Geophysical Survey Report

Bremore Castle & Swords Castle Conservation Plan
Bremore & Townparks Townlands
North County Dublin

License No. 11R38

TAG Project No. 11012

Client:
Fingal County Council

TARGET
archaeological
geophysics

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NON-TECHNICAL SUMMARY

Project Area & Background

Geophysical surveys were commissioned by Fingal County Council at Bremore Castle and Swords Castle, RMP sites DU002-002001 & DU011-034001, in the townlands of Bremore & Townparks, in North County Dublin. The surveys were undertaken as part of a wider study relating to Fingal County Council's plans for continuing restoration and conservation of both recorded monuments.

In conjunction with these geophysical surveys, Fingal County Council also commissioned architectural survey, historic building survey, and a report on the archaeological & historical record for both sites

These geophysical surveys were conducted under license to the Department of Environment, Heritage & Local Government (Detection License No. 11R38).

Summary of Results

A concentration of anomalies suggesting buried remains associated with a medieval garden at Bremore Castle has been recorded from electrical resistivity survey in Area 1. These may represent remains including a possible well/water feature, pathways, and internal divisions. A portion of the foundation of the medieval walled enclosure has also been recorded to the SE in Area 1, and a potential further access to Bremore Castle may be present in Area 3 to the E.

At Swords Castle linear and rectilinear concentrations of response have been recorded to the E and SW in electrical resistivity Areas 5 & 6, and GPR Area 1. These may represent structural foundations associated with former buildings previously referred to in the inquisition of 1326 (Reeves 1970, McNeill 1950). Further weak trends high resistance anomalies, and discrete reflections have been recorded by both the GPR and electrical resistivity surveys at the Castle. These may relate to foundation remains, internal divisions and associated features. Interpretation of both the GPR and electrical resistivity data however remains tentative. Responses from modern debris, service trenches, and probable landscaping indicate that the Swords Castle areas of geophysical survey have been subjected to considerable disturbance. The potential that many of the recorded anomalies derive from sources of modern disturbance or geological variation should not be dismissed.

*** This summary should be read in conjunction with the main report.**

1 INTRODUCTION

Geophysical surveys were undertaken at Bremore Castle (RMP DU002-002001) and Swords Castle (RMP DU011-034001), in the townlands of Bremore & Townparks, in North County Dublin. The surveys included electrical resistivity at Bremore Castle, and electrical resistivity and ground penetrating radar (GPR) at Swords Castle. These investigations were undertaken on behalf of Fingal County Council (FCC), as part of conservation and restoration plans being prepared for both monuments.

2 SURVEY AIMS & OBJECTIVES

The purpose of these geophysical surveys was to provide information on the location, form and extent of buried archaeological remains, where present, at Bremore Castle & Swords Castle. The results from this work may be used by FCC as regards plans for the future restoration and conservation of both monuments.

3 SURVEY LOCATION

Bremore Castle (RMP DU002-002001) located at NGR 319778 264529, on the northern outskirts of Balbriggan, in North County Dublin, lies c.30m SE of the Cardy Rock estate, and is bound to the N by a minor access road, and to the E by a sports ground. The remains of St. Molaga's Church (RMP DU002-002002) and graveyard (RMP DU002-002003) lie to the S, and a construction site is present to the W.

Swords Castle (RMP DU011-034001), at the approximate centre of Swords town (NGR 318274 246966), lies N of the Main Street junction with Bridge Street & North Street, and is bound to the N and W by the River Ward and a public park. Terraced housing facing North Street lies to the E, with Fingal County Hall c.35m SE.

3.1 Landscape, soils & geology

Bremore Castle & Swords Castle lie within flat to undulating lands typical of North County Dublin. Soils are of dry and mineral character, predominantly grey brown podzolics with gleys occurring locally. Bedrock geology includes till of Irish Sea origin with limestone and shale (Association 38, National Soil Survey of Ireland, 1980).

3.2 Historical background

3.2.1 Bremore Castle

Bremore Castle (DU002-002001), a fortified house of 15/16th century origin, was originally the manorial seat of the Barnewall family, and represents a rare and

massive structure conforming to a 'hall-house' as opposed to the more common tower-house (Heritage International Ireland, 1991). The Castle, and its adjoining courtyard and walled garden, are incorporated within a medieval walled enclosure. The 6/7th century ruins of St. Molaga's church and graveyard lie immediately beyond the southern enclosure edge. The Castle was captured and burnt during the middle of the 17th century, suffered a 2nd assault during the early half of the 18th century, and in ruins by 1833 was under the primary ownership of Lord Lansdowne. The ruins of an early 14th century castle and moat may lie beneath the present 15/16th century Castle ruins at Bremore (Swan, 1995).

3.2.2 Swords Castle

The early 13th century castle at Swords, originally constructed as the manorial residence of the Archbishops of Dublin, is defined by a large, roughly pentagonal wall enclosing an area c.0.5ha in size. This incorporates a tower to the N, gateway complex to the S, constable's residence to the SW and the late 13th century chapel and Archbishop's residence to the SE.

An inquisition relating to Swords Castle in 1326 refers to a great hall, kitchen, larder, dairy, workshop, shed and byre at the interior (Reeves 1970, McNeill 1950). No remains of these structures survive. Limited detail on the occupancy of the Castle following 1324 when the Archbishop moved to Tallaght remains. Stepped battlements appear during the 15th century, but by 1583 reference to 'the quite spoiled old castle' suggests occupancy had ceased. In the 19th century the Castle was used as a garden, sold following the establishment of the Church of Ireland in 1869, coming into ownership of Dublin County Council in 1895.

3.3 Archaeological background

3.3.1 Previous archaeological investigations

Bremore Castle

Previous test trenching and monitoring at the interior of Bremore Castle during 1995 recorded extensive disturbance to a depth of 0.7m (Swan 1995, License No. 95E183). No evidence for original floor levels were identified, however burnt material, charcoal, 'main hall' wall subdivisions, and 2 stone-built channels were discovered.

More recent testing and excavation in 2001 connected with the Cardy Rock housing development to the N identified late and early post medieval activity associated with Bremore Castle (O'Carroll, 2001, License No's. 01E311 & 01E370). Remains of a

medieval field system (DU002-014) and Castle access were revealed, along with a possible small structure, post medieval walls, and suspected industrial site. 2 Elizabethan coins, a slate sundial, medieval pottery, and cannonball were recovered.

Swords Castle

Fingal County Council has commissioned previous geophysical surveys, testing and excavation at Swords Castle. Recent development funded testing and monitoring to the N and SE of the Castle wall has also been conducted.

In 1971 excavations at the Castle interior uncovered modern debris and a destroyed floor level in the tower, 17th century ware and floor tile in the chapel, 2 burials, and a tiled pavement to the SE (Fanning, 1971). Electrical resistivity survey in 1991 suggested collapsed masonry, disturbance from excavation, and wall remains to the E; 2 structures and a possible boundary to the W; and a possible moat W of the Castle wall (McGarry 2001). Development funded testing at The Pound on Bridge St identified a large ditch, potentially the Castle moat highlighted in 1991, yet later testing in 1994 and 1996, N and SE of the Castle wall, recorded no evidence of a moat (Swan, 1992; Channing 1994, License 94E191; Margaret Gowen, 1996, License 95E243). Conductivity survey in 2000 suggested foundation remains to the SE & SW at the Castle interior, with no evidence for a moat W of the Castle wall, or features within the portcullis and gardens facing Bridge Street identified (Whiteford, 2000). Discoveries from a 2001 excavation of the interior to the SW included remains of stone/mortared surfaces, a wall, and doorway (O'Sullivan, 2001).

