

Appendix A16.10 Archaeological Testing Undertaken as Part of the Environmental Impact Assessment

**ARCHAEOLOGICAL ASSESSMENT
AT
CLONSHAGH,
COUNTY FINGAL**

**PART OF THE GREATER DUBLIN DRAINAGE
PROJECT**

ON BEHALF OF:

IRISH WATER

LICENCE NUMBER: 13E355

LICENSEE: FINTAN WALSH

AUTHORS: FINTAN WALSH & FAITH BAILEY

JUNE 2015

IAC Irish Archaeological
Consultancy

ABSTRACT

Irish Archaeological Consultancy Ltd has prepared this report on behalf of Irish Water to study the impact, if any, on the archaeological and historical resource of a proposed waste water treatment plant at Clonshagh, County Dublin (OS Sheet 15). A programme of test trenching was undertaken by Fintan Walsh of IAC Ltd under licence 13E355 during August and October of 2014 and February 2015. It follows on from geophysical survey of the site in 2013 and early 2014. Both programmes of investigation will form part of the Environmental Impact Statement for the Greater Dublin Drainage project, which will be published in 2017.

Despite a proliferation of recorded archaeological sites surrounding the 23ha development area, archaeological testing failed to identify any feature or deposits of archaeological potential. The only area that was identified as possibly containing a site of archaeological significance was recorded in the 2013 geophysical survey. This possible enclosure was located to the immediate north of the land take required for the proposed development.

The remains of a number of relatively recent post medieval field boundaries and drains were noted during testing; however no significant archaeological remains were identified. It remains possible that ground disturbances, such as topsoil stripping, within the proposed development area, may have a direct adverse impact on small scale archaeological features that have the potential to survive beneath the current ground level with no geophysical signature and outside the footprint of the test trenches. It is therefore recommended that prior to development going ahead that further archaeological test trenching be carried out within the proposed development area in order to increase the sample of land take subject to assessment to c. 12%. This should be carried out by an archaeologist under licence to the Department of Arts, Heritage and the Gaeltacht and full provision should be made available by the developer for the resolution of any archaeological features or deposits that may be identified, should this be deemed the most appropriate manner in which to proceed.

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1 INTRODUCTION

1.1 General

The following report details the results of the programme of archaeological testing undertaken at the site of a proposed wastewater treatment plant at Clonshagh, County Dublin (Figure 1). This assessment has been carried out to ascertain the potential impact of the proposed development on the archaeological resource that may exist within the development area. It follows on from a geophysical survey of the site and will ultimately form part of the Environmental Impact Statement currently being carried out for the overall Greater Dublin Drainage project. The assessment was undertaken by Fintan Walsh of Irish Archaeological Consultancy Ltd, on behalf of Irish Water, under licence 13E355.

Due to the presence of crops within the land parcel the test trenches was carried out in three phases. The first phase took place on the 26th August 2014 for one day; the second phase commenced at the site on 28th October 2014 and lasted for two days and the third phase took place on the 2nd February 2015 and lasted for one day. All trenches were excavated with a tracked mechanical excavator equipped with a flat, toothless bucket, under strict archaeological supervision. A total of 37 trenches, were mechanically investigated across the test area. These were placed in order to assess the geophysical anomalies identified during the initial non-invasive survey (Figure 3).

1.2 The Development

The proposed development will consist of the construction of a large scale water treatment plant on a site measuring 23ha in size. Designs for the project have yet to be finalised.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 General

The proposed development area is located within the townland of Clonshagh, County Dublin. The site has already been subject to detailed archaeological assessment as part of the Alternative Sites Assessment and Route Selection Report (Phase 2), which was published in May 2012. Appendix 6 of this report consisted of the archaeological, built heritage and cultural heritage assessment of nine land parcels identified within the initial constraints study as potential locations for the wastewater treatment plant. Faith Bailey of IAC Ltd carried out this assessment, part of which led to the identification of three preferred sites (phase 4): Clonshagh, Annsbrook and Newtowncorduff. All three sites were subject to detailed geophysical survey as part of the Phase 4 assessment. The survey results at Newtowncorduff suggested that significant archaeological remains survive within a portion of the development area. These appear to represent a medieval farmstead and associated field systems, as well as a possible circular enclosure. The geophysical results at the Annsbrook and Clonshagh sites indicated some archaeological potential, although at Clonshagh the activity was located either outside or on the very edge of the development area. At Annsbrook the potential activity was located slightly further into the site.

Clonshagh or Annsbrook were deemed to be more appropriate sites for development as a result of the archaeological studies. The overall assessment from all environmental specialists, twinned with engineering, led to the Clonshagh site being identified as the most preferred for the development of the treatment plant.

As part of the Environmental Impact Statement, consultation was carried out with Mr Mark Keegan of the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht (DoAHG). He requested that the treatment plant site be subject to archaeological testing as part of the Environmental Impact Statement. As such, IAC Ltd were appointed to carry out the work in order to further inform the baseline. The assessment was carried out over three phases in 2014 and 2015 by Fintan Walsh of IAC Ltd under licence 13E355.

2.2 Archaeological and Historical Background

The proposed development area at Clonshagh is formed by five fields currently under arable cultivation. At the time of the licence application for the work, there were seven RMP sites located within 1km of the proposed site. The closest of these consisted of DU015-056, which is the site of an enclosure located c. 260m to the east (Figure 2). The proposed site is located within the townlands of Clonshagh and Clonshagh (E.D Kinsaley). The boundary that separates the two crosses the development area.

