RAF Sealand South Camp, Welsh Road, Flintshire

Archaeological Evaluation Report

November 2020

Client: Crag Hill Estates Limited

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RAF Sealand South Camp, Welsh Road, Flintshire

Archaeological Evaluation Report

Written by Helen Evans

With illustrations by Mark Tidmarsh.

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Summary

Oxford Archaeology (OA) North was commissioned by Crag Hill Estates Limited to undertake a trial trench evaluation at the site of a proposed mixed-use development to the north of Garden City, on the former RAF Sealand South Camp, Welsh Road, Flintshire (NGR SJ 32490 69920). The work was undertaken as a condition of Planning Permission (planning ref. 058990 condition 42) set by Mark Walters, Development Control Archaeologist for Clwyd-Powys Archaeological Trust (CPAT). A Written Scheme of Investigation (WSI) for Plot B was produced by OA detailing the Local Planning Authority's requirements for work necessary to discharge the planning condition. The WSI was the subject of discharge of conditions application 061310, approved by Flintshire County Council 13th July 2020. The fieldwork was undertaken between 7th and 11th September 2020.

The principal aim of the project was to identify whether there were any surviving remains of buildings formerly associated with the South Camp of RAF Sealand and Dutton's Flying School within the development area. Dutton's Flying School is understood to have included an aerodrome consisting of a single long timber shed, raised on small piers to keep the floor free from floodwater, located between flood embankments dated to 1763 and 1833. Dutton's was requisitioned by the War Office during WWI, later being developed into RAF Sealand.

A geophysical survey of the site was undertaken by Magnitude Surveys on behalf of OA North in September 2018 and identified no anomalies of possible or probable archaeological character. Those features that were identified primarily reflected agricultural activity, although there were several isolated and undetermined points showing strong positive responses. The geophysical anomalies identified have provided the basis for the location of several of the excavated evaluation trenches.

The evaluation involved the excavation and recording of 20 trenches, 12 measuring 20m long and eight measuring 30m long, representing approximately 2.16% of a 2ha area in the vicinity of the possible location of Dutton's Flying School. Field drain runs were identified where the geophysical survey had illustrated strong anomalies. Except for a patch of gravel hardcore and an area containing a posthole and ferrous debris, at the eastern extent of the site, no archaeological structures, deposits or artefactual evidence was identified.

Crynodeb

Comisiynwyd Oxford Archaeology North gan Crag Hill Estates Limited i gynnal gwerthusiad trewer prawf ar safle datblygiad defnydd cymysg arfaethedig i'r gogledd o Garden City, ar hen Wersyll De Sealand yr RAF, Welsh Road, Sir y Fflint (NGR SJ 32490 69920). Ymgymerwyd â'r gwaith fel un o amodau Caniatâd Cynllunio (cyf cynllunio. 058990 amod 42) a osodwyd gan Mark Walters, Archaeolegydd Rheoli Datblygu Ymddiriedolaeth Archaeolegol Clwyd-Powys (CPAT). Cynhyrchwyd Cynllun Ymchwilio Ysgrifenedig (WSI) ar gyfer Plot B gan OA yn manylu ar ofynion yr Awdurdod Cynllunio Lleol ar gyfer gwaith sy'n angenrheidiol i gyflawni'r amod cynllunio. Roedd y WSI yn destun cais am amodau 061310, a gymeradwywyd gan Gyngor Sir y Fflint 13Eg Gorffennaf 2020. Cynhaliwyd y gwaith maes rhwng 7fed a'r 11eg o Fedi 2020.

Prif nod y prosiect oedd nodi a oedd unrhyw olion adeiladau a arferai fod yn gysylltiedig â Gwersyll De'r RAF Sealand ac Ysgol y Deg Dutton yn yr ardal ddatblygu. Deellir bod Ysgol y Deg Dutton wedi cynnwys maes awyr sy'n cynnwys un cwch pren hir, a godwyd ar pierau bach i gadw'r llawr yn rhydd o ddŵr llifogydd, wedi'i leoli rhwng argloddiau llifogydd dyddiedig 1763 a 1833. Cafodd Dutton ei hawlio gan y Swyddfa Ryfel yn ystod WWI, a oedd yn cael ei ddatblygu'n ddiweddarach yn RAF Sealand.

Cynhaliwyd arolwg geoffisegol o'r safle gan Arolygon Magnitude ar ran Gogledd OA ym mis Medi 2018 ac ni nododd unrhyw anghysondebau o gymeriad archeolegol posibl na thebygol. Roedd y nodweddion hynny a nodwyd yn adlewyrchu gweithgarwch amaethyddol yn bennaf er bod nifer o bwyntiau ynysig ac amhenodol yn dangos ymatebion cadarnhaol cryf. Mae'r anghysondebau geoffisegol a nodwyd wedi bod yn sail i leoliad nifer o'r ffosydd gwerthuso a glodforir.

Roedd y gwerthusiad yn cynnwys cloddio a chofnodi 20 ffos, 12 yn mesur 20m o hyd ac wyth yn mesur 30m o hyd, sy'n cynrychioli tua 2.16% o ardal 2 ha yng nghyffiniau lleoliad posibl Ysgol y Deg Dutton. Nodwyd rhedfeydd draeniau caeau lle'r oedd yr arolwg geoffisegol wedi dangos anghysondebau cryf. Ac eithrio darn o graidd caled graean ac ardal sy'n cynnwys twll post a sbwriel fferrus, ar 18 dwyreiniol y safle, ni nodwyd unrhyw strwythurau archeolegol, dyddodion na thystiolaeth arteffactau.

Acknowledgements

Oxford Archaeology (OA) North would like to thank Crag Hill Estates Limited for commissioning this project. Thanks are also extended to Mark Walters, Development Control Archaeologist for Clwyd-Powys Archaeological Trust (CPAT), who monitored the work.

The project was managed for OA North by Paul Dunn. The fieldwork was directed by Helen Stocks, who was supported by Holly Wright and Kelly Griffiths. Survey and digitising was carried out by Helen Stocks and Mark Tidmarsh, and the report was written by Helen Evans.

1 INTRODUCTION

1.1 Scope of work

1.1.1 Oxford Archaeology (OA) North was commissioned by Crag Hill Estates Limited to undertake a trial trench evaluation at the site of a proposed mixed-use development to the north of Garden City, on the former RAF Sealand South Camp, Welsh Road, Flintshire (NGR SJ 32490 69920).

1.1.2 The work was undertaken as a condition of Planning Permission (planning ref. 058990 condition 42). The planning condition initially required a watching brief during topsoil stripping, however, discussions held with Mark Walters, Development Control Archaeologist for Clwyd-Powys Archaeological Trust (CPAT), established a scope for an archaeological trial trench evaluation. OA North were subsequently commissioned to produce a Written Scheme of Investigation (WSI) for Plot B detailing the required methodology. The WSI was the subject of discharge of conditions application 061310, approved by Flintshire County Council 13th July 2020. The fieldwork was undertaken between 7th and 11th September 2020.

1.2 Location, topography and geology

1.2.1 The site lies to the west of the A494 Welsh Road, north of Garden City, south of Deeside Industrial Estate and west agricultural land (Fig 1; NGR SJ 32490 69920). The site is currently level agricultural land, with elements of the development already underway to the east.

1.2.2 The study area comprises low-lying land reclaimed from the former saltmarsh within the Dee inter-tidal zone that developed following construction of the River Dee New Cut in 1737 (Jones 1998). The underlying drift geology is derived from alluvial deposits relating to the course of the River Dee prior to its silting up and the consequent canalisation (Walters 1992). The area forms a largely flat and featureless landscape, characterised by a series of substantial embankments, with regular fields, drainage ditches and roads.

1.2.3 The solid geology of the area is mapped as mudstone, siltstone and sandstone of the Pennine Middle and Lower Coal Measures (BGS 2020). The overlying drift geology of the area is mapped as clay, silt and sand tidal flat deposits (*ibid*). The soils are loamy and clayey soils characteristic of coastal flats, with naturally high groundwater (Cranfield University 2020). Superficial deposits comprise estuarine alluvium comprising sandy material close to the surface, at or below 5m AOD, with deposits of alluvial clay at depth (NJL Consulting 2010).

1.3 Archaeological and historical background

1.3.1 The archaeological and historical background of the site has been described in detail in the cultural heritage assessment undertaken by Cotswold Archaeology (CA) included as chapter 9 of the Environmental Impact Assessment for the Former RAF Sealand Site (NJL Consulting 2010). Pertinent to the area covered by the archaeological evaluation is that it is possible that the remains of buildings formerly associated with the South Camp of RAF Sealand and Dutton's Flying School (Historic Environment of Wales item

120882) may survive within the area, and the proposed development would adversely affect them (*ibid*). Dutton's Flying School included an aerodrome consisting of a single long timber shed, raised on small piers to keep the floor free from floodwater, located between embankments dated to 1763 and 1833 (Ferguson 1978; NJL Consulting 2010). Dutton's was requisitioned by the War Office during WWI, later being developed into RAF Sealand (*ibid*). The cultural heritage assessment undertaken by Cotswold Archaeology (CA) in conjunction with NJL Consulting (2010) identified that no known burial archaeological remains survive with the proposed development area.

1.3.2 A geophysical survey of the site, a 2ha area, was undertaken by Magnitude Surveys in September 2018 (Magnitude Surveys 2018; Fig 2). The survey was undertaken by fluxgate magnetometer and identified no anomalies of possible or probable archaeological character. Those features that were identified primarily reflected agricultural activity, although there were several isolated and undetermined points showing strong positive responses (*ibid*). The geophysical anomalies identified have provided the basis for the location of the excavated evaluation trenching (Fig 2).

2 AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The project aims and objectives were as follows:

i. to determine or confirm the general nature of any remains present;
ii. to determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence;
iii. to determine the level of preservation of the target structures; and
iv. to obtain information on the layout of the Dutton's Flying School hangar.

2.2 Methodology

2.2.1 The full methodology is outlined in the written scheme of investigation (*Appendix A*) and was adhered to in full, and, as such, was fully compliant with prevailing guidelines and established industry best practice (CIfA 2019: 2020a: 2020b: Historic England 2015). A programme of field observation accurately recorded the character of deposits within the excavations.

2.2.2 The topsoil and overburden were removed using an 13-ton, 360°, tracked excavator (fitted with a toothless ditching bucket) to the surface of the first significant archaeological deposit, under direct archaeological supervision at all times. Subsequent cleaning and investigation of all archaeological deposits were undertaken manually, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions. All features of archaeological interest were investigated and recorded.

2.2.3 The trenches were located by use of a differential Global Positioning System (dGPS), accurate to within 0.02-0.03m, and altitude information was established with respect to Ordnance Survey Datum. Prior to excavating, the trenches were scanned using a Cable Avoidance Tool (CAT) and Signal Generator (Genny), to identify any potential services. All trenches were excavated in a stratigraphic manner.

2.2.4 All information identified during the site works was recorded stratigraphically, using a system adapted from that used by the former Centre of Archaeology of English Heritage, with an accompanying pictorial record (plans, sections, and digital photographs). Primary records were available for inspection at all times.

2.2.5 Results of all field investigations were recorded on *pro forma* context sheets. The site archive includes a photographic record. The site archive includes both a photographic and accurate large-scale plans and sections at appropriate scales (1:50, 1:20 1:10).

2.2.6 A full professional archive has been compiled in accordance with the Written Scheme of Investigation, and in accordance with current CIfA (2020b) and Historic England guidelines (Historic England 2015). The archive will be deposited with the National Monuments Record, Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) and National Panel for Archaeological Archives for Wales (NPAAW), following their standards and guidance (RCAHMW 2015; NPAAW 2020).

3 RESULTS

3.1 Introduction and presentation of results

3.1.1 The results of the evaluation are presented below, and include a stratigraphic descriptions of the trenches that contained archaeological remains. The full details of all trenches with dimensions and depths of all deposits can be found in *Appendix B*. Archaeological features were recorded in trenches 4, 17 and 20. Trenches 4 and 20 were targeted on a long linear feature recorded by the geophysical survey.

3.2 General soils and ground conditions

3.2.1 The soil sequence in the trenches was uniform. The natural alluvial geology was a homogenous light brownish yellow soft silty sand with rare small stone inclusions. Similarly, the alluvially-derived subsoil was a mixed light brownish yellow soft silty sand with less than 5% small stone inclusions, with an average depth of 0.15m. This was overlain by a dark blackish brown loose sandy silt topsoil, with less than 5% small stone inclusions and a depth of between 0.13m and 0.2m.

