

Written Scheme of Investigation

Lickers Lane, Whiston, Merseyside

Countryside Partnerships – Merseyside and Cheshire West Ltd Ltd

September 2023

Draft - not for planning

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Written Scheme of Investigation:

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Contents

1	INTRODUCTION	1
1.2	PLANNING BACKGROUND	1
2	BACKGROUND	2
2.1	SITE DESCRIPTION	2
2.2	GEOLOGY AND SOILS	2
2.3	ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	3
3	RESEARCH DESIGN	5
3.1	AIMS AND OBJECTIVES	5
3.2	RESEARCH FRAMEWORK	5
4	PROFESSIONAL STANDARDS AND GUIDANCE	6
5	ARCHAEOLOGICAL TRIAL TRENCHING	7
5.1	PROJECT INITIALISATION	7
5.2	METHODOLOGY	7
5.3	FINDS	8
5.4	PALAEOENVIRONMENTAL SAMPLING STRATEGY	9
5.5	HUMAN REMAINS	9
5.6	SCIENTIFIC DATING	10
5.7	STRATEGY REVIEW	10
6	POST-EXCAVATION ASSESSMENT	11
6.2	FINDS	11
6.3	ENVIRONMENTAL SAMPLE PROCESSING AND ASSESSMENT	11
6.4	HUMAN REMAINS PROCESSING	11
6.5	CONSERVATION	12
7	REPORTING	13
8	ARCHIVING, DATA MANAGEMENT, AND PUBLICATION	14
8.1	INTRODUCTION	14
8.2	ARCHIVE CONTENT	14
8.3	DATA MANAGEMENT	15
8.4	PUBLICATION	15
9	OTHER MATTERS	16
9.1	TIMETABLE	16
9.2	STAFFING	16
9.3	INSURANCE	16
9.4	HEALTH AND SAFETY	16

9.5	COPYRIGHT AND PUBLICITY	17
10	BIBLIOGRAPHY	18

List of Figures

Figure 1. Location plan

Figure 2. The application site and six 30m x 2m trenches overlaid on to geophysical survey interpretation

Figure 3. The application site and six 30m x 2m trenches, services and 10m buffer, Phase II GI locations and root protection areas overlaid on to satellite imagery

Appendices

APPENDIX 1 GEOPHYSICAL SURVEY RESULTS

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1 Introduction

- 1.1.1 This Written Scheme of Investigation (WSI) has been prepared by Lanpro on behalf of Countryside Partnerships – Merseyside and Cheshire West Ltd and details the methodology for undertaking a scheme of archaeological investigation of c. 2.5ha of land south of Lickers Lane, Whiston, Merseyside, with the site forming part of the wider Halsnead Garden Village masterplan (centred at NGR SJ 47510 90372; Figure 1).
- 1.1.2 The scope of the evaluation has been informed by an historic environment desk-based assessment (Lanpro 2023), which includes the results of a geophysical survey (ASWYAS 2023, Figure 2 and Appendix 1) and phase II geoenvironmental site assessment (E3P 2023) and has been agreed in consultation with the Merseyside Environmental Advisory Service (MEAS) Planning Archaeologist.
- 1.1.3 The archaeological evaluation will comprise a programme of trial trenching to establish the presence or absence of buried archaeological remains and their nature, date, extent and significance. The results of the evaluation will be used to inform decisions on the need for contingencies including extensions to any of the initial trenches and further investigation.

1.2 Planning Background

- 1.2.1 A planning application (Ref. 22/00600/FUL) has been submitted to Knowsley Council for the *'erection of 120 no. dwellings with 1 no. associated vehicular access off Lickers Lane and other associated works.'* Prior to this, a Scoping Opinion (Ref, 22/00393/SO) was provided by the Council on 18th August 2022.
- 1.2.2 Following issue of the Scoping Opinion, an Environmental Impact Assessment (EIA) was undertaken in September 2022, the findings of which are set out in an Environmental Statement (ES) (Barton Willmore 2022). Chapter 9 was produced by Lanpro and was informed by a historic environment desk-based assessment (HEDBA), revised in 2023 to incorporate the results of a geophysical survey and phase II geoenvironmental site assessment. This chapter solely dealt with built heritage and considered direct and indirect effects of the proposed development on the historic environment of the area. Impacts to below-ground archaeological remains was scoped out of the ES.
- 1.2.3 Whilst the planning application has not yet been decided, a programme of evaluation comprising six trenches measuring 30m x 2m has been agreed with the MEAS Planning Archaeologist (Figure 2). A contingency for the extensions of evaluation trenches has also been agreed where necessary, should significant archaeological remains be encountered.
- 1.2.4 This WSI provides a detailed methodology for undertaking the programme of archaeological evaluation work and contingency across the application site. In the first instance, the evaluation is aimed at identifying, recording and sampling any archaeological features that may be present, and assessing the need for further investigation as required. Should further investigation be required, this will be dealt with in a separate WSI.

2 Background

2.1 Site Description

- 2.1.1 The application site is an irregular shape and comprises approximately 2.5ha of open green space (centred at NGR SJ 47510 90372; Figure 1). The northern part of the application site is bounded by Lickers Lane, which lies as the southern edge of the town of Whiston, Knowsley. The eastern and southern parts of the application site are bounded by agricultural fields, whilst the western part is bounded by open green space and some scattered trees. Primary access to the site is obtained from Lickers Lane in the north.
- 2.1.2 The topography of the application site is undulating with gentle rises and slopes, rising slightly from the east towards the west, then dipping down again towards the tree-lined boundary screening the area from Windy Arbor Road. The site as a whole is well screened to the north, north-east and west, with the southern boundary of the site showing views across the former Halsnead Park and glimpsed views of the M62 to the south.
- 2.1.3 There are two services within the site boundary, an overhead powerline (OHP) running along the west boundary and a buried service following a diagonal path through the south-east corner of the site. A buffer zone around these has been imposed (Figure 3) and no trenches shall be opened in these areas. A number of root protection areas (RPA) around trees subject to Tree Preservation Orders (TPO) are present within the site boundary (Figure 3) as outlined in an Arboricultural Impact Assessment and Method Statement (E3P 2022). No trenches shall be opened in these areas.

2.2 Geology and Soils

- 2.2.1 The recorded bedrock geology within the majority of the application site consists of sandstone of the Kinnerton Sandstone Formation, with an area of mudstone, siltstone and sandstone of the Pennine Middle Coal Measure Formation extending into the western part of the site. A small area of Pemberton Rock sandstone extends into the north-western boundary of the application site. This is all overlain by superficial deposits of Devensian Till – Diamicton (BGS 2023).
- 2.2.2 The soils of the study site comprise slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (CSAI 2022).
- 2.2.3 The phase II geoenvironmental site assessment works, carried out in two phases in September 2021 and April 2023, included 23 mechanically excavated trial pits, 12 window sample boreholes, 12 soakaway locations, and six rotary open holes (Figure 2). These intrusive ground investigations recorded the following ground conditions within the application site (E3P 2023):
- **Made Ground:** 0.00m – 0.40m BGL *only within TP115;*
 - **Topsoil:** 0.00m – 0.60m BGL *dark grey to black slightly clayey, gravelly sand with frequent rootlets. Gravels were made up to fine to medium subrounded to rounded of mudstone and sandstone;*
 - **Drift:** 0.20m – 2.60m BGL *ground conditions consisted of granular medium dense gravelly sand becoming dense at depth within weathered sandstone. Clay deposits were identified within the central northern sector of the site which comprised of firm to stiff medium to high strength gravelly clays;*
 - **Solid:** 0.9m – 40.0m BGL *sandstone bedrock.*

