

Tinbergen Building, South Park Road, Oxford



**Written Scheme of Investigation
for an Archaeological Watching
Brief and Trench Investigation**



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***Written Scheme of Investigation for an Archaeological Watching Brief and Trench
Evaluation***

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1 INTRODUCTION

1.1 Project Details

- 1.1.1 Oxford Archaeology (OA) have been appointed by CPC Project Services on behalf of Oxford University Estates to carry out archaeological mitigation in regard to development adjacent to and within the curtilage of the Tinbergen Building, South Parks Road, Oxford.
- 1.1.2 A proposed development programme comprises demolition and grubbing up of single storey structures and hard-standings at the southern boundary of the site property followed by the erection of a two-storey building on piled foundations. A planning application for the development has yet to be submitted but preliminary discussions with David Radford the Oxford City Archaeologist and archaeological planning advisor for Oxford City Council indicate that due to the archaeological potential of the site a programme of archaeological work would be likely to be a condition attached to any consent to development. Consequently a Desk Based Assessment (DBA) of the site was commissioned by CPC Project Services from Oxford Archaeology (OA 2015)
- 1.1.3 In response to the conclusions of the DBA the Oxford City Archaeologist issued a 'Brief for an Archaeological Field Evaluation' describing the works that would be advised as required in association with any consents given (OCC 2015).
- 1.1.4 This document is a Written Scheme of Investigation (WSI). It is a methodology document, as required by the Brief, detailing how Oxford Archaeology will address the aims of/ and conform to the standards required by the Brief.

1.2 Location and Geology

- 1.2.1 The Site (see Fig.1) is bordered to the north by South Parks Road and to the east by St Cross Road. The Site is wholly covered by the Tinbergen Building and light ancillary buildings that are immediately adjacent to it, to the south. The Site covers an area of around 0.7ha and is located outside the medieval city and immediately outside the Central Oxford Conservation Area. The Site lies within the administrative area of Oxford City Council.
- 1.2.2 The Site is located on the second river gravel terrace and the underlying geology is Oxford Clay. The Site is mostly level, and lies at c.60m OD. There is a basement within the Tinbergen Building which extends down to c.58m OD.
- 1.2.3 The Site can be broken into two distinct parts, roughly a northern and southern section. The northern portion includes the majority of the site and is within the footprint of the concrete Tinbergen Building, which was completed in 1970, and ranges in height from two storeys at the periphery to five storeys at the centre. The southern portion of the Site, presently covered by lightweight structures with concrete foundations is proposed to re-development. The lightweight structures are currently being demolished and a two storey building with pile foundations will be erected in their place.



2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND AND POTENTIAL

2.1 Archaeological and Historical Background

- 2.1.1 The site has been the subject of a desk-based assessment (OA 2015). The results of the DBA are not reproduced in detail here and the DBA should be read in conjunction with this document.
- 2.1.2 The DBA noted the following archaeological potential:
- 2.1.3 There is a high potential for prehistoric remains to be present within the Site, with the Site being located c.50m from a known prehistoric field system. There have also been significant prehistoric remains identified from elsewhere in the DBA Study Area (a 250m radius around the Site was used as the DBA Study Area) including Neolithic and Bronze Age ritual landscapes and funerary monuments. A number of findspots of prehistoric flint artefacts recorded from within the DBA Study Area suggests further isolated artefacts may be present within the gravels that underlie the Site.
- 2.1.4 There is a high potential for Roman remains to be present within the Site. Previous work c.50m away identified that a prehistoric field system continued in use into the early Roman period. There have been a number of Roman artefacts found within the Study Area. The presence of Roman features that date from the 1st – 4th centuries has been shown through previous investigations in the Study Area, and there is the potential for the Site to have remains relating to Roman agriculture and settlement.
- 2.1.5 There is low potential for early medieval remains to be identified within the Site. Only one feature dating to this period has been identified within the Study Area and this is c.180m south-west of the Site. The Site lies outside both the Saxon defences of Oxford and the area of Saxon town settlement. The Site was located within the open fields of Holywell Manor throughout the medieval period.
- 2.1.6 There is low potential for later medieval remains to be present within the Site. No archaeological remains have been identified within the Study Area that date to this period. The presence of artefacts that date to this period within the soil is likely to represent manuring.
- 2.1.7 There is high potential, in the area of the lightweight structures, for remains relating to the Civil War defences being identified within the Site. The location of a bastion or ravelin is shown on Loggan's map of 1675 as lying within the south western corner of the Site (although De Gomme's 1644 plan of the proposed defences places it slightly further to the east and north).
- 2.1.8 Where portions of the Civil War defences have been excavated previously the ditch has been found to be very substantial, c.6 - 7m wide and over 2m deep.

