

Appendix 11. Cultural Heritage

Appendix 11.1 – ‘*Geophysical Survey Report*’, JM Legh Surveys Ltd., 2020

Appendix 11.2 – ‘*Archaeological Test Trenching Report*’, JCA, 2020.

Appendix 11.3 - Excavation Database Entries.

Appendix 11.4 - Photographic Record / Plates.

Appendix 11.1 – *‘Geophysical Survey Report’*, JM Legh Surveys Ltd.,
2020

GEOPHYSICAL SURVEY

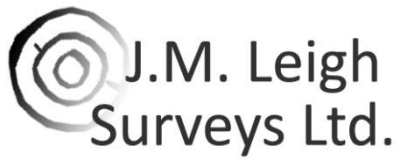
REPORT

Ravenswell,
Bray,
County Wicklow

Date:
06/10/2020

Licence: 20R0214

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GEOPHYSICAL SURVEY SUMMARY SHEET
RAVENSWELL, BRAY, COUNTY WICKLOW

Site Name	Bray	Ref No.	20052
Townland	Ravenswell	Licence No.	20-R-0214
County	Wicklow	Licence Holder	Joanna Leigh
ITM (centre)	E726521, N719436	Purpose	Pre-planning
Client	John Cronin & Associates	Reference No.	N/A

Ground Conditions

Survey was conducted within a former golf course which comprised short grass with some areas of scrub and rough vegetation. Modern litter and areas of burning were also evident across the application area.

Survey Type

Detailed gradiometer survey totalling c. 4 hectares.

Summary of Results

There are no clear responses indicative of archaeological features within the application area. The geophysical survey has identified former agricultural trends typical of ploughing activity in the Dublin and Wicklow sections of the application area. A spread of increased response runs east to west and corresponds with the topographic embankment that forms the county boundary.

Magnetic disturbance and responses resulting from features of the former golf course are evident. A large spread of magnetic disturbance extends from the trainline. This is a result of the electrified trainline and completely masks the data here. No archaeological interpretation within this disturbance can be provided.

Field Staff

Joanna Leigh & Susan Curran

Report Date

06/10/2020

Report Author

Susan Curran & Joanna Leigh

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Geophysical Survey Report

Ravenswell, Bray, County Wicklow

1 Introduction

- 1.1 A geophysical survey has been conducted by J. M. Leigh Surveys Ltd. at a site in the town of Bray, County Wicklow, comprising the townlands of Ravenswell, County Wicklow and Cork Great, County Dublin. The survey was requested by John Cronin & Associates on behalf of Ballymore Group. The survey forms part of a wider pre-planning site investigation.
- 1.2 The application area is contained within a former golf course which now functions as a public recreation amenity. It is bounded on the east by the Wexford to Dublin railway line, and to the west by a newly constructed school. The River Dargle flows into the sea c. 150m to the south. The site comprised short grass with scrub, rough vegetation and mature trees in places. Coinciding with the location of a low bank, the Dublin/Wicklow county boundary runs approximately east-west across the southern half of the application area, separating the townlands of Cork Great (to the north) and Ravenswell (to the south). Figure 1 presents the site and survey location at a scale of 1:2,000.
- 1.3 There are two recorded monuments within the application area. These 'Linear earthworks' (WI004-005 & DU026-124) follow the line of the county boundary and may form part of the Pale Ditch. A 'Church' (DU026-068001), 'Graveyard' (DU026-068002) and 'Ritual site - holy well' (DU026-069) are located c. 215m to the west. A 'Martello tower' (DU026-070) lies c. 230m to the north-east and a second example (WI004-002) lies c. 230m to the south-east. The Zone of Notification for the 'Historic town' of Bray (WI004-001) is situated c. 400m to the south. This comprises a number of recorded monuments: a 'Cross-slab' (WI004-001001), 'Castle - unclassified' (WI004-001003), 'Church' (WI004-001004), and a 'Castle - tower house' (WI004-001006).
- 1.4 The main aim of the survey was to identify any responses which may represent previously unknown archaeological remains within the application area. It is the objective of the survey to identify the location, nature and extent of any responses of potential archaeological interest.
- 1.5 The detailed gradiometer survey was conducted under licence 20R0214 issued by the Department of Culture, Heritage and the Gaeltacht.

