Graven Hill, Bicester

Overarching Archaeological Written Scheme of Investigation for Land Transfer Area 2

(Planning Application Reference: 18/00325/OUT)

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Comments

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1. Introduction

Project Background

1.1. Waterman Infrastructure & Environment Ltd (WIE) has been appointed by Graven Hill Village Development Company Limited (GHVDC), hereafter referred to as the 'Applicant', to prepare this Overarching Archaeological Written Scheme of Investigation (WSI) which has been prepared by for a mixed use development of up to 1,900 homes, a local centre, a primary school, a community hall and associated shops an facilities on former MOD land known as Land Transfer Area 2 (LTA2).

1.2. The Site is located within the administrative boundary of Cherwell District Council, 1.5 km to the south of central Bicester, with the northern site boundary formed by the A41, to the west by the Oxford to Bicester railway, agricultural land to the south and Ambrosden village to the south-east.

1.3. The Site is an irregular 'C' shape, encompassing the previously mitigated Land Transfer Area 1 (LTA1), which has been signed off and transferred to the Principal Contractor for development. The post-excavation reporting phase is currently underway.

1.4. Land Transfer Area 2 is shown on Figures 1 and 2.

1.5. The National Grid Reference for the main Site entrance, Pioneer Road, which is off the A41, is:

OS X (Eastings)	459674
OS Y (Northings)	220736
Nearest Post Code	OX26 6JP
Nat Grid	SP596207 / SP5967420736

1.6. Due to the potential disturbance of below ground archaeological features indicated by the first phases of the development (Phase 0, Phase 1a and Phase 1b or (LTA1)) covered under original Planning Condition 71 (**11/01494/OUT**), two conditions requiring a programme of archaeological investigation were attached as a variation to the August 2014 planning consent for Land Transfer Area 2 (LTA2) and were granted on 3rd August 2018 (**18/00325/OUT**). These conditions are set as follows:

(18/00325/OUT) Pre-Commencement Condition 48:

"*With the exception of Phase 0, Phase 1a and Phase 1b as shown on Drawing No: 19820-AL-573-V, prior to any demolition and the commencement of any development on each phase of development, a professional archaeological organisation acceptable to the Local Planning Authority shall prepare an overarching Archaeological Written Scheme of Investigation providing for evaluation of the Graven Hill Site and the principles of any subsequent mitigation and post excavation analysis and publication, which shall be submitted to and approved in writing by the Local Planning Authority.*

Reason - To safeguard the identification, recording, analysis and archiving of heritage assets before they are lost and to advance understanding of the heritage assets in their wider context through publication and dissemination of the evidence in accordance with Government guidance contained within the National Planning Policy Framework."

(18/00325/OUT) Pre-Commencement Condition 49:

"With the exception of Phase 0, Phase 1a and Phase 1b as shown on Drawing No: 1982-AL-573-V, and following approval of the Written Scheme of Investigation referred to in condition 48, prior to any demolition and the commencement of any development on each phase of development (other than in accordance with the agreed Written Scheme of Investigation), a staged programme of archaeological evaluation and mitigation shall be carried out by the commissioned archaeological organisation in accordance with the approved Written Scheme of Investigation.

Reason: To safeguard the identification, recording, analysis and archiving of heritage assets before they are lost and to advance understanding of the heritage assets in their wider context through publication and dissemination of the evidence in accordance with Government guidance contained within the National Planning Policy Framework."

Land Transfer Area 1 (LTA1)

1.7. A 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 application[1]. 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.

1.8. In February 2015, an overarching WSI (EED13983-106_S_2_1_5_SP) for archaeological investigation and mitigation was prepared by Waterman for Land Transfer Area 1 (LTA1) in response to original Planning Condition 71 requiring an 'Archaeological Scheme of Investigation'. That overarching WSI was prepared in line with a design brief issued the Planning Archaeologist for Oxfordshire County Council advising Cherwell District Council (hereafter referred to as 'OCAS')[2]. That brief set out the first stage of the investigation, consisting of an archaeological field evaluation, which was completed by Oxford Archaeology during 2015 and 2016. An addendum to the original outline WSI was also produced, setting out the details for an archaeological watching brief to be undertaken during ground intrusive works associated with the demolition of Rodney House[3].

1.9. A variety of positive results spanned the late Iron Age, Roman, Medieval and post-Medieval periods, as well as evidence associated with the historic use of the MoD site during WWII, indicating the varied potential of the Site.

1.10. Further archaeological mitigation excavations, including strip, map and record and watching brief, in LTA1 revealed prehistoric settlement remains, principally of Iron Age date, in three areas (Areas A, C and E), Roman remains, including those of Akeman Street (Area A), and rectilinear enclosures (Area B), and medieval settlement remains in Area D (**Figure 1**).

1.11. The results of these two initial evaluation stages of fieldwork were reported by Pre-Construct Archaeology in June 2015[4] (watching brief over geotechnical ground investigation, undertaken between the 2nd and 16th March 2015), and by Oxford Archaeology in April 2016[5] (trial trench evaluation – 57 trial trenches, undertaken between the 7th September and 20th November 2015) and in September 2016[6] (watching brief over demolition of Rodney House ground floor slab and an additional 5 evaluation trenches, with the watching brief undertaken between the 24th and 25th February 2016, and the trial trenching between the 6th and 17th June 2016).

1.12. Original Planning Condition 71 was discharged upon receipt of the initial overarching WSI and Addendum. A further WSI specification was produced by Waterman to address the mitigation, and this was prepared in February 2017[7]. The programme of archaeological mitigation was carried out by Oxford Archaeology between 2015 and 2017, and initially involved investigation of three strip, map and record areas (Areas A, B & C). Through an agreed programme of archaeological watching brief on roads and test pits a further area for strip, map and record (Area D), was subsequently identified and excavated. A smaller additional area (Area E), was evaluated and then excavated to mitigate the planned woodland expansion into a pasture field. This latter work was carried out in accordance with an addendum WSI dated 8th September 2017[8]. These works are now complete,

[1] Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*
[2] Waterman Energy, Infrastructure and Environment Ltd, February 2015. *Outline Written Scheme of Investigation (Planning Application re. 11/01494/OUT – Condition 71*
[3] Waterman Infrastructure & Environment Ltd, February 2016. *Outline Written Scheme of Investigation (Planning Application re. 11/01494/OUT – Condition 71 - Addendum*
[4] Pre-Construct Archaeology, June 2015. *Graven Hill, Bicester, Oxfordshire – An Archaeological Watching Brief*
[5] Oxford Archaeology, April 2016. *Bicester MoD, Graven Hill, Bicester, Oxfordshire – Evaluation Report*
[6] Oxford Archaeology, September 2016. *Bicester MoD, Graven Hill, Bicester, Oxfordshire – Archaeological Watching Brief and Evaluation Report*
[7] Waterman Energy, Infrastructure and Environment Ltd, February 2017. *Graven Hill, Bicester. Outline Written Scheme of Investigation (Planning Application re. 11/01494/OUT – Condition 71)*
[8] Waterman Energy, Infrastructure and Environment Ltd, letter dated September 2017. *Graven Hill, Bicester – Strip, Map and Record – Woodland Regeneration Areas, WSI Addendum.*

and Oxford Archaeology are in the process of undertaking the post-excavation analysis and reporting.

Scope of Document

1.13. This WSI sets out the methodologies and standards that shall be employed by the appointed Archaeological Contractor and the Principal Contractor's requirements to fulfil the above conditions for Land Transfer Area 2 (LTA2) and shall be submitted for approval prior to implementation to Oxfordshire County Archaeological Services (OCAS) who are advisors to Cherwell District Council.

1.14. This document conforms with current best practice and to the guidance and frameworks outlined in:

- Management of Research Projects in the Historic Environment (MoRPHE)[9],
- the Chartered Institute for Archaeologists' (CIfA) Standard and Guidance[10],
- Historic England[11], The Solent Thames Research Framework[12] and
- The Cherwell Local Plan[13].

1.15. This WSI provides an overview of the archaeological potential of this area, based on analysis by previous desk-based assessment, geophysical survey, watching brief and evaluation, and the preliminary results of the mitigation fieldwork undertaken for LTA1 to inform an archaeological strategy for appropriate evaluation and mitigation of land proposed for development within Land Transfer Area 2 (LTA2).

Geology and Topography

1.16. The British Geological Survey notes no superficial geology; however, bedrock geology comprises of Peterborough Member mudstone of the Oxford Clay Formation overlying Kellaways Sand and Clay members (Kellaways Formation) and mudstone Cornbrash Formation[14].

1.17. Superficial geology was generally absent from the results of geotechnical ground investigations carried out prior to submission of the initial LTA1 planning application; however, deposits of alluvium (clay, silt and gravel), made ground and topsoil were encountered during the watching brief phase, carried out by Pre-Construct Archaeology (PCA) of the 2015 geotechnical ground investigation carried out by under the supervision of Waterman. Underlying deposits of clay with occasional sand and gravel bands were also encountered at shallow depths.

