

ARCHAEOLOGICAL SURVEYS

GEOPHYSICAL SURVEY REPORT

Land Between 32 & 36 High Street Dorchester on Thames, Oxfordshire

Resistivity Survey

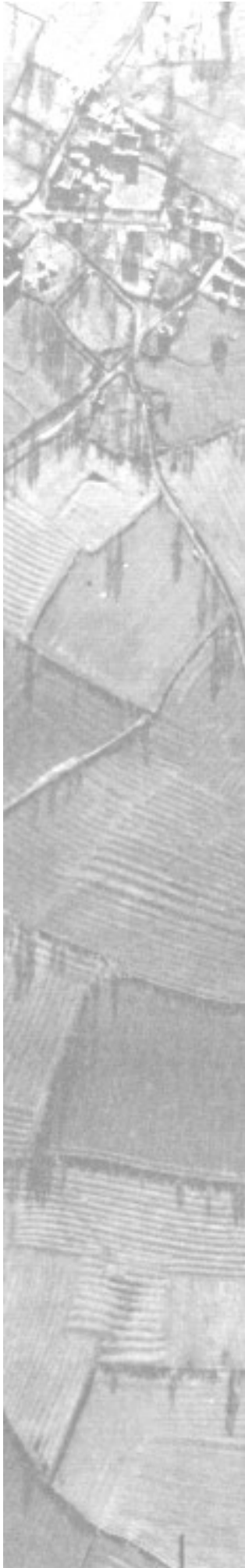
For

Oxford Archaeology

David Sabin and Kerry Donaldson

October 2006

Ref no. 157



ARCHAEOLOGICAL SURVEYS

**Land Between 32 & 36 High Street
Dorchester on Thames**

Resistivity Survey

for

Oxford Archaeology

Fieldwork by David Sabin (MIFA)
Report by David Sabin and Kerry Donaldson

Survey date – **4th October**
Ordnance Survey Grid Reference - **SU 57797 94380**

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SUMMARY

A resistivity survey was carried out at Dorchester on Thames in Oxfordshire ahead of a potential building development between 32 and 36 High Street. Two small areas were surveyed at high resolution in order to evaluate the archaeological potential of the site which is known to lie immediately to the north of the Roman town of Dorchester. Several amorphous areas of high resistance were located across two separate survey areas. The southernmost, survey Area 1, revealed high resistance associated with a swimming pool and extant land boundary. Zones of high resistance located in Area 2, to the northwest of the site, could not be confidently interpreted and although may be related to modern ground disturbance, moisture uptake and sheltering effects from mature trees, their archaeological potential should not be dismissed.

1 INTRODUCTION

1.1 *Survey background*

- 1.1.1 Archaeological Surveys were commissioned by Oxford Archaeology to undertake a resistivity survey at Dorchester on Thames as part of investigations into the site ahead of possible building works. A planning application for the site has been submitted to South Oxfordshire District Council and proposes the demolition of workshops and the erection of two pairs of two storey semi-detached houses, with a single garage, seven parking spaces, and new access at land between 32 and 36 High Street.
- 1.1.2 The site is located within the Dorchester on Thames Conservation Area with the central and eastern parts lying within Scheduled Monument 116, the Roman town of Dorchester. A number of listed buildings are located nearby.

1.2 *Survey objectives*

- 1.2.1 As part of an archaeological field evaluation an initial non-invasive survey is required in an attempt to identify subsurface remains. The evaluation work is required in accordance with PPG16 and the Scheduled Monuments and Archaeological Areas Act due to the presence of known sites of archaeological interest within the immediate vicinity of the development.
- 1.2.2 The non-invasive survey will seek to gather information to establish the presence or absence, character and extent of archaeological remains or features. To meet these objectives both ground penetrating radar and resistivity survey are required. Ground Penetrating Radar survey will be undertaken across all accessible areas within the site by Arrow Geophysics and resistivity survey will be undertaken on areas of grass cover by Archaeological Surveys. This report exclusively deals with the results of the resistivity survey.

