



Gravenhill, Bicester

Outline Written Scheme of Investigation (Planning Application ref. 11/01494/OUT - Condition 71)

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This document has been prepared and checked in accordance with
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Comments



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1. Introduction

- 1.1. This outline specification for archaeological investigation has been prepared by Waterman Energy, Environment & Design Ltd (Waterman EED) on behalf of Graven Hill Village Development Company. (hereafter referred to as the 'Applicant'). The Applicant have obtained outline planning permission for the:

'Redevelopment of former MOD sites including demolition of existing buildings, development of 1900 homes; local centre to include a 2 form entry primary school (class D1), a community hall of 660sqm, five local shops or facilities to include A1, A2, A3, A5 and D1 uses totalling up to 1358sqm, up to 1000sqm gross A1 uses, a pub/restaurant/hotel (class A4/A3/C1) up to 1000sqm and parking areas; employment floorspace comprising up to B1(a) 2160sqm, B1(b) 2400sqm, B1(c) and B2 20520sqm and B8 uses up to 66960sqm; creation of public open space and associated highway improvement works, sustainable urban drainage systems, biodiversity improvements, public transport improvements and services infrastructure. Erection of a 70400sqm fulfilment centre on 'C' site and associated on site access improvement works, hardstanding, parking and circulation areas'

- 1.2. The parcel of land (hereafter referred to as the 'Site') covers an area of approximately 186 hectares (ha) and is located within the administrative boundary of Cherwell District Council (CDC).
- 1.3. The outline planning application was submitted in October 2011 (**11/01494/OUT**) and granted conditional consent in August 2014. The planning consent included four archaeology related conditions, of which condition 71 is relevant for this specification.

Condition 71

- 1.4. *"Prior to any demolition and the commencement of the development at Graven Hill a professional archaeological organisation acceptable to the Local Planning Authority shall prepare an Archaeological Written Scheme of Investigation, relating to the Graven Hill application site area, which shall be submitted to and approved in writing by the Local Planning Authority.*

Reason - To safeguard the recording and inspection of matters of archaeological importance on the site in accordance with Government guidance contained within the National Planning Policy Framework."

- 1.5. As such, this specification for archaeological investigation and mitigation has been prepared in response to a requirement for an 'Archaeological Scheme of Investigation'.
- 1.6. This outline written scheme of investigation has been prepared in line with a design brief issued by Richard Oram, Planning Archaeologist at Oxfordshire County Council (advisors to Cherwell District Council). The design brief and appendices are included in **Appendix B**. This brief sets out the first stage of the investigation, an archaeological field evaluation. Further mitigation may be required, depending on the results of the evaluation, which will be detailed in a subsequent brief. This brief also contains details for an archaeological watching brief to be undertaken during a series of geotechnical test pits. Subsequently to the design brief being issued, the need for a strip-map-and-record exercise over an area where two ponds will be excavated for ecological mitigation purposes was also discussed with Richard Oram, and an additional specification for the investigation is also set out below.

- 1.7. Section 2 of this document provides an overview of the archaeological background, identifying areas of greater potential. The following sections provide an overall methodology for further investigations, and determine contractor requirements. **Appendix A** elaborates on additional contractor requirements.
- 1.8. An historic environment investigation by Amec, on behalf of the Defence Infrastructure Organisation, delivering a Historic Environment chapter in the Environmental Statement (ES), was submitted with the original planning application¹. In it, the potential for the presence of heritage assets within the Site was demonstrated. The potential relates to the presence of sub-surface archaeological remains within limited parts of the Graven Hill Site, as suggested by the results of desk-based assessment and geophysical survey (results included at **Appendix C** and **D**). The archaeological remains identified during the geophysical survey consist mainly of pits and ditches, though in most cases there is a lack of a clear pattern, partly due to the limited areas in which features of potential archaeological interest were identified. Two principal areas of potential were identified within the Site boundary:
- Positive linear and curvilinear anomalies that appear to relate to cut ditch-like features with archaeological potential were identified to the north-western site boundary (Area A, Field 1, Archaeological Survey Ltd, Report no. 332 in **Appendix C**). The extent of the probable archaeological features was too limited to discern a clear form, though they may also extend beyond the Site boundary to the north-west. This area is within approximately 700 m of Alchester Roman Town (Scheduled Monument), and therefore it is possible that they may be related.
 - Positive linear, curvilinear and discrete anomalies were located within a field to the immediate north of Graven Hill Wood (Area H east, Archaeological Survey Ltd, report no. 347 in **Appendix D**). These may indicate cut features, such as ditches and pits and whilst a relatively recent origin cannot be ruled out, they may be of archaeological interest. This area appears not to have been previously occupied by built form, and therefore the survival of earlier features of archaeological interest is possible.
- 1.9. It has been agreed with Richard Oram (Planning Archaeologist, Oxfordshire County Council), advisor to CDC, that it will be necessary to provide further information, from a trial trench evaluation of those areas of the Site to be the subject of ground intrusive development, in order to characterise any below ground heritage assets thereby revealed. This evaluation will target areas with potential for archaeology, specifically those areas identified as having archaeological potential during the geophysical survey, and low levels of expected truncation.
- 1.10. This specification for archaeological investigation and mitigation presents an outline methodology for the required work. This will form the basis for subsequent detailed written schemes of investigation completed by fieldwork contractors, for each phase and/or sub-phase of the investigation, as appropriate.
- 1.11. The results of any intrusive and/or non-intrusive investigation and mitigation will need to be subject to suitable post-excavation assessment. The reports resulting from the fieldwork will present a digest of information on the character and significance of any archaeological assets located.