3.2.2 Ground conditions throughout the evaluation were generally good, and the site remained dry throughout. Archaeological features, where present, were easy to identify against the underlying natural geology (Plate 1).

Plate 1: Example of an archaeologically-sterile trench (Trench 14) showing soils and ground conditions. Facing north, 2m scale

3.3 Trench 4

3.3.1 Trench 4 measured 30m by 1.8m and was oriented north/south. Natural alluvium ***401*** was identified throughout the trench. Towards the centre of the trench (14.8m from the north end) natural ***401*** was cut by a north/south-aligned gully, 1.3m long and 0.23m wide (***402***; Plate 2). It had near vertical sides and a concave base, filled by a greyish brown redeposited natural silty sand ***403***. The feature was initially interpreted as an animal burrow, however, examination of geophysical survey to the east illustrates a series of short north/south-aligned spurs extending from the main west/east aligned drain run (see Trench 20; *Section 3.5*), suggesting that the feature potentially relates to the remains of a truncated drain.

*Plate 2: Gully **402** in Trench 4, facing east, 0.5m scale*

3.4 Trench 17

3.4.1 Trench 17 measured 20m by 1.8m oriented east/west at the far eastern extent of the site, natural alluvium ***1701*** was identified throughout the base of the trench. Throughout the central section of the trench, ***1701*** was overlain by a light whitish grey loose gravel ***1702***, covering an area 7.7 by 0.6m. The area extended from 4.4m from the west end of the trench, and 8m from its eastern end, and was oriented broadly east/west (Plates 3 and 4). Extension of the trench to the south revealed the area covered by the material, interpreted as hardcore, was relatively limited, with maximum dimensions of 8.1 x 1.3m and a maximum depth of 0.13m. Hardcore ***1702*** was, in turn, overlain by topsoil ***1700***, 0.18m thick.

*Plate 3: Hardcore **1702**, Trench 17, facing east, 2m scale*

*Plate 4: Detail of hardcore **1702** in Trench 17, facing east*

3.5 Trench 20

3.5.1 Trench 20 measured 29.5 by 1.8m orientated north/south, located at the far eastern extent of the site, and targeted on an east/west-aligned strong linear, several weaker linear anomalies and a ferrous spread identified by the geophysical survey (Magnitude Surveys 2018; Fig 2). Three features were identified within the trench; a single posthole (***2003***; Plate 5), and two east/west-aligned field drains. The field drains contained round-sectioned dark brown glazed ceramic drain pipes of a late nineteenth/early twentieth-century date, and black gravelly grit. The location of the

northernmost drain, 18m from the south end of the trench, approximates to the strong linear identified by geophysical survey. The southern drain, 5m from the south end of the trench, is in an area where the geophysical survey shows a east/west drainage-related anomaly and a spread of ferrous material (Fig 2).

Plate 5: Trench 20, facing north, with posthole 2003 in the foreground and the southernmost drainpipe adjacent to the 2m scale

3.5.2 Posthole ***2003***, which extended into the west-facing section of the trench, was 0.45m wide, steep sided and had a flattish base at depth of 0.21m. It was filled by a single deposit, ***2004***, a light greyish brown silty sand.

4 DISCUSSION

4.1 Evaluation results and interpretation

4.1.1 In line with the aims and objectives set out in *Section 2*, the programme of evaluation trenching determined that no significant archaeological remains pertaining to the former Dutton's Flying School (*Section 1.3*; NJL Consulting 2010) were present. One limited spread of gravelly hardcore was identified in Trench 17, close to the eastern extent of the site, which likely related to landscaping or groundworks but was not found in association with any datable material. Also close to the eastern extent of the site was a posthole ***2003***, associated with a spread of ferrous material. The site had also been subject to a large amount of drainage, probably during the late nineteenth or early twentieth century. Although this activity potentially relates to the establishment of the flying school, drainage of this type to create productive agricultural land was common practice during this period.

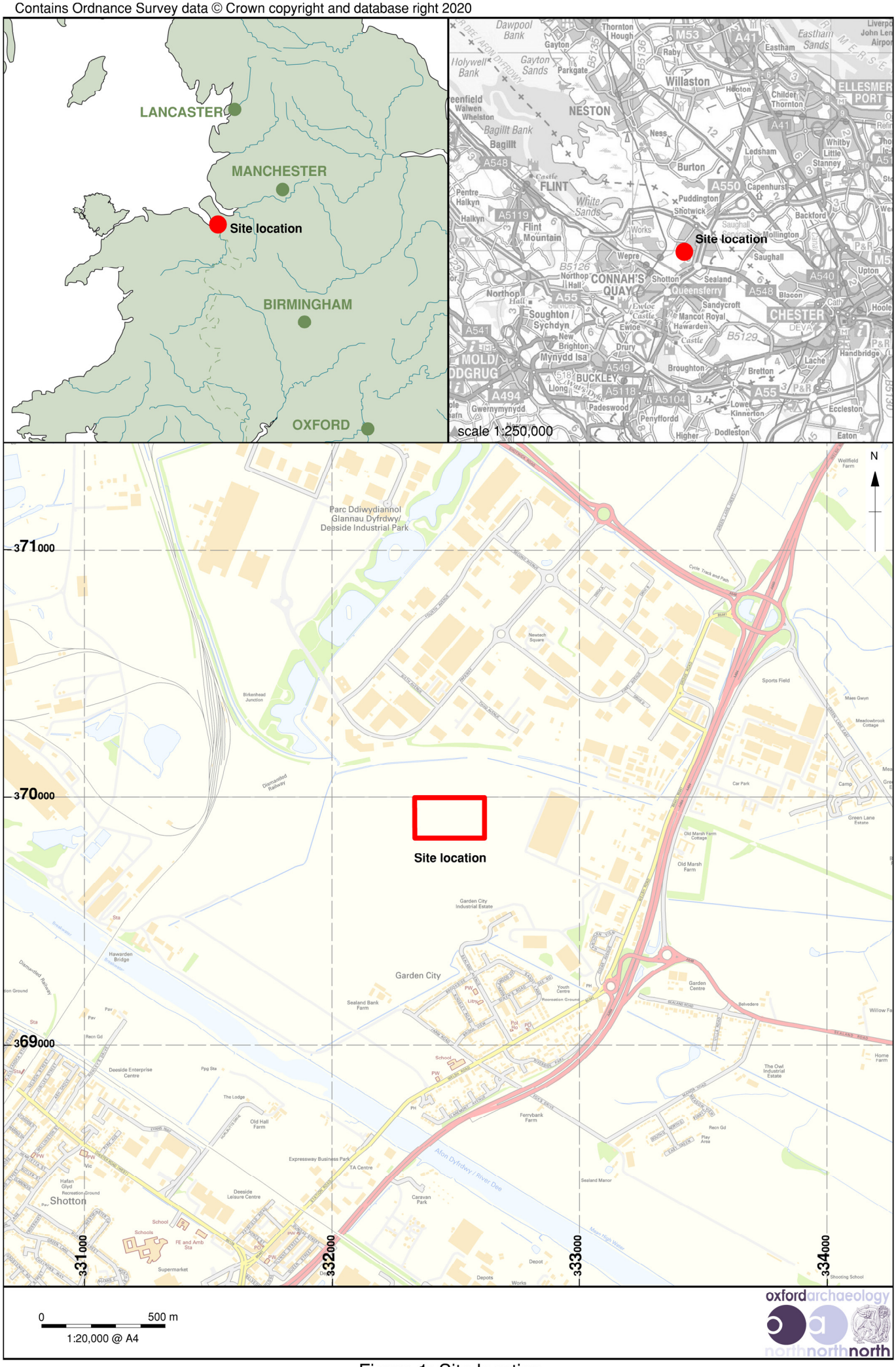

Figure 1: Site location

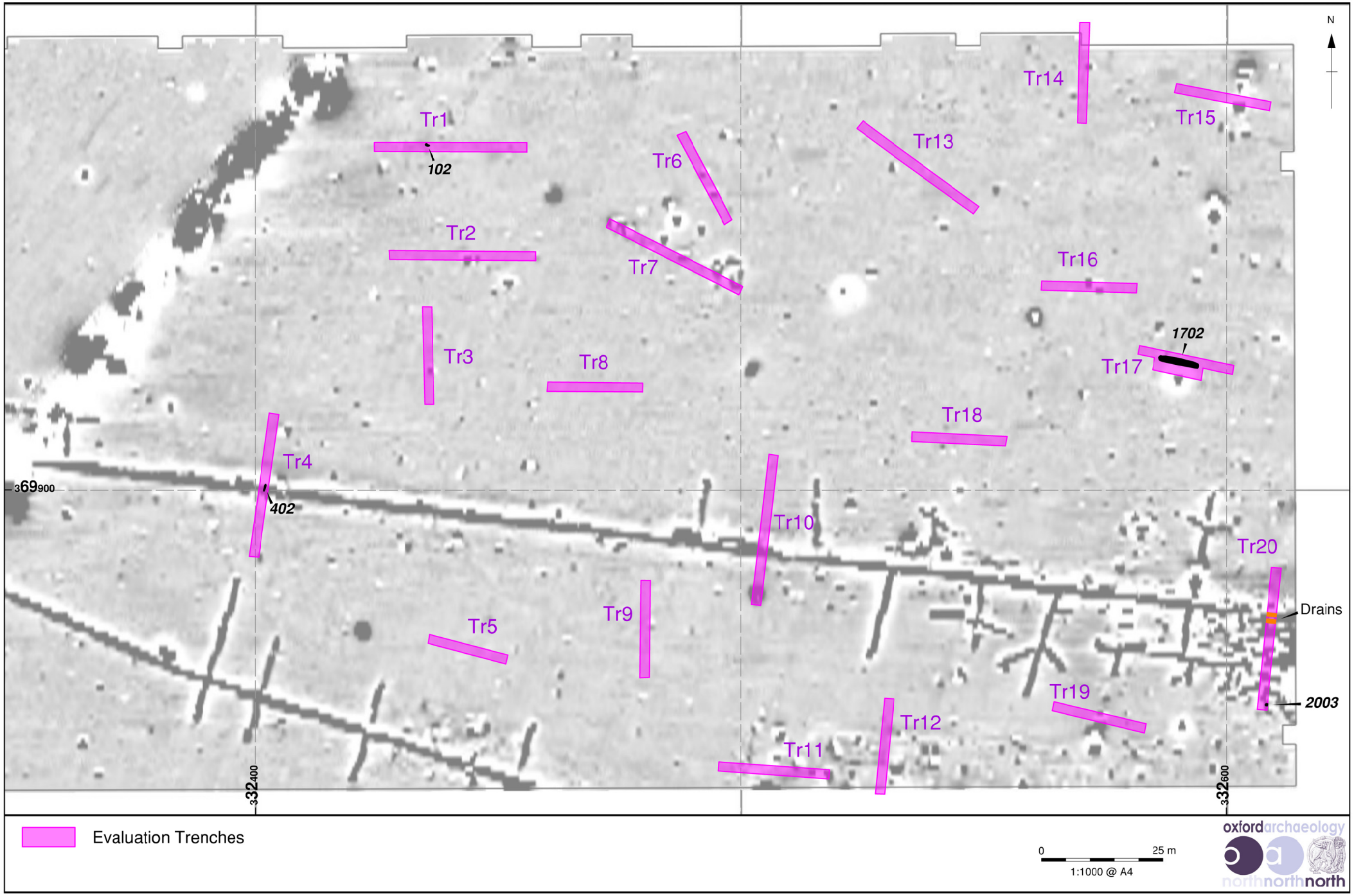

Figure 2: Trench locations overlaid onto geophysical survey

APPENDIX A WRITTEN SCHEME OF INVESTIGATION

RAF Sealand South Camp, Welsh Road, Flintshire

Written Scheme of Investigation
Archaeological Evaluation

May 2020

Client: Crag Hill Estates Limited

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RAF Sealand South Camp, Welsh Road, Flintshire

Written Scheme of Investigation for an Evaluation

Centred on SJ 32490 69920

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1 INTRODUCTION

1.1 Project details

1.1.1 Oxford Archaeology (OA) North has been commissioned by Crag Hill Estates Limited to undertake an archaeological evaluation of the site of a proposed mixed-use development to the north of Garden City, on the former RAF Sealand South Camp, Welsh Road, Flintshire (Fig 1; NGR: SJ 32490 69920).

