THAMES VALLEY ARCHAEOLOGICAL SERVICES

Western Area, Land at Campdown, Purbrook, Portsmouth, Hampshire

Geophysical Survey (Magnetic)

by David Sanchez

Site Code: CPP16/152

(SU 6914 0718)

Western Area, Land at Campdown, Purbrook, Portsmouth, Hampshire

Geophysical Survey (Magnetic) Report

For Radian Group Ltd.

by David Sanchez

Thames Valley Archaeological Services

Ltd

Site Code CPP 16/152

April 2017

Summary

Site name: Western Area, Land at Campdown, Purbrook, Portsmouth, Hampshire

Grid reference: SU 6914 0718

Site activity: Magnetometer survey

Date and duration of project: 5th - 13th April 2017

Project manager: Steve Ford

Site supervisor: David Sanchez

Site code: CPP 16/152

Area of site: 7.6ha

Summary of results: The geophysical survey was successfully completed on the majority of the proposed area. A range of magnetic anomalies were recorded, most of these appear to be caused by buried services, and area of possible made ground and field boundaries. Only three linear anomalies located across the south area of the surveyed fields may be of archaeological origin.

Location of archive: The archive is presently held at Thames Valley Archaeological Services, Reading in accordance with TVAS digital archiving policies.

Report edited/checked by:	Steve Ford✓ 10.05.17
	Tim Dawson✓ 10.05.17

Western Area, Land at Campdown, Purbrook, Portsmouth, Hampshire
A Geophysical Survey (Magnetic)

by David Sanchez

Report 16/152c

Introduction

This report documents the results of a geophysical survey (magnetic) carried out on a parcel of land at Campdown, Purbrook, Portsmouth, Hampshire (SU 6914 0718) (Fig. 1). The work was commissioned by Ms Alice Hart of Radian Group Limited, Collins House, Bishopstoke, Eastleigh SO50 6AD.

Planning permission is to be sought for residential development on land at Campdown, Purbrook, Portsmouth, Hampshire. To further inform the development layout with regards to the extent of any deposits associated with the Roman landscape, a geophysical survey has been requested for the 7.6ha area of the site that remains unsurveyed. The results of the survey may be used to provide targets for subsequent trenching. This is in accordance with the Department for Communities and Local Government's National Planning Policy Framework (NPPF 2012) and the Borough's heritage policies. The fieldwork was undertaken by David Sanchez, Cecilia Galleano, Teresa Vieira and Virginia Fuentes between 5th and 13th April 2017 and the site code is CPP 16/152.

The archive is presently held at Thames Valley Archaeological Services, Reading in accordance with TVAS digital archiving policies.

Location, topography and geology

The site is located on a parcel of land to the east of College Road, in the south-east margins of the village of Purbrook, just north of the Portsmouth City Boundary. The full site comprises of an irregular parcel of land covering an area of approximately 26.7ha and is bordered by South Downs College to the north-west, the A3(M) to the east and open farmland to the south with a golf course to the south-west. Although undulating, the site has a general slope of approximately 57m above Ordnance Datum in the north to approximately 27m in the south and is currently used as pasture field for horses and cows. This report documents the results of the survey undertaken in the western field of the site, which comprise a 7.6ha area between the South Downs College to the north and the golf course to the south, bordered to the west by College Road, plus a long strip at the southern edge of the eastern field which was unsurveyed during the previous works on site (Beaverstock 2016). The main field comprises and irregular parcel of land but with a general slope to the south-east and a sharp depression in the central area between two small hills located to the south-west and north-east. The underlying geology is

recorded as London Clay and Wittering Formations (BGS 1998). Site conditions during the survey were dry and clear (Pl. 1-4).

Site history and archaeological background

A detailed analysis of the archaeological background can be found in the desk-based assessment (McManus-Fry 2016). To summarise, the archaeological potential of the site centres round the Scheduled Ancient Monument, Littlepark Wood Roman Villa (List No. 1001859) and a section of the Chichester to Bitterne Roman Road which both lie within the site boundary. Excavations in 1926 revealed that remains of the Roman villa were still present making the presence of below ground archaeological deposits extremely likely. Additionally, earlier evaluation to the south revealed several prehistoric findspots within the site and fieldwork beyond the site boundary to the east revealed small scale Iron Age occupation (Bray and Platt 2015).

Geophysics survey carried out on the eastern field of the site revealed a range of magnetic anomalies likely to be of archaeological origin, suggesting the presence of a large square courtyard with buildings along the northern and western ranges with a further enclosure to the east and a ditch-lined trackway leading southwards towards the line of the Roman road, also identified as magnetic anomalies (Beaverstock 2016)

.

Methodology

Sample interval

Data collection required a temporary grid to be established across the survey area using wooden pegs at 20m intervals with further subdivision where necessary. Readings were taken at 0.25m intervals along traverses 1m apart. This provides 1600 sampling points across a full 20m × 20m grid (English Heritage 2008), providing an appropriate methodology balancing cost and time with resolution. The majority of the survey area was carried out as planned, however there were several notable obstructions. Trees and significant vegetation were present in two areas in the central part of the field as in some areas surrounding the south, west and northwest edges of the field and on one field boundary aligned NE - SW in the east side. Several isolated small trees were also located on the SW and NE quarters of the field, and on the NE corner frequent metal obstructions (cart, water troughs, etc) obstructed the survey.

The Grad 601-2 has a typical depth of penetration of 0.5m to 1.0m. This would be increased if strongly magnetic objects have been buried in the site. Under normal operating conditions it can be expected to identify buried features >0.5m in diameter. Features which can be detected include disturbed soil, such as the fill of a

ditch, structures that have been heated to high temperatures (magnetic thermoremnance) and objects made from ferro-magnetic materials. The strength of the magnetic field is measured in nano Tesla (nT), equivalent to 10^{-9} Tesla, the SI unit of magnetic flux density.

Equipment

The purpose of the survey was to identify geophysical anomalies that may be archaeological in origin in order to inform a targeted archaeological investigation of the site prior to development. The survey and report generally follow the recommendations and standards set out by both English Heritage (2008) and the Chartered Institute *for* Archaeologists (2002, 2011, 2014).

Magnetometry was chosen as a survey method as it offers the most rapid ground coverage and responds to a wide range of anomalies caused by past human activity. These properties make it ideal for the fast yet detailed surveying of an area.

The detailed magnetometry survey was carried out using a dual sensor Bartington Instruments Grad 601-2 fluxgate gradiometer. The instrument consists of two fluxgates mounted 1m vertically apart with a second set positioned at 1m horizontal distance. This enables readings to be taken of both the general background magnetic field and any localised anomalies with the difference being plotted as either positive or negative buried features. All sensors are calibrated to cancel out the local magnetic field and react only to anomalies above or below this base line. On this basis, strong magnetic anomalies such as burnt features (kilns and hearths) will give a high response as will buried ferrous objects. More subtle anomalies such as pits and ditches, can be seen from their infilling soils containing higher proportions of humic material, rich in ferrous oxides, compared to the undisturbed subsoil. This will stand out in relation to the background magnetic readings and appear in plan following the course of a linear feature or within a discrete area.

A Trimble Geo7x handheld GPS system with sub-decimetre real-time accuracy was used to tie the site grid into the Ordnance Survey national grid. This unit offers both real-time correction and post-survey processing; enabling a high level of accuracy to be obtained both in the field and in the final post-processed data.

Data gathered in the field was processed using the TerraSurveyor software package. This allows the survey data to be collated and manipulated to enhance the visibility of anomalies, particularly those likely to be of archaeological origin. The table below lists the processes applied to this survey, full survey and data information is recorded in Appendix 1.

Process	Effect
Clip from -1.80 to 2.20 nT	Enhance the contrast of the image to improve the appearance of possible archaeological anomalies.
Interpolate: y doubled	Increases the resolution of the readings in the y axis, enhancing the shape of anomalies.
De-stripe: median, all sensors	Removes the striping effect caused by differences in sensor calibration, enhancing the visibility of potential archaeological anomalies.
De-spike: threshold 1, window size 3×3	Compresses outlying magnetic points caused by interference of metal objects within the survey area.

The raw data plot is presented as a greyscale plot shown in relation to the site (Fig. 3) with the processed data then presented as a second figure (Fig. 4), followed by a third plan to present the abstraction and interpretation of the magnetic anomalies (Fig. 5). Anomalies are shown as colour-coded lines, points and polygons. Due to the shape of the survey area the survey results have been presented as detail figures for the western and eastern halves (Figs. 6-11). The grid layout and georeferencing information (Fig. 2) is prepared in EasyCAD v.7.58.00, producing a .FC7 file format, and printed as a .PDF for inclusion in the final report.

The greyscale plot of the processed data is exported from TerraSurveyor in a georeferenced portable network graphics (.PNG) format, a raster image format chosen for its lossless data compression and support for transparent pixels, enabling it to easily be overlaid onto an existing site plan. The data plot is combined with grid and site plans in QGIS 2.16.2 and exported again in .PNG format in order to present them in figure templates in Adobe InDesign CS5.5, creating .INDD file formats. Once the figures are finalised they are exported in .PDF format for inclusion within the finished report.

Results

Several magnetic anomalies were recorded over the course of the geophysical survey but most of them are unlikely to be archaeological in origin. Three weak linear anomalies were recorded in different areas of the south third of the surveyed field and could be result of the presence of cut type features as ditches or gullies.

One weak linear positive anomaly was recorded at 16m of the south limit of the site **[Fig. 10: 9]** and it was aligned SW - NE. A second positive anomaly of linear shape **[Fig. 11: 10]** was recorded 22m to the east of the field boundary **[2]**, and was aligned WNW - ESE. Finally the third anomaly of possible archaeological origin recorded during the survey was located at the east end of the long strip surveyed of the eastern field and consisted of a positive linear anomaly **[11]** aligned NW - SE crossing the full surveyed strip.

Several other magnetic anomalies were mapped on the surveyed area that are unlikely to be archaeological in origin. The long strip surveyed of the eastern field is divided in two by a line of mixed strong positive and negative responses, continuation of the same anomaly recorded by the previous survey and caused by a raised trackway that crosses the ground at this point and is most likely constructed hardcore [1].

