

Chapter K

Archaeology



Milton Keynes East Environmental Statement

Chapter K: Archaeology

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K1.0 Introduction

- K1.1 This Chapter forms part of the Milton Keynes East Environmental Statement ('ES') which sets out the findings of an Environmental Impact Assessment ('EIA') of the proposed development of a sustainable urban extension to Milton Keynes. It relates to land to the east of the M1 motorway and to the south of Newport Pagnell. A description of the background to the proposal; the relationship of this chapter to the wider ES; and a description of the site and the development is provided at Chapters A to C of this ES.
- K1.2 This chapter of the ES assesses the likely significant effects of the Proposed Development on the Development Site and its environment in respect of Archaeology. The site is located within the Borough of Milton Keynes. This chapter of the ES sets out the policy context, assessment methodology and baseline conditions of the Development Site, examines potential effects of the Proposed Development, and presents mitigation measures to prevent, reduce or offset (where possible) any significant adverse impacts. The likely residual impacts once these mitigation measures have been implemented are presented, and their significance assessed.
- K1.3 The chapter should be read in conjunction with the following technical appendices (Volume 2 to the ES):-
- Appendix K1 - Archaeological Desk Based Assessment.

About the Author

- K1.4 This chapter has been prepared by Operations Director, Duncan Hawkins BA (Hons), MSc, FSA, MCifA of RPS. Duncan has worked in the archaeology sector for over 35 years and is a full Member of the Chartered Institute for Archaeologists (CifA), which is the leading professional body representing archaeologists working in the United Kingdom. RPS Heritage are one of the largest heritage teams within the UK with a proven track record relating to the successful delivery of sustainable major urban developments involving effects on the historic environment.

K2.0 **Policy Context**

Legislation

- K2.1 National legislation regarding archaeology, including scheduled monuments, is contained in the Ancient Monuments and Archaeological Areas Act 1979, amended by the National Heritage Act 1983 and 2002, and updated in April 2014 ^{Ref 1}.

National Planning Policy Framework

- K2.2 The revised National Planning Policy Framework ^{Ref 2} (NPPF) was published in July 2018, which was most recently revised in June 2019. The NPPF sets out national policy relating to the historic environment and is supported by the National Planning Practice Guidance (PPG), a web-based resource that was launched in 6th March 2014 and has since been periodically updated.
- K2.3 Section 16 of the NPPF is entitled ‘Conserving and enhancing the historic environment’ and provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Heritage assets are described as:
- “A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing).”*
- K2.4 The guidance contained within Section 16, ‘Conserving and Enhancing the Historic Environment’ paragraphs 184-202, relates to the historic environment and developments which may have an effect upon it. These policies provide the framework for the preparation of policies for the historic environment and guidance for planning authorities, property owners, developers and others on the conservation of heritage assets. Overall, the objectives of Section 16 of the NPPF can be summarised as seeking: the delivery of sustainable development; understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment; conservation of England’s heritage assets in a manner appropriate to their significance; and recognition that heritage contributes to our knowledge and understanding of the past.
- K2.5 Section 16 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 189 states that planning decisions should be based on the significance of the heritage asset, and that the level of detail supplied by an applicant should be no more than sufficient to review the potential impact of the proposal upon the significance of that asset and to understand the potential impact of the proposal on their significance.
- K2.6 The NPPF policy states clearly that the more important the heritage asset, the greater the level of protection is given to that asset. Paragraphs 193-4 state that:
- “When considering the impact of a Proposed Development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.”*

Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:

a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.”*

K2.7 Paragraphs 193-4 note that significance can be harmed or lost through development within the setting of a heritage asset. Paragraph 195 provides a test for assessing harm in relation to designated heritage assets: Where the application will lead to substantial harm or total loss of significance, local planning authorities should refuse consent; Paragraph 196 notes that where development, will lead to less than substantial harm... the public benefits should be weighed against the loss.

K2.8 Paragraph 197 states that the effect of an application on the significance of a non-designated heritage asset should be taken into account in determining an application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

Planning Practice Guidance

K2.9 The Government launched the PPG ^{Ref 3} to accompany the NPPF policies on 6 March 2014, which has since been updated periodically. The guidance states that the protection and enhancement of the historic environment is an important part of national policy to achieve sustainable development. The PPG relating to Conserving and Enhancing the Historic Environment was last updated July 2019.

K2.10 It is crucial that the significance of a heritage asset is understood and consideration of this incorporated into decision making. The guidance explains that heritage assets may be affected by, direct physical change or by change in their setting. Being able to properly assess the nature, extent and importance of the significance of a heritage asset, and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals.

K2.11 The guidance reiterates that the crucial issue in the assessment of proposals is whether development would cause substantial harm to the significance of the heritage asset and explains that significance derives not only from a heritage asset’s physical presence, but also from its setting.

K2.12 The guidance addresses the policy in the NPPF that relates to substantial or less than substantial harm as set out in paragraph 196 of the Framework, which notes that *“where development, will lead to less than substantial harm... the public benefits should be weighed against the loss.”*

K2.13 The policy guidance states that as part of the assessment of the impact of a proposal, thorough assessment of the impact on setting needs to take into account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it.

Local Planning Policy

K2.14 The site is located within the Borough of Milton Keynes Council ('MKC'), which adopted its Local Plan in March 2019.

Plan:MK 2016 – 2031 (Adopted March 2019) Ref 4

Policy HE1: Heritage and Development

K2.15 A. Proposals will be supported where they sustain and, where possible, enhance the significance of heritage assets which are recognised as being of historic, archaeological, architectural, artistic, landscape or townscape significance.

These heritage assets include:

- 1 Listed Buildings;
- 2 Conservation Areas;
- 3 Scheduled Ancient Monuments and non-designated Archaeological sites;
- 4 Registered Parks and Gardens;
- 5 Assets on the MK New-Town Heritage Register; and
- 6 Other places, spaces, structures and features which may not be formally designated but considered to meet the definition of 'heritage assets' as defined in Annex 2 of the NPPF.