2.3 Archaeological and Historical Background

- 2.3.1 The following historical background is a summary of the findings from the HEDBA submitted with the planning application (Lanpro 2023). The location of pertinent heritage assets is provided on Figure 1.
- 2.3.2 Whiston is thought to have early-medieval origins, although this is largely based on place-name evidence rather than physical remains. *Quistan* is first recorded on a 1190 grant contained within the *Chartulary of Cockersand Abbey*, which documents a grant from Henry Travers of two shillings in yearly rent to the Abbey, paid out of his mill in *Quistan* (Farrer 1900, 603-4). The name itself is thought to mean ‘white stone’, likely in reference to a conspicuous white stone within the area (Mills 2011, 494). Halsnead is recorded in 13th century texts, with the latter part of this name deriving from the Old English *snæd*, or ‘small piece of land’. The earliest recorded form of this name, *Grewinton Halfsnede*, indicates that Halsnead likely once formed part, or half, of Cronton to the south (Ekwall 1922, 108).
- 2.3.3 The vill (a ‘vill’ is the smallest administrative unit under the feudal system) of Halsnead, as recorded in the 13th century, is thought to have been located within Halsnead Park, with the boundaries being given as east at the Wiggallache, which was the boundary between Halsnead and Rainhill, and following the syke to Longleigh Brook in the south; along this to the Spital House in the west, and following into the Deep Clough as far as the Casselache in the north; thence by the Hecseptese Gate to the cross upon the waste (Farrer and Brownbill 1907).
- 2.3.4 Throughout the medieval and post-medieval periods, the ownership of both Whiston and Halsnead changed a number of times, with Thomas Willis, a merchant from Liverpool, purchasing the Halsnead estate in 1684. As noted above, the exact origins of Halsnead Park are uncertain. Early-18th century leases document enclosed fields occupying the western and south-western areas of the known parkland, suggesting that this part of the site may have been emparked.
- 2.3.5 It would appear that upon his purchase of the Halsnead Estate, Thomas Willis had commissioned the construction of Halsnead Hall as his main residence. This Hall was partially rebuilt in 1727 by Daniel Willis, a descendant of Thomas Willis, with this rebuilt portion comprised a ‘pedimented central feature, set slightly forward, flanked by narrow wings’, built of local red sandstone, leading to the structure being known as the ‘Red Hall.’ Yates’ 1786 *Survey of the County Palatine of Lancaster* is the earliest available plan which shows this area in any detail. Whilst no park is specifically identified south of Whiston, the modern boundaries of Halsnead Park follow that of the surrounding roads (e.g. Lickers Lane in the north, Fox’s Bank Lane in the east, Windy Arbor Road in the west, and modern Cronton Road/Dacre’s Bridge Lane in the south), and this road layout is depicted by Yates’ plan. It is likely Halsnead Park exists in full by this period, with the boundaries separated from the surrounding roads by a boundary wall. This plan identifies the ‘Red Hall’ within the centre of this enclosed space, further noting that it is owned by Thomas Willis Esquire.
- 2.3.6 In 1788, the Halsnead Estate passed to Richard Earle, who adopted the Willis name and arms. Upon his inheritance of the estate, the now Richard Willis had the south front of the ‘Red Hall’ redesigned, to the designs of architect Sir John Sloan, with this commission notable for being Sloan’s only design within either Lancashire or Cheshire.
- 2.3.7 Greenwood’s 1818 *Map of the County Palatine of Lancaster* is the first plan to show Halsnead Park as a green, enclosed space, with various belts of woodland providing privacy from the surrounding landscape. The name of the hall appears to have changed to Halsnead sometime in the late-18th/early-19th century, with the house located within the north-central part of the enclosed parkland, accessed from a drive to the east. No features of interest are located within

the application site, though a small pond is depicted immediately adjacent to the north-eastern boundary of the site, one of several depicted throughout the entire parkland.

- 2.3.8 The 1842 *Tithe Plan of the Township of Whiston* is the first map to show Halsnead Park and Whiston in detail. Halsnead Hall is shown in detail to the south-east of the application site, comprised of a main house with a number of outbuildings to the west, and a walled garden with glasshouse. The accompanying tithe apportionment documents that Richard Ellis Esquire owns c. 420ha of the land within the township of Whiston, with c. 207ha of this land occupied by him, including all of Halsnead Park. The application site itself includes parts of four separate plots, with the site largely within plot no. 422 known as North Park. Parts of the north-eastern and western boundary of the application site extend across areas of plantation, with the eastern plantation including an L-shaped pond.
- 2.3.9 The 1850 Ordnance Survey (OS) plan (Figure 4) does not depict any significant changes from the earlier 1842 Tithe plan across Halsnead Park or within the application site. However, it is the first to depict the many collieries and coal pits that began to dot the Whiston landscape. The township of Whiston has been synonymous with coal mining since the 16th century, with a number of shafts sunk within the area throughout the post-medieval period, with Halsnead Colliery, Stank Colliery, and Hig Hey Colliery all present to the west of Halsnead Park by the 1850 OS plan, with a coal pit also shown c. 430m west of the application site. The 1891 OS plan does not depict any changes within the application site during this period.
- 2.3.10 An 1894 Map of the mine workings at Bug Mine shows the approximate location of mine workings within and outside the extent of Halsnead Park. This plan shows that mine workings may have extended into the western part of the application site, with an 'old shaft' also noted c. 130m west of the application site.
- 2.3.11 There appears to have been little change carried out within the Halsnead Estate during the late-19th/early-20th century as indicated by the 1906 OS plan. In 1913, the Willis family leased the southern part of Halsnead Park to the Hulton Colliery Company for Cronton Colliery. The new Cronton Colliery is first depicted on the 1925 OS plan, with coal extraction carried out within this complex for the next 70+ years.
- 2.3.12 In 1929, the Halsnead Estate and other lands owned by the Willis family were sold in lots by auction, including Halsnead Hall, Princes House, and Sandfield House. Consequently, the parkland and application site underwent several gradual changes during the mid-late-20th century. In 1931, Halsnead Hall was demolished and nurseries are now depicted within the eastern half of the park, with the eastern and southern edges of the application site falling within the northernmost nursery.
- 2.3.13 OS plans indicate that the application site continues to fall within the boundaries of the Halsnead Park Nursery until the early 1990's. Aerial imagery from 1945 – 1962 indicates that the nursery extended into the entire centre of the application site by 1962, with the site subdivided into a number of smaller plots. Modern aerial imagery shows that relic landscape features relating to the former nursery (e.g. pathways and boundaries) still survive within the landscape to the south and east, and whilst not visible within the application site boundary, may still be present as ephemeral features below-ground.

3 Research Design

3.1 Aims and Objectives

3.1.1 The overall aim of the evaluation trenching will be to obtain sufficient information to establish the presence/absence, character, extent, state of preservation and date of any archaeological deposits within the area of the proposed development. This will allow reasoned and informed recommendations to be made regarding the scope of further mitigation, which would be agreed with the MEAS Planning Archaeologist.

