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# **RPS CLOUSTON**

THE ENVIRONMENTAL CONSULTANCY

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## OXFORD UNITED FOOTBALL CLUB STADIUM

**Evaluation Report** 

VOLUME 1

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ENVIRONMENTAL PLANNERS AND SCIENTISTS LANDSCAPE ARCHITECTS ARCHITECTS

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## NON-TECHNICAL SUMMARY

Oxford United Football Club are proposing to build a new stadium with associated car parking and facilities on land east of Minchery Farm near Littlemore in south Oxford. In advance of the development an evaluation of the cultural heritage potential of the area was requested by the planning authority, Oxford City Council, advised by the Oxford Archaeological Advisory Service.

The evaluation was undertaken by RPS Clouston and has revealed that the Roman kilns known in the vicinity from discoveries in the 19th century and recent research extend onto the eastern side of the proposal site. A scatter of Roman material was also found on the edge of a terrace above the flood plain of the Northfield Brook. There are traces of a trackway and other structures possibly associated with Minchery Farm on the former priory site at the western side of the proposal area. The flood plain itself has peat deposits of Romano-British date. Much of the central part of the area, however, proved to be devoid of archaeological interest.

The development would affect the kiln sites and the medieval or later structures around Minchery Farm, but the flood plain deposits would be untouched, as the design of the proposed structures in this region would entail building up the ground.

The areas of significant archaeology which would be affected are to be fully excavated and recorded prior to the construction taking place. This will include three Roman pottery kilns and their surroundings and the features around Minchery Farm.

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#### Planning Background

- 1.1 Oxford United Football Club (OUFC) are moving to Minchery Farm in south Oxford from their Headington ground after some years of searching for an alternative site (*Planning* 26th May 1995). A planning application (94/1754/NOY) was granted by Oxford City Council, subject to a legal agreement, in April 1995. Part of the legal agreement included the requirement to undertake an archaeological programme of work approved by the planning authority as advised by the Oxford Archaeological Advisory Service (OAAS).
- 1.2 This requirement is in keeping with the DoE Planning Policy Guidance on Archaeology and Planning (PPG16, 1990), and conforms to the Oxford City Council Local Plan policies (see section 2).
- 1.3 The site lies in an area of known archaeological potential, containing Roman kilns and adjoining the site of a medieval priory. Much of the proposal site lies within one Oxford City Council Archaeological Constraint Area (SP50SW 027, SP50SE 002, Figure RPSC 3), and adjoins another (SP50SW 028). Recent work on the development site to the east has revealed Roman material on the boundary of the proposal area (pers. comm. Tempvs Reparatvm).
- 1.4 The Brief for an evaluation was prepared by OAAS (Appendix 5), and was the subject of negotiations regarding some of the requirements. The original brief requested a written scheme of investigation (WSI) to set out proposals for a desk top study, geophysical survey, surface collection and archaeological trenched evaluation. This was provided but it was considered that the surface collection requirement, which would have entailed ploughing up 20% of a field used for hay, was not practical and an alternative strategy involving more extensive geophysics and trial trenching was agreed.

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- 1.5 RPS Clouston produced *Specifications for Archaeological Evaluation* in May 1995 in response to the OAAS *Brief* issued in January 1995. The *Specifications* contained the result of preliminary desk-top studies (including SMR details and aerial photograph studies), geotechnical test pit observations and magnetic susceptibility surveys, which confirmed the potential for there to be remains of the Roman pottery industry in the area as well as other prehistoric traces. These results are incorporated into the present document.
- 1.6 The specifications for further evaluation work included provisions for magnetometery survey and trial trenching. A Supplement to Specifications for Archaeological Evaluation was issued by RPS Clouston in July 1995 to set out modified proposals for geophysical survey and trial trenching. The detailed design of the trial trenching was deferred until the geophysical survey results were available.
- 1.7 The design of the magnetometery survey set out in the *Supplement* was the subject of further discussion between RPS Clouston and OAAS, resulting in a plan for the survey which was approved subject to agreed modifications. In the event the vegetation on site meant that not all the areas intended for survey could be accessed by the survey team. In addition the survey had to be undertaken in two trenches to accommodate the farmer's timetable for cutting the scrub in the areas. A modified scheme was possible which is reported on here. Some of the areas specifically requested by OAAS for investigation were not accessible and it was proposed that these should be investigated by trenching.
- 1.8 The evaluation trenching scheme agreed with OAAS comprised 61 trenches measuring 20m x 1.5m, designed to explore the whole development area. In the event, site conditions and discoveries led to modifications in the number and size of some of the trenches (see Figure RPSC 11 for final disposition).

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#### Site Description

- 1.9 The proposal site encompasses 28 acres (11.5 ha) near Blackbird Leys in South Oxford. The area is low lying and, except for a 2 acre area north of the Northfield Brook, is bounded on the north by the Northfield and Littlemore Brooks, which have their confluence at the northwest end of the site. The northern third of the site south of the Northfield Brook is buried by alluvium up to 2m thick, marked by a distinct terrace, while the southern portion is ploughsoil over the sands and calcareous rocks of the Corallian Beds of Beckley Sand and Coral Rag and Oolite (Figure RPSC 8).
- 1.10 The current landuse is pasture, except for the area to the north of Minchery Farm which is waterlogged in winter and which has reverted to scrub. Two tracks traverse the site from west to east and north to south. The east-west track has an avenue of mature poplars.
- 1.11 Present vehicular access is from the west and the site is close to the developing Oxford Science Park and the long standing facilities of the Thames Water sewage works. To the east is a new development site.

#### The Study Area

1.12 The detailed study area includes the environs of the site up to 1 kilometre, with a wider area considered where appropriate.

#### Scheduled Monuments (SM)

- 2.1 Statutory protection for archaeology is principally enshrined in the Ancient Monuments and Archaeological areas Act (1979) amended by the National Heritage Act (1983). Nationally important sites are listed in a Schedule of Monuments which is maintained by the Secretary of State for National Heritage. Scheduled Monument (SM) consent is required for any work which would affect the fabric of a SM. There are no SMs on or near the proposed development site.
- 2.2 Listed Buildings are protected under the provisions of Section 54(i) of the Town and Country Planning Act (1971), as amended by the Planning (Listed Buildings and Conservation Areas) Act (1990) which empowers the Secretary of State for the Environment to maintain a list of built structures, of historic or architectural significance. The structure, curtiledge and setting of a listed building are protected. Minchery Farm is a Listed Grade II\* building to the west of the site and its setting might be a relevant issue. Other listed buildings in the study area would be unaffected by the proposed development (Appendix 7 and Figure RPSC 3).

#### English Heritage

- 2.3 English Heritage (the working title of the Historic Buildings and Monuments Commission) is consulted by the Secretary of State for National Heritage on SM consent applications and may be asked to advise on other archaeological matters as it is mandated in the *National Heritage Act* (1983) "so far as is practicable, to secure the preservation of ancient monuments and historic buildings in England".
- 2.4 As well as carrying out a general archaeological advisory role it also monitors the situation of archaeology in the planning process, based on the DoE's *Planning Policy Guidance on Archaeology and Planning* (PPG 16) and *Planning Policy Guidance on Planning and the Historic Environment* (PPG 15).

#### **DoE Planning Policy Guidance**

- 2.5 The *Planning Policy Guidance on Archaeology and Planning (PPG 16)*, published in November 1990, consolidates advice to planning authorities concerning the safeguarding of archaeology within the planning process. The guidance emphasises the irreplaceability of the archaeological resource, details the role of records kept in the county Sites and Monuments Records (SMRs), encourages early consultation with county archaeological officers, and sets out the requirements for applicants to furnish sufficient information about the impact of their proposals for reasonable planning decisions to be made.
- 2.6 The document also indicates the circumstances in which further archaeological evaluation to provide this information would be necessary, and outlines the use of agreements and conditions to protect the archaeology if appropriate. The Oxfordshire County SMR was consulted and entries identified within 1km of the proposal site (Appendix 7 and Figure RPSC 3). Requirements for further evaluation were agreed with the OAAS. The work carried out at the site conforms to the evaluation requirements of PPG 16.
- 2.7 The Planning Policy Guidance on Planning and the Historic Environment (PPG 15) published in September 1994 deals with Conservation Areas, Listed Buildings, World Heritage Sites, Historic Parks and Gardens, Historic Battlefields and the wider historic landscape. Of these only listed buildings could be affected by the site proposals.

#### **County Council and District Council Policies**

In order to provide protection for archaeological sites and monuments, County Council Structure Plans and District Local Plans have policies relevant to archaeological issues.
 The Oxfordshire Structure Plan (December 1992) has the following policy:

Areas of importance for nature conservation, geology, archaeology and historical interest and scenically, ecologically or locally important woodlands and forestry will normally be protected by resisting potentially harmful developments.

2.9

The Oxford Local Plan (March 1986) has the following policies relating to archaeology and Listed Buildings:

#### **Policy Number CO36**

A condition, that all reasonable facilities shall be given to enable proper archaeological investigation and recording to be carried out before the start of constructional work, will be attached to any Planning Approval or Listed Building consent given for the development of a site where it is believed that items of archaeological interest exist.

#### Policy Number CO37

A condition, that all reasonable facilities shall be given to enable proper inspection, opening up, measurement, photography and recording to be carried out before work commences and during development, will be attached to any Planning Approval or Listed Building consent given for a development which involves the alteration or carrying out of works to a building (or other artefact) which is considered to be of historic or archaeological interest.

2.10 The deposit policy EN 43 and EN 46 in the *Deposited Oxford Local Plan* requires that, where archaeological remains of more than local importance may be affected, the Planning Authority may ask a developer to submit sufficient information to define their character and extent to enable appropriate decisions to be made in consideration of the application.

2.11 The studies and evaluations carried out in 1995 and in January 1996 and reported here were designed to conform to these policies, as well as to the advice in PPG 16.

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- 3.1 The aim of an evaluation is to gain information about the known or potential archaeological resource within a given area or site, including its presence or absence, character and extent, date, integrity, state of preservation and relative quality, in order to make an assessment of its worth in the appropriate context leading to:
  - the formulation of a strategy to ensure the recording, preservation or management of the resource; or
  - the formulation of a strategy for further investigation, whether or not intrusive, where the character and value of the resource is not sufficiently defined to permit a mitigation strategy or other response to be devised; or
  - the formulation of a proposal for further archaeological investigation within a programme of research.
- 3.2 The particular objectives at the Oxford United site have been to locate evidence of palaeoenvironmental interest, Roman kilns, the medieval and later structures related to the priory and any other features of archaeological significance.
- 3.3 Further information on these aspects of the site would be of interest in the current study of the Thames valley environment, the extensive Oxford Roman pottery industry, the history of the religious houses in and around Oxford and Minchery Farm in particular.

#### Desk Top Study

- 4.1 An archaeological Desk Top Study should determine, as far as is reasonably possible from existing records, the nature of the archaeological resource within a specified area using appropriate methods of study which satisfy the stated aims of the project, and which comply with the Codes of Practice of the Institute of Field Archaeologists.
- 4.2 Archaeological Desk Top study is defined as an assessment of the known or potential archaeological resource within a specified area or site on land or underwater, consisting of a collation of existing written and graphic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate.
- 4.3 This has been carried out at the proposal site through the location and consultation of existing information about the site and its environs, plotting the relevant information onto maps and analysing the archaeological potential.
- 4.4 The desk top study has searched the following archaeological databases:
  - Archaeological Excavation and Survey Records,
  - Sites and Monument Records,
  - Listed Building Lists,
  - Scheduled Ancient Monuments Lists,
  - Aerial photograph archives,
  - existing geotechnical results,
  - documentary sources, and
  - early maps.

- 4.5 These have been consulted at the National Monuments Record in Swindon, the Oxford City Records, the Bodleian Library and the library of Corpus Christ College, Oxford. Aerial photographs were consulted at the National Library of Air Photographs at the NMR, Swindon. Historic documents and early maps consulted are listed in the bibliography.
- 4.6 Excavation records and reports on areas adjacent and in the vicinity were consulted (see bibliography). In addition the trenching carried out on the adjacent site by Tempvs Reparatum was visited and discussed with the excavators. The interim results were also discussed (pers. comm. A Richmond).
- 4.7 The resulting data has been analysed and mapped (where appropriate), and presented in the Results (Section 5 below).

#### Geotechnical Test Pit Observations

- 4.8 The geotechnical work was undertaken by Exploration Associates in early 1995. A total of 44 pits were excavated and 8 boreholes drilled. RPS Clouston archaeologists monitored the excavation of the pits and recorded their observations on pro-forma sheets (summary at Appendix 2). Profiles were drawn and photographed.
- 4.9 The observations of the extent of the alluvium were plotted onto the plans of the site in order to give an indication of the areas of possible palaeoenvironmental potential (Figure RPSC 8). The opportunity was also taken to observe the character of the bedrock. Archaeological material was also noted in some pits and molehills, which were examined at the time of the observations.

#### Geophysical Survey

4.10 The geophysical survey was undertaken in two parts: a magnetic susceptibility survey (Appendix 3) followed by a detailed magnetometery survey (Appendix 4). The magnetic susceptibility survey was carried out by RPS Clouston in March 1995.

- 4.11 The instrumentation used was an EM38 ground conductivity meter and automatic data logger. The EM38 allows the investigation of ground conditions to a depth of approximately 1 metre in order to collect data on the soil's magnetic susceptibility (using the In-Phase Component) or conductivity (using the Quadraphase component).
- 4.12 Spatial variations in magnetic susceptibility indicate changes in the properties of the soil. These changes may be introduced by a number of processes of which anthropogenic disturbance and buried materials are of principle interest to the archaeologist. The aim of the survey was to identify any areas exhibiting anomalous magnetic susceptibility values which might warrant further detailed investigation by other geophysical and/or invasive methods.
- 4.13 The proposal site comprises several areas where accessibility and potential were judged to be a factor in the likely success of the survey. The area north of Minchery Farm (priory site) were scrub covered and waterlogged at the time of the investigation and were omitted from the survey. A strip bordering the stream on the northern boundary of the site was also too waterlogged to give reasonable results. At the time of the survey the block of land north of the brook was not part of the proposal so was not surveyed.
- 4.14 For the purpose of the survey, the remainder of proposed development site was divided into four unequal quadrants, separated by footpaths running approximately north-south and east-west. The north-west quadrant is designated Field 1, the north-east quadrant Field 2, the south-east quadrant Field 3 and the south-west quadrant Field 4. Fields 1 and 4 were surveyed along north-south axes and Fields 2 and 3 were surveyed with east-west traverses. All measurements were taken at fixed (2 seconds) intervals.
- 4.15 A total of 37 traverses were carried out to give a total of 6,276 data points. All measurements are given in parts per thousand (ppt).

4.16 The measured values were then contoured using a bi-directional griding algorithm to interpolate the line-based values onto a regular grid. Herring-bone anomalies (caused by changes in instrument orientation) were removed using a low-pass filter with wavelength setting of 12 metres (approximately 3 times the line separation). A nine point Hanning Smoothing filter was also applied to remove short wavelength noise effects and thus improve the appearance of the final plot. The Hanning coefficients were as follows:

0.06	0.10	0.06
0.10	0.36	0.10
0.06	0.10	0.06

Three passes of the filter were applied. The resulting plot is shown in Figure RPSC 9, and the results discussed in Section 5 below.

- 4.17 The magnetometery survey was carried out by Stratascan in August 1995 and October 1995. The second phase was necessary because of long grass and scrub in one area in the earlier survey. The weather was dry on both occasions. The survey covered 50% of the proposal area in a sample pattern agreed with OAAS.
- 4.18 The instrumentation was a FM36 Fluxgate Gadiometer, which sampled automatically and stored data in an on-board logger.
- 4.19 Readings were taken at 0.5m centres along traverses 1m apart, resulting in 800 readings in a 20m square, the minimum area for data to be reasonably interpreted.
- 4.20 The results are shown on Figure RPSC 10 and discussed in Section 5 below.

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### Trial Trenching

- 4.21 A trial trenching programme comprising 2% of the proposal area was agreed with OAAS and carried out by RPS Clouston in February and March 1996. A total of 61 trenches were planned, each 20m x 1.5m, but in the event several were amalgamated and others extended (see Figure RPSC 11).
- 4.22 The trenches were set out to investigate geophysical anomalies and also 'blank' areas where there were no indicative geophysical readings. Some of the anomalies were tentatively identified as kilns in the geophysics report (Appendix 4).
- 4.23 The trenches were machine dug to the first archaeological horizon and thereafter hand dug. Archaeological features were sampled in line with the method statement included in the specification (Appendix 5). Samples of palaeoenvironmental material were collected by Oxford Archaeology Unit specialists for future analysis.
- 4.24 The results of these studies are set out in Appendix 8 and discussed in Section 5 below.

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5.1 This section synthesises the results of all the evaluation studies, and is designed to set out the potential for archaeological remains on the site. Documentary sources are listed in the bibliography and referred to in this section where appropriate. Technical reports on the aerial photographs, geotechnical test pit, geophysical surveys and the trial trenching are attached as appendices. The evaluation trenching report is Appendix 8 and is presented in Volume 2. The plans, figures and photographs are presented in Volume 3. The results are summarised in Volume 1 in a description of the development of the site through time.

#### **SMR Review**

- 5.2 The Sites and Monuments Record entries for the study area are mapped on Figure RPSC 3. The review of the Sites and Monuments Record showed that there is one Primary Record Number (PRN) entry actually within the proposal boundary. This refers to the Roman pottery kilns found in the 19th century (PRN 3845). Another record (PRN 1437) is given a map reference which places it to the north of the proposal site, and the SMR overlay map also locates it north of the site, but it seems to refer to a 1920s find of a Roman pot located within the site on OS maps of 1955 and 1969. These two SMR entries are reflected on the Oxford City Council archaeological constraint maps as area SP50SW 027/SP50SE 002.
  - 5.3 To the south is PRN 1426, a find of iron age pottery and coins (Constraint Area SP50SW 028). A similar discovery is noted about 500m further south (PRN 1427; SP50SW 029). About 200m east of the proposal site boundary is a centred find spot of Romano-British pottery from the sewage farm recorded in 1960 (PRN 2151; SP50SE 002).
  - 5.4 On the western boundary of the proposal site is Minchery Farm (PRN 1434; Listed Building SP50SW 1/109), a Grade II\* listed building which is reputedly the surviving above ground remains of a medieval Benedictine nunnery (Pantin 1970).