In November 2013 a number of new sites of archaeological potential were identified within the landscape surrounding the proposed wastewater treatment plant site as a result of new aerial photographic data sets becoming available on bing.com. These were added to the online SMR archive by the Archaeological Survey of Ireland (www.archaeology.ie) and increased the number of recorded archaeological sites within 1km of the treatment plant site from seven to 12 (Appendix 1). However, the closest recorded site to the proposed development area still consists of the recorded enclosure DU015-056 (Figure 2).

During the initial site assessment a total of seven areas of archaeological potential were identified within the vicinity of the site. The closest of these consisted of a

possible enclosure, which was marked as a tree ring on the first edition OS map (Phase 2 ASA Report Ref.: CH 62). This is located c. 150m east of the proposed site. Two additional ring fort sites were also identified within aerial photographs. The first of these was located c. 530m north-east (Phase 2 ASA Report Ref.: CH 58), whilst the second is located c. 730m to the west (Phase 2 ASA Report Ref.: CH 66). Additional aerial photography data sets have been released since the publication of the ASA report. These include photographs of the area available on Google Earth, which date to July 2014 (a particularly warm summer). Two additional possible ringforts separated by a distance of 50m are visible c. 70m north and c. 50m north-west of the proposed development area. This photo set also indicates the possible remains of a linear field system within the eastern portion of the proposed development area. None of these apparent boundaries are marked on the historic OS mapping editions.

A review of the Excavations Bulletin (1970–2014) has revealed that prior to the geophysical survey and archaeological testing within the proposed development area, no previous archaeological fieldwork has been carried out. However, a number of investigations have taken place within the surrounding area. Test excavations were undertaken at three locations along the proposed route of the Malahide distributor road. At Belcamp, c. 225m south-east of the site, two archaeological sites were identified consisting of a pit filled with cockleshell and a potential prehistoric site comprising of a large pit, two smaller pits and a linear feature filled with charcoal-rich silty clay and burnt stones. In the wider area, a furrow, a linear field drain of indeterminate date and an 18th/19th-century occupation deposit were uncovered at Springhill and at Kinsaley a shallow pit with a charcoal-rich fill was uncovered at the top of the hill (Licence Ref.: 08E0529).

A review of the topographical files in the National Museum of Ireland revealed no stray finds recorded from the townlands surrounding the development area.

A review of the historic mapping shows that Rocque's Map (1760) is the first map to show the approximate area of the development area. It is shown as comprising all or part of eight fields of pasture located to the south and north of watercourses (Figure 4). *Bellcamp* House is shown to the east of the site surrounded by landscaped gardens. *Clonsilogh* (Clonshagh) is annotated to the west of the site with several houses along a roadway, south of Stockhole. To the north of the river there a number of houses annotated as *Mill Town*, *Balkins*, *The Park* (demesne lands) and *Rikin Head* (later Springhill House RPS 792). *St. Doolagh's Hills* are annotated to the north-east and *St. Doolagh's Church* (DU015-009) and well are to the east of these. No buildings or features of archaeological significance are shown on the later OS map editions (Figure 5).

A field inspection of the site failed to reveal any features of obvious archaeological potential. All of the fields are under arable cultivation, including root vegetables.

2.3 Summary of Geophysical Survey

Target Archaeological Geophysics undertook a survey of the proposed development area at Clonshagh as part of the overall site selection assessment (Nicholls 2013). This was carried out under licence 13R25 during March and April of 2013. The results of the survey are summarised below and shown on Figure 3:

CG 1 is the western most field within the proposed development area. The geophysical results are characterised by the presence of a broad linear response, likely to represent a former paleo-channel. A small linear trend at the centre of the survey area may represent a natural feature or a boundary.

CG 2 forms the southern portion of the proposed development area. Although the area subject to survey was relatively narrow, a number of strong magnetic linear anomalies were noted throughout the area. These are likely to represent former field boundaries, some of which are marked on the first edition OS map (1844). Discrete curving linear anomalies were noted in the north-west part of CG 2, which have the potential to represent a possible early medieval field system. These features extend outside of the proposed development area. Similar features were noted in the narrow eastern part of the survey area. These may represent an enclosure, although interpretation is difficult due to the narrow nature of the survey area.

The most interesting response within CG 3 consists of the remains of a possible sub-circular enclosure, located in the north-east corner of the field. The entire feature was not identified during the survey due to disturbance around the corner of the field. However, it is located to the immediate north-east of the boundary of the proposed development area. It occupies an area to the immediate south-east of a paleo-channel, which was also identified as an anomaly in the survey and is clear on some of the aerial photograph sets. The topography in the area shows that it partially occupies a gradual north facing slope that runs towards the stream, which currently borders the field. Other anomalies within CG 3 include magnetic disturbance from overhead cables and a number of linear features that are likely to represent former boundaries. The eastern linear trends have the potential to represent a plough damaged rectangular enclosure, although that interpretation is tentative.

Access within CG 4 was limited due to a vegetable crop. Three areas within the overall field were surveyed, revealing linear anomalies and trends, orientated east-west. These are likely to represent recent drainage.