3.1.2 This will be achieved through the following objectives:

- To establish the spatial extent, date, character, condition and significance of any archaeological remains within the development site outlined for evaluation;
- To excavate and record identified archaeological features and deposits to a level appropriate to their extent and significance;
- To assess vulnerability/sensitivity of any exposed remains;
- To assess the impact of previous land use on the site;
- To assess the potential for survival of palaeoenvironmental evidence;
- To inform a strategy to avoid or mitigate impacts of the proposed development on surviving archaeological remains;
- To undertake sufficient post-excavation assessment to confidently interpret identified archaeological features;
- To undertake sufficient post-excavation assessment of artefacts and palaeoenvironmental samples to interpret their significance;
- To report the results of the archaeological works and post-excavation assessments, and analysis if required, and place them in their local, regional or national context and;
- To compile and deposit a site archive with National Museums Liverpool (NML), if required, and to provide information to the Merseyside HER to ensure the long-term survival of the excavated data.

3.2 Research Framework

3.2.1 The programme of archaeological investigation has the potential to contribute to research priorities identified in the *Updated North West England Regional Research Framework* (NWERRF; RF 2023). Specifically, the following research questions will look to be addressed, based on a high-level evaluation approach, and should be revised should sub-surface archaeological remains be identified:

- PM19: How can the study of leisure landscaping inform our understanding of the changing landscape in this period?
- PM29: How do the extractive industries develop during this period?

3.2.2 Other research priorities may come to light during the archaeological works and the *NWERRF* (RF 2023) will be revisited both during the fieldwork and post-excavation phases.

3.2.3 The investigation will also take account of the national research programmes outlined in Historic England's *Research Agenda* (Historic England 2017).

4 Professional Standards and Guidance

- 4.1.1 All work will be undertaken to fully meet the requirements of all nationally recognised guidance for such work, including standards laid down by Historic England (formerly English Heritage) and the Chartered Institute for Archaeologists (CIfA).
- 4.1.2 The programme of archaeological investigation will be managed in line with the standards laid down in the Historic England guideline publication *Management of Research Projects in the Historic Environment (MoRPHE): Project Managers Guide* (2015a), as well as to meet the requirements of Chapter 16: 'Conserving and enhancing the historic environment' of the *National Planning Policy Framework* (NPPF; MHCLG 2023). All excavation works will be undertaken using recording standards detailed in the *Archaeological Field Manual* (MoLAS 1994).
- 4.1.3 Guidance of particular relevance to this programme of works are as follows:
- Code of conduct: professional ethics in archaeology (CIfA 2022);
 - Standard and guidance for archaeological field evaluation (CIfA 2020a);
 - Standard and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA 2020b);
 - Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (CIfA 2020c).

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5 Archaeological Trial Trenching

5.1 Project Initialisation

- 5.1.1 Lanpro will inform the MEAS Planning Archaeologist at least one week in advance of the commencement of fieldwork.
- 5.1.2 National Museums Liverpool (NML) will be contacted by the archaeological fieldwork contractor to arrange for the project archive to be created and deposited in accordance with their *Guidelines for the Transfer of Archaeological Archives to the Museum of Liverpool* (NML 2022).
- 5.1.3 Before fieldwork commences an OASIS online record will be initiated by the archaeological contractor and key fields completed on Details, Location and Creator forms.

5.2 Methodology

- 5.2.1 The configuration of the trenches has been agreed with the MEAS Planning Archaeologist and comprises six trenches measuring 30m x 2m (Figure 2). Where necessary, trenches will be extended following consultation between the appointed archaeological contractor, Lanpro and the MEAS Planning Archaeologist.
- 5.2.2 Topsoil across the trenches will be stripped using a mechanical excavator fitted with a 2m wide toothless grading bucket, down to the first archaeological horizon or natural sub-soil.
- 5.2.3 Spoil from mechanical excavation will be scanned by eye and by metal detector to aid the recovery of artefacts, and topsoil and subsoil will be stored separately.
- 5.2.4 All excavation by mechanical excavator will be undertaken under direct archaeological supervision, by a suitably experienced and qualified archaeologist, with one archaeologist responsible for monitoring each excavator. Mechanical excavation will cease at either undisturbed natural deposits or when archaeological deposits are identified.
- 5.2.5 All archaeological features and deposits revealed will be cleaned and excavated in an archaeologically controlled and stratigraphic manner, in order to establish their extent, form, date, function and relationship to other features.
- 5.2.6 All structures, deposits and finds will be recorded according to accepted professional standards. Individual descriptions of all archaeological strata and features exposed or excavated will be entered onto prepared pro-forma recording sheets. Sample recording sheets, sample registers, finds recording sheets, access catalogues, and photo record cards will also be used.
- 5.2.7 Any excavation, by machine or by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits which appear to be demonstrably worthy of preservation in-situ.
- 5.2.8 There will be a presumption of the need to cause the minimum disturbance to the site consistent with adequate evaluation. Significant archaeological features (e.g. solid or bonded structural remains, building slots or postholes), will be preserved intact even if fills are sampled. For linear features, minimum 1m wide slots should be excavated across their width. For discrete features, such as pits, 50% of their fills will be sampled.
- 5.2.9 Metal detector searches will take place at all stages of the evaluation. Metal detecting of trench locations will be carried out before trenches are excavated, with trench bases and spoil scanned once trenches have been opened, in accordance with the Historic England guidance *Our Portable Past. Guidance for Good Practice* (Historic England 2018a). Any metal finds will be located using survey-grade GPS and metal detectors will not be set to discriminate against iron. Metal detecting will also be conducted over the surface of all exposed features before the end of each working day as a countermeasure to 'nighthawking'.

- 5.2.10 Should the excavation of the trenches reach 1m in depth (or limit of safe working depth) without natural geology being encountered, a machine dug sondage will be excavated in order to establish the depth of natural geology. Where depth of excavation is required to be greater than 1m, suitable stepping will be employed.
- 5.2.11 A full written, drawn and photographic record will be made of all features revealed during the course of the archaeological evaluation. The location and extent of archaeological features will be recorded by GPS. Plans will be completed at a scale of 1:20 (as appropriate), with section drawings at a scale of 1:10. All plans will be tied in with the Ordnance Survey National Grid with levels given to above OD. Spot heights and those of individual features will be recorded relative to Ordnance Datum.
- 5.2.12 A digital photographic record of the project will be maintained. Photography will be taken utilising digital SLR or mirrorless cameras of no less than 10 megapixels and in RAW format and will follow the guidance outlined in *Digital Image Capture and File Storage. Guidelines for Best Practice* (Historic England 2015b). This will illustrate the detail and context of the principal features and finds discovered. The photographic record will also include working shots to illustrate more generally the progress of the programme of archaeological works. All images will have accompanying metadata specifying; photo ID, capture device, converting software, colour space, bit depth, resolution, date of capture, photographer, caption, and any alterations made to the image. Images will be converted to uncompressed baseline v.6 TIFF for archiving and JPEG for inclusion in the report.
- 5.2.13 Following excavation and recording of any archaeological remains, and with the agreement of the MEAS Planning Archaeologist, the evaluation trenches will be backfilled with the previously excavated spoil.