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- 5.5 The disused railway which forms the northernmost boundary of the site (PRN 8997) was closed in 1963 and the track removed in 1969 (Lingard 1978).
- 5.6 Further afield there is more evidence of the Roman pottery industry, which appears to have been related to the Roman road through Cowley (PRN 8923). Buildings, kilns and pottery were found during the construction of the bypass north west of Blackbird Leys in 1957 (PRN 3663), and evidence of a settlement was found east of Blackbird Leys (PRN 1865; Constraint Area SP50SE 005).
- 5.7 Iron age evidence has been found nearby (PRNs 1426 and 1427), and recent evaluation to the east of the site has revealed an iron age settlement (pers. comm.).
- 5.8 The nearest medieval settlement evidence is found at Sandford on Thames, which is the parish centre. There is evidence of a shrunken settlement here (PRN 11588; SP50SW 019/020).

#### **Geotechnical Test Pits**

5.9 The geology and topography suggests that the Northfield Brook has meandered within the narrow floodplain which is limited within the proposal site by the distinct terrace visible to the south of the existing channel. This was confirmed by the early maps (Estate map 1849, OS 1:2500 1876; Figures RPSC 5 and RPSC 6) which show the Northfield Brook taking a more winding course, particularly at its confluence with the Littlemore Brook and just to the west of the present north-south path. These earlier alignments are fossilised in the modern parish boundaries. Test pit results showed alluvium only within this corridor (Appendix 2 and Exploration Associates, Contract 115065, 1965).

- 5.10 Conditions in the flood plain have been conducive to peat formation. A report in 1880 noted the depth and the (Roman) archaeological interest of the peats around the sewage farm (Cobbold 1880; 319), although no deep peat was recorded in the test pit logs, or observed by RPS Clouston in the test pits. The trial excavation, however, did reveal humic deposits above the coarser alluvium in trenches T8/11, T10, T14/15, T17, T29/30 and T40. These are probably related to the Roman and later periods of the site, as Cobbold's observations of R-B pottery in these deposits confirm.
- 5.11 Inspection by RPS Clouston of the geotechnical test pits recovered some Roman and later pottery fragments from them. A little more was retrieved from molehills. The location of these finds is shown on Figure RPSC 8. No structures or features were revealed, however, except for a probably modern post-hole (see Appendix 2).

#### **Aerial Photographs**

5.12 Aerial photographs were inspected at the National Library of Air Photographs held by the NMR in Swindon (Appendix 1). The geology of the area (sand and gravel) would be expected to reveal cropmarks under reasonable conditions but no archaeological features were identified. Similarly, archaeology is not noted in the area of the site in Benson and Miles' survey of 1974 nor in the Royal Commission on Historic Monuments of England survey of air photos (consulted at the Centre for Oxfordshire Studies). The nearest features are at Sandford upon Thames, 1.5km to the west, where shrunken medieval village features including field boundaries and a trackway are visible (AP SP5301/1; PRN 11588).

#### **Documentary and Map Information**

- 5.13 The Roman period is of particular interest because of the connection of the area with the Oxford pottery industry at this period (Young 1977). In 1879 pipelaying on Minchery Farm in connection with the Oxford Corporation sewage works revealed Romano-British pottery kilns (PRN 3845). A total of 4 were excavated by G Rolleston, together with a waster heap covering over an acre. A well and two skeletons, presumed to be Romano-British, were also reported (Rolleston 1879; May 1922).
- 5.14 The site of these finds has been difficult to pin-point from the extant records, but traditionally they have been located at NGR SP54950227, towards the eastern edge of the proposal site (Young 1977; 255). The field here is called 'Pottery Piece' on a map drawn in 1899 after the find of the kilns (Oxford City Corporation plan of the sewage farm; Figure RPSC 7). On earlier maps it is called 'Blue Man's Mead' (Estate map 1849; Figure RPSC 5). On the Ordnance Survey 1:2500 maps of 1955 and 1969 the find spot is put in this field at SP549510227. In both maps a further find of a 'Roman Vase' in 1920 is identified in the western field at SP 54840231 which is assumed to be PRN 1437 located a little to the north in the SMR.
- 5.15 Other kilns are known from Blackbird Leys estate (PRN 6143), and a Romano-British settlement was found in 1952 just over a kilometre away at Cowley near the Roman Road (PRN 1865). More Roman coins and pottery, including kilns, have been found in Littlemore (PRNs 1436, 3656, 3663, 3845, 6191, 8017, 15837) and a pottery complex has been investigated at Lower Farm, Nuneham Courtney (Booth et al 1994).
- 5.16 Tempvs Reparatvm have recently (late 1995) undertaken trial trenching near to the eastern boundary of the proposal site, guided by surface scatters of pottery and the results of a geophysical survey carried out by the Bartlett-Clark Consultancy (Bartlett 1995). Evidence of Roman kilns was located in their trenches 22, 23 and 24 (A Richmond pers. comm.).

- 5.17 The kilns appear to be part of an extensive pottery industry which stretched around much of south Oxford. The industry lasted from the 2nd to 4th centuries AD.
- 5.18 There is no evidence for settlement or other activity on the site in the immediate post-Roman period. A few sherds of late Saxon pottery from Littlemore Hospital suggest that there may have been a settlement to the west, north of Sandford more than a kilometre to the west (RPS Clouston client report, March 1996).
- 5.19 Later medieval settlements grew up at Iffley, Sandford, Cowley, Toot Baldon, Garsington and Oxford itself. Sandford is mentioned in charters of 811, 931, 1034, 1050 and 1054, all of which record gifts of land in Sandford to the Abbey of Abingdon (VCH 5, 268). The Littlemore and Northfield Brooks are used as parish boundaries in the medieval period, suggesting that the area of the proposal, bordering the brooks, was probably remote from the centres of settlement. The area to the north of the Northfield Brook was common land in Iffley (VCH 5).
- 5.20 Just before the Norman conquest the manor of Sandford was owned by the abbey in Abingdon, which temporarily transferred its revenues to a priest called Blacheman to provide funds to build a church near the abbey. He fled from the country at the conquest and the manor eventually reverted to the abbey. Knights of the abbey then held the tenancy of the manor in the post-conquest period.
- 5.21 One of these, Robert de Sandford, founded Littlemore Benedictine Priory for nuns, the Minchery, in about 1150-60, and endowed it with arable land and pasture. The pasture was at Choswell or Chawdwell north of Northfield Brook, and this endowment may have included the field at the extreme north west of the proposal site. Further endowments followed in 1177 and 1254. The priory church was rebuilt around 1214.

- 5.22 The priory now survives as a single range of buildings identified by some historians as the eastern range of the claustral buildings. The priory is relevant to the proposal because the extent of its associated buildings and cemetery is not known, and significant features may extend into the proposal area. A brief summary of the priory is set out here, for a detailed discussion of the history of the establishment see *VCH* vol 2 pp75-77.
- 5.23 The name Minchery derives from *myneceri* -"nuns" in Old English. It was a small house by the 15th century when a visitation first describes it in any detail, with a prioress, 6 nuns and 3 lay boarders in 1445, and a prioress and 5 nuns in 1517. The visitation of 1445 reported that the dormitory was so ruinous that the nuns were afraid to sleep in it, and they were having to sleep two to a bed. This may have also been so that they could maximise their income from taking in children as boarders, as they were instructed to take no boys over 9 years old and no girls over 12.
- 5.24 Towards the end of its career it appears to have descended into somewhat scandalous ways, with the prioress and nuns being accused of lewd conduct and having illegitimate children as well as disciplinary irregularities. The priory was suppressed by Cardinal Wolsey in 1525, an early victim of the reformation of the monasteries.
- 5.25 The visitations in the 15th and 16th centuries mention a dormitory, the prioress' parlour, the cloister and a refectory, while a 15th century legacy mentions the church (with 2 chapels and a retrochoir), chapterhouse, cloister and lavatorium. If the standard monastic pattern was followed there would also have been a kitchen, a nuns' parlour, infirmary and a sacristy. Outside there were probably fishponds fed by the brooks on either the north or the west, a dovecote (although not the one depicted by Hearne in 1722), and a cemetery.

- 5.26 W A Pantin's conjectural reconstruction (1970) (overlaid on a modern plan in Figure RPSC 4) suggests that the priory once comprised a full set of monastic buildings, with the church to the north and the other conventual buildings to the south. If this was the case then the surviving building may be the east wing of the cloister range, which housed the domnitory on the upper floor and the chapter house and other rooms below. This reconstruction should be treated as conjectural.
- 5.27 The surviving range was probably remodelled in the 15th century following the report of its ruinous condition, and the east windows in the upper floor may relate to this episode.
- 5.28 A dovecote is mentioned in 1396. There was a pigeon loft built in the 18th century, remembered in the field name 'Pigeon House Closes' in a map of 1849. These are shown as the areas to the north, west and south of Minchery Farm. The location of the medieval dovecote may not have been as shown in Hearne's drawing of 1722, which shows it to the south west (numbered '12' on his sketch). It was built after 1703 and it is unclear from the accounts whether the building was on the same site as the medieval structure. It was built of material from ruined outhouses.
- 5.29 The correctness of the Pantin reconstruction is difficult to check using existing documents. The earliest topographical record of the priory is Wood's 1661 note
  (Ashm. D. 11 p.36; Clark 1891; 404-5), which implies that coffins and bones had been found at the north end of the existing building.
- 5.30 Hearne's descriptions of his visits and enquiries from 1710 to 1722 include the earliest known topographical sketch. His account confirms Wood's of half a century earlier in stating that 'many coffins and bones have been found on the north (and the north west) side of the house. 'I was shown one stone coffin on February 23 1721, it lyes east and west, it was discovered a few years since, they told me that there was skull found in the west end of it' (Hearne, Feb 23, 1721).

- 5.31 Hearne reported in another note that coffins and bones had been discovered around the (rebuilt) barn to the north east of the existing building (Hearne, April 25 1722). He believed this to be the site of the chapter house.
- 5.32 There is some confusion over his ideas for the location of the chapel: in his note of 1710 he states that it stood on the south side of the building and had been turned into a barn, whereas the only barn in his 1722 drawing is on the north east side where he says that the chapter house stood. The buildings to the south west he identifies as outhouses and a dovecote. The outhouse (10) is not a barn as it has an elaborate chimney, which he describes as Tudor, although the structure itself he states as being recently erected, using masonry from buildings blown down in storms early in the century.
- 5.33 The legend on the drawing also indicates that the tower of the church stood in the area of the carthouse, which is to the west of the existing building. The priory kitchen he believed was in the area occupied by the outhouse with the chimney (10) to the south east of the house.
- 5.34 No remains of the chapel existed by the 1700s, and Hearne was making deductions based on the reports of local people regarding the cemetery.
- 5.35 Two early 19th century sketches of the Minchery are focused on the farm house itself and give little help in establishing the appearance or survival of other buildings, although Robinson's dated 1807, taken from the north west, does include a windowless structure south west of the house (MS top. Oxon B220). This may be the same as Hearne's 'outhouse' numbered 10 on his sketch, which has a similarly elaborate chimney on the southern gable. Hearne's sketch shows a hipped roof whereas Robinson's shows an ordinary gable. The 1831 drawing is unhelpful as it is a view of the house from the east and shows no other features (MS top. Oxon. c78).

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- 5.36 The earliest extant map, of 1849 (included in the estate sale documents, GA Oxon b 91(46), Figure RPSC 5), shows a building 15-20m to the north east and another 12m to the south west, in approximately the locations of Heame's barn (2) and outhouse (10). Another building, aligned north-south, is shown about 10m to the west of the existing building, and is approximately where Hearne's carthouse (no. 4) stood. Hearne's dovecote does not appear on the 1849 map.
- 5.37 It is possible that the buildings in Hearne's sketch remained standing for almost a century and a half, or were replaced where they stood, particularly as he points out that the barn and outhouse were both new buildings in his time.
- 5.38 In attempting to ascertain the precise location of the priory and its associated buildings and features it is concluded that the evidence is uncertain but would point to the church with its cemetery being to the north of the surviving building. This would need to be confirmed. The location of the cloister to the east or west of the surviving range is even less sure.
- 5.39 The building to the north east of the house shown in 19th century maps, which may be Hearne's 1722 barn, would be on the edge of the present car park, about 20m from the north east corner of the house. It is possible that other priory buildings, and its cemetery, extended further east and north than this, as some of Hearne's informants recalled bones and coffins in the area of the barn. Bones were still apparently being recovered within living memory in 1850 (VCH 5, 268).
- 5.40 There is no inclosure award and the early date of inclosure soon after the dissolution of the monasteries (Gray ....; 121) makes it difficult to reconstruct the medieval field system. There are many field names in medieval documents of 1240 and 1512, however, and this has allowed some fields to be identified (C.C.C.c320, f.3: Sandford Cartulary i. 19-20), but none in the area of the proposal, except the Chawdwell to the north of Northfield Brook (VCH, 5, 267).

- 5.41 The earliest extant map, produced for the sale of the estate in 1849, shows the layout of the fields and the farm at that date, together with field names (Figure RPSC 5). The Minchery Farm, Buildings, Yards etc. are shown labelled as number 43. The house is drawn with its porch and northern extensions distinguishable, presumably because the northern end was used as cottages at this date. The building which forms the centre of the modern farmyard to the north is shown as a solitary structure in the corner of a close. The buildings to the west of the house may be the ones shown by Hearne as an outhouse and carthouse. The building to the north east may be his barn. Access to the farm is from the south, with a field track skirting the flood plain to enter the yard from the east.
- 5.42 The curtiledge of the farm seems to extend 60m to the east of the house and 40m to the north.
- 5.43 The area to the north, west and south (labelled 44) appears to be divided into small fields or paddocks called the Pigeon House Closes. The 18th century pigeon house is not shown, so the name is a hangover from an earlier period unless the building to the south east of the house has become a pigeon house. A pond is shown in the same place as the modern pond.
- 5.44 There is a small spinney (45) along the Northfield Brook north of the farm, with a narrow break running south to the yard. The proposal site includes both these and the northern part of Pigeon House Closes.
- 5.45 The narrow field to the east and a marshy area along the brook (42) is called Little Meadow and Slipe. Slipe in this context is probably not a reference to the passageway commonly found in monasteries but refers rather to the narrow shape of the north-south field. A similar usage is found at the eastern side of the map where another long narrow field (40) is called Slipe.

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- 5.46 The principal field (41) occupying the higher land between the Northfield Brook and the stream to the south is called Fearness' Field. It had a pond or marl pit on its eastern edge, near where the modern tracks cross, and it was well drained enough to be in arable cultivation.
- 5.47 The large field to the east again (38, 39) is Blue Man's Mead, and is down to pasture.
- 5.48 By the time of the next map in 1876 (OS 1:25000; Figure RPSC 6) the fields between the brooks had been amalgamated into one large field, with a track running east from the farmyard on the line of the earlier one shown in 1849, then turning south east. The western boundary of this large area coincides with the eastern boundary of the Slipe as shown in 1849. This field encompasses the whole of the eastern part of the proposal site.
- 5.49 The closes around Minchery Farm have also been amalgamated. The wooded corridor to the brook and part of the spinney on its banks survive. The area to the east of the house has become an orchard and the farmyard now appears to be to the north. All the buildings shown on the 1849 map still stand except the one to the north west, and in addition new ranges have been added to the structure to the north, and to the building to the north east.
- 5.50 A major reorganisation of the landscape has taken place by 1899, occasioned by the acquisition of Minchery Farm and its fields by Oxford Corporation in 1877 for a sewage farm. A map of 1899 (Figure RPSC 7) shows the modern arrangement of tracks in place, with the main east-west track now running to the south of the farm.
- 5.51 The large field is still called 'Fearness', but the field beyond the new north-south track is now called 'Pottery Piece' following the discovery of kilns in 1879. 'Pigeon House Closes' are now simply 'Minchery Close'. The farmyard is shown both north and south of the probable barn.
- 5.52 The Northfield Brook has been straightened and other drains indicated.

- 5.53 A similar arrangement is shown on an Oxford Corporation map hand-dated 1933, although more drains are shown in the area of the proposal.
- 5.54 The layout of the farm remained virtually unchanged from 1899 to 1969, although its curtiledge has varied in size. It is presently smaller than shown in 1899. An orchard to the east of the house in the area of the present car park survived up to the 1955 map, but it is not shown in 1969.

#### **Geophysical Survey**

- 5.55 The geophysical surveys undertaken by or on behalf of RPS Clouston provided further evidence of archaeological potential (Appendices 3 and 4). The two survey techniques of magnetic susceptibility and magnetometery were use to complement one another.
- 5.56 The magnetic susceptibility survey plot (Figure RPSC 9) shows a number of areas with elevated levels of magnetic susceptibility. One of these is observed as an ovate zone of intermediate material and corresponds to a trial pit dug at an earlier date which remained visible at the time of the survey. Field 1 (north west) shows relatively low readings, apart from one trial pit. Field 3 (south east) also shows a limited range of susceptibility, although there is a rise in the readings at the extreme south-east.
- 5.57 The remaining anomalies can be found in Field 2 (north east) and Field 4 (south western). The anomaly in Field 2 is seen as an extensive area of high magnetic susceptibility with a large extension of this zone towards the south. Two anomalies are noted in Field 4. The first is in the extreme south-west, outside the limit of the proposed development and immediately adjacent to the sewage works. The generally high readings in this field may be partly because of waste materials from these works being deposited on the surface of the fields at various times in the past, resulting in the elevation of the magnetic susceptibility of the soils through time.
- 5.58 The second anomaly in Field 4 is seen as a linear zone of elevated values that occur immediately to the south of the footpath which separates Fields 1 and 4.

- 5.59 These results were considered in the design of the magnetometery survey and the subsequent trial trenching. A total of 5.25ha was surveyed by magnetometer by Stratascan in 1995.
- 5.60 The most north westerly field (Area 1) produced no archaeologically significant traces, with pipelines and surface debris being the most likely interpretation of the anomalies. The trial trenching proved this to be the case.
- 5.61 Area 2, immediately north of the Minchery Farm buildings, revealed more pipelines and surface debris, but a rectangular anomaly (M2/3) was thought to be a potential structure. Trial trenching (TT13 and TT16) showed that this was not the case, however, the disturbances being caused by modern pits and debris.
- 5.62 In Area 3 in the western part of Field 1 the survey revealed a strong east-west anomaly (M3/1) which proved on excavation (TT19, TT20, TT23, TT26 and TT27) to be a surfaced track with ditches on each side. The extension of M3/1 into the field (M3/5) proved to be a continuation of this track rather than the ditch suggested in the survey interpretation. Two magnetic anomalies in the south western part of the field (M3/3) to be modern burning pits (TT24). The track and ditches which were investigated by OAU on the site of the Grenoble Road roundabout did not continue into the OUFC site, and so presumably turned or joined the modern track. There were no other significant anomalies shown up in the survey except some possible pits in the north western part. These proved to be on the edge of the marshy flood plain, where there was evidence of Roman activity in the form of pits and pottery TT18, TT22), although nothing coherent in the way of structures or activities was located. The remainder of Area 3 was relatively blank, and trial trenching confirmed this interpretation.
- 5.63 Areas 4, 5 and 6 in the eastern part of Field 1 were devoid of archaeologically significant readings, although trial trenching revealed again that on the marsh edge there were Roman features (TT29/39, TT35, TT40).