1.18. Land surrounding the development area is predominantly flat at approximately 60m to 65m above Ordnance Datum (AOD). This land is associated with the River Ray floodplain and associated tributaries to the south of the study area surrounding the Site. Graven Hill is situated at the centre of the Site and rises to 115m AOD. Much of the Site lies at approximately 70m to 75m AOD.

[9] Historic England, 2015, *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide*. Swindon; Centre for Archaeology Guidelines
[10] CIfA, [Accessed on 10/01/19] Available from; https://www.archaeologists.net/codes/cifa
[11] Historic England, [Accessed on 10/01/19] Available from; https://historicengland.org.uk/advice/technical-advice/
[12] Hey G. and Hinds J. (eds), 2014. *Solent-Thames Research Framework for the Historic Environment: Resource Assessments and Research Agendas, Oxford Wessex Monograph No. 6*, Berforts Information Press: Oxfordshire
[13] Cherwell District Council (CDC), January 2014, *The Cherwell Local Plan 2016-2031 Submission*
[14] Geology of Britain Viewer, British Geological Society - http://mapapps.bgs.ac.uk/geologyofbritain/home.html [Accessed on 18th December 2018]

2. Archaeological Background

2.1. The archaeological background of the Site is summarised below from the previous Amec Environmental Statement[15] and has been used as a reference in all subsequent WSI's for LTA1. This is followed by updated information under each period heading following the results of field investigations and mitigation undertaken as part of original Planning Condition 71 for LTA1.

Prehistoric Period (500,000 BC to AD 43)

2.2. Prehistoric remains have been recorded within the Site including:

- A Neolithic polished flint axe fragment within subsoil, recovered by an evaluation by Oxford Archaeology in LTA1 in 2016.
- Iron Age activity within the north of the Site was uncovered by Oxford Archaeology in 2016, as well as on the slope of Graven Hill in LTA1 in Areas A, C and E.

2.3. Within the wider area, evidence of Prehistoric artefactual and settlement activity within 1km of the Site begins with Mesolithic activity onwards in the form of residual flint flakes approximately 1km to the north-west of the Site[16].

2.4. Aerial photography potentially indicates Bronze Age ring ditches to the north-west of the Site[17]. Potential Bronze Age settlement activity in the form of a 'banjo-type' enclosure, three hut circles and a number of ditches have also been identified on aerial photography to the south-west of the Scheduled Monument of Alchester Roman town [13904][18].

2.5. Nearby Iron Age settlement activity has been noted at Chesterton Lane[19] in advance of constructing the A41 dual carriageway and Bicester Fields Farm[20] to the north of Graven Hill. The later excavation may have been of relatively high status based on the artefact typology.

2.6. Remaining prehistoric material includes findspots such as a Bronze Age 'palstave' axe [16086] recovered near Alchester Roman Town and a Bronze Age spearhead [13922] from south of Graven Hill. The Historic Environment Record (HER) also records a number late Iron Age pottery findspots[21].

2.7. It should be noted that a potential Iron Age Hill Fort associated with a linear earthwork, still observable within Graven Hill Wood, was excavated by Oxford University on top of Graven Hill in 1999. The excavation however, revealed no obvious Iron Age evidence there, which may instead represent post-medieval agricultural lynchets. No other Iron Age activity has been noted for the earthwork.

Romano-British Period (AD 43 to AD 410)

2.8. Romano-British activity has been observed within Areas A and B in the form of Akeman Street and rectilinear enclosures within the LTA1 Site.

2.9. Another Roman period settlement site has been excavated to the north of Graven Hill at Oxford Road[22][23]. Evaluation revealed extensive survival of late Iron Age and Romano-British settlement

[15] Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*
[16] Oxoniensia, 2000. *The excavation of a Late Iron Age enclosed settlement at Bicester Fields Farm, Bicester*, Oxon Issue: 64 pp. 153 - 233 "*The excavation of a Late Iron Age enclosed settlement at Bicester Fields Farm, Bicester, Oxon*." in Oxoniensia Issue : 64 (2000), Pages: 153 - 233
[17] Air Photo Services Ltd, 2005. *Land southwest of Bicester, Oxfordshire: Interpretation of Aerial Photographs for Archaeology*. Project No. 0418
[18] Historic England, [Accessed on 10th January 2018] Available from: http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MOX5141&resourceID=1033
[19] P M Booth, J Evans and J Hiller, 1991. *Excavations in the Extramural Settlement of Roman Alchester, Oxfordshire*, in Oxford Archaeoolgy Monograph, 1
[20] Oxford Archaeological Unit, 1998. *Bicester Fields Farm, Bicester, Oxfordshire – Archaeological Evaluation Report*
[21] Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement*
[22] Bevan, L. and Leach, P., 1993. *An Archaeological Evaluation at Oxford Road, Bicester, Oxfordshire (BUFAU Report 277)*
[23] Oxoniensia (Mould, C.), 1996. *An Archaeological Excavation at Oxford Road, Bicester, Oxfordshire* Issue: 61

within the floodplain of Langford Brook. All identified features were preserved under post-Roman alluvium and appeared to represent two phases of occupation. The earlier phase was dated to the 1st century AD, and the latter phase to the 2nd 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.

2.10. 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.

2.11. 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 paleochannels, and comprised a large number of ditches, pits ad postholes. The excavation presented a picture of settlement within an area which was generally wet and marshy.

2.12. 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.

2.13. There is also a significant body of evidence of Roman occupation documented in the Oxfordshire HER in the form of numerous artefacts, many of which have been found within and around the Alchester site or along the known routes of Roman roads.

Medieval Period (AD 410 to AD 1540)

2.14. 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 5th century AD. Bicester appears to have been established as a Saxon settlement in the 6th 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 Beorna[24], or alternatively being derived from two separate elements – 'byrgen' meaning burial mound, and 'ceaster' meaning Roman fort[25]. The earliest excavated evidence for settlement within the town is from a site to the rear of the King's Arms[26], 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.

2.15. The first edition Ordnance Survey (OS) map of 1885 includes the note site of battle between the Danes and Saxons in AD 871 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.

2.16. 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.

2.17. Ambrosden formed the principal medieval settlement within its parish, though other settlements are also known, such as the one at Arncott. During the medieval period, much of the land around Graven Hill appears to have been in arable use, and the Victoria County History[27] records that the agricultural

[24] British History Online, [accessed 10th January 2018]. Lobel, M.D.(ed), 1959, *The market town of Bicester A History of the County of Oxford: Volume 6,* pp. 14-56 Available from; http://www.british-history.ac.uk/vch/oxon/vol6/pp14-56
[25] Ekwall, E., 1960. *The Concise English Dictionary of English Place-names*
[26] 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)
[27] British History Online, [accessed 10th January 2018]. Lobel, M.D.(ed), 1959, *Parishes: Merton, A History of the County of Oxford: Volume 5, Bullingdon Hundred,* pp. 221-234 Available from; http://www.british-history.ac.uk/vch/oxon/vol5/pp221-234

land of Ambrosden village was organised around three main fields known by the 17th 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.

2.18. 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 Period (AD 1540 to AD 1901)

2.19. 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.

Modern Period (AD 1901 to Present)

2.20. The major development of the 20th century, which has shaped the current form of the Site, was the establishment of the Central Ordnance Depot in 1941 during World War Two. The Bicester site was chosen as being suitable as it was located within southern England, with good road and rail links, and with enough space for the creation of a dispersed complex required for protection against air attack. The depot was to spread over a wide area, occupying several sites from Graven Hill in the north to Arncott and Piddington in the south, collectively known as MOD Bicester.

2.21. 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.

2.22. 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.

2.23. In addition, a sequence of aerial photographs shows the gradual ploughing out of ridge and furrow features from the surrounding agricultural land, which was mostly lost by 1975.

2.24. 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 some of the Bolero warehouses in the period after WWII.

2.25. 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 subsequently identified[28].

Archaeological Discoveries Within LTA1

2.26. A summary of archaeological investigations carried out within LTA1 is provided below.

Pre-Construct Archaeology (PCA) Geotechnical Watching Brief[29]

2.27. Pre-Construct Archaeology undertook monitoring of 54 geotechnical trial pits (TP's) to a maximum depth of approximately 3m within the Site in March 2015. The watching brief recorded naturally deposited clays sealed by subsoil deposits and modern topsoil in a majority of the TP's except those to the north and north-east of the Site. Two trial pits contained a likely stone surface and five recovered a historic agricultural deposit, potentially medieval in date.

