These are roughly aligned with geophysical anomalies that were targeted in the trench. In Trench 16 a northeast–southwest field drain was noted that roughly aligns with the geophysical anomaly targeted in the trench and Trench 18 a single east–west field drain was noted in the trench (Figure 6).

Other features

A small area of *in situ* burning was noted in Trench 12 and possibly relates to field clearance.

3.3 CONCLUSIONS

A total of 21 trenches were excavated across the site, equating to 1,275 linear meters. Testing revealed seven areas of archaeological interest with four charcoal spreads or pits identified, some small features containing heat shattered stone and an area with three possible brick clamps or kilns.

Testing revealed seven areas of archaeological areas designated as Archaeological Area 1–7 (AA1, 2, 3, 4, 5, 6 & 7)

- AA1: A shallow circular pit C5.1; a localised clayey spread of charcoal rich material C5.4; and a shallow linear feature C5.5.
- AA2: A shallow spread C7.1; a sub circular pit C7.2; and a small depression filled with heat affected material.
- AA3: Three possible brick clamps (C8.3, C8.5 and C8.7); and a northwest–southeast aligned furrow.
- AA4: A charcoal rich pit C17.1.
- AA5: A shallow sub-oval pit C20.3.
- AA6: A large slab of concrete aligned with a structure depicted on the first edition OS map c. 5m in width.
- AA7: A thin layer of yellow brick aligned with a possible pathway measuring 4m in width and 0.1m.

Previous archaeological investigations within the development area ahead of the infrastructure aspect of the project identified similar charcoal rich features (O' Neill 2020). AA1 is located directly north and northeast of these features with AA4 and AA5 located to c.100m to the south or southeast.

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

This program of archaeological assessment was in response to planning conditions attached to the proposed development (Planning Ref.: SDZ21A/0022). Archaeological test trenching has resulted in the identification of seven areas of archaeological potential within the site. These include brick kilns, charcoal-production pits and pits containing heat-affected material (Figures 7 and 8).

- Ground disturbances associated with the proposed development will have a direct impact on the archaeological remains identified in Archaeological Areas 1–7. Given the nature and extent of the remains, the archaeological sites are considered to be of local significance only.

- There may be an adverse impact on previously unrecorded archaeological feature or deposits that have the potential to survive beneath the current ground level. This will be caused by ground disturbances associated with the proposed development.

4.2 MITIGATION

It is recommended that Archaeological Areas 1–7 be preserved by record (archaeological excavation) in advance of development (Figure 5). These works will be carried out under licence to the DoHLGH and full provision will be made available for the excavation and analysis of the remains.

- An area measuring c. 25m x 25m should be opened around the charcoal pit features identified in Trench 5 (Archaeological Area 1) in order to facilitate its preservation by record through archaeological excavation.
- An area measuring c. 15m x 15m should be opened around the spreads of heat-affected material identified in Trench 7 (Archaeological Area 2) in order to facilitate its preservation by record through archaeological excavation.
- An area measuring c. 20m x 20m should be opened around the brick kiln features identified in Trench 8 (Archaeological Area 3) in order to facilitate its preservation by record through archaeological excavation.
- An area measuring c. 10m x 10m should be opened around the charcoal-rich pit identified in Trench 17 (Archaeological Area 4) in order to facilitate its preservation by record through archaeological excavation.
- An area measuring c. 10m x 10m should be opened around the charcoal-rich pit identified in Trench 20 (Archaeological Area 5) in order to facilitate its preservation by record through archaeological excavation.

- An area measuring c. 40m x 15m should be opened over the location of the concrete slab associated with the post-medieval building identified in Trench 11 (Archaeological Area 6) in order to facilitate cleaning and recording of the structural remains.
- An area measuring c. 15m x 15m will be opened around the post-medieval brick surface identified in Trench 21 (Archaeological Area 7) in order to facilitate cleaning and recording of the structural remains.

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.

5 REFERENCES

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CARTOGRAPHIC SOURCES

Ordnance Survey maps of County Dublin 1843 and 1935.

ELECTRONIC SOURCES

www.excavations.ie – Summary of archaeological excavation from 1970–2020.

www.osiemaps.ie – Ordnance Survey aerial photographs dating to 1995, 2000 & 2005; and 6-inch/25-inch maps.

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

www.googleearth.com – Satellite coverage of the proposed development area

www.bingmaps.com – Satellite coverage of the proposed development area

APPENDICES

APPENDIX 1 TRENCH RESULTS

TRENCH	LENGTH (m)	WIDTH (m)	DEPTH (m)	ORIENTATION	DETAILS
1	51	2	0.45	Northeast–Southwest	No Archaeology found. No geophysical anomalies targeted.
2	40	2	0.2	West–East	No Archaeology found. A single north–south field drain was the only thing noted in this trench. No geophysical anomalies targeted.
3	30	2	0.4	Northwest–Southeast	No Archaeology found. A single northeast–southwest field drain was the only thing noted in this trench. No geophysical anomalies targeted. Plate 12
4	40	2	0.5	West–East	No Archaeology found. A single north–south field drain was the only thing noted in this trench. No geophysical anomalies targeted.
5	50	2	0.5	North-northwest–South-southeast	A shallow circular pit C5.1 with sharp break of slope at top gradually sloping sides and break of slope at a relatively flat. It contains a sandy clay fill (C5.2) with frequent charcoal and measures 0.80m long, 0.54m wide and 0.03m deep. Plate 1, Figure 7. An area of surface/*in situ* burning C5.3 was also recorded beside C5.1, orientated east–west and measures 1.8m in length, 1.17m in width and 0.03m deep. Plate 2. A small clayey spread of charcoal rich material C5.4 was recorded with some *in-situ* burning also present. It is 0.95m long, 0.70m wide and 0.06m deep. Plate 3. A shallow linear C5.5 orientated east–west was filled by C5.6, a light greyish brown silty clay with occasional small stones. It measures 0.75m in width and 0.19m in depth. No geophysical anomalies targeted. Plate 4.
6	43	2	0.5	West-northwest–East-southeast	No Archaeology found. A north–south field drain and a northeast–southwest field drain were the only features noted in this trench. These are roughly aligned with geophysical anomalies that were targeted in the trench.
7	155	2	0.4	West–East	A shallow spread C7.1 measuring 1.2m in length, 0.9 in width and 0.07m in depth. It consists of a firmly compacted light grey clay with frequent heat shattered stones. Plate 5, Figure 7. A possible pit C7.2 sub circular in shape with a sharp break of slope at top and gradual at base with gradually sloping sides and concave base. It measures 0.6m in length, 0.42m in exposed width and 0.13m in depth. The basal fill C7.3 consists of heat shattered stone with charcoal and a firmly compacted grey clay it measures 0.6m in length 0.42m wide and 0.1m deep. The upper fill C7.4 is a