- 5.64 Several of the anomalies (M7/1, M7/2, M7/3) in Area 7 (Field 2) proved to be Roman kilns when excavated (TT55, TT57). The area of 'noise' to the north is modern debris.
- 5.65 Area 8 (Field 4) appeared to be devoid of archaeologically significant features, and this was confirmed in the trial trenching.
- 5.66 Area 9 (Field 3) contained a number of anomalies but upon excavation they all proved to be modern and of no archaeological significance.

#### **Evaluation Trenches**

- 5.67 The full Evaluation Report is presented as Appendix 8 in Volume 2. A summary only is presented here.
- 5.68 Evidence of early prehistoric (palaeolithic, mesolithic and neolithic) activity in the south Oxford area has been found at Rose Hill and near the River Thames at Iffley. This has consisted of hand axes and flint tools. Similar evidence, illustrated by the votive deposition, or loss of weapons, of a bronze sword, rapier and spearhead found in the River Thames at Sandford-on-Thames, has also been found for bronze age activity in the area.
- 5.69 On the evaluation site eleven flint flakes were found from ten contexts. Two flints were from the post-medieval ploughsoil in trench 1. Single flakes were found in the fills of 4 Romano-British features (a posthole in trench 21, two ditches in trenches 30 and a ditch in trench 61); the peat in trench 35; the Romano-British ploughsoil in trench 52; the post-medieval feature (415) in trench 27; the post-medieval ploughsoil in trench 41 and the post-medieval ditch in trench 51.
- 5.70 The oval posthole (508) in trench 59 contained 6 sherds of early bronze age pottery from a biconical urn. This single feature and the implied structure may be associated with an early bronze-age domestic site in the vicinity of trench 59.

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- 5.71 Although the flint flakes were all residual finds from later ploughsoils and features they are probably bronze age in date given the evidence of the posthole in trench 59.
- 5.72 A major iron-age settlement exists a few hundred metres to the east of the site. On site sherds of iron-age pottery were found in the post-medieval ploughsoil in trenches 2, 34 and 36 and a Romano-British ditch in trench 61. These were all residual sherds found in later contexts. The ditch (667) sealed by Romano-British ploughsoil in trench 52 may possibly be iron-age in date. The subsequent ploughing activity in the Roman, medieval and post-medieval periods may have possibly destroyed any iron-age features.
- 5.73 The south Oxford area was the centre of the Oxfordshire Roman pottery industry. Sites of Roman kilns and evidence for the associated settlements have been found at Littlemore and Blackbird Leys. This evidence has been complemented by kilns, ditches, pits, posthole and pottery found on the evaluation site.
- 5.74 The majority of the Romano-British pottery found on the site, away from the kiln area (the north-east end), was residual in later features and layers. Some features tentatively dated to the Romano-British period produced only small assemblages of pottery and therefore can only cautiously be given a Romano-British date.
- 5.75 Romano-British arable agricultural is indicated by the residual sherds of pottery from the buried ploughsoil identified across the north-east area of the evaluation site. This ploughsoil predated the kilns and ditches with the material derived from manuring practices. Residual sherds of Romano-British pottery were also obtained from the later ploughsoils identified consistently across the entire area of the evaluation site to the west. This would also suggest this area was subject to arable cultivation during the Romano-British period.

- 5.76 The eight ditches ((169) in trench 26, possibly (625) in trench 29/39, (314) and (310) in trench 30, (372) in trench 36, possibly (431) in trench 46 and (648) and (653) in trench 56) identified on the site are probably the field boundaries for the Romano-British farming. These were predominantly aligned east to west and possibly demarked the boundary of the northern extent of the Romano-British agricultural land with the marshy land associated with the Northfield Brook. Any field boundaries to the south may have been destroyed by later ploughing activity. In the north-east area, where the later ploughing activity has been minimal, ditch (669) in trench 52 may be the only remains of a north to south aligned field boundary (or alternatively an enclosure ditch for the kiln complex discovered in this area).
- 5.77 The relative small assemblages of pottery found in these ditches appear to date to the 2nd and 3rd centuries. Ditch (648) in trench 56 contained slightly later pottery of mid 3rd to late 3rd century. This may suggest the field boundaries identified were not all contemporary and the field systems changed in form during the Romano-British period.
- 5.78 To the north of the field systems, relatively large assemblages of Romano-British pottery were found in the shallow peaty deposits identified in trenches 29/39, 35 and 40 on the edge of the Northfield Brook floodplain. The silty peat (610) in trench 29/39 contained late 2nd to mid 3rd century pottery. The peaty clay (381) in trench 35 and the silty peat (427) in trench 40 both contained a slightly earlier assemblage of 2nd century pottery. Rubbish from an associated settlement or the kiln area may have been deliberately dumped in the marshland.
- 5.79 The features identified in trench 21 (ditch (200), the two postholes (196 and 198), ditch (210) and the shallow cut (204)) contained sherds of 2nd century pottery and are possibly remnants of a large structure. These differ in form from the field boundaries and may indicate some form of settlement activity in the immediate vicinity of trench 21. The same also applies to the two pits (312 and 316) and gully (318) identified in trench 30.

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- 5.80 Evidence for Romano-British pottery manufacture was identified by the kilns and associated features found in trenches 52, 55, 57, 58 and 61 at the north-east side of the evaluation trench. Three distinct phases were identified, these all post-dated the Romano-British agricultural activity.
- 5.81 The earliest phase was represented by kiln (533) in trench 57. This structure appeared to be cruciform in shape with the stokehole (544) on the north side of the kiln chamber (533) and possibly 3 gully features (only 1, gully 539 was excavated) corresponding to breaks in the chambers clay lining leading off to the east, south and west. These gullies may have been drying chambers for pots utilising the hot air from the kiln chamber. The two postholes (541 and 543) in the base of the excavated gully (539) may have been for posts supporting a roof structure.
- 5.82 The backfills of the kiln chamber and stokehole contained pottery assemblages dated to the early-mid 2nd century. The gully (539) contained a small assemblage of pottery producing an insecure 2nd to 3rd century date. The oval pit (536) truncated by the stokehole and kiln chamber produced a pottery assemblage of the same date. This kiln had therefore probably ceased pottery production by early-mid 2nd century.
- 5.83 A second phase is represented by the feature (518) interpreted as another kiln in trench 57. This contained an assemblage of pottery dated mid-late 3rd century indicating that this kiln was no longer in use by this date.
- 5.84 The two ditches (523 and 598) and posthole (469) in trench 61; and pits (443 and 445) in trench 58, contained mid 3rd century pottery. These features may represent some form of pottery production activity contemporary with this second phase.
- 5.85 A third phase of pottery manufacture is represented by the backfilled pit (743) and use of kiln (573) in trench 55. The stokehole for the kiln was on the south-east side of the chamber and the feature was enclosed by ditch (583) to the west and north.
- 5.86 The late 3rd to early 4th century assemblages of pottery found in the fill of pit (743) and the basal fill of ditch (583) suggest pottery production started at this date.

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- 5.87 The kiln (573) and its associated stokehole and enclosure ditch were all backfilled with fill containing early to mid 4th century pottery. This would suggest that this kiln had ceased producing pottery by the mid 4th century.
- 5.88 No evidence for settlement or other activity in the immediate post Roman and Saxon periods was found on the site.
- 5.89 The medieval Benedictine Priory for Nuns was immediately south-west of the site. Only a single range of buildings presently survives which is possibly the east wing of the cloister range. A church with a cemetery may have existed to the north and other buildings to the south. The area outside to the north and east may have been pasture, with fish ponds fed by brooks near the Littlemore and Northfield Brooks.
- 5.90 The majority of the medieval pottery and tile found on site, excluding the assemblages from Trench 3, was residual and found in later features and layers. The pottery was predominantly from vessels manufactured at the Brill workshops, central Buckinghamshire, during the late medieval period. A few sherds from vessels made at Oxford and Abingdon were also found. Three fragments of stabbed Wessex type floor tiles dating to the late 13th or early 14th century were found incorporated into a post-medieval wall (114), a modern track (218) and from the ploughsoil (250) in Trench 32. This material no doubt derived from the Priory.
- 5.91 The only features identified on site that are securely medieval in date are the ditch (69) and two postholes (70 and 71) beneath the ploughsoil in Trench 3. These contained sherds of pottery from vessels manufactured at Oxford and East Wiltshire workshops during the 12th to 15th centuries.
- 5.92 The other features tentatively dated to the medieval period are the tree root or posthole (4) in Trench 1, the possible pond (98) in Trench 6, ditches (351), (150) and (106) in, respectively, Trenches 8/11, 9 and 12, posthole (108) in Trench 12 and two pits (134 and 136) in Trench 13. Only the tree root/posthole (4), with an undatable fragment of tile and ditch (106), with 6 sherds of medieval pottery (5 from 12th/13th century Oxford workshops, 1 from 13th/14th Brill workshop) as well as 4 sherds of Romano-

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British pottery, contained material. These two features were truncated and buried by a post-medieval ploughsoil which also sealed and therefore stratigraphically dated the other six features medieval.

- 5.93 These features were identified in the trenches north of the Priory with no medieval features (except for possibly the 'stepped' ditch discussed below) found to the east. They probably indicate activity associated with the Priory. The ditches probably defined field boundaries and provided drainage for the area to the north and south of the marshy land associated with the Littlemore and Northfield Brooks. These brooks probably fed fishponds by a series of leats. The large silted up feature (98) in Trench 6 may be the remains of one of these fishponds.
- 5.94 No foundations for buildings associated with the Priory were found on site. A roof finial decorated with orange glaze and dated to the late medieval period was found in the ploughsoil (103) in Trench 12 and may suggest a substantial building in the vicinity.
- 5.95 The area to the north of the farm, excluding the marshy land associated with the Littlemore and Northfield Brooks, was subsequently ploughed after this medieval activity. This truncated the medieval features and established a ploughsoil.
- 5.96 The post-medieval features identified on site were predominantly at the west end of the site, immediately to the north and east of Minchery Farm. The 1849 Estate map (RPSC 5) shows the area north of the farmyard (plot 43) divided into a small field or paddock (plot 44), a Spinney (plot 45) extending south to the farmyard and a larger field (plot 42) to the east. This pattern may have existed for a considerable period prior to 1849.
- 5.97 The ditches (89 and 18) identified in trenches 13 and 16 are probably remnants of these post-medieval field boundaries. The features (24, 26, 28 and 30) identified at the east end of trench 16 and the cess pit in trench 19 also indicate activity associated with the post-medieval farm.

- The six ditches identified in the central area of the site ((567) in trench 19, (118) in 5.98 trench 20, (266) in trench 23, (219) in trench 26, (124) in trench 27 and (436) in trench 46) were below the ploughsoil, aligned east to west and four had at least one stepped side indicating that they had been recut. These probably represent sections of the same ditch. The dating of this ditch remains tentative. The fills of the six ditches contained sherds of medieval pottery (residual sherds of Romano-British pottery) and fragments of tile possibly indicating a medieval date for the ditch. Only a single fragment of post-medieval material was found (brick in the fill of ditch section (436) in trench 46) and this may have been intrusive. Although the fragments of hand made tiles may be medieval firm dating of such material is difficult since later local workshops also produced similar material. Unlike the late medieval/early postmedieval ploughsoil to the north of Minchery Farm, the ploughsoil in this central area was probably later. It conclusively sealed the post-medieval ditch (253) in trench 32 (containing sherds of post-medieval pottery and fragments of tile) suggesting that this long ditch may also be post-medieval in date.
- 5.99 The reduced levels on the base of this ditch suggests that it dropped from 59.98m AOD in trench 46 towards the west (58.58m AOD in trench 26) and 58.41m AOD in trench 19. Water would also flow in the same direction. This ditch therefore may have been used to supply water to either (or both) the medieval Priory or postmedieval Minchery Farm, the water source originating further upstream from the Northfield Brook. It would also have formed a field boundary. The line of the west end of this boundary was subsequently followed by the later trackway and ditch.
- 5.100 The walls and buttress features identified in trench 20 were all later than this ditch. The function of walls (268 and 114) remain tentative. They may represent an entrance in the east side of an enclosure wall for Minchery Farm. Both walls had slumped towards the north, due to the settling of the ditch fills and buttresses may have been constructed to prevent further movement of wall (268).

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- 5.101 The 1849 Estate map (RPSC 5) shows a track leading from Minchery Farm and the possible entrance in trench 20 towards the east and the field boundary of plot 41. It continued towards the north-east along the northern boundary of this field. The 1st edition (1876) ordnance survey map (RPSC 6) shows this track still leading from Minchery Farm towards the east, with another track from the south-west, but then changing direction from the 1849 north-east line to the south-east.
- 5.102 The ploughed-out remnants of this track was identified as layer (555) in trench 19, (234) in trench 23, (218) in trench 26, (366) in trench 27 and possibly (350) in trench 46. A ditch (indicated by (235) in trench 23, (222) in trench 26 and (364) in trench 27) and wall ((174) in trench 26) may have existed on the south side of the track.
- 5.103 The 1899 map of the Oxford Corporation Sewage Farm (RPSC 7) shows a complex pattern of drains and sewers. Evidence of these on site were indicated by the many modern vertical sided features filled with a mottled mixed sand and possibly the much wider ditches (221, 660 and 669) in trenches 26 and 52.
- 5.104 The variation in the type and thickness of the alluvial and post Romano-British peaty deposits identified in the trenches excavated on the marshy land associated with the Northfield and Littlemore Brooks may partly be due to the meandering and straightening of the brooks.
- 5.105 The modern features and layers identified in trenches 13, 16 and 19 most probably represent rubbish pits, ditches, buildings and building demolition, associated with Minchery Farm. The features (293 and 301) in trench 24 are specialised fire pits. The land to the north and east of the farm was farmed indicated by the field and french drains, and ploughsoil identified over the site. Some of these can be identified on Oxford Corporation plans of the sewage farm.

# 6 THE EFFECT OF THE PROPOSALS ON THE ARCHAEOLOGY

## General

- 6.1 The impact of the proposals on cultural heritage would be on buried archaeological remains, as no other elements of the cultural heritage, such as historic earthworks, buildings or landscapes, would be affected. The effect of the proposals is assessed as a combination of the impact of the infrastructure proposals and the importance of the archaeological remains. Impacts are rated as high, medium, low or none, whilst archaeological importance is rated as major, medium, minor or unimportant. The resultant effects are assessed as maximum, severe, moderate, slight or zero (see Appendix 6 for a fuller exposition of this methodology).
- 6.2 The infrastructure proposals which could affect buried archaeology are any which would disturb the ground where archaeology survives, so the assessment needs to establish the following: just what the disturbance is likely to be and where; whether any archaeology which could be affected is likely to survive at those locations, and how important that archaeology might be. These points are considered, in reverse order, below.

#### Importance

6.3 The various archaeological features discovered on the site have different levels of importance. This can be judged using a modified version of the English Heritage criteria for scheduling, modified to accommodate the full range of site importance. The categories of importance are as follows:

- major
- average
- minor
- unimportant

Major sites are scheduled monuments, listed buildings graded I or II\* and other nationally important sites. Average sites constitute the bulk of settlement and activity sites. Minor sites are sites of stray finds and other lesser elements of past remains. The archaeological 'sites' identified in the proposal area are listed below and their importance assessed (Figure RPSC 11).

6.4 <u>Site A.</u> Prehistoric activity was represented by a significant bronze age feature found at the south east side of the proposal site. A pit with BA pottery suggests prehistoric settlement in the vicinity. There is a general lack of bronze age evidence from the area so such a settlement would be of considerable significance. Site A is considered to be an averagely important site in this context.

<u>Site B.</u> Three phases of Romano-British kilns and pottery production were identified at the north-east side of the site. These are the latest examples of an extensive industry, which has been researched since the late 19th century. The site is judged to be of **major** importance.

- 6.5 <u>Site C.</u> Further Romano-British activity was identified along the south edge of the Northfield Brook floodplain, consisting of pottery scatters in peaty deposits and a possible Romano-British ditch. This is interpreted as peripheral activities related to the pottery production and is considered to be of minor importance.
- 6.6 <u>Site D.</u> This is a group of Roman linear ditches discovered in a section of the slightly higher ground above the flood plain in the middle of the site. These were probably agricultural in function and are judged to be of **minor** importance.

- 6.7 <u>Site E.</u> Medieval and post-medieval activity associated with the farm were identified to the north and east of the present farm buildings in the west side of the site. No priory buildings were identified on site and the area is judged to be of average importance.
- 6.8 <u>Site F.</u> Medieval features including a possible pond were located in the area north of Northfield Brook. These are judged to be of minor importance.
- 6.9 The possibility that there are other undetected significant sites in the proposal area cannot be ruled out but is unlikely.

#### **Impact of the Proposals**

- 6.10 The proposals are to construct a stadium with its associated services, car parks and access roads, together with two areas of commercial development on land to the south east and the west of the stadium (Figure RPSC 2). The construction of the stadium will entail soil stripping and excavations for foundations. services, drains and pile caps. The north stand in the area of the flood plain will be piled.
- 6.11 The commercial development areas have not been planned at the time of writing, but it is prudent to assume that there would be considerable damage when the buildings intended for these areas are constructed.
- 6.12 The impacts of these works on the archaeological evidence are variable and are set out below. Impact is assessed as:
  - high medium low none.