¹ Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*

2. The Site

- 2.1. The Site is approximately 186 hectares (ha) in area, centred on Ordnance Survey Grid Reference SP 58863 20363. The Site descriptions presented below are those set out in the ES authored by Amec², and submitted with the planning application.
- 2.2. The Site is located 1.5 km to the south of the centre of Bicester with the northern site boundary formed by the A41 and the boundary to the west being the main (Oxford to Bicester) railway line. Relatively flat agricultural land is located to the south, and the village of Ambrosden is located to the south-east.
- 2.3. Land around Graven Hill has been in use as a military depot since 1941-2 and so the Site is occupied by a number of large storage buildings arranged around the base of the hill. These are served by a local network of road and rail lines which surround Graven Hill Wood. The sloping ground which rises toward the wooded hilltop consists mainly of agricultural land (currently used for cattle pasture).

Topography

- 2.4. The landform of the surrounding study area is predominantly flat, and generally at elevations of approximately 60 m to 65 m Above Ordnance Datum (AOD), rising gently to the north of Bicester. This flat landform is associated with the River Ray floodplain and small tributary streams which dominate the southern half of the study area. The Graven Hill landform at the centre of the Site rises to 115 m AOD, and is one of a series of isolated hills (Poundon Hill, Arcott Hill and Muswell Hill) which rise above the surrounding landscape. The majority of the developed part of the Site lies below 75 m AOD, closer to levels within the immediate surroundings.

Geology

- 2.5. The superficial (drift) geology was generally absent from the results of a Site Investigation carried out prior to submission of the planning application, however, deposits of alluvium (clay, silt and gravel), made ground and topsoil were all encountered. These deposits were underlain by clay layers with firm orange-brown mottled and brown-grey mottled, clay layers with occasional sand and gravel bands of fine gypsum crystals encountered at shallow depth. These layers were themselves underlain by a firm, brown, laminated, clay layer typically with highly weathered yellow chalk veins and fine gypsum crystals.
- 2.6. The bedrock (solid) geology comprised stiff grey laminated clay with shell fragments and occasional gypsum crystals and was believed to be part of the Peterborough Member (mudstone) of the Oxford Clay Formation. Beneath the Oxford Clay Formation, the Kellaways Sand and Kellaways Clay members of the Kellaways Formation with the Cornbrash Formation (predominantly calcareous shelly mudstones and fossiliferous limestones) located beneath the Kellaways Formation.

² Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*

3. Archaeological Background

- 3.1. The Site history presented below summarises that set out in the ES authored by Amec³, and submitted with the planning application.

Prehistory

- 3.2. There are no recorded assets dating to this period within the Site, however evidence from the surrounding area shows that it was occupied during this period.
- 3.3. There has been some suggestion in the past that the top of Graven Hill was the Site of an Iron Age hill fort and that a linear earthwork, which is still visible within the Graven Hill Wood, formed part of the ramparts. However, these earthworks were investigated by the archaeological excavation of a number of trial trenches in 1999⁴, with no clear evidence of Iron Age activity being recovered. There is no other known evidence for Iron Age activity within Graven Hill Wood and an alternative interpretation of the earthworks representing the remains of Post Medieval lynchets of agricultural origin appears to be more likely.
- 3.4. Evidence of Prehistoric settlement and activity within the 1 km study area used for the baseline presented in the ES⁵ comes from a variety of sources, including those which have been recorded by excavation, sites identified as cropmarks on aerial photographs, and as artefact finds.
- 3.5. Iron Age settlement sites have been identified at Chesterton Lane and Bicester Fields Farm. The Chesterton Lane site was investigated in advance of construction for dualling of the A41⁶ and identified the presence of middle Iron Age gullies, postholes and sub-rectangular enclosures, all being indicative of settlement. An isolated Bronze Age burial was also identified. The Bicester Fields Farm site⁷ is north of Graven Hill and excavation identified an Iron Age enclosure of two phases, and surrounded by other domestic features: pits, boundary ditches and both human and animal burials. A late Iron Age date was identified on the basis of the pottery assemblage, and other finds suggested an economy of pastoralism, with unusually large cattle and ironworking, indicating that the farmstead may have been of relatively high status. Evidence for earlier prehistoric (Mesolithic) activity was also identified⁸.
- 3.6. Cropmark evidence from aerial photography⁹, includes two possible round barrows of probably Bronze Age date to the north-west of the Site which are visible as ring ditches. In addition, a banjo-type enclosure, three hut circles and a number of sinuous ditches have been identified on aerial photographs to the immediate south-west of the Alchester Roman town (Oxfordshire HER ref. 13904)¹⁰. These have been interpreted as possible evidence for pre-Roman settlement within this

³ Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*

⁴ Oxford University Archaeological Society and School of archaeological studies, University of Leicester, 2000. *Ambrosden, The entrenchments on Graven Hill* (SP 591 204) by Eberhard Sauer in *South Midlands Archaeology*, vol. 30

⁵ Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*

⁶ P M Booth, J Evans and J Hiller, 1991. *Excavations in the Extramural Settlement of Roman Alchester, Oxfordshire*, in *Oxford Archaeology Monograph*, 1

⁷ Oxford Archaeological Unit, 1998. *Bicester Fields Farm, Bicester, Oxfordshire – Archaeological Evaluation Report*