1.2.3 Resistivity survey can be very effective at locating archaeological features such as masonry foundations and cut features such as ditches. The technique is suitable across grassed areas and can operate in magnetically and electromagnetically 'noisy' environments where other techniques such as magnetometry are not viable. An initial attempt at magnetic scanning proved the unsuitability of the environment for magnetic survey techniques.

1.3 *Site location*

1.3.1 The survey area is located at Dorchester on Thames in Oxfordshire on land to the rear of and in between no.s 32 and 36 High Street. Ordnance Survey grid reference SU 57797 94380.

1.4 *Site description*

1.4.1 Two separate locations were available for resistance survey within the site, see Figure 02. For the purposes of this survey these are referred to as Areas 1 and 2. Resistance survey cannot be carried out across areas of concrete, tarmac, paving etc.

1.4.2 Area 1 lies within the south eastern corner of the site immediately to the south of a swimming pool and the larger area of workshop buildings. The area available for survey was approximately 14m by 10m and enclosed by fencing and buildings except to the north in the direction of the swimming pool. It is clear that a significant proportion of the area available for survey crosses made ground in the form of a bank that surrounds the swimming pool.



Plate 1 Survey Area 1

1.4.3 Area 2 is a lawn to the west of no.1 Crown Lane and lies within the northwest part of the development site. The area available for survey was approximately 15m by 10m and was enclosed by stone walls to the north and west, fencing to the south and buildings to the east. There are several mature fruit trees, areas of bushes and concrete paths within the survey area. To the north and

west are garden beds with dumped soil and gravel adjacent to the northern wall.



Plate 2 Survey Area 2

1.5 Site history and archaeological potential

1.5.1 Part of the development site lies within Scheduled Monument 116, the Roman Town of Dorchester. Evidence suggests the site is located immediately outside the northern perimeter defences of the Roman town within its northern extramural suburbs. Previous archaeological investigations in this area have produced considerable evidence for extensive and concentrated settlement activity outside the town walls.

1.6 Survey conditions and general observations

1.6.1 The underlying geology and soils are related to alluvial deposits and likely to be well-drained. Landscaping and ground make-up may have modified the characteristics of the topsoil and it is not possible to confidently predict the effectivity of resistance survey in such conditions.

1.6.2 Variable vegetation within and surrounding the survey areas, in particular mature trees within Area 2, may have an unpredictable effect upon the resistivity results due to moisture uptake from roots and canopy sheltering effects. In addition resistance data may be affected by variable sheltering of areas to rainfall and sunlight in areas immediately adjacent to buildings and walls or fences.

2 METHODOLOGY

2.1 *Technical synopsis*

2.1.1 The electrical resistance or resistivity of the soil depends upon the moisture content and distribution within the soil. Buried features such as walls can affect the moisture distribution and are usually more moisture resistant than other features such as the infill of a ditch. A stone or brick wall will generally give a high resistance response and the moisture retentive content of a ditch can give a low resistance response.

2.2 *Equipment details and configuration*

2.2.1 The resistivity survey was carried out using TR Systems Ltd Resistance Meter TRCIA 1.31 using a mobile Twin Probe array. Probe separation of 0.5m was selected for the survey.

2.2.2 Readings were taken at 0.5m intervals across the site giving 1600 readings within a full 20m x 20m grid.

2.3 *Data processing and presentation*

2.3.1 Data logged by the resistance meter is downloaded and processed within ArcheoSurveyor software. Raw data is analysed and displayed within the report as well as processed data. The following processing has been carried out on data in this survey:

- Data has been “despiked” in order to remove spurious high contact responses.
- Data is passed through a high pass filter in order to enhance archaeological features.
- Processed data has been clipped between $\pm 2SD$ to enhance any possible archaeological anomalies. Negative values are a function of the mathematical operation carried out across the data during filtering.

2.3.2 The results are presented in the form of greyscale plots for both raw and processed data with an additional abstraction and interpretation plot using coloured linear and area symbols where appropriate.

