

**M42 Junction 6 Improvement  
Scheme Number TR010027  
Volume 6  
6.1 Environmental Statement  
Chapter 7 – Cultural Heritage**

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed  
Forms and Procedure) Regulations 2009

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Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Applications: Prescribed Forms  
and Procedure) Regulations 2009**

M42 Junction 6 Improvement  
Development Consent Order 202[ ]

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**6.1 Environmental Statement  
Chapter 7 Cultural Heritage**

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## 7 Cultural heritage

### 7.1 Competent expert evidence

- 7.1.1 This chapter presents the results of an assessment of the likely significant effects of the Scheme on cultural heritage, a collective term used to describe archaeological assets, built heritage features and historic landscapes.
- 7.1.2 The assessment has been undertaken and reported by a team of competent archaeology and built heritage experts within AECOM, the quality and completeness of which has been approved by a Technical Director who holds the qualifications of BSc Archaeology and MA Scientific Methods in Archaeology, and is a Member of the Chartered Institute for Archaeologists (MCIfA).
- 7.1.3 They have 18 years of experience in undertaking and reporting cultural heritage assessments as part of environmental impact assessments (EIA) for a wide variety of development types. They have worked on numerous road schemes across the UK from the options appraisal stage through to construction, and have provided archaeological and heritage input into nationally significant infrastructure projects and public inquiries.

### 7.2 Legislative and policy framework

- 7.2.1 The following legislation and planning policy is of direct relevance to the assessment of cultural heritage. Compliance (or otherwise) with statute and policy relating to the protection, conservation and enhancement of archaeology and built heritage assets is addressed within the Planning Statement [TR010027/APP/7.1].

#### **Ancient Monuments and Archaeological Areas Act 1979**

- 7.2.2 Scheduled monuments are protected under the Ancient Monuments and Archaeological Areas Act 1979 (as amended) [REF 7-1] which imposes a requirement to obtain prior consent from the competent authority for any demolition, repair, and alteration works that might affect these nationally important assets.
- 7.2.3 A review of the baseline conditions (see Section 7.6) has confirmed that the Scheme would not affect any identified scheduled monuments. Accordingly, there is no requirement to seek related consent(s) through the M42 Development Consent Order (DCO) application.

#### **Planning (Listed Building and Conservation Areas) Act 1990**

- 7.2.4 The Planning (Listed Buildings and Conservation Areas) Act 1990 [REF 7-2] (as amended) is the principal statutory instrument which must be considered in the determination of any application affecting listed buildings and conservation areas.

- 7.2.5 Under this legislation, local planning authorities and the Secretary of State are required to have special regard to the desirability of preserving a listed building, its setting<sup>1</sup>, or any features of special architectural or historic interest that it possesses. It also places a duty on local planning authorities to publish proposals for their conservation areas and exercise their planning functions in a manner that gives regard to the desirability of preserving and enhancing the character or appearance of these areas.
- 7.2.6 The potential effects of the Scheme on conservation areas, listed buildings and their settings have been considered as part of the assessment of built heritage effects reported in this chapter.

### **National Policy Statement for National Networks**

- 7.2.7 The National Policy Statement for National Networks (NPSNN) [REF 7-3] acknowledges that the construction and operation of road infrastructure has the potential to affect historic environment, and provides guidance on the identification, assessment and mitigation of effects on cultural heritage assets.
- 7.2.8 The NPSNN [REF 7-3] sets out the matters that the Secretary of State for Transport (SoS) should give due regard to when determining DCO applications that would affect the significance<sup>2</sup> of cultural heritage assets, their settings or their conservation.
- 7.2.9 The requirements of the NPSNN [REF 7-3] in relation to identifying the significance of cultural heritage assets, and assessing and mitigating the effects of the Scheme on such assets have been taken account of in the assessment, in order to identify the likely significant effects that the SoS needs to give due regard to in their decision-making.

### **National Planning Policy Framework**

- 7.2.10 A core principle of the National Planning Policy Framework (NPPF) [REF 7-4] is that the planning system should conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of current and future generations.
- 7.2.11 The NPPF [REF 7-4] acknowledges the importance of assessing the significance of heritage assets potentially harmed or lost through alteration or destruction or through development within their setting, and sets out the considerations that local planning authorities should have when determining applications.
- 7.2.12 The requirements of the NPPF [REF 7-4] have been accounted for in the assessment, with particular regard given to establishing the significance of designated and non-designated assets and their settings to inform decision-making.

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<sup>1</sup> Setting comprises the surroundings in which a heritage asset is experienced.

<sup>2</sup> The significance of a heritage asset is its value to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

### **National Planning Practice Guidance**

- 7.2.13 The National Planning Practice Guidance (NPPG) for Conserving and Enhancing the Historic Environment [REF 7-5] adds further context to the NPPF [REF 7-4] and advises on the application of heritage policy contained within it. It clarifies that the assessment of the nature, extent and importance of the significance of heritage assets (and the contribution of their setting) is integral to understanding the potential effects or harm caused by development proposals.
- 7.2.14 This guidance has been considered by: undertaking desk-based and site-based surveys to establish the baseline archaeological, built heritage, landscape and geological conditions; applying best practice guidance to identify the potential loss or harm that could result from the Scheme (and the significance of any such effects); and developing appropriate mitigation and enhancement measures and agreeing these with relevant statutory bodies.