1.1.2 The work is being undertaken as a condition of planning permission, condition 42, of planning application 058990. Following a request from Crag Hill Estates Limited, OA North contacted Mark Walters, Development Control Archaeologist for Clwyd-Powys Archaeological Trust (CPAT), to discuss a brief to discharge the planning condition related to the development. As such, it was identified that an archaeological evaluation, in the first instance, to be followed by a strip, map and record, if archaeological remains relating to the former Dutton's Flying School (Historic Environment Record of Wales item 120882) are identified within the trenches. OA North were subsequently commissioned by Crag Hill Estates Limited to produce this Written Scheme of Investigation (WSI) and undertake the archaeological fieldwork required; this document outlines how OA will implement those requirements.

1.1.3 All work will be undertaken in accordance with local and national planning policies referenced within this document.

1.2 Location, topography and geology

1.2.1 The site lies to the west of the A494 Welsh Road, north of Garden City, south of Deeside Industrial Estate and west agricultural land (Fig 1; NGR SJ 32490 69920). The site is currently level agricultural land, with elements of the development already underway to the east.

1.2.2 The solid geology of the area is mapped as Mudstone, Siltstone and Sandstone of the Pennine Middle Coal Measure across the majority of the site, whilst the western part of the area is mapped as Mudstone, Siltstone and Sandstone of the Pennine Lower Coal Measure (BGS 2020). The overlying drift geology of the area is mapped as Clay, Silt and Sand Tidal Flat Deposits (*ibid*). The soils are identified as loamy and clayey soils of coastal flats with naturally high groundwater (Cranfield 2020).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND AND POTENTIAL

2.1 Archaeological and historical background

2.1.1 The archaeological and historical background of the site has been described in detail in the cultural heritage assessment undertaken by Cotswold Archaeology (CA) included as chapter 9 of the Environmental Impact Assessment for the Former RAF Sealand Site (NJL Consulting 2010) and will not be reproduced here.

2.2 Potential

2.2.1 The cultural heritage assessment undertaken by CA in NJL Consulting (2010) identified that no known burial archaeological remains survive with the proposed development area. However, it is possible that remains of buildings formerly associated with the South Camp of RAF Sealand and Dutton's Flying School (Historic Environment of Wales item 120882) may survive within the area, and the proposed development would adversely affect them (*ibid*). Although this impact would result in minor adverse impact, constituting harm to non-designated heritage assets; harm which could be adequately compensated through the implementation of a programme of industry standard mitigation measures (*ibid*).

3 PROJECT AIMS

3.1 General

3.1.1 The general aims of the project can be summarised as follows;

i. to adhere to and fulfil the agreed programme of works associated with the archaeological potential of the site;
ii. to determine or confirm the general nature of any remains present;
iii. to determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence;
iv. to inform a decision as to whether further archaeological investigation will be required in advance of the development, based upon an assessment of the level of preservation of below ground remains relating to the target structures;
v. provide sufficient information that a fully and accurately costed subsequent mitigation strategy can be developed, should such remains be identified;
vi. to compile a professional archival record of any archaeological remains within the site.

3.2 Specific aims and objectives

3.2.1 The specific aims and objectives of the evaluation are:

i. to determine or confirm the general nature of any remains present.
ii. to determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence.
iii. to determine the level of preservation of the target structures;
iv. to obtain information on the layout of the Dutton's Flying School hangar.

4 PROJECT SPECIFIC EXCAVATION AND RECORDING METHODOLOGY

4.1 Scope of works

4.1.1 The evaluation will involve the excavation and recording of twenty trenches, twelve measuring 20m long and eight measuring 30m long, representing approximately 2.16% of a 2 ha in the vicinity of the putative location of Dutton's Flying School. The trenches will be excavated by a suitably sized mechanical excavator, fitted with a toothless ditching bucket, supervised by a suitably experienced archaeologist. The spoil will be checked for finds, with a metal detector being available on site, and if significant material is detected this will be retained.

4.1.2 Once the trenches are excavated to natural geology, the first significant archaeological horizon or a safe working depth, trenches may be stepped if required, they will then be manually cleaned and recorded. If archaeological features are present, they will be excavated, cleaned and recorded. The archaeology will then be surveyed by the use of a Global Positioning System (GPS), accurate to within +/-0.02m. The survey will then be used to produce accurate scale drawings. If potentially significant archaeological remains are identified, the client and the Development Control Archaeologist for CPAT will be informed. No backfilling of the trenches will be undertaken without prior approval of the Development Control Archaeologist for CPAT. Once the trenches have been fully recorded and the Development Control Archaeologist for CPAT has approved and signed them off, they will be backfilled prior to the OA North field team leaving site. If significant remains are identified, the Development Control Archaeologist for CPAT may require the trenches to be expanded to uncover the full extent of them, if this is the case an addendum will be added to this WSI.

4.2 Programme

4.2.1 It is anticipated that the fieldwork will take seven days to complete, by a team consisting of a Project Officer or Project Supervisor, to be confirmed, directing up to two Project Archaeologists, under the management of Paul Dunn, Senior Project Manager.

4.2.2 All fieldwork undertaken by OA North is overseen by the Operations Manager, Alan Lupton MCIfA.

4.3 Site specific methodology

4.3.1 A summary of OA's general approach to excavation and recording can be found in *Appendix A*. Standard methodologies for Geomatics and Survey, Environmental evidence, Artefactual evidence and Burials can also be found below (*Appendices B, C, D* and *E* respectively). OA is a registered member of the Chartered Institute for Archaeologists (CIfA; RO number 17), as are many of its staff, and all work carried out will meet industry standards and follow relevant guidelines (*i.e.* CIfA 2014a; 2014b; 2014c; Historic England: 2015a; 2015b

4.3.2 ***Setting-out***: The position of the trenches (Fig 2), agreed in consultation with the Development Control Archaeologist with CPAT, will be established on-site using a GPS. The trench locations will then be scanned using a Cable Avoidance Tool and Signal

Generator (CAT and Genny), by an appropriately experience and trained member of staff. Any services will be marked and avoided, the Development Control Archaeologist for CPAT will be consulted if services are to impact upon the size of the trenches. Once the trenches are marked out and deemed clear of services excavation can then begin

4.3.3 ***Excavation of the evaluation trenches***: the topsoil and subsoil will be removed by mechanical excavator, fitted with a toothless ditching bucket, under constant supervision of a suitably trained and experienced archaeologist. Excavation will proceed to either natural geology, the first significant archaeological horizon, or a safe working depth.

4.3.4 The mechanical excavator will be used to define carefully the extent of any surviving structures or archaeological remains. Thereafter, the remains will be cleaned manually to define their extent, nature, form and function. Significant archaeological deposits will be excavated by hand as necessary to define the stratigraphy, and to enable interpretation of the remains.

4.3.5 ***Recording of the evaluation trenches***: any archaeological remains will be cleaned by hand sufficiently to enhance any features; site levels will be related to the Ordnance Survey National Grid and Datum. The trenches will be recorded by the use of GPS and, where structural remains are identified, by photogrammetry, with scale drawings being subsequently produced at appropriate scales.

4.3.6 All information identified in the course of the site works will be recorded stratigraphically, using a system adapted from that used by the Centre for Archaeology Service of English Heritage. Results of the evaluation will be recorded on *pro-forma* context sheets and will be accompanied with sufficient pictorial records (plans, sections and digital photographs) to identify and illustrate individual features. The site archive will include plans and sections at appropriate scales (plane 1:20 and sections 1:10).

4.3.7 A full and detailed photographic record of individual contexts will be maintained and similarly general views from standard viewpoints of the overall site at all stages of the evaluation will be generated. Photography will be undertaken using 16 or 18 mega-pixel digital SLR or hybrid compact digital cameras, and all frames will include a graduated metric scale (Historic England 2015b). The images will be taken in JPEG and RAW formats. Photograph records will be maintained on photographic *pro-forma* sheets.

4.3.8 ***Human remains***: are not expected to be present, but if they are found, a burials license will be obtained from the Ministry of Justice, and the removal of such remains will be carried out with due care and sensitivity, as required by the Burials Act 1857 and industry best practice.

4.3.9 ***Treasure***: any gold and silver artefacts recovered during the course of the works will be removed to a safe place and reported to the local Coroner, according to the procedures relating to the Treasure Act 1996.

4.3.10 ***Finds policy***: finds recovery and sampling programmes will be in accordance with best practice (following current CIfA guidelines) and subject to expert advice in order to

minimise deterioration. Finds will be recorded and reported by appropriately qualified staff.

4.3.11 OA North has close contact with Ancient Monuments Laboratory staff at the University of Durham and, in addition, employs in-house artefact and palaeoecology specialists, with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC 1990). Emergency access to conservation facilities is maintained by OA North with the Department of Archaeology, University of Durham. Finds of significance will be retained from all securely stratified deposits.

4.3.12 ***Environmental policy***: the strategy for palaeo-environmental and other specialist sampling will be developed on-site, in consultation with appropriate specialists, as necessary and will be agreed in advance with the Development Control Archaeologist for CPAT. The environmental sampling strategy will therefore evolve from discussion between those specialists and the field team, and will be in accordance with current best practice. In broads terms, however, the sampling strategy will be aimed at recovering palaeo-botanical, palaeo-zoological and pedological evidence, from appropriately stratified contexts, should any such features be identified during the course of the evaluation.

4.3.13 ***Backfilling***: no backfilling of the trenches will be undertaken without prior approval of the Development Control Archaeologist for CPAT. Once the trenches have been fully recorded and the Development Control Archaeologist for CPAT has approved and signed them off, they will be backfilled prior to the OA North field team leaving site.

5 PROJECT SPECIFIC REPORTING AND ARCHIVE METHODOLOGY

5.1 Programme

5.1.1 The level of reporting will depend upon the archaeological significance of the results. If significant remains of regional importance are revealed, then an interim report or statement will be provided to the Development Control Archaeologist for CPAT following completion of the evaluation phase (*Section 5.2.1*). If only limited or no archaeological remains are discovered, then only an archive report will be produced (*Section 5.2.2*). If excavation is required, an English Heritage MAP2 style of post-excavation assessment report will be compiled following the fieldwork and will define the resource implications of completing the post-excavation programme (*Section 5.2.3*). This will form the basis and methodological approach with which to address a more comprehensive level of analysis and an appropriate level of subsequent publication, should it be required. The decision as to which reporting strategy will be followed will be discussed with the Client and the Development Control Archaeologist for CPAT upon completion of the fieldwork. The report will include a translation of the report summary in Welsh.

5.1.2 A copy of the report in Adobe Acrobat (.pdf) format will be provided to the client, Local Planning Authority and the Development Control Archaeologist for CPAT for review and approval. Once approved, a digital copy of the report will also be provided to the Historic Environment Record Officer for CPAT, for inclusion within the Historic Environment Record.

5.2 Content

5.2.1 ***Interim evaluation report for significant remains***: if significant archaeological remains are identified during the evaluation, an interim report will be produced. This will be an assessment of the quality and preservation of the archaeological remains identified. This will be presented verbally or electronically to the Development Control Archaeologist for CPAT to prevent any delay in progressing to the excavation stage. The results will then be combined with the excavation results in a post-excavation assessment (*Section 5.2.3*).

5.2.2 ***Archival evaluation report for limited archaeological remains***: a draft copy of a written synthetic post-excavation assessment report will be submitted to the client for comment within six weeks of completion of the fieldwork, although the time frame for production of the report can be tailored to the client's requirements upon prior agreement. The report will include a copy of this WSI, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and present an assessment of the history of the site. The report will include the following:

- a title page detailing site address, National Grid Reference (NGR), author/originating body, client's name and address;
- full content's listing;

- a non-technical summary of the findings of the fieldwork, including translation in Welsh;
- a description of the archaeological background;
- a detailed account of the historical development of the site, as appropriate;
- a description of the topography and geology of the site;
- a description of the methodologies used during the fieldwork;
- a description of the findings of the fieldwork;
- detailed plans of the evaluation trenches, showing the archaeological features exposed. The site location will be plotted with at least four 12-figure national grid references on the site plan at a scale of 1:2500;
- interpretation of the archaeological features exposed and their context within the surrounding landscape;
- specialist analysis reports on the artefactual/ecofactual/industrial remains from the site;
- appropriate photographs of specific archaeological features. Appropriate photographs of specific finds of interest will also be included, if needed;
- a consideration of the importance of the archaeological remains present on the site in local, regional and national terms;
- a complete bibliography of sources consulted;
- appendices to include a detailed list of all recorded contexts, all retrieved finds, all samples taken, all drawings produced and all photographs taken;
- illustrative material will include a location map, site map, site plans and pertinent photographs.