3 RESULTS

3.1 *General overview*

3.1.1 A number of anomalies were located and are generally defined by amorphous areas of high resistance. It is likely that the survey has been influenced by mature trees and shrubs, which may modify the distribution of moisture in

localised areas, and areas of ground make-up. No linear anomalies were abstracted from the data

3.2 Area 1

- 3.2.1 An area of high resistance within the northern half of the survey area is clearly related to a soil bank associated with the construction of a swimming pool. This feature is not archaeologically significant. Other poorly defined zones of high resistance adjacent to the surrounding boundary fences are likely to be associated with low ground moisture resulting from sheltering effects and vegetation uptake.

3.3 Area 2

- 3.3.1 Amorphous zones of high resistance within the survey area are classified as having an uncertain origin. It is possible that these have been caused by variations in soil make-up from relatively modern utilisation of the area or are associated with sheltering and moisture uptake by mature fruit trees. However, it is possible that the zones are an indication of structural debris and their archaeological potential should not be dismissed.

4 CONCLUSION

- 4.1 The resistivity survey cannot be used confidently to suggest the presence or absence of archaeological deposits within the survey areas. Modern ground disturbance clearly associated with the construction of a swimming pool within Area 1 has created zones of high resistance and may potentially mask deeper anomalies. Amorphous zones of high resistance within Area 2 cannot be interpreted with any confidence and a cautious approach is adopted, however, it is likely that relatively modern land use and the presence of mature trees has been a factor in the variability of resistive response.
- 4.2 It is possible that further analysis combining the results of resistivity and ground penetrating radar survey may be of benefit but it is unlikely that the objectives of the evaluation can be satisfied by geophysics alone.

5 REFERENCES

English Heritage, 1995, *Geophysical survey in archaeological field evaluation. Research and Professional Service Guideline No 1.*

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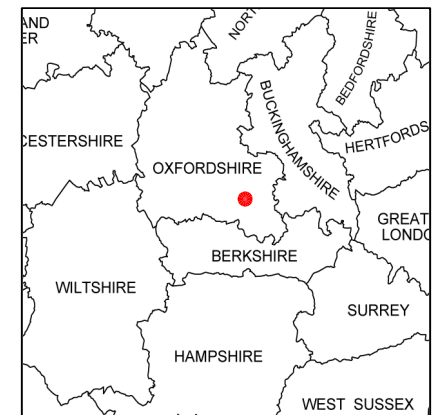
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Map of survey area