TRENCH	LENGTH (m)	WIDTH (m)	DEPTH (m)	ORIENTATION	DETAILS
					light brown firm clay measuring 0.6m in length 0.42m wide and 0.04m deep. A small deposit C7.5 of heat affected material measuring 0.4m in exposed length, 0.26m in width and 0.08m deep. Sharp break of slope at top gradually sloping sides and break of slope at a relatively flat base. Not fully exposed so unclear if this is a furrow or a possible pit. It is filled by C7.6 a dark grey loose clayey silt with heat shattered stone. Plate 6, Figure 7. No geophysical anomalies targeted.
8	150	2	0.45	West–East	A northwest–southeast aligned furrow C8.1 was recorded with in Trench 8. It has gradually sloping sides and break of slope top and bottom with a concave base. It is filled by C8.2, a mid-brown silty clay with crushed brick and charcoal present. It measures 0.52m in width and 0.07m deep. A possible brick clamp C8.3 aligned north–south was also recorded. It measured 3m in exposed length, 1.42m in width and 0.05m in depth. It has a gradual break of slope at top with imperceptible sides and break of slope at a flat base. It is filled by C8.4, a firmly compacted dark-orange clay with frequent inclusions of crushed brick. Plate 7, Figure 7. A second possible brick clamp C8.5 was also recorded to the west of C8.3. It has an irregular shape in plan but similar profile to C8.3 of gradual break of slope at top with imperceptible sides and break of slope at a flat base. It is filled by C8.6 a firmly compacted dark orange brown clay with crushed brick and charcoal flecks throughout. It measures 3.2m in length, 2.58m in width and 0.06m deep. A third possible brick clamp was unexcavated but recorded in the southern trench annex (C8.7). The upper fill measures 4.3m in length and 2m in width. It consists of the same compact dark orange clay with crushed brick and charcoal flecks. Figure 7. No geophysical anomalies targeted.
9	120	2	0.52	West–East	No Archaeology found. No geophysical anomalies targeted.
10	40	2	0.55	Northeast–Southwest	No Archaeology found. A linear anomaly was targeted from the geophysics. Plate 13.
11	70	2	0.7	West–East	The western end of the trench was heavily disturbed and likely used as a yard or compound in the past with several layers of compacted stone, modern debris, brick and cement backfill overlying the natural subsoil (Plate 14). A concrete slab was also recorded in the middle of the trench which aligns with a structure in the historic mapping (Plate 10: Figure 8). No geophysical anomalies targeted.

TRENCH	LENGTH (m)	WIDTH (m)	DEPTH (m)	ORIENTATION	DETAILS
12	40	2	0.5	North–South	A small area of *in situ* burning was noted within this trench. It measures 1.17m in length and 0.77 in width. No geophysical anomalies targeted.
13	40	2	0.6	Northeast–Southwest	No Archaeology found. No geophysical anomalies targeted but possible archaeology was identified from satellite images.
14	40	2	0.63	Northeast–Southwest	No Archaeology found. No geophysical anomalies targeted but possible archaeology was identified from satellite images.
15	20	2	0.6	Northeast–Southwest	No Archaeology found. No geophysical anomalies targeted but possible archaeology was identified from satellite images. Plate 15
16	40	2	0.4	West–East	No Archaeology found. A northeast–southwest field drain was noted in this trench. This roughly aligns with the geophysical anomaly targeted in the trench.
17	40	2	0.5	North-northeast–South-southwest	A charcoal rich pit, C17.1, with sub-circular shape in plan with a sharp break of slope at top steep sides and a gradual break of slope at a concave base It measures 1.55m in length, 1.4m in width and 0.19m deep. It has three fills C17.2–C17.4. The uppermost fill C17.2 consists of a moderately compact dark grey clay 0.07m thick, with frequent charcoal. The middle fill C17.3 consists of a firmly compacted light grey clay 0.05m thick with occasional to moderate charcoal present. The basal fill, C17.4, consists of a moderately compact charcoal rich layer 0.08m thick. Plate 8, Figure 7. No geophysical anomalies targeted.
18	40	2	0.3	North–South	No Archaeology found. A single east–west field drain was the only thing noted in this trench. No geophysical anomalies targeted.
19	80	2	0.4	North-northwest–South-southeast	No Archaeology found. No geophysical anomalies targeted.
20	111	2	0.35	North-northwest–South-southeast	A possible linear drain, C20.1, running east–west with a gradual break of slope at top and bottom with gently sloping sides and a concave base. It measured 1.15m in width and 0.18m deep. It is filled by a pale brown sandy clay C20.2 with occasional stones and a single piece of post medieval pottery was noted. A shallow sub-oval pit, C20.3, with a sharp break of slope at top, gradually sloping sides and break of slope at a flat base. It measures 1.30m in length, 0.7m in width and 0.14m deep. It is filled by C20.4, a dark greyish black charcoal rich friable clay. No geophysical anomalies targeted. Plate 9, Figure 7.
21	35	2	0.5	Northwest–Southeast	A yellow brick floor/path surface C21.1, orientated north–south was recorded in this trench. It

TRENCH	LENGTH (m)	WIDTH (m)	DEPTH (m)	ORIENTATION	DETAILS
					measures 4m in width and 0.1m deep. Plate 11, Figure 8. No geophysical anomalies targeted.