At the east side of the side, fitting with the north-east limit of the surveyed a strong magnetic disturbance aligned NE - SW follows a field boundary still visible on the site, caused by the presence of traces of a metal fence mostly buried but still visible in some areas [2]. A second similar anomaly started at the southern limit of the site, just 15m to the west and was aligned NW - SE [Fig. 10: 3] and is likely to have a similar origin.

A line of strong magnetic spikes and patches of magnetic disturbance [4] aligned WNW - ESE cross the field from the west limit and continue beyond the limit of the current survey area, where it was recorded by the previous survey undertaken on the site (Beaverstock 2016). Two metal manhole covers were observed on this line and suggest the presence of a buried pipeline made of non-ferrous material. A second line of magnetic debris [5] aligned NE - SW is recorded in the west side of the field and it is likely to be caused for a second non-ferrous material pipeline as a manhole cover was observed on this line near of the SW corner of the field. One more linear magnetic anomaly with mixed positive and negative responses was recorded at the north of the field [6], aligned WNW - ESE and is likely to correspond with a trackway from the entrance of the site at the north-west corner of the site.

The main magnetic anomaly recorded during the survey [7] consisted of a large mixed strong positive and negative anomalies aligned NW - SE from the NW limit of the surveyed area and located in the ground depression of the central area of the field, with a length of 187m and a width between 48 and 72m. It has a squared south-eastern limit and is likely to be caused by a large dump of debris, probably modern in date, which appears to have been used to infill or level a stretch of the dry valley between two slopes. The other large anomaly recorded in this field consisted of a line of mixed strong positive and negative readings following the west limit of the site [8]. This is likely to be caused by buried modern services of ferrous material.

Various other patches of magnetic disturbance were recorded around the field boundaries and are likely to be caused by near-by metal objects, such as fences. Frequent strong magnetic spikes were also detected across the entire survey area and are probably result of the presence of buried ferrous objects of unknown date.

Conclusion

The geophysical survey was successfully completed on the majority of the proposed area. A range of magnetic anomalies were recorded but most of these appear to be caused by buried services and traces of field boundaries of modern date. A large anomaly in the central area is likely to be caused by dump of modern debris. Only three linear anomalies located across the south area of the surveyed fields may be of archaeological origin.

References

BGS, 1998, *British Geological Survey*, 1:50,000, Sheet 316, Solid and Drift Edition, Keyworth

Beaverstock, K, 2016, 'Land at College Road, Campdown, Purbrook, Portsmouth, Hampshire. Geophysical Survey (Magnetic)', unpub. TVAS report 16/152b., Reading.

Bray D and Platt D, 2015 Iron Age Occupation at Scratchface Lane, Bedhampton, Havant, Hampshire an archaeological excavation, TVAS draft publication report 13/09c, Reading

CIfA, 2002, *The Use of Geophysical Techniques in Archaeological Evaluation*, IFA Paper No. 6, Reading

CIfA, 2011, *Standard and Guidance: for archaeological geophysical survey*, Reading

CIfA, 2014, *Standard and Guidance: for archaeological geophysical survey*, Reading

English Heritage, 2008, *Geophysical Survey in Archaeological Field Evaluation*, English Heritage, Portsmouth (2nd edn)

McManus-Fry, E, 2016, 'Land at College Road, Campdown, Purbrook, Portsmouth; A desk-based assessment', unpub. TVAS report 16/152, Reading

NPPF, 2012, *National Planning Policy Framework*, Dept Communities and Local Government, London

Appendix 1. Survey and data information

Programme:
Name: TerraSurveyor
Version: 3.0.25.0

Raw data
Survey corner coordinates (X/Y):
Northwest corner: 468650.72, 106874.74 m
Southeast corner: 468930.72, 106214.74 m
Direction of 1st Traverse: 353.46858 deg
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 2047.5

Dimensions
Composite Size (readings): 1120 x 660
Survey Size (meters):   280 m x 660 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 97.97
Min: -100.00
Std Dev: 33.08
Mean: -2.68
Median: -0.14
Composite Area: 18.48 ha
Surveyed Area: 7.8067 ha

Source Grids: 248
1 Col:0 Row:3 grids\01.xgd
2 Col:0 Row:4 grids\02.xgd
3 Col:0 Row:5 grids\03.xgd
4 Col:0 Row:6 grids\04.xgd
5 Col:0 Row:7 grids\05.xgd
6 Col:0 Row:8 grids\06.xgd
7 Col:0 Row:9 grids\07.xgd
8 Col:1 Row:0 grids\08.xgd
9 Col:1 Row:1 grids\09.xgd
10 Col:1 Row:2 grids\10.xgd
11 Col:1 Row:3 grids\11.xgd
12 Col:1 Row:4 grids\12.xgd
13 Col:1 Row:5 grids\13.xgd
14 Col:1 Row:6 grids\14.xgd
15 Col:1 Row:7 grids\15.xgd
16 Col:1 Row:8 grids\16.xgd
17 Col:1 Row:9 grids\17.xgd
18 Col:1 Row:10 grids\18.xgd
19 Col:1 Row:11 grids\19.xgd
20 Col:1 Row:12 grids\20.xgd
21 Col:1 Row:13 grids\21.xgd
22 Col:1 Row:14 grids\22.xgd
23 Col:1 Row:15 grids\23.xgd
24 Col:1 Row:16 grids\24.xgd
25 Col:1 Row:17 grids\25.xgd
26 Col:1 Row:18 grids\26.xgd
27 Col:1 Row:19 grids\27.xgd
28 Col:1 Row:20 grids\28.xgd
29 Col:1 Row:21 grids\29.xgd
30 Col:1 Row:22 grids\30.xgd
31 Col:1 Row:23 grids\31.xgd
32 Col:1 Row:24 grids\32.xgd
33 Col:1 Row:25 grids\33.xgd
34 Col:1 Row:26 grids\34.xgd
35 Col:1 Row:27 grids\35.xgd
36 Col:1 Row:28 grids\36.xgd
37 Col:1 Row:29 grids\37.xgd
38 Col:1 Row:30 grids\38.xgd
39 Col:1 Row:31 grids\39.xgd
40 Col:1 Row:32 grids\40.xgd
41 Col:2 Row:0 grids\41.xgd
42 Col:2 Row:1 grids\42.xgd
43 Col:2 Row:2 grids\43.xgd

44 Col:2 Row:3 grids\44.xgd
45 Col:2 Row:4 grids\45.xgd
46 Col:2 Row:5 grids\46.xgd
47 Col:2 Row:6 grids\47.xgd
48 Col:2 Row:7 grids\48.xgd
49 Col:2 Row:8 grids\49.xgd
50 Col:2 Row:9 grids\50.xgd
51 Col:2 Row:10 grids\51.xgd
52 Col:2 Row:11 grids\52.xgd
53 Col:2 Row:12 grids\53.xgd
54 Col:2 Row:13 grids\54.xgd
55 Col:2 Row:14 grids\55.xgd
56 Col:2 Row:15 grids\57.xgd
57 Col:2 Row:16 grids\58.xgd
58 Col:2 Row:17 grids\59.xgd
59 Col:2 Row:18 grids\60.xgd
60 Col:2 Row:19 grids\61.xgd
61 Col:2 Row:20 grids\62.xgd
62 Col:2 Row:21 grids\63.xgd
63 Col:2 Row:22 grids\64.xgd
64 Col:2 Row:23 grids\65.xgd
65 Col:2 Row:24 grids\66.xgd
66 Col:2 Row:25 grids\67.xgd
67 Col:2 Row:26 grids\68.xgd
68 Col:2 Row:27 grids\69.xgd
69 Col:2 Row:28 grids\70.xgd
70 Col:2 Row:29 grids\71.xgd
71 Col:2 Row:30 grids\72.xgd
72 Col:2 Row:31 grids\73.xgd
73 Col:2 Row:32 grids\74.xgd
74 Col:3 Row:1 grids\75.xgd
75 Col:3 Row:2 grids\77.xgd
76 Col:3 Row:3 grids\78.xgd
77 Col:3 Row:4 grids\79.xgd
78 Col:3 Row:5 grids\80.xgd
79 Col:3 Row:6 grids\81.xgd
80 Col:3 Row:7 grids\82.xgd
81 Col:3 Row:8 grids\83.xgd
82 Col:3 Row:9 grids\84.xgd
83 Col:3 Row:10 grids\85.xgd
84 Col:3 Row:11 grids\86.xgd
85 Col:3 Row:12 grids\87.xgd
86 Col:3 Row:13 grids\88.xgd
87 Col:3 Row:14 grids\89.xgd
88 Col:3 Row:15 grids\90.xgd
89 Col:3 Row:16 grids\91.xgd
90 Col:3 Row:17 grids\92.xgd
91 Col:3 Row:18 grids\93.xgd
92 Col:3 Row:19 grids\94.xgd
93 Col:3 Row:20 grids\95.xgd
94 Col:3 Row:21 grids\96.xgd
95 Col:3 Row:22 grids\97.xgd
96 Col:3 Row:23 grids\98.xgd
97 Col:3 Row:24 grids\99.xgd
98 Col:4 Row:1 grids\100.xgd
99 Col:4 Row:2 grids\101.xgd
100 Col:4 Row:3 grids\102.xgd
101 Col:4 Row:4 grids\103.xgd
102 Col:4 Row:5 grids\104.xgd
103 Col:4 Row:6 grids\105.xgd
104 Col:4 Row:7 grids\106.xgd
105 Col:4 Row:8 grids\107.xgd
106 Col:4 Row:9 grids\108.xgd
107 Col:4 Row:10 grids\109.xgd
108 Col:4 Row:11 grids\110.xgd
109 Col:4 Row:12 grids\111.xgd
110 Col:4 Row:13 grids\112.xgd
111 Col:4 Row:14 grids\113.xgd
112 Col:4 Row:15 grids\114.xgd
113 Col:4 Row:16 grids\115.xgd
114 Col:4 Row:17 grids\194.xgd
115 Col:4 Row:18 grids\195.xgd
116 Col:5 Row:2 grids\117.xgd