5.2.3 ***Post-excavation assessment for significant remains following mitigation excavation phase***: if the archaeological results are deemed to be of regional or national importance as a result of discussions with the Development Control Archaeologist for CPAT, then the results of the evaluation will be combined with the results of the excavation following completion of the fieldwork. An assessment of the archive will then be undertaken, and the resource requirements for analysis and publication will be defined, in accordance with the guidelines of MAP2 (English Heritage 1991). This will involve an assessment of the dataset, followed by a review of the project archive to establish the potential for further analysis. The assessment will take place in close consultation with the client, and the format for the final report will also be agreed at this stage of the work. The Harris Matrix, largely produced during the excavation programme, will be completed and checked as part of the assessment. The assessment will involve the compilation of a brief archive report, outlining the significance of the stratigraphic, artefactual and environmental evidence, and presenting recommendations for further analysis, as appropriate. The report will also include a short summary of the stratigraphic history of the site.

5.2.4 The project assessment will include an updated project specification, which will comprise a full project design for a programme of full analysis and publication, and will be in accordance with MAP2 (English Heritage 1991). This document will be submitted to the client within six months of the completion of the fieldwork.

5.2.5 Analysis: an appropriate programme of analysis should then be undertaken to prepare a research archive, as detailed in Appendix 6 of MAP2; the precise scope for this element will be defined within the updated project specification. Following the analysis of the excavation results, a report will be written which will present, summarise, and interpret the results of the programme and will incorporate specialist reports on artefact assemblages and environmental reports. It will include an index of archaeological features identified in the course of the project, with an assessment of the site's development. It will incorporate appropriate illustrations, including copies of the site plans and section drawings all reduced to an appropriate scale. The archive report will be submitted within 12 months of the completion of the fieldwork.

5.3 Specialist input

5.3.1 OA has a large pool of internal specialists, as well as a network of external specialists with whom OA have well established working relationships. A general list of these specialists is presented in *Appendix G*; in the event that additional input should be required, an updated list of specialists can be supplied.

5.4 Archive

5.4.1 The archive will conform to guidelines described in the Management of Research Projects in the Historic Environment (MoRPHE; Historic England 2006), CIfA's Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives (CIfA 2014c), and the National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales (NPAAW 2019). The project archive represents the collation and indexing of all data and material gathered during the course of the project.

5.4.2 The paper and digital archive will be deposited with the National Monuments Record, Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) or Archaeological Data Service (ADS), including a copy of the final report, upon completion of the project. NMR digital archives will follow the standard required by the RCAHMW (2015). A copy of the digital archive only will also be lodged with Historic A summary of OA's general approach to documentary archiving can be found in *Appendix H*.

6 HEALTH AND SAFETY

6.1 Roles and responsibilities

6.1.1 The Senior Project Manager, Paul Dunn, has responsibility for ensuring that safe systems of work are adhered to on site. Elements of this responsibility will be delegated to the Project Officer or Supervisor, who implements these on a day to day basis. Paul Dunn and the Project Officer or Supervisor are supported by OA North's Health and Safety Advisor, Fraser Brown.

6.1.2 The Director with responsibility for Health and Safety at OA is Dan Poore Tech IOSH (Chief Business Officer).

6.2 Method statement and risk assessment

6.2.1 A summary of OA's general approach to health and safety can be found in *Appendix I*. A site-specific risk assessment and method statement has also been undertaken and approved and will be kept on site, along with OA's standard Health and Safety file, which will contain all relevant health and safety documentation. Copies of the site-specific documents will be submitted to the client or their representative for approvals prior to mobilisation, and all relevant Health and Safety documentation will be available on site at all times.

6.2.2 ***COVID-19***: due to the current situation regarding the global COVID-19 pandemic OA have produced an agreement with their recognised trade union, Prospect, to allow work to continue on archaeological projects. However, this does require very specific mitigation measures to ensure the risk to staff is reduced as far as reasonably practicable. A specific COVID-19 addendum will be produced detailing the specific measures which will be required, including:

- social distancing: staff will maintain social distance on site, in the welfare provided and in vehicles whilst traveling to and from site. There will also be no swapping of staff from team to team, to minimise potential spreading of the disease;
- good hygiene: staff will wash their hand upon arrival and departure from site, prior to and after breaks, they will also carry hand sanitiser, the welfare facilities will also be cleaned down prior to use, tools will also be wiped down with sanitiser, as will vehicles gear levels, hand brakes and steering wheels;
- if staff come down with symptoms they will not attend site or will leave site as soon as they can. If someone with symptoms requires emergency first aid, a FFP3 mask will be provided with the first aid kit;
- mental health: OA have a group of Mental Health First Aiders who can provide advice to members of staff who require assistance. OA also have a confidential counselling service which can be called 24 hours a day all year round.

6.3 Monitoring of works

6.3.1 OA North will provide the Development Control Archaeologist for CPAT with at least two weeks' notice of the potential start date of the site work. They will then have free

access to the site (subject to Health and Safety considerations) and all records to ensure the works are being carried out in accordance with this WSI and all other relevant standards.

6.3.2 The client and the Development Control Archaeologist for CPAT will be regularly informed of the ongoing results, their estimated significance and at least one site meeting will be arranged with the Development Control Archaeologist for CPAT to formally sign-off the works; this would likely be done towards the end of the fieldwork. Planning permission obligations and any resultant accompanying conditions will be dependent upon the successful completion of these archaeological aims, but also the production of a complete archaeological report detailing the results of the evaluation and an interpretation of their significance. If significant results are identified during the evaluation, further consultation with the client and the Development Control Archaeologist for CPAT will establish the need for an excavation phase.

7 BIBLIOGRAPHY

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CIfA, 2014b *Standard and guidance for archaeological evaluation*, Reading

CIfA, 2014c *Standard and guidance for the creation, preparation, transfer and deposition of archaeological archives*, Reading

Cranfield Soil and Agrifood Institute, 2020 National Soil Resource Institute *Soilscapes of Britain Map* [Online], available at: http://www.landis.org.uk/soilscapes/ Cranfield University (accessed April 2020)

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Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), 2015 *Guidelines for Digital Archives* [Online], available at https://rcahmw.gov.uk/wp-content/uploads/2016/09/RCAHMW-Guidelines-for-Digital-Archives.pdf (accessed April 2020)

United Kingdom Institute for Conservation (UKIC), 1990 *Guidelines for the preparation of archives for long-term storage*