3.3.2 Recorded Monuments

RMP details for Bremore and Swords Castles are provided below in Table 3.3.2.1. Details of RMPs within a 0.5km radius of each monument are provided to highlight the archaeology of the immediate landscape. These monuments are mainly medieval in origin, largely associated with St Molaga's church and graveyard S of Bremore Castle, and the ecclesiastical remains within Swords historic town.

Table 3.3.2.1 RMPs within 0.5km of survey at Bremore Castle & Swords Castle

RMP	NGR	Townland	Description
Bremore			
DU002-002001	319765 264546	Bremore	Fortified house
DU002-002002	319771 264484	Bremore	Ecclesiastical foundation
DU002-002003	319757 264474	Bremore	Graveyard

RMP	NGR	Townland	Description
DU002-003	320104 264456	Bremore	Mound
DU002-011	319751 264018	Tankardstown	House – 16/17th century
DU002-014	319642 264676	Bremore	Field system
DU011-035	318242 246760	Miltonsfields, Swords	Historic town
Swords			
DU011-070	318459 246774	Swords Demesne	Fort (present location)
DU011-034001	318271 246988	Townparks (Netherton By.)	Castle
DU011-034002	318017 246731	Swords Glebe	Ecclesiastical enclosure
DU011-034003	318033 246729	Swords Glebe	Graveyard
DU011-034004	318014 246703	Swords Glebe	Church
DU011-034005	317990 246731	Swords Glebe	Round tower
DU011-034006	318047 246711	Swords Glebe	Cross
DU011-034007	317994 246717	Swords Glebe	Cross-slab
DU011-034008	318055 246746	Swords Glebe	Sheela-na-gig
DU011-034009	317994 246725	Swords Glebe	Graveslab
DU011-034010	317996 246723	Swords Glebe	Graveslab
DU011-034011	317992 246713	Townparks (Netherton By.)	Graveslab
DU011-034013	318107 246541	Townparks (Netherton By.)	Ritual site – holy well
DU011-034014	317994 246723	Swords Glebe	Architectural fragment
DU011-034018	318084 246766	Swords Glebe	Burial ground
DU011-101	318328 246465	Townparks (Netherton By.)	Burial ground

4 METHODOLOGY

4.1 Electrical resistivity

Electrical resistivity surveys totalling 0.3ha and 0.4ha were undertaken within Areas 1-3 and Areas 1-6 at Bremore and Swords Castles respectively. The surveys extended throughout the available interior of each site, and to the E and W of Bremore and Swords Castles respectively. Survey locations were tied in to the national grid by DGPS and details of tie-in data will be made available on request.

4.2 Ground penetrating radar (GPR)

GPR survey totalling 0.14ha was undertaken as Areas 1 & 2 at Swords Castle, through its eastern interior and SW of the gated entrance. The GPR survey was undertaken on newly located survey grids to maximise area coverage.

4.3 Data collection & survey grid

The electrical resistivity surveys at Bremore & Swords Castles employed a Geoscan Research RM15 meter and twin probe array collecting data throughout Areas 1-3 (Bremore) and Areas 1-6 (Swords) at 0.5m x1m intervals. GPR survey at Swords Castle (Areas 1 & 2) employed a cart mounted MALA RAMAC system and 250MHZ antenna, collecting data at 0.05m intervals along parallel traverses 0.5m apart.

5 DATA DISPLAY

The locations of electrical resistivity survey in Areas 1-3 at Bremore are presented in Figure 1 at a scale of 1:1500, with GPS tie-in points indicated. The results are displayed in Figure 2 as colour scale plots at a scale 1:1250. Interpretations are provided in Figure 3 at the same scale with key anomalies highlighted.

The locations of electrical resistivity survey Areas 1-6 at Swords are provided in Figure 4 at a scale of 1:1250, with GPS tie-in points indicated. The results are displayed in Figure 5 as colour scale plots at a scale 1:1250, with interpretations provided in Figure 6 at 1:1250 highlighting key anomalies from survey.

Locations of Swords GPR survey Areas 1 & 2 are provided as Figure 7 at a scale of 1:1500. The data are presented as a series of 'timeslice' plots in raw and processed format at 1:1250 in Figure 8. Interpretations are provided in Figure 9 also at 1:1250.

6 GROUND CONDITIONS & GENERAL CONSIDERATIONS

The electrical resistivity survey at Bremore extended, where possible, through the investigation area proposed by FCC (Areas 1 & 2), and into the sports ground immediately E of the Castle perimeter (Area 3). Unfortunately much of the Bremore Castle investigation area remained unavailable due to an extremely disturbed ground surface, particularly to the N and W. Recent dumping and clearance also significantly complicated survey within the medieval garden (Area 1).

Electrical resistivity survey at Swords Castle extended beyond the western perimeter (Areas 1-3), and through the available Castle interior (Areas 4-6). Electrical resistivity survey was not conducted within the existing tarmac, office and FAS working areas W and SW at the interior, and was also limited by dense vegetation to the E.

The Swords Castle GPR survey focused on the eastern castle interior (Area 1), and an area SW of the gated entrance (Area 2). The ground surface in Areas1 & 2 is for mostly grass, excepting 1 area of asphalt adjacent to the chapel to the SE.

Any depths referred to in interpretation of the GPR data from this project are *only ever an approximation.* The conversion from delay time to depth with respect to GPR data depends on the propagation velocity of radar waves through the ground, which can vary significantly, laterally and vertically. An average velocity 0.082m/ns has been used for the GPR data for this project, following a process of fitting hyperbolic curves to point-source reflections. Where a strong electromagnetic contrast occurs GPR signals can be inter-reflective or reverberated, producing a delay in the reflection of the signal, also known as 'ringing.' This results in a greater apparent depth than actually exists, and it is therefore not possible to detect the base of features, only the tops of deposits with any degree of certainty (Annan 1996).

7 ELECTRICAL RESISTIVITY RESULTS

7.1 Bremore Castle

7.1.1 Area 1

A possible well or water feature is suggested by low sub-circular resistance anomaly A to the W in Area 1. Interpretation of anomaly A remains tentative as this response could derive from more recent clearance or dumping.

High resistance (B) to the SW in Area 1 derives from survey over a rubble spread adjacent to St. Molaga's Church and graveyard. This most likely represents part of the dividing wall between St. Molaga's church and graveyard, and Area 1.

3 intersecting linear anomalies (C) to the N in Area 1 may relate to buried pathways associated with a medieval garden. Interpretation remains uncertain as anomalies C may also represent a foundation trench from a protection railing about the perimeter of Bremore Castle which formerly extended through this area.

A sub-rectangular zone of increased resistance (D) NE of survey centre may indicate remains of a possible garden feature or working area. Again interpretation is cautious in view of recent on site disturbance.

