

2364

Ancient Monuments Laboratory
Report 80/93

BUCKLAND RINGS, LYMINGTON,
HAMPSHIRE, REPORT ON
GEOPHYSICAL SURVEY, APRIL 1993

Andy Payne BSc PIFA

AML reports are interim reports which make available the results of specialist investigations in advance of full publication. They are not subject to external refereeing and their conclusions may sometimes have to be modified in the light of archaeological information that was not available at the time of the investigation. Readers are therefore asked to consult the author before citing the report in any publication and to consult the final excavation report when available.

Opinions expressed in AML reports are those of the author and are not necessarily those of the Historic Buildings and Monuments Commission for England.

Ancient Monuments Laboratory Report 80/93

BUCKLAND RINGS, LYMINGTON,
HAMPSHIRE, REPORT ON
GEOPHYSICAL SURVEY, APRIL 1993

Andy Payne BSc PIFA

Summary

Magnetometer and magnetic susceptibility surveys were carried out in 1993 within the Iron Age hillfort of Buckland Rings for management purposes. The survey provided some evidence of the arrangement of the fortifications and entrance features as well as the position of former archaeological interventions in the 1930s by Hawkes. Unfortunately the survey was unable to provide conclusive evidence on the nature of the utilisation and occupation of the fort interior, and is therefore of limited value for informing future management strategy for the site.

Author's address :-

Andy Payne BSc PIFA

Ancient Monuments Laboratory
Fortress House
23 Savile Row
London
W1 2HE

BUCKLAND RINGS, LYMINGTON, HANTS.

Report on Geophysical Survey, April 1993

INTRODUCTION

A geophysical survey was carried out in the interior of Buckland Rings - a 3 hectare later Iron Age hill-fort at NGR SZ 314 968 in the New Forest. The survey was commissioned for the purpose of informing the interpretation and future management of the site, which is in the curatorship of Hampshire County Council and is a scheduled ancient monument (HA 34). The extreme western edge of the fort is occupied by two 20th-century houses with gardens, the remainder is open and under grass. The fortifications consist of two banks and ditches with a counterscarp bank. These are presently fenced off from the interior and wooded, except at the east end where the ditches have been filled in and the ramparts slighted, forming a large break in the otherwise well preserved defensive circuit. The site was partially excavated (see below) in 1935 by C. F. C. Hawkes (Hawkes 1936a).

Geology and soils

The site is situated at 30m OD overlooking the valley of the Lymington River. It is situated on mixed superficial deposits of Pleistocene plateau and river terrace gravels¹ (Soil Survey of England & Wales 1983) overlying Tertiary (Eocene) deposits of Bagshot Bed sands (British Geological Survey 1976).

METHOD

Magnetometry was chosen as the most appropriate method of geophysical exploration on the basis of previous successful investigations of Iron Age settlement sites. In this case time limitations also dictated the use of magnetometer survey due to its advantages of speed and ease of ground coverage. The entire area enclosed by the ramparts was covered by the survey except for the areas occupied by the modern houses and gardens. The survey was also extended to the east to cover the degraded eastern defences of the fort. In addition, a large scale area survey of the variation of magnetic susceptibility (MS) in the topsoil was carried out in order to provide information in support of the interpretation of the magnetometer data.

Magnetometry

The survey was conducted over a grid consisting of 30m squares, with grid north aligned parallel to the eastern boundary of Buckland Rings Cottage (see location plan). A Geoscan FM36 fluxgate gradiometer was carried across the grid squares along 30m traverses orientated N-S, spaced at 1.0m intervals. The magnetometer signal (sensitive to changes of 0.1 of a nanotesla) was sampled at 0.25m intervals along each traverse and stored on a portable micro-computer. The resulting reconstructed data is illustrated in raw and enhanced versions in the form of X-Y traceplots and greytone images (plans 2 and 3).

Magnetic Susceptibility (MS)

Readings of the topsoil MS were taken at 15m intervals across the magnetometer survey

grid using a Bartington Instruments MS2-D search loop connected to a MS2 susceptibility meter. At each station point the sensor was first zeroed in the air, then four successive measurements were taken to produce an average reading for the locality (see plan 4) in order to avoid the spurious effects of intrusive ferrous items in the topsoil and poor surface contact.