APPENDIX 2 CONTEXTS

CONTEXT NO.	TRENCH NO.	DESCRIPTION
C5.1	5	A shallow circular pit with sharp break of slope at top gradually sloping sides a gradual break of slope at a relatively flat base.
C5.2	5	A sandy clay fill with frequent charcoal.
C5.3	5	An area of surface/*in-situ* burning, orientated east–west.
C5.4	5	A small clayey spread of charcoal rich material was recorded with some *in-situ* burning also present.
C5.5	5	A shallow linear orientated east–west.
C5.6	5	A light greyish brown silty clay with occasional small stones
C7.1	7	A shallow spread. It consists of a firmly compacted light grey clay with frequent heat shattered stones.
C7.2	7	A possible pit sub circular in shape with a sharp break of slope at top and gradual at base with gradually sloping sides and concave base.
C7.3	7	The basal fill of C7.2. Heat shattered stone with charcoal and a firmly compacted grey.
C7.4	7	The upper fill of C7.2 is a light brown firm clay.
C7.5	7	A small shallow depression filled of heat affected material C7.6 with a sharp break of slope at top gradually sloping sides and gradual break of slope at a relatively flat base.
C7.6	7	A dark grey loose clayey silt with heat shattered stone.
C8.1	8	A northwest–southeast aligned furrow with gradually sloping sides and concave base with a gradual break of slope top and bottom.
C8.2	8	A mid-brown silty clay with crushed brick and charcoal present.
C8.3	8	A possible brick clamp aligned north–south. It has a gradual break of slope at top with imperceptible sides and break of slope at a flat base.
C8.4	8	A firmly compacted dark-orange clay with frequent inclusions of crushed brick.
C8.5	8	A possible brick clamp. It has an irregular shape in plan but similar profile of gradual break of slope at top with imperceptible sides and break of slope at a flat base.
C8.6	8	A firmly compacted dark orange brown clay with crushed brick and charcoal flecks throughout.
C8.7	8	Upper fill of a possible brick clamp (unexcavated) consisting of a dark orange clay with crushed brick and charcoal flecks.
C17.1	17	A charcoal rich pit, with sub-circular shape in plan and a sharp break of slope at top steep sides and a gradual break of slope at a concave base.
C17.2	17	The uppermost fill of C17.1 consists of a moderately compact dark grey clay with frequent charcoal.
C17.3	17	The middle fill of C17.1 consists of a firmly compacted light grey clay with occasional to moderate charcoal present.
C17.4	17	The basal fill of C17.1 consists of a moderately compact charcoal rich layer.
C20.1	20	A possible linear drain, running east–west with a gradual break of slope at top and bottom with gently sloping sides and a concave

CONTEXT NO.	TRENCH NO.	DESCRIPTION
		base.
C20.2	20	Fill of C20.1. A pale brown sandy clay with occasional stones and a single piece of post medieval pottery was noted.
C20.3	20	A shallow sub-oval pit, with a sharp break of slope at top, gradually sloping sides and a gradual break of slope at a flat base.
C20.4	20	Fill of C20.3. A dark greyish black charcoal rich friable clay.
C21.1	21	A yellow brick floor surface, orientated north–south.

APPENDIX 3 RMP SITES WITHIN THE SURROUNDING AREA

SMR NO.:	DU017-035
RMP STATUS:	Yes
TOWNLAND:	Clonburris little
PARISH:	Clondalkin
BARONY:	Uppercross
I.T.M.:	705412, 732276
CLASSIFICATION:	Enclosure
DIST. TO SITE:	150m to the west
DESCRIPTION:	In field of rough pasture bordering the canal. An aerial photograph (FSI 1971/224-6) shows a horseshoe-shaped enclosure. Not visible at ground level.
REFERENCE:	www.archaeology.ie/ SMR file

SMR NO.:	DU017-036
RMP STATUS:	Yes
TOWNLAND:	Cappagh
PARISH:	Clondalkin
BARONY:	Uppercross
I.T.M.:	705829, 732593
CLASSIFICATION:	Enclosure
DIST. TO SITE:	75m to the north
DESCRIPTION:	Situated in rough pasture on fairly level ground north of a stream. An aerial photograph taken in 1971 (FSI 206/5/4) shows a cropmark of an elongated oval enclosure (est. dims. northeast–southwest c. 34m; northwest–southeastc.22m). Not visible at ground level.
REFERENCE:	www.archaeology.ie/ SMR file

RPS/NIAH NO.:	RPS 122/NIAH 11205011
RMP STATUS:	N/A
TOWNLAND:	Cappagh
PARISH:	Clondalkin
BARONY:	Uppercross
I.T.M.:	705793, 732235
CLASSIFICATION:	Lock keepers house
DIST. TO SITE:	Immediately to south
DESCRIPTION:	Detached three-bay two-storey gable-fronted former lock-keeper's house, c.1790, now derelict. Roughcast rendered limestone rubble walls with cut stone architrave, sills, string courses and door surround. Shallow recessed arch framing centre of each elevation. Unroofed and partially overgrown
REFERENCE:	www.archaeology.ie/ www.buildingsofireland.ie

NIAH NO.:	11205012
RMP STATUS:	N/A
TOWNLAND:	Cappagh

PARISH:	Clondalkin
BARONY:	Uppercross
I.T.M.:	705876, 732217
CLASSIFICATION:	Lock
DIST. TO SITE:	30m to the south
DESCRIPTION:	Single-stage canal lock, c.1780, with coursed limestone walls having limestone coping. Timber and iron lock gates to either end. Timber mooring post at intervals between gates.
REFERENCE:	www.archaeology.ie/ www.buildingsofireland.ie

APPENDIX 4 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 Arts, Heritage, Gaeltacht and the Islands) 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 Arts, Heritage, Gaeltacht and the Islands 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.

APPENDIX 5 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 6 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

