



A41 – Pioneer Roundabout, Graven Hill, Bicester

Archaeological Mitigation Strategy

On behalf of



June 2020

Waterman Infrastructure & Environment Limited Merchants House, Wapping Road, Bristol, BS1 4RW www.watermangroup.com



Client Name:	Graven Hill Village Development Company
Document Reference:	WIE11386-139-1-1-3-STRAT
Project Number:	WIE11386

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

 Issue
 Date
 Prepared by
 Checked by
 Approved by

 First
 June 2020
 Sarah Generalski-Sparling Heritage Consultant
 Ian Barnes
 Nick Jones-Hill

 Image: Serie Consultant
 Associate Director
 Serier Associate Director

Comments

Comments



Disclaimer

This report has been prepared by Waterman Infrastructure & Environment Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.



Contents

1.	Introd	uction	1
	1.1	Project Background	2
	1.2	The Site	2
	1.2.1	Geology and Topography	2
	1.3	Scope of Document	3
2.	Archa	eological and Historic Background	4
	2.1	Prehistory	4
	2.2	Romano-British	5
	2.3	Medieval	5
	2.4	Post Medieval	6
	2.5	Twentieth Century	6
3. Identified Impacts		ied Impacts	8
	3.1	Proposed Built Footprint	8
4. Mitigation Methodologies Options		tion Methodologies Options	9
	4.1	Key Mitigation Areas	9
	4.2	Preservation In Situ1	0
	4.3	Walkover Survey1	0
	4.4	Trial Trenching1	0
	4.5	Strip, Map and Sample Excavation/Open Area Excavation1	1
5. Additional Requ		onal Requirements1	2
	5.1	Monitoring and Access1	2
	5.2	Archiving1	2
	5.3	Dissemination of Results1	4
6.	Refere	ences1	5

Figures

Figure 1:	Site Location Plan	1
Figure 2:	Location of Mitigation Areas	9

Tables

Table 2:	Key Archaeological Asset Effect Summary	8
----------	---	---



Appendices

A. Site Location Plan

Contents A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



1. Introduction

Waterman Infrastructure & Environment Ltd ('Waterman') has been commissioned by Gravenhill Village Development Company ('the Client') to produce an archaeological mitigation strategy detailing the programme of archaeological works for the construction of the A41 Pioneer Roundabout ('the Development') at land located at the junction between Pioneer Road and the A41 ('the Site') at the eastern extent of Graven Hill Garden Village ('the wider Graven Hill Site').

An historic environment assessment by Amec, on behalf of the Defence Infrastructure Organisation (DIO), who also prepared the Historic Environment chapter in the Environmental Statement (ES), was submitted with the original planning application (11/01494/OUT). In it, the potential for the presence of heritage assets within the Site and the eastern extent of the wider Graven Hill Site was demonstrated. Such potential relates to the presence of sub-surface archaeological remains within limited parts of the wider Graven Hill Site.

The archaeological remains identified during a subsequent 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 (see **Section 2 and 3**).

The indicative location of the Site is presented on **Figure 1** below and a detailed location plan is attached in **Appendix A**.



Source: OS Data © Crown Copyright and Database Right 2020 [Accessed via ArcGIS Online 25th June 2020]¹)

¹ ArcGIS Online, accessed on 25th June 2020 via <u>https://www.arcgis.com/index.html</u>

Page 1 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



1.1 Project Background

The Client has obtained outline planning permission for the wider Graven Hill Site as follows:

"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".

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 to this strategy document as follows:

"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 Gravel Hill application site area, which shall be submitted to and approved in writing by the Local Planning Authority."

1.2 The Site

The Site comprises approximately 0.7 hectares (ha) centred on Ordnance Survey Grid Reference SP 59672 20740 and forms part of the eastern extent of the wider Graven Hill Site.

The Site is of an irregular shape, broadly encompassing parts of the A41 including a small section of grassed area to the north of it, and a small wooded area with Pioneer Road to the south of the A41. The majority of the Site therefore consists of a mixture of hardstanding (e.g. Pioneer Road and the A41), a small grassed area and wooded areas to either side of Pioneer Road.

A description of the wider Graven Hill Site originally set out in the ES authored by Amec and submitted with the planning application is presented below for further context. The wider Graven Hill Site is located 1.5 km to the south of the centre of Bicester with its northern site boundary formed by the A41 and the boundary to the west being the main (Oxford to Bicester) railway line.