K2.16 B. Where appropriate, development proposals must provide an impartial and objective heritage assessment. Where necessary, the Council will require suitably qualified specialists to undertake the heritage assessment. The heritage assessment shall:

1. Assess and describe the significance of the heritage assets affected, identifying those elements that contribute to that significance and, where appropriate, those that do not. The level of detail shall be proportionate to the asset's importance and no more than is sufficient to understand the potential impact of proposals on their significance. Limited and localised alterations to an unlisted building in a conservation area need not be supported by the level of detail required to convey the impact on significance caused by development in the setting of a listed building or by proposed alterations to the built fabric of a listed building.
2. Be of an analytical and interpretive nature rather than simply provide a description of the assets and the proposed works.
3. Provide a sound justification for the works, based on the economic, social and environmental benefits delivered by the scheme, for example, promoting the long term care for a heritage asset and/or its setting.
4. Explain how the scheme has taken account of the significance of the assets in its scope, design and detail, in order to minimise or avoid harm to the heritage assets affected.
5. Assess the nature and extent of any harm or public benefit arising from the scheme.
6. Where harm is caused by the proposal, the assessment shall explain why such harm is unavoidable or required to deliver public benefits that outweigh the harm caused.

K2.17 D. Granting of permission for proposals that result in substantial harm to or total loss of the significance of a designated heritage asset will only be exceptional or wholly exceptional in accordance with national policy and guidance.

- K2.18 E. Permission for proposals that cause less than substantial harm to a designated heritage asset will only be granted where the harm is demonstrably outweighed by public benefits delivered by the scheme.
- K2.19 F. Proposals that result in harm to the significance of non-designated heritage assets will be resisted unless the need for, and benefits of the development clearly outweigh the harm, taking into account the asset's significance and importance, and only once all feasible solutions to avoid and mitigate that harm have been fully implemented.
- K2.20 G. In assessing any potential harm or enhancement to the significance of a heritage asset(s) the following will be considered:
1. Avoiding successive small scale changes that lead to a cumulative loss or harm to the significance of the asset or historic environment;
 2. Respecting the character, appearance, special interest and setting of the asset and historic environment;
 3. Retaining architectural or historic features which are important to the character and appearance of the asset (including internal features) in an unaltered state; and
 4. Retaining the historic form and structural integrity of the asset.
- K2.21 I. Proposals will be accompanied by an appropriate desk-based assessment and field evaluation where development is proposed affecting an unscheduled site of known archaeological interest or with the potential to include heritage assets with archaeological interest (General requirement for applications affecting heritage assets).
- K2.22 J. The ability to record evidence of our past should not be a factor in deciding whether the loss of significance should be permitted. Where harm to or loss of heritage assets occurs as a consequence of development it will be necessary for developers to record and advance understanding of the significance of the affected assets in a manner proportionate to their importance and the impact (NPPF paragraph 141). Recording techniques should keep in step with current best practice and in particular the use of photogrammetry and fine grain LIDAR ground scans where unavoidable loss will occur. In the case of heritage assets of greater than local importance the results of this recording work should be published in the relevant local or period journal or in book form according to the scale and significance of the assets affected. Where significant archaeological remains are found, provision shall be made for public open days, exhibitions and/or popular publications/booklets. Where archaeological remains are preserved within public open space appropriate on-site interpretation and a strategy for long term care (and funding thereof) shall be produced as part of a holistic approach to the long term stewardship of the open space in question and agreed with the body responsible for the same. Where recording or assessment results in a physical archive for deposition at an appropriate museum or archive facilities, consideration of resources for its storage, interpretation and public access should be made in order to capture the heritage significance of that asset for future generations.

Policy DS6: Linear Parks

- K2.23 A. The following areas are defined as Linear Parks on the Policies Map:
- 1 The Ouse Valley, from the Borough boundary at Passenham to the M1 motorway.
 - 2 The Ouzel/Lovat Valley, from Water Eaton to the River Ouse, including the valleys of the Broughton and Caldecotte Brooks within the city.
 - 3 The Loughton Brook Valley and Tattenhoe Valley.

4 Emberton Country Park.

K2.24 B. Development proposals in the Linear Parks should contribute to achieving the following objectives (inter alia):

6 Protecting and interpreting areas of archaeological interest.

Policy SD9: General Principles For Strategic Urban Extensions

K2.25 A. Proposals for Strategic Urban Extensions, and the documents required under SD10 to guide their development, should be prepared in accordance with the principles set out below. This policy will also be applied to any planning application(s) for unallocated strategic development sites.

3 To be supported by or incorporate:

ii. An archaeological investigation (with reference to the Historic Environment Record and further assessment if required) and consideration of the Historic Landscape Characterisation to inform the layout of development.

Policy SD12: Milton Keynes East Strategic Urban Extension

K2.26 A. Land is allocated at Milton Keynes East – as shown on the Key Diagram and Policies Map – for a comprehensive new residential and employment development to meet the long-term needs of Milton Keynes. Development can commence once the necessary strategic infrastructure required to make the site deliverable is funded and is being delivered. In that circumstance, the development of the site will be allowed to proceed within the plan period as an additional source of housing and employment land supply.

K2.27 B. Development will be brought forward in line with all relevant policies in Plan:MK, particularly Policies SD1, SD9, SD10 and INF1. A comprehensive development framework for the site will be prepared in accordance with Policies SD1, SD9, SD10 and INF1 and approved by the Council prior to planning permissions being granted.

K2.28 C. The development framework and subsequent applications for planning permission will establish the quantum and form of development in more detail, but proposals for development will be expected to meet the following criteria (inter alia):

9. Be informed by appropriate surveys of archaeology, built heritage and ecology with appropriate mitigation of impact as consistent with other policies of the Plan and the NPPF. An archaeological field study, including a Geophysical Survey, where appropriate following desk-based assessment, will be required to identify potential below ground archaeology. Where feasible, the Council will expect below ground archaeology to be kept in situ in preference to its removal.