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Survey area



● Survey location

Site centred on OS NGR
SU 57797 94380

SCALE 1:50 000



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Referencing information

A - B 14m A - C 9.12m A - D 5.98m

A - E 0.9m B - F 0.8m B - G 0.75m

H - I 10.5m H - K 2m I - J 2m

A - B Grid baseline

C Referencing point on building corner

D Referencing point on tank corner

E, F & G Referencing points on boundaries

H - I Grid baseline

J Referencing point on building

K Referencing point on building corner

SCALE 1:250

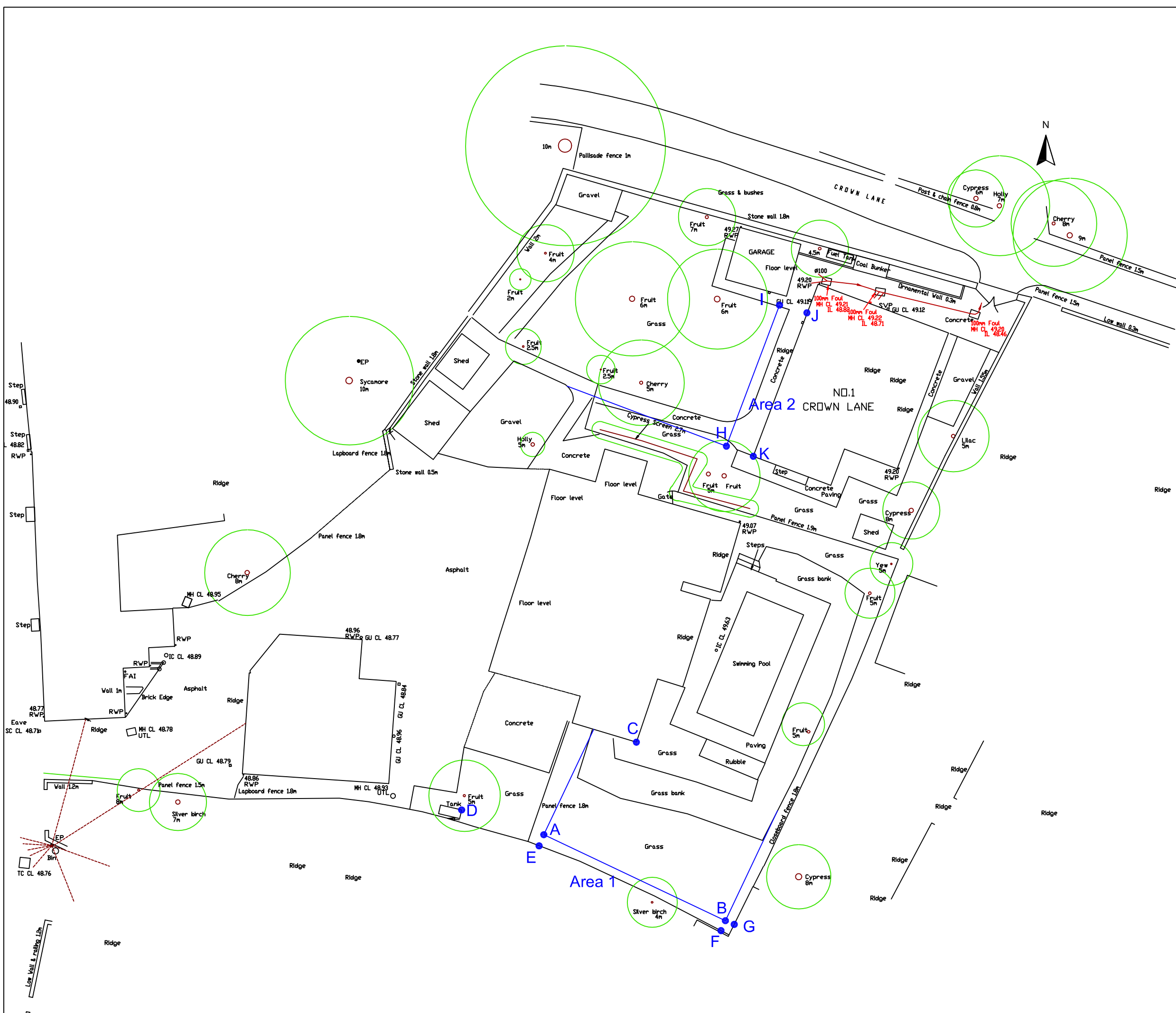
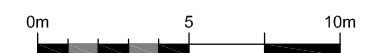


FIG 02

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Greyscale plot of raw resistance data - Areas 1 and 2