### **Solihull Local Plan: Shaping a Sustainable Future**

- 7.2.15 The adopted Solihull Local Plan: Shaping a Sustainable Future [REF 7-6] identifies heritage as a key element in promoting quality of place.
- 7.2.16 Policy P16: Conservation of Heritage Assets and Local Distinctiveness identifies that development proposals are expected to preserve or enhance heritage assets associated with the following areas and features, as appropriate to their significance:
- a. the Arden landscape, historic villages, hamlets, farmsteads, country and lesser houses and the distinct medieval core of historic rural settlements including Berkswell, Barston, Temple Balsall, Meriden Hill, Walsall End, Hampton in Arden, Bickenhill and Knowle; and
  - b. parks, gardens and landscape including common, woodland, heathland and distinctive fieldscapes.
- 7.2.17 These local policy requirements have been addressed by undertaking a detailed assessment of the effects of the Scheme on these areas and features within the 500m and 1km study areas defined in Section 7.5.

### **Solihull Metropolitan Borough Council: Supplementary Planning Guidance No. 1 – The Historic Environment**

- 7.2.18 Solihull Metropolitan Borough Council's (SMBC) adopted Supplementary Planning Guidance for the historic environment [REF 7-7] provides additional detail and guidance to the policies contained in the Local Plan [REF 7-6], and relates to the borough's conservation areas, listed buildings and locally listed buildings (those with particular architectural or historic merit and which positively contribute to the character and appearance of an area).
- 7.2.19 The assessment has given regard to this supplementary guidance when addressing the requirements of the Local Plan [REF 7-6].

## North Warwickshire Local Plan

- 7.2.20 The North Warwickshire Local Plan (Submission Version) [REF 7-8] was formally submitted to the Secretary of State in March 2018 for independent examination, and contains policies relating to the protection and conservation of the historic environment.
- 7.2.21 Although the north-eastern extents of the assessment's 1km study area (see Section 7.5) encroach into the boundary of North Warwickshire, no further regard has been given to these policies as no archaeological or built heritage assets or historic landscapes within this administrative area would be directly or indirectly affected by the Scheme.

## 7.3 Assessment methodology

### Scope of the assessment

- 7.3.1 Scoping was undertaken in late 2017 to identify the matters to be covered by the cultural heritage assessment and agree the approach with relevant statutory bodies.
- 7.3.2 The assessment scope was established by comparing available design and landtake details for the Scheme with data, information and records relating to the following three elements of the historic environment:
- a. archaeological remains – comprising the material remains of human activity from the earliest periods of human evolution to the present. These may be buried traces of human activities, sites visible above ground or moveable artefacts. Archaeological remains can encompass the remains of buildings, structures, earthworks and landscapes; human, animal or plant remains, or other organic material produced, or affected, by human activities and their settings;
  - b. historic buildings – comprising architectural or designed or other structures with a significant historical value. These may include structures that have no aesthetic appeal or structures not usually thought of as 'buildings', such as milestones or bridges; and
  - c. historic landscape – comprising the current landscape, whose character is the result of the action and interaction of natural and/or human factors.
- 7.3.3 The outcomes of scoping were recorded in a scoping report [REF 7-9], which was consulted upon as part of a formal request to the Inspectorate for a scoping opinion and included a summary of all assessment work undertaken as part of the design-development of the Scheme prior to its publication.
- 7.3.4 The Inspectorate's scoping opinion [REF 7-10] identified a number of additional overarching EIA and topic-specific matters that were subsequently brought into the overall scope of the assessment. These further considerations are detailed in Appendix 5.3 [TR010027/APP/6.3] and include a summary of how Highways England has responded to the points raised and where the relevant information is presented within this chapter and elsewhere in this Environmental Statement.

- 7.3.5 In addition to the matters raised in the scoping opinion [REF 7-10], the final assessment scope has also been shaped by the following:
- the outcomes of consultation with statutory bodies, non-statutory organisations and other stakeholders with an interest in the historic environment;
  - design changes made to the Scheme in respect of its form and extent, and the area of land required for its construction, operation and maintenance; and
  - the outcomes of non-intrusive field surveys undertaken to establish the baseline archaeological conditions of both the historic and geological environment, and to inform the identification of the likely significant effects of the Scheme.

7.3.6 Consideration was given to the activities associated with the future maintenance and management of the Scheme, and whether these have the potential to result in significant effects on cultural heritage. Following a review of the activities presented within Chapter 3 The project, the process concluded that there would be limited potential of such effects to occur, and that these activities are comparable with standard maintenance operations already being undertaken elsewhere on the strategic and local road networks. Accordingly, the effects associated with this phase of the Scheme were scoped out of the assessment and not considered further.

#### **Assessment guidance**

7.3.7 The following guidance has been used to inform the scope and content of the assessment, and to assist the identification and mitigation of likely significant effects. This builds upon the overarching EIA methodology and guidance presented in Chapter 5 EIA methodology and consultation.

#### *Design Manual for Roads and Bridges*

7.3.8 Guidance contained within the Design Manual for Roads and Bridges (DMRB) Section 3, Part 2: Cultural Heritage [REF 7-11] has been applied in the assessment to identify the value and significance of archaeological remains, historic buildings and historic landscapes, and to identify and evaluate the impacts and effects that construction and operation of the Scheme would likely have on these assets.

