



**Land adjacent to MOD Durrington
Durrington
Wiltshire**

Detailed Gradiometer Survey Report

Prepared for:

Persimmon Homes (South Coast) Ltd.

Perisimmon House
100 Wickham Road
Fareham
Hampshire
PO16 7HT

by

Wessex Archaeology

Portway House
Old Sarum Park
Salisbury
SP4 6EB

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Land adjacent to MOD Durrington

Detailed Gradiometer Survey

Preliminary Results

1 METHODOLOGY

1.1 Introduction

- 1.1.1 A detailed gradiometer survey was undertaken on land adjacent to the former site of MOD Durrington and forms part of an ongoing programme of archaeological work at the site in advance of a housing development.
- 1.1.2 The detailed magnetometer survey was conducted using a Bartington Grad601-2 dual fluxgate gradiometer system. The survey was conducted in accordance with English Heritage guidelines (2008).
- 1.1.3 The geophysical survey was undertaken by Wessex Archaeology's in-house geophysics team on 27th February 2012. Field conditions at the time of the survey were good, with the Site being under pasture.

1.2 Method

- 1.2.1 Individual survey grid nodes were established at 30m x 30m intervals using a Leica Viva RTK GNSS system, which is precise to approximately 0.02m and therefore exceeds English Heritage recommendations (2008).
- 1.2.2 The magnetometer survey was conducted using a Bartington Grad601-2 fluxgate gradiometer instrument, which has a vertical separation of 1m between sensors. Data were collected at 0.25m intervals along transects spaced 1m apart with an effective sensitivity of 0.03nT, in accordance with EH guidelines (2008). Data were collected in the zigzag method.
- 1.2.3 Following identification of anomalies of archaeological interest within the survey area during initial assessment of data in the field, it was decided to resurvey the central portion of the Site at a higher sample density. Additional data were collected at 0.125m intervals along transects spaced 0.5m apart, an enhancement of a factor of eight over the standard density.
- 1.2.4 Data from the survey was subject to minimal data correction processes. These comprise a zero mean traverse function ($\pm 5nT$ thresholds) applied to correct for any variation between the two Bartington sensors used, and a de-step function to account for variations in traverse position due to varying ground cover and topography. These two steps were applied to all survey areas, with no interpolation applied.
- 1.2.5 Further details of the geophysical and survey equipment, methods and processing are described in **Appendix 1**.

2 GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

2.1 Introduction

2.1.1 The gradiometer survey has been successful in identifying anomalies of archaeological interest, as well as numerous anomalies of probable and possible archaeological interest across the Site. Results are presented as a series of greyscale plots and archaeological interpretations, at a scale of 1:1000 (**Figures 1 and 2**). The data are displayed at -2nT (white) to +3nT (black) for the greyscale plots.

2.1.2 The interpretation of the datasets highlights the presence of potential archaeological anomalies, ferrous/burnt or fired objects, and magnetic trends (**Figures 1 and 2**).

2.1.3 Numerous ferrous anomalies are visible throughout the detailed survey dataset. These are presumed to be modern in provenance and are not referred to, unless considered relevant to the archaeological interpretation.

2.2 Standard Density Gradiometer Survey Results and Interpretation

2.2.1 The geophysical survey has detected a number of anomalies of archaeological interest in the central and eastern portions of the Site, although the presence of magnetic noise and disturbance of modern origin to some extent limits the degree to which they can be characterised.

2.2.2 Linear ditches **4000** and **4001** are relatively strong and are oriented N-S and NNE-SSW respectively. Linear anomaly **4002** is consistent with the response over a ditch, although it lies adjacent to a region of magnetic disturbance which is considered to represent the remnants of a former field boundary. Linear anomaly **4003**, oriented approximately WNW-ESE, is also consistent with that of a ditch.

2.2.3 Curvilinear anomaly **4004** lies near the northern field boundary and associated magnetic disturbance, although its form suggests an archaeological origin. Further linear and curvilinear anomalies **4005** can be seen in the western portion of the data, although the proximity of the house, glasshouses and a wire fence limits the confidence with which these anomalies can be interpreted.

2.2.4 Modern service **4006** extends from the southern boundary of the Site northwards to the house.

2.2.5 Weak linear trends and isolated pit-like responses can be identified throughout the survey areas. Several larger pit-like anomalies have been interpreted as being of probable archaeological interest, given their larger size and more definite form; all of these appear within the central portion of the site clustered around anomalies **4000** and **4003**.

2.2.6 Strong magnetic disturbance is seen around the perimeter of the survey area and is associated with extant modern features, including the house and outbuildings, the developer's compound to the south (including cement hoppers and shipping containers, and wire fencing; this disturbance is strongest along the southern boundary. Small-scale ferrous anomalies can be seen throughout the dataset, and is typical of horse paddocks.

2.2.7 It is possible to identify traces of two further anomalies within the data. It is possible that ditch **6023/6024**, identified during archaeological excavation, extends northwards under the extant fence bisecting the geophysical survey area. Ditch **6229** appears to extend northwards into the easternmost portion of the survey area; a linear anomaly **4008** is visible within otherwise strong

negative magnetic disturbance. Neither of these anomalies can be interpreted with confidence; the coincidence of their location is striking, however.