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, some of which are located to the south and west of the Site. 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).

1.2.1 Geology and Topography

The landform of the surrounding study area is predominantly flat, and generally at elevations of approximately 60m to 65m 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 115m AOD, and is one of a series of isolated hills (Poundon Hill, Arncott Hill and Muswell Hill) which rise above the surrounding landscape. The majority of the developed part of the wider Graven Hill Site lies below 75m AOD, closer to levels within the immediate surroundings.

Page 2 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



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.

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.

1.3 Scope of Document

The scope of this document is as follows:

- To provide an overview of the archaeological potential of the Site based on the results of previously completed work;
- To set out the mitigation strategy detailing the potential archaeological programme.



2. Archaeological and Historic Background

The wider Graven Hill Site history presented below summarises that set out in the ES authored by Amec² and submitted with the planning application.

2.1 Prehistory

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.

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 1999³, 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.

Evidence of Prehistoric settlement and activity within the 1 km study area used for the baseline presented in the ES⁴ 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.

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 A41⁵ 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 site⁶ 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 identified⁷.

Cropmark evidence from aerial photography⁸, includes two possible round barrows of probable 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)⁹. These have been interpreted as possible evidence for pre-Roman settlement within this 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.

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

- ³ 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
- ⁴ Amec, 2011. Future Defence Storage and Redistribution Programme Redevelopment of MOD Bicester Environmental Statement
- ⁵ P M Booth, J Evans and J Hiller, 1991. *Excavations in the Extramural Settlement of Roman Alchester, Oxfordshire*, in Oxford Archaeoolgy Monograph, 1

⁶ Oxford Archaeological Unit, 1998. Bicester Fields Farm, Bicester, Oxfordshire – Archaeological Evaluation Report
 ⁷ "The excavation of a Late Iron Age enclosed settlement at Bicester Fields Farm, Bicester, Oxon." in Oxoniensia Issue : 64 (2000), Pages: 153 - 233

⁸ Air Photo Services Ltd, 2005. Land southwest of Bicester, Oxfordshire: Interpretation of Aerial Photographs for Archaeology. Project No. 0418

⁹ <u>http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MOX5141&resourceID=1033</u> [Accessed: 30 January 2015]

Page 4 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



2.2 Romano-British

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.

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.

Another Roman period settlement site has been excavated to the north of Graven Hill at Oxford Road¹⁰. 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 1st century AD, and the second 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.

A feature of interest in the early Ordnance Survey (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 wider Graven Hill Site boundary. The other branch continued to the east, following a line on the north side of Graven Hill, within the wider Graven Hill 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.

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.

2.3 Medieval

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 Beorna¹¹, or alternatively being derived from two separate elements – 'byrgen' meaning burial mound, and 'ceaster' meaning Roman fort¹². The earliest excavated evidence for settlement within the town is from a site to the rear of the King's Arms¹³, 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.

¹² Ekwall, E., 1960. The Concise English Dictionary of English Place-names

¹³ 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)

> Page 5 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT

¹⁰ 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
¹¹ 'The market town of Bicester', in A History of the County of Oxford: Volume 6, ed. Mary D Lobel (London, 1959), pp. 14-56 <u>http://www.british-history.ac.uk/vch/oxon/vol6/pp14-56</u> [accessed 30 January 2015].



The first edition 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.

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).

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 History¹⁴ 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.

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.

2.4 Post Medieval

The wider Graven Hill Site is shown in detail on a series of OS Maps dating from 1880 onwards. In 1880, the wider Graven Hill Site is shown comprising a series of enclosed fields arranged around Graven Hill Wood. A single farmstead was present within the wider Graven Hill 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.

2.5 Twentieth Century

The major development of the 20th century, which has shaped the current form of the wider Graven Hill 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 Arncott and Piddington in the south, collectively known as MOD Bicester.

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.

¹⁴ 'Parishes: Merton', in A History of the County of Oxford: Volume 5, Bullingdon Hundred, ed. Mary D Lobel (London, 1957), pp. 221-234 <u>http://www.british-history.ac.uk/vch/oxon/vol5/pp221-234</u> [accessed 25 January 2015].

Page 6 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



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 wider Graven Hill 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 wider 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.

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.

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.

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 identified¹⁵.