Linear anomalies were also identified throughout CG 5. These are likely to represent drainage features, cultivation and a probably former boundary. The linear responses here are numerous and the potential that plough damaged archaeological remains may be indicated in this location should not be dismissed.

Due to adverse weather conditions, which produced very wet ground conditions, some areas were not available for survey during this phase of works. Therefore, additional survey was carried out by Earthsound Archaeological Geophysics in April 2014 under licence 14R0045 (Figure 3) (Bonsall & Regan 2014). This concluded the following:

A series of linear and curvilinear weak magnetic anomalies were detected across the survey area, possibly associated with archaeological, geological or agricultural processes. A single small area of positive magnetic enhancement was also detected; this could represent the presence of possible archaeological material. The site has previously been partially surveyed by Target Archaeological Geophysics (Nicholls 2013). The type of features detected in this survey are similar to those in the previous survey.

3 ARCHAEOLOGICAL TEST TRENCHES

3.1 General

Test trenching took place on the 26th August; the 28th and 29th October 2014 and the 2nd of February 2015. This was carried out using a tracked mechanical excavator equipped with a flat, toothless bucket. A total of 37 trenches were excavated across the proposed development area under strict archaeological supervision by Fintan Walsh. The trenches had a total length of 2926m and were positioned in order to assess geophysical anomalies identified during the 2013 and 2014 surveys (Figure 3), along with areas that produced no geophysical results. All the trenches measured 2m in width.

Any investigated deposits were preserved by record. This was by means of a GPS survey, written, drawn and photographic records. 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.

3.2 Archaeological Testing Results

Trench No	Length (m)	Depth (m)	Orientation	Geophys. Anomaly	Results
1	45	0.3	NNW-SSE	Linear trend	A post medieval field boundary, which is present on the first edition OS map of 1844 was identified c 11m from the northern end of the trench at the location of the geophysical anomaly (Plate 1).
2	38	0.4	North-west-south-east	Linear archaeology?	A post medieval field boundary was identified c. 15m from the southern end of the trench, which was filled with a brown sandy clay and sherds of transfer printed ceramics. The ditch was 2.2m wide and 0.4m deep (Plate 2).
3	157	0.35	NNE-SSW	N/a	The topsoil possessed a depth of 0.35m and sealed a natural sub-soil consisting of a firm, mottled yellow clay. No features of archaeological potential were identified.
4	92	0.3	WNW-ESE	Linear trends	Four linear trends were targeted by this trench. However, only one feature was identified within the trench. This consisted of a former post medieval field boundary exposed 8m from the western end of the trench. A ginger beer bottle was recovered from the fill.
5	123	0.35	North-south	Linear trends	The topsoil possessed a depth of 0.35m and sealed a natural sub-soil consisting of a firm, mottled yellow clay. No features of archaeological potential were identified.
6	90	0.4	East-west	Linear trends	A former post medieval field boundary was identified 4m from the western end of the trench, which did not appear in the geophysical survey. No features appeared at the other geophysical anomaly locations. The ditch of the boundary was 2.5m wide and the fill contained fragments of red brick and post

Trench No	Length (m)	Depth (m)	Orientation	Geophys. Anomaly	Results
					medieval pottery (Plate 3).
7	156	0.4	East-west	N/a	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled yellow clay. No features of archaeological potential were identified.
8	98	0.4	East-west	N/a	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled yellow clay. No features of archaeological potential were identified.
9	88	0.4	NNE-SSW	Linear trend	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled yellow clay. No features of archaeological potential were identified.
10	58	0.4	North-east-south-west	N/a	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled orange brown clay. No features of archaeological potential were identified.
11	63	0.4	NNE-SSW	N/a	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled orange brown clay. No features of archaeological potential were identified.
12	57	0.4	NNE-SSW	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled yellow clay. No features of archaeological potential were identified (Plate 4).
13	57	0.4	NNW-SSE	N/a	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled orange brown clay. No features of archaeological potential were identified.
14	71	0.4	North-south	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified. A small section of the trench was not excavated to allow for an exclusion zone for overhead wires.
15	178	0.4	East-west	N/a	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. The remains of a post medieval field boundary were identified 57m from the western end of the trench. This had a width of 2m.
16	165	0.4	East-west	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. The remains of a post medieval field boundary were identified 19m from the western end of the trench. This had a width of 2m and was aligned to the boundary identified in Trench 15. A small section of the trench was not excavated to allow for an exclusion zone for overhead wires.
17	79	0.4	North-	Drainage	The topsoil possessed a depth of 0.4m and

Trench No	Length (m)	Depth (m)	Orientation	Geophys. Anomaly	Results
			south	features	sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified (Plate 5).
18	91	0.4	NNW-SSE	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
19	46	0.4	WSW-ENE	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
20	32	0.4	WSW-ENE	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
21	48	0.4	North-south	Linear trend	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
22	93	0.35	North-south	Linear trend	The topsoil possessed a depth of 0.35m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
23	23	0.4	North-south	N/a	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified (Plate 6).
24	55	0.4	East-west	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
25	31	0.4	NNE-SSW	Linear trend	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
26	56	0.4	North-east-south-west	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
27	68	0.45	East-west	N/a	The topsoil possessed a depth of 0.45m and sealed a natural sub-soil consisting of a firm, mottled yellow brown clay. No features of archaeological potential were identified.
28	21	0.45	NNE-SSW	Linear trend	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
29	73	0.4	East-west	N/a	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.