RESULTS

Magnetometry

Features detected by the survey that have an obvious archaeological source chiefly relate to the degraded east circuit of the defences. Two parallel sections of ditch have been located as slight anomalies, at the margin of detectability, in squares 07-08, 15-16 and 23. These appear to turn inward at a right angle to form the south side of a deeply intrenched entrance corridor up to 75m long. An anomaly on the west edge of square 28, may represent the opposite side of the entrance approach, in which case a gap in the defences up to 20m wide is suggested. Several intermittent narrower linear features are also present (in the west of grid squares 14 and 28). These run parallel to and inside the line of the main ditches. That a feature as substantial as a hill-fort ditch is near to the margin of detectability suggests that conditions at the site for magnetic detection of archaeology are poor (see below).

An area of very strong magnetic disturbance crossing the line of the eastern defences (square 15) represents a former archaeological cutting through the ramparts no doubt dating from Hawkes's excavations in 1935. Some more localised areas of similar disturbance in the interior of the enclosure (south-east corners of squares 04, 27 and 31) can perhaps also be attributed to former excavation trenches or other features of ancient or modern date associated with degraded ferrous material.

With the exception of the above, anomalies that may be related to archaeological remains in the interior are all but absent. Such a lack of anomalies cannot necessarily be taken to imply a genuine absence of archaeological features: soil magnetic susceptibility values (see below) are low and not favourable for the detection of features such as pit fills. Also, smaller features such as post-hole structures are unlikely to be detectable, even in favourable circumstances. Despite the unpromising geophysical evidence, the records of sparse amounts of pottery recovered from excavation suggest that some activity is nevertheless present.

Magnetic Susceptibility

Magnetic susceptibility values are low (range 5-31, mean 16.21×10^{-5} SI Units - volume specific) but the distribution appears to show some patterning. Higher susceptibility values are concentrated in the north-west of the fort (squares 9,10,17,18,24 and 25) and this may suggest increased burning (?settlement) activity in this area. This area of MS enhancement does not coincide with anomalous activity in the magnetometer data, but this could be because in-situ features such as hearths have been destroyed by past cultivation and only survive as diffused traces in the topsoil. Although both sets of data are not demonstrative for this area, it should nevertheless be considered as potentially archaeologically sensitive. Readings are generally low around the inner ramparts of the enclosure probably due to

accumulation of stoney material eroded from the banks or thinner topsoil build up against the banks.

CONCLUSIONS

The results of the survey are of limited value for informing future management strategy for the site. While the survey has successfully traced the course of the missing defences, located the position of Hawkes's excavations and partly defined the entrance features, it has not provided conclusive evidence of the nature of the utilisation and occupation of the hill-fort. The results as they stand indicate an absence of internal occupation features, but, given the suspect geological conditions, some uncertainty as to the status of the fort interior must remain.

Surveyed by :	Mark Cole Andrew Payne	23-24 April 1993
Report by :	Andrew Payne	20th August 1993

ARCHAEOOMETRY BRANCH,
Ancient Monuments Laboratory,
Science & Conservation Services, RPS.

NOTES

1. Plateau gravel is defined as the denuded remnants of fluvio-marine formations that occur in patches generally forming cappings to flat-topped hills. They are believed to mark pauses in the upward movement and accumulation of flood-plain deposits.

REFERENCES

- Hawkes, C F C, 1936a The Excavations at Buckland Rings, Lymington 1935, *Proceedings of the Hampshire Field Club*, **13**, 124-64.
- Institute of Geological Sciences, 1976 1:50,000 Geological Survey of Great Britain, Sheet 330,331,344,345 - Drift.
- Soil Survey of England and Wales, 1983 1:250,000 Soil Map of England and Wales, Sheet 6 South East England.