Milton Keynes East Strategic Urban Extension, Development Framework Supplementary Planning Document ^{Ref 5} (March 2020)

K2.29 The Milton Keynes East Development Framework was adopted by the Cabinet of Milton Keynes Council on 10 March 2020 following a call-in of the decision to adopt the Supplementary Planning Document (SPD) on 13 January 2020. The SPD provides guidance on how the allocation of Milton Keynes East (Policy SD12 and other relevant policies) within Plan:MK should be planned and developed. The SPD is an important material consideration when determining relevant planning applications.

K2.30 The SPD makes the following conclusions with regard to archaeology and the allocated site:

“Masterplanning of the site should protect the integrity and character of Moulsoe village, and be respectful of the character of other adjoining areas, such as parts of Newport Pagnell close to the site. Given the level of enclosure separating it from adjacent areas, and given the scale of MKE, the development has an opportunity to create a unique character of its own.

It will be necessary to identify archaeological constraints (particularly buried archaeological remains) by field evaluation at the earliest opportunity and prior to the submission of a planning application. Developers are recommended to contact the Council’s Archaeology Officer at as early a stage as possible to discuss individual circumstances.”

Other Relevant Policy, Standards & Guidance

- K2.31 The NPPF and PPG are additionally supported by four Good Practice Advice (GPA) documents published by Historic England, including GPA 1: The Historic Environment in Local Plans ^{Ref 6}, GPA 2: Managing Significance in Decision-Taking in the Historic Environment ^{Ref 7} (both published March 2015) and GPA 4 Enabling Development and Heritage Assets (June 2020). The second edition of GPA3: The Setting of Heritage Assets ^{Ref 8} was published in December 2017 and sets out the following stepped approach which should be taken to the assessment of impacts on the significance (in NPPF terms) of heritage assets:
- Step 1: Identify heritage assets that will be impacted, and the significance of these assets;
 - Step 2: Assess whether, how and to what degree their settings make a contribution to the significance of the heritage asset(s);
 - Step 3: Assess the effects of the Proposed Development, whether beneficial or harmful, on that significance;
 - Step 4: Explore the way to maximise enhancement and avoid or minimise harm;
 - Step 5: Make and document the decision and monitor outcomes.
- K2.32 English Heritage’s Conservation Principles, Policy and Guidance document was published in 2008 and states that in order to identify the significance (in NPPF terms) of a place, it is necessary first to understand its fabric, and how and why it has changed over time; and then to consider:
- who values the place, and why they do so;
 - how those values relate to its fabric;
 - their relative importance;
 - whether associated objects contribute to them;
 - the contribution made by the setting and context of the place;
 - how the place compares with others sharing similar values.
- K2.33 This chapter has been prepared in accordance with the standards and guidance issued by the CIfA ^{Ref 9}, the requirements of the EIA Regulations, guidance in the NPPF and the PPG, Historic England (HE) guidance and current best practice.

K3.0 **Assessment Methodology & Significance Criteria**

Assessment Methodology

K3.1 This section of this ES chapter presents the following:

- 1 Information sources that have been consulted throughout the preparation of this chapter;
- 2 Details of consultation undertaken with respect to archaeology;
- 3 The methodology behind the assessment of effects on archaeological assets, including the criteria for the determination of sensitivity of receptor and magnitude of change from the existing 'baseline' condition;
- 4 An explanation as to how the identification of heritage assets and assessment of potential archaeology effects has been reached; and
- 5 The significance criteria and terminology for the assessment of archaeological residual effects.

K3.2 The following sources of information that define the propose development have been reviewed and form the basis of the assessment of likely significant effects on archaeology (see Chapter C of this ES for further information):

- Illustrative Plot Plan; and
- Parameter Plans

K3.3 Information provided in the Design and Access Statement submitted with the planning application for MKE has also been considered where relevant to the assessment.

Methodology for Determining Baseline Conditions and Sensitive Receptors

K3.4 No standard EIA methodologies exist for archaeological assessment. However, assessment methodology has been guided by various published documents including: English Heritage's Conservation Principles, Policy and Guidance, the Historic Environment Good Practice Advice Planning Advice Note 3 and the Design Manual for Roads and Bridges 2020 ^{Ref 10}. Although the latter was designed as best-practice for road schemes in particular, it is accepted as best-practice for the assessment of cultural heritage in relation to archaeology and historic landscapes.

K3.5 The assessment is a qualitative one, and the evaluation of significance is ultimately a matter of professional judgement.

K3.6 The three-stage approach presented below is adopted in order to reach an understanding of the level of any effect that a Proposed Development may have on a heritage asset. It is necessary to understand the significance of the asset and the proposed impacts on the asset to assess the overall effect on identified assets.

K3.7 Using a matrix that measures both asset importance (significance in the context of NPPF terminology) and impact magnitude produces an assessment of the level of the effect of the Proposed Development on identified assets. This approach, including the matrices themselves, is set out below in Table K3.1 to Table K3.3.

K3.8 To inform this assessment, an archaeological desk based assessment (DBA) was prepared in December 2018. This report can be found in Appendix K1 (Volume 2 of this ES) and provides further information on the baseline conditions at the Site.