Oxford Archaeology Evaluation[30]

2.28. Oxford Archaeology produced a report on their findings from a 55-trench evaluation within LTA1 in April 2016. Five separate locations were identified spanning from the late Iron Age, Romano-British and medieval periods, indicating varied archaeological potential. The findings revealed the following:

- A residual Neolithic polished flint axe fragment to the north-west of the Site.
- A dispersed group of well-preserved Late Iron Age ditches and pits spread over 100m around the lower slope directly north-west of Graven Hill with further ditches to the north of Circular Road.
- Romano-British activity was encountered to the north of LTA1, adjacent to the 'Rodney House Building' in the form of linear field or enclosure boundary ditches, three of which contained mid to late 2nd century pottery assemblages which possibly relates to a known building beyond the Site to the north-west at Langford Park Farm.
- Further likely Romano-British activity was investigated in the form of 'Akeman Street' aligned roughly east-west across the Site and identified by an extant hedgerow and historically defined by a double hedge line boundary enclosing a track. Although undated, the road surface was sealed by layers of silting prior to the military use of the Site.

Oxford Archaeology Watching Brief[31]

2.29. Oxford Archaeology produced a report on their findings from a watching brief during the removal of foundations following the demolition of the Rodney House Building as well as undertaking five additional targeted evaluation trenches in 2016 to supplement the results of the previous evaluation. Although no archaeological activity was observed during the watching brief, the evaluation revealed the following:

[28] Granville Laws, 2007. *Bicester, St David's Barracks* (SP 5833 2052) in South Midlands Archaeology, vol. 37
[29] Pre-Construct Archaeology (PCA), June 2015. *Graven Hill, Bicester, Oxfordshire – An Archaeological Watching Brief* (Unpublished Client Report)
[30] Oxford Archaeology, April 2016, *Bicester MOD, Graven Hill, Bicester, Oxfordshire, Evaluation Report*. (Unpublished Client Report: 6275-6276)
[31] Oxford Archaeology, September 2016, *Bicester MoD, Graven Hill, Bicester, Oxfordshire, Archaeological Watching Brief and Evaluation Report.* (Unpublished Client Report)

- Further shallow likely Iron Age linear features and shallow curvilinear ditches and larger linear ditches dating from the late Iron Age to the north of Circular Road.
- Three shallow linear features were recorded, one of which produced a single sherd of Roman pottery to the north of Graven Hill.
- The presence of the Roman 'Akeman Street', comprising of limestone set within a shallow terrace into the north-east slope of Graven Hill.

Oxford Archaeology Watching Brief and Strip, Map and Record Excavation[32]

2.30. Oxford Archaeology undertook a watching brief on road construction and five strip, map and record excavations in February 2017. A brief summary of results is described below.

Area A

- North-west to south-east aligned late Iron Age ditches, intercutting pits and a small enclosure down the slope of Graven Hill. Moderate artefact assemblages and charred plant remains were also recovered for further analysis.
- Remains of Roman 'Akeman Street' truncated by modern military land use.

Area B

- Mid to late Romano-British activity was discovered in the form of north-south aligned ditches, possibly associated with known settlement to the north-west.
- A late Romano-British rectilinear field system likely to have been peripheral to a settlement was also discovered.

Area C

- Iron Age enclosure ditches and pits were revealed with possible settlement activity in the form of curvilinear gullies.
- An isolated pit containing early to mid-Saxon artefacts, normally typical burial objects. These included round brooches, a chain and a pin.

Area D

- Part of a deserted medieval village (DMV) were discovered comprising of at least six buildings with stone foundations. These were likely set out in a courtyard arrangement with well-preserved external surfaces and drains, stratified sequences and little post-occupation truncation. Associated earlier boundary ditches appear to have been infilled with stone and built over in places. A trackway was also discovered, heading towards the scheduled Deserted Medieval Village of 'Wretchwick', located to the north-east of Site. The pottery range indicates this new Deserted Medieval Village was likely to have been be occupied during the 12th to 14th centuries.

Area E

- Mid to late Iron Age enclosures and pits were discovered and considered to form part of a wider focus of settlement activity around Graven Hill. Further curvilinear ditches and enclosures were also evident from geophysical survey of this area.

Archaeological Surveys Ltd (AS) Geophysical Survey[33]

2.31. Geophysical survey in the area of the sports pitch to the south-east of LTA1 detected several anomalies. The results were not conclusive whether the anomalies were associated with terracing and construction of the pitches, or with buried archaeological remains.

[32] Oxford Archaeology, 2017, *Bicester MoD, Graven Hill, Bicester, Oxfordshire, Archaeological Watching Brief and Strip Map and Record.* (Unpublished Client Report)
[33] Archaeological Surveys (AS) 2011 MOD Bicester, Graven Hill, Oxfordshire: Magnetometer Survey Report

3. Archaeological Potential Within Land Transfer Area 2 (LTA2)

3.1. The archaeological potential for Land Transfer Area 2 (LTA2) has been reviewed, utilising the results of the LTA1 geophysical surveys, watching briefs, evaluations, and strip, map and record excavations discussed within section 2 and in combination with baseline information from the previous Amec Environmental Statement[34]. The results of recorded archaeology, areas of potential archaeology by period and remaining areas of uncertainty potential are presented in **Figure 1**.

3.2. Modern impacts from construction of MOD buildings, associated operations infrastructure (roads, railway lines etc.) and presence of a number of densely wooded areas within Land Transfer Area 2 (LTA2) will have had a major effect on the likely survival of below ground archaeological remains within these areas. The remaining areas considered for development (i.e. new roads, commercial and residential housing and associated parking and services) that have potential for surviving archaeological remains is approximately one-quarter of the overall development site.

3.3. Within the wider study area, evidence suggests Iron Age and Romano-British remains are predominantly located around the scheduled Roman town of Alchester (**Figure 1.**) immediately west of the development site around Merton Grounds and Langford Lane. There is similar evidence from these periods identified to the north-west of Bicester.

3.4. Few sites are recorded around the village of Ambrosden to the south-east, the most notable site east of Graven Hill is therefore the well-preserved scheduled site of Wretchwick Deserted Medieval Village immediately to the north-east. As previously discussed, investigations within LTA1 discovered remains of a further Deserted Medieval Village with a roadway clearly connected it to Wretchwick. This historic route passes close to the north-eastern boundary of Land Transfer Area 2 (LTA2), where recovered medieval pottery and stone surfaces suggest further medieval remains could likewise be encountered.

3.5. Less activity is known to the south, south-east and north-east, due to a lack of archaeological investigations within the area. An archaeological evaluation west of Graven Hill and south-west of the LTA1 at St. David's Barracks in 2006 revealed no archaeological remains, and an investigation of the earthworks on Graven Hill in 1999 found no dating evidence.

3.6. No other archaeological investigations for the LTA1 development lie close to the south-eastern half of Land Transfer Area 2 (LTA2) to inform likely archaeological potential. Only the alignment of Akeman Street crossing Land Transfer Area 2 (LTA2) to the east and west and the medieval route to Wretchwick to the north-east (**Figure 1**) provides some additional likelihood of Prehistoric, Roman and medieval archaeology in these areas.

3.7. In summary, the archaeological potential within Land Transfer Area 2 (LTA2) by period is as follows:

- There is **low potential** for the survival of unknown buried pre-Iron Age archaeological material within Land Transfer Area 2 (LTA2). Such remains are likely to be of low to medium significance (i.e. local to regional importance).
- There is **high potential** for unknown buried archaeological material dating to the Iron Age within the north and north-west of Land Transfer Area 2 (LTA2) with a **medium potential** for this period across remaining areas. Such remains are likely to be of low to medium significance (i.e. local to regional importance).
- There is **high potential** for unknown buried archaeological material dating to the Romano-British period within the north, east and west of Land Transfer Area 2 (LTA2) and a **moderate potential** across the remaining areas. Such remains are likely to be of medium significance (i.e. regional importance).
- There is **high potential** for unknown buried archaeological material dating to the medieval period to the north and north-east of Land Transfer Area 2 (LTA2) with a **low potential** for this period across areas. Such remains are likely to be of medium significance (i.e. regional importance).

[34] Amec, September 2011. *Future Defence Storage and Redistribution Programme – Redevelopment of MOD Bicester – Environmental Statement, Volume 2, p.186*

- There is **low potential** for the survival of unknown buried post-medieval archaeological material across Land Transfer Area 2 (LTA2). Such remains are likely to be of low significance (i.e. local importance).
- There is **high potential** for material dating to the modern period particularly associated with the former WWII military base across LTA2. Such remains are likely to be of low significance (i.e. local importance).

4. Scope of Archaeological Investigations

4.1. Given the considered archaeological potential and significance within the Land Transfer Area 2 (LTA2) development site, a multi-phased programme of archaeological fieldwork is proposed to ensure an appropriate level of investigation and recording is undertaken to inform further necessary preservation *in situ* or mitigation approaches are undertaken in advance of the development's enabling and construction programme.

4.2. The evaluation programme will therefore seek to identify the presence or absence, extent, condition and date of as yet unknown below ground archaeological remains. Each phase of the investigation processes will inform the methodology and reporting of the next phase i.e. magnetometer survey will inform trial trenching and in turn mitigation (or preservation *in situ*).