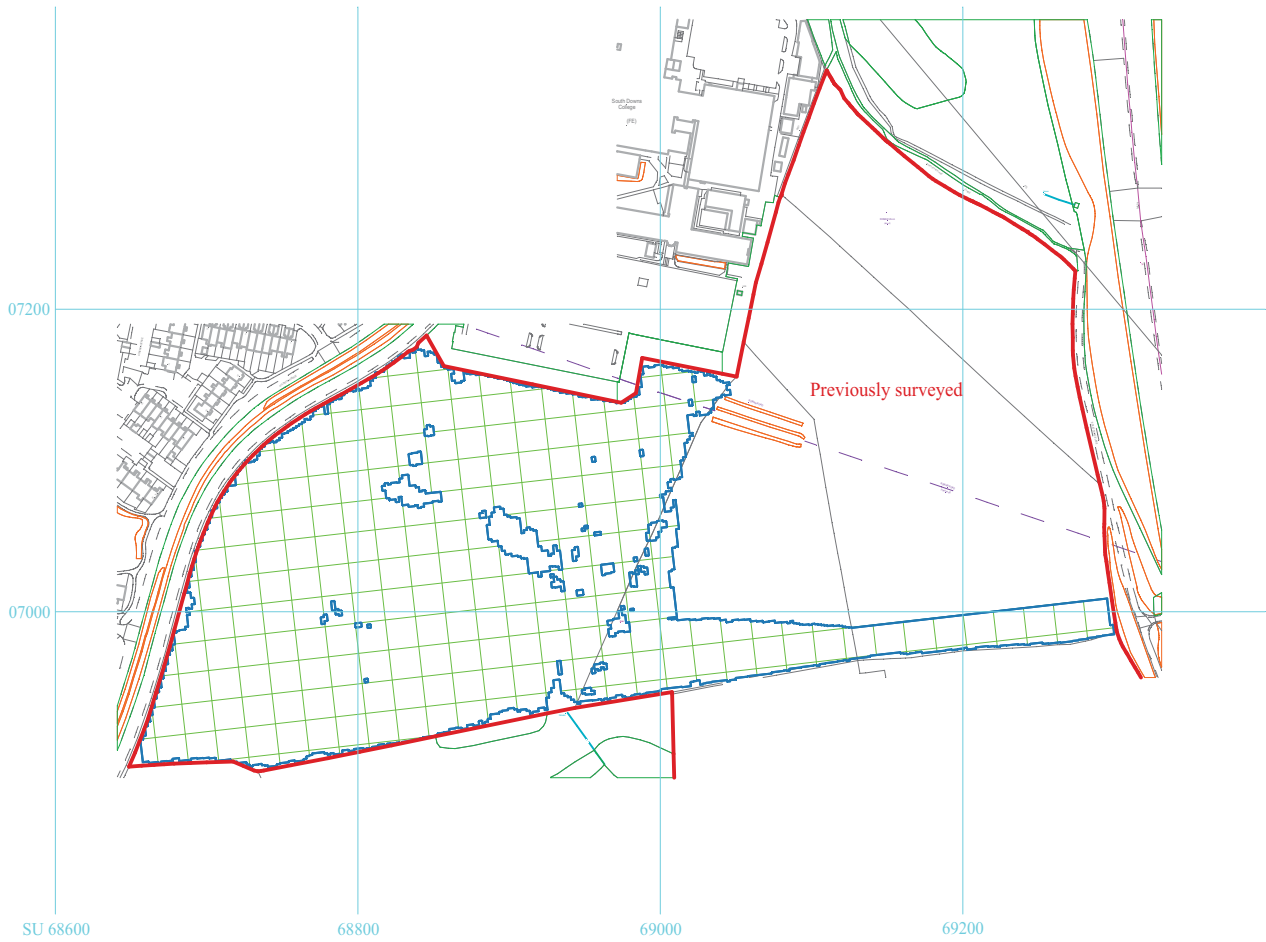|		
117 Col:5 Row:3 grids\118.xgd	190 Col:9 Row:9 grids\210.xgd	
118 Col:5 Row:4 grids\119.xgd	191 Col:9 Row:10 grids\211.xgd	
119 Col:5 Row:5 grids\120.xgd	192 Col:9 Row:11 grids\212.xgd	
120 Col:5 Row:6 grids\140.xgd	193 Col:9 Row:12 grids\213.xgd	
121 Col:5 Row:7 grids\141.xgd	194 Col:9 Row:13 grids\214.xgd	
122 Col:5 Row:8 grids\142.xgd	195 Col:9 Row:14 grids\215.xgd	
123 Col:5 Row:9 grids\143.xgd	196 Col:9 Row:15 grids\216.xgd	
124 Col:5 Row:10 grids\144.xgd	197 Col:9 Row:16 grids\217.xgd	
125 Col:5 Row:11 grids\145.xgd	198 Col:9 Row:17 grids\218.xgd	
126 Col:5 Row:12 grids\146.xgd	199 Col:9 Row:18 grids\219.xgd	
127 Col:5 Row:13 grids\147.xgd	200 Col:9 Row:19 grids\220.xgd	
128 Col:5 Row:14 grids\148.xgd	201 Col:10 Row:4 grids\177.xgd	
129 Col:5 Row:15 grids\149.xgd	202 Col:10 Row:5 grids\178.xgd	
130 Col:5 Row:16 grids\150.xgd	203 Col:10 Row:6 grids\179.xgd	
131 Col:5 Row:17 grids\151.xgd	204 Col:10 Row:7 grids\180.xgd	
132 Col:5 Row:18 grids\152.xgd	205 Col:10 Row:8 grids\181.xgd	
133 Col:6 Row:2 grids\160.xgd	206 Col:10 Row:9 grids\182.xgd	
134 Col:6 Row:3 grids\161.xgd	207 Col:10 Row:10 grids\183.xgd	
135 Col:6 Row:4 grids\162.xgd	208 Col:10 Row:11 grids\184.xgd	
136 Col:6 Row:5 grids\163.xgd	209 Col:10 Row:12 grids\185.xgd	
137 Col:6 Row:6 grids\164.xgd	210 Col:10 Row:13 grids\186.xgd	
138 Col:6 Row:7 grids\165.xgd	211 Col:10 Row:14 grids\187.xgd	
139 Col:6 Row:8 grids\166.xgd	212 Col:10 Row:15 grids\188.xgd	
140 Col:6 Row:9 grids\167.xgd	213 Col:10 Row:16 grids\189.xgd	
141 Col:6 Row:10 grids\168.xgd	214 Col:10 Row:17 grids\190.xgd	
142 Col:6 Row:11 grids\169.xgd	215 Col:10 Row:18 grids\191.xgd	
143 Col:6 Row:12 grids\170.xgd	216 Col:10 Row:19 grids\192.xgd	
144 Col:6 Row:13 grids\171.xgd	217 Col:10 Row:20 grids\193.xgd	
145 Col:6 Row:14 grids\172.xgd	218 Col:11 Row:5 grids\221.xgd	
146 Col:6 Row:15 grids\173.xgd	219 Col:11 Row:6 grids\222.xgd	
147 Col:6 Row:16 grids\174.xgd	220 Col:11 Row:7 grids\223.xgd	
148 Col:6 Row:17 grids\175.xgd	221 Col:11 Row:8 grids\232.xgd	
149 Col:6 Row:18 grids\176.xgd	222 Col:11 Row:9 grids\233.xgd	
150 Col:7 Row:2 grids\121.xgd	223 Col:11 Row:10 grids\234.xgd	
151 Col:7 Row:3 grids\122.xgd	224 Col:11 Row:11 grids\235.xgd	
152 Col:7 Row:4 grids\123.xgd	225 Col:11 Row:12 grids\236.xgd	
153 Col:7 Row:5 grids\124.xgd	226 Col:11 Row:13 grids\237.xgd	
154 Col:7 Row:6 grids\125.xgd	227 Col:11 Row:14 grids\238.xgd	
155 Col:7 Row:7 grids\126.xgd	228 Col:11 Row:15 grids\239.xgd	
156 Col:7 Row:8 grids\127.xgd	229 Col:11 Row:16 grids\240.xgd	
157 Col:7 Row:9 grids\128.xgd	230 Col:11 Row:17 grids\241.xgd	
158 Col:7 Row:10 grids\129.xgd	231 Col:11 Row:18 grids\242.xgd	
159 Col:7 Row:11 grids\130.xgd	232 Col:11 Row:19 grids\243.xgd	
160 Col:7 Row:12 grids\131.xgd	233 Col:11 Row:20 grids\244.xgd	
161 Col:7 Row:13 grids\132.xgd	234 Col:11 Row:21 grids\245.xgd	
162 Col:7 Row:14 grids\133.xgd	235 Col:12 Row:7 grids\224.xgd	
163 Col:7 Row:15 grids\134.xgd	236 Col:12 Row:8 grids\225.xgd	
164 Col:7 Row:16 grids\135.xgd	237 Col:12 Row:9 grids\226.xgd	
165 Col:7 Row:17 grids\136.xgd	238 Col:12 Row:10 grids\227.xgd	
166 Col:7 Row:18 grids\137.xgd	239 Col:12 Row:11 grids\228.xgd	
167 Col:8 Row:3 grids\138.xgd	240 Col:12 Row:12 grids\247.xgd	
168 Col:8 Row:4 grids\139.xgd	241 Col:12 Row:13 grids\248.xgd	
169 Col:8 Row:5 grids\153.xgd	242 Col:12 Row:14 grids\249.xgd	
170 Col:8 Row:6 grids\154.xgd	243 Col:12 Row:15 grids\250.xgd	
171 Col:8 Row:7 grids\155.xgd	244 Col:12 Row:18 grids\251.xgd	
172 Col:8 Row:8 grids\156.xgd	245 Col:12 Row:19 grids\246.xgd	
173 Col:8 Row:9 grids\157.xgd	246 Col:13 Row:9 grids\229.xgd	
174 Col:8 Row:10 grids\158.xgd	247 Col:13 Row:10 grids\230.xgd	
175 Col:8 Row:11 grids\159.xgd	248 Col:13 Row:11 grids\231.xgd	
176 Col:8 Row:12 grids\196.xgd		
177 Col:8 Row:13 grids\197.xgd	**Processed data**	
178 Col:8 Row:14 grids\198.xgd	Stats	
179 Col:8 Row:15 grids\199.xgd	Max:	2.20
180 Col:8 Row:16 grids\200.xgd	Min:	-1.80
181 Col:8 Row:17 grids\201.xgd	Std Dev:	1.32
182 Col:8 Row:18 grids\202.xgd	Mean:	0.05
183 Col:8 Row:19 grids\203.xgd	Median:	0.01
184 Col:9 Row:3 grids\204.xgd		
185 Col:9 Row:4 grids\205.xgd	Processes: 5	
186 Col:9 Row:5 grids\206.xgd	1 Base Layer	
187 Col:9 Row:6 grids\207.xgd	2 DeStripe Median Sensors: All	
188 Col:9 Row:7 grids\208.xgd	3 Despike Threshold: 1 Window size: 3x3	
189 Col:9 Row:8 grids\209.xgd	4 Interpolate: Y Doubled.	
	5 Clip from -1.80 to 2.20 nT	
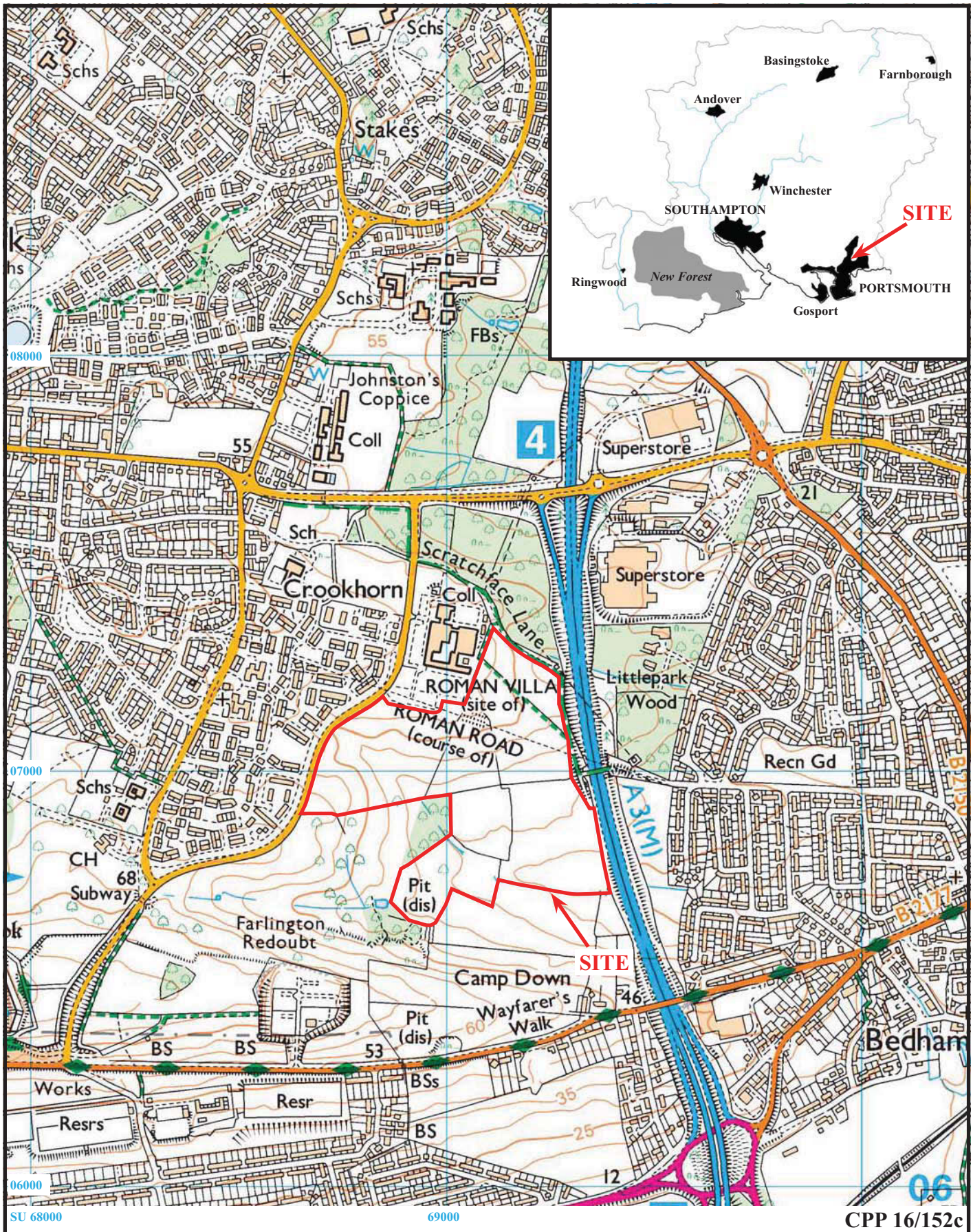
CPP 16/152c

**Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)**

Figure 1. Location of site within Camp Down and Hampshire.

Reproduced from Ordnance Survey Explorer digital mapping at 1:12500
Ordnance Survey Licence 100025880

THAMES VALLEY
ARCHAEOLOGICAL
S E R V I C E S

07200

07000

SU 68600   68800   69000   69200

Previously surveyed
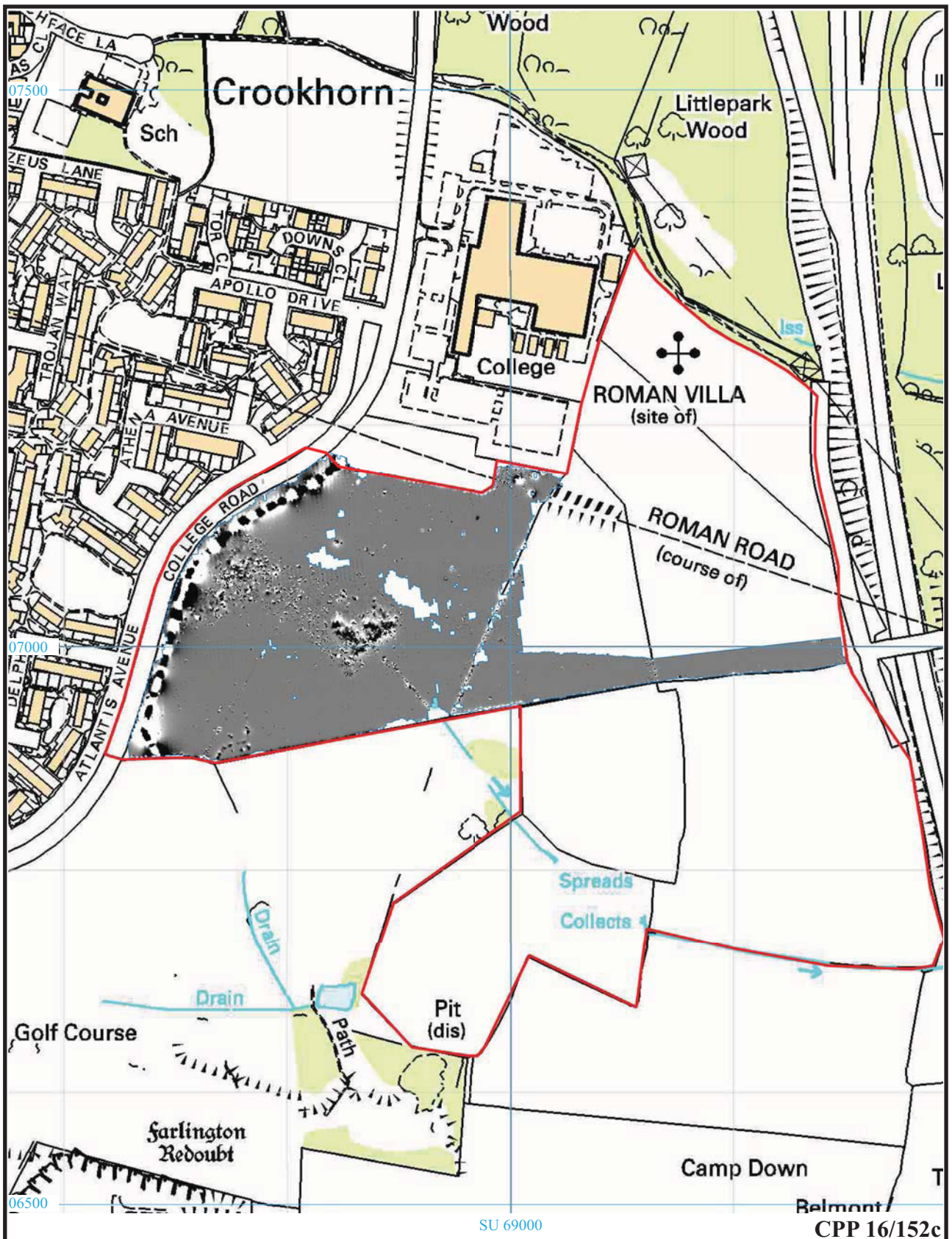
South Downs
College
(PE)

CPP 16/152c

N

**Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)**

Figure 2. Survey grid layout.