- K3.9 The archaeological DBA included a review of below ground archaeological findspots, records and previous archaeological work within a 500m distance of the Development Site boundary. This study area allowed the importance of known and likely archaeological assets features to be placed in their local, regional and national contexts. Subsequently, during 2020 the bulk of the Development Site was subject to geophysical surveys and during late 2020 and 2021, the Development Site was subject to programmes of archaeological fieldwalking and watching briefs undertaken on geotechnical investigations.
- K3.10 Archaeological heritage assets are recorded in national and/or local historic environment databases, in this instance the National Monuments Record and the Milton Keynes Historic Environment Record (HER). These data sources have been used in the preparation of this chapter and to inform the approach to mitigation for the site. In accordance with national and local planning policy, this assessment considers both designated and undesignated heritage assets within the study area, including:
- World Heritage Sites;
 - Scheduled Monuments;
 - Registered Battlefields;
 - Registered Parks/Gardens;
 - Listed Buildings
 - Conservation Areas;
 - Locally Listed Buildings;
 - The Historic Landscape; and
 - Archaeological Remains.
- K3.11 Listed below are the main sources consulted during the compilation of the baseline information:
- British Library;
 - Milton Keynes HER;
 - Historic England National Heritage List;
 - The National Archives; and
 - Milton Keynes Council online sources.

Methodology for Determining Construction Effects

- K3.12 This assessment considers the nature, scale and significance of the effects to identified heritage and potential archaeological assets that will arise during the construction phase, with the effects defined on the basis of any changes compared to the baseline (i.e. the conditions which would exist if the proposals did not go ahead). The criteria for the assessment are outlined in Table K3.1 to Table K3.3.
- K3.13 There are no designated heritage assets within the Development Site. The scale of the Proposed Development indicates that any buried archaeological remains which may be present within the Development Site would be unlikely to survive the construction process within the footprint of Proposed Development works.
- K3.14 Accordingly, this assessment considers the following potential effects:
- Direct effects on buried archaeological remains; and
 - Indirect effects on the settings of nearby heritage assets and archaeological remains.

Methodology for Determining Operational Effects

- K3.15 It is only during the construction phase that any direct effects on archaeological assets will occur; no direct impacts are identified once the Proposed Development is complete and occupied. Where relevant, indirect effects on the settings of relevant nearby heritage assets and archaeological remains once the Proposed Development is complete and occupied have been considered.

Significance Criteria

Receptor Importance

- K3.16 Receptors are either known designated or non-designated heritage assets or a perceived potential for archaeological heritage assets.
- K3.17 There are no national government guidelines for evaluating the significance of different types of heritage asset. For archaeological remains, the Department for Culture, Media and Sport has adopted a series of criteria ^{Ref 11} for use in the determination of national importance when scheduling monuments. The criteria include period, rarity, documentation, group value, survival / condition, fragility / vulnerability, diversity and potential and can be used as a basis for the assessment of the importance of archaeological sites and remains. However, the document also states that these principles 'should not be considered definitive, but as indicators that contribute to a broader judgment based on individual circumstances.' The NPPF and the PPG introduce criteria for the assessment of the significance of heritage assets and these have been factored into this assessment.
- K3.18 The importance of a heritage asset can be defined as of International, National, Regional/County, Local or No Importance. The criteria to establish the importance of heritage assets are described in Table K3.1.

Table K3.1 Significance Criteria for Evaluating Importance of Heritage Assets

Importance/Sensitivity	Description
International/Very High	World Heritage Sites Assets of acknowledged international significance Assets that can contribute significantly to acknowledged international research objectives
National/High	Scheduled Monuments Undesignated assets of schedulable quality Assets that can contribute significantly to acknowledged national research objectives
Regional/Medium	Designated or undesignated assets (including historic landscape) that contribute to regional research objectives
Local/Low	Undesignated assets (including historic landscape) of local significance Assets compromised by poor preservation and/or poor survival of contextual associations Assets of limited importance, but with potential to contribute to local research objectives
None/Negligible	Assets with very little or no surviving interest

Magnitude of Impact

- K3.19 The magnitude of impact is assessed without regard to the importance of the asset. In terms of the judgment of the magnitude of impact this is based on the principle (established in the NPPF) that preservation of the asset and its setting is preferred, and that total physical loss of the asset is the least preferred. Determining the magnitude of impact is based on an understanding of how, and to what extent, the Proposed Development would impact on the buried archaeological assets. The magnitude of impact is rated as High, Medium, Low and Negligible.
- K3.20 The survival of archaeological remains is often uncertain without archaeological evaluation and in these circumstances the magnitude of impact can only be estimated or stated as unknown. The magnitude of change resulting from the impact may vary depending on the nature of past development or management effects (e.g. extent of truncation and made ground and the various forms of impact).
- K3.21 Impacts can be direct and indirect:
- 1 Direct impacts: are defined as an impact caused by an action, which generally occurs at the same time and place as that action. They are generally associated with the construction, operation or maintenance of a facility or activity and are usually obvious or quantifiable; and
 - 2 Indirect impacts: are defined as changes resulting from primary impacts. These changes include impacts to the setting of assets; effects can be short or long term depending on their persistence or duration.
- K3.22 The criteria for assessing the magnitude of impact are set out in Table K3.2.

Table K3.2 Criteria for Assessing the Magnitude of Impacts

Magnitude	Direct Impacts	Indirect Impacts
High	Change to most or all key archaeological materials, such that the resource is totally altered	Radical transformation of the setting of an archaeological monument.
Medium	Changes to many key archaeological materials, such that the resource is clearly modified.	Considerable changes to setting that affect the character or importance of the asset.
Low	Changes to key archaeological materials, such that the asset is slightly altered.	Minor change to the setting of an archaeological monument.
Negligible	No impact from changes in use, amenity or access. No change in the ability to understand and appreciate the resource and its historical context and setting.	No perceptible change in the setting of an archaeological monument.

Effect Scale and Significance

- K3.23 The assessment of effects is a combination of the importance and sensitivity of the heritage asset (Table K3.1) and the magnitude of impact on that asset (Table K3.2). Effects can be adverse or beneficial and temporary or permanent. It should be noted that effects to archaeology largely arise from the construction phase and that, in the case of archaeology, such effects are often permanent and non-reversible. Adverse effects are those that create or amplify existing or new impacts upon the importance/sensitivity of heritage assets or their setting and remove or limit the ability to understand and appreciate the importance of the heritage asset. Beneficial effects are those that mitigate existing impacts and help to restore or enhance the

importance/sensitivity of heritage assets or their setting, therefore allowing for greater understanding and appreciation of it. Effects that are moderate or above are considered significant in EIA terms. Table K3.3 presents a matrix that demonstrates how the scale of effect has been assessed.