Weak linear trends E extending NW/SE and NE/SW across the central and south-eastern portions of Area 1 suggest possible former paths or divisions. The fragmented remains of the medieval enclosure to Bremore Castle extending to the SE are also visible as high resistance linear anomaly F.

No precise interpretation for high resistance anomalies G to the NE in Area 1 can be provided. These are situated close to a doorway in the Castle wall, adjacent to recent ground disturbance and an existing scaffold.

Sub-circular anomaly H to the NE in Area 1 corresponds to an earthen mound on the illustrated drawing of Bremore Castle and its environs (Heritage International Ireland, 1991). This mound is of uncertain origin and measures c.7m across and 1.5m in height. High resistance anomaly I to the SE may represent a drainage feature.

7.1.2 Area 2

High resistance J at the western survey edge of Area 2 occurs within a region of disturbed ground. Modern disturbance is also evident to the N.

7.1.3 Area 3

Weak trends (K-M) are apparent in the Area 3 results to the E of the Castle enclosure wall. L & M may represent a potential route of access to Bremore Castle.

High resistance to the E represents natural variation from underlying soils and geology, and modern disturbance occurs to the N and NW.

7.2. Swords Castle

7.2.1 Area 1

No evidence for a moat has been recorded from Area 1 to the W of the wall defining Swords Castle. High resistance occurs from soil/geological variation to the N, and interference from a modern pathway borders the southern survey edge.

7.2.2 Area 2

No responses remnants of a moat to the W of the Castle Wall are present in Area 2. High resistance from the modern pathway separating Areas 1 & 2 occurs to the N.

7.2.3 Area 3

High resistance bordering Area 3 to the NW represents natural variation.1 high resistance anomaly (A) to the SE suggests underlying material associated with the perimeter wall. N/S linear trend (B) S of survey centre may be significant. No anomalies supporting the presence of a moat extending through Area 3 are apparent.

7.2.4 Area 4

2 discrete high resistance anomalies (C) to the NW in Area 4 may represent remains of structures built into the Castle wall. Interpretation remains tentative.

7.2.5 Area 5

High resistance anomaly D indicates remains of a possible E/W aligned building the W of survey centre in Area 5. This response is sub-rectangular in form, c.6m x 10m

in diameter and demonstrates a clear contrast against background variation. Considering the proximity of bedrock to the surface the potential that anomaly D represents underlying geology should not be dismissed.

Small-scale high resistance anomalies (E) to the W in Area 5 and N, S & SW of anomaly D, may represent further small-scale structural features.

Weak linear trends, notably F, in Area 5 may potentially represent former internal divisions at the Castle interior. A natural/modern source for these anomalies should not be dismissed.

7.2.6 Area 6

High resistance responses (G) at the north-western and north-eastern corners of Area 6 may represent remnants of structures built into the Castle wall. Linear anomaly (H) to the SE may also indicate remains of a wall foundation.

A sub-rectangular arrangement of high resistance responses and weak linear trends extends through the approximate centre of Area 6 (anomalies I & J). This response grouping extends c.22m N/S by 10m E/W, and may represent foundations associated with a possible building such as referred to in the Swords Castle inquisition of 1326. Interpretation, however, remains extremely cautious: there is a lack of definition in the data and dense vegetation has prevented complete survey through this location.

Weak NE/SW trend K, N of centre in Area 6, may also be significant.

8 GPR RESULTS

8.1 Swords Castle

High levels of disturbance are apparent in the Swords Castle GPR data from Areas 1 & 2. This represents modern interference deriving from a combination of buried services, drainage, possible garden features, and associated debris. The range of this interference has compromised interpretation of the GPR data, and significantly masked the form of anomalies which may be of potential interest.

Numerous small-scale reflectors are apparent through Area 1 from 0.2-1.8m depth, and in Area 2 from 0.2-0.8m. These are generally suggestive of modern debris below surface, and at points appear metal in origin. Linear/curving trends to the NW in Area 1 indicate possible former garden features or pathways, with potential drainage N of survey centre suggested by NW/SE trends from 0.2-1m depth.

The edge of the asphalt facing the chapel to the SE is indicated by an E/W aligned curving linear to the S in Area 1, which is visible from 0.2-1.8m depth. Traces of modern infilling (0.2-0.6m) have been detected below the asphalt.

Remains of service trenches are evident in Areas 1 & 2 (Area 1, 0.2-0.6m; & Area 2, 0.2-1.6m), with anomaly A in Area 1 (0.2-0.6m) potentially representing part of the 1971 investigation of the Castle interior by Fanning.

Increasing noise occurs through the centre of Area 1 from 1.4m onwards.

8.1.1 Area 1

Strong reflections of slight rectilinear/linear form are indicated in the raw and processed data from 0.2-0.6m and 0.6-1.2m. These are present N of survey centre in Area 1, and may represent remains of former structures. Linear anomalies B & C, to the NW and E of survey centre, demonstrate the clearest symmetry from 0.6-1m depth, with anomaly B corresponding to electrical resistivity linear trend K.

From 0.8-1.4m poorly-defined rectilinear/linear anomalies (D) are apparent, again N of survey centre in Area 1. These correspond to the approximate location of weak linear responses (J) in the electrical resistivity data. Both electrical resistivity anomalies J and GPR responses D are poorly defined, and display no clear symmetry or form. J & D may represent significant features, but interpretation remains uncertain. Collectively B, C, D and J may alternatively derive from near surface geology or recent landscaping.

No buried structural remains adjoining the chapel are indicated to the S in Area 1.

Several weak trends NW of survey centre are apparent from 0.8-1.6m depth. The absence of any clear symmetry or perpendicular alignment for these suggests they most likely derive from natural or modern sources.

8.1.2 Area 2

Small-scale modern interference and suspected service trenches dominate the Area 2 GPR data. Strong reflections, possibly representative of foundation remains facing Bridge Street, are present at the southern survey edge from 0.2-1.8m. Interpretation remains tentative however as no clear form or patterning to warrant a definite archaeological interpretation for these anomalies is provided by the data.

No indications of remains associated with a possible moat beyond the southern Castle edge have been recorded from GPR survey in Area 2.

9 CONCLUSIONS

The geophysical surveys conducted at Bremore Castle & Swords Castle have been successful in locating a variety of responses which may represent remains of structures, potential foundations, and former garden features. These have been recorded in spite of extensive disturbance from recent archaeological investigation, restoration, and on site works.

At Bremore Castle a concentration of anomalies suggesting remains associated with a possible medieval garden are apparent to the S in Area 1. These include a potential well/water feature (A) to the W, possible pathways (C) to the N, linear trends/internal divisions (E) at survey centre and to the S, and part of the original enclosing wall (F) to the SE. A possible garden feature or working area (D) NE of survey centre, response H from an earthen mound, high resistance anomalies G to the NE, and a probable drain (I) are also indicated in Area 1. Interpretation of D-I remains tentative as these anomalies may derive from recent landscaping. 2 parallel trends (L & M), N of survey centre in Area 3 may also be significant.