7.3.9 As scoping identified a likelihood of significant environmental effects resulting from the Scheme, a detailed assessment has been undertaken in line with this guidance.

#### *Chartered Institute for Archaeologists guidance*

7.3.10 The assessment has been undertaken in accordance with the following best practice guidance published by the Chartered Institute for Archaeologists:

- Code of Conduct [REF 7-12] – sets out standards of ethical and responsible behaviour in the conduct of archaeological affairs to which members of the institute are expected to adhere; and

- b. Standard and Guidance for Historic Environment Desk-based Assessment [REF 7-13] – sets out the appropriate standards for undertaking desk-based cultural heritage assessments.

*Historic England Guidance*

7.3.11 The following Historic England Good Practice Advice (GPA) notes have been used in the assessment to assist in establishing the significance of assets and their setting:

- a. GPA2: Managing Significance in Decision-taking [REF 7-14] – emphasises the importance of having knowledge and understanding of the significance of heritage assets likely to be affected by the development, and where relevant the contribution of their settings to their significance; and
- b. GPA3: The Setting of Heritage Assets [REF 7-15] – advises that elements of a setting can make positive or negative contributions to an asset’s significance and the ways in which it is experienced. It acknowledges that settings can overlap due to not having defined boundaries, and that settings can change as an asset and/or its surroundings evolve over time.

**Establishment of the baseline conditions**

7.3.12 Establishment of the baseline environment has involved reference to existing data sources, consultation with statutory bodies and other organisations, and fieldwork surveys.

*Desk studies*

7.3.13 Information and views concerning the Scheme were obtained from the following organisations:

- a. Historic England;
- b. Historic Scotland;
- c. SMBC; and
- d. Warwickshire County Council.

7.3.14 The following sources of data were obtained from these organisations and reviewed as part of the assessment:

- a. The National Heritage List [REF 7-16] – to identify scheduled monuments, listed buildings, registered parks and gardens, registered battlefields and protected wrecks;
- b. Warwickshire County Council Historic Environment Record (HER) – to identify historic mapping, historic landscape information, historic photography, fieldwork reports, information on local heritage assets (including SMBC’s locally listed buildings of special architectural interest), journals and other published (or unpublished) material;
- c. The Historic England Archive – to identify undesignated heritage assets;

- d. Historic Environment Scotland Aerial Photographic Collection<sup>3</sup> [REF 7-17] – to obtain aerial photographic coverage;
- e. Hampton in Arden Conservation Area Appraisal [REF 7-18] – to identify the key defining characteristics of the historic buildings and open spaces within this designated area.

7.3.15 Examination and comparison of historic mapping and aerial photography was undertaken to identify the existence and form of landscape elements such as field boundaries, street patterns, ponds, woods, lanes and paths.

7.3.16 Information relating to the existing geological and soils environment (see Chapter 10 Geology and soils) was also referenced in the assessment.

#### *Consultation*

7.3.17 Consultation has been undertaken with the Planning Archaeologist for Warwickshire throughout the production of the assessment to agree the scope of intrusive and non-intrusive archaeological investigations required to effectively evaluate buried archaeological resources that could potentially be encountered and/or affected by the Scheme.

7.3.18 Written Schemes of Investigation (WSI) setting out the approach to undertaking archaeological monitoring of the ground investigation works (see Chapter 10 Geology and soils) and non-intrusive geophysical surveys undertaken as part of the design-development and assessment processes were prepared prior to undertaking these works, the content of which was agreed in advance with the Planning Archaeologist for Warwickshire.

7.3.19 As part of this engagement, a request was made by the Planning Archaeologist for Warwickshire to develop and undertake a programme of intrusive archaeological trial trenching in targeted areas within the Scheme's Order Limits. A WSI for archaeological trial trenching was accordingly developed during the design-development and assessment processes, the scope and content of which was agreed with the Planning Archaeologist for Warwickshire. The WSI for archaeological trial trenching is presented in Appendix 7.1 [TR010027/APP/6.3].

7.3.20 Consultation has also been undertaken with SMBC's Conservation Planner. This identified a need to fully assess the potential for impacts upon the Bickenhill Conservation Area and the Grade I listed Church of St Peter. Accordingly, these interests have been considered in the assessment.

7.3.21 Historic England was also approached for comment regarding the assessment, and they emphasised the need to carefully consider the impacts upon the Bickenhill Conservation Area within the assessment.

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<sup>3</sup> Historic Environment Scotland holds aerial photography for England.

### *Fieldwork*

- 7.3.22 An archaeological walkover survey was undertaken by qualified and experienced archaeologists on 3 and 4 October 2017 where land access was authorised by obtained from landowners within the 500m and 1km study areas. The purpose of the walkover was to record the survival, extent, condition, setting and significance of known assets, and to confirm their location and relationship to other sites, alongside the identification of any previously unrecorded assets. No additional archaeological features were noted over those recorded through the desk studies.
- 7.3.23 Information presented in Chapter 10 Geology and soils obtained through ground investigations undertaken between 26 January 2018 – 22 February 2018 and 8 – 14 May 2018 to establish the existing ground conditions, has been referenced in the assessment, in order to establish the existing geological and soils environment and identify any areas of previous disturbance. The Ground Investigation Archaeological Monitoring Report relating to these investigations is presented in Appendix 7.2 [TR010027/APP/6.3].
- 7.3.24 A non-intrusive geophysical survey was undertaken in March 2018 to identify potential location and extent of buried archaeological remains. A Multi-sensor Array Cart System was used to cover all areas of land within the Scheme's Order Limits where land access had been granted, the findings of which have been used to establish the archaeological significance and potential of the area, and to inform the development of a future programme of intrusive surveys and investigation. The findings of the geophysical survey are reported in Appendix 7.3 [TR010027/APP/6.3].