3 PROJECT AIMS

- 3.1.1 The specific aims and objectives of the investigation are:
 - (i) To investigate the presence /absence of archaeological remains within the locality of the extant and proposed building.



4 PROJECT SPECIFIC EXCAVATION AND RECORDING METHODOLOGY

Watching Brief

- 4.1.1 A visit to site has been carried out during the initial demolition works. During this visit it was noted that there is some terracing and other localised below-ground impacts to the Site from the extant constructions. Drainage runs have also been noted (see Fig.1)

Trenches

- 4.1.2 Two trenches totalling a linear length of 25 m will be excavated across the southern area. These are located (see Fig.1) in regard to the mapped modern impacts and the potential line(s) of the Civil War earthworks. The spatial distribution of these trenches is also appropriate for assessing the presence/absence of the prehistoric potential highlighted in the DBA.
- 4.1.3 Trench excavation and recording will be as set out in OA's standard Appendices: Appendix A (included below).

5 PROJECT SPECIFIC REPORTING AND ARCHIVE METHODOLOGY

5.1 Provisional Programme

- 5.1.1 It is anticipated that demolition works will continue during October (2015) followed by trench investigation in November. The investigation will be carried out by a Project Supervisor, under the management of Senior Project Manager Richard Brown MIFA. It is envisaged to take c 2 days with a team of two archaeologists.
- 5.1.2 All fieldwork undertaken by Oxford Archaeology (South) is overseen by the Head of Fieldwork, Dan Poore MIFA.
- 5.1.3 Sufficient information from the investigation will be rapidly supplied to the Oxford City Archaeologist, the client and the clients representatives in order to enable decisions on the mitigation of any potential remains to be made in respect of the proposed timetable of development.
- 5.1.4 One bound and illustrated copy of the completed fieldwork report will be provided not later than 3 months from the completion of fieldwork to David Radford, City Council Archaeologist. Dependant on the results of the investigation this may be an updated project design (in the event that sufficient remains are present to warrant publication work) or the final fieldwork report in the absence of significant remains being present. An updated project design will contain a programme for delivery of the final fieldwork report.
- 5.1.5 Two bound and illustrated copies of the completed final report will be provided to the Oxford Urban Archaeological Database. A CD containing a copy of the report in Adobe Acrobat (.pdf) format will also be provided.
- 5.1.6 One bound and illustrated copy of the completed final report will be provided to the Historic Environment Record.
- 5.1.7 The final report as accepted by David Radford, Oxford City Archaeologist, will be submitted to the Archaeology Data Service with a completed OASIS fieldwork summary form.



5.2 Content

5.2.1 The content of this report will be as defined in Appendix F.

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 Oxford Archaeology will endeavour to ensure that the complete site archive will be deposited with an appropriate museum, ideally the Oxfordshire County Museum following completion of the project.

5.4.2 The site archive will be security copied by microfilming and the master sent to Historic England as part of the National Archaeological Record.

5.4.3 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, Richard Brown, has responsibility for ensuring that safe systems of work are adhered to on site. He delegates elements of this responsibility to the Project Officer/Supervisor, who implements these on a day to day basis.