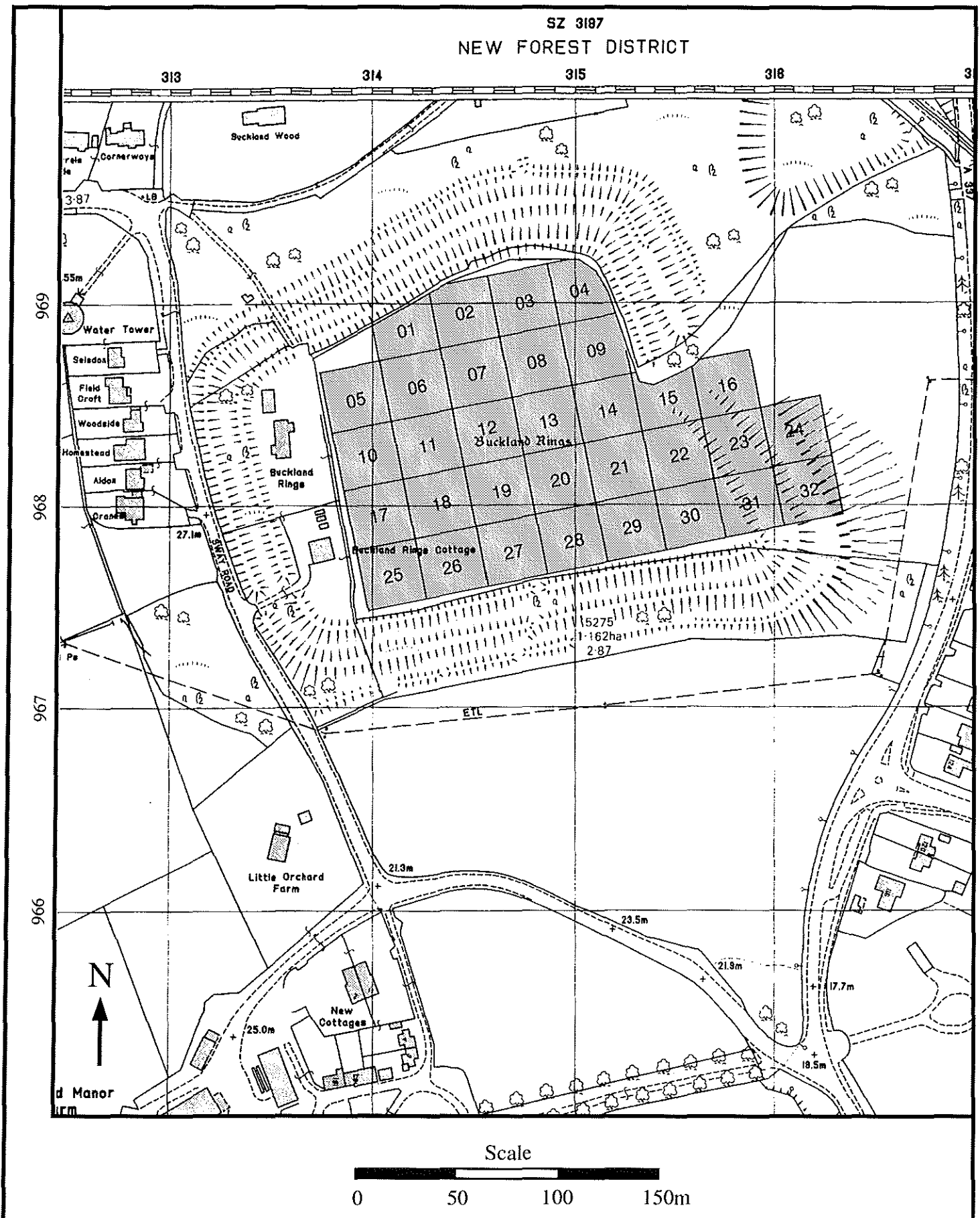
PLANS ENCLOSED

- 1) Location of survey (1:2500 scale)
- 2) X-Y traceplot and interpolated linear grey-scale plot of raw magnetometer data (1:1250).
- 3) X-Y traceplot and interpolated linear grey-scale plot of enhanced magnetometer data (1:1250).
- 4) Non-linear grey-scale plot of magnetic susceptibility data in locational context (1:2500).