2 Survey ground conditions and further information

- 2.1 The survey area was contained within a former golf course which largely comprised short grass. Some patches of scrub and rough vegetation were not accessible for survey.
- 2.2 The railway line which bounds the site to the east caused considerable magnetic disturbance which may obscure potential archaeological responses in this area. No archaeological interpretation within this disturbance can be provided.

3 Survey Methodology

- 3.1 A detailed gradiometer survey detects subtle variations in the local magnetic field and measurements are recorded in nano-Tesla (nT). Some archaeological features such as ditches, large pits and fired features have an enhanced magnetic signal and can be detected through recorded survey.
- 3.2 Data was collected with a Bartington Grad 601-2 instrument. This is a specifically designed gradiometer for use in archaeological prospection. The gradiometer operates with a dual sensor capacity making survey fast and effective.
- 3.3 The instrument is calibrated in the field to ensure a constant high quality of data. Extremely sensitive, these instruments can detect variations in soil magnetism to 0.01nT, affording diverse application throughout a variety of archaeological, soil morphological and geological conditions.
- 3.4 All data was collected in 'zigzag' traverses. Grid orientation remained constant throughout to facilitate the data display and interpretation.
- 3.5 Data was collected with a sample interval of 0.25m and a traverse interval of 1m, providing 6400 readings per 40m x 40m grid. The survey grid was set-out using a GPS VRS unit. Survey tie-in information is available upon request.
- 3.6 The survey methodology, data presentation and report content adheres to the European Archaeological Council (EAC) (2016) 'Guidelines for the use of Geophysics in Archaeology'.

4 Data display

- 4.1 A summary greyscale image and accompanying interpretation diagram are presented in Figures 2 and 3, at a scale of 1:1,000.
- 4.2 Numbers in parenthesis in the text refer to specific responses highlighted in the interpretation diagram (Figure 3).
- 4.3 Isolated ferrous responses highlighted in the interpretation diagram most likely represent modern ferrous litter and debris and are not of archaeological interest. These are not discussed in the text unless considered relevant.
- 4.4 The raw gradiometer data is presented in archive format in Appendix A1.01. The raw data is displayed as a greyscale image and xy-trace plot, both at a scale of 1:500. The archive plots are used to aid interpretation of the results and are used for reference only. The archive plots are available as PDF images upon request.
- 4.5 The display formats referred to above and the interpretation categories are discussed in the summary technical information section at the end of this report.

5 Survey Results

- 5.1 The data is largely dominated by modern disturbance, particularly along the eastern limits where it is bordered by the railway line. It is possible that any potential archaeological responses in this area have been obscured by the response from the railway. Two boreholes situated in the north-east and south-west of the dataset have caused localised magnetic disturbance.
- 5.2 A curvilinear band of increased magnetic and ferrous responses (1) runs approximately east-west across the southern half of the dataset. This corresponds with the line of the embankment (WI004-005 / DU026-124) which is also visible on the ground. Ferrous responses running along the line of (1) result from modern activity and litter and are not of archaeological interest.
- 5.3 Several isolated responses (2) have been identified within the dataset. These may represent the remains of isolated pit-type features. However, interpretation is cautious due to the abundance of ferrous responses in the data. They may equally represent more deeply buried ferrous debris.
- 5.4 Two areas of disturbance (3) correspond with the location of two features (tees) of the former golf course. These are evident on the ground as raised areas covered with rough vegetation and are not considered to be of archaeological potential.
- 5.5 Several parallel linear trends have been identified throughout the dataset. Those in the Dublin half run approximately north-south, whereas those in the Wicklow half run east-west. These are indicative of agricultural activity, most likely ploughing and seem to respect the boundary embankment (1).
- 5.6 Several poorly defined magnetic trends are visible throughout the dataset. However, they do not form any coherent pattern and no clear archaeological interpretation can be provided. These may be the result of former agricultural activity or may be related to landscaping works associated with the golf course. Indeed, the area is identified as a golf links on both the OS 25inch and Cassini 6inch mapping suggesting that it may have been subject to landscaping works over several centuries.