Trench No	Length (m)	Depth (m)	Orientation	Geophys. Anomaly	Results
30	43	0.4	North-west-south-east	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled yellow brown clay. No features of archaeological potential were identified.
31	132	0.4	North-south	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. A number of stone lined post medieval drains were identified within the trench, as indicated within the geophysical survey as linear trends.
32	56	0.4	North-south	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled yellow brown clay. No features of archaeological potential were identified (Plate 7).
33	84	0.4	East-west	Linear trend	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled brown clay. No features of archaeological potential were identified.
34	57	0.4	ENE-WSW	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled yellow brown clay. No features of archaeological potential were identified.
35	105	0.35	East-west	Linear trend	The topsoil possessed a depth of 0.35m and sealed a natural sub-soil consisting of a firm, mottled yellow brown clay. No features of archaeological potential were identified.
36	73	0.3-5	North-south	Linear trends	The topsoil possessed a depth of 0.3-5m and sealed a natural sub-soil consisting of a firm, mottled yellow brown clay. No features of archaeological potential were identified.
37	128	0.4	North-south	Linear trends	The topsoil possessed a depth of 0.4m and sealed a natural sub-soil consisting of a firm, mottled yellow brown clay. No features of archaeological potential were identified (Plate 8).

3.3 Conclusions

A geophysical survey was carried out within the proposed development area in March and April 2013 and April 2014. Archaeological test trenching was carried out over three phases during August and October 2014 and February 2015. The subject site measures 23ha in size and it is proposed to develop it as a wastewater treatment plant. This will form part of the Greater Dublin Drainage project.

One potential enclosure was identified during the geophysical survey, although the site is located to the immediate north of the development area and as such is outside of the land take for the development. No other recorded or previously unrecorded sites of archaeological potential were identified within the proposed development area during this survey.

Archaeological testing followed on from the geophysical survey of the site. A total of 37 trenches were excavated across the proposed development area (2926m). A number of relatively recent post medieval field boundaries were identified along with

post medieval and modern drains. The presence of these features was indicated within the geophysical survey. Additional boundaries were indicated within Google Earth coverage in the eastern part of the site. However, nothing of archaeological significance was apparent in this area. The site has been subject to intensive arable farming over a long period of time. No features or deposits of archaeological significance were identified during the course of testing.

The geophysical survey and archaeological testing will form part of the archaeological, architectural and cultural heritage EIS that IAC Ltd is currently undertaking for the project. This is due to be published in 2017.

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

- It is possible that ground disturbances, such as topsoil stripping, within the proposed development area, may have a direct adverse impact on small scale archaeological features that have the potential to survive beneath the current ground level with no geophysical signature and outside the footprint of the test trenches.

4.2 Mitigation

We recommend the following actions in mitigation of the impacts above.

- It is recommended that prior to development going ahead that further archaeological test trenching be carried out within the proposed development area in order to increase the sample of land take subject to assessment to c. 12%. This should be carried out by an archaeologist under licence to the Department of Arts, Heritage and the Gaeltacht and full provision should be made available by the developer for the resolution of any archaeological features or deposits that may be identified, should this be deemed the most appropriate manner in which to proceed.

Please note that all recommendations are subject to approval by the National Monument Service of the Heritage and Planning Division, Department of Arts, Heritage and The Gaeltacht.