At Swords Castle no anomalies to support the presence of a moat beyond the perimeter wall were recorded by either the electrical resistivity of GPR surveys. Neither were any structural features adjacent to the Chapel identified. Potential structural/foundation remains at the Castle interior include electrical resistivity anomalies D, I & J, to the W and E in Areas 5 & 6. The Area 1 GPR data demonstrate some correlation with anomalies J via a concentration of strong reflections of slight linear/rectilinear form (B & D) at the same location. However, the the GPR and electrical resistivity data generally display poorly defined responses without clear symmetry or patterning, and interpretation therefore remains uncertain. The level of interference noted from the GPR survey alone suggests that where structural remains may be present at the Swords Castle interior they have been significantly disturbed.

The Area 2 GPR data from the Swords Castle display response patterns typical of modern service trenches and debris to the SW of the Castle entrance. Potential structural features facing Bridge Street may be present. However, no definitive patterns are evident in the data, and a possible modern or natural source should not be excluded.

Responses at the limits of instrument detection have been recorded by the GPR and electrical resistivity surveys from Swords Castle. These include GPR response C,

electrical resistivity trends F and K, and high resistance anomalies C, E, G & H. The latter may indicate collapsed masonry associated with structures extending towards the Castle interior. Unfortunately, it has not been possible to provide more detail on the presence of any such remains due to their location at the very edge of investigation.

The potential that many of the anomalies recorded from survey at Bremore Castle and Swords Castle derive from modern or geological sources should not be dismissed. Extensive disturbance and interference to instrumentation has been recorded, and this has significantly compromised interpretation of the survey data.

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10 References

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11 DIGITAL ARCHIVE

A complete digital archive for this project is provided on CD with this report. The archive includes the report text with digital versions of all drawings and displays relating to this work.

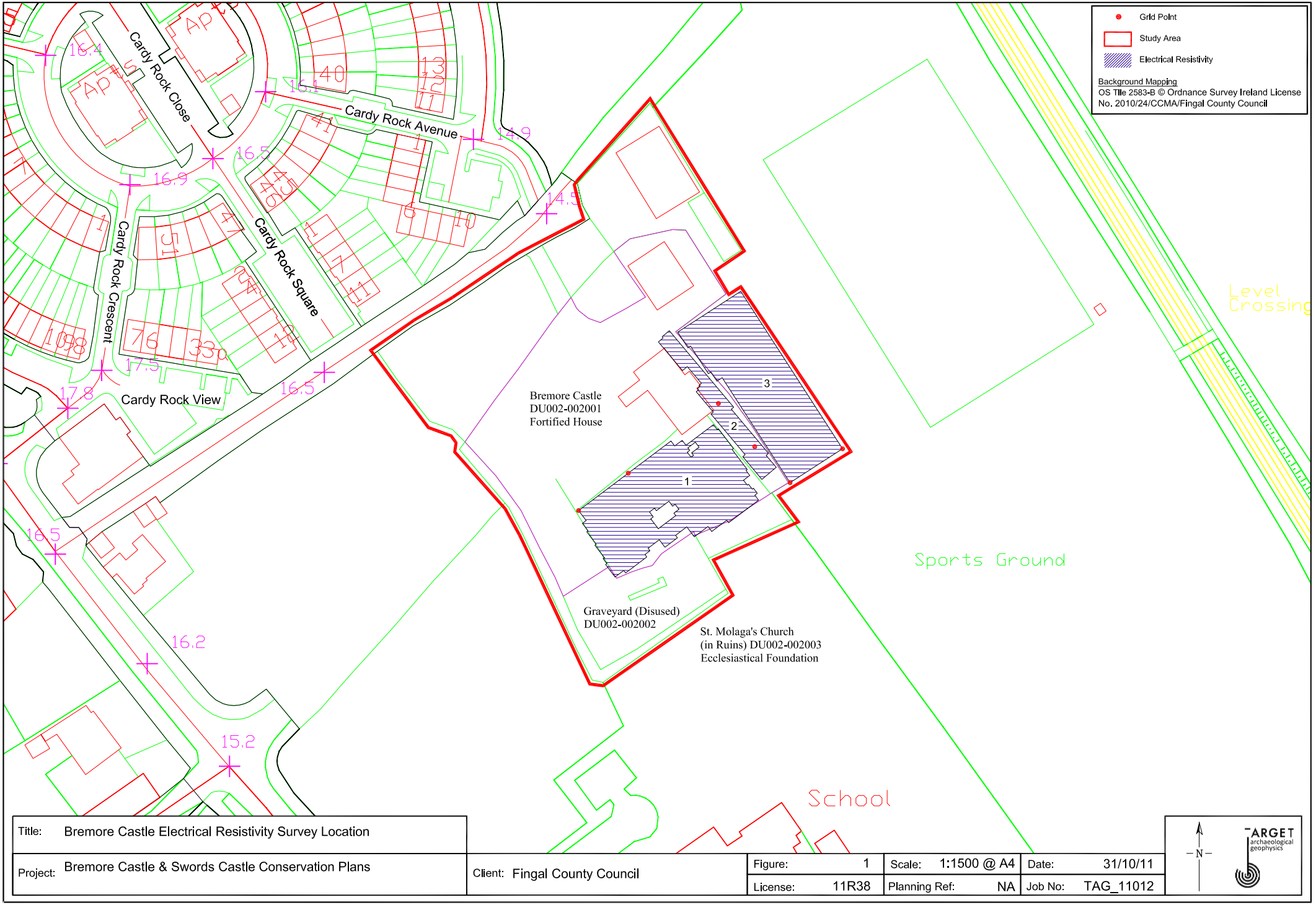
All report figures are included in AutoCad format (.DWG, Version 2004), and can be re-referenced to the raw and processed data included as part of this archive. Resistance colourscale displays forming part of this archive are provided at –1.5/2SD unless otherwise stated.

A complete PDF version of this report is also included.