6.1.2 The Director with responsibility for Health and Safety at OA is Robert Williams (Chief Operations Officer); he is advised by the OA Group Health and Safety Coordinator, Dan Poore (NEBOSH Level 3).

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 risk assessment 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.

6.2.2 The H and S file will be available to view at any time.

7 MONITORING OF WORKS

7.1.1 Notice of the commencement of the works will be given to David Radford, Planning Archaeologist for Oxford City Council.

7.1.2 David Radford will have free access to the site (subject to H and S considerations) and all records to ensure the works are being carried out in accordance with this WSI and all other relevant standards.



8 REFERENCES

OA 2015 Tinbergen Building, South Parks Road, Oxford. Desk-Based Assessment

OCC 2015 Brief for an Archaeological Field Evaluation (Trial trenching). Project: Tinbergen Building, South Parks Road, Oxford. Oxford City Council Heritage and Specialist Services Team



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 excavated trenches. This will normally be a JCB or 360° tracked excavator with a 1.8 m to 2 m wide toothless ditching bucket. For work with restricted access or working room a mini excavator will 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 of the trench 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, the trenches will be backfilled with excavated material in reverse order of excavation, but will otherwise not be fully reinstated.

Hand excavation

- A.1.7 All investigation of archaeological levels will be by hand, with cleaning, examination and recording both in plan and section.
- A.1.8 Within significant archaeological levels the minimum number of features required to meet the aims will be hand excavated. Pits and postholes will usually be subject to a 50% sample by volume. Linear features will be sectioned as appropriate. Features not suited to excavation within narrow trenches will not be sampled. No archaeological deposits will be entirely removed unless this is unavoidable.
- A.1.9 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 entire site will be assessed. The stratigraphy of all evaluation trenches will be recorded even where no archaeological deposits have been identified.
- A.1.10 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.1.11 Written descriptions will be recorded on proforma sheets comprising factual data and interpretative elements.
- A.1.12 Where stratified deposits are encountered a Harris matrix will be compiled during the course of the excavation.
- A.1.13 Plans will normally 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.1.14 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.1.15 A register of plans will be kept.
- A.1.16 Long sections of trenches showing layers will be drawn at 1:50. Sections of features or short lengths of trenches will be drawn at 1:20.
- A.1.17 A register of sections will be kept.
- A.1.18 Generally all sections will be tied in to Ordnance Datum.
- A.1.19 A full black and white and colour (digital) 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.1.20 Photographs will be recorded on OA Photographic Record Sheets.

A.2 Relevant industry standards and guidelines

- A.2.1 The Institute for Archaeologists' Standard and Guidance notes relevant to fieldwork are:
- Standard and Guidance for Field Evaluation
 - Standard and Guidance for 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).
- 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 rectified photography may be used to record standing structures or burials. This will be carried out in line with Standard OA procedures for 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 English Heritage (2009), Metric Survey Specifications for Cultural Heritage
- B.2.2 English Heritage (2006), Understanding Historic Buildings A Guide to Good Practise
- B.2.3 English Heritage, (2007) Understanding the Archaeology of Landscapes A Guide to Good Recording practise

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 Summary of Standard methodology

- 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 and/or geoarchaeological specialist(s) will visit the site to advise on sampling strategies. Sampling methods will follow guidelines produced by English Heritage and Oxford Archaeology. A register of samples will be kept. Specialists will be consulted where non-standard sampling is required (eg. 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.) in consultation with an appropriate specialist.
- 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 (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 and other microflora and microfauna 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 Brunning, R. 1996. Waterlogged wood: the recording, sampling, conservation, and curation of structural wood. English Heritage Guidelines
- C.2.2 English Heritage 2001. Archaeometallurgy. Centre for Archaeology Guidelines 2001.01.
- C.2.3 English Heritage 2002. Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post excavation. Centre for Archaeology Guidelines 2002.01.
- C.2.4 English Heritage 2004. Dendrochronology: Guidelines on Producing and Interpreting Dendrochronological Dates.