⁸ “*The excavation of a Late Iron Age enclosed settlement at Bicester Fields Farm, Bicester, Oxon.*” in *Oxoniensia* Issue : 64 (2000), Pages: 153 - 233

⁹ Air Photo Services Ltd, 2005. *Land southwest of Bicester, Oxfordshire: Interpretation of Aerial Photographs for Archaeology*. Project No. 0418

¹⁰ http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MOX5141&resourceID=1033

[Accessed: 30 January 2015]

area. Further evidence recorded in the Oxfordshire HER has been found in the form of artefacts, including a Bronze Age palstave (Oxfordshire HER ref. 16086) found in the vicinity of Alchester Roman Town and Bronze Age spearhead (Oxfordshire HER ref. 13922) from south of Graven Hill. There are also a number of finds of late Iron Age pottery recorded in the HER.

Romano-British

- 3.7. The principal settlement site of Roman date within the area is the town of Alchester, a Scheduled Monument. Together with the associated Roman roads, one of which crosses the Site, Alchester defines the Roman settlement pattern in the immediate surrounds of the Site.
- 3.8. Other areas of Roman settlement were also present, including a site which has been excavated at London Road in Bicester (Oxfordshire HER ref. 26005). This was within an area of raised ground between two paleo-channels, and comprised a large number of ditches, pits and postholes. The excavation presented a picture of settlement within an area which was generally wet and marshy.
- 3.9. Another Roman period settlement site has been excavated to the north of Graven Hill at Oxford Road¹¹. Evaluation revealed extensive survival of late Iron Age and Romano-British settlement within the floodplain of Langford Brook. All identified features were preserved under post-Roman alluvium, and appeared to represent two phases of occupation. The first of these phases was dated to the first century AD, and the second to the second century AD. It was interpreted as a low status rural site typical of Upper Thames region for the period, at a time when increasing agricultural intensification required use of previously marginal land.
- 3.10. A feature of interest in the early OS editions is the course of Langford Lane which ran within the Graven Hill Site boundary. From its current location at Alchester, the lane continued toward Merton, remaining outside of the Site boundary. The other branch continued to the east, following a line on the north side of Graven Hill, within the Site boundary, joining the line of Akeman Street at Wretchwick Farm. Given its location, it is possible that this may be a survival of the original Roman Road which led east from Alchester to link with Akeman Street. This route appears to have survived the initial construction of the Graven Hill ordnance depot as it can be seen on aerial photographs of 1945 as a double line of trees.
- 3.11. There is also a significant body of evidence of Roman occupation documented in the Oxfordshire HER in the form of numerous artefact finds, many of which have been from within and around the Alchester site or along the known routes of Roman roads.

Medieval

- 3.12. There is relatively little known of the early Medieval settlement within the area, though the Roman town at Alchester was abandoned, perhaps from around the fifth century AD. Bicester appears to have been established as a Saxon settlement in the sixth century and was named as Burencestre in the Domesday Book. The name has been described as either meaning 'fort of Bern' with 'Bern' being derived from the personal name for Beorna¹², or alternatively being derived from two separate elements – 'byrgen' meaning burial mound, and 'ceaster' meaning Roman fort¹³. The earliest

¹¹ Bevan, L and Leach, P, 1993. *An Archaeological Evaluation at Oxford Road, Bicester, Oxfordshire* (BUFAU Report 277) and Mould, C., 1996. *An Archaeological Excavation at Oxford Road, Bicester, Oxfordshire* in *Oxoniensia*, vol. 61

¹² 'The market town of Bicester', in *A History of the County of Oxford: Volume 6*, ed. Mary D Lobel (London, 1959), pp. 14-56 <http://www.british-history.ac.uk/vch/oxon/vol6/pp14-56> [accessed 30 January 2015].

¹³ Ekwall, E., 1960. *The Concise English Dictionary of English Place-names*

excavated evidence for settlement within the town is from a site to the rear of the King's Arms¹⁴, which lies to the north of Graven Hill. Excavated remains included pits, gullies and evidence for a number of sunken-feature buildings, which may represent former houses.

- 3.13. The first edition Ordnance Survey (OS) map of 1885 includes the note site of battle between the Danes and Saxons in 871 AD within Graven Hill Wood. However, there is no other known reference to an early medieval battle at this location and it is not clear on what this is based. Without further evidence, this record should be treated with caution.
- 3.14. The first edition OS also indicates the boundary between the parishes of Ambrosden and Merton cutting across Graven Hill Wood. The division into two halves may be significant since they are divided by a dry ditch starting at the northern 300' contour and rising with the landscape to possibly 370' and down again to the southern 300' contour. The two halves of woodland are approximately 53.333 acres each. It may be that the woodland was equally divided between the parishes of Ambrosden and Merton (Oxfordshire HER ref. 13593).
- 3.15. Ambrosden formed the principal Medieval settlement within its parish, though other settlements are also known, such as the one at Arccott. During the Medieval period, much of the land around Graven Hill appears to have been in arable use, and the Victoria County History¹⁵ records that the agricultural land of Ambrosden village was organised around three main fields known by the seventeenth century as East, South and West Fields. The extent of arable cultivation is indicated on aerial photographs of the 1940s which show ridge and furrow earthworks (derived from Medieval and Post Medieval ploughing) on much of the land surrounding the hill, including some of the lower slopes.
- 3.16. In addition to the surviving settlements of Medieval origin, there was also a Medieval settlement at Wretchwick, to the north of Graven Hill, and possibly extending into its lower slopes. Wretchwick, now a Scheduled Monument, was in the possession of Bicester Priory, before being depopulated by the priory to make way for sheep grazing.