Table K3.3 Scale of Effect Matrix

		Magnitude of Impact				
		High	Medium	Low	Negligible	No Impact
Importance / Sensitivity	International / Very High	Major	Major	Moderate/ Major	Moderate	No Impact
	National / High	Major	Major/ Moderate	Moderate/ Minor	Minor	
	Regional / Medium	Moderate	Minor/ Moderate	Minor	Negligible	
	Local / Local	Minor/ Moderate	Minor	Negligible	Negligible	
	None / Negligible	Negligible	Negligible	Negligible	Negligible	

K3.24 Effects that are identified as Moderate/Major or Moderate/Minor require professional judgement to determine the Scale of Effect.

K3.25 Effects that are identified as moderate or major adverse/beneficial are considered to be 'significant' effects, whilst those that are identified as negligible or minor adverse/beneficial are considered to be 'not significant' effects.

Consultation

K3.26 Consultation has been carried out with Milton Keynes Archaeological Officer, Mr Nick Crank, who has approved the programmes of geophysical survey, fieldwalking and watching briefs, and the results of these have been reported directly back to him, to inform the consultation process.

Assumptions and Limitations

K3.27 The assessment of the scale of effects is based on extensive professional experience gained on other major developments across Buckinghamshire and South East England.

K3.28 The assessment assumes the accuracy of the available datasets reviewed in its compilation. The archaeological DBA undertaken to support this ES Chapter was undertaken in December 2018, including a range of both desk and site-based assessment.

K3.29 The information presented in this ES chapter and the technical appendix (Appendix K1, Archaeological DBA, Volume 2 to this ES) provide an indication of below ground archaeological assets present or likely to be present, rather than a definitive list of all assets likely to be present, as the full extent of below ground archaeological assets cannot be known prior to site-specific archaeological field investigation.

The principal limitation to the assessment of effects upon below ground heritage assets is the nature of the archaeological resource, which is buried and therefore not visible. This means it can be difficult to accurately predict the presence and likely importance of below ground heritage assets, and the likely impact (and resultant effects) of the Proposed Development upon such assets.

K4.0 **Baseline Conditions**

Existing Conditions

K4.1 The current baseline conditions are informed by the Archaeological DBA (undertaken December 2018), which is appended as Appendix K1 (Volume 2 of this ES). A summary of the assessments is presented below. The archaeological results are summarised (where relevant) by archaeological periods, as follows:

Table K4.1 Archaeological Time Periods

Prehistoric		
Palaeolithic	900,000 -	12,000 BC
Mesolithic	12,000 -	4,000 BC
Neolithic	4,000 -	1,800 BC
Bronze Age	1,800 -	600 BC
Iron Age	600 -	AD 43
Historic		
Roman	AD 43 -	410
Anglo-Saxon / Early Medieval	AD 410 -	1066
Medieval	AD 1066 -	1485
Post Medieval	AD 1486 -	1799
Modern	AD 1800 -	Present

K4.2 There are no relevant nationally designated archaeological assets within the Development Site or in proximity. (National Heritage List, Historic England). As part of the geophysical survey, a possible small earthwork fortification was identified within the centre of the Development Site, on the edge of the Ouzel valley. This feature remains undated, but could potentially be of early Medieval date, and if so although not designated could conceivably be of regional to national importance. The geophysical survey identified areas of potential Iron Age and Roman activity on the extreme north, and extreme south of the eastern part of the Development Site, which would conceivably be of local to regional importance, while a probable Medieval settlement identified around and to the north of the Holiday Inn site, might also be of local to regional importance. Elsewhere, all other archaeological remains identified in the geophysical surveys, fieldwalking and watching briefs are considered to be of local importance.

K4.3 The solid geology of the Development Site generally comprises Mudstone formations, with a mix of Sandstone, Siltstone and Mudstone on the far west of the study site. Alluvial deposits are located within the immediate vicinity of the River Ouzel in the western half of the Development Site, whilst gravel terraces and head deposits associated with the river valley are recorded either side of the river. Further deposits of Oadby Member (Diamicton) and small pockets of glaciofluvial deposits are recorded across much of the eastern half of the study site.

K4.4 HER records within the study area reveal evidence for a diverse archaeological landscape, including Neolithic/Bronze Age artefactual evidence and occupation activity from the later prehistoric periods through to the present day, with possible Iron Age/Roman occupation and Medieval ridge and furrow activity in the far western area of the study site.

K4.5 Historic mapping has demonstrated that the study site has generally comprised open agricultural or pastoral land from the Post Medieval period until the present day, with only minor instances of agricultural development and brickearth extraction activity.