### **Value and significance of cultural heritage assets**

- 7.3.25 The value of a building, monument, area, site, place or landscape reflects its significance as a historic asset, and therefore its sensitivity to change.
- 7.3.26 Certain types of heritage asset have a level of significance that justify official designation, such as scheduled monuments and listed buildings; however, the absence of designation does not necessarily mean heritage assets are of lower value or significance.
- 7.3.27 Professional judgement has been used to identify the value and significance of assets, guided by legislation [REF 7-1]; [REF 7-2], national policy [REF 7-3]; [REF 7-4], standards, official designations and the following criteria contained within DMRB guidance [REF 7-11], reproduced in **Table 7.1**.

**Table 7.1: Value criteria for archaeological assets, built heritage and historic landscapes**

Asset value	Description
Very High	<p>Assets inscribed as being of universal international importance, such as World Heritage Sites.</p> <p>Assets that contribute significantly to acknowledged international research objectives.</p> <p>Buildings of recognised international importance.</p> <p>Historic landscapes of international value, whether designated or not.</p> <p>Extremely well preserved historic landscapes with exceptional coherence, time-depth or other critical factor(s).</p>
High	<p>Scheduled monuments with extant remains, or sites and remains of comparable quality.</p> <p>Assets that contribute significantly to acknowledged national research objectives.</p> <p>Grade I and Grade II* Listed Buildings.</p> <p>Other listed buildings that can be shown to have exceptional qualities in their fabric or historical association not adequately reflected in their listing grade, including non-designated structures of clear national importance.</p> <p>Conservation areas containing very important buildings.</p> <p>Designated and non-designated historic landscapes of outstanding interest of high quality and importance, and of demonstrable national value.</p>
Medium	<p>Designated or undesignated assets that contribute to regional research objectives.</p> <p>Grade II Listed Buildings.</p> <p>Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historic association.</p> <p>Conservation areas containing important buildings.</p> <p>Historic Townscape or built-up areas with historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).</p> <p>Designated special historic landscapes and non-designated landscapes that would justify special historic landscape designation, landscapes of regional value.</p>
Low	<p>Sites of low importance.</p> <p>Assets compromised by poor preservation and/ or poor survival of contextual associations.</p> <p>Locally listed buildings.</p> <p>Historic (unlisted) buildings of modest quality in their fabric or historical association.</p> <p>Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).</p> <p>Undesignated historic landscapes.</p> <p>Historic landscapes with importance to local interest group.</p>

Asset value	Description
Negligible	Assets with very little or no surviving archaeological interest. Buildings of no architectural or historical note; buildings of an intrusive character. Landscapes with little or no significant historical interest.
Unknown	The importance of the asset has not been ascertained.

### Magnitude of impact criteria

- 7.3.28 Impacts have been identified by reviewing the identified sites, features and areas within the 500m and 1km study areas against the form and extent of the Scheme, in order to establish which assets would be affected by its construction and operation.
- 7.3.29 Impacts identified in the assessment relate to the predicted changes to key elements of an asset and/or its setting. These can, for example, derive from temporary or permanent actions such as the physical destruction of buried archaeology during construction works, and the introduction of new highway infrastructure into the historic setting of a building or conservation area.
- 7.3.30 The identification of impacts takes account of all embedded and standard mitigation measures described in Section 7.8.
- 7.3.31 The magnitude of impact on archaeological assets, built heritage and historic landscapes (and their settings) has been established using the following criteria contained within DMRB guidance<sup>4</sup> [REF 7-11], reproduced in **Table 7.2**. The magnitude of impact ratings apply to both adverse and beneficial impacts on cultural heritage.

<sup>4</sup> DMRB guidance on cultural heritage states that operational impacts are those that would arise from the use of a road development once constructed, and typically comprise activities such as lighting of the road, its future maintenance and traffic movement. The guidance also states that features of new road developments (such as earthworks, structures and landscaping) should be considered as part of the construction assessment. Accordingly, the cultural heritage assessment has reported the predicted impacts and effects of construction and operation of the Scheme in this manner to align with the guidance; however, this differs to the approach to reporting adopted in other chapters of the Environmental Statement which considers the features of the Scheme within the operational assessment.