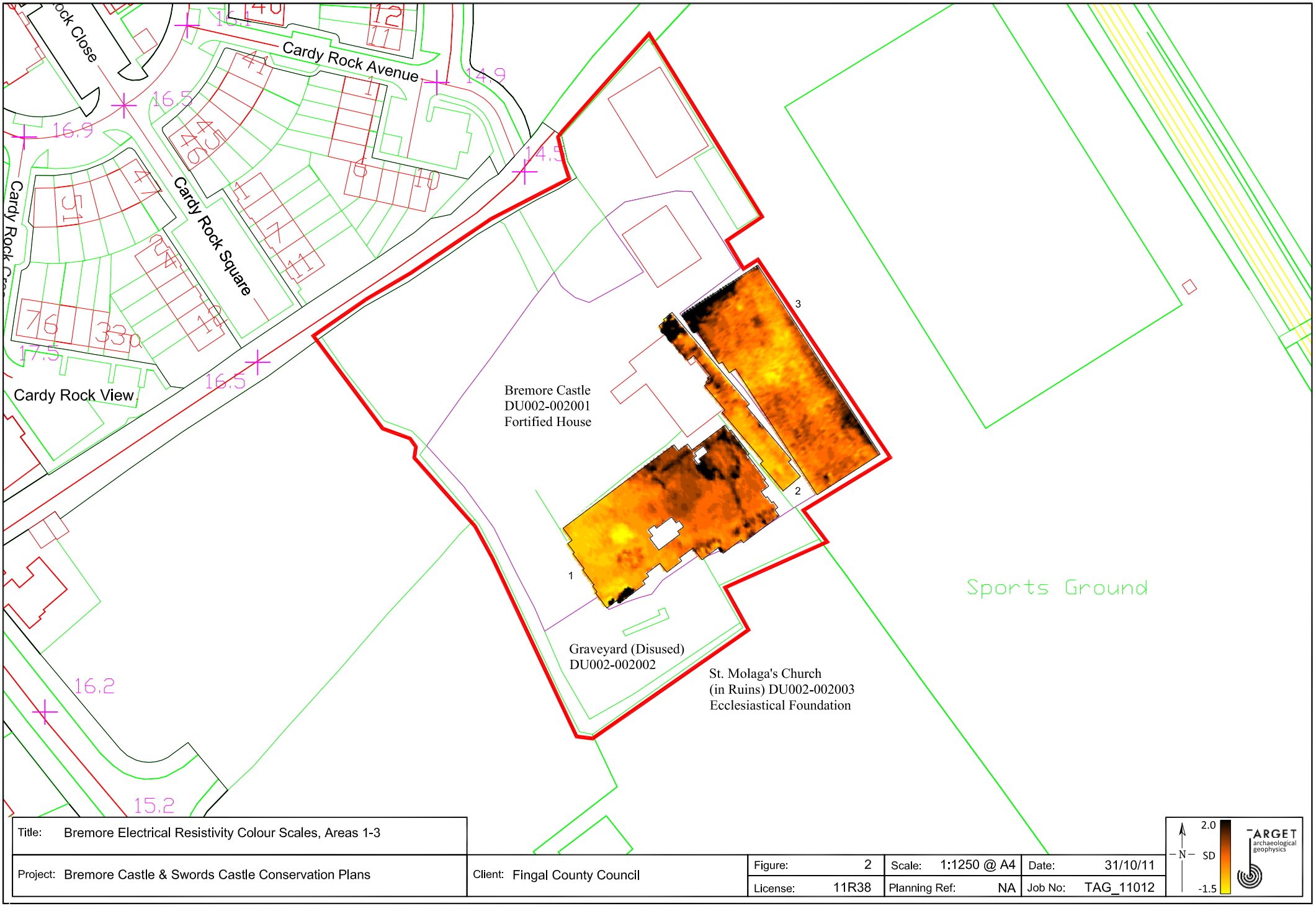
Table 11.1 below details the various file types provided.

Table 11.1 Digital Archive

Description	File Type
Survey Location	.DWG
Greyscale (Interpolated Data)	.DWG
Interpretation	.DWG
Area Interpretation	.DWG
Report Text	.DOC
Entire report as PDF	.PDF



Title: Bremore Castle Electrical Resistivity Survey Location					
Project: Bremore Castle & Swords Castle Conservation Plans	Client: Fingal County Council	Figure: 1	Scale: 1:1500 @ A4	Date: 31/10/11	TARGET archaeological geophysics
		License: 11R38	Planning Ref: NA	Job No: TAG_11012	N



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Project: Bremore Castle & Swords Castle Conservation Plans	Client: Fingal County Council	Figure: 2	Scale: 1:1250 @ A4	Date: 31/10/11	N 2.0 SD -1.5 TARGET archaeological geophysics
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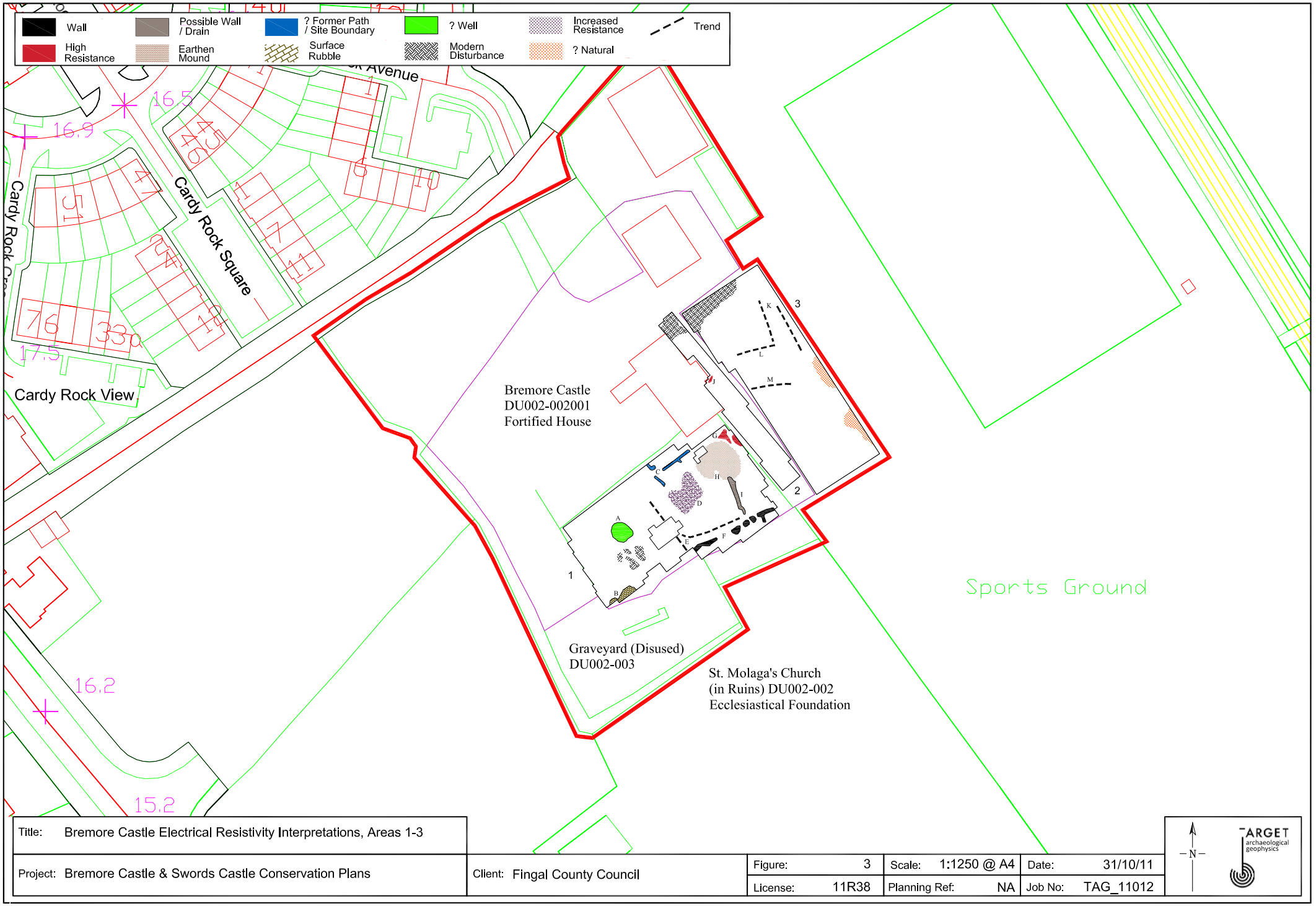