4.3. The key stages of investigation, recording and reporting can be identified as follows:

Phase 1 – Evaluation

- Site specific WSI for each stage of investigation
- Magnetometer Survey
- Archaeological Trial Trenching
- Reporting of each investigation

Phase 2 – Mitigation

- Site specific WSI for mitigation fieldwork
- Archaeological Excavation
- Archaeological Watching Brief

Phase 3 - Post-Excavation Reporting

- Post-Excavation Assessment
- Analysis and Publication
- Archiving of all fieldwork phases

4.4. All archaeological investigations will concur with this overarching WSI in line with evaluation and mitigation design brief[35] set out by OCAS. Fieldwork and reporting should be undertaken by competent CIfA Registered Organisation with appropriate knowledge of the Site and in accordance with the CIfA standards and guidance.

4.5. The Solent-Thames Research Framework[36] should be used to help support and develop appropriate aims prior to and during investigates and inform understanding of the wider historic landscape.

4.6. The results of magnetometer surveys and archaeological trial trenching will be assessed on completion their respective reports. OCAS require that any mitigation resulting from these stages will seek to limit the damage to significant archaeological resources. The Applicant (GHVDC) will therefore be responsible for accommodating the following archaeological approaches that may be considered necessary in the light of important discoveries and in consideration of Condition 49:

a. Physical preservation *in situ*, or, if this is not possible;

b. Preserving the archaeology by record through a full recording action.

[35] Oxfordshire County Council, 2018, *Graven Hill Phase 2, MoD Bicester, Design Brief for Evaluation and a Staged Mitigation*

[36] Hey G. and Hinds J. (eds), 2014. *Solent-Thames Research Framework for the Historic Environment: Resource Assessments and Research Agendas, Oxford Wessex Monograph No. 6*, Berforts Information Press: Oxfordshire

4.7. Summary reports on completion of each phase should be submitted as draft Word documents for Waterman to review prior to submitting in PDF format to OCAS and the Historic Environment Record (HER) within 12 months of completion of each phase of works along with any associated digital data.

4.8. Any areas deemed to have significant archaeological potential by agreement with OCAS, will then merit further archaeological investigation after the production of a further site-specific **archaeological mitigation WSI**, to be prepared by the Archaeological Contractor.

4.9. Dependent on the significance, survival, quality and extent of as yet unknown archaeological remains encountered during the magnetometer surveys and archaeological trial trenching phases and the degree of impact the proposed development might have upon their survival and significance, the following actions will be considered:

- **No further work** (in the case of no archaeological evidence, less significant features previously investigated and understood at the evaluation stage, or where no impact upon likely features will occur during the Development);
- **Archaeological watching brief** (in the case of sites or features of limited extent or uncertain archaeological potential where their excavation and recording might advance archaeological knowledge and understanding, or where harm through development impact is limited in extent in areas of likely dispersed archaeological activity).
- **Archaeological excavation** (in the case of likely significant archaeological remains, which could advance archaeological knowledge and understanding and will be impacted upon by the Development).

4.10. All site specific WSIs must include an agreed list of specialist consultants who might be required to conserve and/or report on finds and advise, or report on, other aspects of the investigation.

4.11. No parts of the excavation areas will be handed back to the Applicant (GHVDC) until written confirmation that they have been signed off is obtained from OCAS.

4.12. A post-excavation plan showing the features and interventions along with grid references will be provided for any sign off areas in advance of this written confirmation and issued to Waterman for review prior to submitting to OCAS.

5. Overarching Fieldwork Methodologies

Phase 1 – Magnetometer Survey

5.1. A detailed magnetometer survey will be carried out in the areas where development impacts are anticipated. LTA2 is currently divided between those areas where development impacts are known and surveys can be progressed and areas where development impacts are yet to be confirmed and therefore surveys will need to be defined at a later stage. This approach is illustrated in **Figure 2**, while all potential areas that could feasibly be subject to a magnetometer survey are shown in **Figure 3**.

5.2. The survey will be undertaken by a competent CIfA Registered Organisation (RO) with appropriate knowledge of the site. This will be in accordance with a WSI produced by the Archaeological Contractor combining all surveys areas and will be submitted in advance of the commencement of these works to Waterman for review prior to submitting to OCAS. No fieldwork can proceed until OCAS has confirmed approval of the WSI in writing.

5.3. An initial summary of results in grey-scale and draft interpretation will be produced for each survey area completed on a rolling basis. A detailed combined report will then be produced setting out the results and will be issued to Waterman for review prior to submitting to OCAS for acceptance. All results will also be included in the post-excavation reporting phase (Phase 3).

Phase 1 – Trial Trenching

5.4. Based on the results of magnetometer survey(s); where undertaken, and following discussions with OCAS, a trial trenching design will be produced by Waterman and agreed with OCAS. This will be produced as a set of detailed plans showing the number and location of trenches per investigation area. This will be in accordance with a WSI produced by the Archaeological Contractor combining all trial trenching areas and will be submitted in advance of the commencement of these works to Waterman for review prior to submitting to OCAS. No fieldwork shall proceed until OCAS has confirmed approval of the WSI in writing.

5.5. This phase will also need to take into account the following:

- known services and associated buried infrastructure and any contaminated areas; and
- safety and ecological constraints (e.g. any known contaminated ground and important habitats/woodland being retained).

5.6. General areas to be considered for selective trial trenching will include:

- only areas where developed is to take place (i.e. where there will be earthworks, excavations, construction, new roads or drainage excavations);
- areas where the magnetometer survey suggests the presence archaeology that should be further investigated;
- areas of existing hardstanding that will be developed;
- all subject to any health and safety constraints.

These areas are detailed on **Figure 2** and again are divided between those areas of know development impacts and those areas still to be defined and therefore evaluated at a future point.

5.7. The general location, number, size and dimensions of trial trenches will be based on the results of the magnetometer surveys, primarily targeting potential archaeological features and anomalies or will be set out to sample blank areas, particularly where no magnetometer surveys have been undertaken.

5.8. The maximum trenching sample rate shall be equivalent to 4% of the actual total plan areas of development, unless evidence of significant previous disturbance is identified, magnetometer results

allow for targeting efficiencies, safety precludes certain areas, or it is agreed to move directly to the mitigation phase for a given area.

5.9. Provision must be made for the collection and processing of environmental and organic sampling where appropriate in line with an agreed sampling strategy approved by Waterman and OCAS.

5.10. All fieldwork and reporting shall be carried out by a suitably qualified Archaeological Contractor, who shall be a CIfA Registered Organisation (RO), in accordance with the relevant CIfA Standard and Guidance documents, and methodologies set out within **Appendices A**, **B** and **C**.

Phase 2 – Archaeological Watching Brief

5.11. Archaeological Watching Brief shall be employed for all geotechnical investigations within LTA2; and where agreed with OCAS, specific demolition and construction areas of the development in accordance with the criteria set out in Section 5.9.

5.12. All monitoring exercises shall be undertaken by a competent CIfA Registered Organisation (RO) with appropriate knowledge of the site and in accordance with a WSI produced by the Archaeological Contractor in line with the methodology set out within **Appendix A**. The WSI shall be produced in advance of the commencement of works requiring monitoring and issued to Waterman for review prior to submitting to OCAS.

5.13. No construction or excavations, etc. can proceed until OCAS has confirmed approval of the WSI in writing.

5.14. The watching brief will provide an opportunity, if needed, for the engaged Archaeological Contractor 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.

5.15. Waterman and OCAS should then be informed and an appropriate mitigation strategy agreed prior to commencement.

5.16. This will be subject to a further WSI produced by the Archaeological Contractor and will be submitted in advance of the commencement of these works to Waterman for review prior to submitting to OCAS for approval.

5.17. A summary report will be produced for each separate watching brief episode and the full results included in the post-excavation reporting phase (Phase 3).

Phase 2 – Archaeological Excavation

5.18. Where agreed between OCAS and Waterman, an **Archaeological Mitigation Strategy** will be prepared by Waterman for areas of strip, map and record excavation following the results of **Phase 1** investigations.

5.19. All fieldwork and reporting shall be carried out by a suitably qualified Archaeological Contractor, who shall be a CIfA Registered Organisation (RO) with appropriate knowledge of the site. This will be in accordance with a site specific WSI in accordance with the relevant CIfA Standard and Guidance documents, and the methodology set out within **Appendix A** and will be produced by the Archaeological Contractor and will be submitted in advance of the commencement of these works to Waterman for review prior to submitting to OCAS.

5.20. No mitigation fieldwork can proceed until OCAS has confirmed approval of the WSI in writing.

5.21. The identification of archaeological features shall be made by the Archaeological Contractor during all phases of machine stripping. Areas shall be cleaned with hand tools as required to define archaeological features and deposits. Once machining is complete, pre-excavation planning of remains shall be undertaken and used as the framework for the detailed excavation sampling strategy. A copy of the pre-excavation plan shall be supplied to Waterman and OCAS for discussion

during each monitoring meeting, which will be set at regular intervals during the progression of fieldwork.

5.22. The OCAS and Waterman agreed level of archaeological features and deposits of interest shall be investigated and recorded following receipt of the pre-excavation plan. Sampling levels and recording methodology should follow the fieldwork methodology set out in **Appendix A**.