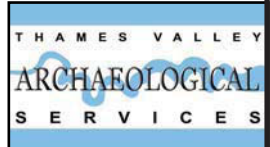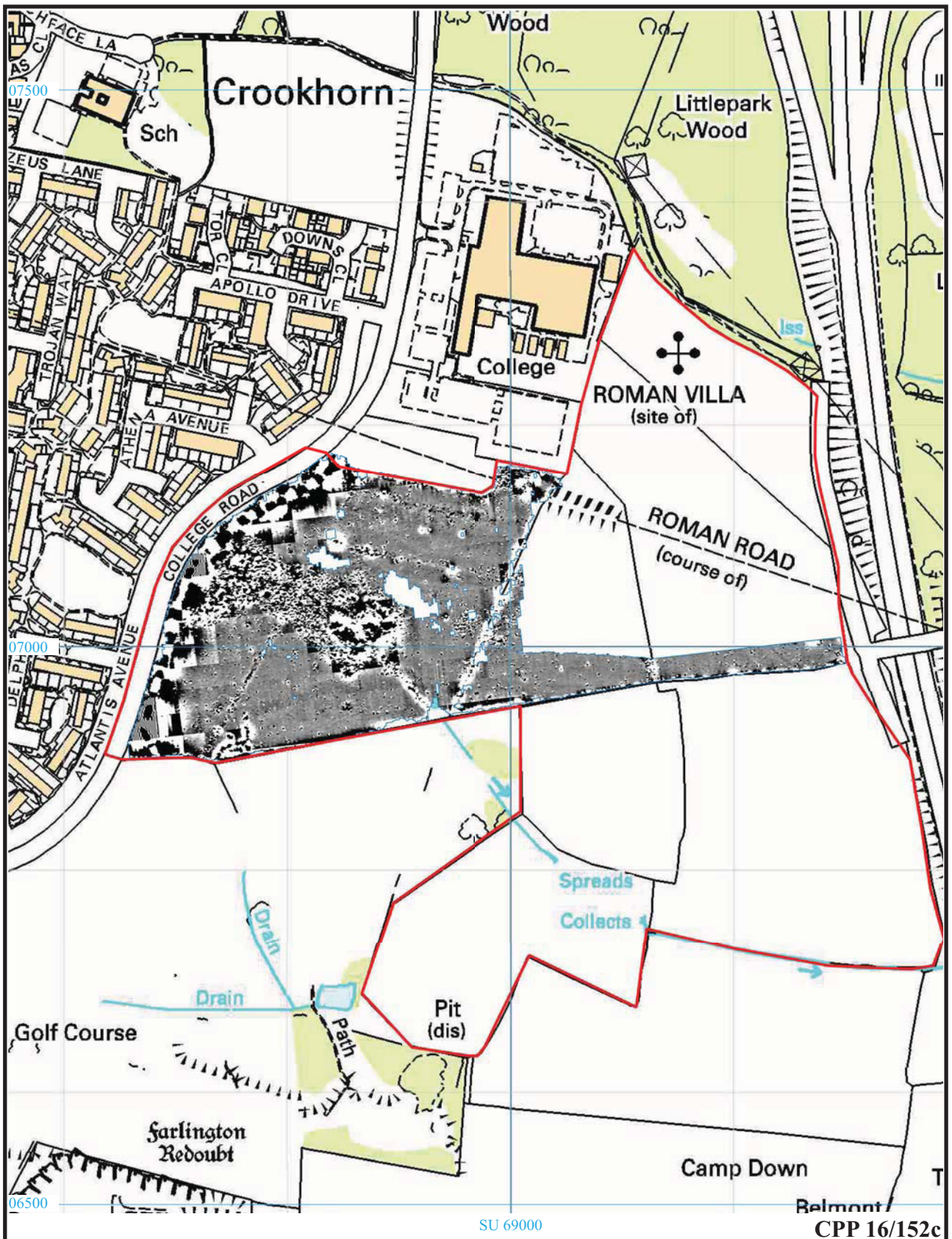0   250m
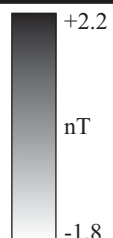
THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)
Figure 3. Plot of raw gradiometer data.

CPP 16/152c

N

0m   250m

+100

nT

-100

THAMES   VALLEY
ARCHAEOLOGICAL
S E R V I C E S

Crookhorn
Wood
Littlepark
Wood
Sch
College
ROMAN VILLA
(site of)
ROMAN ROAD
(course of)
Spreads
Collects
Drain
Drain
Path
Pit
(dis)
Golf Course
Farlington
Redoubt
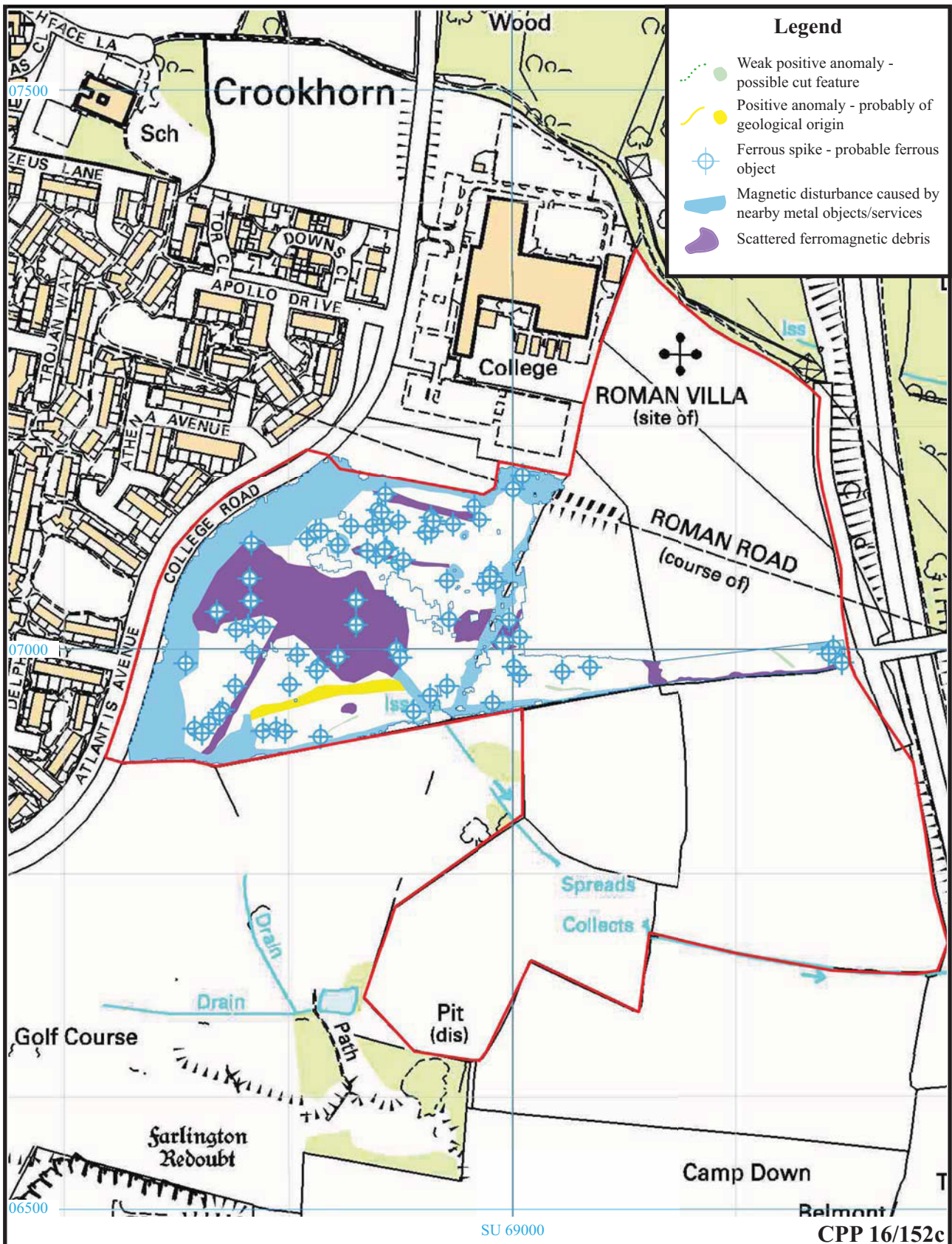Camp Down
Belmont
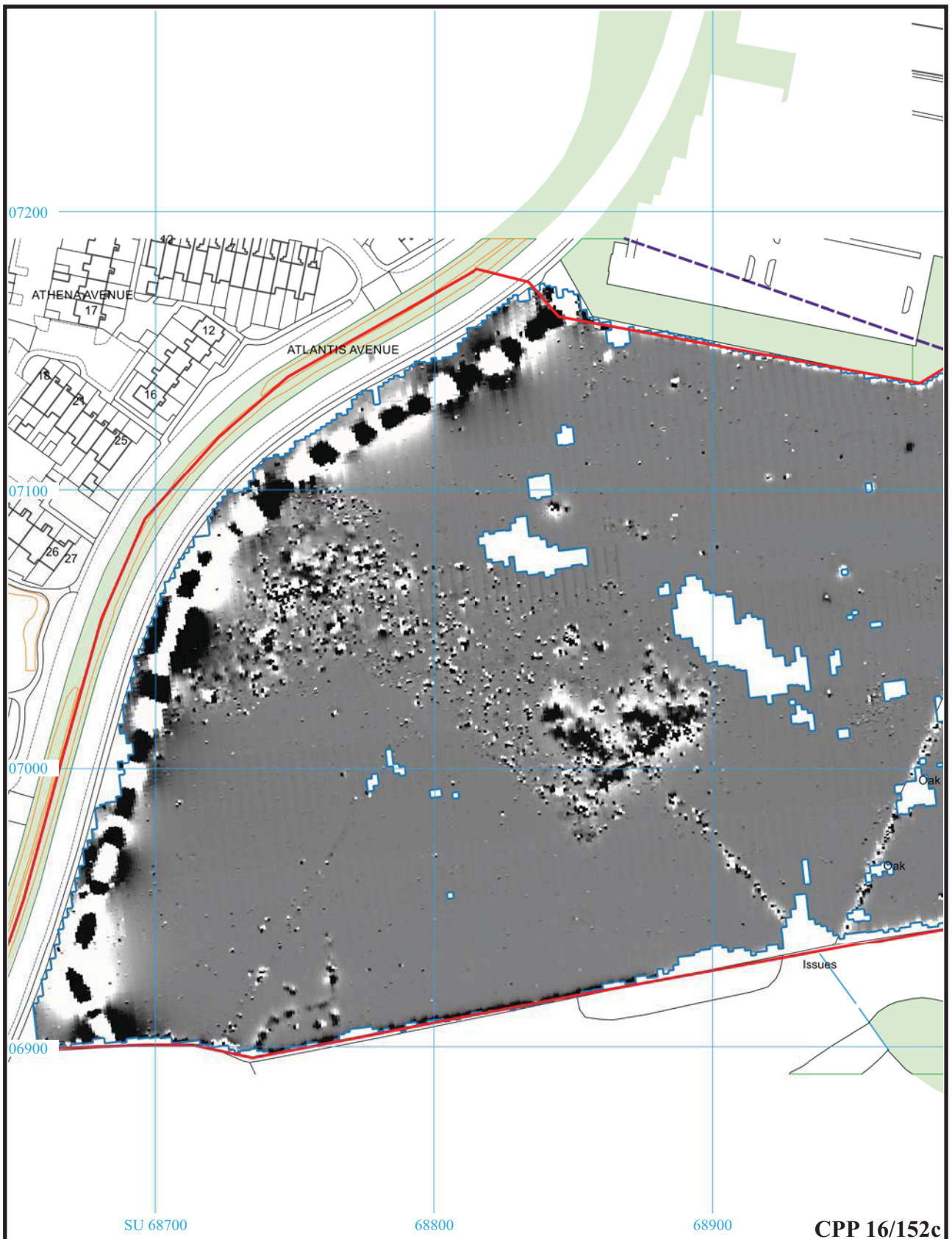SU 69000