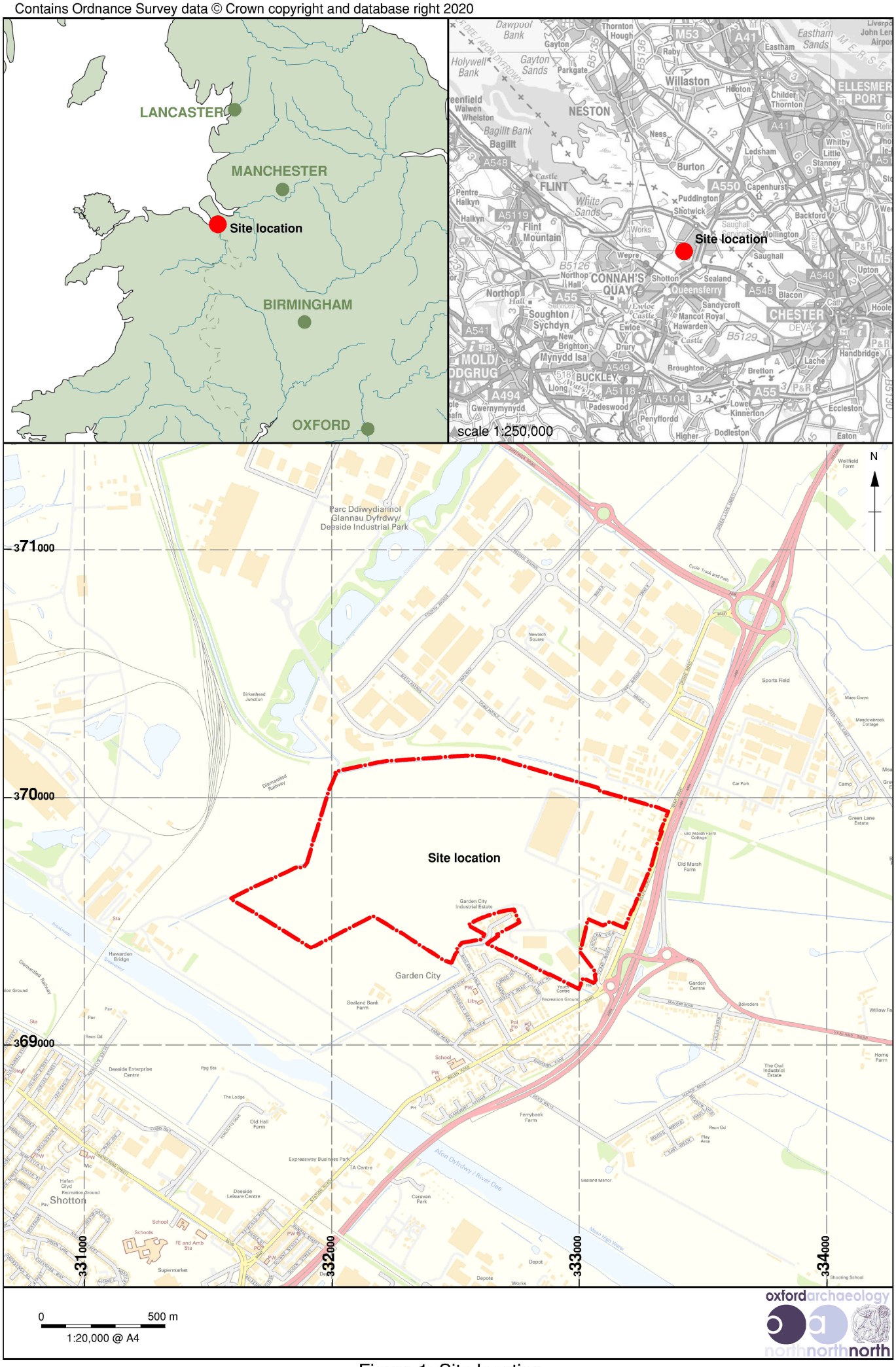

Figure 1: Site location

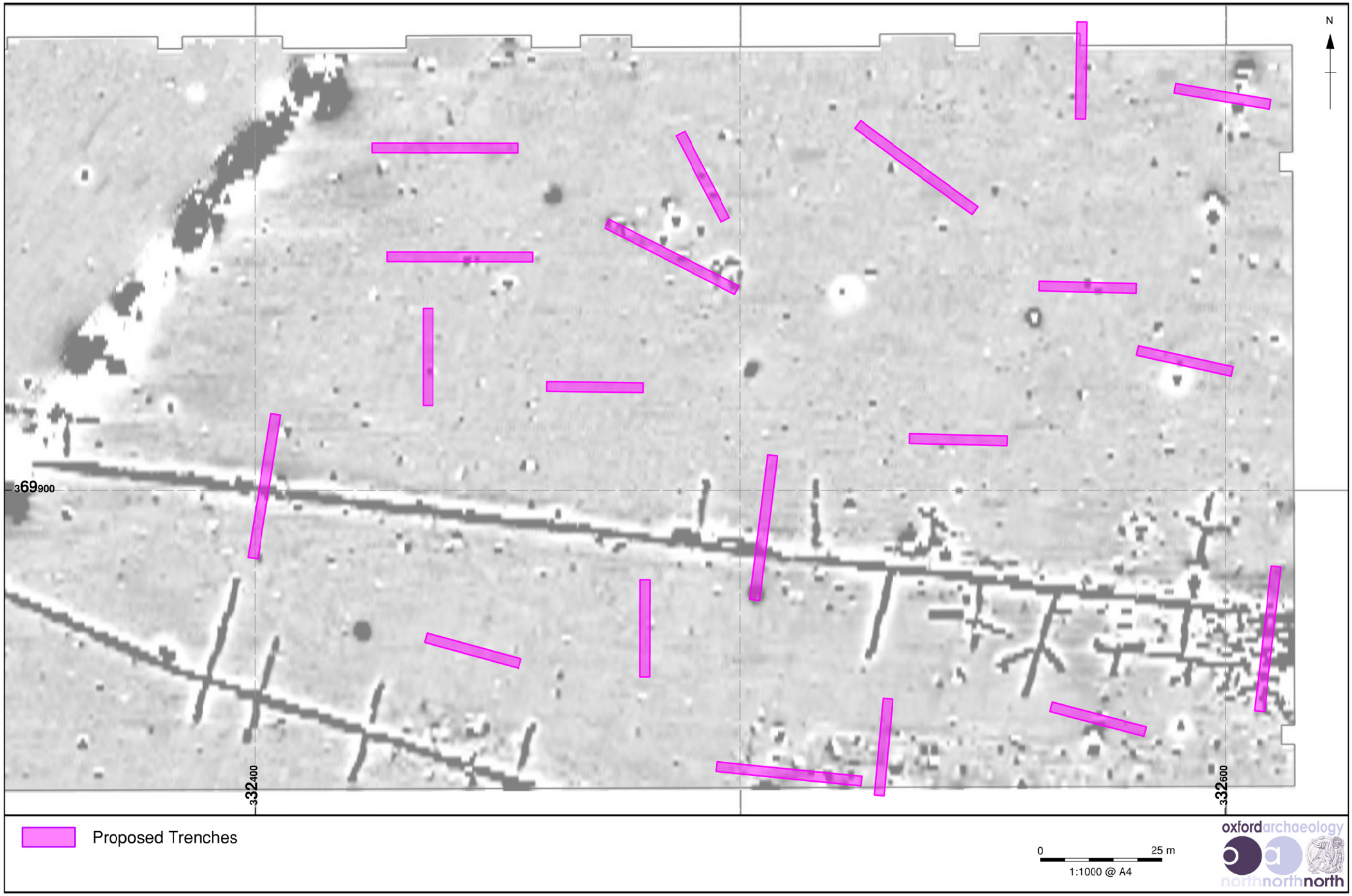

Figure 2: Proposed trench location plan

OA STANDARD FIELDWORK METHODOLOGY APPENDICES

The following methods and terms will apply, where appropriate, to all OA fieldwork unless varied by the accompanying detailed Written Scheme of Investigation.
Copies of all OA internal standards and guidelines referred to below are available on request.

APPENDIX A GENERAL EXCAVATION AND RECORDING METHODOLOGY

A.1 Standard methodology – summary

Mechanical excavation

A.1.1 An appropriate mechanical excavator will be used for machine excavation. This will normally be a JCB or 360° tracked excavator with a 1.5 m to 2 m wide toothless ditching bucket. For work with restricted access or working room a mini excavator may be used.

A.1.2 All mechanical excavation will be undertaken under direct archaeological supervision.

A.1.3 All undifferentiated topsoil or overburden of recent origin will be removed down to the first significant archaeological horizon, in successive, level spits.

A.1.4 Following mechanical excavation, all areas that require examination or recording will be cleaned using appropriate hand tools.

A.1.5 Spoil heaps will be monitored in order to recover artefacts to assist in the analysis of the spatial distribution of artefacts. Modern artefacts will be noted but not retained.

A.1.6 After recording, evaluation trenches and test pits will usually be backfilled with excavated material in reverse order of excavation, and compacted as far as is practicable with the mechanical excavator. Area excavations will not normally be backfilled.

Hand excavation

A.1.7 All investigation of archaeological levels will usually be by hand, with cleaning, examination and recording both in plan and section.

A.1.8 Within significant archaeological levels the minimum number and proportion of features required to meet the aims of the excavation will be hand excavated. Pits and postholes will usually be subject to a 50% sample by volume. Linear features will be sectioned as appropriate. More complex features such as those associated with funerary activity will usually be subject to 100% hand excavation.

A.1.9 In the case of evaluations, it is not necessarily the intention that all trial trenches will be fully excavated to natural stratigraphy, but the depth of archaeological deposits across the site will be assessed. The stratigraphy of a representative sample of the evaluation trenches will be recorded even where no archaeological deposits have been identified. Any excavation, both by machine and by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation in situ.

Recording

A.1.10 Written descriptions will be recorded on proforma sheets comprising factual data and interpretative elements.

A.1.11 Where stratified deposits are encountered a Harris matrix will be compiled during the course of the excavation.

A.1.12 Plans will normally be drawn at 1:100, but on urban or deeply stratified sites a scale of 1:50 or 1:20 will be used. Detailed plans will be at an appropriate scale. Burials will be drawn at scale 1:10 or recorded using geo-referenced digital photography.

A.1.13 The site grid will be accurately tied into the National Grid and located on the 1:2500 or 1:1250 map of the area.

A.1.14 A register of plans will be kept.

A.1.15 Long sections of showing layers will be drawn at 1:50. Sections of features or short lengths of trenches will be drawn at 1:20.

A.1.16 A register of sections will be kept.

A.1.17 Generally, all sections will be tied in to Ordnance Datum.

A.1.18 A full photographic record, illustrating in both detail and general context the principal features and finds discovered will be maintained. The photographic record will also include working shots to illustrate more generally the nature of the archaeological work.

A.1.19 Photographs will be recorded on OA Photographic Record Sheets.

A.2 Relevant industry standards and guidelines

A.2.1 The Chartered Institute for Archaeologists Standard and Guidance notes relevant to fieldwork are:

- Standard and Guidance for Archaeological Field Evaluation
- Standard and Guidance for Archaeological Excavation
- Standard and Guidance for an Archaeological Watching Brief.

A.2.2 These will be adhered to at all times.

A.3 Relevant OA manual and other supporting documentation

A.3.1 All fieldwork will be undertaken in accordance with the requirements of the OA Field Manual (ed. D Wilkinson 1992), and the revised OA fieldwork manual (publication forthcoming).

A.3.2 Further guidance is provided to all excavators in the form of the OA 'Fieldwork Crib Sheets - a companion guide to the Fieldwork Manual'. These have been issued ahead of formal publication of the revised Fieldwork Manual.

APPENDIX B GEOMATICS AND SURVEY

B.1 Standard methodology - summary

B.1.1 The aim of OA methodology is to provide comprehensive survey cover of all investigation areas. Additionally, it is designed to provide coverage for any areas, beyond the original scope of the project, which arise as a result of further work. It provides digital plans of all required elements of the project and locates them within an overall grid.

B.1.2 It also maintains all necessary survey data and ensures that the relevant information is copied into the primary record, in order to ensure the integrity of the project archive. Furthermore, it ensures that all core data is securely stored and backed up. It establishes accurate project reference systems utilising a series of control stations and permanent base lines.

B.1.3 The survey will be conducted using a combination of Total Station Theodolite (TST) survey utilising Reflectorless Electronic Distance Measurement (REDM) where appropriate, hand-measured elements and GPS (Global Positioning System), or photogrammetry.

B.1.4 Before the main work commences, a network of control stations will be laid out encompassing the area. Control stations will be tied in to known points or existing features using rigorous metric observation. The control network will be set in using a TST to complete a traverse or using techniques as appropriate to ensure sufficient accuracy. A GPS, or other appropriate method, will be used to orientate the control network to National Grid or other recognised coordinate system.

B.1.5 All control stations will be checked by closed traverse and/or GPS, as appropriate. The accuracy of these control stations will be accessed on a regular basis and re-established accordingly. All stations will be recorded on Survey Control Station sheets.

B.1.6 Each control station will be marked with a PGM (Permanent Ground Marker). Witness diagrams will include the full 3-D co-ordinates generated, a sketch diagram and measurements to at least three fixed details, written description of the mark and a photograph of the control point in its environs.

B.1.7 Prior to entry into the field all equipment will be checked, and all pre-survey information will be logged onto the field computer and uploaded onto survey equipment as appropriate. The software in the field computer will be verified and all cabling between the GPS and/or TST and computer will be checked. Prior to conducting the survey, the site will be reconnoitred for locations for a viable control network and check the line of sight and any possible hindrance to survey. Daily record sheets will be kept to record daily tasks and conditions.

B.1.8 All spatial data will be periodically downloaded onto a field computer, and backed up onto CD, or DVD. It will be cleaned, validated and inspected.

B.1.9 All survey data will be documented on daily survey record sheets. Information entered on these sheets includes key set up information (Instrument height etc.) as well as daily variables and errors/comments. All survey data will be digitally recorded in a raw

format and translated during the download process this shall allow for any errors to be cross referenced with the daily survey record and corrected accordingly.

B.1.10 A weekly summary of survey work will be produced to access development and highlight problems. This information also will be recorded on the weekly survey journal. Technical support for the survey equipment and download software shall be available at all times. In those instances, where sites are remotely operated, all digital data will be backed up regularly and a copy returned to Oxford on a weekly basis.

B.1.11 A site plan will initially be created by a rapid survey of relevant archaeological features by mapping their extent using a combination of TST and GPS. This will form the basis for deciding excavation strategy and will be updated as the excavation clarifies the extent of, and relationships between, archaeological features.

B.1.12 Excavated archaeological interventions and areas of complex stratigraphy will be hand drawn. At least two Drawing Points (DPs) will be set in as a baseline and measurements taken off this by tape and offset. The hand drawn plans will be referenced to the digitally captured pre-site plan by measuring in the DPs with a TST or GPS. These hand drawn elements will then be scanned in, geo-referenced using the DPs as reference points and digitised following OA's digitising protocols. For further details on hand planning procedure please refer to the fieldwork guidelines.

B.1.13 Where appropriate photogrammetry or rectified photography may be used to record standing structures or burials. This will be carried out in line with Standard OA procedures for photogrammetry or rectified photography.

B.1.14 Survey data recorded in the field will be downloaded using appropriate downloading software, and saved as an AutoCAD Map DWG file, or an ESRI Shapefile. These files will be regularly updated and backed up with originals being stored on an OA server in Oxford.

B.1.15 All drawings will be composed of closed polygons, polylines or points in accordance with the requirements of GIS construction and OA Geomatics protocols. Once created, additional GIS/CAD work will normally be carried out at the local OA central office or at on-site remote locations when appropriate. Support for all GIS/CAD work will be available from OA’s Oxford Office during normal office hours. The aim of the GIS/CAD work is to produce workable draft plans, which can be produced as stand-alone products, or can be readily converted to GIS format. Any hand-drawn plans will be scanned and digitised on site in the first instance. Subsequent plans will be added to the main drawing as it develops.

B.1.16 All plan scans will be numbered according to their plan site number. Digital plans will be given a standard new plan number taken out from the site plan index.

B.1.17 All digital data will be backed up incrementally on CD or DVD. On each Friday the entire data directory will be backed up and returned to Oxford where it will be copied onto the OA projects server. Each CAD drawing will contain an information layout which will include all the relevant details appertaining to that drawing. Information (metadata) on all other digital files will be created and stored as appropriate. At the end of the survey all raw measurements will be made available as hard copy for archiving purposes.

B.2 Relevant industry standards and guidelines

B.2.1 Historic England (2007) Understanding the Archaeology of Landscapes A Guide to Good Recording Practice.

B.2.2 Historic England (2015), Metric Survey Specifications for Cultural Heritage.

B.2.3 Historic England (2016), Understanding Historic Buildings A Guide to Good Recording Practice.

B.2.4 Historic England (2017), Photogrammetric Applications for Cultural Heritage. Guidance for Good Practice.

B.3 Relevant OA manual and other supporting documentation

B.3.1 OA South Metric Survey, Data Capture and Download Procedures

B.3.2 OA South Digitising Protocols

B.3.3 OA South GIS Protocols

B.3.4 These will be superseded by the OA South Geomatics Manual (in progress).

APPENDIX C ENVIRONMENTAL EVIDENCE

C.1 Standard methodology – summary

C.1.1 Different environmental and geoarchaeological sampling strategies may be employed according to established research targets and the perceived importance of the strata under investigation. Where possible an environmental specialist(s) will visit the site to advise on sampling strategies. Sampling methods will follow guidelines produced by Historic England and Oxford Archaeology. A register of samples will be kept. Specialists will be consulted where non-standard sampling is required (e.g. TL, OSL or archaeomagnetic dating) and if appropriate will be invited to visit the site and take the samples.

C.1.2 Geoarchaeological sampling methods are site specific, and methodologies will be designed in consultation with the geoarchaeological manager on a site by site basis.