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- 6.13 <u>Site A: Prehistoric features.</u> The impact here is assumed to be high because of the thin topsoil/ploughsoil layers (300mm 400mm). The area is in the zone designated for commercial development, and it should be assumed that there would be considerable damage to below ground levels.
- 6.14 <u>Site B: kiln complex.</u> The impact here will be high because the topsoil stripping required for the car park and the development zone will affect the kilns and any ancillary features. Ground levels are planned to remain nearly as they are at present which will mean that preserving the remains in situ is not an option.
- 6.15 <u>Site C: Romano-British layers.</u> The levels for the north stand of the stadium on the flood plain in the area of Site C are to be about 2m above existing (typically 61.88m OD finished; 59.71m OD existing). The stand is to be built on piles, with ground beams and a slab. The pile caps are to be 900mm deep, with beams of 600mm and the slab 300mm, a total thickness of 1.8m. The slab surface typically will be about 2m above present levels, leaving the bottom of the pile caps about 200mm above present ground level. There would be some variations in this depth but the topsoil and ploughsoil in this area is about 600mm thick, so there could be no impact on the significant archaeological layers below this depth, except from the piles themselves. The impact on Site C would be low.
- 6.16 <u>Site D: Romano-British ditches.</u> These are spread intermittently on the terrace above the flood plain, and seem to disappear further south, probably ploughed out. They are interpreted as agricultural features. The proposed finished levels here would be below the present level so although they are up to 1m below the surface they are likely to be destroyed by the construction. The impact would be high.
- 6.17 <u>Site E: medieval and later features around Minchery Farm.</u> These consist of walls, ditches and a trackway. The stadium car parking proposals and associated drainage would affect the trackway and ditches, but the area nearer the farm is in the commercial development zone. The finished levels are shown as similar to the existing (eg 60.50m OD existing, 60.51 OD finished), and the features are less than Im below the surface, so are vulnerable to damage. The impact would be high.

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6.18 <u>Site F: medieval features north of Northfield Brook.</u> This area is car parking and would be at or near present ground levels. This would have a high impact on the features located here.

#### The Effect of the Proposals

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6.19 The effect on archaeology of a proposal is an amalgam of the importance of the feature affected and the degree of impact. Effects are categorised as:

maximum
severe
moderate
slight
zero

- 6.20 <u>Site A: prehistoric feature.</u> The average importance and high impact produce a moderate to severe effect here.
- 6.21 <u>Site B: Roman kiln complex.</u> The major importance and high impact produce a severe effect on these features.
- 6.22 <u>Site C: Romano-British layers.</u> The minor importance and low impact result in a slight effect here.
- 6.23 <u>Site D: Romano-British agricultural ditches.</u> The minor importance and high impact results in a moderate effect.
- 6.24 <u>Site E: medieval and post-medieval features.</u> The average importance and high impact produce a **moderate** effect here.
- 6.25 <u>Site F: medieval features north of Northfield Brook.</u> The minor importance and high impact on this site results in a moderate effect in this area.

- 7.1 The effects of the proposals range from severe to slight, and a range of mitigation responses is proposed in line with these effects.
- 7.2 Mitigation strategies include:
  - preservation in situ (by avoidance or burial)
  - preservation by record (systematic excavation)
  - observation and recording during construction.
- 7.3 The strategies proposed for the Oxford United Football Club stadium archaeological sites are as follows:

Site A: systematically excavate to investigate the context of the three kilns and their relationships

Site B: (contiguous with Site A) systematically excavate to investigate potential settlement

Site C: No action

Site D: watching brief during stripping

Site E: strip under archaeological supervision to reveal plan of features, and sample excavate.

Site F: Strip under archaeological supervision to reveal plan of features, and sample excavate.

7.4 These strategies will require detailed briefs and specifications to control the work, to be approved by OAAS.

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**APPENDICES** 

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Appendix 1

Aerial Photographic Sources

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## Appendix I: Aerial Photographic Sources

- A1.1 A review of the oblique aerial photographs (APs) held at the National Monuments Record AP Library in Swindon was carried out by RPS Clouston on 27th January 1995. An area of up 1.5 kilometres around the proposal site was searched. The earlier assessment published in Benson and Miles (1974) was also consulted.
- A1.2 The reference numbers of the photographs consulted at the NMR are as follows:

NMR ref.	NGR	date	comment
SP5300/1	539002	01.01.1930	
SP5301/1	534016	01.06.1936.	
SP5301/2	534017	05.06.1933	
SP5302/15-19	535021	21.08.1991	hospital grounds
SP5303/1	538032	01.01.1930	
SP5400	no photograph	8	area of the proposal
SP5500	no photograph	8	
SP5601/1	563011	01.01.1930	

- A1.3 There are no oblique APs held by the NMR which include the proposal site. As photographers frequently target areas where sites are visible this may be taken to imply that no features worth photographing have been noticed at the site by fliers. The search showed no AP traces within a kilometre of the proposal site. The nearest features were field boundaries around Sandford village on the west side of the A423(T) road. There is extensive evidence of ridge and furrow north of Nuneham Courtenay and on either side of the Roman road north of Toot Baldon, but these have no bearing on the proposal site.
- A1.4 The tack of evidence on APs does not necessarily indicate a tack of archaeology. This is demonstrated locally by the results of recent geophysical surveys and excavations at Lower Farm. Nuncham Courtenay, where despite a lack of AP evidence an extensive Romano-British settlement and kiln site has been located.
- A1.5 The evaluation trenches carried out in February-March 1996 located three new pottery kilns, producing pottery from the 2nd to 4th centuries (Appendix 8).

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Appendix 2

Test Pit Observations

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## **Methodology**

A2.1 Geotechnical trial pits were excavated in March 1995 by Exploration Associates on behalf of Waterman BBT, engineers for Oxford United FC. These excavations were monitored by staff archaeologists from RPS Clouston, in order to gain any additional insights to the subsoil archaeology that might be revealed during the operations. The monitoring took the form of observing the excavation of each trial pit, retrieving archaeological material if it was revealed, recording and interpreting of each sediment profile, in order to build up a picture of past activities on the site, such as removal, addition and disturbance of soil and other material. Each sediment profile was photographed. The information obtained was recorded on a pro-forma monitoring sheet.

#### Results

- A2.2 The solid geology is Jurassic period Corallian Beds which here consist of sands, gravels and limestone deposits. Adjacent to the Northfield Brook, alluvial deposits of sandy sitts and clays overlie the bedrock. This floodplain was waterlogged at the time of the survey.
- A2.3 Several aspects of the site history could be identified from information obtained from a brief walkover survey and the trial pit investigations. These include the erosion of the stream course of the Northfield Brook, and the subsequent deposition of alluvium. Trackways and paths across the site follow obvious topographical routes. The track from Minchery Farm leading east runs along a ridgeline. This ridge consists of the sandy Corallian beds which are free draining and produce moderately fertile soils.
- A2.4 The majority of the site appeared to have been ploughed relatively recently, with a thick ploughsoil of around 400 mm just beginning to show signs of reforming a natural soil profile. Truncated subsoils were in evidence on much of the site, but in some places ploughing had disturbed the entire subsoil and the ploughsoil lay directly over the sands and gravels of the Corallian Beds.
- A2.5 It is understood that sewage sludge or slurry has been deposited over the site in the past. Sewage sludge is a very fine grained material, and carried by rainwater, would percolate down the soil profile even after an attempt to mix it with the soil and improve fertility by ploughing. On the slopes and hillcrest some of this material would enter the groundwater system within a few years, and move away from the site. On the alluvial areas, however, the same processes do not operate, as the ground does not drain freely, due to the presence of impermeable, saturated alluvium. On the floodplain the sewage sludge which had been spread over the surface of the ground was visible as a continuous subsoil layer, which remained waterlogged. Organic material would not decay under such waterlogged conditions and would remain in situ.

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- A2.6 There had been dumping of hardcore adjacent to the eastern part of the east/west trackway. This lay above the former topsoil in TP 44, and a new topsoil had formed on top of the dumped hardcore. Beneath the former topsoil a posthole was revealed in section, filled with dark soil similar to the former topsoil. The posthole had been cut into the former subsoil and natural sand. It was flat and square bottomed and measured 300 mm across, and was at 400 mm deep. No archaeological material was recovered from this feature. It is likely that this post hole is relatively modern as the square base implies that a sawn timber, rather than a split timber, was inserted. This feature probably held a gatepost or a large fencepost, given its proximity to the trackway.
- A2.7 Finds from the trial pit monitoring and molehills included pottery, tile and kiln debris. The trial pit number and associated finds are set out below:

Trial Pit number	artefact type	period
2	handmade tile	undated
2	pot base	Roman
2	pot body sherd	Roman
2	kiln debris	undated
from motehill near TP 8	rim sherd	Roman
from molehill near TP 8	mortarium fragment	Roman
9	pot sherd	undated
17	part glazed hard red local ware pot sherd	post-medieval
17	hand made coarseware with calcareous inclusions	carly medieval C14th-15th
from molehills near TP 20	green glazed sherd	late medieval
from molehills near TP 20	rim sherd	late medieval
from molehills near TP 20	small tile fragment	undated
22	tile	undated
25	hand made tile	?modern
25	small fragment tile/brick	Roman
molchill near TP 28	rim sherd	Roman
molehill near TP 28	mortarium fragment	Roman
31	unidentified object	undated, possibly modern
33	sherd	Roman

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Trial Pit number	artefact type	period
33	skillet handle	medieval
33	tile fragment	?late medieval
34	pottery	Roman
36	4 body sherds	Roman
	rim sherd	Roman
37	greyware sherd	Roman
42	tile fragment	undated

## Conclusions

A2.8 Figure RPSC 8 shows the TPs, with the limit of the alluvium and the locations of the Roman pottery finds. Although not numerous these indicate that there are Roman remains, which together with the magnetic susceptibility survey, suggest that parts of the site have the potential for significant further finds.

Appendix 3

## Geophysical Survey: Magnetic Susceptibility

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## **Introduction**

- A3.1 A geophysical survey of the Minchery Farm site was carried out by RPS Clouston between the 21st and 22nd March 1995 using an EM38 ground conductivity meter and automatic data logger.
- A3.2 The EM38 allows the investigation of ground conditions to a depth of approximately 1 metre in order to collect data on the soils magnetic susceptibility (using this In-Phase Component) or conductivity (using the Quadraphase component). Changes in ground conductivity may be related to changes in pore water chemistry whilst spatial variations in magnetic susceptibility indicate changes in the properties of the soil. These changes may be introduced by a number of processes of which anthropogenic disturbance and buried materials are of principle interest to the archaeologist.
- A3.3 The aim of the survey was to identify any areas exhibiting anomalous magnetic susceptibility values which might warrant further detailed investigation by other geophysical and/or invasive methods.

## Method

- A3.4 The proposal site comprises several areas where accessibility and potential were judged to be a factor in the likely success of the survey. The area north of Minchery Farm (priory site) were scrub covered and waterlogged at the time of the investigation and were omitted from the survey. A strip bordering the stream on the northern boundary of the site was also too waterlogged to give reasonable results.
- A3.5 For the purpose of the survey, the remainder of proposed development site was divided into four unequal quadrants, separated by footpaths running approximately north-south and east-west. The north-west quadrant is designated Field 1, the north-east quadrant Field 2, the south-east quadrant Field 3 and the south-west quadrant Field 4. Fields 1 and 4 were surveyed along north-south axes and Fields 2 and 3 were surveyed with east-west traverses. All measurements were taken at fixed (2 seconds) intervals.
- A3.6 A total of 37 traverses were carried out to give a total of 6,276 data points. All measurements are given in parts per thousand (ppt).
- A3.7 The measured values were then contoured using a bi-directional griding algorithm to interpolate the line-based values onto a regular grid.
- A3.8 Herring-bone anomalies (caused by changes in instruments orientation) were removed using a low-pass filter with wavelength setting of 12 metres (approximately 3 times the line separation).

tc810/vf/2600 RPS Clouston A3.9 A nine point Hanning Smoothing filter was also applied to remove short wavelength noise effects and thus improve the appearance of the final plot. The Hanning coefficients were as follows:

0.06	0.10	0.06
0.10	0.36	0.10
0.06	0.10	0.06

Three passes of the filter were applied.

A3.10 The resulting plot is shown in Figure RPSC 9.

#### Interpretation

- A3.11 Examination of Figure RPSC 9 shows a number of areas with elevated levels of magnetic susceptibility. A number of these are observed as circular or ovate zones of intermediate material and correspond to trial pits dug at an earlier date which remained visible at the time of the survey. Field 1 shows relatively low readings, apart from one trial pit. Field 3 also shows a limited range of susceptibility, although there is a rise in the readings at the extreme south-east.
- A3.12 The remaining anomalies can be found in Field 2 (north-eastern field) and Field 4 (south-western field).
- A3.13 The anomaly in Field 2 is seen as an extensive area of high magnetic susceptibility with a large extension of this zone towards the south.
- A3.14 Two anomalies are noted in Field 4. The first is in the extreme south-west, outside the limit of the proposed development and immediately adjacent to the sewage works. The generally high readings in this field may be partly because of waste materials from these works being deposited on the surface of the fields at various times in the past, resulting in the elevation of the magnetic susceptibility of the soils through time.
- A3.15 The second anomaly is seen as a linear zone of elevated values that occur immediately to the south of the footpath which separates Fields 1 and 4.

### Conclusions

- A3.16 An EM38 Magnitude susceptibility survey was conducted at Minchery Farm, Sandford, Oxon to identify areas of abnormal magnetic susceptibility that may indicate areas of archaeological interest.
- A3.17 The survey identified two areas of abnormal (elevated) magnetic susceptibility and further detailed investigations, by magnetometery initially, are recommended in those areas.

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Appendix 4

## Geophysical Survey: Magnetometery

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## **Introduction**

A4.1 The magnetometery was carried out by Stratascan who produced a full report (August-October 1995). In the interests of brevity this appendix is a shortened version of the Stratascan report, and includes only one of the 4 dataplots provided by Stratascan for each area, plus their interpretive plan for each area. The full text of the Stratascan report is included.

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- Summary of results
- 2 Introduction
  - 2.1 Site location
  - 2.2 Site description and history
  - 2.3 Survey objectives
  - 2.4 Survey methods
- 3 Methodólogy
  - 3.1 Date of fieldwork
  - 3.2 Grid locations
  - 3.3 Descriptions of techniques and equipment configuration
  - 3.4 Sampling interval and data capture
  - 3.5 Processing and presentation of data
- 4 Results
- 5 Conclusions

Figure 1 -	1:50 000	General location plan
Figure 2 -	1:10 000	Detailed location plan
Figure 3 -	1:2000	Plan showing all survey areas
Figure 4 -	NTS	Schematic showing referencing of areas 1, 2 and 3
Figure 5 -	NTS	Schematic showing referencing of areas 4, 5, 6, 7, 8 and 9
Figure 6 -	1:1000	Grey scale plot of raw magnetometer data Area 1
Figure 7 -	1:1000	Trace plot of raw magnetometer data Area 1
Figure 8 -	1:1000	Grey scale plot of processed magnetometer data - Area 1
Figure 9 -	1:1000	Grey scale plot of magnetometer data after further processing - Area 1
Figure 10 -	1:1000	Abstraction of anomalies - Area 1
Figure 11 -	1:1000	Interpretation - Area 1

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Geophysical Survey		Aug/Oc
Figure 12 -	1:1000	Grey scale plot of raw magnetometer data Areas 2 and 3
Figure 13 -	1:1000	Trace plot of raw magnetometer data Areas 2 and 3
Figure 14 -	1:1000	Grey scale plot of processed magnetometer data - Areas 2 and 3
Figure 15 -	1:1000	Grey scale plot of magnetometer data after further processing - Areas 2 and 3
Figure 16 -	1:1000	Abstraction of anomalies - Areas 2 and 3
Figure 17 -	1:1000	Interpretation - Areas 2 and 3
Figure 18 -	1:1000	Grey scale plot of raw magnetometer data Areas 4, 5, 6, 7, 8 and 9
Figure 19 -	1:1000	Trace plot of raw magnetometer data Areas 4, 5, 6, 7, 8 and 9
Figure 20 -	1:1000	Grey scale plot of processed magnetometer data - Areas 4, 5, 6, 7, 8 and 9
Figure 21 -	l:1000	Abstraction of anomalies Areas 4, 5, 6, 7, 8 and 9
Figure 22 -	1:1000	Interpretation - Areas 4, 5, 6, 7, 8 and 9
		·
Stratascan		Page

Aug/Oct 1995

## 1 SUMMARY OF RESULTS

Nearly all the anomalies found by this magnetometer survey are thermoremanent in origin. Several pipelines, buried metal objects and debris have been located which are all probably modern. However there are some anomalies which may be hearth or kiln sites.

## 2 INTRODUCTION

## 2.1 Site location

The site lies approximately 4.5km south-east of Oxford, and is centred on OS Ref. SP 548 023.

## 2.2 <u>Site description and history</u>

The site is the location of the proposed new ground for Oxford United Football Club. The area is generally level with a gentle slope towards the Little More Brook which runs through the site. The soils are well drained coarse loamy and sandy soils over sands and sandstones. The site was divided into nine areas. Areas 4-9 were surveyed during August 1995 when the ground cover was long grass. Areas 1-3 were unsurveyable at this time due to very long grass and weeds, and were subsequently surveyed in October 1995 after the grass had been mown.

The site is adjacent to the site of a known Priory at Minchery Farm immediately south of Area 2. It is thought that there are also Romano-British kiln sites in the general vicinity.

## 2.3 Survey objectives

The aim of the survey was to determine the presence and nature of any archaeological features which may be present on the site.

## 2.4 <u>Survey methods</u>

As a 50% sample of the whole site was to be surveyed it was decided to divide up the site into nine areas (see Figure 3), each area being approximately 50% of the field in which that survey site lay.

As the archaeological potential for the site included kilns/hearths it was thought that magnetometry would be the most appropriate technique to employ.

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## 3 METHODOLOGY

## 3.1 Dates of fieldwork

Areas 4-9 were surveyed during August 1995 when the weather was hot and dry, and areas 1-3 during October 1995 when the weather was warm and dry.

## 3.2 <u>Grid locations</u>

The survey areas have been plotted onto Figure 3. Referencing of the survey grids has been plotted onto Figures 4 and 5. Key node points were referenced onto pegs left in next to salient points on the site.

20m square grids were set out with a theodolite. Where possible a common base line was used for the survey areas.

## 3.3 Description of techniques and equipment configurations

## 3.3.1 Magnetometer

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTesla (nT) in an overall field strength of 48,000nT, can be accurately detected using an appropriate instrument.

The mapping of the anomaly in a systematic manner will allow an estimate of the type of material present beneath the surface. Strong magnetic anomalies will be generated by buried iron-based objects or by kilns or hearths. More subtle anomalies such as pits and ditches can be seen if they contain more humic material which is normally rich in magnetic iron oxides when compared with the subsoil.

To illustrate this point, the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material being accumulated in the trench compared to the undisturbed subsoil. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

The magnetic survey was carried out using an FM36 Fluxgate Gradiometer, manufactured by Geoscan Research. The instrument consists of two fluxgates mounted 0.5m vertically apart, and very accurately aligned to nullify the effects of the earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background. Readings are taken automatically with a sample trigger and held in an 'on board' data logger.