5.23. Should features such as burials, wells or remains of buildings/structures be exposed, a methodology shall be agreed by the Archaeological Contractor with Waterman and OCAS, and any relevant licences shall be obtained by the Archaeological Contractor before proceeding.

5.24. All stratigraphic relationships between features and deposits shall be investigated and recorded by the Archaeological Contractor unless otherwise agreed in advance.

5.25. No archaeological machining of features shall be undertaken unless agreed with Waterman in liaison with OCAS.

5.26. Provision shall be made by the Archaeological Contractor for taking environmental/organic samples where appropriate and in accordance with the agreed sampling strategy for the excavation area.

5.27. No mitigation areas shall be handed over to the Principal Contractor until OCAS has confirmed sign off in writing with Waterman. This consent will be subject to production of a post-excavation plan being produced by the Archaeological Contractor locating archaeology and interventions together with grid references.

Phase 3 – Post-Excavation Reporting

5.28. Following completion of the above works, a programme of post-excavation assessment, followed by detailed analysis and publication will be required. A final project archive will be deposited at the Oxfordshire County Museum Service OCMS. The Archaeological Contractor shall carry out this work in accordance with the relevant industry guidance and all relevant CIfA Standard and Guidance documents, the methodologies set out in **Appendix B and C**, and in an archive format agreed with the OCMS.

5.29. The post-excavation assessment report will be reviewed by Waterman prior to submission to OCAS for agreement. Following any necessary revisions, a final version will be produced and submitted to Waterman who will submit to OCAS for acceptance.

5.30. Any agreed publication and journal article(s) will likewise be reviewed by Waterman prior to submission to OCAS for agreement. Any revisions shall be completed by the Archaeological Contractor prior to issue of the final deliverables to Waterman, who will submit to OCAS for acceptance and sign off of the archaeological Planning Conditions 48 and 49.

Monitoring and Access

5.31. OCAS and Waterman shall be allowed access to inspect the archaeological sites at all stages, to ensure that they are being conducted to professional standards and in accordance with the agreed method statement.

5.32. To facilitate this, a projected timetable for each phase of field investigation shall be agreed between Waterman and the Principal Contractor for the initial site preparation works, if appointed, and the Archaeological Contractor for each stage of work and relayed to OCAS.

5.33. Waterman will notify OCAS at least 2 weeks in advance of the start of fieldwork for each stage of the evaluation and mitigation phases and will agree monitoring visits throughout the programme of fieldwork covering Land Transfer Area 2 (LTA2).

6. Health and Safety

6.1. The Archaeological Contractor for each stage of field investigation shall comply with the requirements of the Health & Safety at Work Act 1974 and Construction (Design and Management) Regulations, 2015.

6.2. Each Archaeological Contractor shall prepare a Risk Assessment for the Site in accordance with the organisation's health and safety policy.

6.3. Health and safety shall take priority over all archaeological matters.

6.4. All archaeologists undertaking fieldwork shall comply with all relevant Health and Safety Legislation, in particular, machinery shall be kept away from unsupported trench/excavation edges and public/other contractors' access shall be restricted.

6.5. Barriers, hoardings and warning notices shall be installed by the Archaeological Contractor, as appropriate unless the Principal Contractor, if one is appointed, fulfil this duty of care.

6.6. Safety helmets and other applicable Personal Protective Equipment (PPE) shall be used by all personnel as necessary.

6.7. All relevant reports and drawings associated with ground conditions and services shall be provided to the Archaeological Contractors by the Principal Contractor, if one is appointed; however, any further information deemed necessary shall be obtained by each Archaeological Contractor prior to any intrusive works commencing.

6.8. In addition to written records, excavation areas shall be checked and cleared for services using Cable Avoidance Tools (CAT and Genny) by the Archaeological Contractor, unless otherwise agreed to be undertaken by the Principal Contractor, if one is appointed. The Principal Contractor, if one is appointed, alternatively the Archaeological Contractor, shall be responsible for any damage and repairs to site services and any associated business interruption.

6.9. Spoil shall be kept at a safe distance from any excavation edges. The location of the spoil heap/s may be within the Site or spoil may be removed off-site immediately.

6.10. No existing rights of way or accesses shall be blocked during the course of site work, unless this has been undertaken by the Principal Contractor, if one is appointed, in advance.

6.11. No trees or protected species shall be harmed by site works.

6.12. Adjacent public roads shall be kept free of mud and spoil.

6.13. To ensure wildlife legislation is adhered to, this document shall be read in conjunction with the method statement(s) for ecological mitigation, where they exist, and any areas of overlap shall 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.

6.14. Should a protected species be identified, works shall stop and Waterman be advised.

6.15. A Waterman Ecologist will then provide advice on how to manage any constraints prosed by the protected species.

6.16. Where fieldwork is to be undertaken close to trees, a Waterman Arboriculturist will advise on appropriate measures to be taken, which may include trees being protected by the Principal Contractor, if one is appointed, as detailed in BS 5837-2012: *Trees in relation to design, demolition and construction*.

6.17. There is a potential for intrusive geotechnical ground investigation works to expose unforeseen contamination at the Site, such as asbestos containing materials (ACMs).

6.18. The Archaeological Contractor shall detail adequate control measures within their method statements should unforeseen contamination be encountered. This will include detailed inductions

for all staff attending site for the first time and regular toolbox talks to keep teams aware of and updated on any changing conditions within the development site.

6.19. All work shall be carried out in compliance with the Health and Safety requirements of the Principal Contractor.

6.20. The Principal Contractor shall control all aspects of the Safe System of Work (SSoW) for the Site through their Construction Phase Plan (CPP).

6.21. A Risk Assessment, supplementary to the CPP, which covers all risks associated with the Archaeological Contractor's activities on site, shall be provided by the appointed Archaeological Contractor for each stage of work.

6.22. The Archaeological Contractor's Risk Assessment shall also consider hazards posed by the activities of other contractors on site, where those hazards might pose a risk to employees of the Archaeological Contractor.

7. Additional Requirements

General

7.1. The Archaeological Contractor shall provide a lead contact for the fieldwork phases and brief career profile of the Site Manager, which demonstrates their suitability to manage the fieldwork.

7.2. A full cost estimate for the fieldwork, post-excavation and archiving shall be provided to Waterman for each stage of work, including all expenses and a schedule of rates for additional inputs.

7.3. Any significant variations to the proposed methodology set out in WSIs shall be agreed with Waterman and OCAS in advance.

7.4. The scope of work detailed here is aimed at meeting the aims of the project in a cost-effective manner. Waterman attempts to foresee possible site-specific problems and resource these. However, there may be unusual circumstances which may affect delivery and programmes for each stage of work, such as:

- unavoidable delays due to extreme bad weather;
- vandalism; and
- complex structures or objects, including those in waterlogged conditions, requiring specialist removal.

7.5. In such circumstances, further discussions with the Archaeological Contractor and OCAS shall be held to try to mitigate effects as far as possible.

Insurance

7.6. The Archaeological Contractor shall hold Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance. Proof of these insurances shall be supplied to Waterman.

7.7. Waterman and the Archaeological Contractor shall 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. 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) 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

7.8. Waterman and the Archaeological Contractor shall 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 this document.

7.9. Waterman and the Archaeological Contractor shall 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).

7.10. Waterman shall advise the Client of any such materials supplied in the course of projects that are not Waterman's or the Archaeological Contractor's copyright.

Standards and Procedures

7.11. Waterman and the Archaeological Contractor shall conform to the standards of professional conduct outlined in the CIfA Code of Conduct, the CIfA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, the CIfA Standards and Guidance for Geophysical Survey, Field Evaluation, Watching Brief, Archaeological Excavation and Post-excavation Reporting.