07500
07000
06500

CPP 16/152c

N

**Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)**
Figure 4. Plot of minimally processed gradiometer data.

+2.2

nT

-1.8

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

0m   250m

Legend

- **Weak positive anomaly - possible cut feature**
- **Positive anomaly - probably of geological origin**
- **Ferrous spike - probable ferrous object**
- **Magnetic disturbance caused by nearby metal objects/services**
- **Scattered ferromagnetic debris**

Wood

Crookhorn

Sch

College

ROMAN VILLA
(site of)

ROMAN ROAD
(course of)

Spreads

Collects

Drain

Drain

Pit
(dis)

Golf Course

Path

Farlington
Redoubt

Camp Down

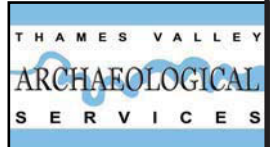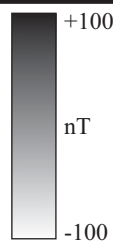Belmont

07500

07000

06500

SU 69000

CPP 16/152c

N

**Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)**
Figure 5. Interpretation plot.

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

0m   250m

07200

ATHENA AVENUE
17
42
12
ATLANTIS AVENUE
18
16
2A
25
26 27

07100

07000

Oak

Oak

Issues

06900

SU 68700   68800   68900

CPP 16/152c

N

+100

nT

-100

0m   100m

THAMES VALLEY
ARCHAEOLOGICAL
S E R V I C E S

ROMAN VILLA
(site of)

07200

ESS

ROMAN ROAD

07100

ROMAN ROAD
(course of)

SCRATC

Oak

07000
Oak

06900

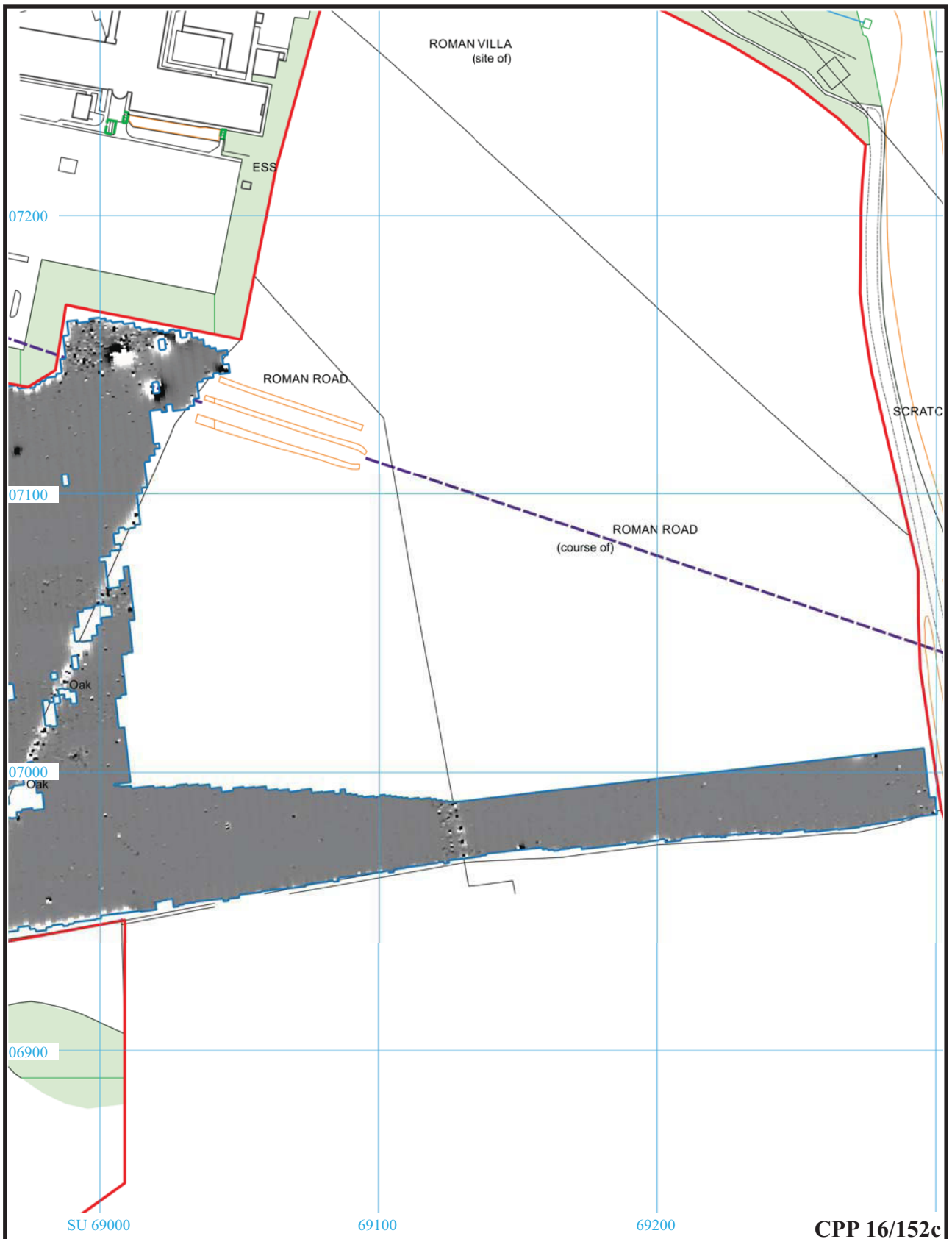SU 69000   69100   69200

CPP 16/152c

N

**Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)**
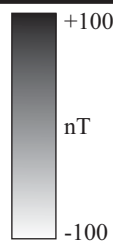Figure 7. Plot of raw gradiometer data - east.

+100

nT

-100

0m   100m

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

ATHENA AVENUE

17

12

ATLANTIS AVENUE

18

2A

16

25

07100

26 27

07000

Oak

Oak

Issues

06900

SU 68700   68800   68900

CPP 16/152c

N

**Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)**
Figure 8. Plot of minimally processed gradiometer data - west.

+2.2

nT

-1.8

0m   100m

THAMES VALLEY
ARCHAEOLOGICAL
S E R V I C E S

ROMAN VILLA
(site of)

ESS

ROMAN ROAD

07200

07100

ROMAN ROAD
(course of)

SCRATC

Oak

07000
Oak

06900

SU 69000

69100

69200

CPP 16/152c

N

Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)
Figure 9. Plot of raw gradiometer data - east.

0m   100m

+2.2

nT

-1.8

THAMES VALLEY
ARCHAEOLOGICAL
S E R V I C E S

Legend

⋯⋯ Weak positive anomaly - possible cut feature

〰 Positive anomaly - probably of geological origin

⊕ Ferrous spike - probable ferrous object

▬ Magnetic disturbance caused by nearby metal objects/services

▬ Scattered ferromagnetic debris

ATHENA AVENUE
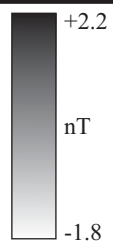ATLANTIS AVENUE
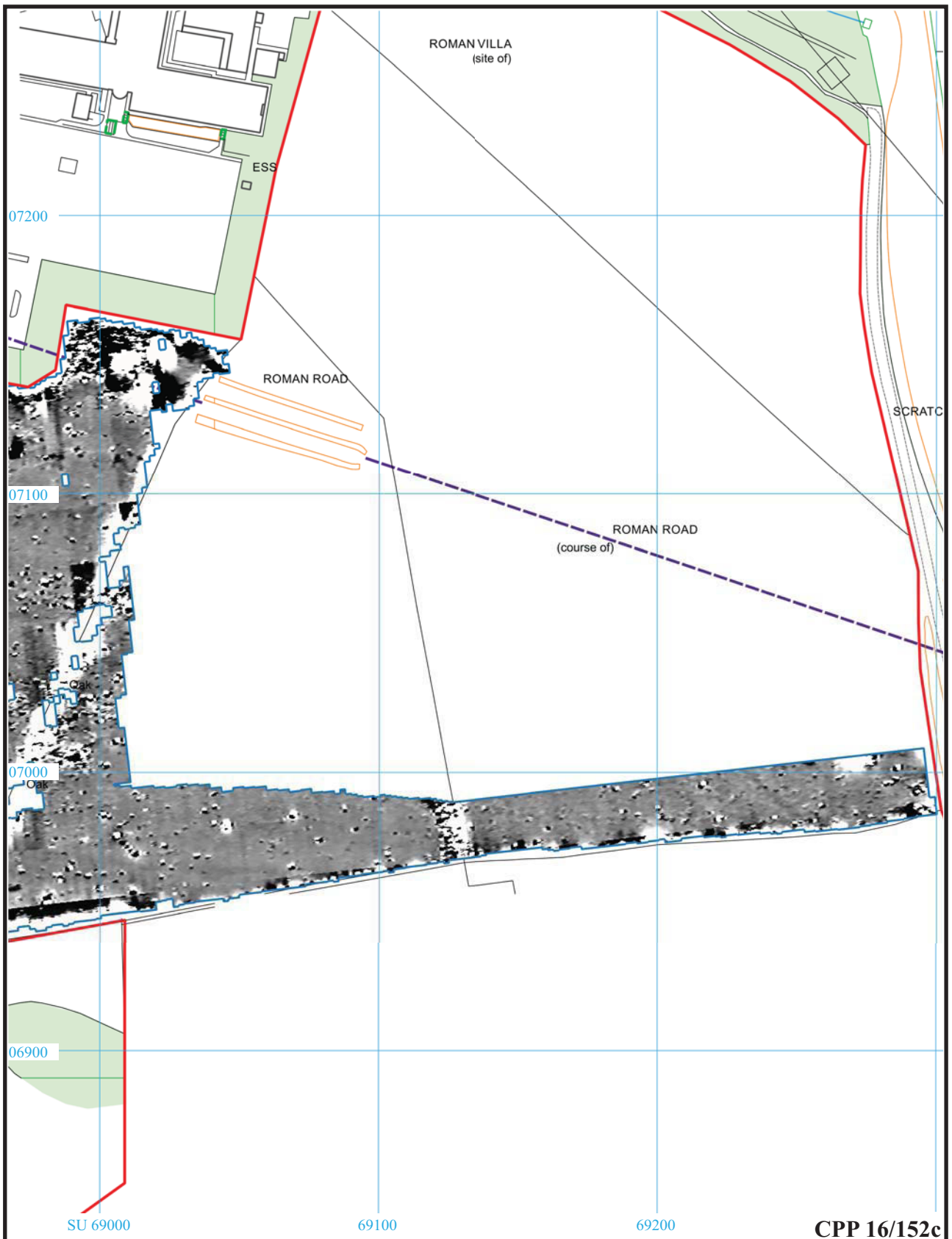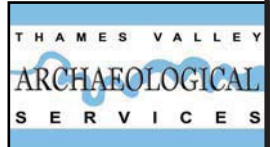
07200
07100
07000
06900

SU 68700   68800   68900

CPP 16/152c

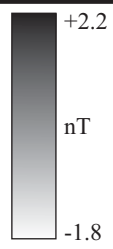Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)
Figure 10. Interpretation plot - west.