- C.2.5 English Heritage 2006. Archaeomagnetic Dating. Guidelines for Producing and Interpreting Archaeomagnetic Dates.
- C.2.6 English Heritage 2007. Geoarchaeology. Using Earth Sciences to Understand the Archaeological Record.
- C.2.7 English Heritage 2008. Luminescence Dating. Guidelines on Using Luminescence Dating in Archaeology.
- C.2.8 English Heritage 2008. Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains.

C.3 Relevant OA manual and other supporting documentation

- C.3.1 Oxford Archaeology 2005. Environmental Sampling Guidelines, 2nd ed.

APPENDIX D. ARTEFACTUAL EVIDENCE

D.1 Summary of Standard methodology

- D.1.1 Before a site begins arrangements concerning the finds will be discussed with the Head of Finds. 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 Head of Finds 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 department manager 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 can not 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 Head of Fieldwork and the Head of Post-excavation. Project managers will keep the Head of Finds 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 department 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 Head of Finds.
- 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 Finds department 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 department prepares the finds assemblage for deposition with the receiving museum. Discussions will be held with the museum, the excavator and the head of finds 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. BURIALS

E.1 Summary of Standard methodology

- 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 IFA (Roberts and McKinley 1993) and English Heritage and The Church of England guidelines (Mays 2005). For crypts and post-medieval burials the recommendations set out by the IFA (Cox 2001) in *Crypt Archaeology: an approach*, are also relevant.
- E.1.4 In accordance with recommendations set out in the English Heritage and Church of England (2005) document *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England*, 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 (post-1907) 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 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 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 digital rectified photography (for example, urned cremations; undisturbed hob nails).



- E.1.11 Levels will be taken. For inhumations this will be on the skull, pelvis and feet as a minimum.
- E.1.12 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.1.13 Unurned cremations will not usually be half sectioned or excavated in spits, but recovered as a bulk sample.
- E.1.14 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).
- E.1.15 Unless deemed osteologically or archaeologically important disarticulated bone / charnel will be collected and reserved for re-burial if immediate re-interment 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.1.16 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.1.17 Pyre debris dumps will be half sectioned or quadrant and will be subject to 100% sampling.
- E.1.18 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.1.19 Funerary structures, such as brick shaft graves and/or vaults will be 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.1.20 Memorials, including headstones, revealed within the areas of development will be recorded irrespective of whether they are believed to be in situ.
- E.1.21 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.1.22 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
 - Iconography (an illustration may best describe these features)
 - Inscription (verbatim record of inscription; font of the lettering)
 - Stylistic type



E.2 Relevant industry standards and guidelines

- E.2.1 Cox, M, 2001 Crypt archaeology. An approach. IFA Paper No. 3
- E.2.2 Mays, S, 2005 Guidance for Best Practice for Treatment of Human Remains Excavated from
- E.2.3 Christian Burial Grounds in England. Church of England and English Heritage.
- E.2.4 McKinley, J, and Roberts, C, 1993 Excavation and post-excavation treatment of cremated and inhumed human remains, IFA Technical Paper No. 13
- E.2.5 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, IFA Technical Paper No. 7. 9-13.
- E.2.6 Mytum, H, 2000 Recording and Analysing Graveyards. CBA Handbook No. 15.
- E.2.7 Reeve, J, and Adams, M, 1993 The Spitalfields Project. Volume I – The Archaeology Across the Styx. CBA Research Report No. 85

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 Excavating and recording human remains. Oxford Archaeology internal guidelines document.

APPENDIX F. REPORTING

F.1 Summary of Standard methodology

- 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 English Heritage (now 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 (eg 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 English Heritage 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 English Heritage'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 English Heritage (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 specialists who are regularly used by OA.