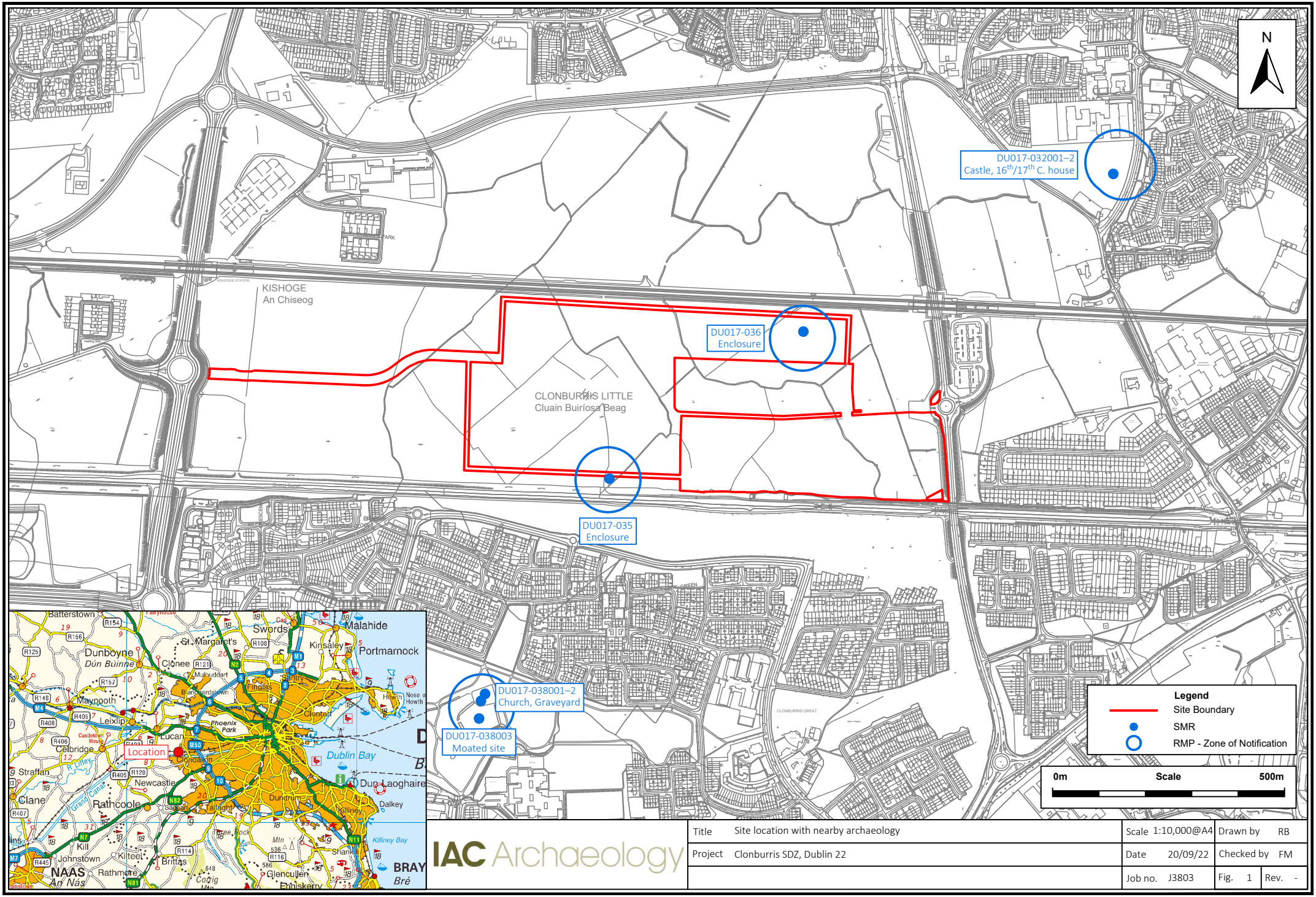
ARCHAEOLOGICAL RESOURCE

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 2020b)

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 2020a)

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 2020c)