N

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

0m   100m

Legend

Weak positive anomaly - possible cut feature

Positive anomaly - probably of geological origin

Ferrous spike - probable ferrous object

Magnetic disturbance caused by nearby metal objects/services

Scattered ferromagnetic debris

ROMAN VILLA
(site of)

ESS

07200

ROMAN ROAD

SCRATC

07100

ROMAN ROAD
(course of)

2

Oak

07000
Oak

11

1

10

06900

SU 69000   69100   69200

CPP 16/152c

N

Western Area, Land at College Road, Campdown,
Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)
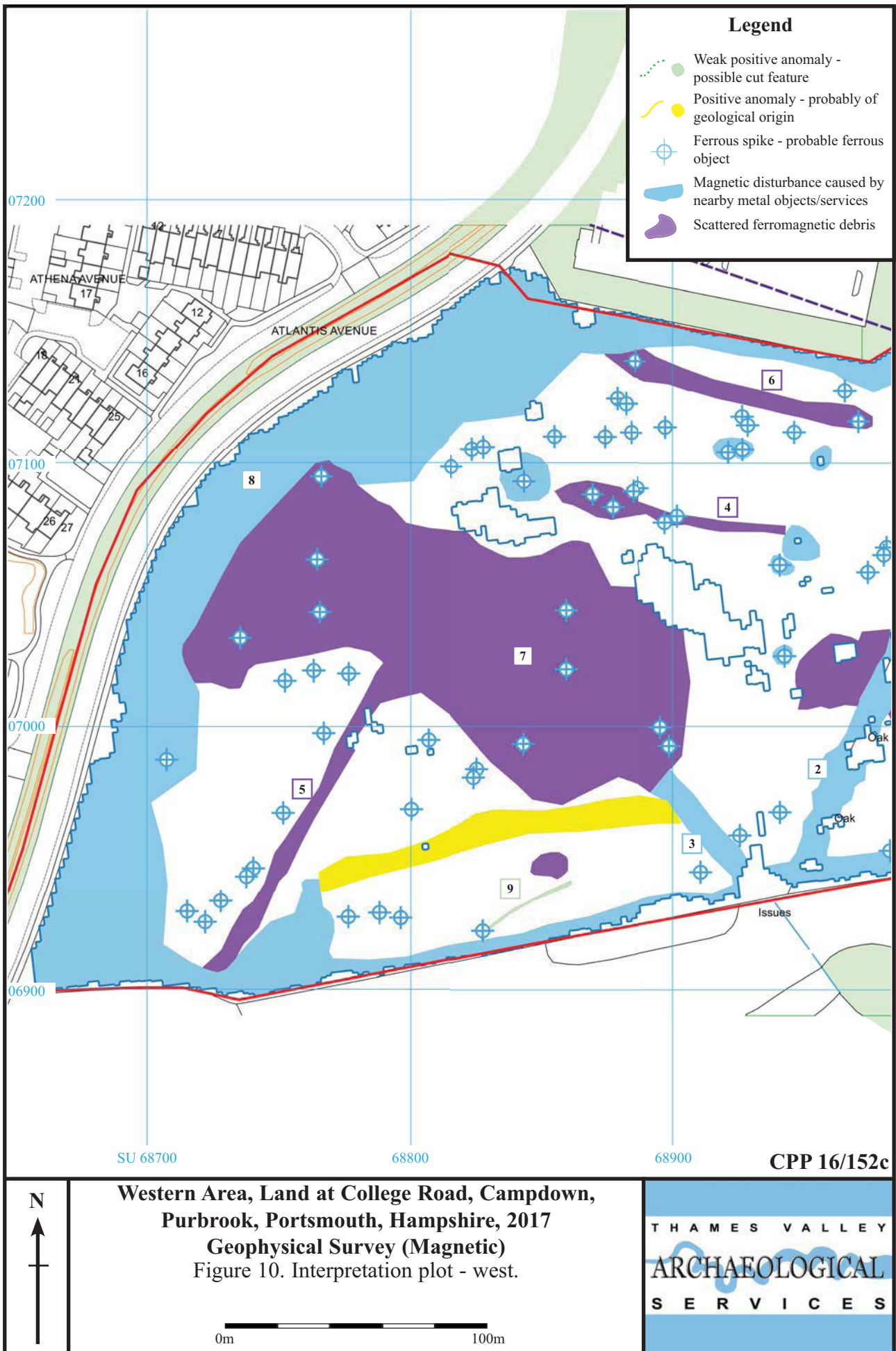Figure 11. Interpretation plot - east.

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

0m   100m

Western Area, Land at College Road, Campdown, Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)
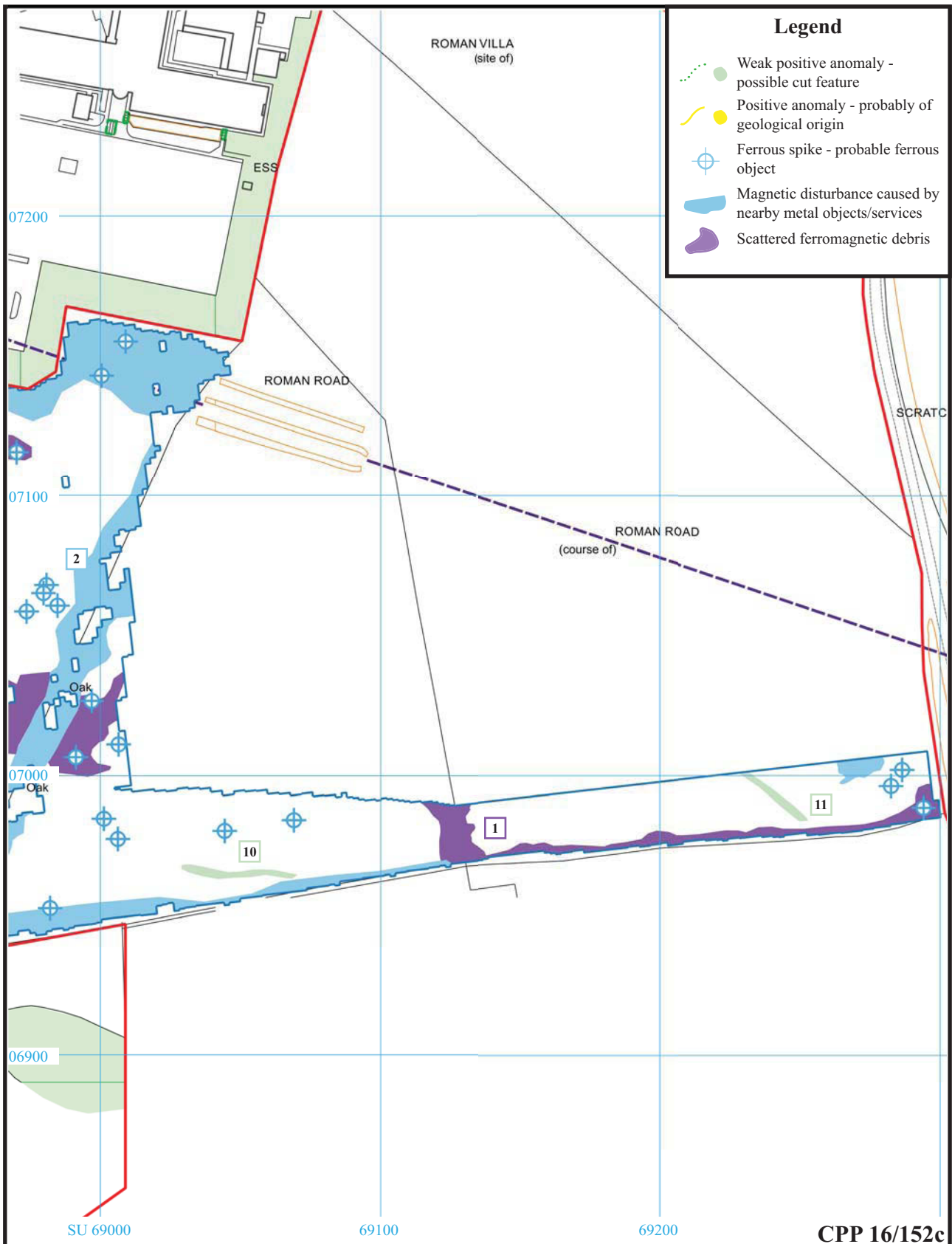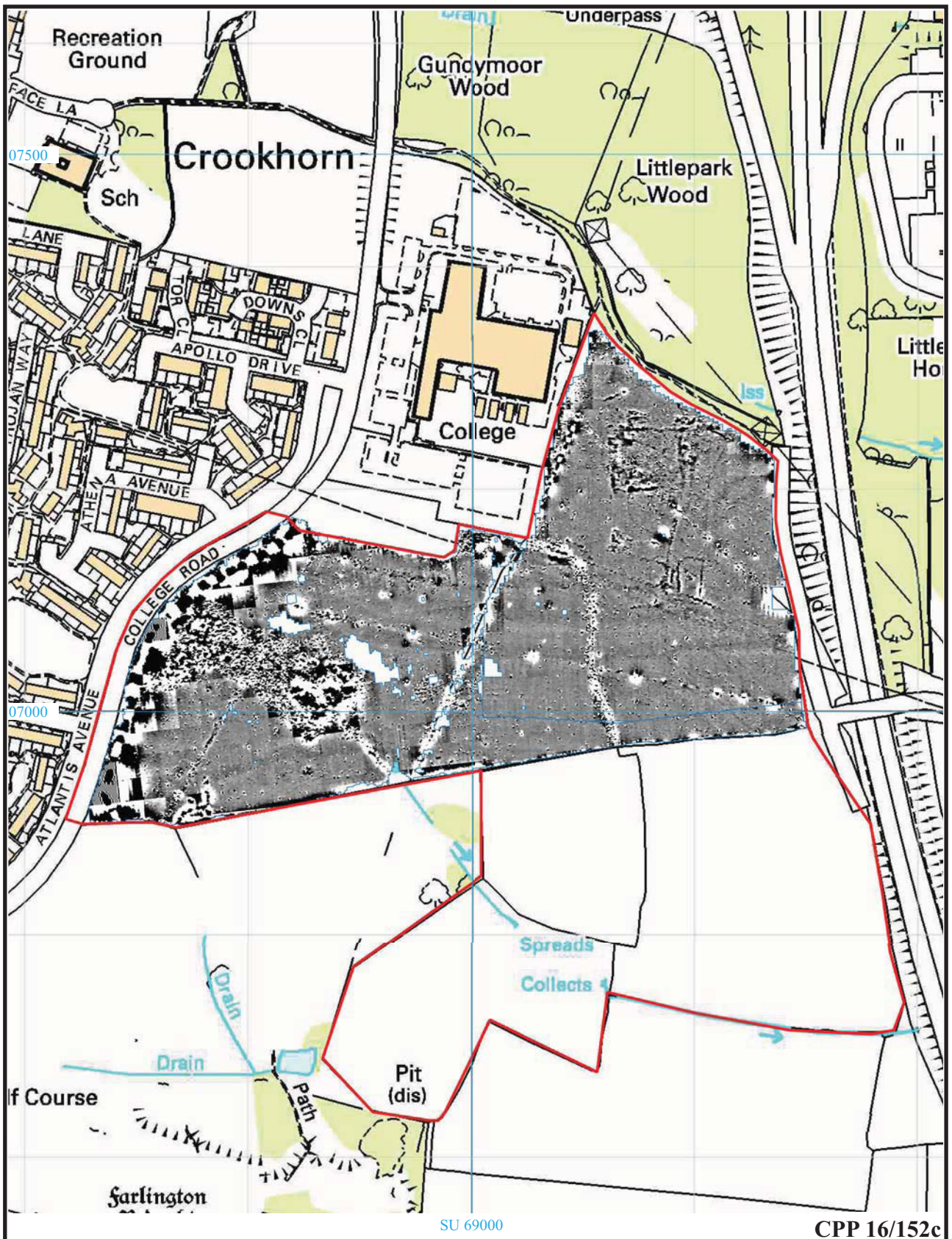Figure 12. Plot of minimally processed gradiometer data for Western and Eastern areas.