**Table 7.2: Magnitude of impact criteria for archaeological assets, built heritage and historic landscapes**

Impact magnitude	Description		
	Archaeological assets	Built heritage	Historic landscapes
Major	<p>Change to most or all key archaeological materials, such that the resource is totally altered.</p> <p>Comprehensive changes to setting.</p>	<p>Change to key historic building elements, such that the resource is totally altered.</p> <p>Comprehensive changes to the setting.</p>	<p>Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit.</p>
Moderate	<p>Changes to many key archaeological materials, such that the resource is clearly modified.</p> <p>Considerable changes to setting that affect the character of the asset.</p>	<p>Change to many key historic building elements, such that the resource is significantly modified.</p> <p>Changes to the setting of an historic building, such that it is significantly modified.</p>	<p>Changes to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, noticeable differences in noise or sound quality, considerable changes to use or access; resulting in moderate changes to historic landscape character.</p>
Minor	<p>Changes to key archaeological materials, such that the asset is slightly altered.</p> <p>Slight changes to setting.</p>	<p>Change to key historic building elements, such that the asset is slightly different.</p> <p>Change to setting of an historic building, such that it is noticeably changed.</p>	<p>Changes to few key historic landscape elements, parcels or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound quality; slight changes to use or access: resulting in limited changes to historic landscape character.</p>

Impact magnitude	Description		
	Archaeological assets	Built heritage	Historic landscapes
Negligible	Very minor changes to archaeological materials, or setting.	Slight changes to historic buildings elements or setting that hardly affect it.	Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.
No Change	No change.	No change to fabric or setting.	No change to elements, parcels or components; no visual or audible changes; no changes arising from in amenity or community factors.

### Identification of likely significant effects

7.3.32 The identification of the likely significant effects on cultural heritage assets has been undertaken using professional judgement, and has involved combining the value of an asset with the predicted magnitude of impact.

7.3.33 The process has been guided by the following matrix in **Table 7.3**, reproduced from DMRB guidance [REF 7-11].

**Table 7.3: Significance of effect matrix**

Value	Very High	Neutral	Slight	Moderate/ large	Large/very large	Very large
	High	Neutral	Slight	Moderate/ slight	Moderate/ large	Large/very large
	Medium	Neutral	Neutral/slight	slight	Moderate	Moderate/ large
	Low	Neutral	Neutral/slight	Neutral/slight	Slight	Slight/ moderate
	Negligible	Neutral	Neutral	Neutral/slight	Neutral/slight	Slight
		<b>No change</b>	<b>Negligible</b>	<b>Minor</b>	<b>Moderate</b>	<b>Major</b>
		<b>Magnitude of impact</b>				

7.3.34 Where the significance of an effect is represented by two descriptors, for example large/very large within the matrix, professional judgement has been used to determine which of the significance descriptors applies to the effect being assessed.

- 7.3.35 The matrix has been used to guide the identification and assessment of effects on cultural heritage; however, where professional judgement has resulted in a deviation from the thresholds contained in the matrix these are explained within the relevant sections of the chapter and are supported by appropriate evidence and explanation.

## 7.4 Assessment assumptions and limitations

### Scheme design and limits of deviation

- 7.4.1 The assessment has been based on the Scheme description detailed within Chapter 3 The Project, and has taken into account the lateral and/or vertical limits of deviation defined on the Works Plans [TR010027/APP/2.3] in order to establish a realistic worst case assessment scenario.
- 7.4.2 This scenario has identified and reported the effect that any lateral and/or vertical deviation would realistically give rise to. This has, for example, taken into account the potential for components of the Scheme to be positioned at a slightly higher elevation, or brought into closer proximity to heritage receptors, and thereby potentially result in a different effect on their setting.
- 7.4.3 Notwithstanding any potential deviation, all archaeological mitigation measures described in Section 7.8 would still be deliverable within the limits of deviation.

### Warwickshire Gaelic Athletic Association

- 7.4.4 Using professional judgement, the illustrative reconfiguration design options for the Warwickshire Gaelic Athletic Association presented in **Figure 3.5a to 3.5e** [TR010027/APP/6.2] were appraised to take account of the variation in the physical extents, pitch layout, buildings, fencing and lighting provision across the options.
- 7.4.5 The objective of the appraisal was to identify whether one option would potentially give rise to different effects than another, in order to then identify the worst case for the purposes of the assessment presented within this chapter.
- 7.4.6 The appraisal concluded that the design variation between the options would not be of a level that would result in different types or significance of effect on archaeological assets, built heritage or historic landscapes.

### Baseline survey data

- 7.4.7 The assessment has been undertaken with reference to the baseline data, information and records pertaining to the historic environment derived from desk-based sources. These were subsequently validated and enhanced through field surveys where land access was obtained from landowners.
- 7.4.8 In locations where access was not granted by landowners to undertake the geophysical survey, baseline information was gathered through site-based observations made from public rights of way as part of the walkover survey. Details of the areas where permission was not obtained to enter land to undertake geophysical surveys are presented within the geophysical survey report (see Appendix 7.3 [TR010027/APP/6.3]).

- 7.4.9 The baseline data and records obtained are considered to be representative of the conditions that would exist at the point of commencing Scheme construction, as described in Section 7.6, as the nature of the historic environment is such that no material changes to its form, character and appearance are predicted to occur during this time.

#### **Impact assessment**

- 7.4.10 The value of historic buildings identified within the 500m and 1km study areas was established and assessed through external inspections.
- 7.4.11 The assessment of temporary construction effects has considered the peak activity periods, for example when taller and/or visually prominent plant and equipment such as cranes would be visible and in use, in order to assess the reasonable worst case in relation to potential impacts and effects on the setting of assets.
- 7.4.12 The assessment of impacts and effects has assumed that all individual finds recorded within the assessment study areas were removed when found, and are no longer in situ.