6 Conclusion

- 6.1 The dataset is dominated by modern disturbance, particularly adjacent to the railway line. Moreover, given that the area was identified as a golf links as early as the OS 25inch map (1888-1913), associated landscaping works over the subsequent centuries may have impacted the survival and/or detection of subtle archaeological remains at the site.
- 6.2 The recorded linear earthwork (WI004-005 / DU026-124) which is evident as a low bank has been identified in the geophysical survey as an increased magnetic response with multiple ferrous responses, although the ferrous responses most likely represent more recent activity.
- 6.3 Isolated responses are evident throughout the data set. However, there is no clear pattern and these may represent more deeply buried ferrous debris. An archaeological origin is considered to be unlikely given the nature of the activity at the site.
- 6.4 Former agricultural activity has been identified in the form of parallel linear trends which are indicative of ploughing. These seem to respect the boundary embankment that runs through the application area.
- 6.5 Consultation with a licensed archaeologist and with the Department of Culture, Heritage and the Gaeltacht is recommended to establish if any additional archaeological works are required.

7 Technical Information Section

Instrumentation & Methodology

Detailed Gradiometer Survey

Detailed gradiometer survey can either be targeted across a specific area of interest or conducted as a blanket survey across an entire application area, often as a standalone methodology.

Sampling methodologies can vary but a typical survey is conducted with a sample interval of 0.25m and a traverse interval of 1m. This allows detection of potential archaeological responses. Data is often collected in grids measuring 40m x 40m, with the data displayed accordingly. A more detailed survey methodology may be applied where archaeological remains are thought likely. This can sometimes produce results with a more detailed resolution. A survey with a grid size of 20m x 20m and a traverse interval of 0.5m will provide a data set with high resolution.



Bartington GRAD 601-2

The Bartington Grad 601-2 instrument is a specifically designed gradiometer for use in archaeological prospection. The gradiometer operates with a dual sensor capacity making survey very fast and effective. The sensors have a separation of 1m allowing greater sensitivity.

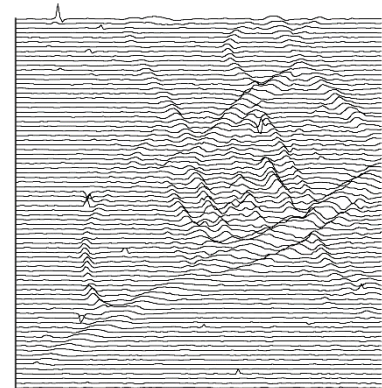


Frequent realignment of the instruments and zero drift correction ensure a constant high quality of data. Extremely sensitive, these instruments can detect variations in soil magnetism to 0.1nT, affording diverse application throughout a variety of archaeological, soil morphological and geological conditions.

Gradiometer Data Display & Presentation

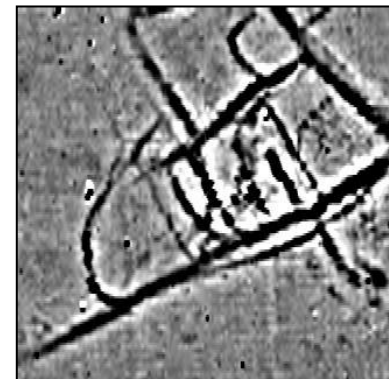
XY Trace

The data are presented as a series of linear traces, enabling a semi-profile display of the respective anomalies along the X and Y-axes. This display option is essential for distinguishing between modern ferrous materials (buried metal debris) and potential archaeological responses. The XY trace plot provides a linear display of the magnitude of the response within a given data set.