¹⁵ Granville Laws, 2007. Bicester, St David's Barracks (SP 5833 2052) in South Midlands Archaeology, vol. 37

Page 7 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



3. Identified Impacts

Within the Site, there are 3 distinct areas of activity which will result in distinct potential impacts as follows:

- Area A Existing carriageway and road (e.g. Pioneer Road and A41);
- Area B Wooded areas (to the east and west of Pioneer Road, south of A41);
- Area C Grassed area (to the north of A41).

3.1 Proposed Built Footprint

Construction processes within the proposed roundabout footprint are understood to have the potential to encompass the following:

- Site clearance (including tree clearance) and landscaping;
- Carriageway groundworks; and
- Service installation.

Each of the above stages will involve the disturbance and ground and thus of soil horizons which may contain archaeological remains. Based on the established archaeological baseline, the effect (in the absence of mitigation) upon known archaeological assets can be characterised as per **Table 2** below.

Asset type	Likely Period	Main Impacting Construction Process
Archaeological remains (likely associated with former finds encountered during the original A41 dualling works)	Iron Age	All groundworks
Archaeological remains associated with likely Roman activity	Romano-British	All groundworks
Modern evidence (possibly military evidence)	Modern	All groundworks

Table 1: Key Archaeological Asset Effect Summary

Based on the level of previous truncation caused by the construction of the A41, and its subsequent dualling, it is considered that there is a risk that archaeological deposits would have likely been truncated or removed. However, surviving pockets of undisturbed archaeological remains may survive.

Due to the nature of the proposed Development, it is considered that the potential for assets to be preserved in totality *in situ* is low. As such, it is considered appropriate that the overall mitigation programme in this area should seek to provide an outcome of preservation by record.



4. Mitigation Methodologies Options

This section is intended to highlight the options available for mitigation.

Preliminary consultations with Mr Richard Oram, Planning Archaeologist for Oxford County Council, in June 2020 were undertaken. Mr Oram noted that the Site is located within an area where a number of interesting archaeological features and sites have been recorded. In particular, a series of linear features which were recorded north-west of the Site thought to be evidence of viticulture, were noted.

Furthermore, Mr Oram advised that the presence of the wooded areas and the areas of hardstanding (e.g. Pioneer road) would unlikely yield meaningful geophysical survey results, and as such, it was proposed to start investigations with archaeological trial trenching.

The scope of any archaeological works would need to be agreed via a Written Scheme of Investigations (WSI) and will need to be agreed with and approved by the Planning Archaeologist prior to the commencement of works.

4.1 Key Mitigation Areas

The distinct areas of activity are based on the key mitigation areas outlined in **Section 3** and presented on **Figure 2** below.



Figure 2: Location of Mitigation Areas Source: OS Data © Crown Copyright and Database Right 2020 [Accessed via ArcGIS Online 25th June 2020]¹⁶)

¹⁶ ArcGIS Online, accessed on 25th June 2020 via https://www.arcgis.com/index.html

Page 9 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



Generally, the Site is considered to have low potential for archaeological material of significance from any period, based on likely ground disturbance caused by the construction of the A41 and Pioneer Road, however, without further investigations this cannot be fully understood.

Should archaeological remains be present, these would likely relate to those outlined in **Table 2** above (see **Section 3.1**), however, this does not preclude the presence of any other archaeological remains from other periods to be present within the Site.

4.2 Preservation In Situ

Where there is sufficient information available at this point to arrive at one (or more) of the below conclusions, preservation *in situ* should be considered:

- Archaeological deposits exist which are of overriding importance (nationally important);
- Archaeological deposits exist which are of significant importance and they can be readily avoided through adaptation of construction design;
- Archaeological risk is undetermined but construction processes which would involve ground disturbance are necessary.

In general, preservation *in situ* is considered to be a long-term mitigation solution. As such this mitigation strategy applies during the operations phase of a development. Therefore, it would not be appropriate to adopt preservation in site where the development may involve on-going disturbance of a type which (through design or accident) could result in the disturbance of archaeological assets.

4.3 Walkover Survey

It is considered that the first phase of investigation would comprise a walkover survey to identify any likely constraints within the Site and to assess the density of the tree cover (especially in Area B), to determine feasible locations for further investigations within the Site.

Based on aerial imagery observations in June 2020, it is likely that tree clearance within the wooded areas would have to be undertaken prior to the commencement of more extensive investigations, however, this would be confirmed by the survey.