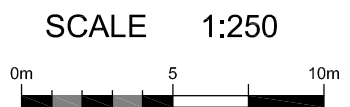
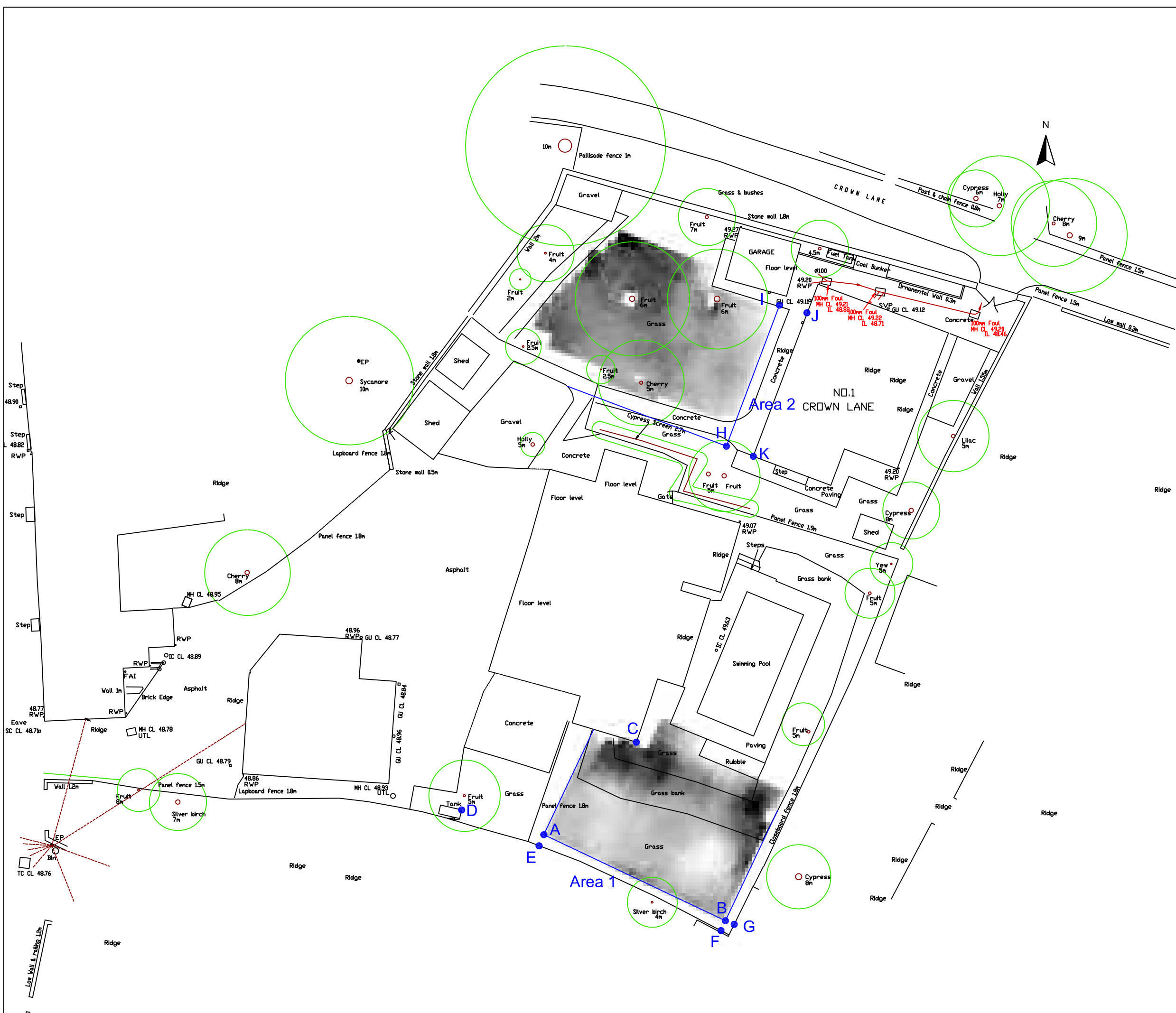
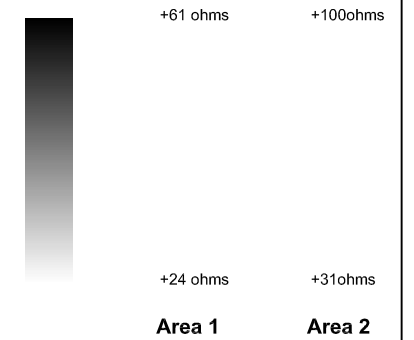


FIG 03

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Greyscale plot of processed resistance data - Areas 1 and 2