- K4.6 The combined results of the Desk Based Assessment, Geophysical Surveys, Fieldwalking and Watching Briefs identified that the Development Site retains a low to moderate archaeological potential for the Palaeolithic period, a low potential for Mesolithic evidence, a generally low to moderate potential is identified for Neolithic and Bronze Age artefactual evidence, whilst a specific potential associated with Bronze Age ring ditches is anticipated. A generally low to moderate archaeological potential is considered across the bulk of the study site for the Iron Age and Roman periods, while a specific potential is identified in western areas of the Development Site associated with the projected alignment of a Roman road and Iron Age to Roman settlements are identified from the geophysical survey, in the north east and south east of the Development Site. The geophysical survey has identified a possible early Medieval fortification, at the centre of the Development Site and a possible Medieval settlement is identified to the north of the Holiday Inn. Elsewhere, there is evidence for what may be the occasional farming settlement and agricultural activity and land division from this period and continuing into the Modern period. A low potential is identified for the Post Medieval and Modern periods, with a specific potential anticipated within areas of modern development. A palaeoenvironmental potential associated with the alluvial deposits of the River Ouzel is also anticipated. Any below ground archaeological assets which may be present would most likely be of local to regional significance.
- K4.7 The Desk Based Assessment additionally identified that the area of the study site to the east of the London Road comprises a well-preserved Parliamentary enclosed landscape.
- K4.8 Past impacts are generally limited to specific areas of modern development and extraction activity, although past agricultural/horticultural land use will have had a moderate but widespread archaeological impact across the study site since at least the Medieval period.
- K4.9 There are no nationally designated archaeological assets within the Development Site or in close proximity. Generally it is anticipated that any remains within the Development Site will be of a comparable significance, though the possible early Medieval fortification could be of regional to national importance. Therefore, from an archaeological perspective, it is considered that any adverse impacts on archaeological remains can be satisfactorily addressed through appropriate archaeological mitigation measures. Though, this may include preservation in situ for the possible early Medieval fortification.
- K4.10 The potential for archaeological remains to be encountered within the Development Site, as well as likely past development impacts, is discussed in full in Appendix K1 (Volume 2 to this ES).

Receptors and Receptor Importance

- K4.11 Table K4.2 below details the known archaeological assets, and potential archaeological resources identified within the Development Site from the HER and the DBA.

Table K4.2 Heritage Resources and their Importance

Baseline Evidence	Description of Resource/Asset and Potential	Comment	Importance/Sensitivity
DBA	Low to moderate potential for likely residual Palaeolithic artefactual evidence;	Potential for Non-designated Heritage Asset	Low (local)
DBA/FIELDWALKING	Low potential for Mesolithic artefactual evidence;	Potential for Non-designated Heritage Asset	Low (local)
DBA/FIELDWALKING	Low to moderate potential for Neolithic artefactual evidence;	Potential for Non-designated Heritage Asset	Low (Local)

Baseline Evidence	Description of Resource/Asset and Potential	Comment	Importance/Sensitivity
	Moderate potential for palaeoenvironmental evidence;	Non-designated Heritage Asset	Low (local)
DBA/GEOPHYSICS/ FIELDWALKING	Generally low to moderate potential for Bronze Age artefactual evidence; specific potential identified for possible ring ditches; Moderate potential for palaeoenvironmental evidence;	Potential for Non-designated Heritage Asset Non-designated Heritage Asset	Low (local) Low to Moderate (local to regional)
DBA/GEOPHYSICS/ FIELDWALKING	Iron Age and Roman settlements identified on the north east and south east of the Development Site. Generally low to moderate potential for isolated Iron Age/Roman farmsteads and agricultural activity, specific potential associated with the projected Roman road and associated activity; Moderate potential for palaeoenvironmental evidence;	Potential for Non-designated Heritage Asset Non-designated Heritage Asset	Low to Moderate (local to regional) Low to Moderate (local to regional)
DBA/GEOPHYSICS	Possible early Medieval fortification, probably Medieval settlements. Elsewhere Low potential for evidence of Anglo Saxon/Medieval settlement and occupation activity; Moderate potential for agricultural activity and land division;	Potential for Non-designated Heritage Asset Non-designated Heritage Asset	Low to High (local to regional/national) Low (local)
DBA	Low potential for Post Medieval archaeological remains (likely to be entirely invested in evidence of agricultural activity, land division and stray artefactual evidence);	Potential for Non-designated Heritage Asset	Low (local)
DBA	Generally low potential Modern archaeological remains, will likely comprise agricultural activity and land division, specific potential identified for areas 19th and 20th century development;	Potential for Non-designated Heritage Asset	Low (local)
DBA	Generally fragmentary historic landscape, the area east of the London Road comprises a well-preserved Parliamentary landscape;	Non-designated Heritage Asset	Local to regional

K4.12 No archaeological receptors are being introduced as part of the Proposed Development.

Environmental Design and Management

K4.13 If required, potential significant archaeological impacts will be offset through appropriate mitigation measures as agreed with Milton Keynes Council. Any mitigation measures will be undertaken as best practice determines and will comprise measures to preserve the archaeological resource by record prior to any significant impacts

Future Baseline

- K4.14 The baseline conditions for below ground archaeology at the Development Site are not likely to change unless the Development Site is subject to redevelopment.

K5.0 Potential Effects

During Construction

K5.1 This section identifies and assesses the likely effects on relevant archaeological assets during the demolition and construction phase of the Proposed Development. The potential effects, and the significance of the effects on the assets, are characterised in the absence of mitigation measures.

K5.2 Works during the demolition and construction phase, that could include the cutting/piling of new foundations, the construction of roads, and the installation of services and sub-surface water drainage, could damage and destroy the archaeological resource at the Development Site.

K5.3 The assessment of the impact of demolition and construction works is based on the knowledge regarding the Development Site's archaeological remains and assumed construction impacts, as set out above. Based on those assumed demolition and construction impacts, the likely impacts are summarised in Table K5.1.

Table K5.1 Assessment of Likely Construction Phase Impacts

Construction Activity	Assessed Magnitude of Impact
Site set-up works, including contractors compound set-up and associated temporary services, levelling work and other preparatory groundworks	Low Direct
Demolition of extant structures, including grubbing out of existing foundations	High Direct
Site strip in advance of construction	High Direct
Construction, including foundation excavation or pile installation, service installation, road construction	High Direct
Landscaping, including ground reduction or levelling and creation of attenuation tanks and ponds	Low to Medium Direct
Compression of buried remains from vehicle movement, construction of spoil tips, bunds or raised landscape areas	Low Direct
Views of construction site from nearby assets, with associated noise and possible dust and vibration	Low Indirect

K5.4 It has been concluded for the purpose of this assessment that where any below ground heritage assets are present within the Development Site and remain intact, these will most likely be of a generally Local to Regional Importance in the Secretary's non-statutory criteria for Scheduled Monuments. However, if the identification of an early Medieval fortification is correct, this may be of Regional to National Importance. For this reason, this particular feature has been identified as potentially meriting preservation in situ.