5.3 Finds

- 5.3.1 All identified finds and artefacts will be collected and retained, bagged and labelled according to their context. Finds of significant interest will be given a 'small finds' number, and information on their location in three dimensions will be entered on a separate pro-forma sheet. No finds will be discarded without assessment by an appropriate finds specialist and/or the approval of the MEAS Planning Archaeologist.
- 5.3.2 Finds will be exposed, lifted, bagged, conserved and stored in accordance with the guidelines set out in United Kingdom Institute for Conservation's *Guidelines for the preparation of Archives for long-term storage* (UKIC 1990) and the CfA guidelines *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (2020e).
- 5.3.3 If required, conservation will be undertaken by approved conservators in line with the *First Aid for Finds* guidelines (Watkinson and Neal 2001). Significant iron objects, a selection of non-ferrous artefacts (including all coins), and a sample of any industrial debris relating to metallurgy should be X-radiographed before assessment.
- 5.3.4 The terms of the Treasure Act 1996, as amended, and the Treasure (Designation) Order 2002 will be followed with regard to any finds that might fall within its purview. All finds of gold and silver, and associated objects, will be reported to the coroner according to the procedures relating to the Treasure Act 1996 (and the act's amendment of 2003 to include prehistoric objects such as Bronze Age metalworking hoards and other non-precious metal items), after discussion with the client, the MEAS Planning Archaeologist and the Portable Antiquities Finds Liaison Officer. Any finds of gold and silver will be moved to a safe place. Where removal cannot be undertaken immediately, suitable security measures will be taken to protect the artefacts from theft or damage.

- 5.3.5 Ownership of any finds recovered during archaeological works rests with the landowner except where other law overrides this (e.g., Treasure Act 1996, Burial Act 1857). However, Lanpro will seek to obtain 'in principle' agreement from the landowner to donate the recovered artefacts to National Museums Liverpool.

5.4 Palaeoenvironmental Sampling Strategy

- 5.4.1 Where possible, soil samples will be taken from all suitable features or deposits for palaeoenvironmental sampling. This will comprise the removal of a bulk sample from every securely sealed and hand-excavated context, excepting those with excessive levels of residuality or those with minimal 'soil' content (such as building rubble).
- 5.4.2 Bulk samples will comprise representative 40 litre samples. Where a context does not yield 40 litres of material, smaller samples will be taken (generally the maximum amount of material practicable to collect). Bulk samples will be used to recover a sub-sample of charred macroplant material, faunal remains and artefacts where necessary, as well as any industrial residues.
- 5.4.3 If buried soils or other deposits are encountered, column samples may be taken for micromorphological and pollen analysis. Environmental material will be stored in a controlled environment and specialists consulted during the course of the work if necessary.
- 5.4.4 All environmental work will be undertaken in line with the requirements of *Environmental Archaeology: A guide to the theory and practice of methods from sampling and recovery to post-excavation* (Campbell *et al.* 2011).

5.5 Human Remains

- 5.5.1 The discovery of human remains is not anticipated during the evaluation fieldwork. However, should these be encountered then the archaeological contractor must contact the Ministry of Justice for an appropriate licence and the MEAS Planning Archaeologist will be informed. The contractor will comply with all statutory consents and licences under the Disused Burial Grounds (Amendment) Act, 1981 or other Burial Acts regarding the exhumation and interment of human remains.
- 5.5.1 If human remains are encountered, they will be cleaned with minimal disturbance, prior to recording and removal, following receipt of the required Ministry of Justice licence. Investigation and excavation of human remains will be undertaken by, or under supervision of, suitably experienced specialist staff and in accordance with the Advisory Panel on the Archaeology of Burials in England (APABE) and English Heritage guidance *Science and the dead: A Guide for the Destructive Sampling of Archaeological Human Remains for Scientific Analysis* (APABE/EH 2013) and *Guidance for Best Practice for the Treatment of human Remains Excavated from Christian Burial Grounds in England (2nd Edition)* (APABE/English Heritage 2017) and the *Updated Guidelines to the Standards for Recording Human Remains* (Mitchell and Brickley 2017). Assessment of excavated human remains will be undertaken in line with *Human Bones from archaeological sites: Guidelines for the production of assessment documents and analytical reports* (English Heritage 2004).
- 5.5.2 The archaeological contractor will comply with all reasonable requests of interested parties as to the method of removal, re-interment or disposal of the remains or associated items. Every effort will be made, at all times, not to cause offence to any interested parties.
- 5.5.3 If required a qualified and experienced osteoarchaeologist will undertake site visits to discuss the recording and assist in the removal of any human skeletal remains (Historic England 2018b).

5.6 Scientific Dating

- 5.6.1 Provision will be made to recover material suitable for radiocarbon, archaeomagnetic, dendrochronological and other scientific dating. Where material suitable for dating is recovered, sufficient dating will be undertaken to meet the aims of the evaluation.

5.7 Strategy Review

- 5.7.1 The strategy for the archaeological fieldwork will be held under continuous review. Should the strategy be considered unsuitable at any time by Lanpro or the appointed archaeological contractor, an alternative strategy will be proposed for agreement with the MEAS Planning Archaeologist.

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6 Post-Excavation Assessment

- 6.1.1 Upon completion of the archaeological fieldwork, artefacts, soil samples and stratigraphic information will be assessed for their potential and significance for further analysis if required and the relevant parties notified accordingly. A report will be produced within 4-6 weeks following completion of the archaeological fieldwork which will be used to inform any further mitigation work.

6.2 Finds

- 6.2.1 Finds will be cleaned, conserved, marked, bagged and stored in accordance with the guidelines set out in the United Kingdom Institute for Conservation (UKIC) *Guidelines for the preparation of Archives for long-term storage* (UKIC 1990), *First Aid for Finds* (Watkinson and Neal 2001) and the ClfA *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (ClfA 2020e).
- 6.2.2 In accordance with appropriate guidance, including Historic England's *Archaeometallurgy: Guidelines for best practice* (Historic England 2015d) and *Guidelines on the X-radiography of archaeological metalwork* (English Heritage 2006), significant iron objects, a selection of non-ferrous artefacts (including all coins), and a sample of any industrial debris relating to metallurgy will be X-radiographed before issue of the final report.
- 6.2.3 All material will be packed and stored in optimum conditions, as described in *First Aid for Finds* (Watkinson and Neal 1998). Any waterlogged organic materials will be dealt with in line with the English Heritage guidance documents, *Waterlogged Organic Artefacts. Guidelines on their Recovery, Analysis and Conservation* (2018c) and *Waterlogged Wood. Guidelines on the recording, sampling, conservation and curation of waterlogged wood* (2010).
- 6.2.4 The preservation state, density and significance of material retrieved will be assessed, following *Environmental Archaeology: A guide to the theory and practice of methods from sampling and recovery to post-excavation* (Campbell et al. 2011).
- 6.2.5 Any finds for dating will be submitted to specialists promptly, so as to ensure that results are available to aid development of a project design for the analysis stage, if required.

6.3 Environmental Sample Processing and Assessment

- 6.3.1 The processing of any palaeoenvironmental samples will be undertaken in line with the guidelines issued by *Environmental Archaeology: A guide to the theory and practice of methods from sampling and recovery to post-excavation* (Campbell et al. 2011).
- 6.3.2 The samples will be processed, and ecofacts collected and assessed with regard to the potential for detailed analysis of pollen, charred plant macrofossils, land molluscs, faunal remains (including small mammals and fish) and soil micromorphology. Samples suitable for radiocarbon, or other dating methods, will also be identified.
- 6.3.3 The environmental assessment will be reported within the overall post-excavation assessment report for all phases of investigation and include proposals for full analysis if required. Unprocessed sub-samples will be stored in conditions specified by the appropriate specialists. Samples for dating will be submitted to specialists promptly, so as to ensure that results are available to aid development of the project design for any further analysis stage if required.