2.3 Double Density Gradiometer Survey Results and Interpretation

- 2.3.1 The double density survey has refined the results of the standard survey over the central portion of the site. It is interesting to observe the increased clarity of the greyscale image, which has allowed an enhanced level of interpretation.
- 2.3.2 Linear ditches **4009**, **4010**, **4011** and **4012** are consistent with ditches and correspond well with the anomalies seen in the standard density survey.
- 2.3.3 The interpretation of the probable pit-like responses has been refined, e.g. **4015**. A number of additional pit-like responses have been identified at **4013** and **4014**. Whilst features such as small postholes cannot be detected, the increased sample density allows small pits greater than 0.5m in diameter to be identified where such features are seen on at least two adjacent traverses.
- 2.3.4 As with the standard density survey, it is possible that responses within the magnetic disturbance seen around the southern perimeter of the Site may correspond with archaeological features seen to the south. It is considered possible that anomalies at **4016** and **4017**, coincident with anomalies **4007** and **4008**, relate to ditches excavated immediately adjacent to the southern boundary of the survey area.

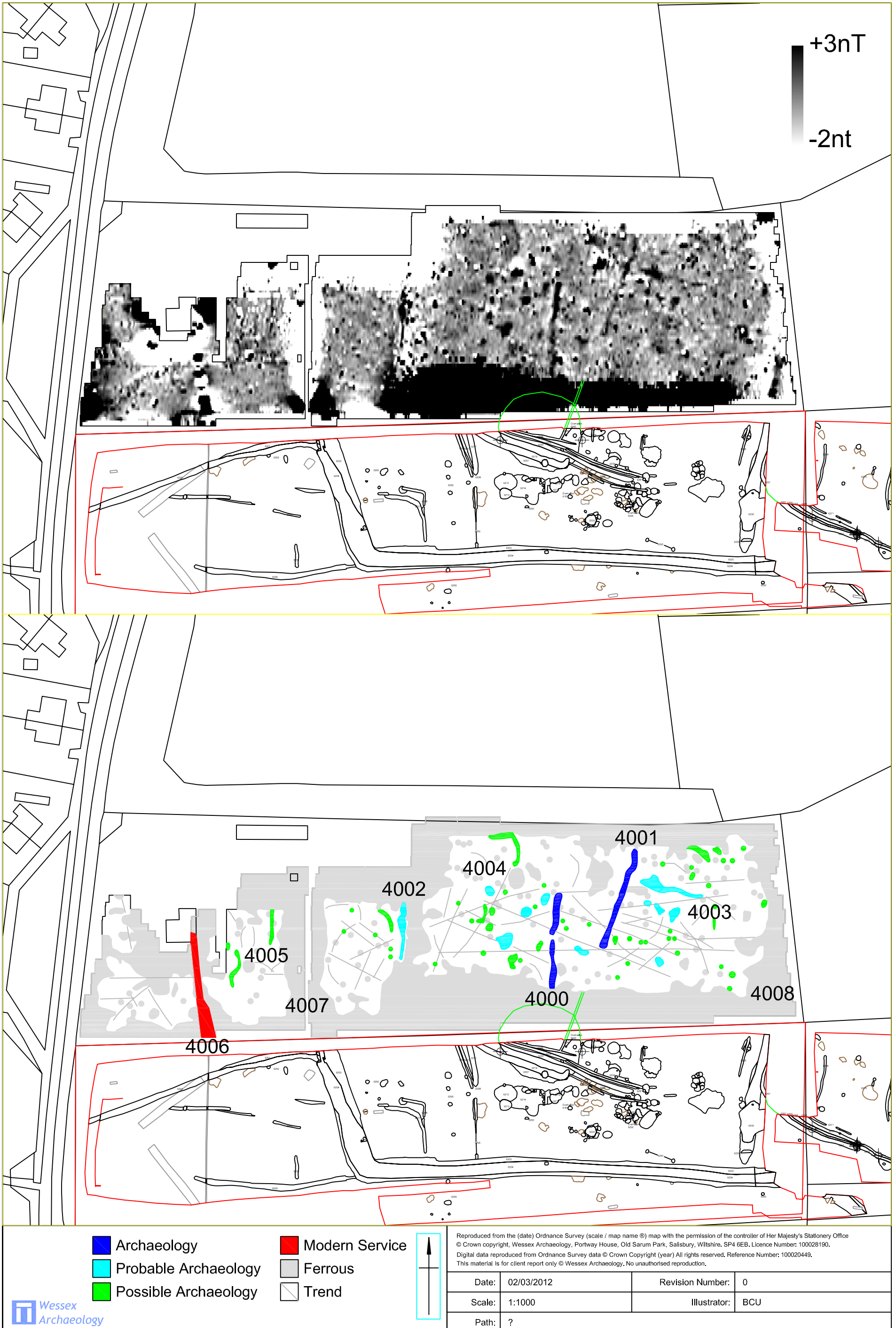
3 CONCLUSION