Greyscale*

As with dot density plots, the greyscale format assigns a cell to each datum according to its location on the grid. The display of each data point is conducted at very fine increments, allowing the full range of values to be displayed within the given data set. This display method also enables the identification of discrete responses that may be at the limits of instrument detection. In the summary diagrams processed, interpolated data is presented. Raw un-interpolated data is presented in the archive drawings along with the xy-trace plots.



Interpretation

An interpretation of the data is made using many of the plots presented in the final report, in addition to examination of the raw and processed data. The project managers' knowledge and experience allows a detailed interpretation of the survey results with respect to archaeological potential.



**XY Trace and raw greyscale plots are presented in archive form for display of the raw survey data. Summary greyscale images of the interpolated data are included for presentation purposes and to assist interpretation. The archive plots are provided as PDF images upon request.*

Glossary of Interpretation Terms

Categories of responses may vary for different data sets. The list below are the most commonly used categories for describing geophysical responses, as presented in the summary interpretation diagrams.

Archaeology

This category refers to responses which are interpreted as of clear archaeological potential and are supported by further archaeological evidence such as aerial photography or excavation. The term is generally associated with significant concentrations of former settlement, such as ditched enclosures, pits and associated features.

?Archaeology

This term corresponds to anomalies that display typical archaeological patterns where no record of comparative archaeological evidence is available. In some cases, it may prove difficult to distinguish between these and evidence of more recent activity also visible in the data.

Area of Increased Magnetic Response

These responses often lack any distinctive archaeological form, and it is therefore difficult to assign any specific interpretation. The resulting responses are site specific, possibly associated with concentrations of archaeological debris or more recent disturbance to underlying archaeological features.

Trend

This category refers to low-level magnetic responses barely visible above the magnetic background of the soil. Interpretation is tentative, as these anomalies are often at the limits of instrument detection.

Ploughing/Ridge & Furrow

Visible as a series of linear responses, these anomalies equate with recent or archaeological cultivation activity.

?Natural

A broad response resulting from localised natural variations in the magnetic background of the subsoil; presenting as broad amorphous responses most likely resulting from geological features.

Ferrous Response

These anomalies exhibit a typically strong magnetic response, often referred to as 'iron spikes,' and are the result of modern metal debris located within the topsoil.

Area of Magnetic Disturbance

This term refers to large-scale magnetic interference from existing services or structures. The extent of this interference may in some cases obscure anomalies of potential archaeological interest.