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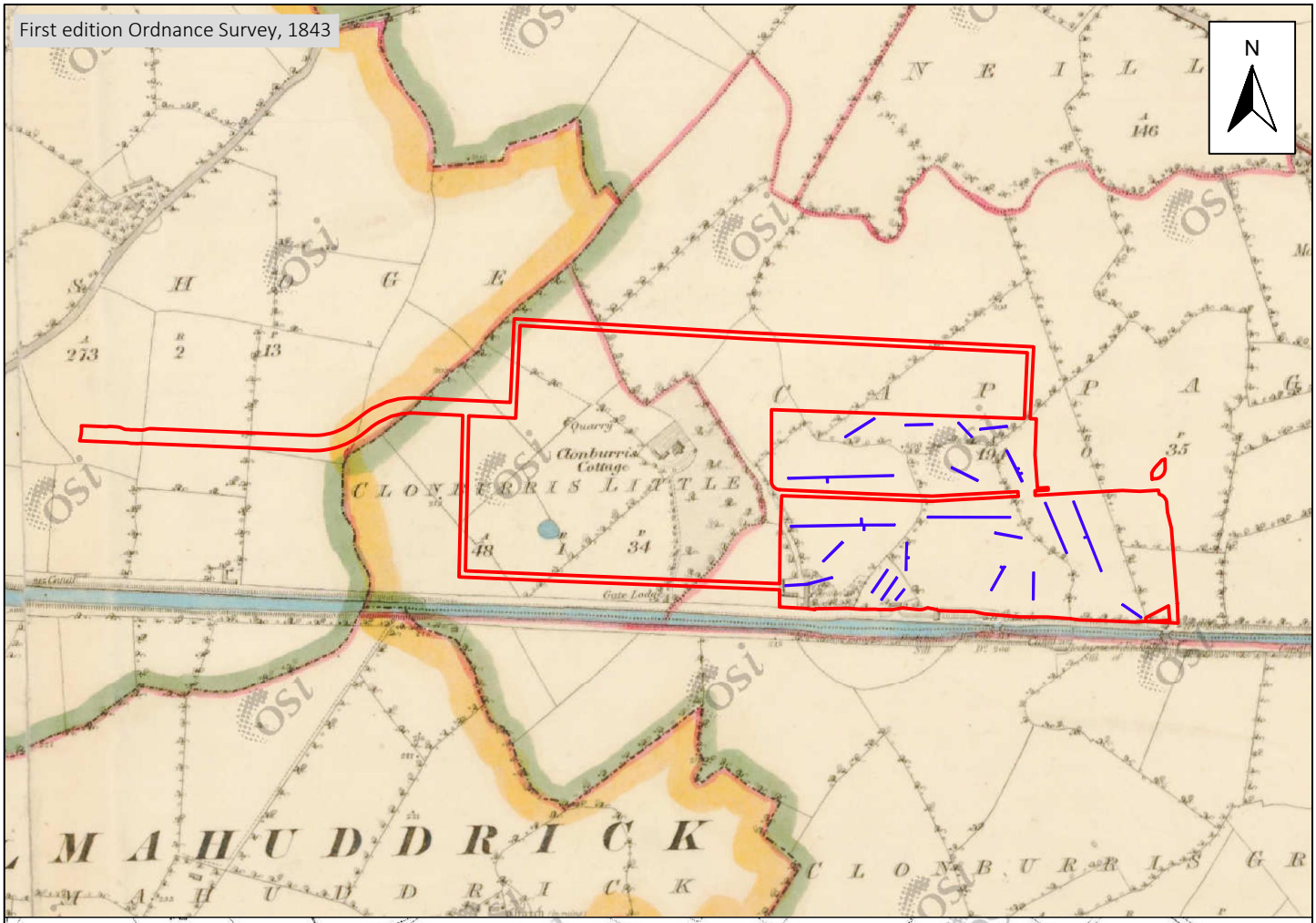
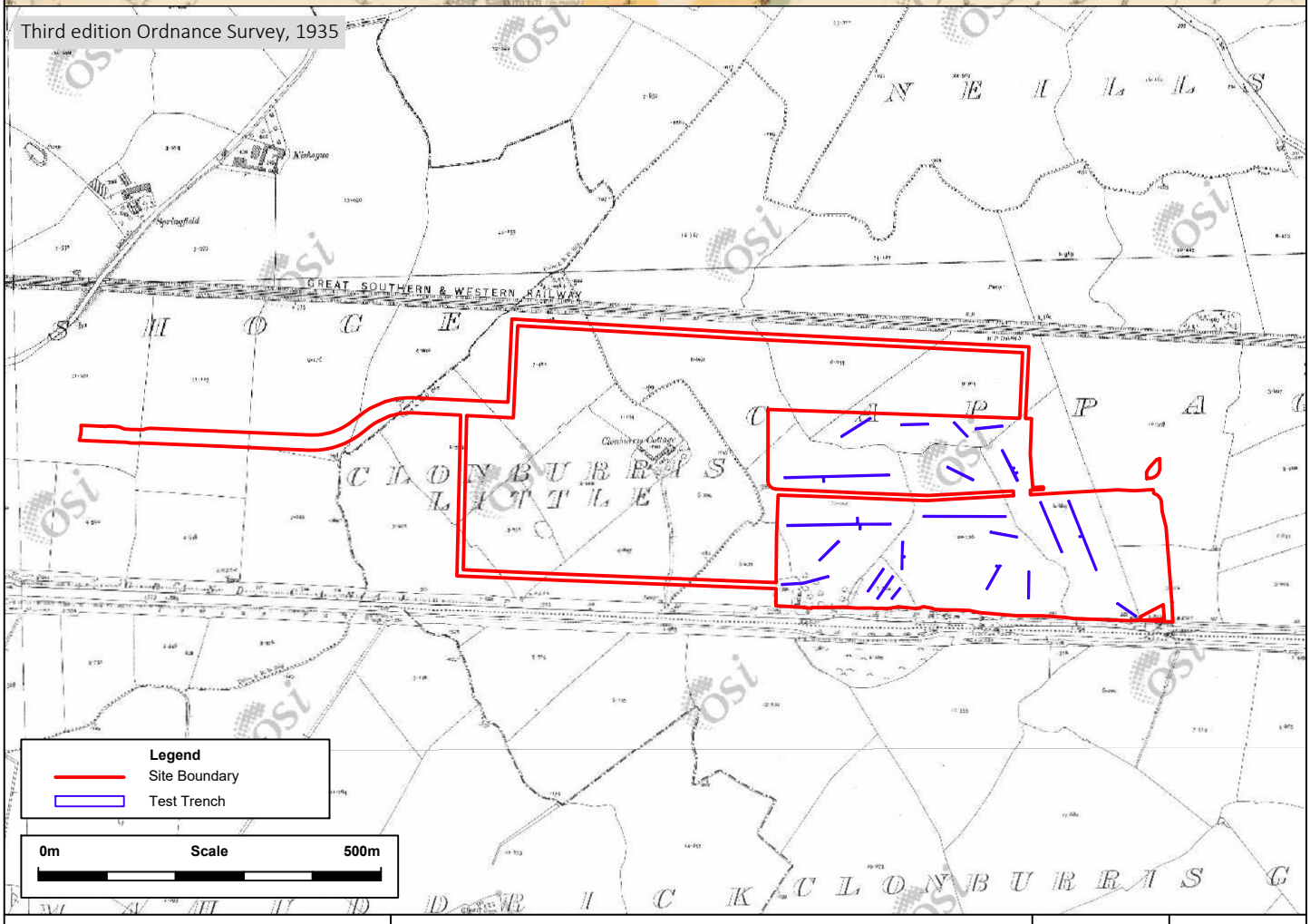
Title	Site location with nearby archaeology	Scale 1:10,000@A4	Drawn by RB
Project	Clonburris SDZ, Dublin 22	Date 20/09/22	Checked by FM
		Job no. J3803	Fig. 1 Rev. -