- 3.1.1 The detailed gradiometer survey has been successful in detecting a number of anomalies of archaeological interest within the Site, in addition to anomalies which are of probable and possible archaeological interest. Through archaeological excavation of the area immediately south of the survey areas, it has been possible to associate some of these anomalies with excavated features sharing similar character and orientation.
- 3.1.2 Given the character of the anomalies detected, it seems likely that archaeology similar in character to that already encountered immediately to the south extends into the geophysical survey area. However, direct association has not been possible due to the extent of magnetic disturbance associated with the presence of the developer's compound, which has masked the responses over a number of features expected to appear within the survey area.
- 3.1.3 Whilst some of the anomalies detected by the geophysical survey are likely to relate to excavated features, some of the ditches do not share alignments identified through excavation. It is therefore possible that different phases of activity may be responsible for the anomalies seen within the survey area.

4 REFERENCES

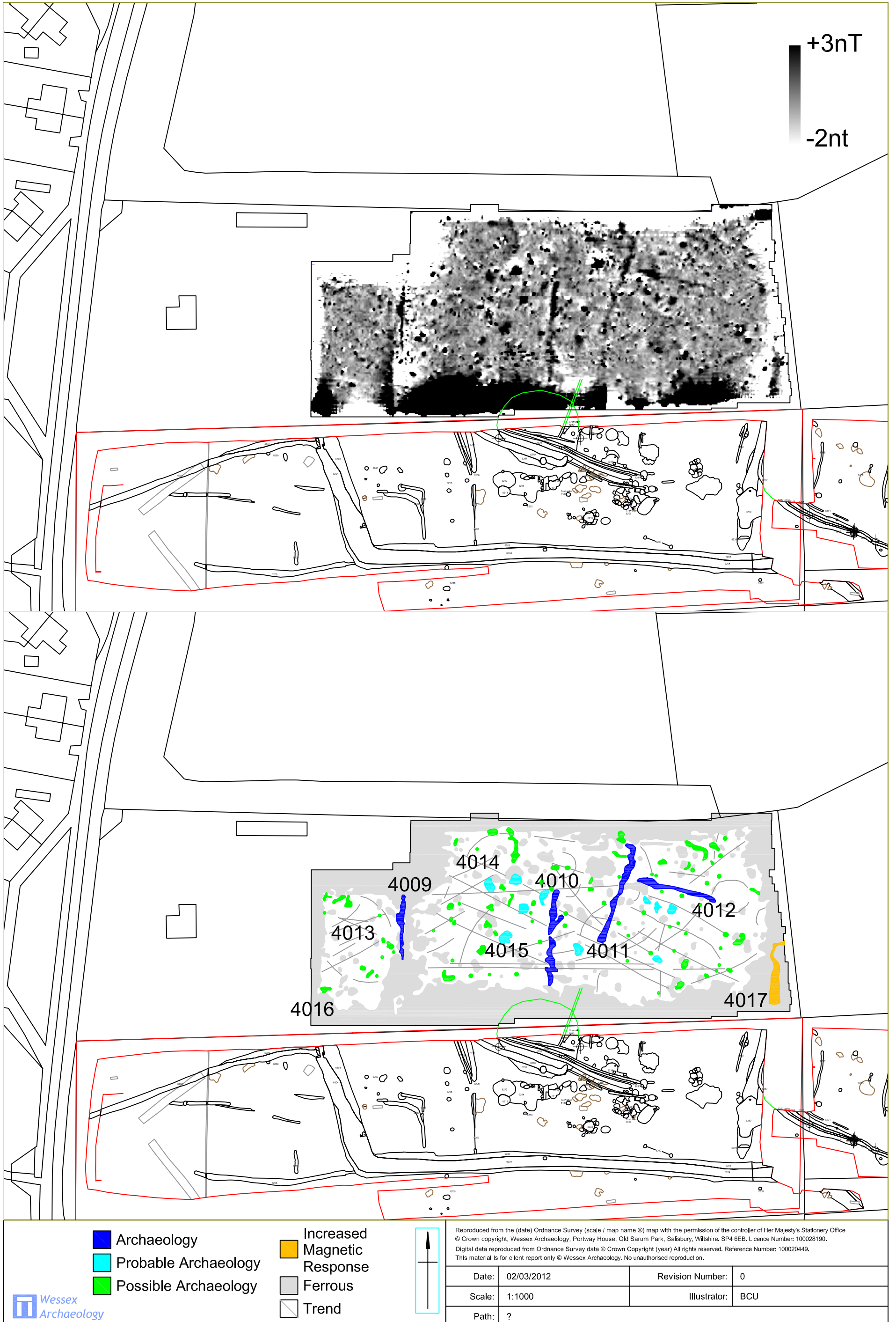
English Heritage, 2008. *Geophysical Survey in Archaeological Field Evaluation*. Research and Professional Service Guideline No 1, 2nd edition.

Soil Survey of England and Wales, 1983. *Sheet 5, South West England*. Ordnance Survey, Southampton.



Durrington geophysical survey: standard density greyscale and interpretation

Figure 1



Durrington geophysical survey: double density greyscale and interpretation

Figure 2