4.4 Trial Trenching

Targeted areas of trial trenching would be beneficial to determine the likely archaeological resource present within the Site. The walkover survey would determine the feasibility for undertaking such based on current constraints (e.g. tree cover, land access).

Trial trenching would be consistent with Historic England and any guidelines and best practice issued by the Planning Archaeologist. This would represent a proportionate first response to such evidence and would not preclude expansion to other mitigation responses. Trial trenching would also ensure that an appropriate investigation in advance of further pre-construction and/or construction activities are considered.

Where archaeological features are identified investigation can be completed to allow their preservation by record.

Page 10 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



In general, the purpose of an archaeological evaluation is to "*determine, as far as reasonably possible, the mature of the archaeological resource within a specified area using appropriate methods and practices*" as per CIfA guidance¹⁷.

The scope of the evaluation would be dependent on consultations with the Planning Archaeologist, on the results of the test pit boreholes and on the total area of the Site available for trenching (e.g. restrictions may be in place due to tree cover).

4.5 Strip, Map and Sample Excavation/Open Area Excavation

Following the trial trenching evaluation, a strip, map and sample excavation may be conducted over areas where archaeological features are known or expected with a high degree of confidence to be either dense, complicated or highly sensitive. This will be on the basis of previously completed work such as the test pit boreholes and the trial trenching outlined in **Sections 4.3 and 4.4** above.

Where more significant areas of archaeological deposits are encountered, such as settlement or industrial activity, a formal programme of open area excavation should be considered to fully understand the archaeological resource and its relationship with its landscape.

In the case of either Strip, Map and Sample or Open Area Excavation, the scope of investigation (i.e. level of hand excavation sampling) would be formally agreed through consultation with the Planning Archaeologist, and lead to the formulation of a WSI for the required archaeological works.

¹⁷ ClfA, 2014. Standard and guidance for archaeological field evaluation, https://www.archaeologists.net/sites/default/files/ClfAS&GFieldevaluation_1.pdf

> Page 11 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



5. Additional Requirements

5.1 Monitoring and Access

Waterman shall be allowed access to inspect the mitigation areas at all stages of the proposed Development to ensure appropriate safety measures and professional standards are being adhered to.

To facilitate this, a projected timetable for each phase of works shall be agreed between Waterman and the Managing/Principal Contractor and incorporated into the construction programme.

All inspections and visits will be set up by Waterman in liaison with the Archaeological Contractor and the Managing/Principal Contractor (where relevant). Arrangements shall be made by Waterman to facilitate visits by the Planning Archaeologist who will ensure compliance with the planning condition.

5.2 Archiving

The complete Site archive, which comprises the archaeological investigations report(s), any handexcavation *pro-forma* and artefacts recovered, will be quantified, ordered, indexed and made internally consistent. This includes written elements, plans and drawings, photographic prints and transparencies (where appropriate) as well as other primary data recovered. The archive will also contain a Site 'Harris Matrix', a Site summary giving a preliminary account of the discoveries and brief written observations on the artefactual and environmental data as a minimum requirement.

The Site archive will also include a summary of all archaeological investigations for the Site, incorporating the results of all final assessment and analysis reports, and thereby provide an integrated record.

Work on the Site archive will be completed by the Archaeological Contractor within **six calendar months** of completion of the archaeological evaluation.

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(s) will be made available to the Archaeological Contractor pending completion of the report, to be stored during the course of the evaluation at the Archaeological Contractor's secure offices or usual place of secure storage of archaeological finds until the archive can be deposited within an appropriately designated museum by the Archaeological Contractor.

All artefacts recovered during the archaeological investigation(s) will be suitably washed (where the condition of the artefacts allows) and correctly marked by the Archaeological Contractor. All artefacts and ecofacts must be bagged and boxed by the Archaeological Contractor, in accordance with current guidelines of the United Kingdom Institute for Conservation (UKIC) / RESCUE publication *First Aid for Finds*¹⁸. All 'small finds' will be boxed together, separate from bulk finds.

Subject to the legislation of the Treasure Act 1996, all artefacts and ecofacts unearthed from the archaeological investigation(s) and all other elements of the Site archive (as defined in *Management of Research Projects in the Historic Environment*¹⁹) should be deposited by the Archaeological Contractor in an appropriate museum registered or provisionally registered by the Museums and Galleries Commission and deemed acceptable to the Planning Archaeologist. No artefacts or ecofacts from the Site will be deposited in the relevant depository without the prior written consent of the land owner. Should the land owner be unwilling to deposit the archive with the chosen museum, a full record, including a photographic and drawn survey will be made of all artefacts and elements being withheld.