5 REFERENCES

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Cartographic Sources

Ordnance Survey maps of County Dublin 1843, 1907

John Rocque's Map of County Dublin, 1760

Electronic Sources

www.archaeology.ie – DoAHG website listing all SMR sites with aerial photographs

www.osi.ie – Ordnance Survey aerial photographs dating to 1995, 2000 & 2005

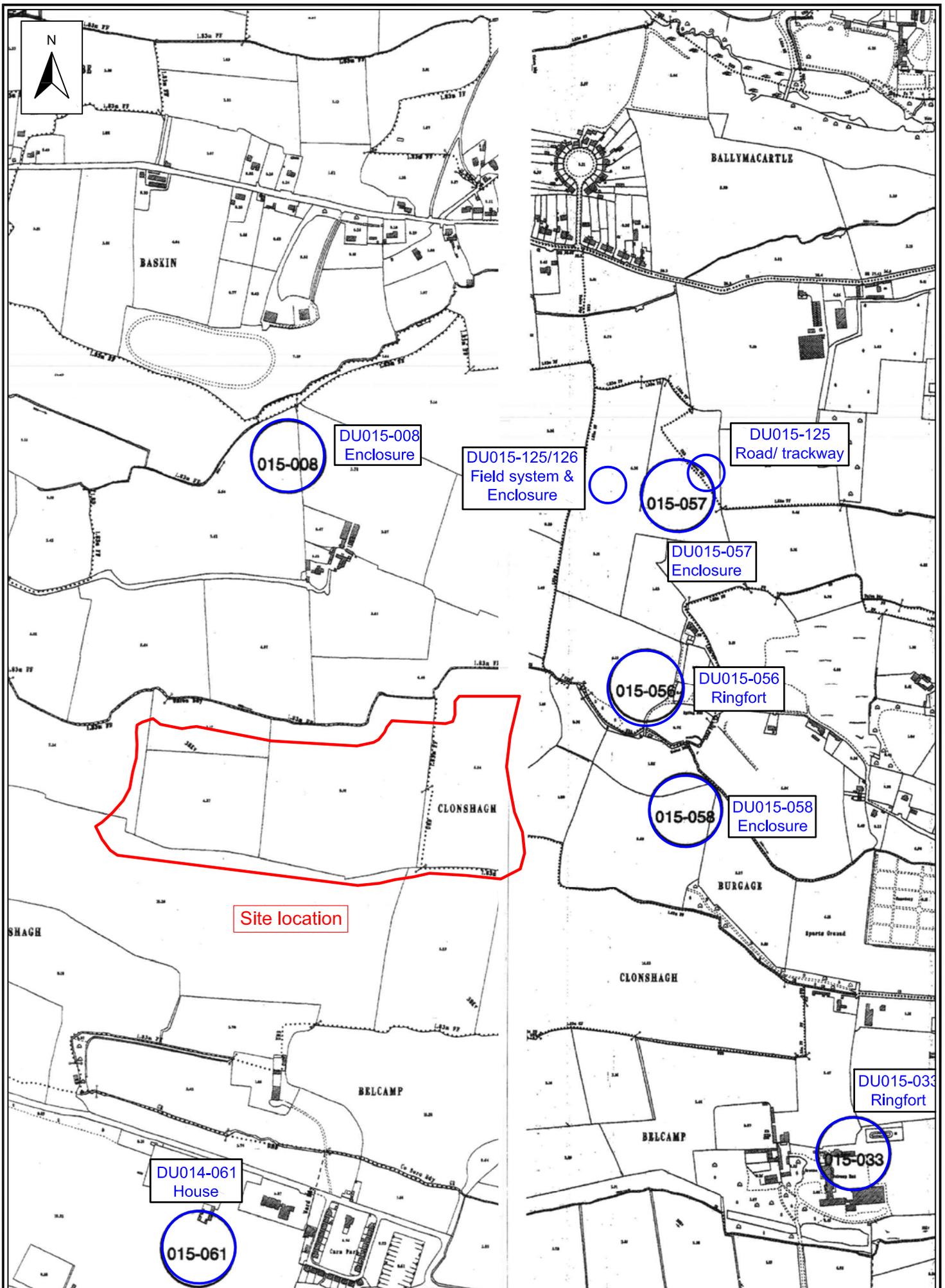
www.excavations.ie – Summary of archaeological excavation from 1970–2014