Bibliography

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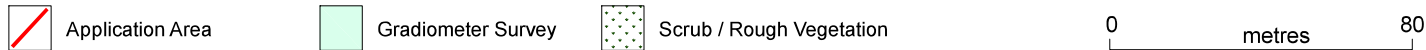
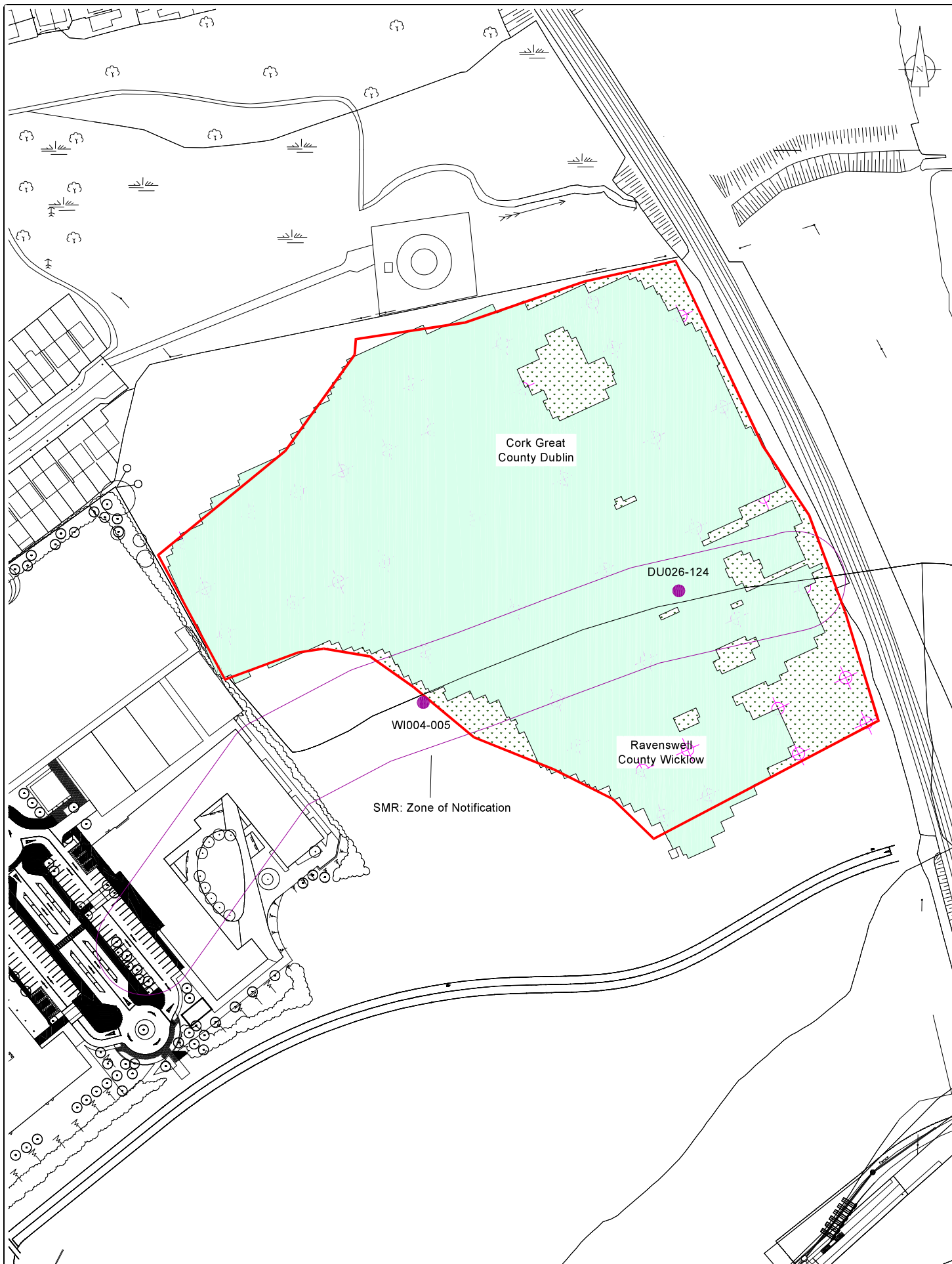
National Soil Survey of Ireland (1980) *General soil map second edition (1:575,000)*. An Foras Taluntais.

List of Figures

Figure	Description	Paper Size	Scale
Figure 1	Site & survey location diagram	A4	1:2,000
Figure 2	Summary greyscale image	A3	1:1,000
Figure 3	Summary interpretation diagram	A3	1:1,000