IAC Archaeology

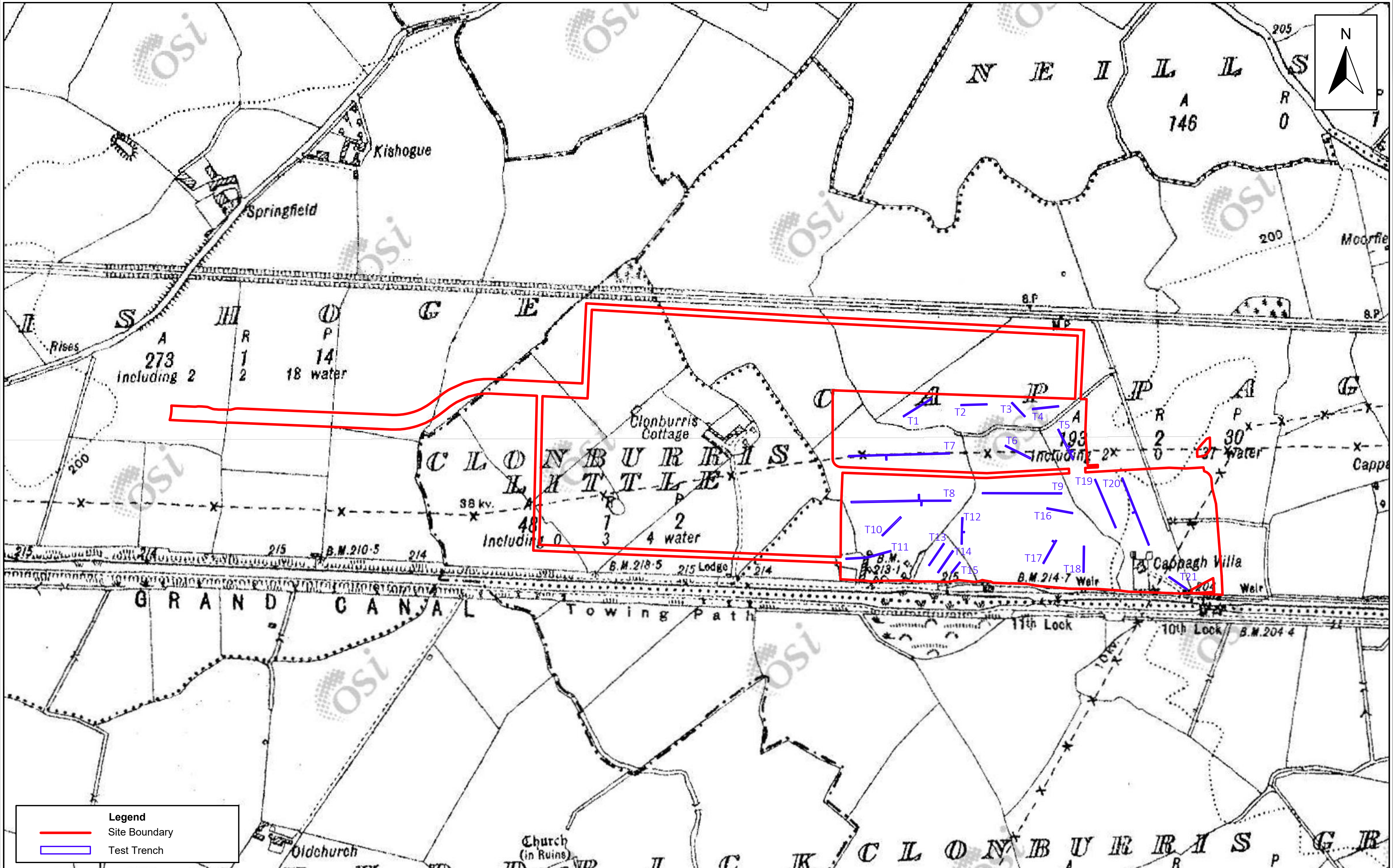
Title	Plan of proposed development	Scale 1:2500@A4	Drawn by RB
Project	Clonburris SDZ, Dublin 22	Date 20/09/22	Checked by FM
		Job no. J3803	Fig. 2 Rev. -