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Project: Bremore Castle & Swords Castle Conservation Plans	Client: Fingal County Council	Figure: 3	Scale: 1:1250 @ A4	Date: 31/10/11	
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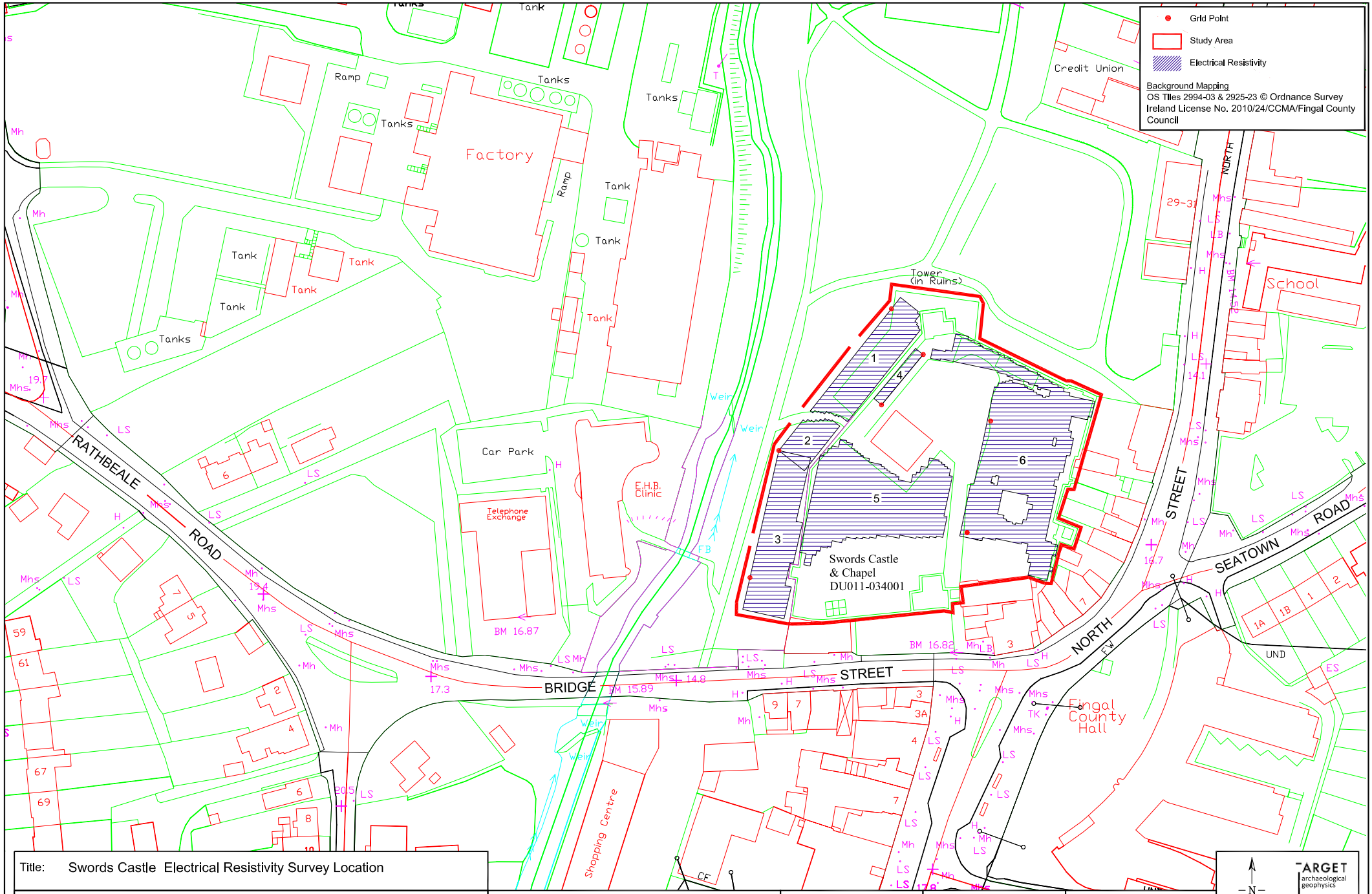
TARGET archaeological geophysics



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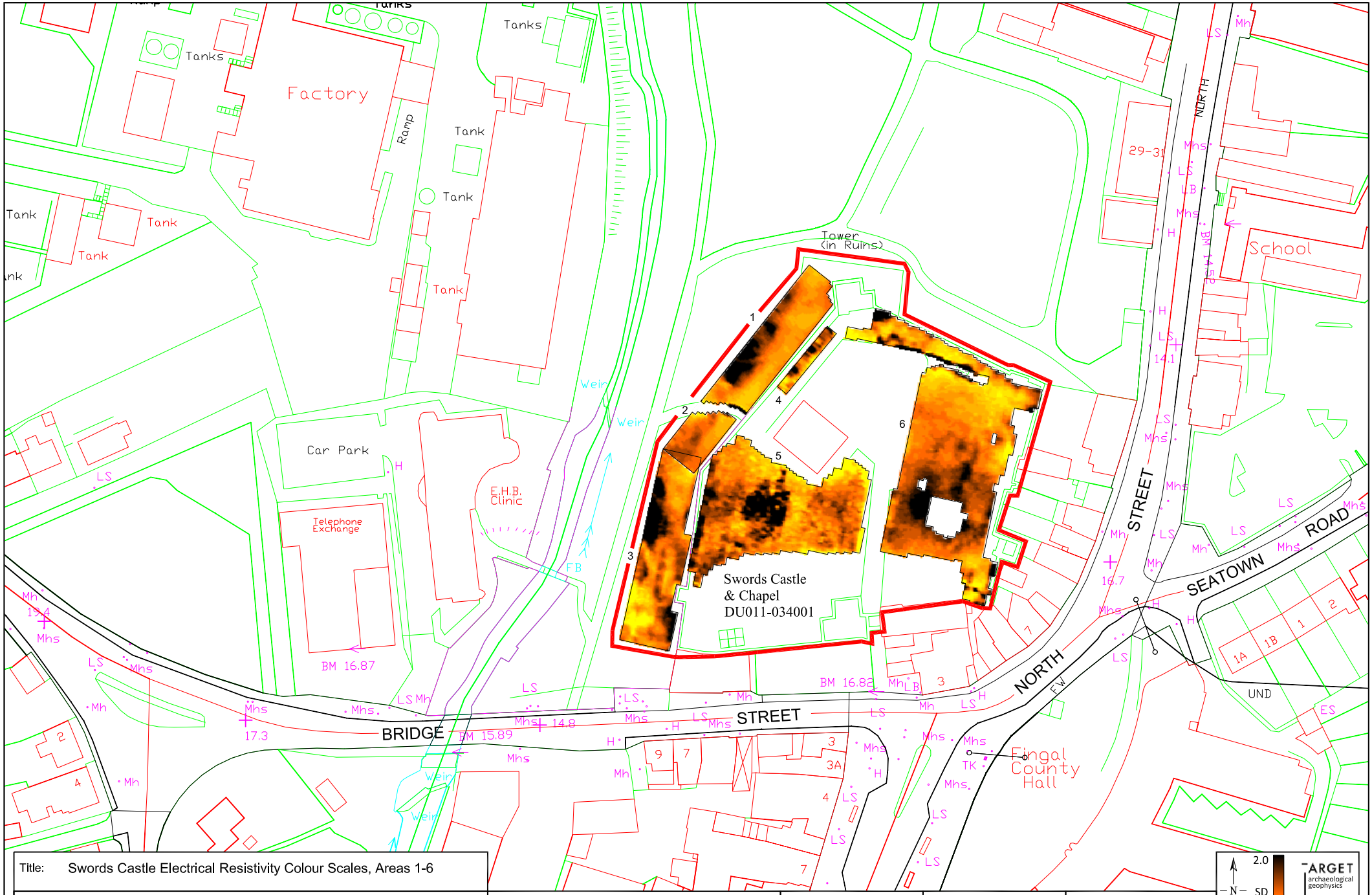