6.4 Human Remains Processing

- 6.4.1 If discovered, human remains will be processed following national standards and guidance, including English Heritage (2004), Mitchell and Brickley (2017) and the Church of England/Historic England (2017). Processing will be undertaken by experienced specialists

trained in the identification of human remains and who are familiar with delicate areas of the skeleton that need careful preservation, important areas required for an individual identification (e.g. age and sex) as well as potentially pathologically altered bones.

6.4.2 Where specialist processing may be required, for example where samples may be required for DNA analysis, specialist advice will be sought to minimise potential contamination. The human remains will be placed in breathable bags and labelled and boxed protected by polyethylene 3mm foam sheeting and in line with any specific archive requirements.

6.4.3 Cremation burials will be processed by removing the fill of the vessel in 5 to 10mm spits, recording the distribution and density of the bone per spit following guidance by Mitchell and Brickley (2017). Fills will be wet sieved over a 1mm mesh with retrieval of burnt bone, pyre debris such as charcoal and botanical remains, and the remains air-dried and hand-sorted.

6.5 Conservation

6.5.1 If required, conservation will be undertaken by approved conservators in line with the *First Aid for Finds* guidelines (Watkinson and Neal 1998). Material considered vulnerable will be selected for stabilisation after specialist recording. Where intervention is necessary, consideration must be given to possible investigative procedures (e.g. glass composition studies, residues in or on pottery, and mineral-preserved organic material).

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7 Reporting

7.1.1 As a minimum the final fieldwork report shall contain the following information:

- A title page, with the name of the project, the name of the author(s) of the report, the title of the report and date of the report;
- A non-technical summary of the scope, methodology and results of the work;
- Introduction which includes site code/project number, dates when the fieldwork took place and grid reference;
- Description of the topography and geology of the site;
- Description of the archaeological background to the site;
- Description of the aims, methodology and extent of fieldwork completed;
- Factual assessments of stratigraphic, artefactual and environmental evidence;
- An assessment of the archaeological potential of the stratigraphic, artefactual and environmental records;
- Proposed programme for further analysis and reporting if required, including the identification of specialists;
- Discussion and conclusions;
- Details of archive location and destination (with the museum accession number), together with a catalogue of what is contained in that archive;
- Copy of the OASIS entry form and any entry updates;
- Appendices, illustrations and figures, as appropriate; and
- References and bibliography of all sources used.

7.1.2 A draft copy of the report will be provided to the MEAS Planning Archaeologist within 4-6 weeks of completion of the fieldwork in PDF format for comment.

7.1.3 Following approval, a copy of the final report will be produced and submitted to the Merseyside Historic Environment Record (HER) in a PDF/A or hard copy format as required.

8 Archiving, Data Management, and Publication

8.1 Introduction

- 8.1.1 The appointed archaeological contractor will contact National Museums Liverpool in advance of commencing the archaeological works to determine the preparation, and deposition of the archive and finds, and obtain an accession number for all archaeological works.
- 8.1.2 The landowner will be encouraged to transfer ownership of the finds recovered during the archaeological fieldwork to National Museums Liverpool.
- 8.1.3 Adequate resources will be provided during fieldwork to ensure that records are checked and internally consistent. Archive consolidation will be undertaken immediately following the conclusion of fieldwork and will include the following work:
 - the site records will be checked, cross-referenced and indexed as necessary;
 - all retained finds will be cleaned, conserved, marked and packaged in accordance with all professional guidelines;
 - all retained finds will be assessed and recorded using pro forma recording sheets, by suitably qualified and experienced staff. Initial artefact dating will be integrated within the site matrix; and
 - all retained environmental samples will be processed by suitably experienced and qualified staff.

8.2 Archive Content

- 8.2.1 The archive will be prepared in accordance with the guidelines detailed in *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (ClfA 2020f). The preparation of the archive will also be informed by the *Guidelines for the preparation of Excavation Archives for long-term storage* (UKIC 1990), *Selection, Retention and Dispersal of Archaeological Collections, Guidelines for use in England, Wales and Northern Ireland* (SMA 1993), *Standards and Guidance in the Care of Archaeological Collections* (SMA 2020), and in accordance with National Museums Liverpool (2022) *Guidelines for the Transfer of Archaeological Archives to the Museum of Liverpool*.
- 8.2.2 The archive will consist of paper records and digital data, as well as finds and samples as selected. Provision will be made for the stable storage of paper records and their long-term storage. Not all material collected or created during the course of the works will require preservation in perpetuity, and the final contents of the archive will be subject to selection prior to the accession of the archive to National Museums Liverpool, in line with a Selection Strategy to be agreed with these institutions, the client and the MEAS Planning Archaeologist.
- 8.2.3 The selected contents of the archive will be appropriate to establish the significance of the project and support future research, outreach, engagement, display and learning activities. Selection will be focused on selecting what is to be retained to support these future needs. Methods for disposing of de-selected material will be agreed with the landowner and other relevant stakeholders.
- 8.2.4 An OASIS form will be completed for the archaeological work and an PDF electronic copy of the final reports will be deposited with the ADS.

8.3 Data Management

- 8.3.1 A Data Management Plan will be created and managed by the appointed archaeological contractor on commencement of the archaeological works, which will outline the strategy for the sharing and preservation of the project's digital data.
- 8.3.2 The Data Management Plan will be produced in line with *Dig Digital Toolkit* (Historic England *et al.* 2019) and guidance produced by the ADS (2023), and will include;
- Details of data that will be generated during the work;
 - Type of file formats to be used (e.g. .doc, .pdf., .dwg., .shp, etc.);
 - Methods of data collection or capture (e.g., GPS/Total Station/digitising hard copies);
 - File naming conventions (e.g., ADS naming conventions);
 - Metadata, standards and quality assurance measures;
 - Plans for sharing data;
 - Ethical and legal issues or restrictions on data sharing (e.g., client confidentiality etc.);
 - Copyright and intellectual property rights of data;
 - Data storage and back-up measures;
 - Data management roles and responsibilities; and
 - Costing or resources needed (ADS archiving costs etc.).
- 8.3.3 The digital archive will be produced using industry standard file formats, with a clear file structure that allows these to be easily shared with all stakeholders and allows the data to continue to be preserved and shared with the public through, for example, the Merseyside HER.
- 8.3.4 Any spatial data generated will also be submitted to the Merseyside HER in a suitable GIS format.
- 8.3.5 The data comprising the digital archive will comply with the English Heritage (now Historic England) guidance *MIDAS Heritage; the UK Historic Environment Data Standard* (English Heritage 2012).
- 8.3.6 It is anticipated that the repositories to which the digital archive are submitted (e.g., Merseyside HER/ADS) will have in-house Data Management Plans to allow for the long-term preservation of the digital archive data, including plans for data back-up and migration to new digital formats as these emerge.