IAC Archaeology

Title	Extract from the First edition 6-inch OS map (1843) the third edition 6-inch OS map (1935)	Scale	1:10,000@A4	Drawn by	RB
Project	Clonburris SDZ, Dublin 22	Date	20/09/22	Checked by	FM
		Job no.	J3803	Fig. 4	Rev. -



Legend

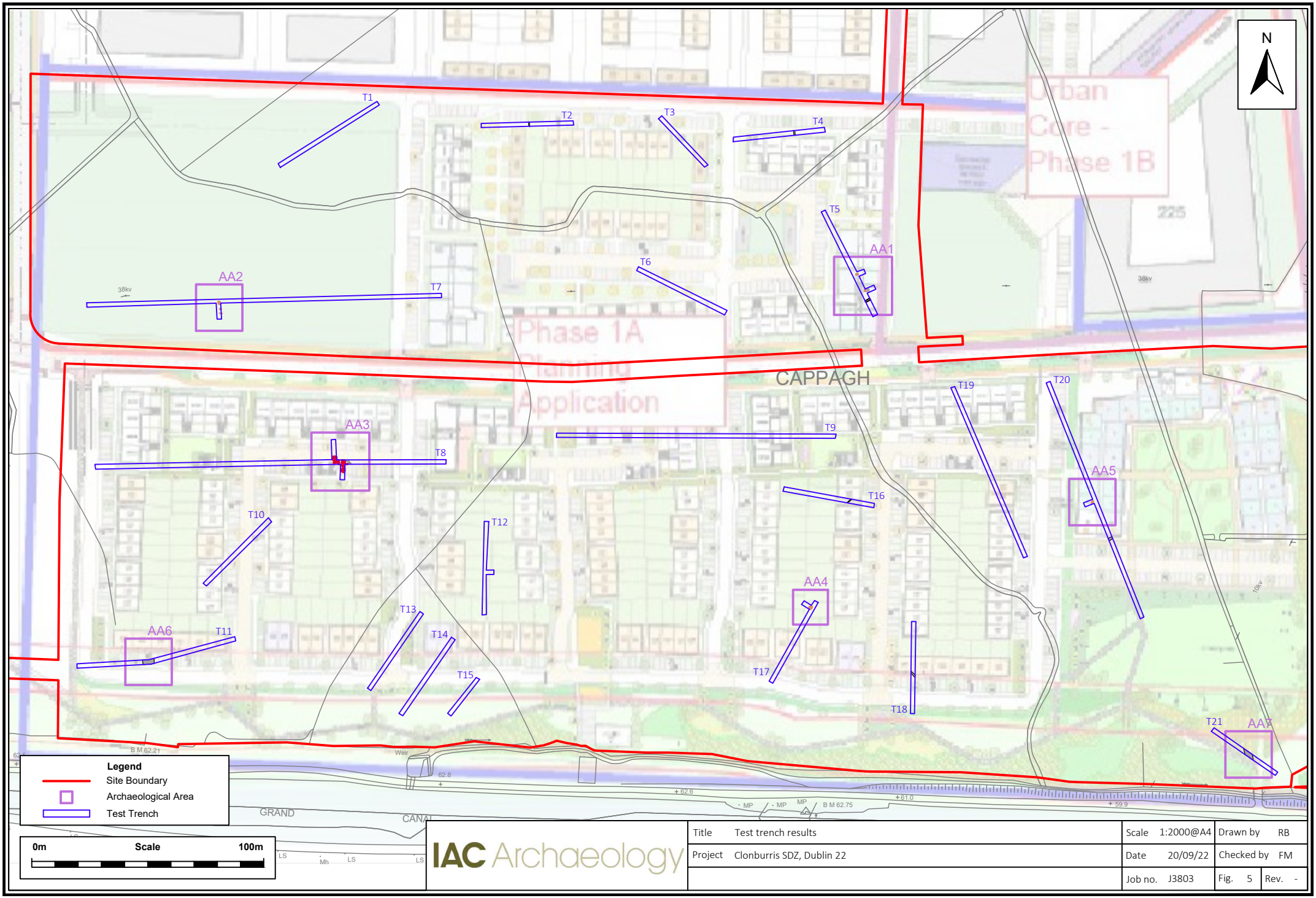
Site Boundary

Test Trench

0m — Scale — 500m

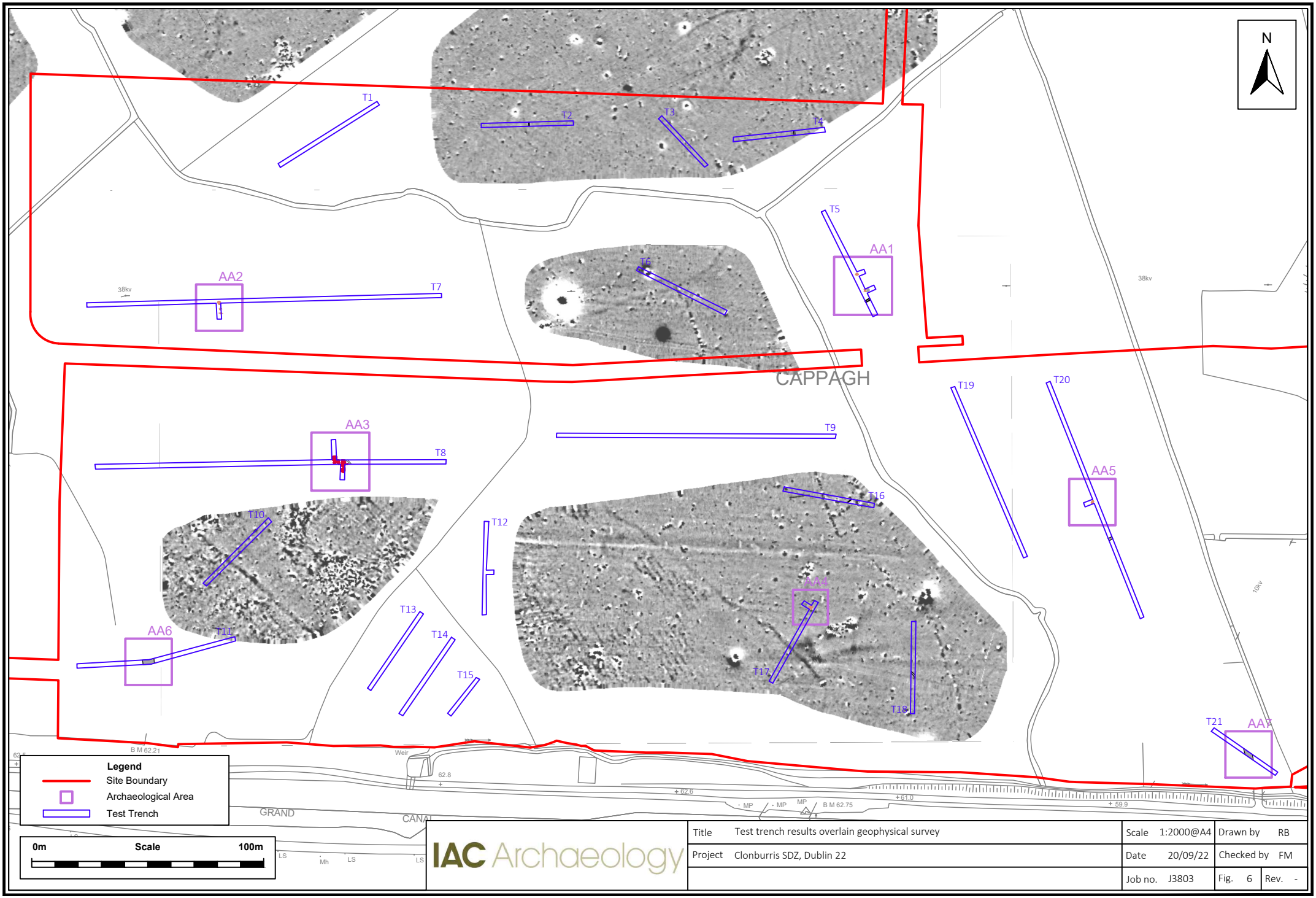
IAC Archaeology

Title	Extract from the last edition 6-inch OS map (1940)	Scale	1:7500@A4	Drawn by	RB
Project	Clonburris SDZ, Dublin 22	Date	20/09/22	Checked by	FM
		Job no.	J3803	Fig. 4	Rev. -