Internal archaeological specialists used by OA

Specialist	Specialism	Qualifications
Lisa Brown	Early Prehistoric pottery	BA, PGDip, Mlitt, MifA
Paul Booth	Iron Age and Roman pottery	BA, FSA, MifA
John Cotter	Medieval and Post Medieval pottery	BA (Hon.), MifA
Cynthia Poole	CBM and Fired Clay	BA (Hon.), MSc
Dr David Mullin	Flint	BA, M.Phil, PhD
Ian Scott	Metalwork and Glass	BA (Hon.)
Leigh Allen	Metalwork and worked bone	BA (Hon.), PGDip
Dr Ruth Shaffrey	Worked stone artefacts	BA, PhD
Julian Munby	Architectural Stone	BA, FSA
Dr Rebecca Nicholson	Fish, small mammal and bird bone	BA (Hon.), MA, D.Phil, MifA, FSA Scot
Elizabeth Huckerby	Pollen and waterlogged plant remains	BA, MSc, MifA
Kathryn Hunter	Charred and waterlogged plant remains	BA (Hon)
Lena Strid	Animal bone	MA
Dr Denise Druce	Pollen, charred plant	BA, PhD, MifA



Specialist	Specialism	Qualifications
	remains and charcoal	
Elizabeth Stafford	Geoarchaeology and land snails	BA, MSc

External archaeological specialists regularly used by OA

Specialist	Specialism	Qualifications
Lynne Keys	Slag	BA (Hon.)
Quita Mould	Leather	BA, MA
Penelope Walton Rogers	Textiles	FSA, Dip.Acc
Dana Goodburn Brown	Conservation	BSc (Hon.), BA, MSc
Steve Allen	Conservation	BA, MA, MAAIS
Dr Richard McPhail	Soils, especially Micromorphology	BA (Hon.), MSc, PhD
Dana Challinor	Charcoal	MA (Hon.), MSc
Dr Nigel Cameron	Diatoms	BSc, MSc, PhD
Dr David Smith (Birmingham)	Insects	BA (Hon.), MA, PhD
Professor Adrian Parker	Phytoliths and pollen	BSc (Hon.), D.Phil
Dr Enid Allison	Insects	BSc (Hon.), D.Phil
Dr David Starley	Slag	BSc, PhD
Wendy Carruthers	Charred and waterlogged plant remains	BA (hon)
Dr Sylvia Peglar	Pollen	BSc, PhD
Dr John Whittaker	Ostracods and Foraminifera	BA (Hons), PhD
Dr John Crowther	Soil Chemistry	MA, PhD
Dr Martin Bates	Geoarchaeology	BSc, PhD
Professor Mark Robinson	Insects, molluscs, waterlogged plant remains	MA, PhD
Dr Dan Miles	Dendrochronology	D.Phil, FSA
Dr Jean-luc Schwenninger	Optically Stimulated Luminescence Dating	PhD

APPENDIX H. DOCUMENTARY ARCHIVING

H.1 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 department 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 During the course of the project the Archive department will assist the Project Manager in the management of the archive including the cataloguing and development technique suitable for photographic archive requirements.
- H.1.4 The site archive will be security copied either by microfilming and the master sent to Historic England as part of the National Archaeological Record or it will be digitally scanned and stored in a dedicated archive section of the OA computer network. A copy of the work as microfiche diazo or .pdf/a on disk will be sent to the receiving museums 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.1.5 Born digital data where suitable will be printed to hard copy for the receiving museum but if the format is such that it needs maintaining in digital form a copy will be sent to the receiving museum by CD. Back-up copies will be stored on the OA digital network and or posted to the ADS in accordance with AAF & ADS guidelines. In most cases a digital copy of the report will be included in the OASIS project library hosted by ADS.
- H.1.6 Prior to deposition the Archive department 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.1.7 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.
- H.1.8 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 a licence to the client in all matters directly relating to the project as described in the Written Scheme of Investigation.
- H.1.9 OA will advise the client of any such materials supplied in the course of projects which are not OA's copyright.
- H.1.10 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. OA further undertake to keep confidential any conclusions about the likely implications of such proposals for the historic environment. 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 2007 AAF guide Archaeological Archives A Guide to best practice in creation, compilation, transfer and curation. Brown D.
- H.2.3 The IFA Standard & Guidance for the creation, compilation, transfer and deposition of archaeological archives
- H.2.4 The UKIC's Guidelines for the preparation of excavation archives for long-term storage
- H.2.5 The MGC's Standards in the museum care of archaeological collections
- H.2.6 Local museum guidelines such as Museum of London Guidelines: (<http://www.museumoflondonarchaeology.org.uk/English/ArchiveResearch/DeposResourc>) will be adopted where appropriate to the archive collecting area.
- H.2.7 The site archive will be prepared to at least the minimum acceptable standard defined in Management of Archaeological Projects 2, English Heritage 1991.