8.4 Publication

- 8.4.1 A short (c. 300 word) summary of the project results will be sent through to the editor of *Post Medieval Archaeology* for inclusion in their annual round-up of fieldwork, with a copy forwarded to MEAS. Should the results of the evaluation be negative, the summary will just include the site location and date of fieldwork according to the publication guidelines.
- 8.4.2 Should significant archaeological remains be identified during the archaeological works, provision will be made for publication within an appropriate journal, depending upon the specific results of the investigation works. This could include a summary report with, if appropriate, selected drawings, illustrations and photographs, with the final form of the publication to be agreed with the MEAS Planning Archaeologist and the client.

9 Other Matters

9.1 Timetable

- 9.1.1 The timetable for the fieldwork will be determined upon appointment of the archaeological contractor.
- 9.1.2 MEAS will be provided with at least one week's notice in advance of the commencement of fieldwork.
- 9.1.3 MEAS will monitor implementation of the programme of archaeological works on behalf of Knowsley Council and evaluate the works being undertaken on site against the methodology detailed in this WSI and will be afforded the opportunity to inspect the site and all records of the appointed archaeological contractor at any stage of the work.

9.2 Staffing

- 9.2.1 The Project Manager for the proposed works will be Karl Taylor (Technical Director, Lanpro), on behalf of Countryside Partnerships – Merseyside and Cheshire West Ltd.
- 9.2.2 The appointed sub-contractor will be confirmed in advance of the fieldwork commencing and CVs can be provided to relevant interested parties.

9.3 Insurance

- 9.3.1 The archaeological sub-contractor will produce evidence of Public Liability Insurance to the minimum value of £5m and Professional Indemnity Insurance to the minimum of £5m.

9.4 Health and Safety

- 9.4.1 The management of all health and safety on site will be the responsibility of the appointed principal contractor. All works will be undertaken by the contractor in compliance with the Health and Safety at Work Act (1974) and all applicable regulations and Codes of Practice.
- 9.4.2 All archaeological staff will undertake their operations in accordance with safe working practices and will be CSCS certified. At least one First Aider will be present on site at all times. A site-specific risk assessment will be produced by the appointed archaeological contractor, prior to the commencement of work on site, which will be subject to regular review.
- 9.4.3 Suitable Personal Protective Equipment (PPE) and welfare facilities will be provided by the archaeological contractor, including hi-visibility coats/vests, hard hats, safety boots and gloves, as well as safety glasses if required.
- 9.4.4 All staff will receive a health and safety induction prior to starting work on site to be provided by the principal contractor.
- 9.4.5 All areas of excavation will be scanned by the groundwork contractor with a Cable Avoidance Tool (CAT) prior to ground works commencing. Necessary measures will be taken to avoid disturbing any services.
- 9.4.6 Regular audits of health and safety practices will be carried out during the course of the project by the archaeological contractor in consultation with the site workforce. Toolbox talks on health and safety issues will be conducted at minimum weekly intervals and/or after changes in working practices or identification of new threats/risks. The risk assessment will be reviewed and updated as necessary. Control measures will be implemented as required in response to specific hazards.
- 9.4.7 Safe working will take priority over the desire to record archaeological features or remains, and following consideration of alternative approaches (including mitigating the risk), if it is

considered that recording is dangerous, any such features will be recorded by photography at a safe distance.

- 9.4.8 Plant operators will be required to produce evidence of qualification within an industry accepted registration scheme. Sub-Contractors health and safety performance will be kept under review and action taken if necessary. All spoil will be stored and managed safely in line with the standards of the *Construction Code of Practice for Sustainable Use of Soils on Construction Sites* (DEFRA 2009).
- 9.4.9 Site welfare accommodation and car parking should be located within the site and the location of these facilities will be agreed between the archaeological contractor, Lanpro and the client in advance of the commencement of work.

9.5 Copyright and Publicity

- 9.5.1 Copyright of the documentation prepared by the archaeological contractor and specialist sub-contractors should be the subject of additional licences in favour of the client and the Merseyside HER to use such documentation for their statutory and educational functions, and to provide copies to third parties as required.
- 9.5.2 Under the Environmental Information Regulations (EIR 2004), information submitted to the HER becomes publicly accessible, except where disclosure might lead to environmental damage, and reports cannot be embargoed as 'confidential' or 'commercially sensitive'.
- 9.5.3 It is recognised that the project may identify remains which are of interest to the public and these may be publicised through appropriate media. Any publicity for the project proposed by the archaeological contractor should be approved by the client in advance.
- 9.5.4 The appointed archaeological contractor will not issue any information on the work through media, internet or social media without prior agreement of the client. Care will be taken to ensure that any publicity does not compromise the security of archaeological remains that may have been identified or recovered. Any approaches by the press to the archaeological contractor should be referred to the client in the first instance.