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#### 3.4 Sampling Interval and data capture

#### 3.4.1 Sampling Interval

Readings were taken at 0.5m centres along traverses 1m apart. This equates to 800 sampling points in a full 20m x 20m grid. All traverses are surveyed in a "parallel" rather than "zigzag" mode.

#### 3.4.2 Data capture

The readings are logged consecutively into the data logger which in turn is down loaded into a portable computer daily whilst on site. At the end of each job, data is then transferred to the office for processing and presentation.

## 3.5 Processing and presentation of data

#### 3.5.1 Processing

Processing is performed using *Geoplot 2* and can emphasise various aspects contained within the data but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'flattening' the background levels with respect to adjacent traverses and adjacent grids. 'Despiking' is also performed to remove the anomalies resulting from small iron objects often found on agricultural land. Once the basic processing has flattened the background it is then possible to carry out low pass filtering to reduce 'noise' in the data and hence emphasise the archaeological or manmade anomalies.

The following schedule shows the basic processing carried out on all processed magnetometer data used in this report:

Zero mean grid	Threshold = 0.25 std. dev.
Zero mean traverse	Last mean square fit = off
Despike	X radius = 1 $Y radius = 1$
-	Threshold = 3 std. dev.
	Spike replacement = mean

## 3.5.2 Presentation

The presentation of the data for each site involves a print-out of the raw data both as grey scale and trace plots, together with grey scale plots of the processed data, and, if appropriate, after further processing to emphasise various aspects within the data. Magnetic anomalies have been identified and plotted onto the 'Abstraction of Anomalies' drawing for each site (Figures 9, 13 and 18), numbered for ease of reference and prefixed with the letter 'M'. An interpretative plot of these anomalies has also been included in Figures 10, 14 and 19.

## 4 RESULTS

#### Area 1

There are few anomalies of any archaeological interest in this area. The group of anomalies M1/1 and the M1/2 and the weaker positive anomalies M1/7 are thought to indicate the existence of a pipeline. The anomalous area M1/3 is thought to be a concealed manhole, as it appears to link the change in direction of M1/1, M1/2 and M1/7. Part of this particular area was unsurveyed due to undergrowth. There is also a weak linear anomaly M1/11 running approximately north to south across the site which appears to stop at M1/7. This has also been interpreted as a pipeline but of smaller diameter, possibly of clayware construction.

It would appear from the general nature of the site that it was used as a tip as there are various strong responses from both metal and brick debris, particularly noticeable on the north-eastern side of the survey area. Bearing this in mind, M1/4, a strong negative anomaly, is thought to be a buried metal object. M1/5 is the result of rubbish on the surface.

There is a scatter of metal debris across the site with the larger pieces M1/8, 9 and 10 being picked out in the interpretation.

## Area 2

Area 2 is dominated by the strong curvilinear anomaly M2/1 which has a strong negative anomaly M2/6, half way across the site. These are interpreted as a pipeline and manhole. M2/2 is another linear anomaly this time running south from M2/6 and is thought to be another pipeline.

Perhaps of more interest is the anomaly M2/3 which is an area of general noise with clear rectilinear edges particularly along the northern side. This would suggest the possibility of demolished brick wall foundations. However, in view of the suspected kilns on the site the prospect of pottery or tile wasters should not be overlooked.

M2/4 is a clump of small trees. The strength of the anomaly M2/5 would suggest that it is buried metal, but the possibility that it is of archaeological interest should not be ignored.

M2/7 and 8 are two co-linear weaker positive anomalies suggesting a ditch. M2/9 M2/10 and M2/11 are all the effects of debris or features on the site.

## Area 3

There is a strong linear feature M3/1 which enters the survey area from the west, consisting of parallel negative and positive anomalies. Around this feature is a scatter of noisy readings M3/7. The signal of the main feature suggests a thermoremanent response rather than that from a ditch and bank. Again the possibility of kiln wasters should be considered and. It is considered worthy of further investigation.

The rectilinear anomaly M3/2 which runs diagonally across the south-west corner of the site is thought to be a pipeline. The weaker rectilinear anomaly M3/5 which runs into M3/1 has been interpreted as a ditch.

The two positive anomalies collectively labelled M3/3 may be the sites of kilns or pits filled with a magnetic material and justify further investigation

Finally, the positive discrete anomalies collectively labelled M3/4 in the north of the area may also be pits and warrant further scrutiny.

## Area 4, 5 and 6

There is a pipeline M4/1, M5/1 and M6/1 which crosses the northern end of all three of these sites. The weaker rectilinear anomaly M4/2 in Area 4 is another pipeline which runs in a southerly direction toward Area 8, where there is another rectilinear feature M8/1 which is also thought to be a pipeline. It is interesting to note that the point of intersection of these two anomalies is in the road, where one would expect to find a manhole.

There is little else of interest in these three areas, save M6/2 which is thought to be a buried metal object. All three areas have a general scatter of debris.

#### Area 7

The northern half of this area is dominated by the effect of a 'magnetic' fill material probably modern in origin. In the southern end of the area M7/1 may be a kiln or a hearth. It has an 'L' shaped linear feature M7/2 immediately adjacent to the north and west. M7/3 may possibly be a pit. It would seem prudent to investigate these discrete anomalies and to sample the noisy area to the north to ascertain their nature.

#### Area 8

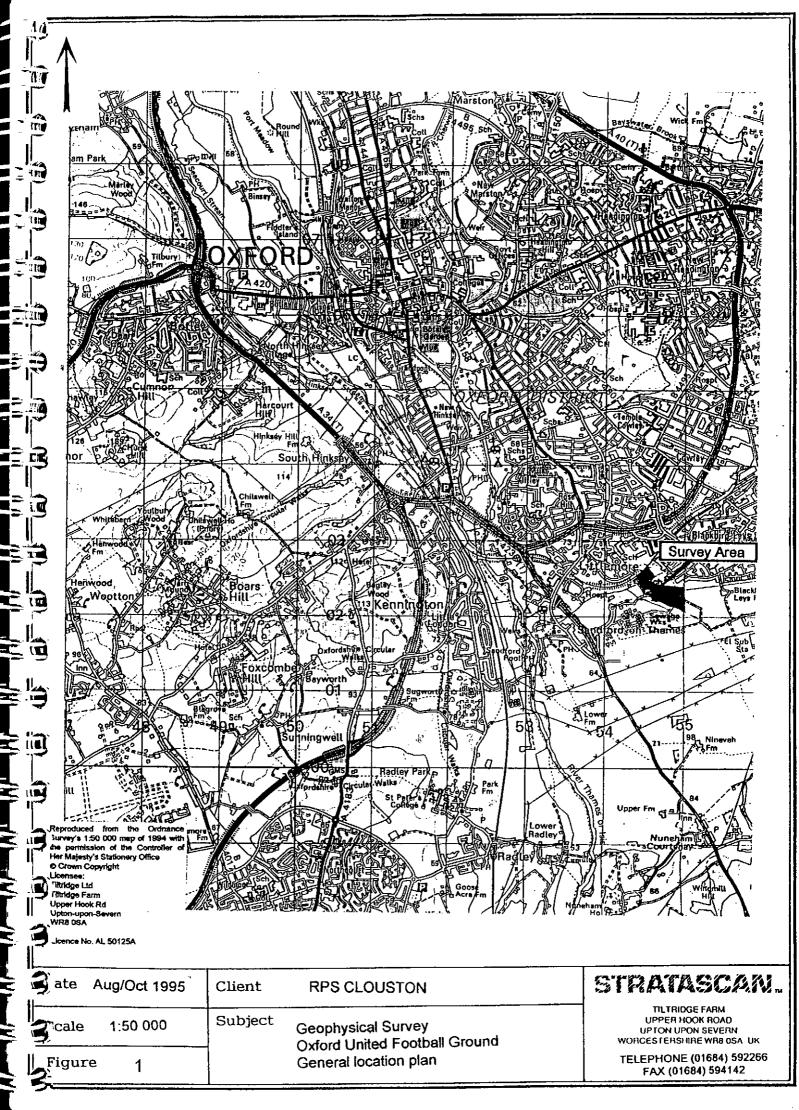
M8/1 is the continuation of the second pipeline mentioned in Area 4 and there is a general area of hardcore M8/2. As with the other sites there is a weak scatter of general debris.

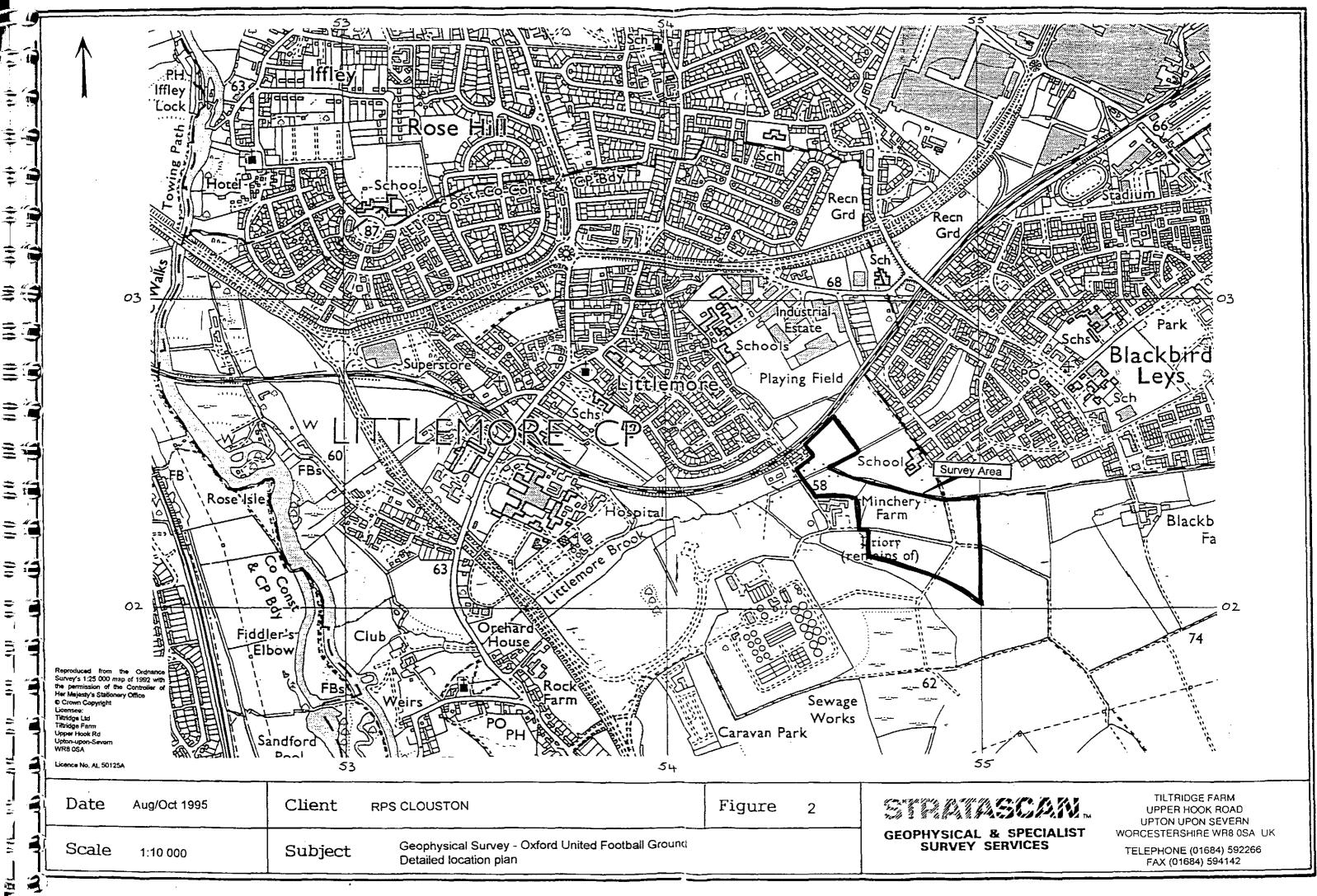
#### Area 9

M9/1 is a strong anomaly that looks like a buried metal. M9/3 is a more subtle anomaly which may be a pit. M9/2 is a weak curvilinear feature which may only be a coincidental alignment. It is felt that these features should be investigated to learn their true character. As with the other areas there is a general spread of debris.

#### 5 CONCLUSIONS

The site contains much debris including ferrous metal objects which give a variety of responses to the magnetometer depending on their depth and orientation. This can make their interpretation at times difficult. Nonetheless, a number of possible kiln, hearth or pit sites have been identified which together with the possible scatter of wasters in Areas 2 and 3 should warrant further investigation. It would be prudent to open small trenches over the noted anomalies to establish their true nature.