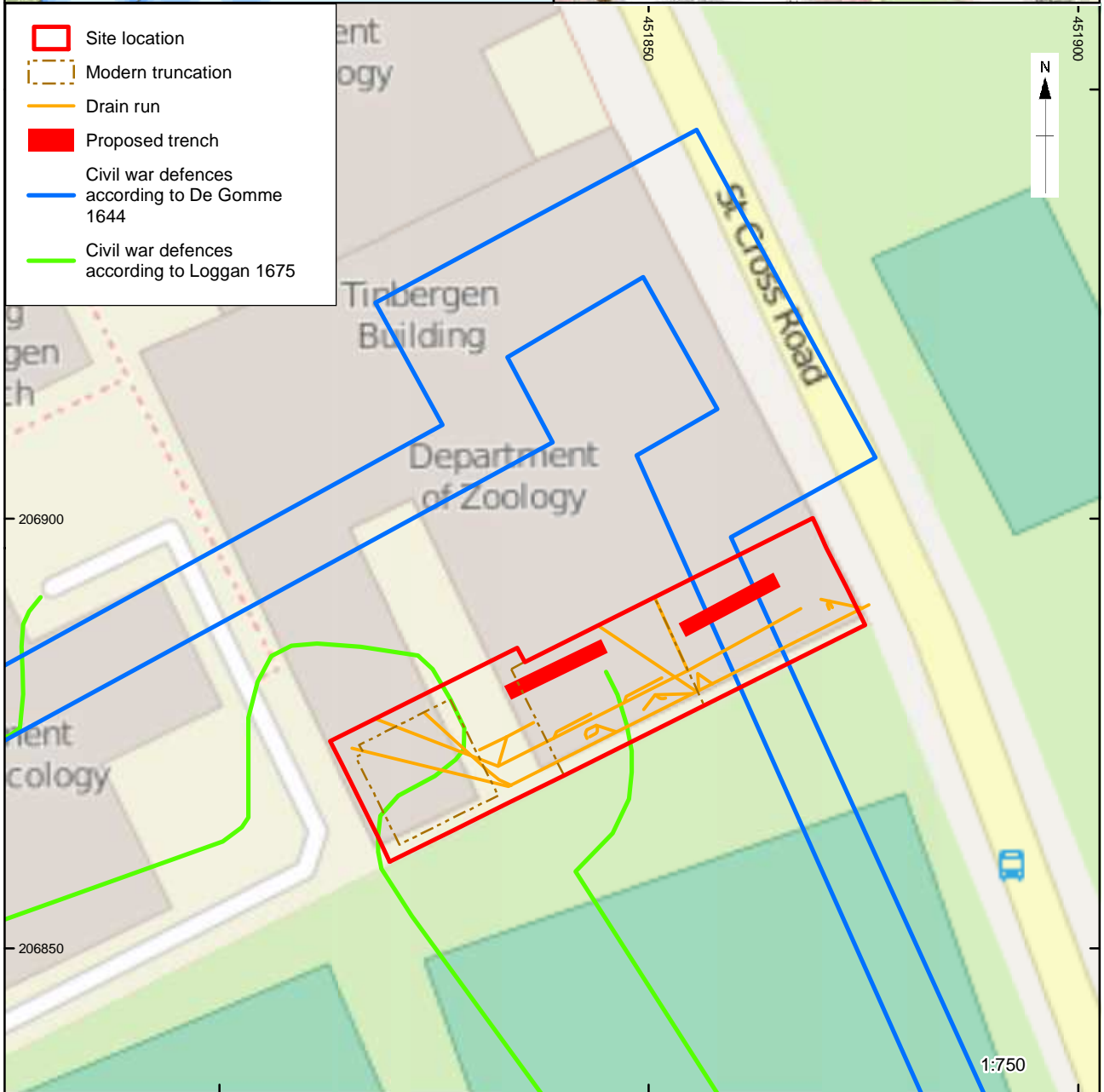
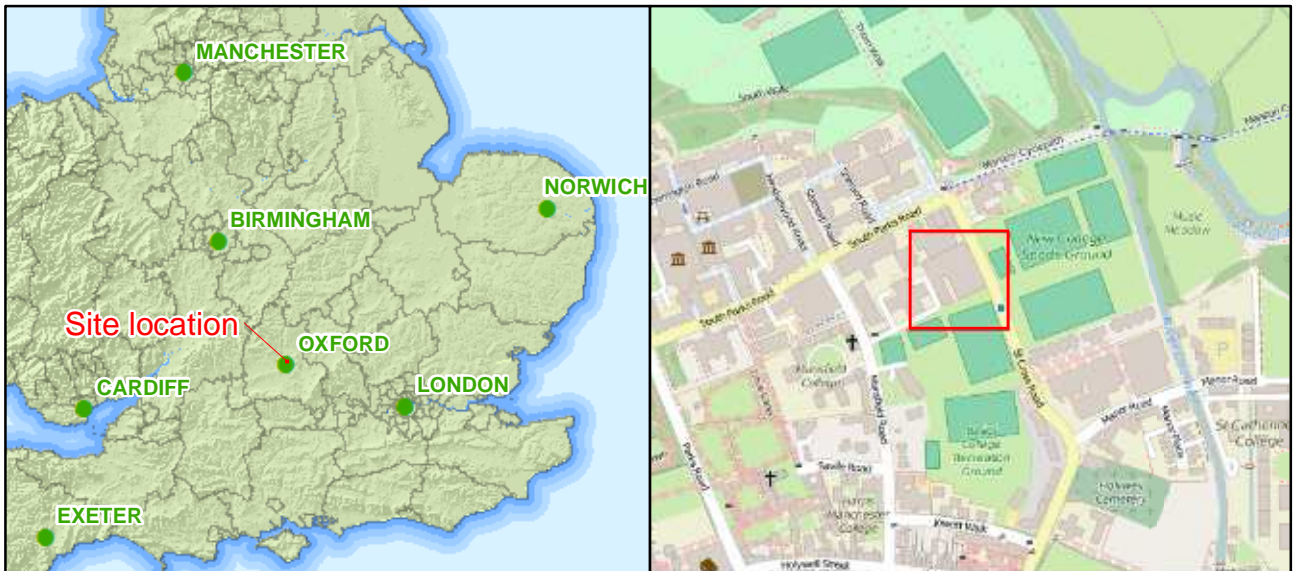
H.3 Relevant OA manual and other supporting documentation

- H.3.1 The OA Archives Policy.

APPENDIX I. HEALTH AND SAFETY

I.1 Summary of Standard Methodology

- I.1.1 All work will be undertaken in accordance with the OA Health and Safety Policy (Revision 13, August 2009), 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 site is covered by the The Construction (Design and Management) Regulations (2007), all work will be carried out in accordance with the Principal Contractor's Construction Phase Plan.
- I.1.3 All work will be carried out according to the requirements of all relevant legislation and guidance, including, but not exclusively.
 - The Health and Safety at Work Act (1974),
 - Management of Health and Safety at Work Regulations (1999),
 - Manual Handling Operations Regulations 1992 (as amended in 2002),
 - The Construction (Design and Management) Regulations (2007), and
 - The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995).



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Figure 1: Site location



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