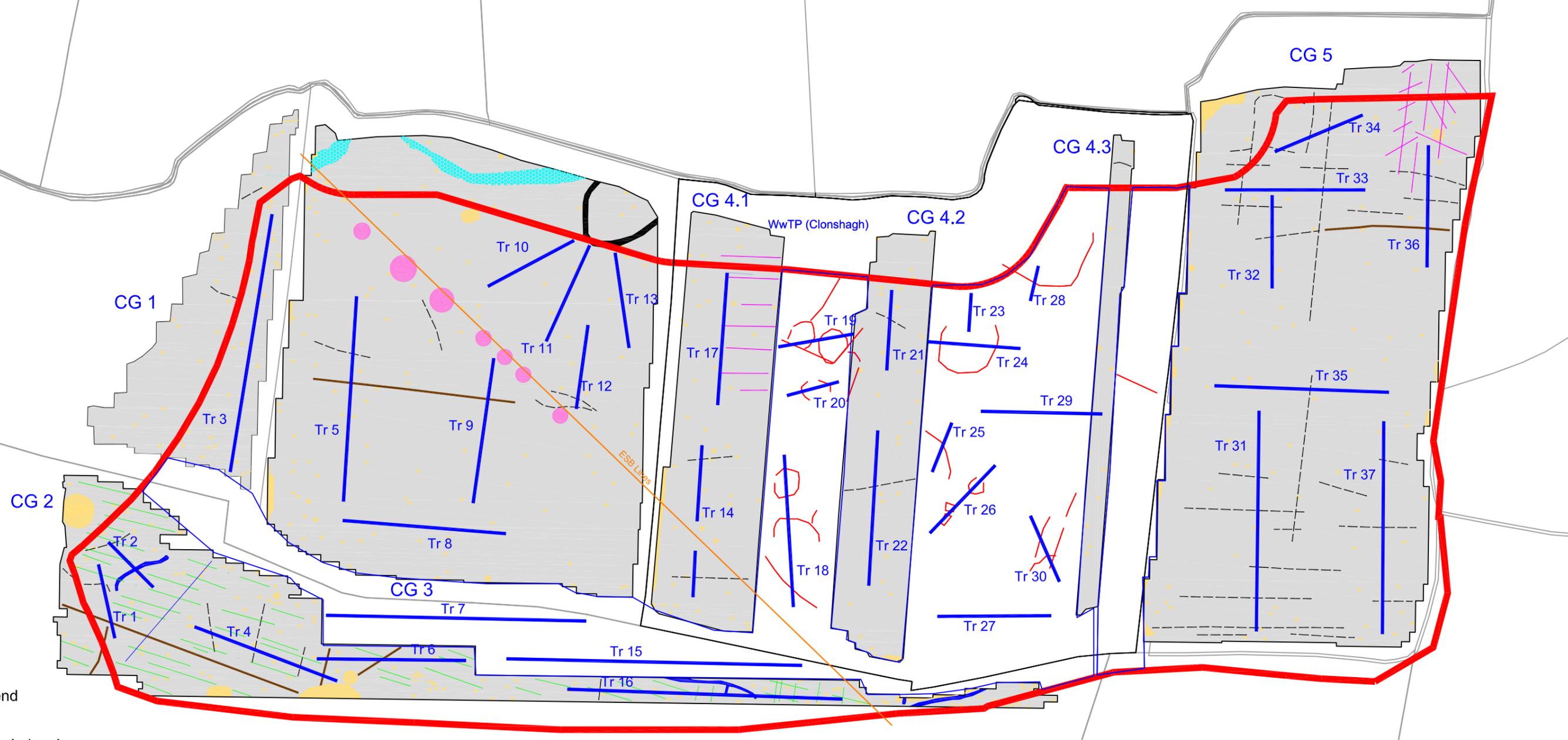
Site location



Title	Site Location	Scale	NTS @ A4	Drawn by	PD
Project	Dublin Greater Drainage Scheme	Date	17/02/15	Checked by	FB
Client	Irish Water	Job no.	J2664	Fig.	1
				Rev.	1



Title	Extract from the RMP map showing the area of proposed development	Scale	NTS @ A4	Drawn by	PD
Project	Greater Dublin Drainage Scheme	Date	17/02/15	Checked by	FB
Client	Irish Water	Job no.	J2664	Fig.	2
				Rev.	1