7.12. Project Supervisors level and above shall be recognised in an appropriate Area of Competence by the CIfA.

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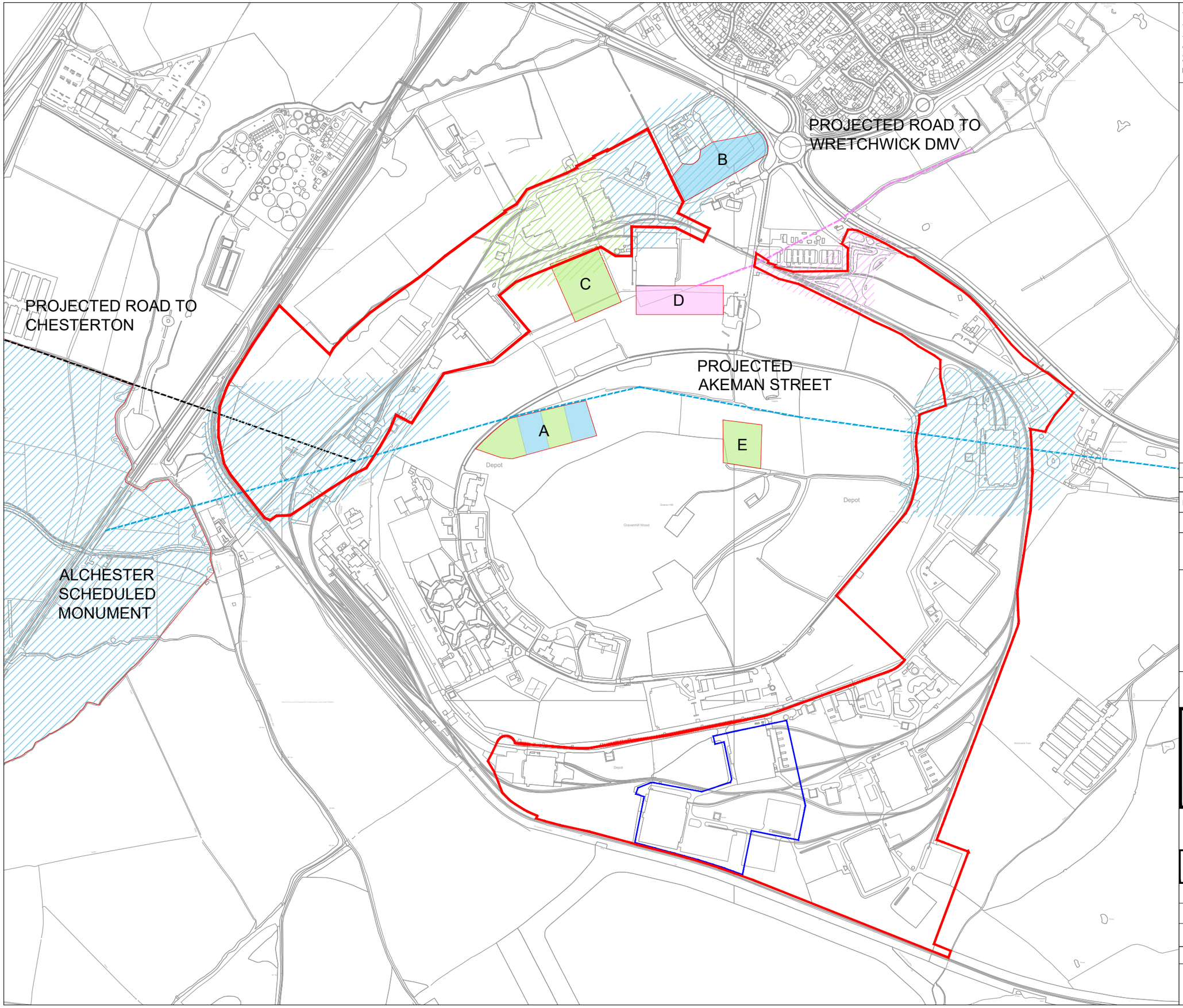
FIGURES



LTA2 BOUNDARY

BARRUS DEVELOPMENT BOUNDARY

APPROXIMATE LOCATION OF LTA1 ARCHAEOLOGICAL MITIGATION SITES BY PERIOD:

E PREHISTORIC

B ROMANO-BRITISH

D MEDIEVAL

APPROXIMATE AREA OF KNOWN ARCHAEOLOGICAL POTENTIAL BY PERIOD:

PREHISTORIC

ROMANO-BRITISH

MEDIEVAL

UNSHADED AREAS COULD CONTAIN ARCHAEOLOGY FROM ANY PERIOD

Rev	Date	Description	By
B01	21.02.19	FINAL ISSUE	MC
A01	12.02.19	PRELIMINARY ISSUE	A01

Amendments

Project
GRAVEN HILL

Title
FIGURE 1: LTA1 MITIGATION AREAS AND KNOWN LTA2 ARCHAEOLOGICAL POTENTIAL BY PERIOD

Client

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Drawing Status
DESIGN

Designed by	SR	Checked by	AH	Project No	WIE11386-136
Drawn by	MC	Date	JANUARY 2019	Work Order No	136
Scales @ A3 work to figured dimensions only	N.T.S				

Publisher	Zone	Category	Number	Revision
WIE	SA	79	013	B01

A3-Wat-T, GH LTA1 and LTA2 and Red Line, OS_Base_Map

Figure 2: Archaeological Evaluation Strategy for LTA2

PROJECTED ROAD TO WRETCHWICK DMV

PROJECTED ROAD TO CHESTERTON

PROJECTED AKEMAN STREET

F G H I J K L M N O P Q R S T U V

Depot

Gravenhill Wood

LTA2 SITE BOUNDARY

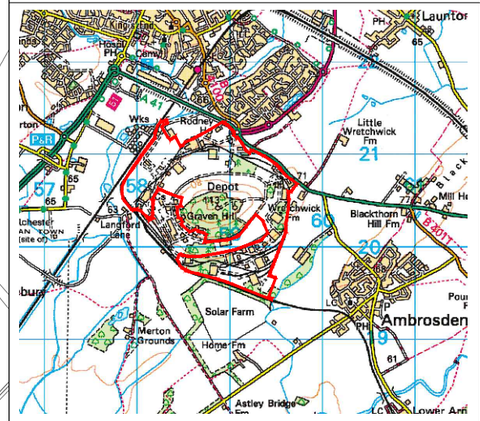
BARRUS DEVELOPMENT BOUNDARY

AREAS PROPOSED FOR EVALUATION BASED ON KNOWN DEVELOPMENT PROPOSALS

AREAS OF POTENTIAL BURIED ARCHAEOLOGY THAT COULD BE AFFECTED BY FUTURE DEVELOPMENT PROPOSALS (EVALUATION AREAS TO BE AGREED)

AREAS: (m^2)

SITE F - 2653	SITE Q - 333
SITE G - 64373	SITE R - 27859
SITE H - 8638	SITE S - 9306
SITE I - 1743	SITE T - 25472
SITE J - 2363	SITE U - 1308
SITE K - 29765	SITE V - 23319
SITE L - 5343	
SITE M - 1363	
SITE N - 2498	
SITE O - 2826	
SITE P - 422	



Rev	Date	Description	By
B01	21.02.19	FINAL ISSUE	MC
A03	12.02.19	UPDATES TO AREAS	MC
A02	14.01.19	LEGEND UPDTAED	MC
A01	01.10.18	PRELIMINARY ISSUE	MC

Amendments

Project
GRAVEN HILL, BICESTER

Title
FIGURE 2: ARCHAEOLOGICAL EVALUATION STRATEGY FOR LTA2

Client

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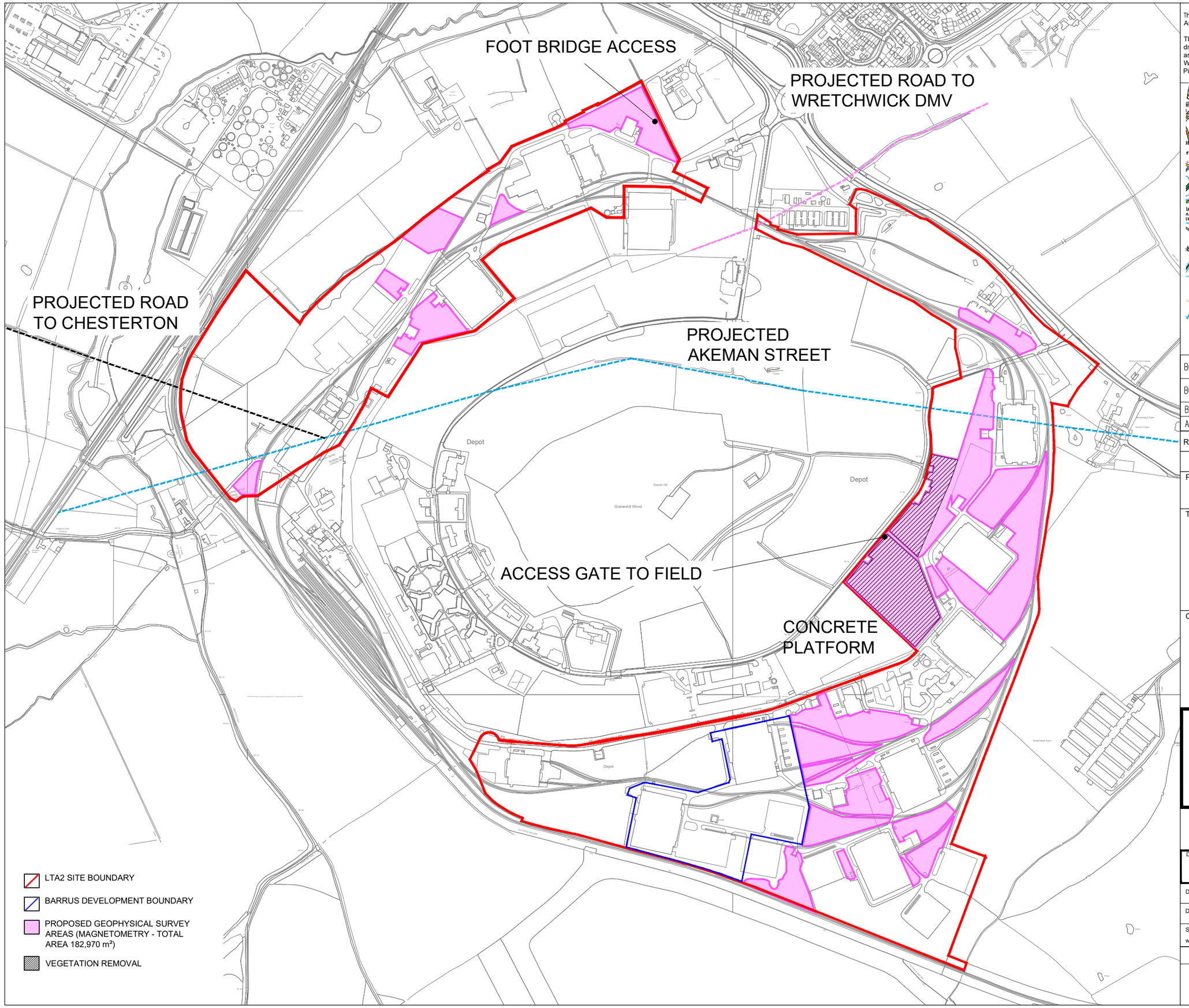
Drawing Status: DESIGN