C.1.3 Bulk soil samples, where possible of 40 litres or 100% of a deposit if less is available, will be taken from potentially datable features and layers for flotation for charred plant remains and for the recovery of small bones and artefacts. Larger soil samples (up to 100L) may be taken for the complete recovery of animal bones, marine shell and small artefacts from appropriate contexts. Smaller bulk samples (general biological samples) of 10-20 litres will be taken from any waterlogged deposits present for the recovery of macroscopic plant remains and insects. Series of incremental 2L samples may be taken through buried soils and deep feature fills for the recovery of snails and/or waterlogged plant remains, depending on the nature of the stratigraphy and of the soils and sediments. Columns will be taken from buried soils, peats and waterlogged feature fills for pollen and/or phytoliths, diatoms, ostracods and foraminifera if appropriate. Soil samples will be taken for soil investigations (particle size, organic matter, bulk chemistry, soil micromorphology etc.) and possibly for metallurgical analysis in consultation with the appropriate specialists.

C.1.4 Bulk samples from dry deposits will be processed by standard water flotation using a modified Siraf-style machine and meshes of 0.25mm (flot) and 0.5 or 1mm depending on sediment type and like modes of preservation (residue). Heavy residues will be wet sieved, air dried and sorted. Samples taken exclusively for the recovery of bones, marine shell or artefacts will be wet sieved to 2mm. Waterlogged samples (1L sub-sample) and snail samples (2L) will be processed by hand flotation with flots and residues collected to 0.25mm (waterlogged plants) and 0.5mm (snails) respectively; these flots and residues will be sorted by the specialist. Samples specifically taken for insects, pollen, other microflora and microfauna, metallurgy and soil analysis will be submitted as whole earth to the appropriate specialists or processed following their instructions.

C.2 Relevant industry standards and guidelines

C.2.1 Historic England 2010. Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood.

C.2.2 Historic England 2011. Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post excavation, (2nd ed)

C.2.3 Historic England 2004. Dendrochronology: Guidelines on Producing and Interpreting Dendrochronological Dates (revision due 2020).

C.2.4 University of Bradford 2019 Archaeomagnetism: Magnetic Moments in the Past https://www.brad.ac.uk/archaeomagnetism/

C.2.5 Historic England 2008. Luminescence Dating. Guidelines on Using Luminescence Dating in Archaeology (revision due 2020).

C.2.6 Historic England 2008. Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains (currently being revised).

C.2.7 Historic England 2015. Archaeometallurgy. Guidelines for Best Practice.

C.2.8 Historic England 2015 Geoarchaeology. Using Earth Sciences to Understand the Archaeological Record.

C.2.9 Historic England 2017. Organic Residue Analysis and Archaeology.

C.2.10 Baker, P and Worley, F 2019. Animal Bones and Archaeology: Recovery to Archive. Historic England

C.3 Relevant OA manual and other supporting documentation

C.3.1 Oxford Archaeology 2017. Environmental Sampling Guidelines, 4th ed.

APPENDIX D ARTEFACTUAL EVIDENCE

D.1 Standard methodology - summary

D.1.1 Before a site begins arrangements concerning the finds will be discussed with the Finds Team Leader. Information will be provided by the project manager about the nature of the site, the expected size and make-up of the finds assemblage and any site specific finds retrieval strategies. On-site requirements will be discussed and a conservator appointed who can be called on to make site visits if required. Special requirements regarding particular categories of material will be raised at this early stage for instance the likelihood of recovering assemblages of waterlogged material, large timbers, quantities of structural stone or ceramic building material. Specialists may be required to visit sites to discuss retrieval strategies.

D.1.2 The project manager will supply the Finds Team Leader with contact details of the landowner of the site so that consent to deposit any finds resulting from the investigation can be sought.

D.1.3 The on-site retrieval, lifting and short term packaging of bulk and small finds will follow the detailed guidelines set out in the OA Finds Manual (sections 2 and 3), First Aid for Finds and the UKIC conservation guidelines No.2.

D.1.4 All finds recovered from site will be transported to an OA regional office for processing; local sites will return finds at the end of each day, away based sites at the end of each week. Special arrangements can be discussed for certain sites with the Team Leader before the start of a project. Larger long running sites may in some instances set up on-site processing units to deal with the material from a particular site.

D.1.5 All finds qualifying as Treasure will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act (1996), and the Treasure (Designation) Order 2002. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.

D.1.6 Each box of finds will be accompanied by a finds context checklist itemising the finds within each box. The number of bags of finds from each context and individual small find from each context will be recorded. A member of the processing team will check the list when it arrives in the department. There are separate forms for finds recovered from fieldwalking.

D.1.7 The processing programme is reviewed on a weekly basis and priorities are worked out after discussions with the Fieldwork Team Leader and the Post-excavation Team Leader. Project managers will keep the Finds Team Leader informed of any pressing deadlines that they are aware of. All finds from evaluations are dealt with as a matter of priority.

D.1.8 All bulk finds are washed (where appropriate), marked, bagged and boxed by the processing team according to the guidelines set out in section 4 and 5 of the OA Finds Manual, First-aid for finds and the UKIC guidelines No.2. They must also take into account the requirements of the receiving museum. Primary data recording count and weight of fragments by material from each context is recorded on the site database.

D.1.9 Unstable and sensitive objects are recorded onto the database and then packaged and stored in controlled environments according to their individual requirements. The advice of a conservator will be sought for sensitive objects in need of urgent conservation. All metalwork will be x-rayed prior to assessment (and to meet the requirements of most receiving museums).

D.1.10 Finds recovered from the environmental sample processing will be incorporated into the main assemblage and added to the database.

D.1.11 On completion of the processing and data entry a finds file for each archaeological investigation will be produced, a summary of which is available for the project manager. The assemblage is allocated an OA number for storage purposes. Bulk finds are stored on a roller racking system, metals in a secure controlled storage and organic finds are refrigerated where possible.

D.1.12 The movement of finds in and out of the storage areas is strictly monitored and recorded. Carbon copy transit forms exist to record this information. Finds will not be removed from storage without the prior knowledge of the Finds Team Leader.

D.1.13 Finds information summarised in the finds compendium is used to assess the finds requirements for the post excavation stages of the project. The Team Leader holds a list of all specialists used by OA (see below) both internal and external.

D.1.14 On completion of the post excavation stage of the project the team prepares the finds assemblage for deposition with the receiving museum. Discussions will be held with the museum, the excavator and the Finds Team Leader to finalise any selection, retention or discard policy. Most museums issue strict guidelines for the preparation of archives for deposition with their individual labelling, packaging and recording requirements.

D.2 Relevant industry standards and guidelines

D.2.1 UKIC, 1983, Packaging and Storage of Freshly-Excavated Artefacts from Archaeological Sites. Conservation Guidelines No.2. Archaeology Section, United Kingdom Institute for Conservation.

D.2.2 UKIC, 1988, Excavated Artefacts and Conservation: UK sites Revised Edition. Conservation Guidelines No.1. Archaeology Section, United Kingdom Institute for Conservation.

D.2.3 Society of Museum Archaeologists, 1993, Selection, retention and dispersal of Archaeological Collections. Download available via http://www.socmusarch.org.uk/publica.htm)

D.2.4 Watkinson, D E & Neal, V, 1998, First Aid for Finds (3rd edition). RESCUE & UKIC

D.3 Relevant OA manual and other supporting documentation

D.3.1 Allen, L, and Cropper, C (internal publication only) Oxford Archaeology Finds Manual.

APPENDIX E HUMAN REMAINS

E.1 Standard methodology - summary

E.1.1 Human remains will not be excavated without a relevant licence/faculty and, where applicable (for example, a post medieval cemetery), a risk assessment from the local environmental officer.

E.1.2 All human remains will be treated with due care and regard to the sensitivities involved, and will be screened from the public throughout the course of the works.

E.1.3 Excavation will be undertaken in accordance with CIfA (Roberts and McKinley 1993), Historic England (2018), the Advisory Panel on the Archaeology of Burials in England (APABE, 2015, 2017) and British Association of Biological Anthropology and Osteoarchaeology Code of Practice (2019) and Code of Ethics (2019). For crypts and post-medieval burials, the recommendations set out by the CIfA (Cox 2001) and by the Association of Diocesan and Cathedral Archaeologists and APABE (2010) are also relevant.

E.1.4 In accordance with recommendations set out in the Historic England and Church of England (2005) and updated by the Advisory Panel on the Archaeology of Burials in England (2017), skeletons will not be excavated beyond the limits of the trench, unless they are deemed osteologically or archaeologically important.

E.1.5 Where any soft tissue survives and/or materials (for example, inner coffins, mattresses and other paddings) soaked in body liquor, no excavation or handling of the remains will take place until an appropriate risk assessment has been undertaken. Relevant protocols (i.e. Cox 2001) for their excavation, recording and removal will be adhered to.

E.1.6 OA does not excavate or remove modern burials (those less than 100 years old) and does not remove or open sealed lead coffins. Appropriate PPE (e.g. chemical suit, latex gloves) will be worn by all staff when working with lead coffins.

E.1.7 Graves and their contents will be hand excavated in plan. Each component (for example, skeleton, grave cut, coffin (or remains of), grave fill) will be assigned a unique context number from a running sequence. A group number will also be assigned to all of these, and small finds numbers to features such as coffin nails, hobnails and other grave goods (as appropriate).

E.1.8 Soil samples will be normally taken during the excavation of inhumations, usually from the region of the skull, chest, right hand, left hand, abdomen and pelvis, right foot and left foot. Infants (circa. less than 5 years) will normally be recovered as bulk samples. Soil samples will also be taken from graves that appear to contain no human bone.

E.1.9 Burials (including the skeleton, cremation, coffin fittings, coffin, urn, grave goods / other) will be recorded by photographic and written record using specialised pro forma context sheets, although these records may only include schematic representations of the location and position of the skeletons, depending on the nature and circumstances of the burial.

E.1.10 Where digital imaging is used it will be done in accordance with the British Association of Biological Anthropology and Osteoarchaeology Recommendations on the Ethical Issues Surrounding 2D and 3D Digital Images of Human Remains (2019).

E.1.11 Where necessary, hand drawn plans (usually at 1:10, sometimes 1:5) will be made, especially of contexts where required details cannot be adequately seen using photography (for example, urned cremations; undisturbed hob nails).

E.1.12 Levels will be taken. For inhumations this will be on the skull, pelvis and feet as a minimum.

E.1.13 Human remains that are exhumed will be bagged and labelled according to skeletal region and carefully packed into suitable containers (for example, acid free cardboard boxes) and transported to a suitable storage location. Any associated coffins and coffin fittings will be contained with the human remains wherever possible.

E.1.14 Unurned cremations will not usually be half sectioned, but excavated in spits and/or quadrants (i.e. large deposits or spreads), or recovered as a bulk sample.

E.1.15 Wherever possible, urned cremations will be carefully bandaged, recovered whole and will be excavated in spits in the laboratory, as per the recommendations of McKinley (2004, 2017).

E.1.16 Unless deemed osteologically or archaeologically important disarticuled bone / charnel will be collected and reserved for re-burial if immediate re-internment as close to its original position is not practicable. In some instances, a rapid scan of this material may be undertaken by a qualified osteologist, if deemed relevant.

E.1.17 If undisturbed, pyre sites will normally be excavated in quadrants, at the very least in 0.5 m blocks of 0.5 m spits.

E.1.18 Pyre debris dumps will be half sectioned or quadranted and will be subject to 100% sampling.

E.1.19 Wooden and lead coffins and any associated fittings, including fixing nails will be recorded on a pro forma coffin recording sheet. All surviving coffin fittings will be recorded by reference to Reeve and Adams (1993) and the unpublished master catalogue that is being compiled by OA. Where individual types cannot be paralleled, they will be drawn and/ or photographed and assigned a style number. Biographical details obtained from legible departum plate inscriptions will be recorded and further documentary research will be made.

E.1.20 Funerary structures, such as brick shaft graves and/or vaults will be recorded by photogrammetry or hand-drawn at a scale of 1:10 or 1:20, as appropriate. Location, dimensions and method of construction will be noted, and the structure added to the overall trench plan.

E.1.21 Memorials, including headstones, revealed within the areas of development will be recorded irrespective of whether they are believed to be in situ.

E.1.22 Where required, memorials will be accorded an individual context number and will also be included as part of the grave group, if the association with a burial is clear.