Post Medieval

- 3.17. The Site is shown in detail on a series of OS Maps dating from 1880 onwards. In 1880, the Graven Hill Site is shown comprising a series of enclosed fields arranged around Graven Hill Wood. A single farmstead was present within the Site boundary in 1880, located on the southern edge of Graven Hill Wood, and known as Mount Pleasant. A building is shown on this location on the aerial photographs of 1944-45 and it is possible that Mount Pleasant remained until the development of St David's Barracks in the 1950s.

Twentieth Century

- 3.18. The major development of the twentieth century, which has shaped the current form of the Site, was the establishment of the Central Ordnance Depot I 1941 during World War Two (WWII). The Bicester site was chosen as being suitable as it was located within southern England, with good road and rail links, and with sufficient space for the creation of a dispersed complex required for protection against air attack. It was also felt that the presence of Graven Hill will provide some additional protection in this regard. The depot was to spread over a wide area, occupying a number of sites from Graven Hill in the north to Arccott and Piddington in the south, collectively known as MOD Bicester.

¹⁴ Harding, P & Roberts, M, 2000. *King's Arms, Bicester, Oxfordshire. Assessment Report on the Results of the Archaeological Excavation Including Proposals for Post-Excavation Analysis and Publication* (Wessex Archaeology)

¹⁵ 'Parishes: Merton', in *A History of the County of Oxford: Volume 5, Bullingdon Hundred*, ed. Mary D Lobel (London, 1957), pp. 221-234 <http://www.british-history.ac.uk/vch/oxon/vol5/pp221-234> [accessed 25 January 2015].

- 3.19. The selection of MOD Bicester was approved in May 1941 and construction began soon after. Initial construction involved the laying of a 42 mile military rail network within and linking the various sites, followed by construction of the warehouse buildings. Graven Hill comprised D Site (armaments stores) to the south and E Site (small arms) to the north. Stores began to be issued from the MOD Bicester depot in August 1942, and it remained a key supply point for the army for the remainder of the war.
- 3.20. The entry of the United States into the war led to the arrival of large numbers of American troops into Britain, and it was necessary to provide depot facilities for their equipment. This operation was codenamed Bolero and at Bicester it involved the construction of temporary warehouse in the form of groups of Romney huts served by rail spurs and roads. The completed depot at MOD Bicester served as a key facility in supplying equipment for the Normandy landings in June 1944 and subsequent European campaign. It was also necessary to provide accommodation within the depot for a workforce which during construction reached 24,000, and this was provided by Nissen huts organised into nine self-contained camps. Three of these, Camp nos. 5, 6 and 7 were located on the slopes around Graven Hill Wood. This is depicted in the earliest aerial photography available for the Site. In 1944 much of the agricultural land surrounding the depot was occupied by ridge and furrow and areas of ridge and furrow also survived within the depot. Changes visible on aerial photographs within the Graven Hill Site are:
- Construction of St David's Barracks by 1954;
 - Hutted accommodation north of Graven Hill Wood had been removed by 1959;
 - More of the hutted accommodation had been removed by 1966 and trees within the Graven Hill Wood had been felled;
 - Only a small number of accommodation huts were still present by 1975. Graven Hill Wood had been replanted and no ridge and furrow earthworks are shown to survive within the Site; and
 - All accommodation huts had been removed by 1989.
- 3.21. In addition, the sequence of aerial photographs show the gradual removal by ploughing of ridge and furrow from the surrounding agricultural land, and this was largely absent by 1975.
- 3.22. MOD Bicester continued to operate as a Central Ordnance Depot in the post-war period, though the military workforce was gradually replaced by an increasing number of civilian workers. This meant the need for civilian workers to move into the area and some new housing to be built in Bicester to accommodate them. The temporary hutted accommodation camps were gradually removed and in 1956 new barracks had been completed to the west of Graven Hill Wood on the current St David's Barracks site. Other changes include the removal of the Bolero warehouses in the period after WWII.
- 3.23. In 2006, two trial trenches were excavated within a former tennis court at St David's Barracks in advance of the construction of an accommodation block, though no archaeological features were identified¹⁶.

¹⁶ Granville Laws, 2007. *Bicester, St David's Barracks* (SP 5833 2052) in *South Midlands Archaeology*, vol. 37