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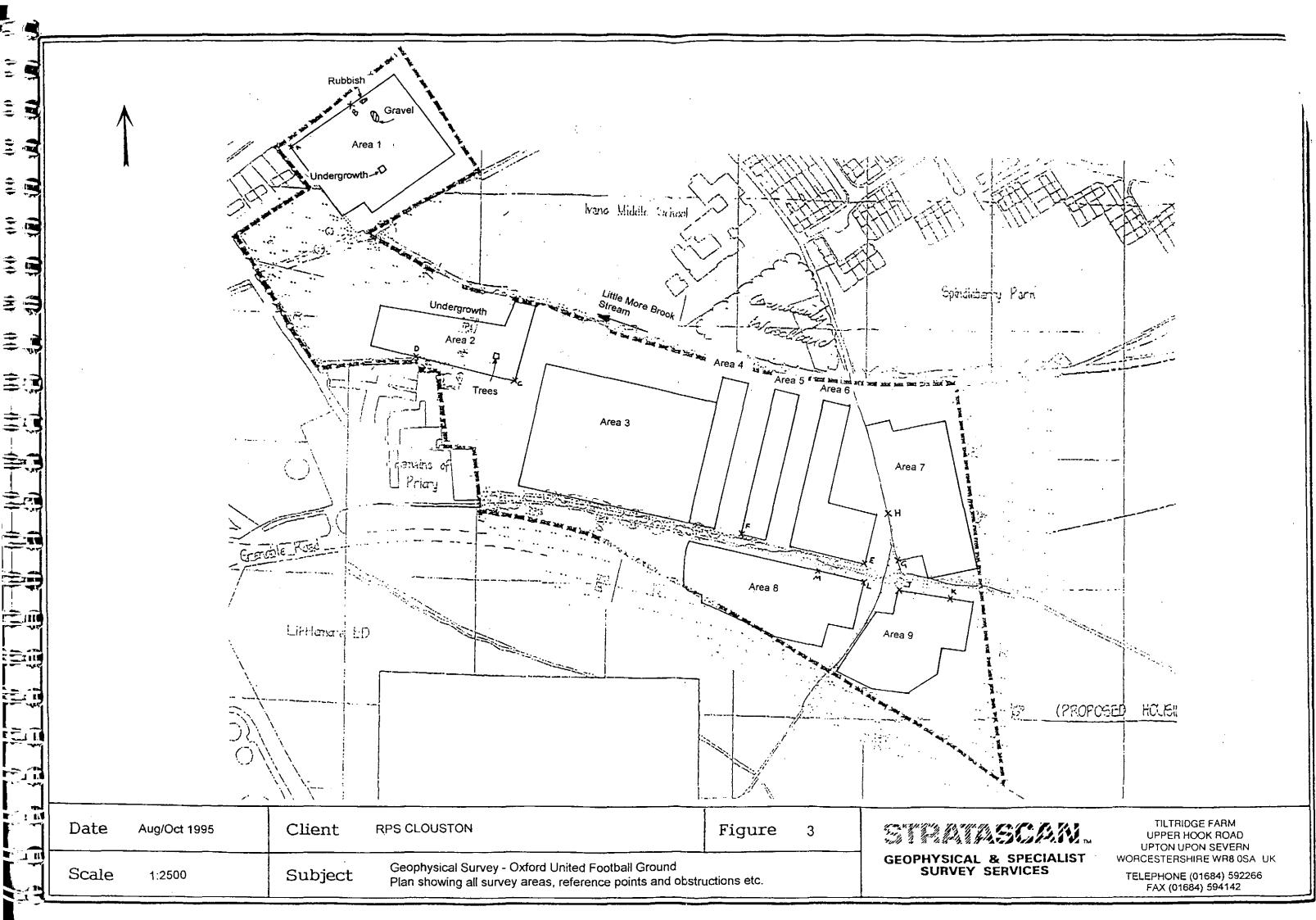
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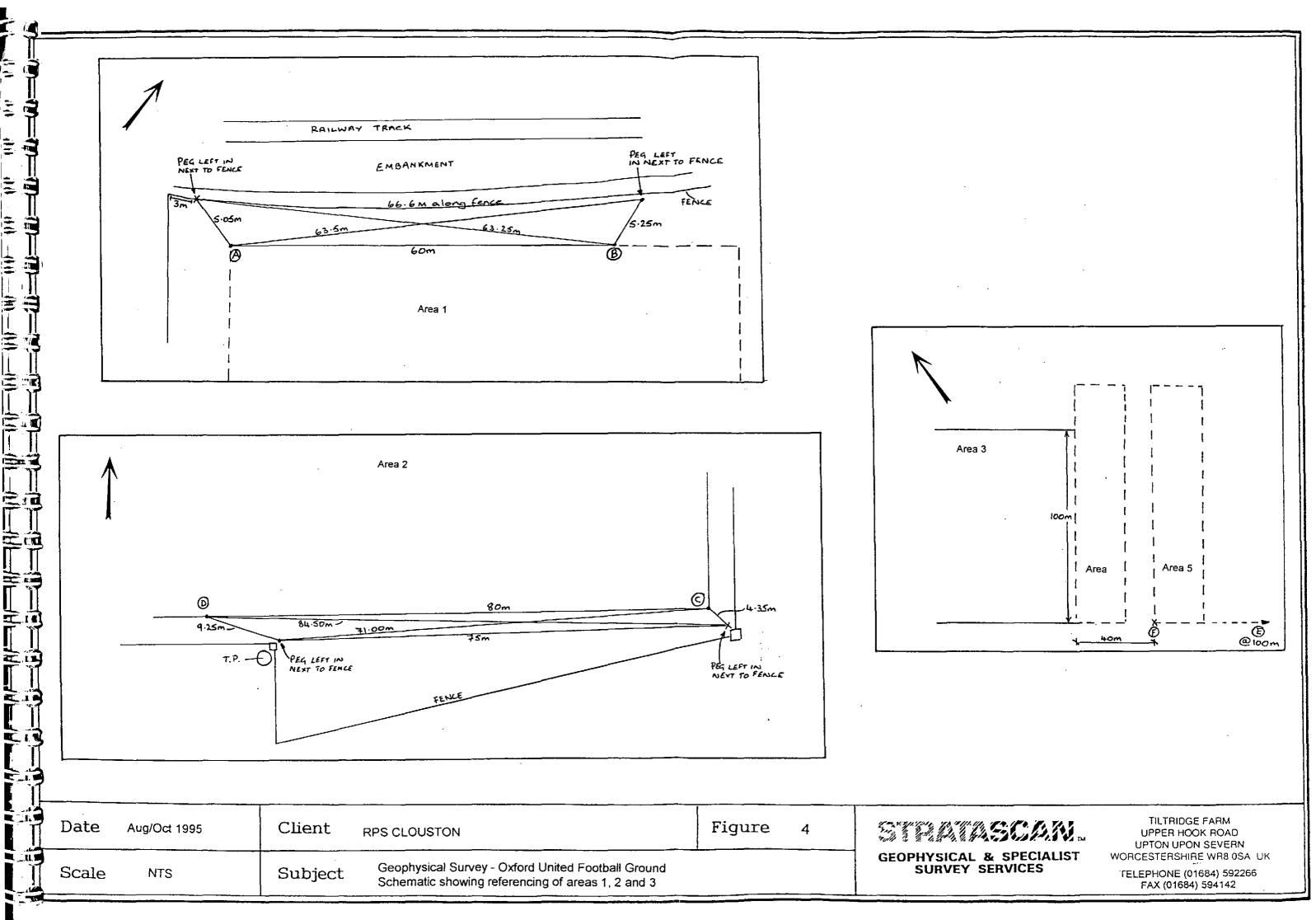
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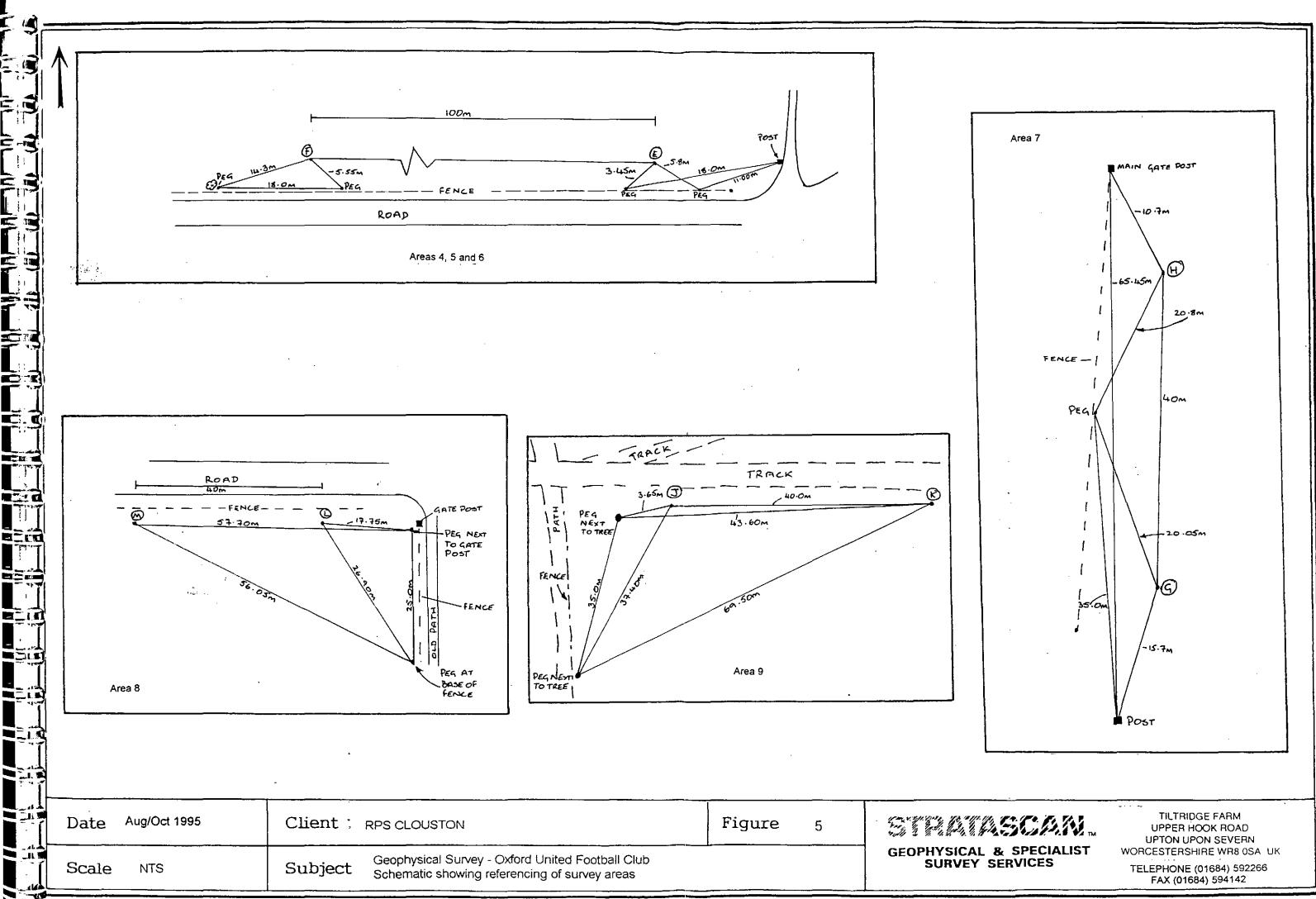
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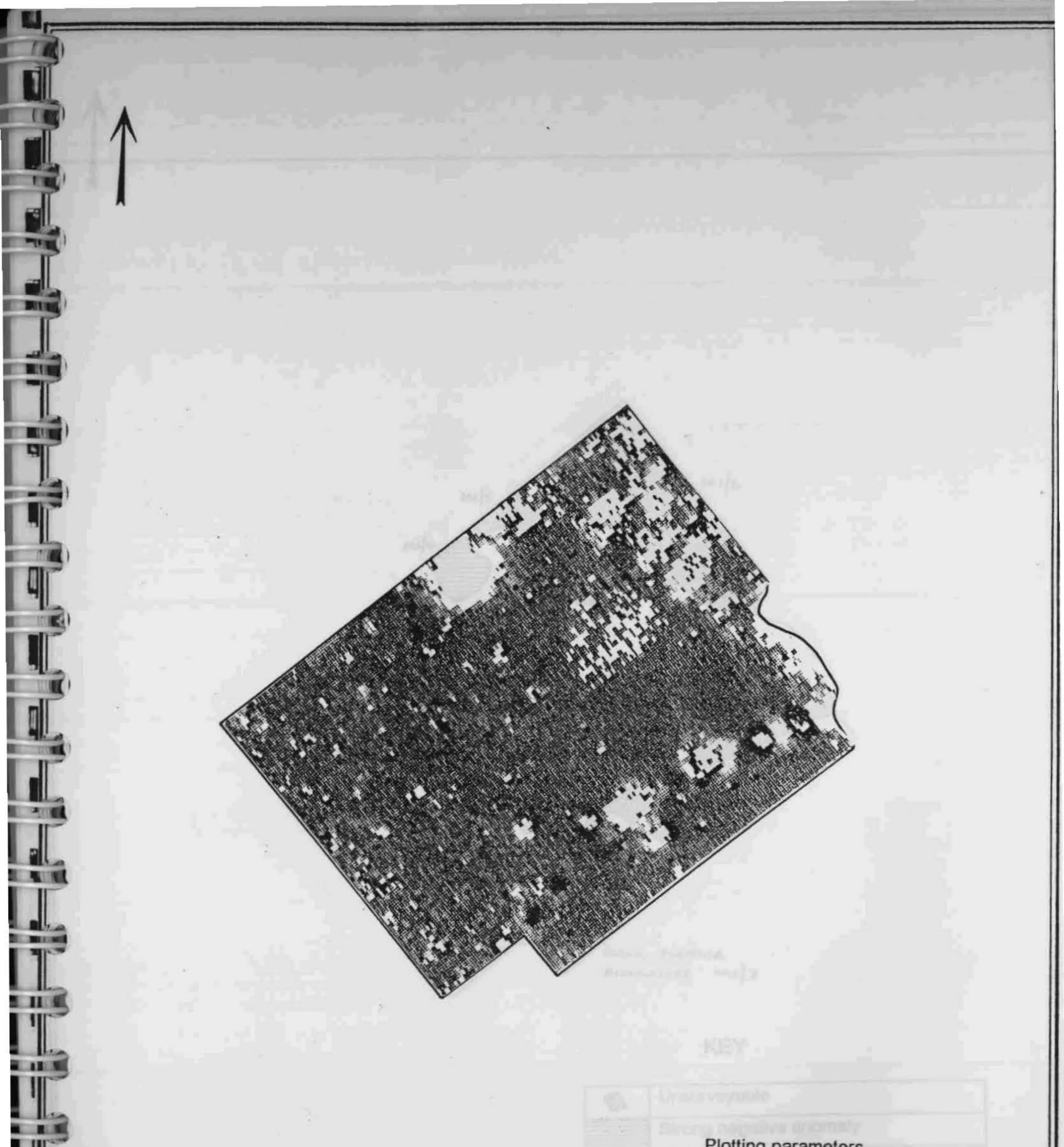
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Plotting parameters Minimum -2.5nT (white) Maximum +2.5nT (black)

ate Aug/Oct 1995	Client	RPS CLOUSTON	STRATASCAN.
Scale 1:1000	Subject	Geophysical Survey Oxford United Football Ground - Area 1	TILTRIDGE FARM UPPER HOOK ROAD UPTON UPON SEVERN WORCESTERSHIRE WR8 OSA UK
Figure '9		Plot of magnetometer survey after processing to emphasise weak anomalies	TELEPHONE (01684) 592266 FAX (01684) 594142

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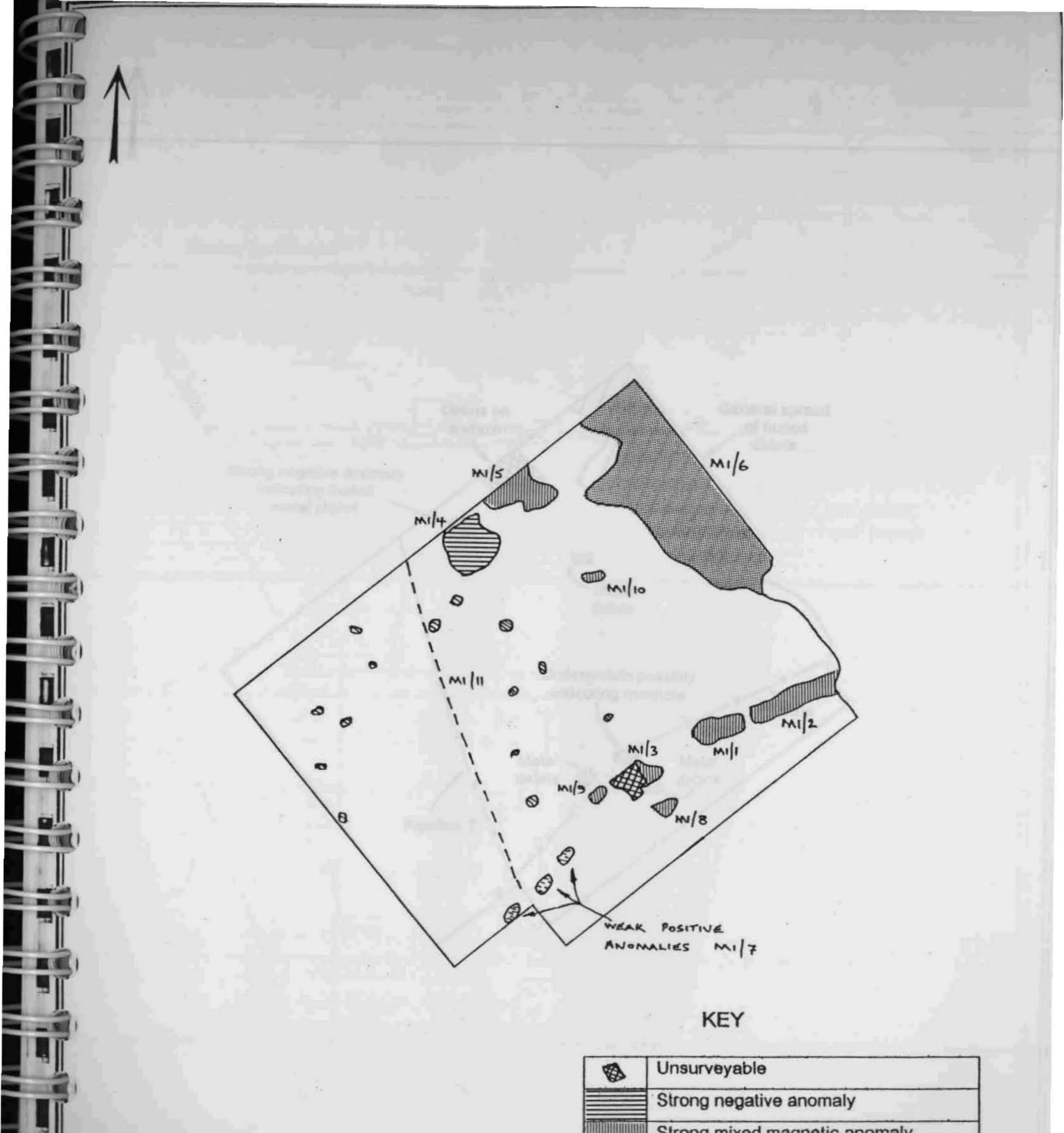
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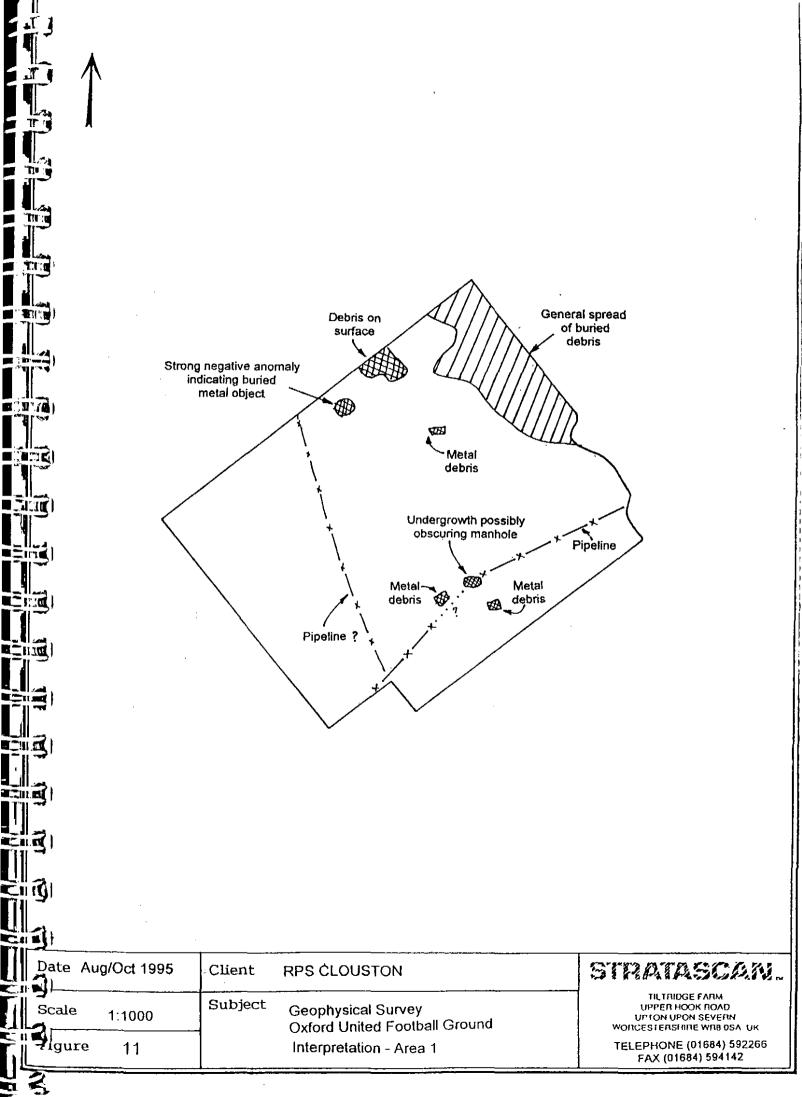
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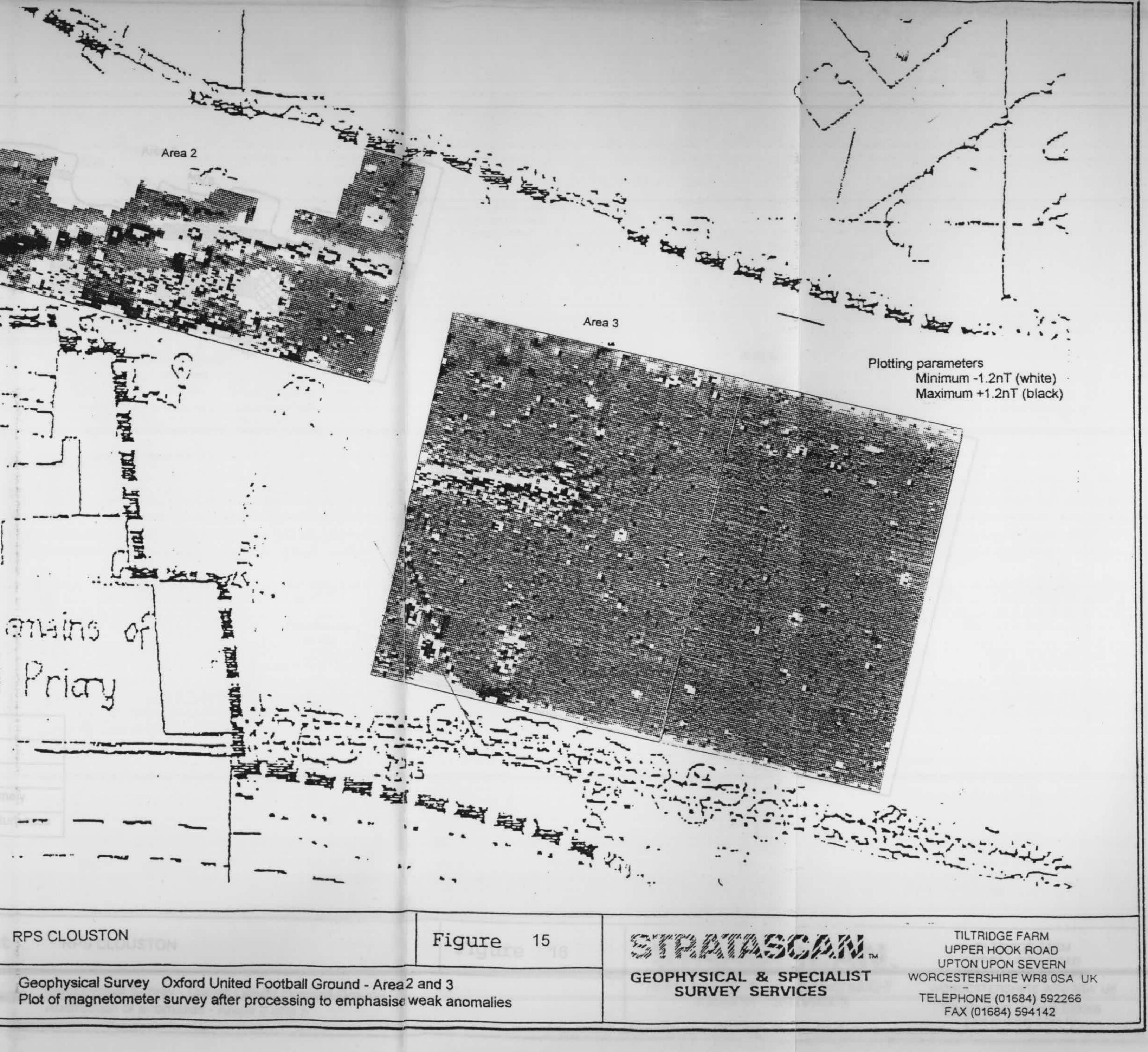