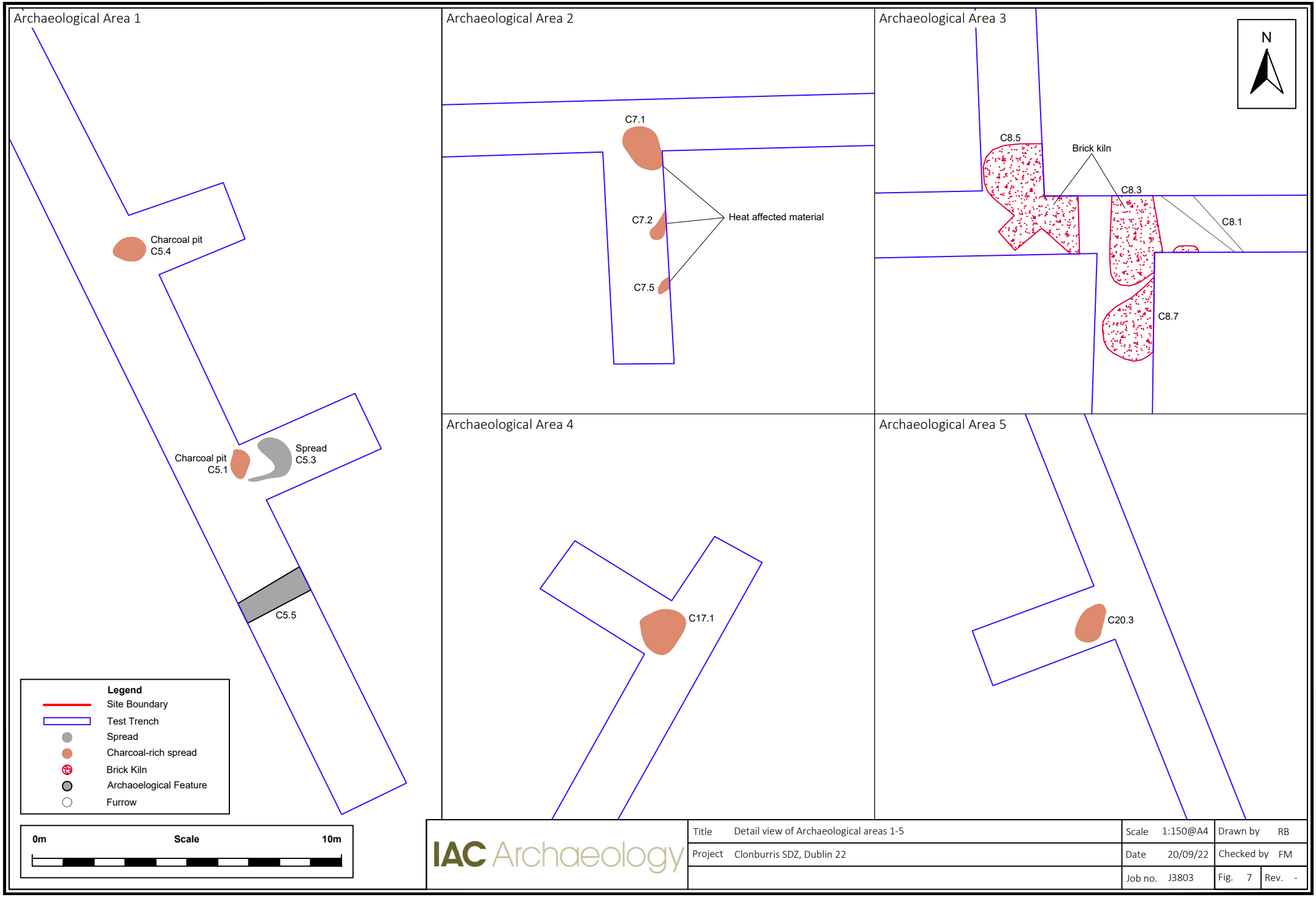
IAC Archaeology

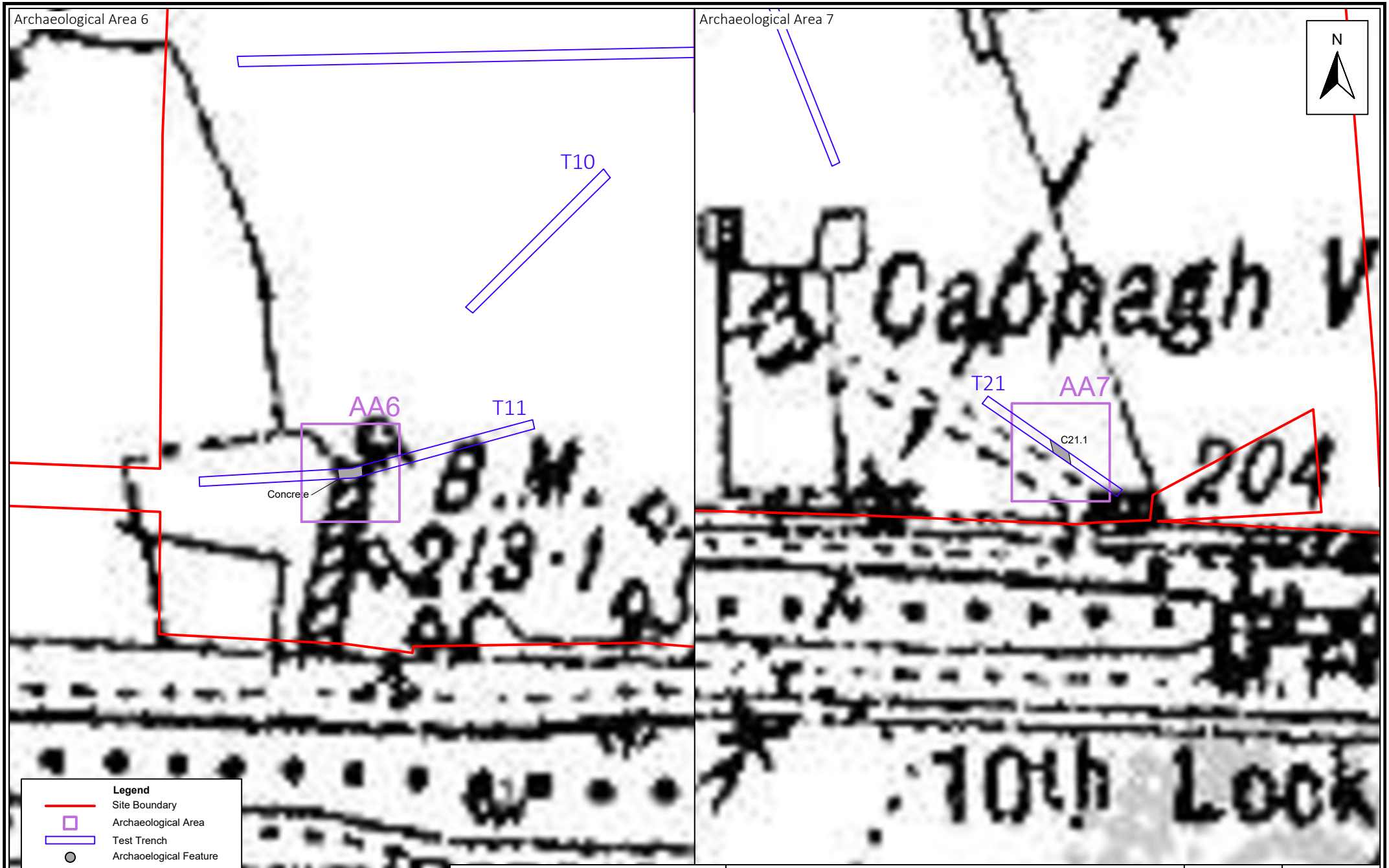
Title	Test trench results	Scale 1:2000@A4	Drawn by RB
Project	Clonburris SDZ, Dublin 22	Date 20/09/22	Checked by FM
		Job no. J3803	Fig. 5 Rev. -



IAC Archaeology

Title	Test trench results overlain geophysical survey	Scale 1:2000@A4	Drawn by RB
Project	Clonburris SDZ, Dublin 22	Date 20/09/22	Checked by FM
		Job no. J3803	Fig. 6 Rev. -


Archaeological Area 1
Charcoal pit
C5.4
Charcoal pit
C5.1
Spread
C5.3
C5.5
Archaeological Area 2
C7.1
C7.2
C7.5
Heat affected material
Archaeological Area 3
N
C8.5
Brick kiln
C8.3
C8.1
C8.7
Archaeological Area 4
C17.1
Archaeological Area 5
C20.3
Legend
Site Boundary
Test Trench
Spread
Charcoal-rich spread
Brick Kiln
Archaeological Feature
Furrow
0m
Scale
10m
IAC Archaeology
Title Detail view of Archaeological areas 1-5
Project Clonburris SDZ, Dublin 22
Scale 1:150@A4
Drawn by RB
Date 20/09/22
Checked by FM
Job no. J3803
Fig. 7
Rev. -



IAC Archaeology

Title	Detail view of Archaeological areas 6-7, overlain the last edition 6-inch OS map (1940)	Scale 1:1000@A4	Drawn by RB
Project	Clonburris SDZ, Dublin 22	Date 20/09/22	Checked by FM
		Job no. J3803	Fig. 8 Rev. -

Plate 1 Trench 5, shallow pit C5.1, facing east

Plate 2 Trench 5, area of *in situ* burning C5.3, facing west

Plate 3 Trench 5, charcoal-rich material C5.4, facing south

Plate 4 Trench 5, shallow linear feature C5.5, facing east

Plate 5 Trench 7, spread of heat-affected material C7.1, facing east

Plate 6 Trench 7, deposit of heat-affected material C7.5, facing east

Plate 7 Trench 8, possible brick clamp C8.3, facing west

Plate 8 Trench 17, charcoal-rich pit C17.1, facing northwest

Plate 9 Trench 20, shallow pit C20.3, facing southwest

Plate 10 Trench 11, Concrete slab, facing north

Plate 11 Trench 21, brick surface, facing southwest

Plate 12 Trench 3, facing southeast

Plate 13 Trench 10, facing southwest

Plate 15 Trench 15, facing northeast

Plate 14 Trench 11, facing east