#### **Archaeological evaluation trenching**

- 7.4.13 Archaeological evaluation trenching has yet to be undertaken on the Scheme; therefore the assessment has been based on the information gathered from the desk studies, the non-intrusive geophysical surveys (see Appendix 7.3 [TR010027/APP/6.3]) and the archaeological monitoring of the ground investigations (see Appendix 7.2 [TR010027/APP/6.3]). The potential for previously unrecorded archaeological deposits to be present within the Scheme's Order Limits shall be identified and evaluated through the programme of archaeological evaluation trenching, as presented in the WSI within Appendix 7.1 [TR010027/APP/6.3].
- 7.4.14 The scope and content of the WSI for archaeological evaluation trenching has been developed and agreed through consultation with the Planning Archaeologist for Warwickshire. The locations and extents of the trenches coincide with areas where physical works are planned that could potentially disturb unrecorded deposits.
- 7.4.15 In order to undertake an assessment of the effects on potential buried archaeology within the 500m study area, the assessment of archaeological potential (see Section 7.6) has been based on the findings of the desk study and geophysical survey and has assumed a worst case that finds of differing value from the prehistoric, Roman, early medieval, medieval and post-medieval periods are present and could therefore be encountered during construction of the Scheme. The related worst case impacts and effects on potential buried archaeology reported within Section 7.9 shall be validated following completion of the archaeological evaluation trenching.

## Mitigation

- 7.4.16 The findings of the evaluation trenching shall supplement the information presented within this chapter, and shall be submitted during examination of the DCO application as more evidence to inform the development of specific mitigation measures to be implemented either prior to, or in the early stages of, construction (see Section 7.8).

## 7.5 Study area

- 7.5.1 Two study areas have been adopted in the assessment to enable all cultural heritage assets potentially affected by the Scheme to be identified and placed within their wider settings:
- a 1km study area – within which designated assets comprising scheduled monuments of international significance and listed buildings of national significance have been identified and assessed; and
  - a 500m study area – within which non-designated assets of historic, architectural, archaeological or artistic interest have been identified and assessed.
- 7.5.2 The 1km study area is illustrated in **Figure 7.1 [TR010027/APP/6.2]**, and the 500m study area is illustrated in **Figure 7.2 [TR010027/APP/6.2]**.
- 7.5.3 The spatial extents of the study areas were initially identified during scoping, and were informed by DMRB guidance [REF 7-11] and the coverage of the Zone of Theoretical Visibility (ZTV) prepared as part of the assessment of landscape and visual effects (see Chapter 8 Landscape).
- 7.5.4 Both study areas were agreed with the Planning Archaeologist for Warwickshire through engagement on local historic issues and priorities, and include all land to be temporarily and permanently acquired within the Scheme's Order Limits, extending outward in all directions to their respective distances.

## 7.6 Baseline conditions

### Overview of the historic environment

- 7.6.1 **Figures 7.1 [TR010027/APP/6.2]** illustrates the location of designated cultural heritage assets. Within the 1km study area, there are:
- three scheduled monuments, recorded on the National Heritage List [REF 7-16], comprising two moated sites and a cross in the churchyard of St Mary and St Bartholomew;
  - two grade I listed, seven grade II\* listed and 24 grade II listed buildings, recorded on the National Heritage List [REF 7-16]; and
  - two conservation areas, identified by SMBC [REF 7-6].
- 7.6.2 **Figure 7.2 [TR010027/APP/6.2]** illustrates the location of non-designated cultural heritage assets. Within the 500m study area, 132 archaeological assets have been recorded from the Historic England records and the HER.
- 7.6.3 The value of these assets is considered as part of the description and assessment of impacts presented in Section 7.9.

- 7.6.4 The bracketed numbers in the following descriptive summaries relate to the HER and National Heritage List [REF 7-16] record numbers assigned to each asset, which have been adopted in the assessment.

### **Geology and soils**

- 7.6.5 The bedrock geology around Bickenhill consists primarily of Sidmouth Mudstone Formation, surrounded by pockets of Arden Sandstone Formation (sandstone, siltstone and mudstone) and Branscombe Mudstone Formation.
- 7.6.6 The bedrock of Hampton in Arden differs in that it sits primarily on Branscombe Mudstone Formation and is surrounded by bands of Sidmouth Mudstone Formation and pockets of Arden Sandstone Formation (sandstone and mudstone). Both are overlain by superficial geology consisting of veins of alluvium (clay, silt, sand and gravel) that is fluvial in origin, and pockets of Glaciofluvial Deposits (sand and gravel) from the Mid Pleistocene which were laid down in ice age conditions.
- 7.6.7 Soils are of the “Brockhurst 1” association, described as mainly fine loamy over clayey soils. These are widely distributed in the lowlands of the Midlands and South West England and have slowly permeable subsoils.
- 7.6.8 Further information relating to the geological and soil profiles found within the 1km study area is presented in Chapter 10 Geology and soils.