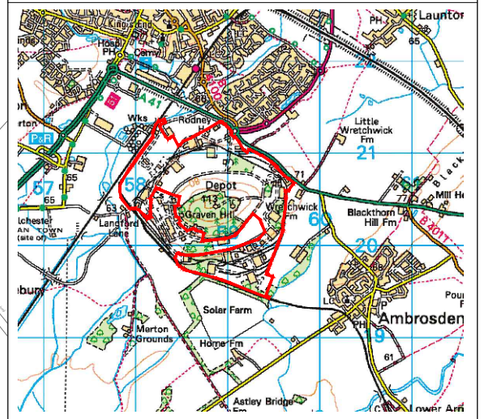
Designed by	AH	Checked by	AH	Project No	WIE11386
Drawn by	MC	Date	OCTOBER 2018		
Scales @ A3 work to figured dimensions only	NTS			Computer File No	WIE11386-100-CAD-79-002

Publisher	Zone	Category	Number	Revision
WIE	SA	79	004	B01

A3-Wat-S-GHVDC, OS_Base_Map

Figure 3: Proposed Geophysical Survey Areas





Rev	Date	Description	By
B03	02.08.19	TEMPLATE UPDATE	MC
B02	18.03.19	AREAS UPDATED, FOOTBRIDGE, CONCRETE PLATFORMS ADDED	MC
B01	21.02.19	FINAL ISSUE	MC
A01	13.02.19	PRELIMINARY ISSUE	MC

Amendments

Project
GRAVEN HILL, BICESTER

Title
FIGURE 3: PROPOSED GEOPHYSICAL SURVEY AREAS

Client
Graven Hill Village Development Company

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Drawing Status
DESIGN

Designed by	AH	Checked by	AH	Project No	WIE11386
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WIE	SA	79	009	B03

A3-Wat-S-GHVDC, OS_Base_Map

APPENDICES

A. Fieldwork Methodology (Trial Trenching / Strip, Map & Record and Watching Brief)

Excavation and recording

All trenches and excavation areas shall be set out on OS National Grid Reference (NGR) co-ordinates using an appropriate GPS system. The position and size of these may be adjusted on site to account for services and other constraints, but only with the approval of OCAS. The final 'as dug' areas for trenches, strip, map and record and watching brief excavation works should be recorded with GPS.

All trial trenches should not be backfilled until after they have been monitored and it has been agreed to do so by the OCAS.

Initial mechanical excavation of trial trenches, under the constant supervision of a competent archaeologist, is to be taken down to the top of 'natural' substrate, or the top of any significant archaeological level, whichever is the higher, using a toothless ditching bucket. 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 and full excavation of features should not be undertaken at this stage. In addition, care should be taken not to damage archaeological deposits through excessive use of mechanical excavation. Provision should be made for taking environmental/organic samples for assessment as part of the evaluative process, at a level sufficient to adequately inform on the likely palaeoenvironmental potential that can be anticipated during any further stages of mitigation.

Mechanical excavation during watching brief or strip, map and record situations, under the constant supervision of a competent archaeologist, is to be taken down to the top of 'natural' substrate, or the top of any significant archaeological level, whichever is the higher. The surface of the exposed archaeological horizon should be cleaned for the purpose of clarifying the remains. Initially works will comprise the mechanical removal of non-archaeologically significant soils, under constant archaeological supervision, using a toothless ditching bucket.

No machine movements across the stripped areas shall be permitted unless by prior agreement with Waterman and OCAS.

The generated spoil in all scenarios, shall be monitored in order to recover artefacts, including systematic sweeping with a metal detector where appropriate. Metal detecting and hand-cleaning of the stripped surface, to better define any identified archaeological deposits/features and record the distribution of unstratified/surface artefacts.

The generated spoil bunds should be appropriately sealed to prevent soil degradation and water retention.

Examination of features will concentrate on recovering the plan and any structural sequences. Particular emphasis will be placed upon gaining a secure understanding of the stratigraphic and chronological development of the site, including the recovery of samples suitable for radiocarbon dating where appropriate, and on upon obtaining details of the phasing of the site

All funerary/ritual activity and domestic/industrial deposits will be 100% excavated. All discrete features (post holes, pits) will be sampled by hand excavation (average sample unlikely to exceed

50%) unless their common/repetitious nature suggests they are unlikely to yield significant new information. All linear features (ditches, pathways etc) will be sampled to a maximum of 10%. Bulk horizontal deposits will as a minimum be 10% by area hand excavated, after which a decision may be taken (in conjunction with the OCAS) to remove the remainder with machinery. Priority shall be attached to features which yield sealed assemblages which can be related to the chronological sequence of the site.

All archaeological features revealed shall be planned and recorded in accordance with CIfA Standard and Guidance and the Archaeological Contractor's pro forma recording system. The recording system shall also be compliant with other systems used by OCAS. Each context shall be recorded by a 'context sheet' to include a written and measured description. Context sheets shall include all relevant stratigraphic relationships and for complex stratigraphy a separate matrix diagram shall be employed.

Archaeological features and deposits shall be recorded electronically using GPS or Total Station (TST) survey equipment, as appropriate, and drawn sections at scale 1:10 for sections or 1:20 for plans. Photographs (digital colour) shall be taken as appropriate. All finds and samples shall be bagged separately and related to the context record. All artefacts shall be recovered and retained for processing and analysis.

All excavation, either by machine or by hand, must be undertaken with a view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation in situ with agreement of OCAS.

Artefacts

A high priority shall be given to dating any remains, and so all artefacts are to be retained. All finds are to be treated in a proper manner to prevent deterioration. This shall involve cleaning and conservation, where necessary and labelling, cataloguing and secure storage in appropriate containers.

The Archaeological Contractor shall demonstrate that arrangements are in hand to cover all necessary processing, conservation and specialist analysis of finds including, if necessary, the conservation of organic and composite materials. Every effort shall be made to ensure that finds analysis is consistent with existing local systems.

Human remains

If human remains are encountered, the client and OCAS will be informed immediately. Where excavation of human remains is undertaken, this will be conducted following the provisions of the Coroners Unit in the Ministry of Justice.

Environmental remains

Due care shall be taken to identify deposits which may have environmental potential, and an appropriate programme of environmental sampling must be presented in the Written Scheme of Investigations, and further developed as appropriate during fieldwork, once areas have been stripped of overburden, in consultation with Waterman, OCAS and the Archaeological Contractor's Environmental Specialists. The strategy should follow the Historic England environmental sampling

guidelines outlined in *Environmental Archaeology, A guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (English Heritage 2011). The sampling strategy may be adapted for specific circumstances, in close consultation with Waterman, OCAS and the Archaeological Contractor's Environmental Specialists, but should, as a minimum, follow the general selection parameters set out in the following paragraphs.

Samples should be targeted upon datable deposits of clear interpretable value. Therefore, secure and phased deposits, especially those related to settlement activity and/or structures must be considered for sampling for the recovery of charred plant remains, charcoal and mineralised remains. Detailed sampling for charred plant remains (CPR) shall seek to address period-specific research questions with reference to the regional Solent-Thames Research Framework.

Any cremation-related deposits should be sampled appropriately for the recovery of cremated human bone and charred remains.

If any evidence of *in situ* metal working is found, suitable samples for the recovery of slag and hammer scale shall be taken.

Where sealed waterlogged deposits are encountered, samples for the recovery of waterlogged remains, insects, molluscs and pollen, as well as any charred remains, must be considered. The taking of sequences of samples for the recovery of molluscs and/or waterlogged remains shall be considered through any suitable deposits such as deep enclosure ditches, barrow ditches, palaeo-channels, or buried soils. Monolith samples should also be taken from this kind of deposit as appropriate to allow soil and sediment description/interpretation, as well as sub-sampling for pollen and other micro/macrofossils such as diatoms, foraminifera and ostracods.