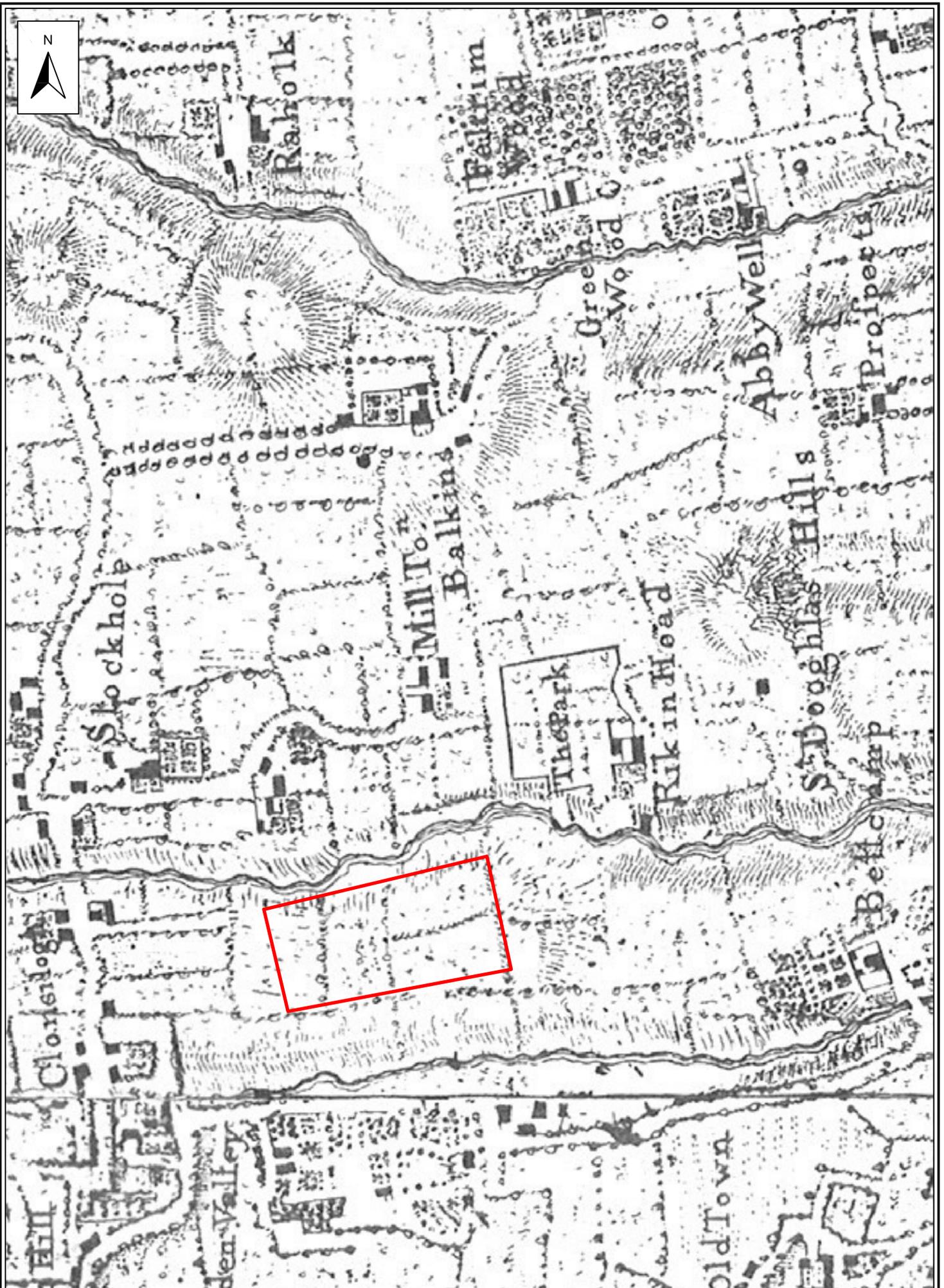
Area of
proposed
development

Legend

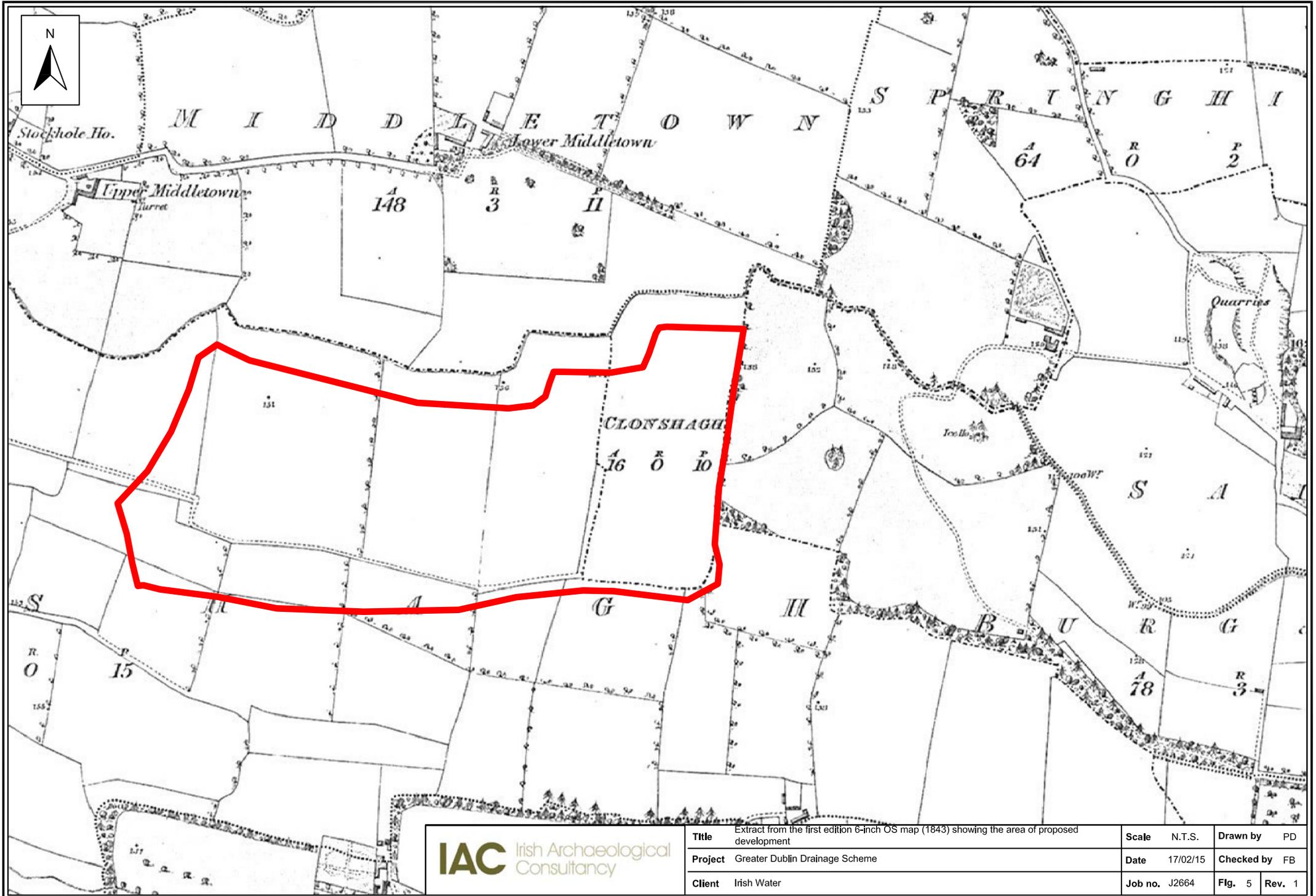
-  Archaeology
-  ? Archaeology
-  Trend
-  Possible former boundary
-  Cultivation
-  Magnetic disturbance
-  ? Natural
-  Ferrous
-  Trend

Title: Test trench locations with results of geophysical survey	
Project: Greater Dublin Drainage Scheme	
Client: Irish Water	
Scale: 1:2500 @A3	Job No: J2664
Date: 17/02/15	Figure No: 3
Produced by: Faith Bailey	





Title	Extract from Rocque's Map of Dublin (1760), showing approximate location of the proposed development area	Scale	NTS @ A4	Drawn by	PD
Project	Greater Dublin Drainage Scheme	Date	17/02/15	Checked by	FB
Client	Irish Water	Job no.	J2664	Fig.	4
				Rev.	1



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Title	Extract from the first edition 6-inch OS map (1843) showing the area of proposed development	Scale	N.T.S.	Drawn by	PD
Project	Greater Dublin Drainage Scheme	Date	17/02/15	Checked by	FB
Client	Irish Water	Job no.	J2664	Fig.	5
				Rev.	1