Archive Data Supplied as a PDF Upon Request

A1.01	Raw data Greyscale Image & XY-Trace plot	A0	1:500
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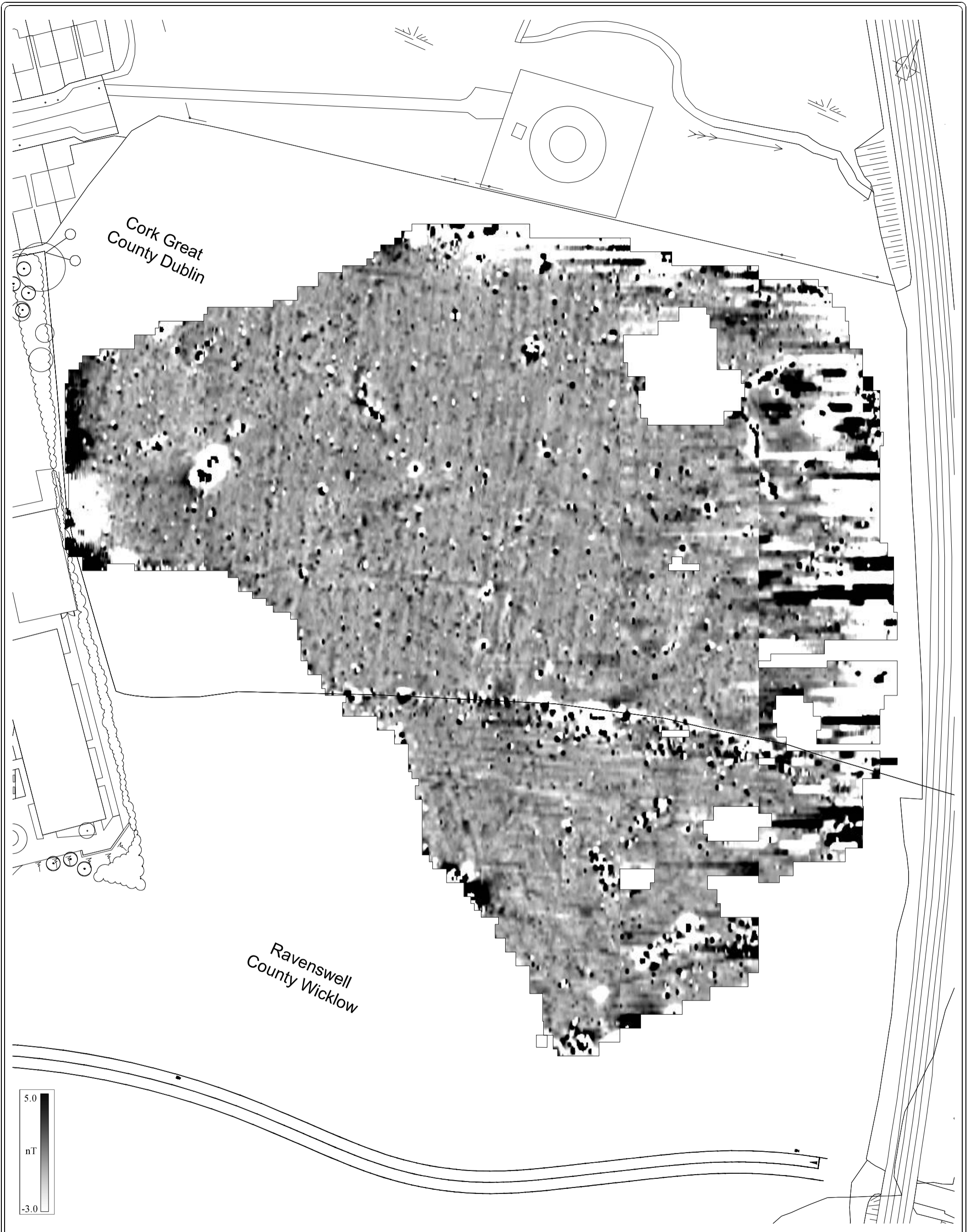
Client:
John Cronin & Associates

Project:
Geophysical Survey
Ravenswell, Bray,
County Wicklow

Title:
Site & Survey Location

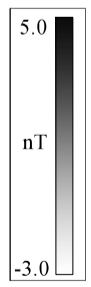
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Scale @ A4: 1:2,000
Figure: 1
Licence No.: 20R0214
Issue Date: 06.10.2020