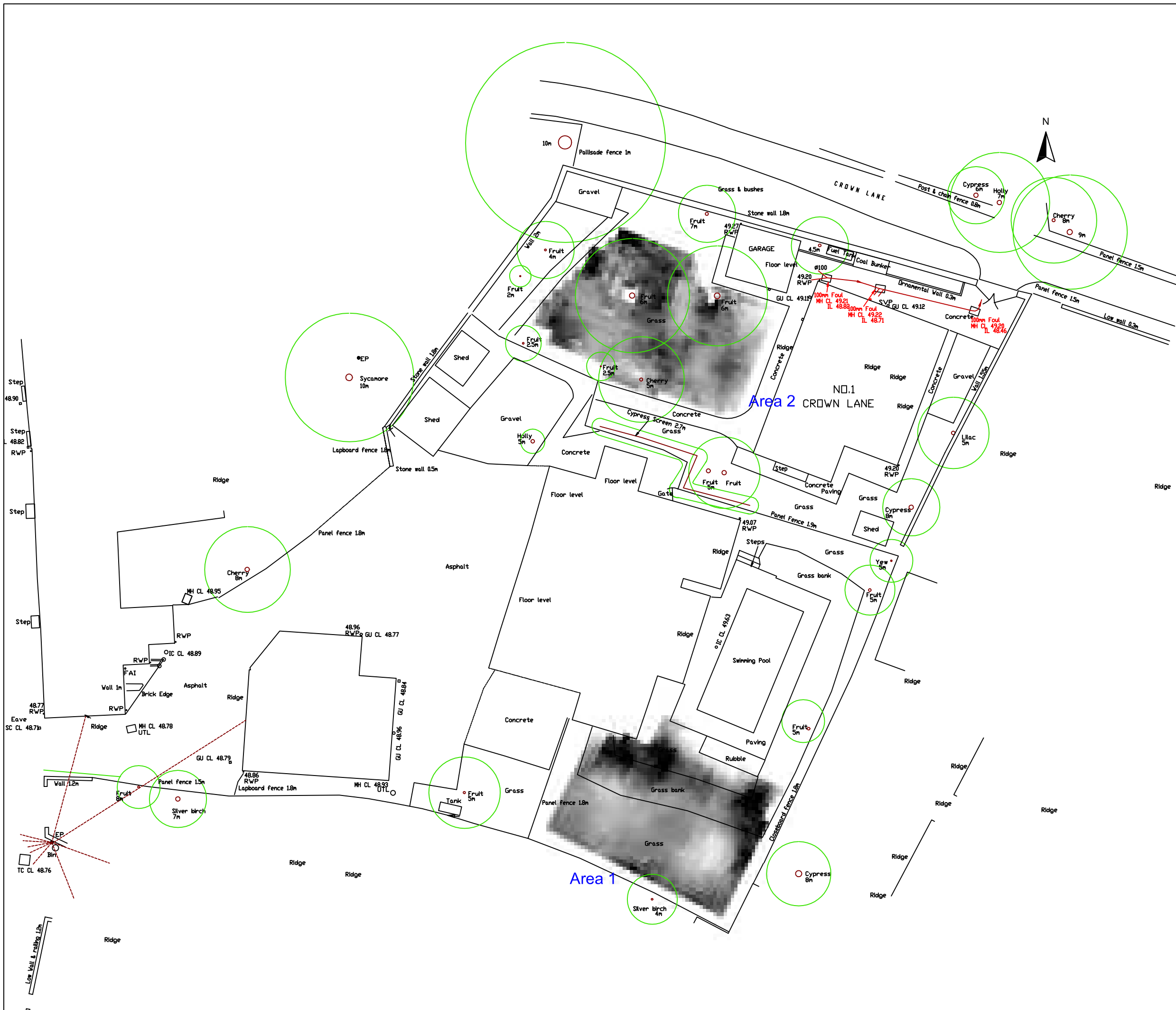
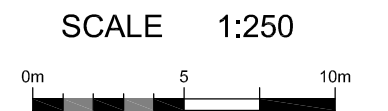
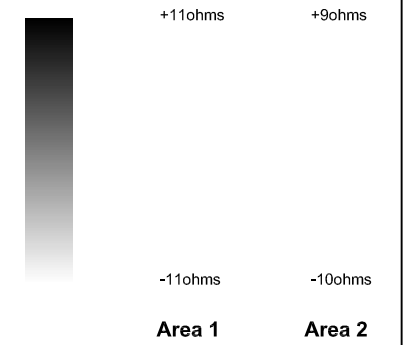





FIG 04

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Abstraction and interpretation of resistance anomalies

-  Area of high resistance of uncertain origin
-  Area of high resistance adjacent to trees and extant land boundaries
-  Area of high resistance associated with bank and other made ground