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Figures

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Application Site

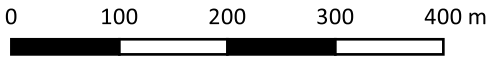


Figure 1. Location Plan

- Application Site
- 30m x 2m Trench

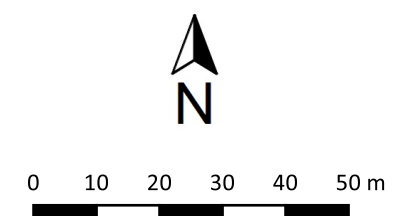
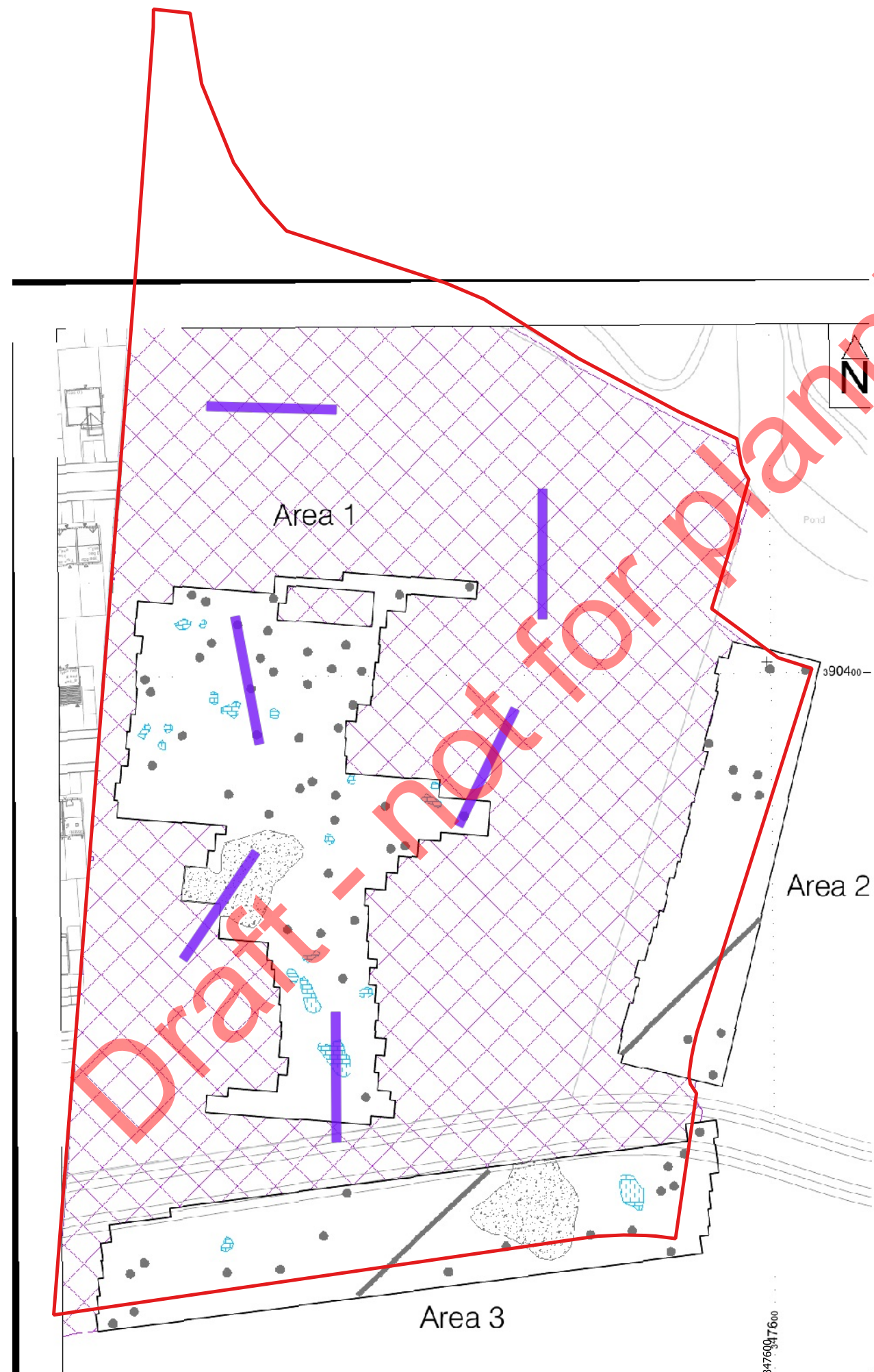
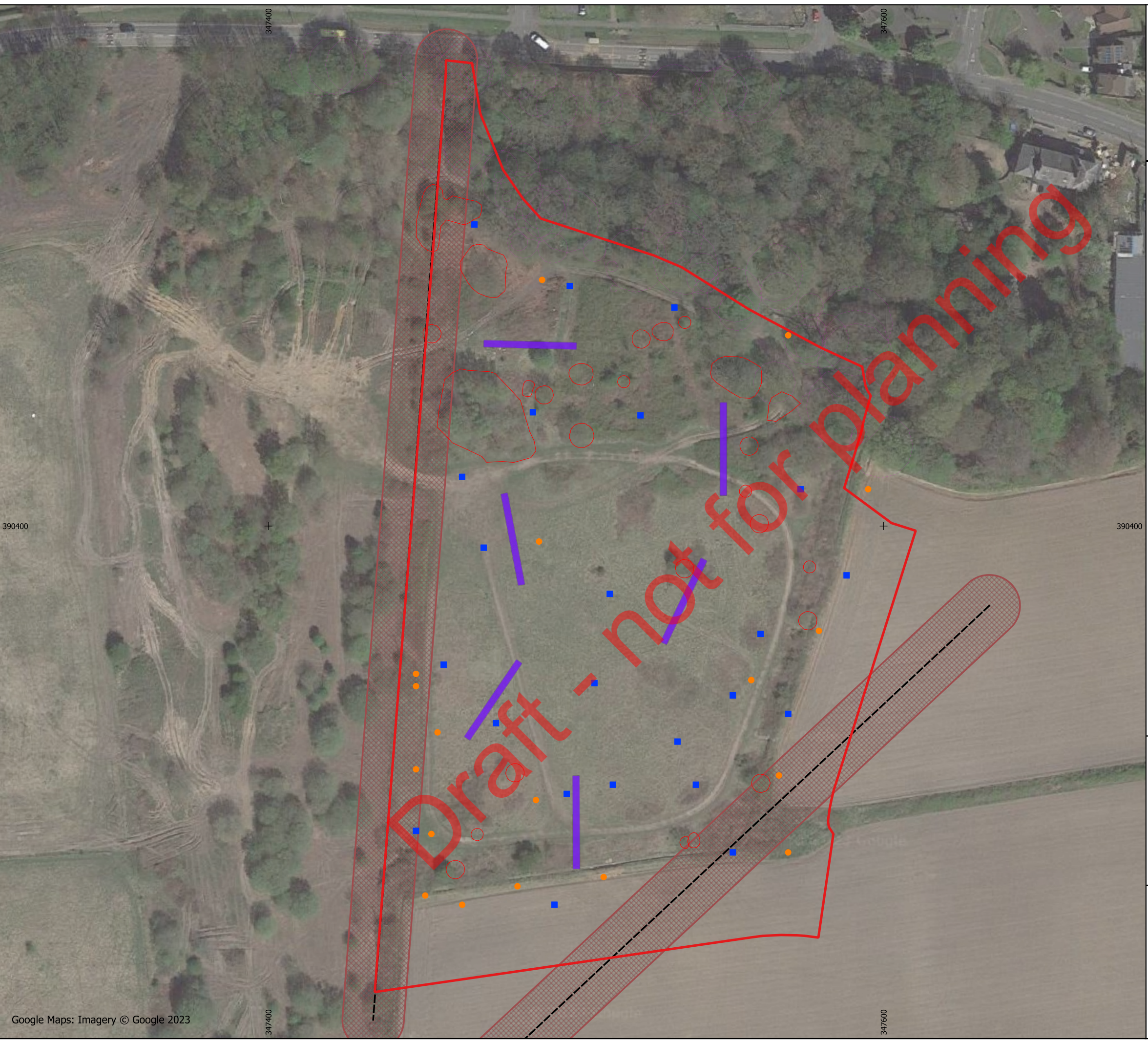


Figure 2. The application site and six 30m x 2m trenches overlaid on to geophysical survey interpretation





-  Application Site
-  30m x 2m Trench
-  Service
-  10m Service Buffer
-  Borehole
-  Trial Pit
-  Root Protection Areas
-  Tree Removals

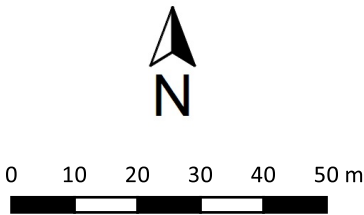


Figure 3. The application site and six 30m x 2m trenches, services and 10m buffer, Phase II GI locations and root protection areas overlaid on to satellite imagery