4. Scope of Archaeological Investigation

- 4.1. This field evaluation has been required in accordance with the National Planning Policy Framework (NPPF) because of the presence of known sites of archaeological interest within the immediate vicinity of the development. Should important archaeological remains be revealed, this evaluation will form the first stage of a mitigation procedure.
- 4.2. The evaluation will aim to establish the presence/absence, extent, condition, character and date of any archaeological deposits within the area affected by invasive development. This evidence will form the basis of any proposals for appropriate mitigation measures that may seek to limit the damage to significant archaeological deposits, and should aim to define any research priorities that may be relevant should further investigation be required. The evaluation will include any post-excavation work and publication requirements resulting from it.
- 4.3. The evaluation should aim to gather sufficient information to establish the presence/absence, extent, condition, character, quality and date of any archaeological deposits within those areas affected. The evaluation report produced will present a digest of information on the character and significance of the deposits under review and this report will form the basis of any proposals for appropriate further action. The evaluation should also aim to define any research priorities that may be relevant should further field investigation be required.
- 4.4. Any mitigation resulting from the evaluation report will seek to limit the damage to significant archaeological deposits. The developer will be responsible for accommodating the archaeological remains by:
 - Physical preservation *in situ*, which can often be achieved through design adaptations, or, if this is not possible;
 - By preserving the archaeology on record through a full recording action. Less significant archaeological deposits may be dealt with through a monitoring and recording exercise carried out during the construction programme.
- 4.5. The scope and methodology for this staged archaeological investigation makes the following assumptions:
 - Overall Site area: 183.94 ha
 - Land Transfer Area (LTA) 1: 93.64 ha
 - LTA 2: 90.30 ha
 - Non-intrusive development within LTA 1: 42.90 ha
 - Area of no ground intrusive development within LTA 2: not known at time of writing
 - Area sampled by geophysical survey within LTA 1: 42.27 ha
 - Area sampled by geophysical survey within LTA 1, outside area of proposed ground intrusive works: 30.74 ha
 - Ecological mitigation ponds within LTA 1: 0.12 ha
 - Area of overlap between areas sampled by geophysical survey and area of non-intrusive groundworks in LTA 1: 11.53 ha

- 4.6. Using these assumptions within LTA 1, a **3% sample** of areas not previously the subject of geophysical survey, and within areas of proposed ground intrusive development, would be the equivalent of **6,000 m²** (20 ha x 3%).
- 4.7. Similarly, a 2% sample of areas previously the subject of geophysical survey, and within areas of proposed ground intrusive development within LTA 1, would be the equivalent of 6,148 m² (30.74 ha x 2%).
- 4.8. The overall ecological mitigation area to be the subject of a strip-map-and-record will be approximately 0.12 ha. All ponds will be located within areas previously the subject of geophysical survey. This area will therefore be deducted from the area of **2% sample**, which would therefore be **4,948 m²**.
- 4.9. Figure 2 illustrates how trial trenching would be distributed in order to target features highlighted through the geophysical survey, as well as observing the sampling proportions.

5. Trial Trench Evaluation - Methodology

- 5.1. For the areas that have been subject to a geophysical survey, a trenching sample equivalent to approximately 2% of the area of ground intrusive works associated with the proposed development will be undertaken. The trenching targets geophysical anomalies as well as any control areas.
- 5.2. For the areas that have not been subject to this geophysical survey, a trenching sample equivalent to approximately 3% of the area of ground intrusive works associated with the proposed development will be undertaken.
- 5.3. A trench location plan will be agreed in advance of the trenching. Figure 2 presents a draft proposal of the proposed trial trenching sample. Figure 2 depicts the location of 55 no. 50 m x 4 m trenches.
- 5.4. The excavation under the supervision of a competent archaeologist is to be taken down to the top of 'natural' or the top of any significant archaeological level, whichever is the higher. While the surface of the exposed archaeological horizon should be cleaned for the purpose of clarifying the remains, archaeological features should generally only be sampled sufficiently to characterise and date them. Full excavation of features should not be undertaken at this stage. Care should be taken not to damage archaeological deposits through excessive use of mechanical excavation. Provision should be made for taking environmental/organic samples.

6. Strip-map-and-record – Methodology

- 6.1. Figure 3 illustrates the location of ecological mitigation works associated with the creation of ponds. The pond areas will be the subject of a strip-map-and-record in advance of the ecological mitigation works. Associated hibernacula will be the subject of an archaeological watching brief, as described in the following section.
- 6.2. All soil and overburden will be removed by a mechanical excavator, fitted with a toothless bucket, operating under archaeological supervision. Machine stripping will cease at the level that archaeological remains are revealed. No machine movements across the stripped areas will be permitted unless by prior agreement with the CDC (and OCC, their advisors).
- 6.3. The identification of archaeological features will be made during all phases of machine stripping. Areas will be cleaned with hand tools as required to define archaeological features and deposits. Once machining is complete, pre-excavation planning of remains will be undertaken and used as the framework for the detailed excavation sampling strategy. This will be discussed with the CDC (and OCC their advisors) at the first monitoring meeting. A copy of the pre-excavation plan will be supplied to the CDC (and OCC their advisors) for this meeting.
- 6.4. All archaeological features and deposits of interest will be investigated and recorded. Based on the results of the evaluation, it is likely that the most common types of archaeological features will be pits and ditches. Once these have been distinguished from natural features or geological anomalies, hand excavation will be concentrated on these features. All stratigraphic relationships between features and deposits will be investigated and recorded.

7. Watching Brief over geotechnical trial pitting - methodology

- 7.1. Figure 4 illustrates the location of sampling points for a geotechnical investigation. Trial pits associated with this investigation will be the subject of an archaeological watching brief. Reference should also be made to Figure 3 which indicates the location of several hibernacula to be created for ecological mitigation, and which will also be the subject of an archaeological watching brief.
- 7.2. A watching brief will be permanently maintained during the excavation of geotechnical test pits and hibernacula. The watching brief should provide an opportunity, if needed, for the engaged archaeological organisations to signal, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated are not sufficient to support a treatment to a satisfactory and proper standard. Provision should be made for taking environmental/organic samples where appropriate.