K5.5 It is considered likely the effects to below ground heritage assets as a result of the demolition and construction activities will be adverse in nature given the disturbance of any below ground remains which may be present within the Development Site. These effects will be limited to the Development Site and will be permanent and irreversible.

K5.6 Any effects as a result of demolition and construction activities on relevant known designated archaeological assets and non-designated below ground archaeological remains outside of the Development Site will be **negligible** (insignificant).

K5.7 An evaluation of the predicted impacts during construction and subsequent nature, scale and significance of effects is provided in Table K5.2.

Table K5.2 Evaluation of Predicted Impacts During Construction Phase

Heritage Resource Description	Importance/ Sensitivity	Magnitude of Impact	Scale of Effect
Low to moderate potential for likely residual Palaeolithic artefactual evidence;	Local/Low	High Direct	Minor Adverse
Low potential for Mesolithic artefactual evidence;	Local/Low	High Direct	Minor Adverse
Low to moderate potential for Neolithic artefactual evidence;	Local/Low	High Direct	Minor Adverse
Moderate potential for palaeoenvironmental evidence;	Local Low	High Direct	Minor Adverse
Generally low to moderate potential for Bronze Age artefactual evidence; specific potential identified for possible ring ditches;	Local/Low	High Direct	Minor Adverse
Moderate potential for palaeoenvironmental evidence;	Low to Moderate (local to regional)	High Direct	Minor/Moderate Adverse
Iron Age and Roman settlements identified on the north east and south east of the Site. Generally low to moderate potential for isolated Iron Age/Roman farmsteads and agricultural activity, specific potential associated with the projected Roman road and associated activity;	Low to Moderate (local to regional)	High Direct	Minor/Moderate Adverse
Moderate potential for palaeoenvironmental evidence;	Low to Moderate (local to regional)	High Direct	Minor Adverse
Possible early Medieval fortification, probably Medieval settlements. Elsewhere Low potential for evidence of Anglo Saxon/Medieval settlement and occupation activity;	Low to High Local/Regional/National	High Direct	Minor/Moderate Adverse
Moderate potential for agricultural activity and land division;	Low/Local	High Direct	Minor Adverse
Low potential for Post Medieval archaeological remains (likely to be entirely invested in evidence of agricultural activity, land division and stray artefactual evidence);	Low/Local	High Direct	Minor Adverse
Generally low potential Modern archaeological remains, will likely comprise agricultural activity and land division, specific potential identified for area's 19th and 20th century development;	Low/Local	High Direct	Minor Adverse
Generally fragmentary historic landscape, the area east of the London Road comprises a well-preserved Parliamentary landscape;	Low to Moderate (local to regional)	High Direct	Minor Adverse

K5.8 The range of importance/sensitivity of known or potential archaeological assets is generally anticipated to vary from Moderate (Regional) to Low (Local). The magnitude of impact is considered to be High Direct upon any archaeological remains within the footprint of the Proposed Development as these are likely to be directly impacted and unlikely to survive the

demolition and construction process. It is considered that any indirect impacts upon relevant archaeological assets outside of the Development Site will be Negligible.

- K5.9 Professional judgement has subsequently been applied and the construction of the Proposed Development is therefore assessed as likely having a generally permanent **minor adverse** effect on archaeological remains. These effects would not be considered significant.

During Operation

- K5.10 This section identifies and assesses the likely effects on archaeological assets once the proposed development is complete and occupied.

Direct Impacts

- K5.11 The Proposed Development, once completed and occupied, will not have any effect on archaeological remains within the Development Site as it has been assumed that the construction phase of the Proposed Development will have disturbed any remains which may be present as a result of excavation, earthworks and other below ground construction activities. Consequently, no additional direct effects will occur to relevant archaeological assets during this phase. Should the potential Medieval fortification be confirmed as such, and identified for preservation in situ, this will require a future Conservation Management Plan.

Indirect Impacts

- K5.12 Similar to the demolition and construction phase, it is considered that any indirect impacts on relevant archaeological assets outside of the Development Site once the Proposed Development is completed and occupied will be **negligible**.

K6.0 **Mitigation and Monitoring**

Pre Construction

- K6.1 Extensive programmes of archaeological investigation and recording culminating in full publication are anticipated in response to the archaeological impact of the Proposed Development. These will be developed in consultation with the Milton Keynes Archaeologist and extend over the lifetime of the development.

During Construction

- K6.2 Depending on the extent of pre-construction mitigation, programmes of archaeological monitoring may be required during construction.

During Operation

- K6.3 During Operation, a Conservation Management Plan for the potential early Medieval fortification may be required to ensure its long term preservation, otherwise no archaeological effects are anticipated at the operational stage and therefore no further mitigation measures are required.

K7.0 **Residual Effects**

K7.1 Residual effects are those that are predicted to remain after implementation of the mitigation measures described above. It is important to demonstrate that any measures included as part of the mitigation package to respond to adverse effects can be delivered in practice, the measures correspond with planning policy and therefore that there is confidence that they will be implemented.

During Construction

K7.2 Construction of the Proposed Development is assessed as likely having a generally permanent **minor adverse** effect on archaeological remains. These effects would not be considered significant.

During Operation

K7.3 There will be no significant effects on archaeology as a result of the Proposed Development.

K7.4 Table K8.1at the end of this Chapter provides a summary of residual effects upon known and potential heritage assets resulting from the Proposed Development.