SCALE 1:250

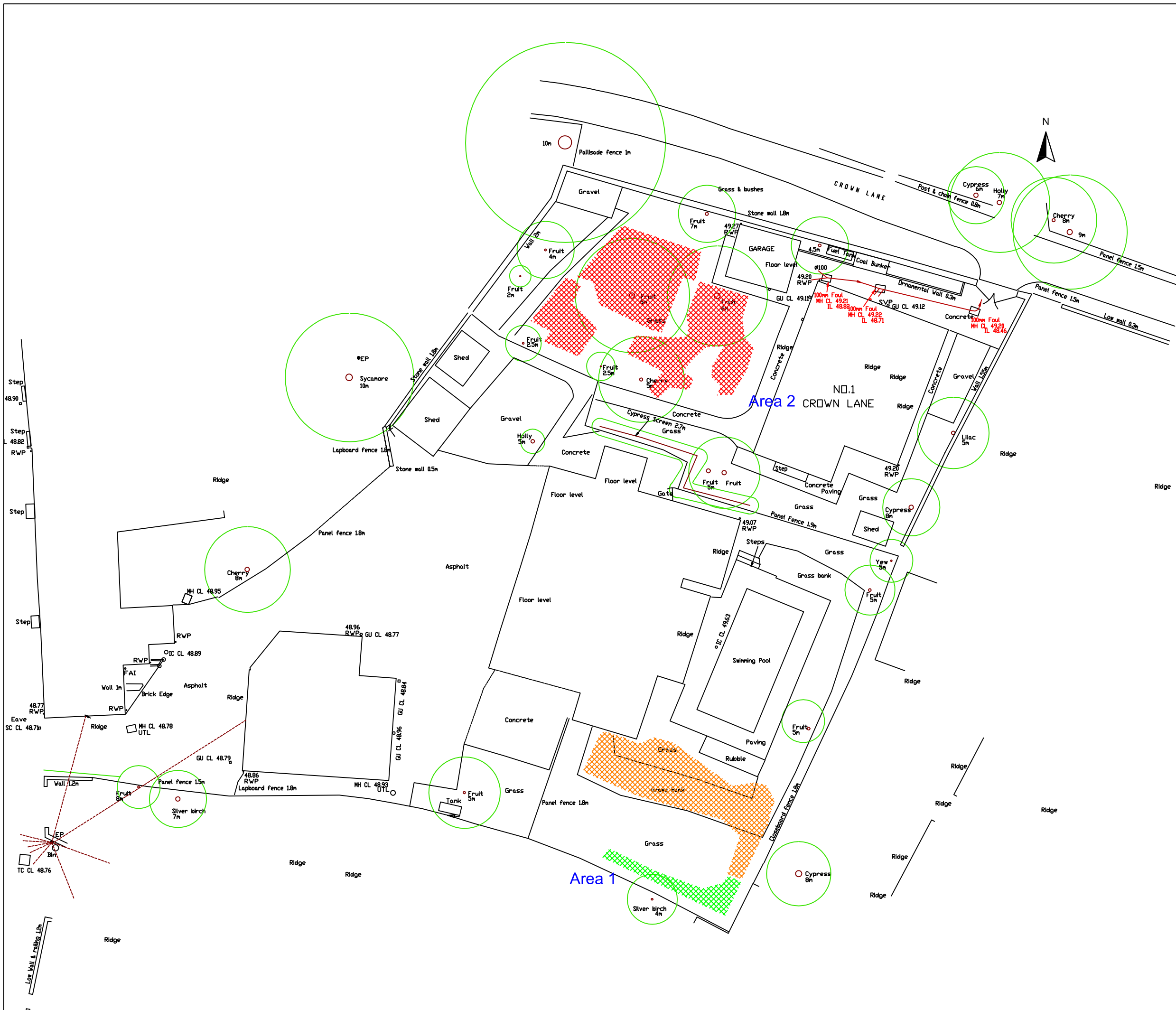
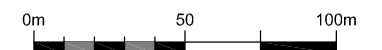


FIG 05