8. Archaeological Evaluation - Recording Systems

8.1. The recording system will be compatible with EH and ClfA standards and guidance. The recording system will also be compliant with other systems used in LBB. The recording system will be based on single context planning as informed by the Museum of London 'red book'. Pro-forma context sheets should include all relevant stratigraphic relationships and for complex stratigraphy a separate matrix diagram should be employed. The following plans and sections are required:

- An overall Site plan of the excavated area will be prepared detailing archaeological deposits as well as the extent of the area relative to the National Grid on a 1:2,500 plan. An overall evaluation plan will be prepared at 1:100 scale;
- Sections containing significant deposits, including half sections, should be drawn as appropriate. Section drawing should include heights Ordnance Datum (OD);
- All archaeological plans and sections should be on drawing film and at a scale of 1:10 or 1:20 and should include context numbers and OD spot heights for all principal strata and features; and
- An adequate photographic record of any significant archaeological remains is required, in both plan and section.

9. Archaeological Evaluation - Finds and Samples

- 9.1. A high priority should be given to dating any remains and so all artefacts and finds are to be retained. Consideration should also be given to the recovery of specialist samples for scientific analysis, particularly samples for absolute dating, structural materials and cultural / environmental evidence. Environmental samples should be taken from suitable deposits and examined for carbonised remains, macroscopic plant remains, pollen, seeds, insect, molluscs etc.
- 9.2. All finds and samples are to be treated in a proper manner to prevent deterioration. This will involve cleaning and conservation where necessary and labelling, cataloguing and secure storage in appropriate containers.
- 9.3. As part of a contractor specific WSI for the trial trench excavation, the archaeological contractor will submit a strategy for palaeo-environmental sampling on the Site and for processing and analysis of samples. This work should accord with the minimum standard guidance provided by English Heritage and the ClfA. The archaeological contractor shall carry out an assessment of the palaeo-environmental potential of the Site and shall submit this assessment in concise form in writing within the full post-excavation assessment report. The archaeological contractor is expected to seek the advice of a palaeo-environmental specialist in this regard.
- 9.4. The archaeological contractor will need to demonstrate that arrangements are in hand to cover all necessary processing, conservation and specialist analysis of finds and samples, including if necessary the conservation or organic and composite materials and dendrochronological and environmental analysis of samples.
- 9.5. Every effort should be made to ensure that finds analysis is consistent with existing local systems.

10. Archaeological Evaluation and Building Recording - Monitoring and Access

- 10.1. CDC's archaeological advisors (OCC) and Waterman EED will inspect the archaeological works to ensure that they are being conducted to the proper professional standards and in accordance with the agreed method statement. To facilitate this, a projected timetable for Site work will be agreed between Waterman EED, CDC's archaeological advisors (OCC), the occupiers (MoD), and the contracting archaeological organisation.
- 10.2. Access to the Site will be granted to Waterman EED, the archaeological contractor, and CDC's archaeological advisors (OCC).
- 10.3. OCC will be notified of the start of the works giving at least one week's notice in writing.

11. Archaeological Evaluation - Health and Safety

- 11.1. The contractor shall comply with the requirements of the Construction (Design and Management) Regulations, 2007. The archaeological contractor is advised to prepare a Risk Assessment for the Site in accordance with the organisation's health and safety policy. Health and safety will take priority over archaeological matters. All archaeologists undertaking fieldwork must comply with all relevant Health and Safety Legislation. In particular, machinery should be kept away from unsupported trench / excavation edges and public access should be restricted. Barriers, hoardings and warning notices should be installed as appropriate. Safety helmets are to be used by all personnel as necessary.
- 11.2. Available reports and drawings pertaining to ground conditions and services will be provided to the archaeological contractor, however, any further information deemed necessary shall be obtained by the contractor prior to intrusive works commencing. In addition to written records it is expected as a minimum that trenches should be checked for services using a CAT scanner. The contractor is responsible for any damage and repairs to site services.
- 11.3. Spoil must be kept at a safe distance from the trench / excavation edge, however, the location of the spoil heap may be within the Site or spoil may be removed off-site immediately.
- 11.4. No existing rights of way or accesses should be blocked during the course of Site work. Adjacent public roads should be kept free of mud and spoil.
- 11.5. To ensure wildlife legislation is adhered to, this written scheme of investigation should be read in conjunction with the method statement(s) for ecological mitigation, where they exist, and any areas of overlap will need to be considered in terms of both ecological and archaeological works proposed, with a view of establishing a programme of works which complies with both methodologies. Should a protected species be identified, works will stop and an ecologist informed for advice.
- 11.6. If works are undertaken the vicinity of any trees, trees should be adequately protected as detailed in BS 5837-2012: Trees in relation to design, demolition and construction.
- 11.7. There is a potential for intrusive works to expose unforeseen contamination at the Site, such as asbestos containing materials (ACMs). The contractor should detail adequate control measures within their method statements should unforeseen contamination be encountered.