The need for any more specialist samples, such as OSL, archaeomagnetic dating and dendrochronology shall be evaluated and shall be taken under the direction of the relevant specialist.

The processing of the samples should be done in conjunction with the relevant specialist following the Historic England general environmental processing guidelines (English Heritage 2011).

Treasure

Upon discovery of Treasure the Contractor shall notify the client and the curator immediately and comply fully with the provisions of the Treasure Act 1996 and the Code of Practice referred to therein. Findings shall be reported to the coroner within 14 days.

B. Post–Excavation Assessment, Analysis and Reporting Methodology

The archive shall be prepared by the Archaeological Contractor completing the mitigation works and a post-excavation assessment undertaken immediately after the Site works have been completed. The assessment report shall include assessment of the previous evaluative works and shall be completed within 12 months of completion of site works. The assessment is to be prepared in accordance with the specification given in *Management of Research Projects in the Historic Environment*[37] and the accompanying *PPN 3: Archaeological Excavation*[38].

Each category of finds shall be assessed by the Archaeological Contractor's specialist staff, and recommendations prepared for a further study should this be required by OCAS. All artefacts and ecofacts shall be processed in accordance with standard practice. No artefacts, ecofacts or environmental samples shall be discarded without written permission from OCAS.

The draft Post-Excavation Assessment Report shall be submitted by the Archaeological Contractor to Waterman for verification and approval. It shall be the property of the Applicant and shall represent a confidential document. Waterman shall be responsible for submitting the draft report to OCAS for comment and final approval.

Once finalised, a hard copy of the Report shall be submitted by the Archaeological Contractor to a suitable archive. An e-copy, as a pdf, shall be submitted to OCAS for inclusion in the HER along with any associated digital data. In addition, the photographic record of the works shall 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 shall become a public document.

Provision shall be made for an appropriate level of publication of the results of the archaeological works, including all phases of evaluation and mitigation. A summary report shall be prepared by the Archaeological Contractor completing the works and submitted for publication in the relevant local journal. Additional publication requirements shall be agreed with OCAS.

The report shall include:

(i) an abstract containing the essential elements of the results preceding the main body of the report and a summary of the project's background;

(ii) description and illustration of the site location;

(iii) a methodology of the works undertaken;

(iv) include plans and reports of all documentary and other research undertaken;

(v) a description of the project's results;

(vi) an interpretation of the results in the appropriate context;

(vii) a summary of the contents of the project archive and its location (including summary catalogues of finds and samples);

(viii) a site location plan at an appropriate scale on an Ordnance Survey, or equivalent, base-map;

(ix) a plan showing the location of the trenches and exposed archaeological features and deposits in relation to the site boundaries;

[37] Historic England, April 2015. *Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide*
[38] Available from https://www.historicengland.org.uk/images-books/publications/morphe-project-managers-guide/

(x) plans of each trench, or part of trench, in which archaeological features are recognised. These shall be at an appropriate scale to allow the nature of the features exposed to be shown and understood. Plans shall show the orientation of trenches in relation to north. Section drawing locations shall be shown on these plans. Archaeologically sterile areas shall not be illustrated unless this can provide information on the development of the site stratigraphy or show palaeoenvironmental deposits that have influenced the site stratigraphy;

(xi) appropriate section drawings of trenches and features shall be included, with OD heights and at scales appropriate to the stratigraphic detail being represented. These shall show the orientation of the drawing in relation to north/south/east/west. Archaeologically sterile trenches shall not be illustrated unless they provide significant information on the development of the site stratigraphy or show palaeoenvironmental deposits that have influenced the site stratigraphy;

(xii) site matrices, if appropriate;

(xiii) photographs showing significant features and deposits that are referred to in the text. All photographs shall contain appropriate scales, the size of which shall be noted in the illustration's caption;

(xiv) a consideration of evidence within its wider local/regional context;

(xv) a summary table and descriptive text showing the features, classes and numbers of artefacts recovered and soil profiles with interpretation;

(xvi) specialist assessment or analysis reports where undertaken;

(xvii) an evaluation of the methodology employed and the results obtained (i.e. a confidence rating).

Specialist artefact and palaeoenvironmental assessment shall take into account the wider local/regional context of the archaeology and shall include:

(i) specialist aims and objectives

(ii) processing methodologies (where relevant)

(iii) any known biases in recovery, or problems of contamination/residuality

(iv) quantity of material; types of material present; distribution of material

(v) for environmental material, a statement on abundance, diversity and preservation

(vi) summary and discussion of the results to include significance in a local and regional context

The Archaeological Contractor shall 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.

C. Archiving Methodology

The Site Archive shall comprise records of all areas of archaeological investigation, and any materials recovered, including written elements, plans and drawings, photographic prints and transparencies (where appropriate). All primary data recovered during the investigations shall be quantified, ordered, indexed and made internally consistent. The archive shall 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.

The Site Archive shall also include a summary of all archaeological investigations and mitigation for the Site, incorporating the results of all final evaluation, assessment and analysis reports, and thereby providing an integrated record.

Work on the Site Archive shall be completed by the Archaeological Contractor within twelve calendar months of completion of the archaeological mitigation investigations. Upon completion of the Site Archive the Archaeological Contractor shall arrange with OCAS to present the archive for inspection prior to its deposition with the Oxfordshire County Museum Service.

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 investigations, are to be stored during the course of the archaeological investigation at the Archaeological Contractor's secure offices or usual place of secure storage of archaeological finds.

All artefacts recovered during the archaeological investigation shall be suitably washed (where the condition of the artefacts allows) and marked by the Archaeological Contractor and all artefacts and ecofacts bagged and boxed by the Archaeological Contractor, in accordance with current United Kingdom Institute for Conservation (UKIC) RESCUE publication First Aid for Finds (3rd. ed. 1998). All 'small finds' shall be boxed together, separate from bulk finds.

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 *Management of Research Projects in the Historic Environment*[39]) shall be deposited by the Archaeological Contractor with the County Museum Service. No artefacts or ecofacts from the Site shall be deposited 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 shall be made of all artefacts and elements being withheld.

In preparing cost estimates for the archaeological investigation, the Archaeological Contractor shall include provision for at least a basic minimum level of conservation of finds liable to deterioration after excavation.

The Archaeological Contractor shall ensure that the Oxfordshire County Museum Service is notified and liaised with at an early stage. It is the responsibility of the Archaeological Contractor to meet the museum's reasonable requirements with regard to the preparation of archives for deposition.

In preparing costs provision shall be made by the Archaeological Contractor for the payment of a 'deposit grant' at the time of archive transfer towards the costs of archive curation in perpetuity. The estimated cost shall be clearly shown and shall be calculated in accordance with the procedures set out in "Charge for Archaeological Archives Deposited with Oxfordshire Museums" Oxfordshire Museums 1995.

[39] Historic England, April 2015. *Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide*

Prior to the deposition of finds, the Archaeological Contractor shall agree with the 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.

All excavated artefacts and ecofacts and all other elements of the Site Archive shall be delivered by the Archaeological Contractor to the County Museum Service as one deposit, and written confirmation of this shall be provided to OCAS. Where this arrangement is not practicable lists shall be submitted by the Archaeological Contractor to the 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.

The Archaeological Contractor shall contact the County Museum Service prior to preparing cost estimates for the work in order to discuss any special requirements for the deposition of finds.

Subject to the resources available, and to discussion with the recipient museum, all articles needing conservation shall be properly stabilised by the Archaeological Contractor prior to their deposition with the County Museum Service, and records of their treatment lodged with the museum. Those items for which available resources do not permit stabilisation shall be separately packed and listed by the Archaeological Contractor.

Prior to commencement of the archaeological investigations the Archaeological Contractor shall obtain an accession number(s) for excavated artefacts and ecofacts from the project and any guidelines regarding deposition of such artefacts and ecofacts from the County Museum Service specific to the recipient museum. All finds, save those specifically excluded by the County Museum Service or excluded on grounds of size/material, shall be marked by the Archaeological Contractor with the recipient museum's accession number.

Artefacts and ecofacts deposited by the Archaeological Contractor with the County Museum Service shall 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 shall also be supplied by the Archaeological Contractor to the recipient museum.

Subject to the agreement of the landowner, all artefacts and ecofacts recovered from the archaeological excavations shall be deposited by the Archaeological Contractor within the recipient museum within five years from the date of completion of the investigation.

Copyright of the written, drawn and photographic elements of the Site Archive shall be vested jointly with the Archaeological Contractor and the recipient museum.

The following documents shall be adhered to:

- Standards in the Museum Care of Archaeological Collections[40];
- Management of Research Projects in the Historic Environment[41]; and
- MoRPHE (applicable Technical Guides and Project Planning Notes)[42].

[40] Museum and Galleries Commission, 1992. *Standards in the Museum Care of Archaeological Collections*
[41] Historic England, April 2015. *Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide*
[42] Available from https://www.historicengland.org.uk/images-books/publications/morphe-project-managers-guide/

UK and Ireland Office Locations