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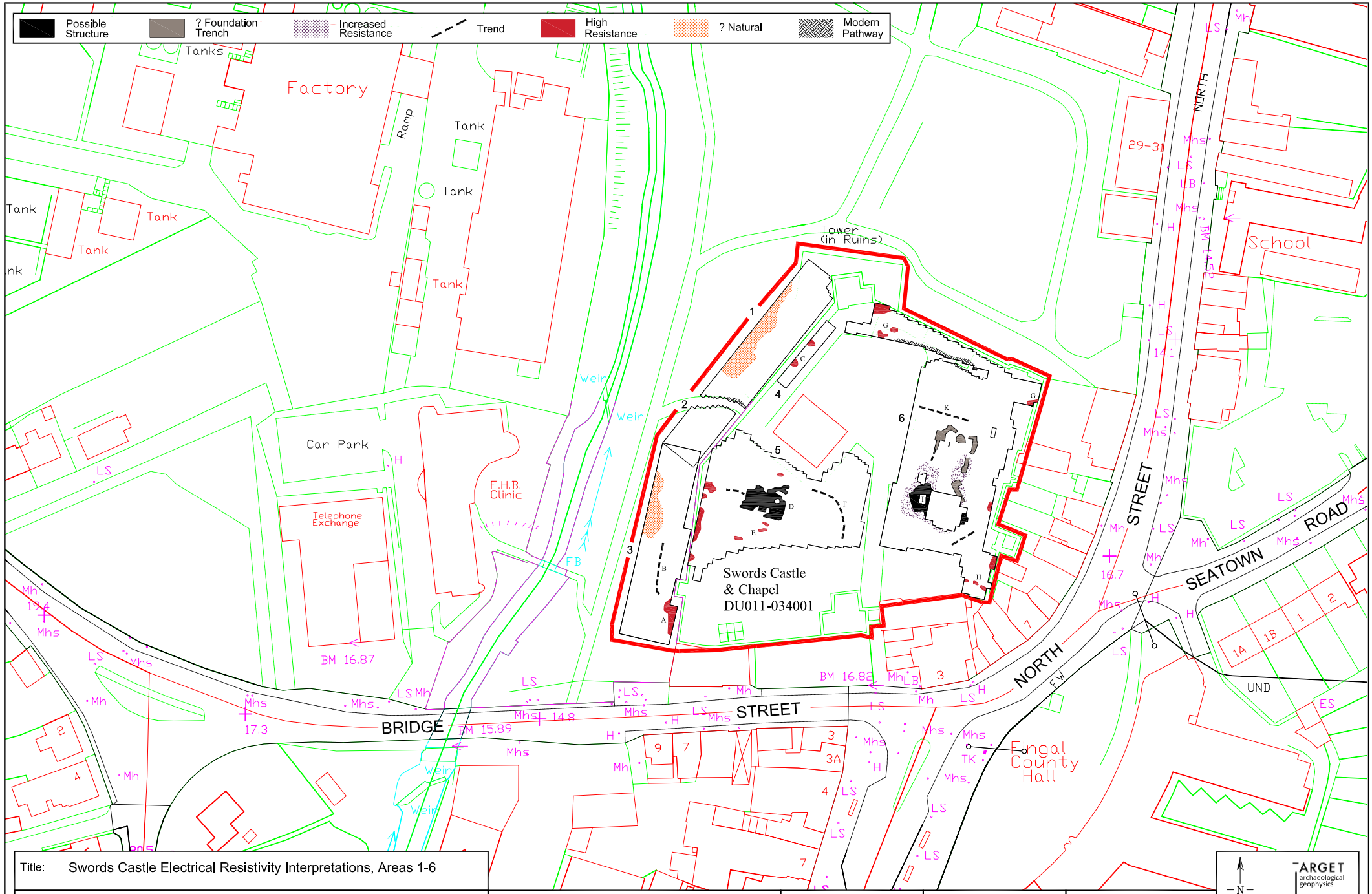
TARGET archaeological geophysics



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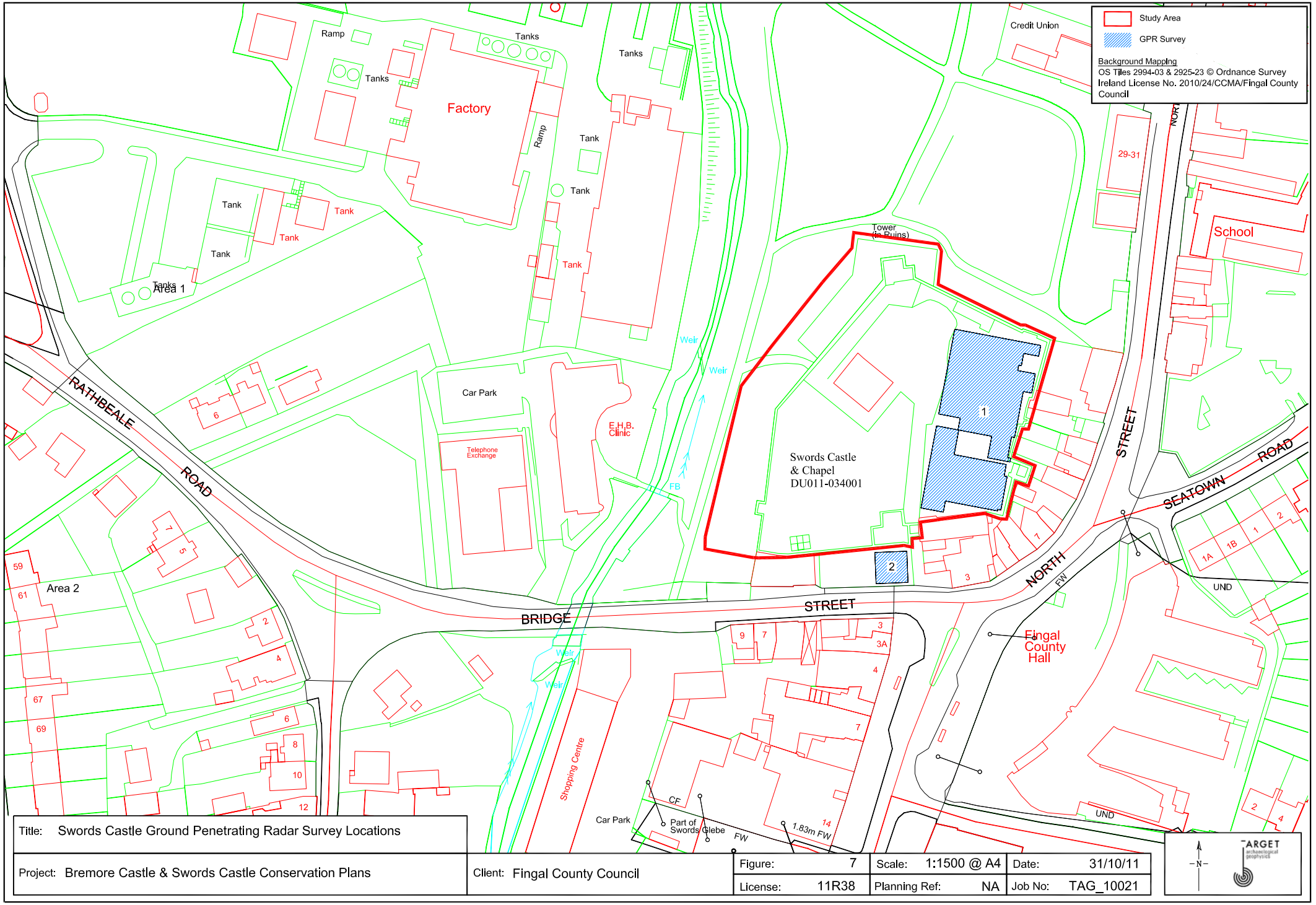
		License: 11R38	Planning Ref: NA	Job No: TAG_11012	