### **Archaeology**

#### *Prehistoric (to 43 AD)*

- 7.6.9 There are 14 assets dating to the prehistoric period within the 500m study area. The earliest of these date to the Mesolithic period (c.10,000 to 4,000 BC).
- 7.6.10 A single Mesolithic flint blade was recorded as a find spot (14004). Evidence of the Neolithic period (c.4,000 to 2,350 BC) comprises various enclosures and field systems identified by cropmarks (6960; 9062; 9902; 10837; 10832), a ditch (10833), a lynchet (5663), and earthworks of a boundary bank (5728). A single Bronze Age (c.2,350 to 800 BC) palstave axe was identified by metal detecting (1639). There are two Iron Age (c.800 BC to 43 AD) assets, consisting of the Salter Street trackway (1376), and circumstantial place-name evidence for defences north of Walford Hall Farm (10834).
- 7.6.11 A flint scatter of prehistoric date (1745) was also recorded during fieldwalking east of the M42 motorway and south of Friday Lane. The HER also records that three axes were found at Henwood Hall Farm (6338); however, the exact nature of these assets is unknown.
- 7.6.12 The prehistory of the area is fairly well represented with numerous finds and sites recorded, including hand-axes, flint knives and arrowheads and occupation evidence from the Mesolithic to the Iron Age.

*Roman (43 to 450 AD)*

- 7.6.13 There are four assets of Roman date, all of which are find spots. These consist of a ceramic vessel (1814) and three single sherds (5672; 1734; 1735) identified during fieldwalking.
- 7.6.14 Numerous examples of occupation, industrial and military sites exist beyond the 500m study area, including the identification of Roman buildings at Damson Parkway in Solihull, located during excavation in 2014. The remains of a stone building occupied between the 2<sup>nd</sup> and 4<sup>th</sup> Century AD was found, along with an associated well and finds of pottery and plant and animal remains [REF 7-19].
- 7.6.15 Military sites have been recorded beyond the 500m study area including Lunt Roman fort in Coventry, which was built in approximately AD60-64 with at least three phases of occupation identified. The fort has been partially rebuilt and is used as a museum. Further Roman forts have been recorded at Metchley, Birmingham, to the west of the Scheme. Built in c.AD40 it originally consisted of double ditches and a turf rampart. Timber-frame defences were added in the latter half of the 1<sup>st</sup> Century, and a vicus comprising timber buildings and hearths has been identified to the west of the fort.
- 7.6.16 As well as settlements, numerous recovered objects representative of the period have been recorded in the area. Much of this information has been recorded as a result of survey work and excavations, as well as from the recovery of individual finds.
- 7.6.17 The Roman period is well understood at the county level. Two major Roman roads, Watling Street and the Fosse Way, run through the county from Kent to the Welsh borders and from Exeter to Lincoln respectively.

*Early Medieval (450 to 1066 AD)*

- 7.6.18 There are three assets of early medieval date recorded in the 500m study area. The first is a deserted village at Bickenhill (10503). This probably originated in the early medieval period as 'Bichehelle' (Bica's Hill) and had ceased to exist by 1785. The second is an old trackway and ford over Hollywell Brook, Middle Bickenhill (10829). Bickenhill and Middle Bickenhill appear in the Domesday Book [REF 7-20], recorded as a medium sized settlement with 19 households, with eight ploughlands and three acres of meadow. The third asset, comprising a possible enclosure is also recorded close to Hen Wood (5690) which is believed to date from either the early medieval or medieval period.
- 7.6.19 There is considerably less evidence within the county for the early medieval period compared to the Roman period, but it is by no means absent. A number of religious sites, such as monasteries and churches, are recorded along with evidence of mortuary activity. Settlement activity is also recorded and includes sites at Wolfhampcote and Cherry Orchard.

*Medieval (1066 to 1500 AD)*

- 7.6.20 The medieval period is very well represented in the records for the Warwickshire region, with a wide variety of monument types present including churches, halls, manor houses, castles, parklands, deserted medieval villages, monasteries and schools. The wool and textile markets were important industries throughout the region in this period.
- 7.6.21 Within the 500m study area there are 60 assets of medieval date, and two further scheduled monuments within the 1km study area. Five are find spots (1593; 1272; 1675; 1428; 1736) that include coins, strap fittings, a harness fitting and a sherd of pottery. Thirty eight assets record agricultural and quarrying activity in the form of ridge and furrow and various industrial pits (5660; 10835; 5797; 5664; 5761; 5787; 5794; 5798; 5802; 10926; 5726; 10974; 9066; 10975; 8585; 8587; 8588; 8586; 5801; 5800; 5799; 9061; 5804; 5803; 5795; 5796; 9060; 5792; 5793; 5796; 5805; 8857; 6954; 5659; 5785; 5786; 6340; 6341).
- 7.6.22 There are five medieval settlements recorded in the 500m study area. The site at Middle Bickenhill (10504) comprises a manor house and settlement founded as a secondary colony settlement to that at Bickenhill, near to its early medieval counterpart (10503). There are also two trackways associated with the settlement at Bickenhill. One is a holloway visible as earthworks between Bickenhill and Meriden (5727); the other is the line of an old road between Bickenhill, Stonebridge and Meriden (10828). There is documentary evidence for a medieval settlement at Catherine-de-Barnes (5822), with a third settlement, visible as earthworks, at Church Bickenhill (6198), which was established during the 12<sup>th</sup> Century and includes a church. There is an additional record for the possible remains of the manor house associated with the settlement at Church Bickenhill (10506), although the evidence is circumstantial. The centre point of the medieval parish of Bickenhill is also recorded (10499). Hampton in Arden is located at the eastern edge of the 500m study area, and the scheduled Moated House (1017243) and multiple listed buildings which form part of its medieval core lie just beyond the study area. Areas of ridge and furrow have been recorded in the fields surrounding the village (6954; 5798). The final settlement of Diddington (9199) is recorded on documentary evidence from the medieval period, but no extant evidence has been identified.
- 7.6.23 Records exist for two moated sites and a further possible site within the 500 meter study area. The first is next to Walford Hall Farm (10493). The listed manor house was built next to this earlier moated site. Its function is unclear although the record suggests it was a separate moated manor house. The second site is located at Castle Hills Farm where the remains of a moat has been recorded to the south and east of the farmhouse (3130). Historic records also suggest that the site of a castle built in the medieval period may once have been located here. A further possible moat (5658) has been noted from historic mapping but the exact nature and extent of the feature is unknown.