		Strong mixed magnetic anomaly Small strong discrete anomaly General area of magnetic disturbance
Date Aug/Oct 1995	Client RPS CLOUSTON	STRATASCAN.
Scale 1:1000	Subject Geophysical Survey Oxford United Football Ground Abstraction of anomalies - Are	

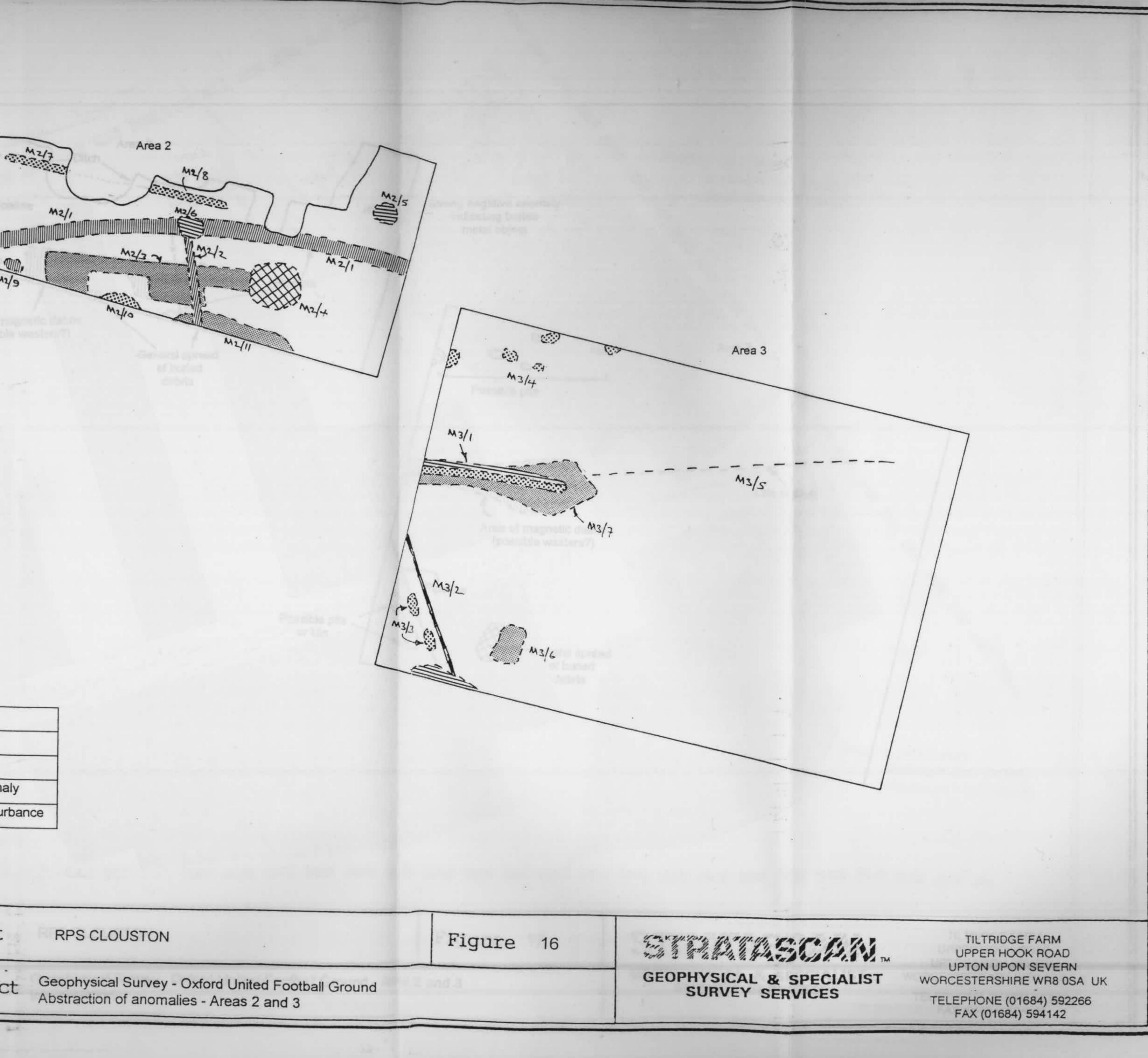


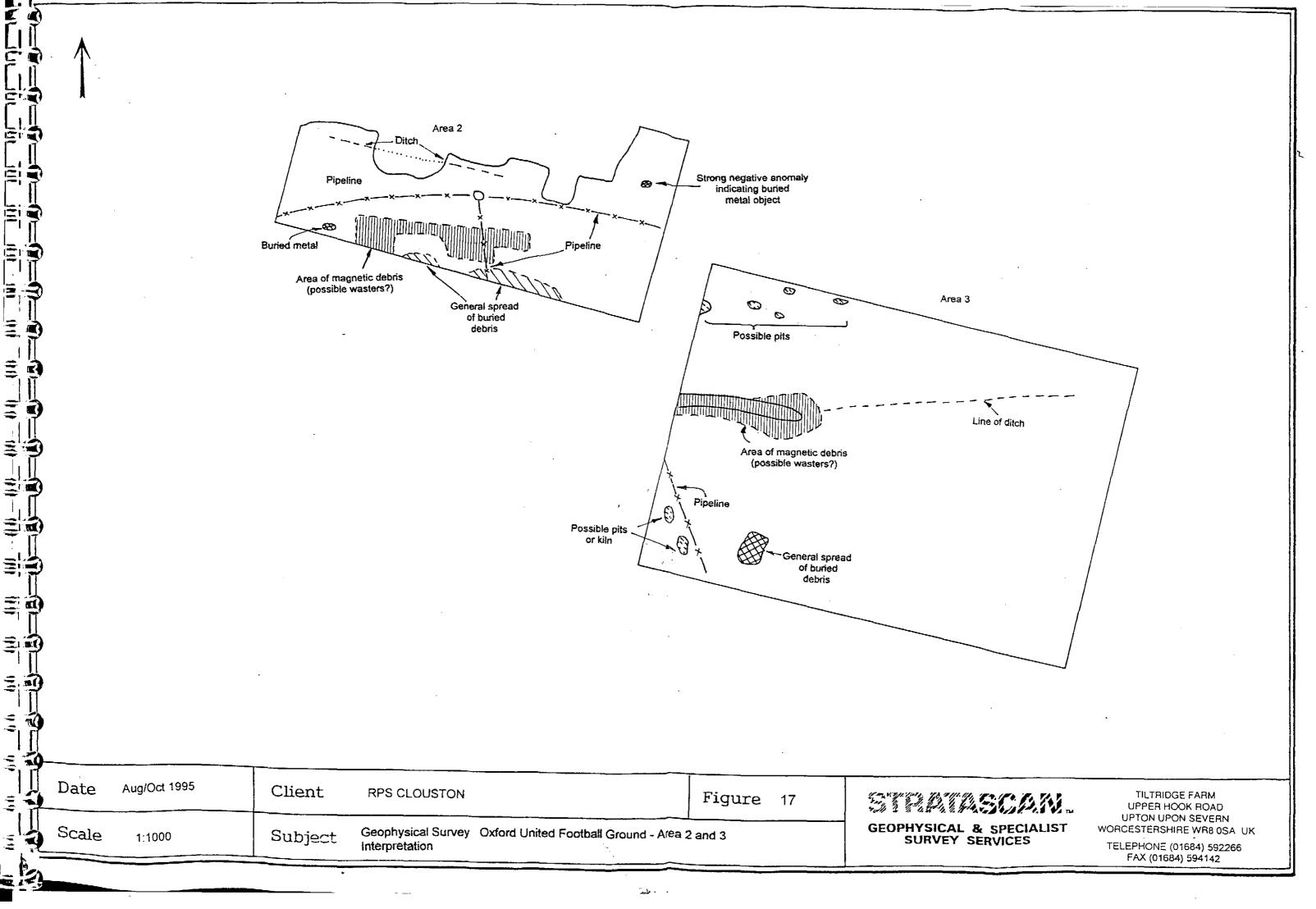
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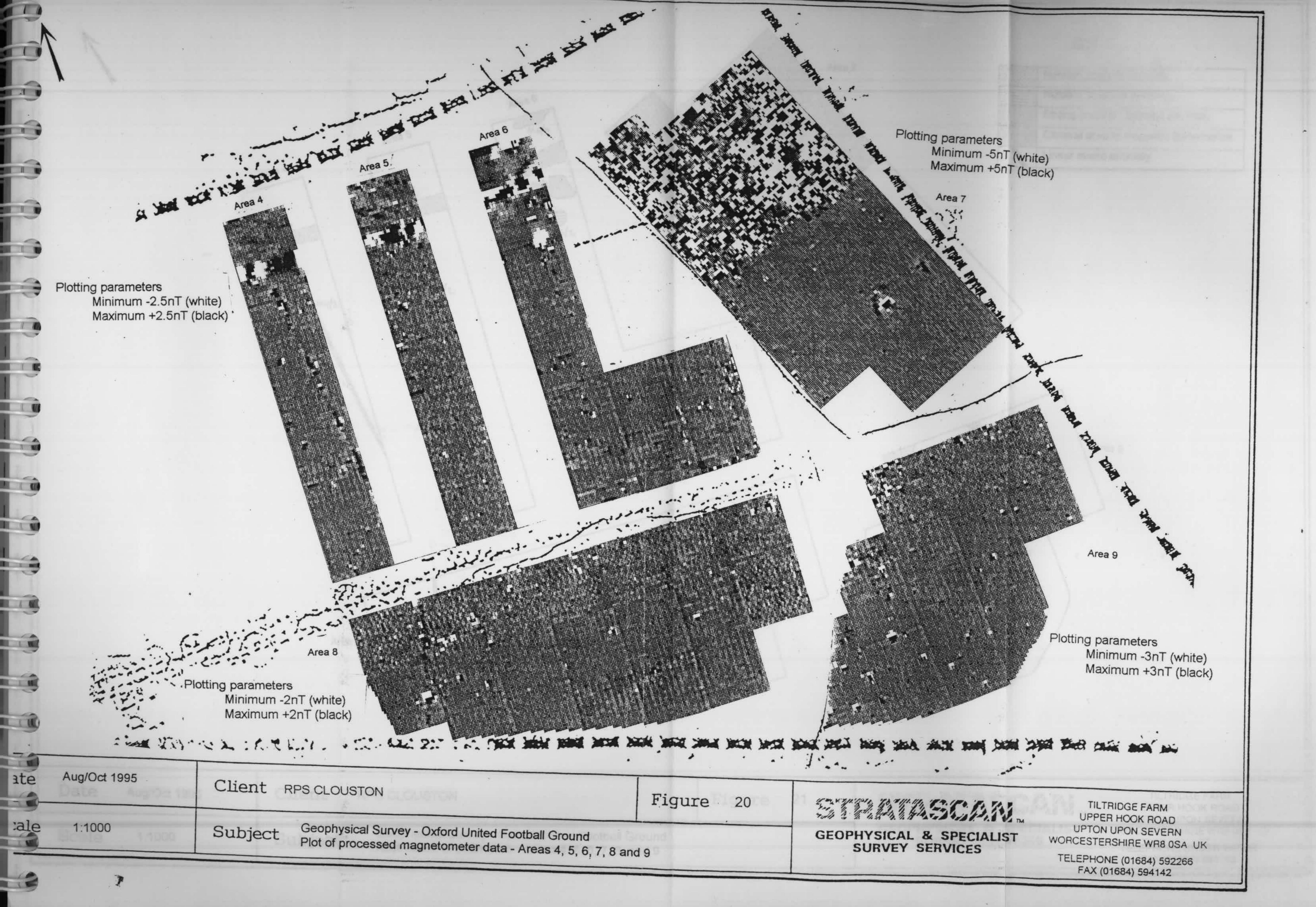
17.1 -Plotting parameters Minimum -6.3nT (white) Maximum +1.2nT (black) Trad . . ... Date Aug/Oct 1995 Client Scale 1:1000 Subject (3)



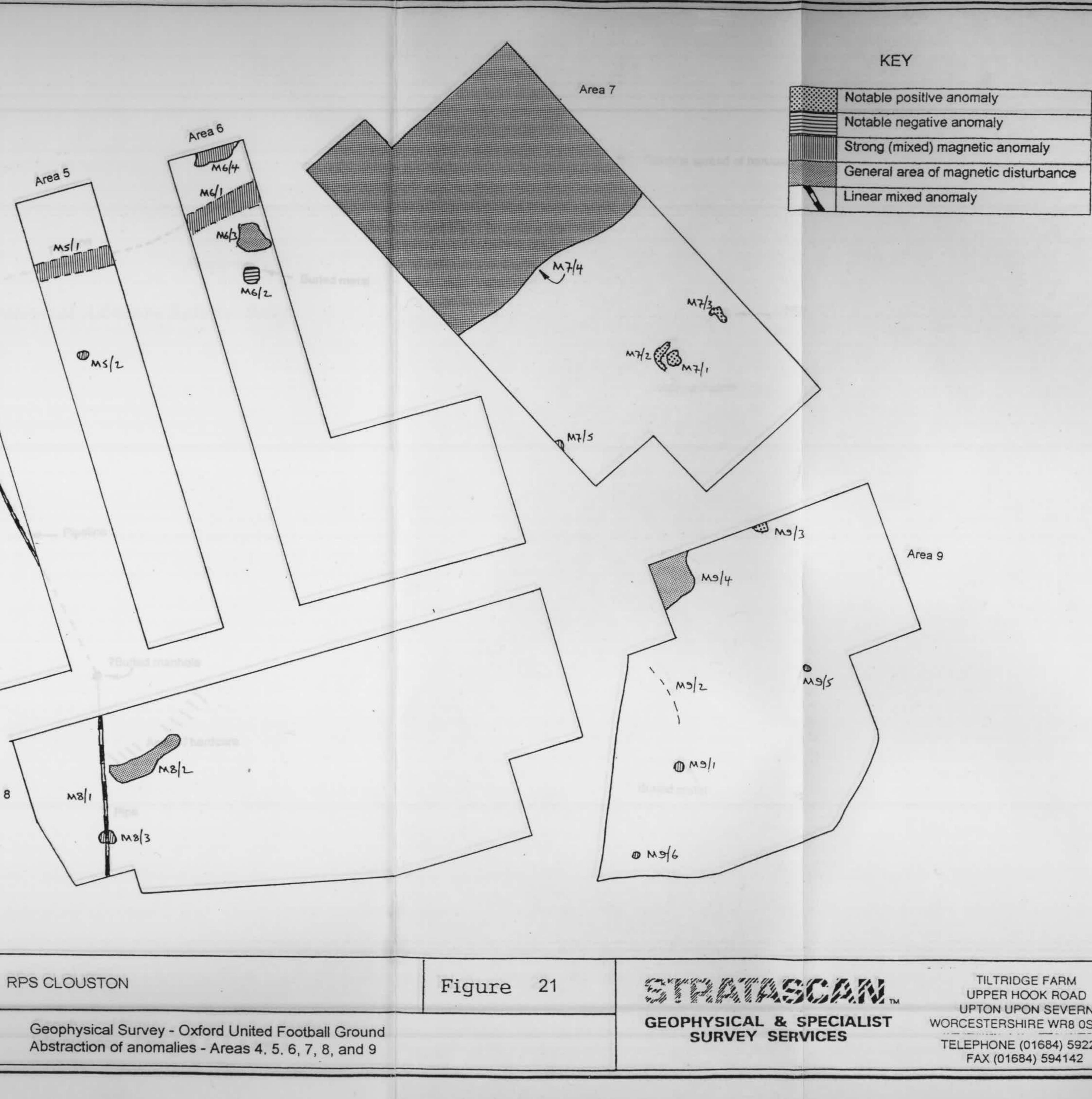
M2/0 I I I All and a second BE BECK 100 KEY Unsurveyable Notable positive anomaly Notable negative anomaly Strong (mixed) magnetic anomaly AL US General area of magnetic disturbance LING Per REIN 100 Date Aug/Oct 1995 Client In Scale Subject 1:1000 