K8.0 Summary & Conclusions

- K8.1 This Chapter has summarised the archaeological baseline at the Development Site, including evidence garnered from the HER and during a previous archaeological desk based assessment, Geophysical Surveys, Fieldwalking and Watching Briefs.
- K8.2 Table K8.1 contains a summary of the likely significant effects of the Proposed Development with regard to archaeology.
- K8.3 No significant effects are considered upon nearby nationally designated heritage or archaeological assets.
- K8.4 The combined results of the Desk Based Assessment, Geophysical Surveys, Fieldwalking and Watching Briefs identified that the Development Site retains a low to moderate archaeological potential for the Palaeolithic period, a low potential for Mesolithic evidence, a generally low to moderate potential is identified for Neolithic and Bronze Age artefactual evidence, whilst a specific potential associated with Bronze Age ring ditches is anticipated. A generally low to moderate archaeological potential is considered across the bulk of the study site for the Iron Age and Roman periods, while a specific potential is identified in western areas of the Development Site associated with the projected alignment of a Roman road and Iron Age to Roman settlements are identified from the geophysical survey, in the north east and south east of the Development Site. The geophysical survey has identified a possible early Medieval fortification, at the centre of the Development Site and a possible Medieval settlement is identified to the north of the Holiday Inn. Elsewhere, there is evidence for what may be the occasional farming settlement and agricultural activity and land division from this period and continuing into the Modern period. A low potential is identified for the Post Medieval and Modern periods, with a specific potential anticipated within areas of modern development. A palaeoenvironmental potential associated with the alluvial deposits of the River Ouzel is also anticipated. Any below ground archaeological assets which may be present would most likely be of local to regional significance.
- K8.5 The Desk Based Assessment additionally identified that the area of the study site to the east of the London Road comprises a well-preserved Parliamentary enclosed landscape.
- K8.6 Construction activities would result in a High Direct impact upon archaeological remains if present within the footprint of below ground excavations associated with the construction of the Proposed Development.
- K8.7 Overall, it has been concluded that the Proposed Development would result in a generally Minor Adverse effect upon archaeological remains within the Development Site, which would not be considered a significant effect in EIA terms.
- K8.8 Extensive programmes of archaeological investigation will be required in advance of development, which will in turn lead to programmes of archaeological reporting and publication, these will extend through the lifetime of the development, and be developed in consultation with the Milton Keynes Archaeological Officer.

Table K8.1 Summary of the likely significant effects of the Development with regard to archaeology

Potential Effect	Nature of Effect (Permanent/ Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)	Mitigation / Enhancement Measures	Geographical Importance*							Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)
				I	UK	E	R	C	B	L	
During Construction											
Low to moderate potential for likely residual Palaeolithic artefactual evidence;	Permanent	Minor	N/A							X	Minor Adverse
Low potential for Mesolithic artefactual evidence;	Permanent	Minor								X	Minor Adverse
Low to moderate potential for Neolithic artefactual evidence;	Permanent	Minor								X	Minor Adverse
Moderate potential for palaeoenvironmental evidence;	Permanent	Minor								X	Minor Adverse
Generally low to moderate potential for Bronze Age artefactual evidence; specific potential identified for possible ring ditches;	Permanent	Minor								X	Minor Adverse
Moderate potential for palaeoenvironmental evidence;	Permanent	Minor/Moderate					X				Minor/Moderate Adverse
Iron Age and Roman settlements identified on the north east and south east of the Development Site. Generally low to moderate potential for isolated Iron Age/Roman farmsteads and agricultural activity, specific potential associated with the projected Roman road and associated activity;	Permanent	Minor/Moderate					X				Minor/Moderate Adverse
Moderate potential for palaeoenvironmental evidence;	Permanent	Minor Adverse					X				Minor Adverse

Potential Effect	Nature of Effect (Permanent/ Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)	Mitigation / Enhancement Measures	Geographical Importance*							Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)
				I	UK	E	R	C	B	L	
Possible early Medieval fortification, probably Medieval settlements. Elsewhere Low potential for evidence of Anglo Saxon/Medieval settlement and occupation activity;	Permanent	Minor/Moderate	N/A				X				Minor/Moderate Adverse
Moderate potential for agricultural activity and land division;	Permanent	Minor								X	Minor Adverse
Low potential for Post Medieval archaeological remains (likely to be entirely invested in evidence of agricultural activity, land division and stray artefactual evidence);	Permanent	Minor								X	Minor Adverse
Generally low potential Modern archaeological remains, will likely comprise agricultural activity and land division, specific potential identified for areas 19th and 20th century development;	Permanent	Minor								X	Minor Adverse
Generally fragmentary historic landscape, the area east of the London Road comprises a well-preserved Parliamentary landscape;	Permanent	Minor					X				Minor Adverse
During Operation											
No additional effects to archaeological receptors during operation											

Key: * Geographical Level of Importance

I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local

K9.0

Abbreviations & Definitions

- CIfA - Chartered Institute for Archaeologists
- FSA - Fellow of the Society of Antiquaries of London
- GPA - Good Practice Advice (Historic England)
- HE - Historic England
- HER - Historic Environment Record
- MCIfA - Member of the Chartered Institute for Archaeologists
- PPG - Planning Practice Guidance
- NPPF - National Planning Policy Framework
- RPG - Registered Park and Garden
- SPD - Supplementary Planning Document

K10.0

References

- 1 UK Government, Ancient Monuments & Archaeological Areas Act 1979, updated to 2014
- 2 CLG (February 2019) National Planning Policy Framework
- 3 CLG (March 2014) Planning Practice Guide
- 4 Milton Keynes Council (March 2019) Plan:MK 2016 – 2031
- 5 Milton Keynes Council (March 2020) Milton Keynes East Strategic Urban Extension, Development Framework SPD
- 6 Historic England (March 2015) GPA 1: The Historic Environment in Local Plans
- 7 Historic England (March 2015) GPA 2: Managing Significance in Decision-Taking in the Historic Environment
- 8 Historic England (December 2017) GPA 3: The Setting of Heritage Assets
- 9 Chartered Institute for Archaeologists, (2017); Standard & Guidance for historic environment desk based assessment
- 10 Highways England (January 2020) Design Manual for Roads and Bridges
- 11 DCMS, (2013); Scheduled Monuments and Nationally Important Non-Scheduled Monuments