E.1.23 Memorials will be recorded on pro-forma context sheets, based on and following the guidelines set out by Mytum (2002), and will include details of:

- Shape
- Dimensions
- Type of stone used
- Condition, completeness and fragmentation of stones, no longer in original positions
- Iconography (an illustration may best describe these features)
- Inscription (verbatum record of inscription; font of the lettering)
- Stylistic type

E.2 Relevant industry standards and guidelines

E.2.1 Advisory Panel on the Archaeology of Burials in England, 2013, Science and the Dead. A guideline for the destructive sampling of archaeological human remains for scientific analysis. English Heritage Publishing.

E.2.2 Advisory Panel on the Archaeology of Burials in England, 2017 Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England

E.2.3 Advisory Panel on the Archaeology of Burials in England, 2015 Large Burial Grounds. Guidance on sampling in archaeological fieldwork projects

E.2.4 Association of Diocesan and Cathedral Archaeologists and APABE, 2010 Archaeology and Burial Vaults. A guidance note for churches. Guidance Note 2

E.2.5 British Association of Biological Anthropology and Osteoarchaeology. 2019a Code of Practice (http://www.babao.org.uk/index/ethics-and-standards)

E.2.6 British Association of Biological Anthropology and Osteoarchaeology. 2019b Code of Ethics (http://www.babao.org.uk/index/ethics-and-standards)

E.2.7 British Association of Biological Anthropology and Osteoarchaeology, 2019c Recommendations on the Ethical Issues Surrounding 2D and 3D Digital Images of Human Remains (http://www.babao.org.uk/index/ethics-and-standards)

E.2.8 Cox, M, 2001 Crypt archaeology. An approach. CIfA Paper No. 3

E.2.9 English Heritage, 2002 Human Bones from Archaeological Sites. Guidelines for producing assessment documents and analytical reports

E.2.10 Historic England, 2018 The Role of the Human Osteologist in an Archaeological Fieldwork Project. Swindon, Historic England

E.2.11 McKinley, J, and Roberts, C, 1993 Excavation and post-excavation treatment of cremated and inhumed human remains, CIfA Technical Paper No. 13

E.2.12 McKinley, J, 2004 Compiling a skeletal inventory: cremated human bone. In Brickley, M, and McKinley, J (eds) Guidelines to the Standards for Recording Human Remains, CIfA Technical Paper No. 7. 9-13

E.2.13 McKinley, J, 2017 Compiling a skeletal inventory: cremated human bone. In Mitchell P, and Brickley, M (eds) Updated Guidelines to the Standards for Recording Human Remains, CIfA 14-19

E.2.14 Mitchell P, and Brickley, M (eds) Updated Guidelines to the Standards for Recording Human Remains, CIfA 2017

E.2.15 Mytum, H, 2000 Recording and Analysing Graveyards. CBA Handbook No. 15

E.2.16 Reeve, J, and Adams, M, 1993 The Spitalfields Project. Volume I – The Archaeology Across the Styx. CBA Research Report No. 85

E.2.17 The Human Tissue Act 2004

E.3 Relevant OA manual and other supporting documentation

E.3.1 Loe, L, 2008 The Treatment of Human Remains in the Care of Oxford Archaeology. Oxford Archaeology internal policy document

E.3.2 Oxford Archaeology 2018 *Fieldwork Manual Human Remains* unpublished

APPENDIX F REPORTING

F.1 Standard methodology - summary

F.1.1 For Watching Briefs and Evaluations, the style and format of the report will be determined by OA, but will include as a minimum the following:

- A location plan of trenches and/or other fieldwork in relation to the proposed development.
- Plans and sections of features located at an appropriate scale.
- A section drawing showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
- A summary statement of the results.
- A table summarising the features, classes and numbers of artefacts contained within, spot dating of significant finds and an interpretation.
- A reconsideration of the methodology used, and a confidence rating for the results.
- An interpretation of the archaeological findings both within the site and within their wider landscape/townscape setting.

F.1.2 For Excavations, a Post-Excavation Assessment and Project Design will generally be prepared, as prescribed by Historic England Management of Research Projects in the Historic Environment (MoRPHE) 2006, Section 2.3. This will include a Project Description containing:

- A summary description and background of the project.
- A summary of the quantities and assessment of potential for analysis of the information recovered for each category of site, finds, dating and environmental data. Detailed assessment reports will be contained within appendices.
- An explicit statement of the scope of the project design and how the project relates to any other projects or work preceding, concurrent with or following on from it.
- A statement of the research aims of the fieldwork and an illustrated summary of results to date indicating to what extent the aims were fulfilled.
- A list of the project aims as revised in the light of the results of fieldwork and the current post-excavation assessment process.

F.1.3 A section on Resources and Programming will also be produced, containing:

- A list of the personnel involved indicating their qualifications for the tasks undertaken, along with an explanation of how the project team will communicate, both internally and externally.
- A list of the methods which will be used to achieve the revised research aims.

- A list of all the tasks involved in using the stated methods to achieve the aims and produce a report and research archive in the stated format, indicating the personnel and time in days involved in each task. Allowance should be made for general project-related tasks such as monitoring, management and project meetings, editorial and revision time.
- A cascade or Gantt chart indicating tasks in the sequence and relationships required to complete the project. Due allowance will be made for leave and public holidays. Time will also be allowed for the report to be read by a named academic referee as agreed with the County Archaeological Officer, and by the County Archaeological Officer.
- A report synopsis indicating publisher and report format, broken down into chapters, section headings and subheadings, with approximate word lengths and numbers and titles of illustrations per chapter. The structure of the report synopsis should explicitly reflect the research aims of the project.

F.1.4 The Project Design will be submitted to the County Archaeological Officer or equivalent for agreement.

F.1.5 Under certain circumstances (e.g. with very small mitigations), and as agreed with the County Archaeological Officer or equivalent, a formal Assessment and Project Design may not be required and either the project will continue straight to full analysis, or a simple Project Proposal (MoRPHE 2006 Section 2.1) will be produced prior to full analysis. This proposal may include:

- A summary of the background to the project
- Research aims and objectives
- Methods statement outlining how the aims and objectives will be achieved
- An outline of the stages, products and tasks
- Proposed project team
- Estimated overall timetable and budget if appropriate.

F.1.6 Once the post-excavation Project Design or Project Proposal has been accepted, the County Archaeological Officer or his appointed deputy will monitor the progress of the post-excavation project at agreed points. Any significant variation in the project design will be agreed with the County Archaeological Officer.

F.1.7 The results of the project will be published in an appropriate archaeological journal or monograph. The appropriate level of publication will be dependent on the significance of the fieldwork results and will be agreed with the County Archaeological Officer. An OASIS (Online Access to the Index of Archaeological Investigations) form will be completed for each project as per Historic England guidelines.

F.2 Relevant industry standards and guidelines

F.2.1 Oxford Archaeology (OA) adheres to the national standards in post-excavation procedure as outlined in Historic England's Management of Research Projects in the Historic Environment (MoRPHE; EH 2006). Furthermore, all post-excavation projects

take into account the appropriate regional research frameworks as well as national research agendas such as the Framework for Historic Environment Activities & Programmes in Historic England (SHAPE; EH 2008).

APPENDIX G LIST OF SPECIALISTS REGULARLY USED BY OA

G.1.1 Below are two tables, one containing 'in-house' OA specialists, and the other containing a list of external specialists who are regularly used by OA.

Internal archaeological specialists used by OA

Specialist	Specialism	Qualifications
John Cotter	Medieval and Post Medieval pottery, Clay Pipe and CBM	BA (Hons), MCIfA
Dr Alex Davies	Prehistoric Pottery	BA (Hons), MA, PhD, ACIfA
Edward Biddulph	Roman Pottery	BA (Hons), MA, MCIfA
Kate Brady	Roman Pottery	BA, ACIfA
Cynthia Poole	CBM and Fired Clay	BA (Hons), MSc
Ian Scott	Metalwork and Glass	BA (Hons)
Leigh Allen	Metalwork and worked bone	BA (Hons), PGDip
Dr Ruth Shaffrey	Worked stone artefacts	BA, PhD, MCIfA
Julian Munby	Architectural Stone	BA, FSA
Dr Rebecca Nicholson	Fish and Bird Bone	BA (Hons), MA, D.Phil, MCIfA, FSA Scot
Dr Lee Broderick	Animal bone	BA (Hons), MA, MSc, FZG, SAC Dip (ecology), PhD
Dr Mairead Rutherford	Pollen	BSc, MSc
Ian Smith	Animal Bone	BA (Hons), MSc, PCIfA
Dr Martyn Allen	Animal Bone	BA (Hons), MA, PhD
Dr Denise Druce	Charred plant remains, charcoal and pollen	BA (Hons), PhD, MCIfA
Sharon Cook	Charred plant remains	BSc, MSc, ACIfA
Elizabeth Stafford	Geoarchaeology and land snails	BA (Hons), MSc
Carl Champness	Geoarchaeology	BA (Hons), MSc, ACIfA
Nicola Scott	Archaeological archive deposition	BA (Hons Dunelm)
Mike Donnelly	Flint	BSc, MCIfA
Dr Louise Loe	Human Bone	BA PhD, MCIfA, BABAO
Helen Webb	Human Bone	BSc, MSc, MCIfA, BABAO
Mark Gibson	Human Bone	BA, MSc, ACIfA, BABAO
Dr Lauren McIntyre	Human Bone	BSc, MSc, PhD, MCIfA, BABAO
Ui Choileain	Human Bone	Pg Dip, MA, Msc, BABAO
Natasha Dodwell	Human Bone	BA, MSc, BABAO

External archaeological specialists regularly used by OA

Specialist	Specialism	Qualifications
Lynne Keys	Slag	BA (Hons)
Quita Mould	Leather	BA, MA
Penelope Walton Rogers, The Anglo Saxon Laboratory	Identification of Medieval Textiles	FSA, Dip.Acc
Dana Goodburn-Brown	Conservation	BSc (Hons), BA, MSc
Steve Allen, York Archaeological Trust	Conservation	BA, MA, MAAIS
Dr Richard Macphail	Soils, especially Micromorphology	BA (Hons), MSc, PhD
Dana Challinor	Charcoal	MA, MSc
Dr Nigel Cameron	Diatoms	BSc, MSc, PhD
Dr David Smith	Insects	BA (Hons), MA, PhD
Professor Adrian Parker	Phytoliths and pollen	BSc (Hons), D.Phil
Dr David Starley	Metalworking Slag	BSc (Hons), PhD
Wendy Carruthers	Charred and waterlogged plant remains	BA (Hons)
Dr John Whittaker	Ostracods and Foraminifera	BA (Hons), PhD
Dr John Crowther	Soil Chemistry	MA, PhD
Dr Martin Bates	Geoarchaeology	BSc, PhD
Dr Dan Miles	Dendrochronology	D.Phil, FSA
Dr Jean-Luc Schwenninger	Optically Stimulated Luminescence Dating	PhD
Dr David Higgins	Clay Pipe	BA, PhD, MCIfA
Dr Hugo Anderson-Wymark	Flint	BSc, PhD, FSA Scot, MCIfA
Dr Damian Goodburn-Brown	Ancient Woodwork	BA, PhD

APPENDIX H DOCUMENTARY ARCHIVING

Standard methodology – summary

H.1.1 The documentary archive constitutes all the written, drawn, photographic and digital records relating to the set up, fieldwork and post-excavation phases of the project. This documentary archive, together with the artefactual and environmental ecofact archive collectively forms the record of the site. The report is part of the documentary archive, and the archive must provide the evidence that supports the conclusions of the report, but the archive may also include data which exceeds the limitations of research parameters set down for the report and which could be of significant value to future researchers.

H.1.2 At the outset of the project OA Archive manager will contact the relevant local receiving museum or archive repository to notify them of the imminent start of a new fieldwork project in their collecting area. Relevant local archiving guidelines will be observed and site codes, which integrate with the receiving repository, will be agreed for labelling of archives and finds.

H.1.3 Where there is currently no receiving museum for the project archive, although responsibility for the archive ultimately lies with the client, OA will hold the archive on their behalf for a period of up to 3 years after completion of the report, after which time (in the event that a suitable depository has not been secured) provision for further storage of the archive will be made in agreement with Oxford Archaeology, the client and the relevant planning archaeologist.

H.1.4 During the course of the project the Archive team will assist the Project Manager in the management of the archive including the cataloguing and development technique suitable for photographic archive requirements.