CPP 16/152c

N

+2.2

nT

-1.8

0m   250m

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

Legend

- Positive anomaly - possible cut feature (archaeology)
- Weak positive anomaly - possible cut feature
- Negative anomaly - possible earthwork (archaeology)
- Positive anomaly - probably of geological origin
- Ferrous spike - probable ferrous object
- Magnetic disturbance caused by nearby metal objects/services
- Scattered ferromagnetic debris

Recreation Ground

Gundymoor Wood

Underpass

Crookhorn

Sch

College

ROMAN VILLA (site of)

ROMAN ROAD (course of)

Issues

Spreads

Collects

Drain

Drain

Golf Course

Path

Pit (dis)

Farlington

SU 69000

CPP 16/152c

N

Western Area, Land at College Road, Campdown, Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)
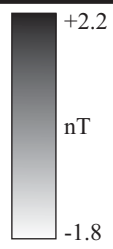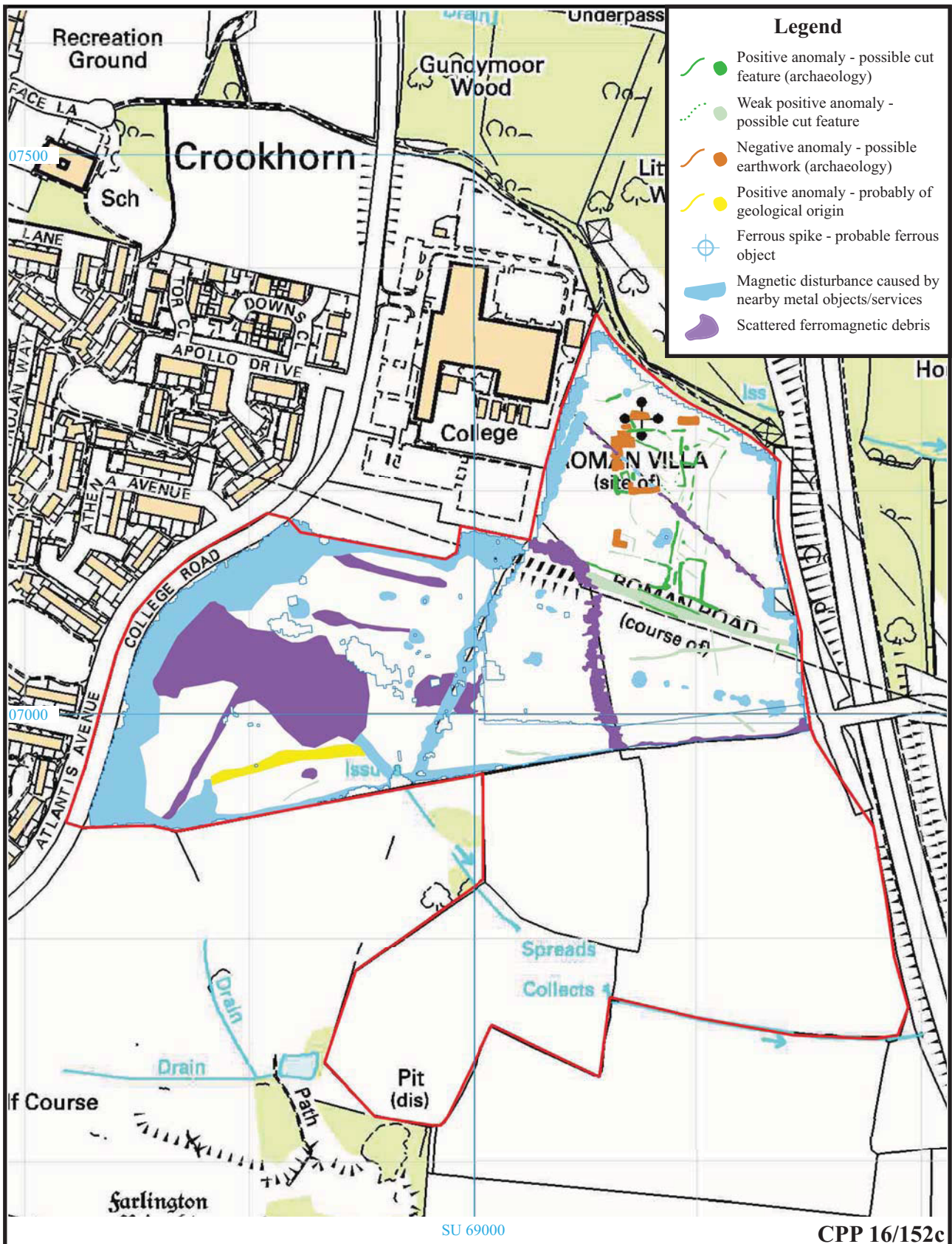Figure 13. Interpretation plot for Western and Eastern areas showing Roman villa site.

0m   250m

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

Plate 1. The survey area, looking west along the northern boundary from the north-eastern corner.

Plate 2. The southern half of the survey area, looking east along the southern boundary.

Plate 3. The survey area, looking north-east across the area of probable modern made ground.

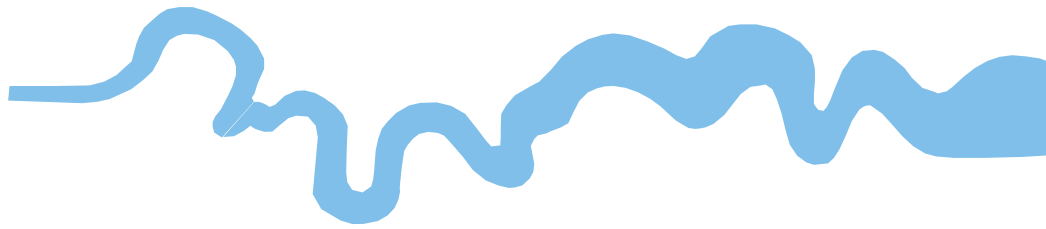Plate 4. The survey area, looking north-north-east towards the college.

CPP 16/152c

Western Area, Land at College Road, Campdown, Purbrook, Portsmouth, Hampshire, 2017
Geophysical Survey (Magnetic)
Plates 1 to 4.

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

TIME CHART

	Calendar Years
Modern _____	AD 1901
Victorian _____	AD 1837
Post Medieval _____	AD 1500
Medieval _____	AD 1066
Saxon _____	AD 410
Roman _____	AD 43
	AD 0 BC
Iron Age _____	750 BC
Bronze Age: Late _____ _____ _____ _____ _____	1300 BC
Bronze Age: Middle _____ _____ _____ _____	1700 BC
Bronze Age: Early _____ _____ _____ _____ _____	2100 BC
Neolithic: Late	3300 BC
Neolithic: Early	4300 BC
Mesolithic: Late	6000 BC
Mesolithic: Early	10000 BC
Palaeolithic: Upper	30000 BC
Palaeolithic: Middle	70000 BC
Palaeolithic: Lower	2,000,000 BC

↓   ↓