TARGET archaeological geophysics


Study Area
GPR Survey
Background Mapping
OS Tiles 2994-03 & 2925-23 © Ordnance Survey Ireland License No. 2010/24/CCMA/Fingal County Council
Factory
Ramp
Tanks
Tank
Area 1
Area 2
Car Park
Telephone Exchange
E.H.B. Clinic
Weir
FB
Swords Castle & Chapel DU011-034001
Tower (& Ruins)
1
2
RATHBEALE ROAD
BRIDGE STREET
NORTH STREET
SEATOWN ROAD
Credit Union
School
29-31
Fingal County Hall
Shopping Centre
Part of Swords Glebe
CF
FW
UND
1.83m FW
Title: Swords Castle Ground Penetrating Radar Survey Locations
Project: Bremore Castle & Swords Castle Conservation Plans
Client: Fingal County Council
Figure: 7
License: 11R38
Scale: 1:1500 @ A4
Planning Ref: NA
Date: 31/10/11
Job No: TAG_10021
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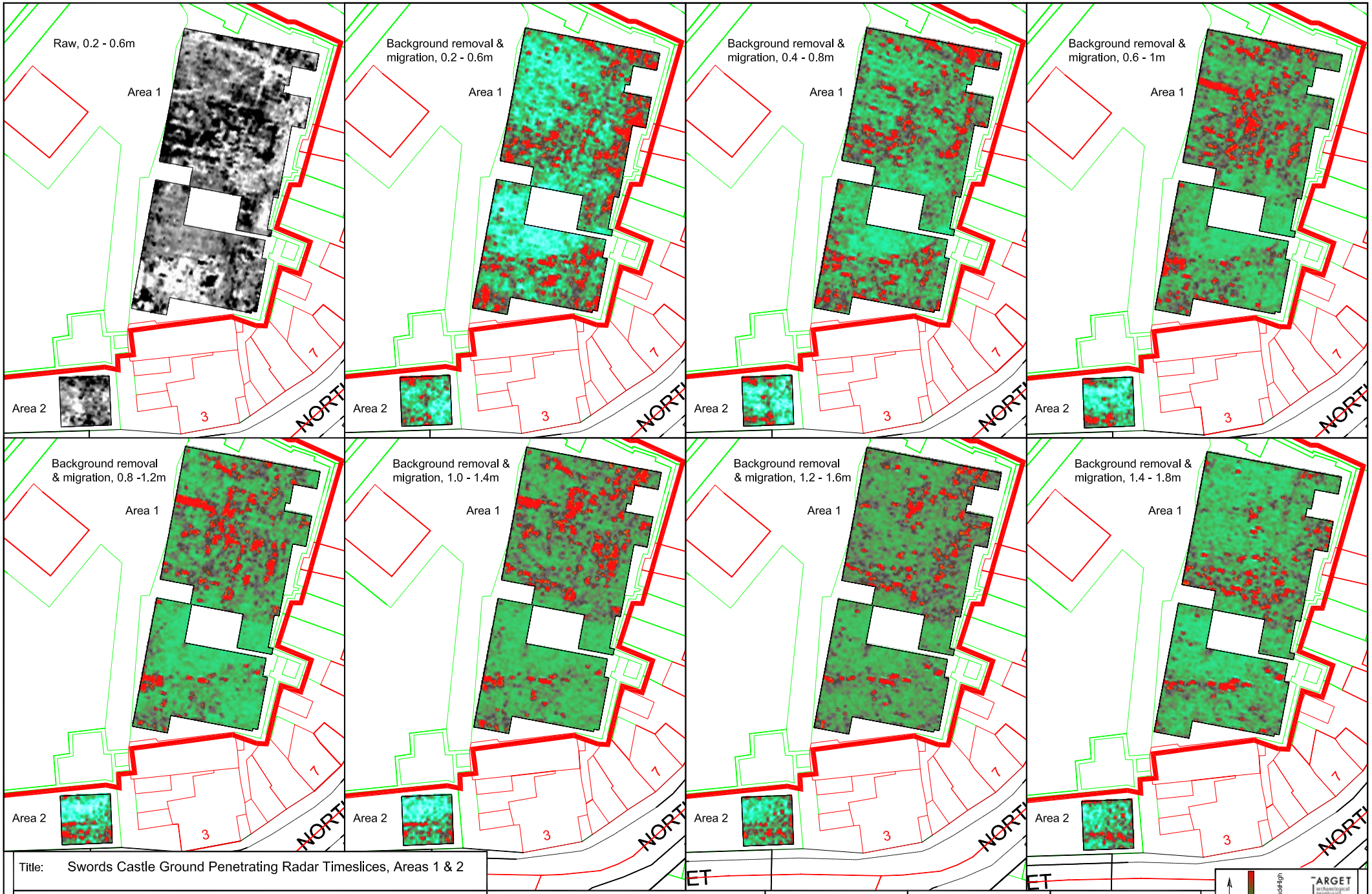

Title: Swords Castle Ground Penetrating Radar Timeslices, Areas 1 & 2				
Project: Bremore Castle & Swords Castle Conservation Plans	Client: Fingal County Council	Figure: 8	Scale: 1:1250 @ A4	Date: 31/10/11
		License: 11R38	Planning Ref: NA	Job No: TAG_10021

Title: Swords Castle Ground Penetrating Radar Interpretations, Areas 1 & 2					
Project: Bremore Castle & Swords Castle Conservation Plans	Client: Fingal County Council	Figure: 9	Scale: 1:1250 @ A4	Date: 31/10/11	
		License: 11R38	Planning Ref: NA	Job No: TAG_10021	

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