¹⁸ Watkinson, D. and Neal, V., 1998, *First Aid for Finds*. Rescue and United Kingdom Institute for Conservation Archaeology Section; 3rd Edition

¹⁹ Historic England, April 2015. Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide.

Page 12 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



In the absence of an appropriate archive destination, provision should be made by the Archaeological Contractor for retaining the project archive, until a suitable depository is made available and arrangements have been made for the transfer of the complete archive.

The Archaeological Contractor will ensure that the appropriate Collections Manager is notified and communicated with at an early stage. It is the responsibility of the Archaeological Contractor to meet the designated museum's reasonable requirements with regard to the preparation of archives for deposition.

Provision will 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 recipient museum for its archive store shall be used for guidance.

Prior to the deposition of finds in the museum, the Archaeological Contractor will agree with that museum the sample or quantity of bulk finds (pottery, animal and human bone, other ecofactual material, building material, burnt flint, worked flint and stone) to be deposited.

All excavated artefacts, ecofacts and all other elements of the Site archive should be delivered by the Archaeological Contractor to the recipient museum as one deposit. Where this arrangement is not practicable, lists will 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.

Subject to the resources available and to discussions with the recipient museum, all articles needing conservation will be properly stabilised by the Archaeological 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 Archaeological Contractor.

Prior to commencement of the archaeological investigation(s) the Archaeological Contractor will 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 museum.

All finds, excluding those agreed with the recipient museum or on grounds of size/material, will be marked by the Archaeological Contractor with the museum's accession number.

Artefacts and ecofacts deposited by the Archaeological Contractor in the recipient museum will be accompanied by the remainder of the original Site archive (or a complete duplicate record). A microfiche security copy of the Site archive should also be supplied by the Archaeological Contractor to the museum.

Subject to the agreement of the landowner, all artefacts and ecofacts recovered from the archaeological evaluation will 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 will be held jointly with the Archaeological Contractor and the recipient museum.

The following documents should be adhered to:

- Standards in the Museum Care of Archaeological Collections²⁰;
- Management of Research Projects in the Historic Environment²¹; and
- MoRPHE applicable Technical Guides and Project Planning Notes (PPN)²².

²⁰ Museum and Galleries Commission, 1992. Standards in the Museum Care of Archaeological Collections
 ²¹ Historic England, April 2015. Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide

²² MoRPHE applicable Technical Guides and Project Planning Notes (PPN), available from https://www.historicengland.org.uk/images-books/publications/morphe-project-managers-guide/

Page 13 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



5.3 Dissemination of Results

During the archaeological works, Waterman will liaise with the Planning Archaeologist with respect to the most effective method of publicising the results. Methods of the dissemination of results may include website posting, the content of which will be subject of consultation with Waterman, the Planning Archaeologist and the client. Dissemination of results may also include the production of a full publication report within an appropriate Oxfordshire Archaeology and History publication should the results warrant it.



6. References

ArcGIS Online, accessed on 12th June 2020 via https://www.arcgis.com/index.html

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

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

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

British Geological Survey, Geology of Britain viewer, accessible via http://mapapps.bgs.ac.uk/geologyofbritain3d/index.html

ClfA, 2014. Standard and guidance for archaeological field evaluation, https://www.archaeologists.net/sites/default/files/ClfAS&GFieldevaluation_1.pdf

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

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

Heritage Gateway.

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

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)

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

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

MoRPHE applicable Technical Guides and Project Planning Notes, available from https://www.historicengland.org.uk/images-books/publications/morphe-project-managers-guide/

Museum and Galleries Commission, 1992. Standards in the Museum Care of Archaeological Collections

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

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

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

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

Watkinson, D. and Neal, V., 1998, *First Aid for Finds*. Rescue and United Kingdom Institute for Conservation Archaeology Section; 3rd Edition

Page 15 A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT



APPENDICES

A. Site Location Plan

Appendices A41 – Pioneer Roundabout, Graven Hill, Bicester WIE11386 WIE11386-139-1-1-3-STRAT







UK and Ireland Office Locations