12. Post – Excavation and Reporting

- 12.1. The archive will be prepared and a post-excavation assessment undertaken immediately after the Site works have been completed, and will be completed within 12 months of completion of site works. This will be prepared in accordance with the specification given in Appendices 4 and 5 in MAP 2 (English Heritage 1991) and MoRPHE (English Heritage 2006).
- 12.2. Each category of finds will be assessed by specialist staff and recommendations prepared for a further study should this be required by OCC. All artefacts and ecofacts will be processed in accordance with standard practice. No artefacts, ecofacts or environmental samples will be discarded without written permission from OCC.
- 12.3. The draft evaluation report will be submitted to Waterman EED for verification and (OCC for) approval. It will be the property of the Applicant and will represent a confidential document.
- 12.4. Once finalised, a hard copy of the report will be submitted by the contractor to a suitable archive. An e-copy, as a pdf, will be submitted to OCC for inclusion in the HER. In addition, the photographic record of the works will be made available to the National Monuments Record (NMR) prior to archiving in order to enable selection of suitable materials for copying for inclusion into the HER. Once submitted, the evaluation report will become a public document.
- 12.5. Provision will be made for an appropriate level of academic publication of the results of the evaluation. A summary report will be prepared by the contractor and submitted for publication in the relevant local journal. Additional publication requirements will be agreed with the CDC's archaeological advisors (OCC).
- 12.6. The evaluation report should include:
 - A review of the aims and methods used in the excavation, strip-map-and-record, and watching brief;
 - A table summarising the descriptive text showing the features, classes and numbers of artefacts and their interpretation;
 - Artefact analysis to include the production of a descriptive catalogue with finds critical for dating and interpretation illustrated;
 - Illustrations including Site and excavation area plans, sections (1:10), plans of any archaeological features (1:20) and general and detailed photographs;
 - The nature, extent, date, condition and significance of the archaeological and environmental material uncovered with specialist opinions and parallels from other sites in the area;
 - An interpretation of the results should be produced and attention should be given to the significance of the remains in local, regional and national terms, if appropriate; and
 - A reconsideration of the methodology used, including a confidence rating of the strategy and the results.
- 12.7. The archaeological contractor will also input details of the project to the online database maintained by the Online Access to the Index of Archaeological Investigations (OASIS) Project at the following internet site: <http://www.ads.ahds.ac.uk/project/oasis>.

13. Archiving

- 13.1. The Site archive, which comprises records of the archaeological evaluation, watching brief and building recording, and any materials recovered, including written elements, plans and drawings, photographic prints and transparencies (where appropriate) and other primary data recovered during the investigation, must be quantified, ordered, indexed and made internally consistent. It should also contain, as a minimum requirement, a Site matrix, Site summary (a short report giving a preliminary account of the discoveries) and brief written observations on the artefactual and environmental data.
- 13.2. The Site archive will also include a summary of all archaeological investigations and mitigation for the Site, incorporating the results of all final assessment and analysis reports, and thereby providing an integrated record.
- 13.3. Work on the Site archive shall be completed by the contractor within twelve calendar months of completion of the archaeological field investigation. Upon completion of the Site archive the archaeological contractor shall arrange a meeting with OCC to present the archive for inspection prior to its deposition in an appropriate museum.
- 13.4. All artefacts (e.g. pottery, metalwork, objects in worked flint and stone, wood, bone, horn and leather, slag) and ecofacts (organic finds such as bones, preserved ancient plant remains, seeds, pollen and charcoal, soil samples) recovered during the archaeological investigation will be made available to the contractor pending completion of the excavation report, to be stored during the course of the archaeological investigation at the contractor's secure offices or usual place of secure storage of archaeological finds.
- 13.5. All artefacts recovered during the archaeological investigation are to be suitably washed (where the condition of the artefacts allows) and marked by the contractor and all artefacts and ecofacts bagged and boxed by the contractor, in accordance with current United Kingdom Institute for Conservation (UKIC) / RESCUE publication First Aid for Finds (3rd. ed. 1998). All 'small finds' will be boxed together, separate from bulk finds.
- 13.6. In preparing cost estimates for the archaeological investigation, the contractor should include provision for at least a basic minimum level of conservation of finds liable to deterioration after excavation.
- 13.7. Subject to the legislation of the Treasure Act 1996, all artefacts and ecofacts unearthed from the investigation and all other elements of the Site archive (as defined in EH's The Management of Archaeological Projects (1991)) should be deposited by the contractor in an appropriate public museum registered or provisionally registered by the Museums and Galleries Commission and acceptable to OCC. No artefacts or ecofacts from the Site shall be deposited in the relevant depository without the prior written consent of the landowner. Should the land owner be unwilling to deposit the archive with the chosen archive, a full photographic and drawn survey will need to be made of all artefacts and elements being withheld.
- 13.8. In the absence of an appropriate archive, provision should be made by the archaeological contractor for retaining the project archive until such time as a suitable depository is available and arrangements have been made for the transfer of the archive.