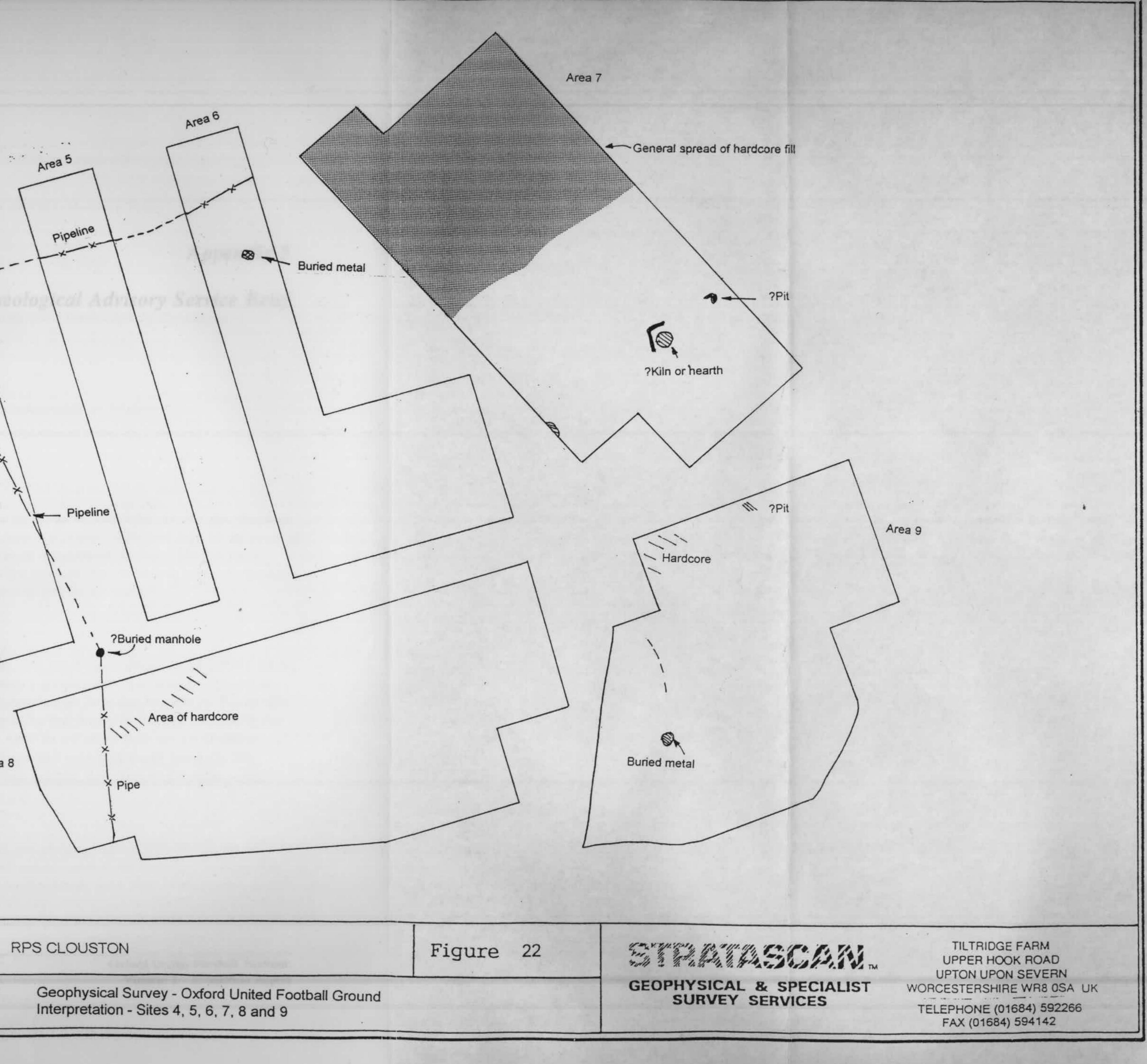


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UPPER HOOK ROAD UPTON UPON SEVERN WORCESTERSHIRE WR8 OSA UK TELEPHONE (01684) 592266 FAX (01684) 594142

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Appendix 5

Oxford Archaeological Advisory Service Brief

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Oxford United Football Stadium: Volume 1 - Evaluation Report 

 Planning Application No:
 94/1754/NOY Football Stadium, associated facilities and leisure development

 Address:
 Grenoble Road, Land adjoining Minchery Farm

### Brief for Archaeological Fieldwork

This brief is designed to enable an archaeological contractor to draw up a written scheme of investigation for archaeological evaluation of the above development site.

### 1 Introduction

This brief is based on information provided by the applicant as follows: Faxed Location plan Faxed Master Plan

### 1.1 Background

Oxford United Football Club has identified a site of 26 acres (10.5 ha) in the developing area of Blackbird Leys for its proposed new all seater stadium. The site lies in an area of known archaeological finds, and adjoining the site of a medieval priory. Under local planning policy, development would require further information on below ground deposits in order that the impact of the proposed development can be assessed.

## 1.2 Archaeological background

The County Sites and Monuments records Roman and pre-Roman deposits as PRNs 1426, 1437 and 3845, including evidence of Roman pottery production. Littlemore Priory is recorded as PRN 1434. There is little clear information on how the Minchery Farm site relates to the conventual area of the priory. Logically the priory buildings including the church would be under the farm site, but this is need be no more than an assumption, and it would be reasonable to expect that some buildings had extended north towards the Northfield Brook, or that a leet from the brook had crossed this land to provide a water supply for the priory.

# 1.3 Archaeological impact of the Development

Much of the area around the stadium is proposed for parking, and might be minimally destructive, but because it is likely that all topsoil would need to be removed it must be assmed that most archaeological deposits would be disturbed, with the possible exception of features cut into the subsoil. Damage to archaeological deposits will otherwise arise from foundations and service trenches. The proposal also allows for an employment area with a petrol station at the SE corner, where there will be considerable ground disturbance. A driving range and other facilities adjoining Minchery Farm will involve foundations, services and land drainage, and parking to the north of the Brook will involve topsoil stripping.

# 2 Archaeological Evaluation

### 2.1 Written Scheme of Investigation

A written scheme of investigation to be submitted to Oxford City Council setting out the proposed investigation as follows:

### 2.2 Desktop study

The County Sites and Monuments Record and all available topographical and historical sources including air photographs should be examined and listed. Report to include results of any available geotechnical survey.

### 2.3 Geophysical survey and surface collection

2.3.1 For areas under cultivation, fieldwork to be dependent on

agricultural usage

a Set out survey grid

b Magnetic survey: 50% sample, plus any necessary confirmations (Magnetometer and magnetic susceptibility)

c Surface collection: field walk 10% of area, ie 2 m strip every 20 m,

2.3.2 For areas not under cultivation, clear vegetation as necessary, ie by mowing or other appropriate means, carry out 2.1a and 2.1b. For 2.1c it will be necessary to plough and harrow a 2 m strip every 20 m, and leave to weather before surface collection.

2.3.3 Wash finds, specialist reports, prepare interim bound report to include desktop study.

# 2.4 Archaeological trenched evaluation:

Evaluation trenches should aim to establish the extent of deposit survival in areas of archaeological deposits identified by magnetometter and surface collection. 1.6 m width trenching of those areas showing concentrations of anomalies and/or archaeological finds as identified by above means. Allow for 2% sample trenching of 20% of total area, 250 m x 1.6 m trenching overall, allowing for contingency for a further 30 m trenching in case deposits are found which require further investigation. Positioning of trenches to take account of areas where archaeological impacts may not be mitigable by alterations of level, or adjustment of positions of buildings. Trench layout to be agreed with the Council's advisors.

The trenches should be excavated mechanically down to archaeological levels. Any significant archaeological structures and surfaces should be investigated and recorded as per Appendix 1.

2.1.3 Site procedures as per Appendix 1

# 3 Report, archive and dissemination of results

#### 3.1 The report

An evaluation report, to include the desktop/geophysical/surface collection report, to be completed within two weeks of completion of the fieldwork. The report should provide sufficient supporting technical information to allow an independent judgement to be made of the significance of the findings. Copies to Oxford City Council and OAAS.

#### 3.2 The archive

An archive shall be prepared on completion of the fieldwork, and shall be deposited with an appropriate museum, including any finds, subject to the owner's agreement.

#### 3.3 Dissemination

A copy of the report shall be deposited on open access with the County Sites and Monuments Record within six months of completion of the fieldwork, and a further copy shall be deposited with the archive.

Brief details of significant results shall be sent to the National Archaeological Record in the format required by RCHME.

Significant academic results shall be published in a suitable form in an appropriate journal, newsletter or other medium to be agreed with the Oxford City Archaeological Advisory Service. Such publication to be undertaken within reasonable time, ie one year.

### 4 General requirements

4.1 The developer or his agent shall provide sufficient information on below ground structures, services and any other potential hazards to enable the fieldwork to be completed in safety.

4.2 The archaeological body must satisfy all requirements of current Health and Safety legislation.

4.3 The archaeological body must satisfy all requirements of current legislation on the reporting of human remains, treasure trove, etc.

4.4 The project, and specialist tasks within it, shall be carried out under the direction of appropriately qualified named personnel. Where not members of IFA, other evidence of qualifications and referees may be required.

4.5 Fourteen days notice of commencement of fieldwork to be given to OAAS and Oxford City Planning Officer.

BD OAAS 24 January 1995

# Appendix 1 Recording Methods

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- 1. The position of trench should be accurately surveyed in plotted on a current large scale of OS plan and related to the National Grid and to existing buildings adjoining the site.
- 2. Overall site plan at 1:50, features at 1:20, or 1:10 for complex features.
- 3. Sections of individual features and of general stratigraphy should normally be drawn at 1:20 but at 1:10 if particular detail is required. All sections should be tied in to Ordnance Datum, and their orientation and location related to detailed plans.
- 4. All stratigraphic contexts should be numbered and described, including their stratigraphic interrelationships, using a single context recording system.
- 5. A photographic record should be made of the work, with significant archaeology and of significant individual contexts or groups of contexts.
- 6. A sampling strategy for ecofact soils and sediments should be specified and agreed in advance.
- 7. All artefacts pertiment to the archaeological evaluation should be retained.
- 8. Finds recording should be carried out in a manner compatible with existing typological series for the City.
- 9. Details of the recording system to be used should be supplied with the specification.
- 10. Recording material used and storage of finds should meet archival and conservation standards set by the Museums Association and receiving museum. A copy of original records should be made to be stored separately from the original archive for security purposes.

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Appendix 6

Assessment Methodology

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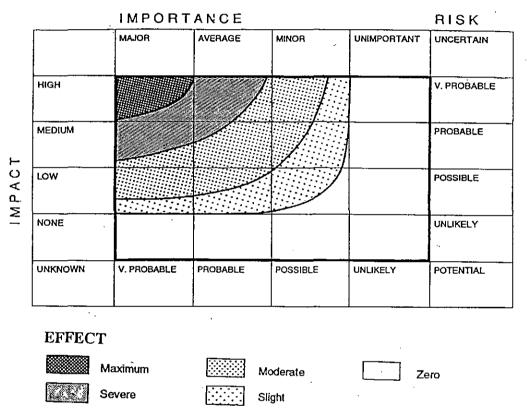
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Oxford United Football Stadium: Volume 1 - Evaluation Report

### Appendix 6: Assessment Methodology

A6.1 George Lambrick (Lambrick 1993) has devised a matrix to show the interaction of the factors which combine to create an assessment of effect. A modified version, which attempts to define the terms so that no confusion between the fields should occur, is set out below (Table 1). The definitions of "importance", "impact" and "effect" as used in this report are set out below.

### Table 1: Matrix of Effects



- A6.2 Importance. There is no standard scale of importance used in cultural heritage studies, with various systems in use by different agencies. An assessment of the importance of archaeological sites has been made using a modified version of the criteria set out by the DoE in *PPG16* and as adopted by English Heritage for the Monuments Protection Programme (MPP). The criteria are:
  - survival/condition;
  - potential:
  - diversity;
  - amenity value:
  - documentation (excavation and historical);
  - group value (association); and

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group value (clustering).

These criteria have been taken into account in arriving at judgements of importance.

- A6.3 To avoid the official sanctions which might be implied by the use of such terms as "National", "County" and "Local", in this report the following categories are used:
  - Major: the highest status of site cg. SMs and Listed Buildings Grade I and II\*, using the MPP criteria to assist in the judgement
  - Average: the bulk of sites with reasonable evidence of occupation, ritual, industry, etc and Listed Buildings Grade II
  - Minor: sites with some evidence of human, activity, but in a fragmentary or poor state, buildings of local importance
  - Unimportant: destroyed, non-antiquities, random stray finds, buildings of no merit

Uncertain: insufficient evidence available to judge importance.

A6.4 Impact. As with importance there is no agreed terminology or definition to describe degree of impact. It cannot be a simple percentage calculation of the proportion of a feature etc. which would be destroyed because some parts of a site may be more important than others, or partial destruction may lead to the loss of all significance. Impact on setting and amenity is generally considered to be of lesser consequence than direct physical impact. The assessment of the degree of impact must be as qualitative as the judgement of importance. The following terms are used in this report:

High: loss of all or majority of significant features, such that the site or building is effectively destroyed or seriously damaged.

Medium: loss of sufficient part of sites or encroachment on their setting such that their integrity is compromised, or enough damage to buildings' fabric or ambience to impair their enjoyment, understanding or academic potential.

- Low: slight damage or encroachment, such that sites or buildings and their settings are largely retained.
- None: no discernable impact.
- Unknown: there is insufficient information regarding the design of the proposal or the extent/location/ or layout of the feature to be able to make a judgement.

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- A6.5 Effects. The effect of a proposal is a combination of the previous two judgements related to importance and impact (see Table 1). The effect of a high impact on a minor site is obviously different to that of a high impact on a major site. Again there is no standardised terminology to categorise these judgements; this report uses the following:
  - Maximum: high impact on a major site
  - Severe: medium impact on major site, or high impact on an average site
  - Moderate: low impact on a major site, medium impact on an average site, or high impact on a minor site
  - Slight: low impact on average/minor site to medium impact on minor site
  - Zero: no impact or non-site

Where either the impact or the importance is unknown the potential level of effect is assessed. For example, where there is a high impact on a site of uncertain importance the potential level of effect is moderate to maximum.

A6.6 Risk. If there are no known sites on the proposal site then a judgement of the risk may be possible using information about nearby relevant sites. This is assessed as the risk that there may be a particular effect. There is no systematic method for assessing risk; it is a matter of judgement. Risk is categorised as:

likely

probable

possible

unlikely.

For instance, it may be possible to judge that the risk of a maximum effect (ie a high impact on a major site) is unlikely, but that a slight effect is likely (ie a low impact on a minor site).

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Appendix 7

Primary Record Number Entries, Constraint Area's and Listed Buildings

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Appendix 7: Primary Record Number Entries, Constraint Areas and Listed Buildings

# **Primary Record Entries**

PRN Number	Description	Period	NGR (SP)	Status
1426	Pottery and Coins	Prehistoric	54740218	
1427	Pottery and Coins	Prehistoric	54900177	
	Temple Farm Site of Knights' Templars preceptory	Medieval/	53200185	LBs Grade II (10/110) (10/111)
	Fannhouse Bam	Post-medieval		
1434	Minchery Farm - site of Nunnery	Medieval/ Post-medieval	54550224	LB Grade 11* (1/109)
1435	Coins and Pottery	Romano-British	53670254	
1436	Coins and Pottery	Romano-British	54120272	
1437	Pottery Um/Vase	Romano-British	54880240	
2151	Pottery	Romano-British	55180218	
3386	Pottery	Romano-British	56100275	
3845	Kilns, pottery and coins	Romano-British	54990227	
5994	Church	Medieval	53370173	LB Grade 11* (10/113)
6143	Kilns	Romano-British	55280258	
6191	Pottery	Romano-British	534029	
6749	Hospita]	Post-medieval	536023	LB Grade II (15/106)
8017	Kiln and Pottery	Romano-British	533024	
8923	Road	Romano-British		
8997	Railway	Post-medieval		
10200	Tollhouse (destroyed)	Post-medieval	534018	

PRN Number	Description	Period	NGR (SP)	Status
10353	Baptist Chapel	Post-medieval	53490273	
11353	Church of SS Mary and Nicholas	Post-medieval	53760275	LB Grade II* (15/99)
11588	Shrunken Village	Medieval	53350180	
11589	Dovecote	Post-medieval	53620185	
11590	Claypits and Brickworks	Post-medieval	54050178	
12445	Railway Station and Signal Box	Post-medieval	53600251	
12598	Bassimore Cottage	Post-medieval	53180157	LB Grade 11 (10/114)
14070	Domestic Building	Post-medieval	538028	LB Grade II (15/97)
15836	Find	Unknown	55420238	
15837	Pits and boundary ditches with residual Romano- British Pottery	Medieval	53730268	

# **Constraints Area**

Constraint Area	Description
SP50SW/019	Sandford-on-Thames historic core
SP50SW/020	Sandford-on-Thames shrunken medieval village
SP50SW/027	Roman kilns
SP50SW/028	Pre-Roman finds
SP50SW/029	Pre-Roman finds
SP50SE/002	Roman pottery
SP50SE/006	Roman road

# Listed Buildings Entries

## Littlemore Parish

Ref No.	Address	Grade	Description
15/97	College Lane (North Side) The College	11	Home of Religious community, now cottages and museum. Late C18/early C19th. SMR 14,070
15/98	College Lane (South Side) Charity Farm Cottage	II	Farmhouse, now house early mid C17.
15/99	Cowley Road. (East Side) Church of SS Mary & Nicholas	[]*	Church 1836, tower and chancel 1848. SMR 11,353
15/104	Railway Lane (South Side) Barn attached to Beenhams	11	Barn. c1700 (probably).
15/105	Sandford Road (East Side) No. 7 (old house)	11	House, early C18, possibly earlier.
15/106	Sandford Road (East Side) Littlemore Hospital	11	County Lunatic Asylum. 1846, enlarged 1847 and 1852. SMR 6749
15/107	Sandford Road (West Side) Corpus Christi Farmhouse	11	Farmhouse - now house C17.
15/108	Sandford Road (West Side) Manor House and Campion Cottage	11	Manor House, now 2 houses, possibly C15. Remodelled late C17/carly C18.

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### Sandford on Thames Parish

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Ref No.	Address	Grade	Description
1/109	Minchery Farmhouse	1[*	Farmhouse, now public house. C15 dormitory range. PRN 1434
10/110	Temple Farmhouse	11	Farmhouse, now country club. C16th (possibly earlier) and C18 reconstructed c.1900. PRN 1,433
10/111	Temple Farmhouse, barn and farm building approximately 15 metres S	TI	Barn and farm building, now hall and studio. C18 with C15 elements. PRN 1.433
10/112	Temple Farmhouse, doorway and wall approximately 40m north	11	Doorway and wall doorway date 1614.
10/113	Church Road (North Side) Church of St Andrew	11*	Church late C11 and C13 restored and enlarged in C19th. PRN 5.994
10/114	Church Road (North Side) Basimore Cottage	11	House, early-mid C17th. PRN 12,598
10/115	Church Road (South Side) Nos. 3 and 8 (Consecutive River view)	II	Terrace of 6 cottages c.1825.
10/116	Henley Road (East Side) Sandford House	II	House, probably late C17th.
10/117	Henley Road (West Side) The Catherine Wheel	Į	Public house late C18/early C19th.

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