Plate 1 – Trench 1, facing NNW



Plate 2 – Trench 2, facing north-west



Plate 3 – Trench 6, facing north



Plate 4 – Trench 12, facing north



Plate 5 – Trench 17, facing north



Plate 6 – Trench 24, facing north



Plate 7 – Trench 33, facing south



Plate 8 – Trench 37, facing south

APPENDIX 1: RMP SITES WITHIN THE SURROUNDING AREA

RMP No.:	DU015-056
Townland:	Springhill
Parish:	Cloghran
Barony:	Coolock
Classification:	Ringfort
Distance from site:	260m east
Description:	Located on a south facing slope with an open field tillage west of Springfield House. An aerial photograph taken in 1992 (OS 8:7636) shows cropmark evidence for a single-ditched enclosure. It is also visible on Bing aerial (viewed 28 January 2015). Geophysical survey (Licence no. 08R0326) of the site was undertaken in advance of a proposed road realignment. A fragmented sub-circular enclosure measuring 39m in diameter with a probable entranceway to the east was identified. Several pit like responses suggestive of occupation were identified within the interior. Interpreted as a plough-damaged ringfort.
Reference:	SMR file

RMP No.:	DU015-127
Townland:	Springhill
Parish:	Cloghran
Barony:	Coolock
Classification:	Field system
Distance from site:	334m north-east
Description:	A field system visible as a crop mark on an aerial photograph together with other features such as enclosures DU015-126---- & DU015-057---- and road DU015-125---- (SMR file; pers. comm. T. Condit). The field boundaries are visible on the 1st Edition Ordnance Survey map (1837) as is road DU015-125----. The majority are still visible on the 1938 edition. Remnants visible on the ground but now large open field under crop.
Reference:	SMR file

RMP No.:	DU015-058
Townland:	Burgage
Parish:	Balgriffin
Barony:	Coolock
Classification:	Enclosure
Distance from site:	395m east
Description:	Situated on high ground within an undulating landscape. An aerial photograph taken by the OS in 1992 (Flight 8:7660) shows cropmark evidence for a triple-ditched enclosure comprising two inner circular ditches which are enclosed by a sub-circular enclosure. Geophysical survey (Licence no. 08R0023) was undertaken in advance of a proposed road realignment. Two concentric and symmetrical circular responses are encompassed

	within an outer sub-square response representing a probable trivallate enclosure. Outer enclosure 40m diam., the central 27m and the inner 12m diam. Few responses within the interior of the enclosures were identified. (Harrison 2008a). Not visible at ground level.
Reference:	SMR file

RMP No.:	DU015-126
Townland:	Springhill
Parish:	Cloghran
Barony:	Coolock
Classification:	Enclosure
Distance from site:	405m north-east
Description:	An irregular shaped enclosure visible as a crop mark on an aerial photograph together with other features that could indicate a possible field system (DU015-127----) (SMR file; pers. comm. T. Condit). Enclosure (DU015-057----) is located to the east. Located on a relatively high land with a slope to the south. Extensive views to the Dublin Mountains. Within large open field under crop. No visible remains.
Reference:	SMR file

RMP No.:	DU015-057
Townland:	Springhill
Parish:	Cloghran
Barony:	Coolock
Classification:	Enclosure
Distance from site:	490m north-east
Description:	Located on slight east west rise within massive open field-field boundaries long since removed. Extensive views to the high land of the north and south to the Dublin Mountains. Just to the east is an ancient road (DU015-125----). Visible as cropmark on Bing aerial (viewed 28/01/2015). A geophysical survey (Licence no. 08R0326) of the site was undertaken in advance of a proposed road realignment. A fragmented curvilinear response 38m in diameter thought to represent a sub-circular ditched enclosure was identified. Within interior are several pit type responses as well as pits, postholes, ditches and gullies. Probable entrance to the south into what appears to be an annex. Within this area there is thought to be burning or burnt material. An outer ditch was also identified and although responses were faint it would appear to measure 57mEW x 69mNS (Harrison 2008).
Reference:	SMR file

RMP No.:	DU015-008
Townland:	Middletown
Parish:	Cloghran
Barony:	Coolock
Classification:	Enclosure
Distance from site:	500m north
Description:	The site is in a field of pasture north of Middletown House. Shown

	on the 1937 edition OS 6-inch map as circular in plan (diam. c. 35m). Not visible at ground level.
Reference:	SMR file

RMP No.:	DU015-125
Townland:	Springhill
Parish:	Cloghran
Barony:	Coolock
Classification:	Roadway
Distance from site:	540m north-east
Description:	A road visible as a crop mark on an aerial photograph. (SMR file; pers. comm. T. Condit). Enclosure DU015-057 is located to the west. Located on a relatively high land with a slope to the south. Visible on the 1st Edition Ordnance Survey map (1837) as a tree lined road leading to St Doolagh's Quarries and lime kilns. Coincides with the townland boundary for part of its extent. No visible remains.
Reference:	SMR file

APPENDIX 2: LEGISLATIVE FRAMEWORK 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 2004* 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 the Environment, Heritage and Local Government) 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 the case of urgent necessity and with the consent of the Minister, commence the work until two months after the 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 3: IMPACT ASSESSMENT AND 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 4: MITIGATION MEASURES AND THE ARCHAEOLOGICAL 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 can be defined as ‘a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design’ (IFA 2008).

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, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate’ (IFA 2009).

Archaeological Monitoring can be defined as ‘a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive (IFA 2008).

Underwater Archaeological Assessment consists of a programme of works carried out by a specialist underwater archaeologist, which can involve wade surveys, metal detection surveys and the excavation of test pits within the sea or riverbed. These assessments are able to access and assess the potential of an underwater environment to a much higher degree than terrestrial based assessments.