- 13.9. The archaeological organisation will then ensure that the Collections Manager is notified and liaised with at an early stage. It is the responsibility of the archaeological contractor to meet the local museum's reasonable requirements with regard to the preparation of archives for deposition.
- 13.10. Provision should be made for the payment of a 'deposit grant' at the time of archive transfer towards the costs of archive curation in perpetuity. The rates and requirements currently employed by archive stores elsewhere in the country and by the chosen museum for its archive store should be used for guidance.
- 13.11. Prior to the deposition of finds in the recipient museum, the archaeological contractor should agree with that museum the sample or quantity of bulk finds (pottery, animal and (if appropriate) human bone, other ecofactual material, building material, burnt flint, worked flint and stone) to be deposited.
- 13.12. All excavated artefacts and ecofacts and all other elements of the Site archive should be delivered by the contractor to the recipient museum as one deposit, and written confirmation of this should be provided to CDC's advisor. Where this arrangement is not practicable lists will be submitted by the contractor to the recipient museum of objects not deposited, together with information as to the quantity involved and their current location, reasons why items have not been deposited and a timetable for their ultimate deposition.
- 13.13. The contractor should contact the recipient museum prior to preparing cost estimates for the work in order to discuss any special requirements for the deposition of finds.
- 13.14. Subject to the resources available and to discussion with the recipient museum, all articles needing conservation will be properly stabilised by the contractor prior to their deposition at the recipient museum and records of their treatment lodged with the museum. Those items for which available resources do not permit stabilisation will be separately packed and listed by the contractor.
- 13.15. Prior to commencement of the archaeological investigations the contractor shall obtain from the recipient museum an accession number(s) for excavated artefacts and ecofacts from the project and any guidelines regarding deposition of such artefacts and ecofacts specific to the recipient museum.
- 13.16. All finds, save those specifically excluded by the recipient museum or excluded on grounds of size/material, must also be marked by the contractor with the recipient museum's accession number.
- 13.17. Artefacts and ecofacts deposited by the contractor in the recipient museum must be accompanied by the remainder of the original Site archive or by a complete duplicate record thereof. A microfiched security copy of the Site archive should also be supplied by the archaeological contractor to the recipient museum.
- 13.18. Subject to the agreement of the landowner, all artefacts and ecofacts recovered from the archaeological evaluation should be deposited by the archaeological contractor within the recipient museum within five years from the date of completion of the investigation.
- 13.19. Copyright of the written, drawn and photographic elements of the Site Archive shall be vested jointly with the archaeological contractor and the recipient museum.
- 13.20. The following documents should be adhered to:
 - Museum and Galleries Commission - Standards in the Museum Care of Archaeological Collections (1992); and
 - EH - Management of Archaeological Projects (MAP2) (1991) MoRPHE (2006).

14. Requirements of the Archaeological Contractor(s)

- 14.1. The archaeological contractor(s) will provide Waterman EED with a detailed WSI for undertaking the evaluation, which will be compatible with the requirements of the CDC's archaeological advisors (OCC). This will include all fieldwork and post-excavation work including archiving.
- 14.2. It will include a brief method statement, resourcing levels and programme / schedule for the works. The archaeological contractor should also provide a brief career profile of the Site supervisor which demonstrates his / her suitability for undertaking the work.
- 14.3. A full cost estimate for the fieldwork, post-excavation and archiving should be provided to Waterman EED's Project Archaeologist.

15. References and Sources

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- '*The market town of Bicester*', in *A History of the County of Oxford: Volume 6*, ed. Mary D Lobel (London, 1959), pp. 14-56 <http://www.british-history.ac.uk/vch/oxon/vol6/pp14-56> [accessed 30 January 2015].
- '*Parishes: Merton*', in *A History of the County of Oxford: Volume 5, Bullingdon Hundred*, ed. Mary D Lobel (London, 1957), pp. 221-234 <http://www.british-history.ac.uk/vch/oxon/vol5/pp221-234> [accessed 25 January 2015].
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APPENDICES

A. Standard Requirements

General

- A1.1 The requirements of the Brief will be met in full where reasonably practicable.
- A1.2 Any significant variations to the proposed methodology will be agreed with the Local Authority's archaeological representative in advance.
- A1.3 The scope of work detailed in the main part of the specification is aimed at meeting the aims of the project in a cost-effective manner. Waterman EED attempts to foresee possible site-specific problems and resource these. However there may be unusual circumstances which have not been included in the costing and programme, such as:
- Unavoidable delays due to extreme bad weather;
 - Vandalism; and
 - Complex structures or objects, including those in waterlogged conditions, requiring specialist removal.

Health and Safety and Insurance

- A1.4 All work will be carried out to the requirements of Construction (Design and Management) Regulations (2007) and any main contractor's requirements.
- A1.5 The archaeological contractor will hold Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance. Details will be supplied on request.
- A1.6 Waterman EED and the archaeological contractor will not be liable to indemnify the Client against any compensation or damages for or with respect to:
- Damage to crops being on the Area or Areas of Work (save in so far as possession has not been given to the archaeological contractor);
 - The use or occupation of land (which has been provided by the Client) by the Project or for the purposes of completing the Project (including consequent loss of crops). Interference whether temporary or permanent with any right of way, light, air or water or other easement or *quasi* easement which are unavoidable result of the Project in accordance with the Agreement;
 - Any other damage which is the unavoidable result of the Project in accordance with the Agreement; and
 - Injuries or damage to persons or property resulting from any act or neglect or breach of statutory duty done or committed by the Client or his agents, servants or their contractors (not being employed by Waterman EED) or for or in respect of any claims demands proceedings damages costs charges and expenses in respect thereof or in relation thereto.

Copyright and Confidentiality

- A1.7 Waterman EED and the archaeological contractor 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 an exclusive licence to the Client in all matters directly relating to the project as described in the WSI.
- A1.8 Waterman EED and the archaeological contractor will assign copyright to the Client upon written request but retains the right to be identified as an author of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988 (Chapter IV. S.79).
- A1.9 Waterman EED will advise the Client of any such materials supplied in the course of projects that are not Waterman EED's or the archaeological contractor's copyright.
- A1.10 Waterman EED 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. Waterman EED further undertakes to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that clients respect Waterman EED's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

Standards and Procedures

- A1.11 Waterman EED and the archaeological contractor shall conform to the standards of professional conduct outlined in the ClfA Code of Conduct, the ClfA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, the ClfA Standards and Guidance for Field Evaluations, Desk Based Assessment, etc. and the British Archaeologists and Developers Liaison Group Code of Practice.
- A1.12 Project Supervisors normally will be recognised in an appropriate Area of Competence by the ClfA.

UK and Ireland Office Locations