Appendix 1 Geophysical Survey Results

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Project ID: XI68_HLE23

Processed greyscale magnetometer data

Title

 UNSUITABLE FOR SURVEY

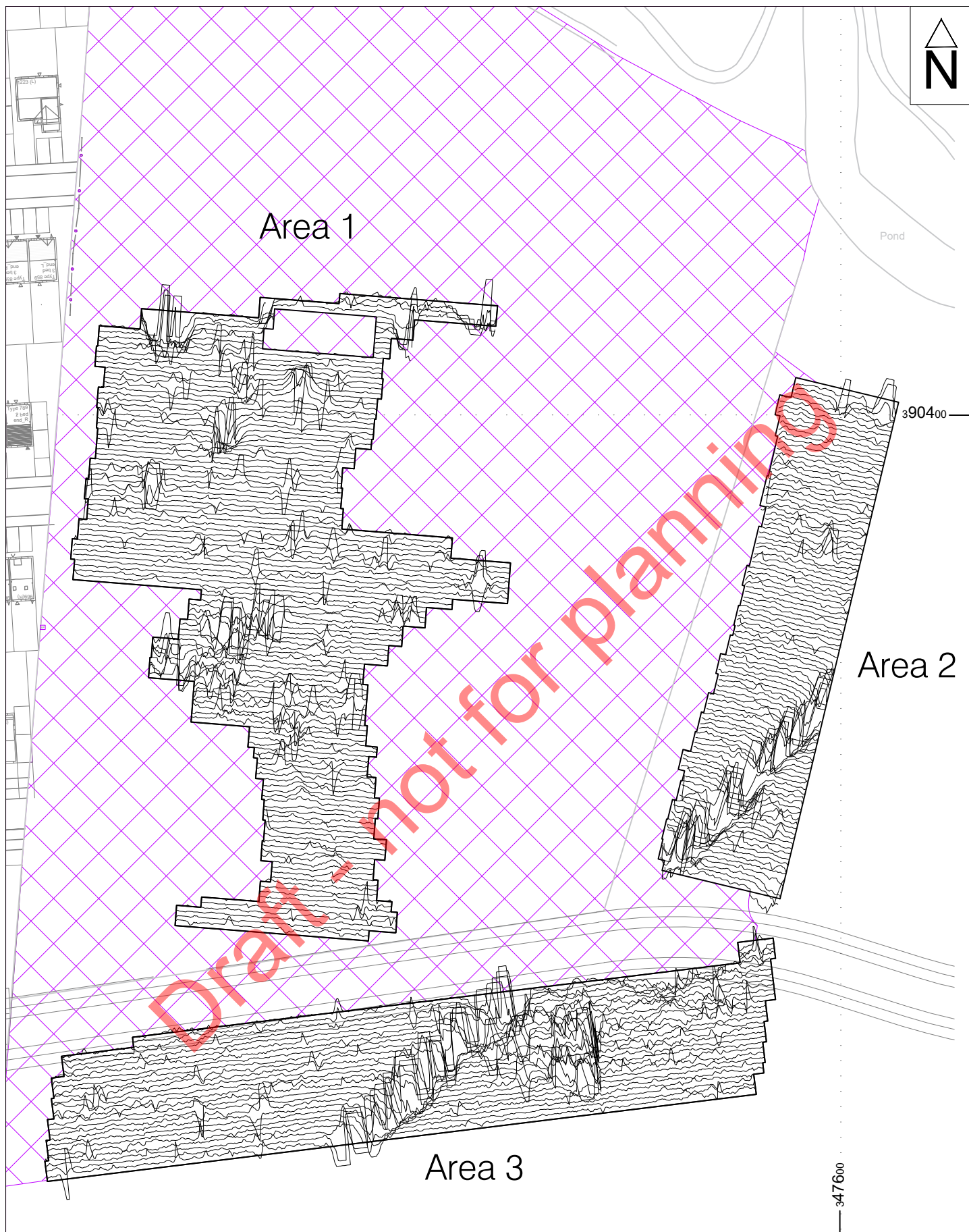


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Fig.3



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Project ID: XI68_HLE23

XY trace plot of minimally processed greyscale magnetometer data

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Fig.4

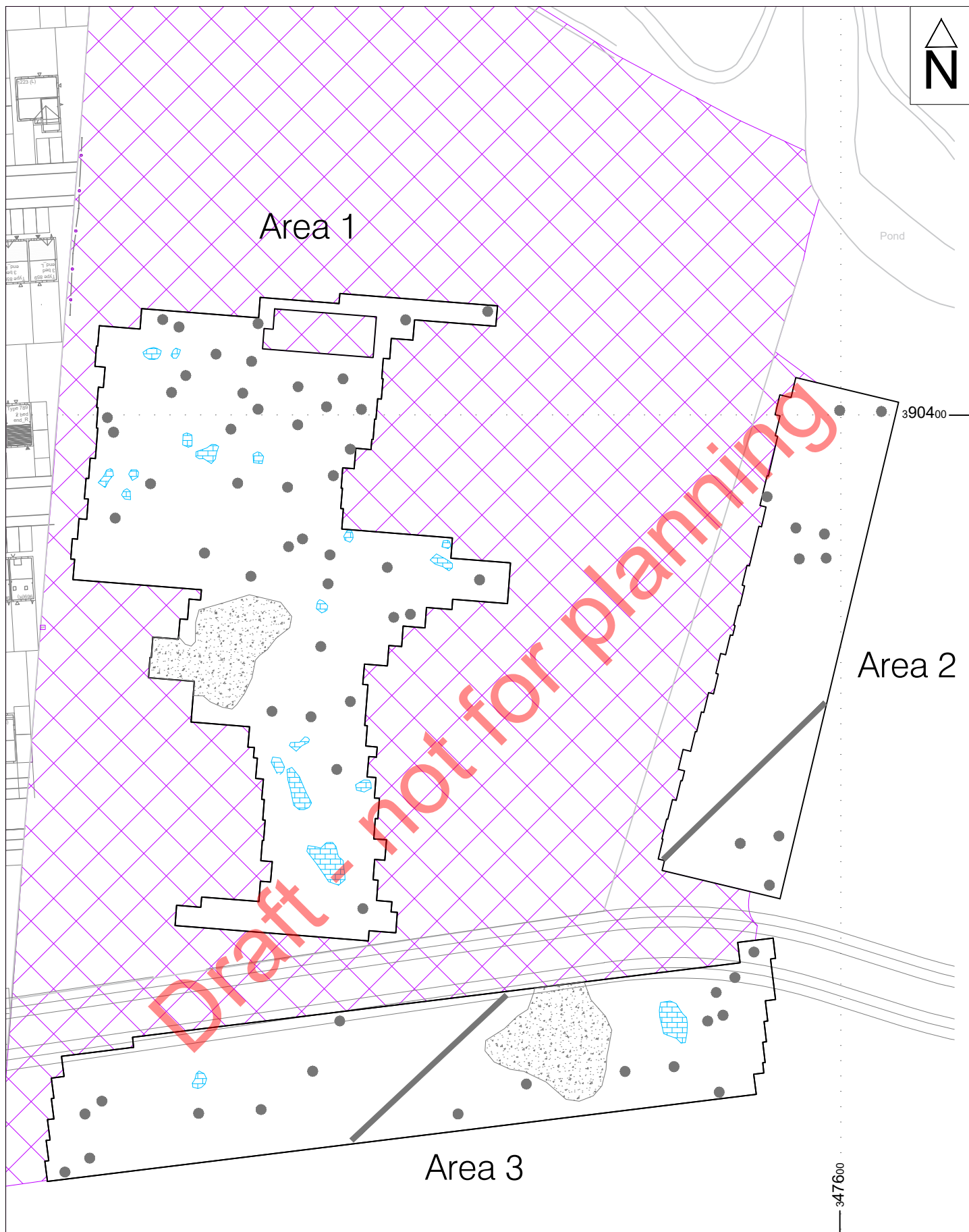
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 UNSUITABLE FOR SURVEY

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Project ID: XI68_HLE23

Interpretation of magnetometer data

Title

 UNSUITABLE FOR SURVEY

Interpretation

 FERROUS	 MAGNETIC DISTURBANCE
 SERVICE PIPE	 GEOLOGY

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Fig.5