Cork Great
County Dublin

Ravenswell
County Wicklow



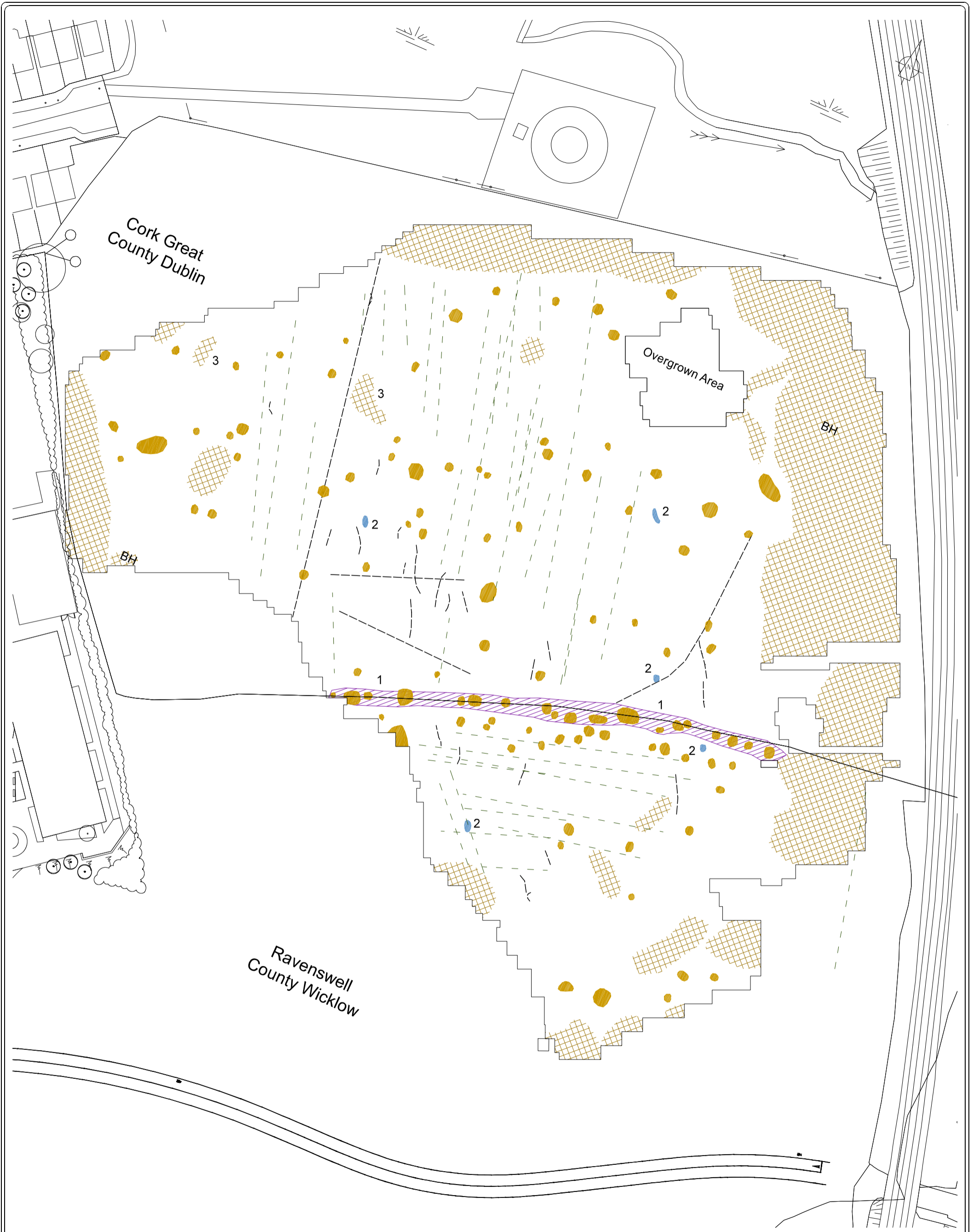
Client:
John Cronin & Associates

Project:
Geophysical Survey
Ravenswell, Bray,
County Wicklow

Title:
Summary Greyscale Image

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Scale @ A3: 1:1,000
Figure: 2
Licence No.: 20R0214
Issue Date: 06.10.2020



0 metres 40

Recorded Embankment
 ?Archaeology
 Trend
 Agricultural trend
 Surviving golf course features
 Magnetic disturbance
 Modern Ferrous response

Client:
John Cronin & Associates

Project:
Geophysical Survey
Ravenswell, Bray,
County Wicklow

Title:
Summary Interpretation

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Scale @ A3: 1:1,000
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Issue Date: 06.10.2020