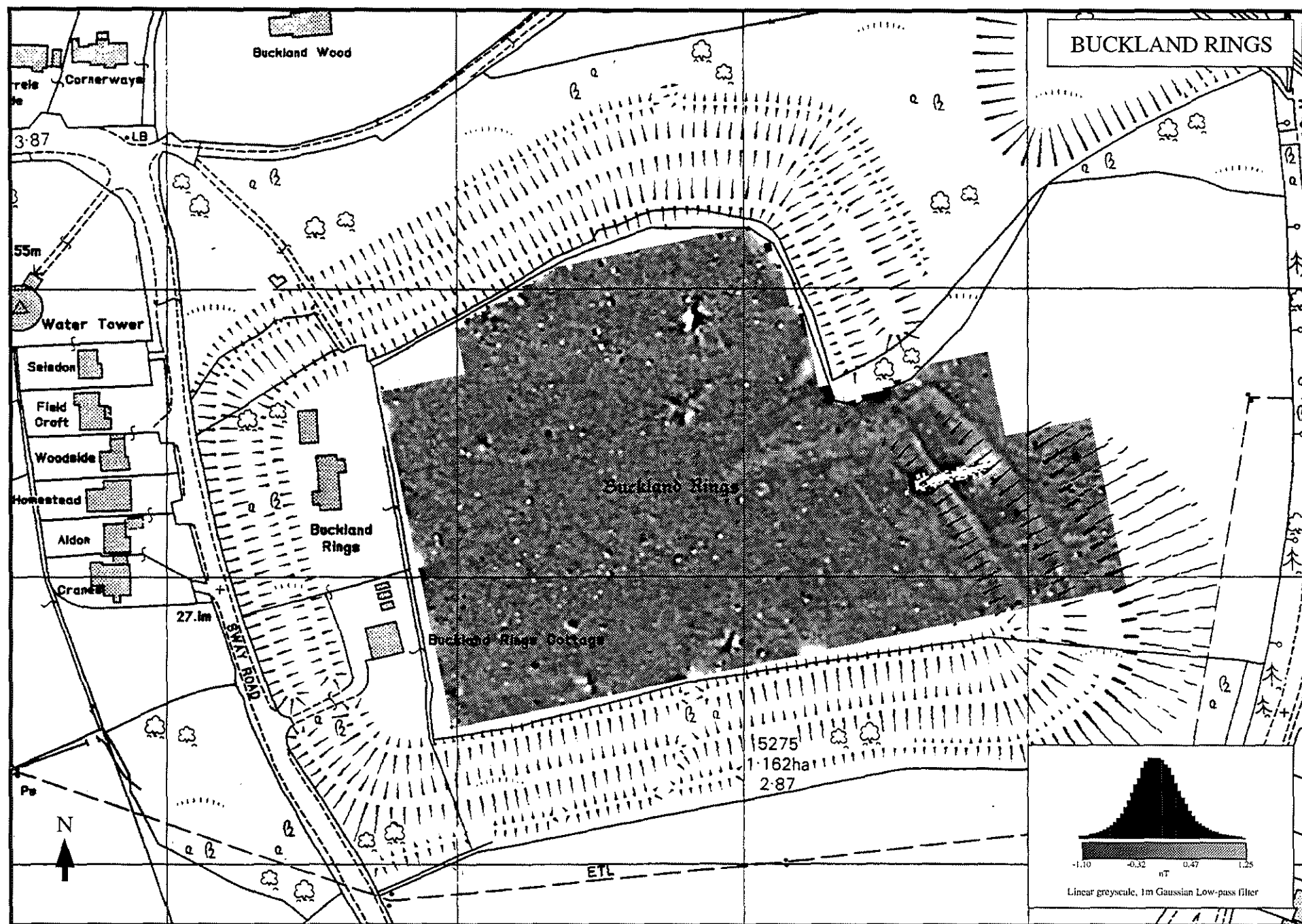
PLAN (1)

BUCKLAND RINGS, LYMINGTON, HANTS (HA 34)

Location of Magnetometer Survey



PLAN (2)

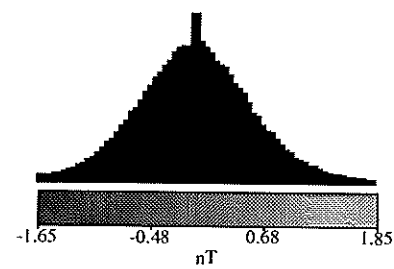


Greyscale plot of enhanced data superimposed on plan of hillfort

PLAN (3)

BUCKLAND RINGS Magnetometer Survey, 1993

1. Greyscale plot of raw data



2. Traceplot of raw data

37.5 nT/cm



N

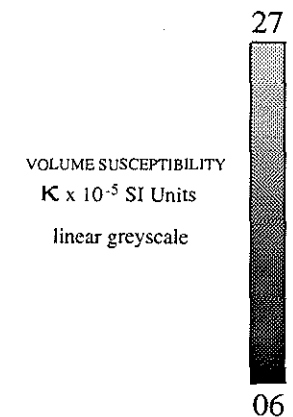
Scale

0 10 30 90m

AMLab

BUCKLAND RINGS, HANTS In-situ topsoil magnetic susceptibility survey

PLAN (4)



AMLab