H.1.5 The hard copy site archive will be security copied by scanning to PdFA and a copy of this will be housed on the OA Archive Server. A full digital copy of the archive, including scanned hard copy and born digital data, will be deposited with and made publicly available on-line through the ADS. A further copy will be maintained on the OA server and if requested a copy on disk will also be sent to the receiving museum with the hard copy. This will act as a safeguard against the accidental loss and the long-term degeneration of paper records and photographs.

H.1.6 Born digital data will only be printed to hard copy for the receiving museum where practical. Archive elements that need maintaining in digital form will be sent to ADS in accordance with Arches Standard and ADS guidelines. A copy will be sent to the receiving museum by CD and back-up copies will be stored on the OA digital network. In most cases a digital copy of the report will be included in the OASIS project library hosted by ADS.

H.1.7 Prior to deposition the Archive team will contact the museum regarding the size and content of the archive and discuss any retention and dispersal policies which may be applicable in line with local and SMA Guidelines ' Selection, Retention & Dispersal of Archaeological Collections' 1993.

H.1.8 The site archive will then be deposited with the relevant receiving museum or repository at the earliest opportunity unless further archaeological work on the site is expected. The documentary archive will include correspondence detailing landowner consent to deposit the artefacts and any copyright licences in accordance with the receiving museum guidelines. Deposition charges will be required from the client as part of the project costs but the level of the fee is set by the receiving body, and may be subject to change during the lifespan of the project. Changes to archiving charges beyond OA's control will be passed across to the client.

H.1.9 Oxford Archaeology will retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide the receiving repository or museum for the archive with a full licence for use to the client in all matters directly relating to the project as described in the Written Scheme of Investigation, and in line with the relevant receiving body guidelines.

H.1.10 OA will advise the receiving repository or museum for the archive of 3rd party materials supplied in the course of projects which are not OA's copyright.

H.1.11 OA undertakes to respect all requirements for confidentiality about the client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. Archaeological findings and conclusions can be kept confidential for a limited period but will be made publicly available in line with the above procedure either after a specified time period agreed with the client at the outset of the project, or where no such period is agreed, after a reasonable period of time. It is expected that clients respect OA's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

H.2 Relevant industry standards and guidelines

H.2.1 At the end of the project the site archive will be ordered, catalogued, labelled and conserved and stored according to the following national guidelines:

H.2.2 The 2014 EAC Guidelines A Standard and Guide to the Best Practice for Archaeological Archiving in Europe (GB) Perrin K, Brown E et al.

H.2.3 The 2014 CIFA Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives.

H.2.4 The 2011 AAF guide Archaeological Archives A Guide to Best Practice in Creation, Compilation, Transfer and Curation. Brown D.

H.2.5 The UKIC's Guidelines for the preparation of excavation archives for long-term storage.

H.2.6 The MGC's Standards in the museum care of archaeological collections.

H.2.7 Local museum guidelines such as Museum of London Guidelines: (http://www.museumoflondonarchaeology.org.uk/English/ArchiveResearch/DeposResource) will be adopted where appropriate to the archive collecting area.

H.2.8 The site archive will be prepared to at least the minimum acceptable standard defined in Management of Archaeological Projects 2, Historic England 1991.

H.3 Relevant OA manual and other supporting documentation

H.3.1 The OA Archives Policy.

APPENDIX I HEALTH AND SAFETY

I.1 Standard Methodology - summary

I.1.1 All work will be undertaken in accordance with the current OA Health and Safety Policy, the OA Site Safety Procedures Manual, a site-specific Risk Assessment and, if required, Safety Plan or Method Statement. Copies of the site-specific documents will be submitted to the client or their representative for approvals prior to mobilisation, and all relevant H and S documentation will be available on site at all times. The Health and Safety documentation will be read in conjunction with the project WSI.

I.1.2 Where a project falls under the Construction (Design and Management) Regulations (2015), all work will be carried out in accordance with the Principal Contractor's Construction Phase Plan (CPP).

I.2 Relevant industry standards and guidelines

I.2.1 All work will be carried out according to the requirements of all relevant legislation and guidance, including, but not exclusively:

I.2.2 The Health and Safety at Work Act (1974).

I.2.3 Management of Health and Safety at Work Regulations (1999).

I.2.4 Manual Handling Operations Regulations 1992 (as amended).

I.2.5 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (2013).

I.2.6 The Construction (Design and Management) Regulations (2015).

I.2.7 Relevant OA manual and other supporting documentation

I.2.8 The OA Health and Safety Policy.

I.2.9 The OA Site Safety Procedures Manual.

I.2.10 The OA Risk Assessment templates.

I.2.11 The OA Method Statement template.

I.2.12 The OA Construction Phase Plan template.

APPENDIX B TRENCH DESCRIPTIONS AND CONTEXT INVENTORY

Trench 1						
General description					**Orientation**	E/W
Trench devoid of archaeology with the exception of a natural tree throw. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a light brown grey sand silt					**Length (m)**	30
					Width (m)	1.8
					Avg. depth (m)	0.35
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
100	Layer	-	0.18	Natural	-	-
101	Fill	0.36 x 0.7	0.06	Redeposited natural	-	-
102	Cut	0.36x 0.7	0.06	Tree throw	-	-
103	Layer	-	0.21	Topsoil	-	-

Trench 2						
General description					**Orientation**	E/W
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid brown sand silt					**Length (m)**	30
					Width (m)	1.8
					Avg. depth (m)	0.32
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
200	Layer	-	0.17	Natural	-	-
201	Layer	-	0.14	Topsoil	-	-

Trench 3						
General description					**Orientation**	N/S
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	20
					Width (m)	1.8
					Avg. depth (m)	0.35
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
300	Layer	-	0.15	Natural	-	-
301	Layer	-	0.18	Topsoil	-	-

Trench 4						
General description					**Orientation**	N/S
Trench 4 contained one shallow gully, ***402***, filled with redeposited natural. Initially interpreted as an animal burrow due to its straight edges, however, the geophysical survey suggests it may have been a truncated drainage cut					**Length (m)**	30
					Width (m)	1.8
					Avg. depth (m)	0.28
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
400	Layer	-	0.13	Topsoil	-	-
401	Layer		0.15	Natural	-	-
402	Cut	1.3 x 0.23	0.11	Gully/drain	-	-
403	Fill	1.3 x 0.23	0.11	Redeposited natural fill of ***402***	-	-

Trench 5						
General description					**Orientation**	NW/SE
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	18
					Width (m)	1.8
					Avg. depth (m)	0.76
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
500	Layer	-	0.60	Natural	-	-
501	Layer	-	0.16	Topsoil	-	-

Trench 6						
General description					**Orientation**	NW/SE
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	20.8
					Width (m)	1.8
					Avg. depth (m)	0.36
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
600	Layer	-	0.2	Natural	-	-
601	Layer	-	0.16	Topsoil	-	-

Trench 7						
General description					**Orientation**	NW/SE
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	30
					Width (m)	1.8
					Avg. depth (m)	0.4
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
700	Layer	-	0.25	Natural	-	-
701	Layer	-	0.15	Topsoil	-	-

Trench 8						
General description					**Orientation**	E/W
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	19.7
					Width (m)	1.8
					Avg. depth (m)	0.38
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
300	Layer	-	0.14	Natural	-	-
301	Layer	-	0.24	Topsoil	-	-

Trench 9						
General description					**Orientation**	N/S
Trench devoid of archaeology with the exception of a shallow alluvial layer, oriented west/east across the trench and visible for 11m, between the topsoil and subsoil.					**Length (m)**	20.1
					Width (m)	1.8
					Avg. depth (m)	0.37
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
900	Layer	-	0.2	Topsoil	-	-

901	Layer	11m	0.09	Dark silty sand, alluvial layer beneath ***900***	-	-
902	Layer	-	0.15	Natural sand	-	-

Trench 10						
General description					**Orientation**	N/S
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	31
					Width (m)	1.8
					Avg. depth (m)	0.38
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1000	Layer	-	0.25	Natural	-	-
1001	Layer	-	0.13	Topsoil	-	-

Trench 11						
General description					**Orientation**	E/W
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	22
					Width (m)	1.8
					Avg. depth (m)	0.66
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1100	Layer	-	0.24	Natural	-	-
1101	Layer	-	0.42	Topsoil	-	-

Trench 12						
General description					**Orientation**	N/S
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by subsoil, dark brown black sandy silt, in turn, overlain by topsoil, a mid black brown sand silt					**Length (m)**	19.7
					Width (m)	1.8
					Avg. depth (m)	0.6
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1200	Layer	-	0.12	Natural	-	-
1201	Layer	-	0.3	Subsoil	-	-
1202	Layer	-	0.18	Topsoil	-	-

Trench 13						
General description					**Orientation**	NW/SE
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	29.9
					Width (m)	1.8
					Avg. depth (m)	0.31
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1300	Layer	-	0.16	Natural	-	-
1301	Layer	-	0.15	Topsoil	-	-

Trench 14						
General description					**Orientation**	N/S
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	20.5
					Width (m)	1.8
					Avg. depth (m)	0.34
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1400	Layer	-	0.1	Natural	-	-
1401	Layer	-	0.24	Topsoil	-	-

Trench 15						
General description					**Orientation**	E/W
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	20
					Width (m)	1.8
					Avg. depth (m)	0.39
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1500	Layer	-	0.15	Natural	-	-
1501	Layer	-	0.24	Topsoil	-	-

Trench 16						
General description					**Orientation**	E/W
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	19.7
					Width (m)	1.8
					Avg. depth (m)	0.3
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1600	Layer	-	0.1	Natural	-	-
1601	Layer	-	0.2	Topsoil	-	-

Trench 17						
General description					**Orientation**	E/W
Removal of the turf and upper level of topsoil revealed an area of light whitish grey loose gravel oriented broadly west-to-east Undisturbed alluvially-derived subsoil and natural were identified upon removal of the gravel layer					**Length (m)**	20
					Width (m)	1.8
					Avg. depth (m)	0.24
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1700	Layer	-	0.18	Topsoil	-	-
1701	Layer	-	0.06	Natural	-	-
1702	Layer	7.7 x 0.6m	0.08	Gravel hardcore	-	-

Trench 18						
General description					**Orientation**	E/W
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	19.6
					Width (m)	1.8
					Avg. depth (m)	0.6

Context No.	Type	Dimensions (m)	Depth (m)	Description	Finds	Date
1800	Layer	-	0.22	Natural	-	-
1801	Layer	-	0.14	Topsoil	-	-

Trench 19						
General description					**Orientation**	E/W
Trench devoid of archaeology. Natural geology identified as a light brown yellow sand alluvium overlain by topsoil, a mid black brown sand silt					**Length (m)**	19
					Width (m)	1.8
					Avg. depth (m)	0.51
Context No.	**Type**	**Dimensions (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1900	Layer	-	0.3	Natural	-	-
1901	Layer	-	0.21	Topsoil	-	-

Trench 20						
General description					**Orientation**	N-S
Trench containing a single posthole. Consists of topsoil and subsoil overlying natural geology of silty sand.					**Length (m)**	29.5
					Width (m)	1.8
					Avg. depth (m)	0.4
Context No.	**Type**	**Width (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
2000	Layer	-	0.16	Topsoil	-	-
2001	Layer	-	0.24	Subsoil	-	-
2002	Layer	-	-	Natural	-	-
2003	Cut	0.45	0.21	Cut of Posthole	-	-
2004	Fill	0.45	0.21	Fill of Posthole ***2003***	-	-

APPENDIX C BIBLIOGRAPHY

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APPENDIX D SITE SUMMARY DETAILS

Site name:	RAF Sealand South Camp, Welsh Road, Flintshire
Site code:	RAF20
Grid Reference	SJ 32490 69920
Type:	Evaluation
Date and duration:	7th – 11th September 2020
Area of Site	2ha
Location of archive:	The archive is currently held at OA North, Mill 3, Moor Lane Mills, Moor Lane, Lancaster, LA1 1QD insert, and will be deposited with the archive in due course.
Summary of Results:	The evaluation involved the excavation and recording of 20 trenches, 12 measuring 20m long and eight measuring 30m long, representing approximately 2.16% of a 2 ha area in the vicinity of the possible location of Dutton's Flying School. Field drain runs were identified where the geophysical survey had illustrated strong anomalies. Except for a patch of gravel hardcore and an area containing a posthole and ferrous debris, at the eastern extent of the site, no archaeological structures, deposits or artefactual evidence was identified.

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