- 7.6.24 Two of the scheduled monuments within the 1km study area are also moated sites. The first, at Moat House (1017243), encloses a complex and sits within a landscape formerly part of the Forest of Arden manorial. The second, at Eastcote Hall (1017529), includes the buried and earthworks remains of a moated site. The island enclosed by the moat contains a house and gardens. These moated sites peaked as a form of construction between 1250 and 1350.
- 7.6.25 A medieval or post-medieval windmill is recorded east of Hurdle Hall Farm (3118). The tump was recorded in 1963 and there is no physical evidence remaining of the windmill. A watermill called Caldeford Mill (5791) is also recorded in the Solihull Tithe Award and its potential location was identified during construction works for the M42 motorway. A field called Windmill Hill (3125) has also been noted from the Solihull Tithe Award and it is believed to have its origins in the medieval period. No extant evidence of the mill has been identified.
- 7.6.26 The remains of a medieval cross are recorded in the churchyard of St Mary and St Bartholomew's churchyard and is designated as a scheduled monument (1017815).
- Post-Medieval (1500 to 1900 AD)*
- 7.6.27 There are 23 assets of post-medieval date within the 500m study area. These primarily relate to the agricultural use of the landscape, with transport links dating to the 19<sup>th</sup> Century also recorded.
- 7.6.28 The agricultural assets include a series of slight earthwork remains indicating building platforms, holloways and ridge and furrow (1470031). The record suggests these were associated with activities in and around Yew Tree Farm. The earthworks of a farmhouse and rabbit warren (5668) are also recorded, along with a series of pits which are possibly related to industrial activities (5757; 5758), although other uses cannot be discounted. In addition the sites of four former farms have been recorded in the area. Three sites, Firfield Farm (5765), Bickenhill Common Farm (5764) and Cow Hayes Farm (5745), were noted from the first edition Ordnance Survey (OS) map. The remains of a fourth, Pendigo Farm, was recorded under the Birmingham National Exhibition Centre (NEC) (10535).
- 7.6.29 Evidence of early industrial activity is also recorded within the 500m study area. Several brick kilns have been recorded approximately 300m north east of Brickfield Farm (MWA293). Both the farm name and the kilns themselves indicate that brick making was a key activity in this area in the post-medieval period. A gravel pit (MWA5538) is also recorded in the same area.
- 7.6.30 There are three assets related to transport links. These include two railways lines (1363576; 1366099) constructed in 1838 and 1839, the former linked London with Birmingham and the latter completed the Derby to Hampton in Arden section of the London and Birmingham railway. An old road follows the alignment of Gorsey Lane (10827), which was enclosed in 1820 and is marked by a field path and hedge line.

- 7.6.31 An area of semi-natural woodland called Hen Wood (5690) has been bisected from the site of Henwood Hall (3071) by the M42 motorway. Henwood Hall is recorded as having stood on the site of an earlier priory but was demolished in 1824. A brewhouse and other outbuildings (6339) are also recorded as having stood adjacent to the hall.
- 7.6.32 Other sites of post-medieval date comprise three find spots that include a collection of five coins, a crotal and a buckle (1569; 1466) and a coin from the reign of Elizabeth I (1273). Three demolished buildings are also recorded. Two of these are located to the east of Hampton Lane Farm (10836), and are recorded on the 1812 enclosure map, listed as a tenement and garden. The third is the site of Hargrave Hall which was demolished in the later part of the period (10531).
- 7.6.33 The final site of post-medieval date is a field known as Parson's Piece Field (1842). The origin of this name is unknown, but may indicate an ecclesiastical site.
- 7.6.34 The earliest historic map depicting Bickenhill dates from 1838. The village is small with a church and surrounded by agricultural fields. The earliest OS maps date from 1886 and show little, if any, discernible change until 1904 when some additional buildings were constructed. In addition, a pond is marked on the 1904 map to the north of the village along with trees forming a small orchard to the north of Church Farm. Noticeable change is marked on the 1955 map. The boundaries around the fields to the north of the village had altered compared with the 1904 map and there some additional buildings to the west of the village were constructed.
- 7.6.35 The earliest historic map depicting Hampton in Arden dates from 1801. The village and the surrounding area are rural in character. The 1887-1888 OS map shows the railway line at the northern end of the village, which stretched either side of the High Street (the B4102). Hampton Manor is marked to the south-west. There is little discernible change in the village with the exception of the addition of trees, until 1937 when the residential housing of the village extended to the north of the railway line as well as to the east.
- 7.6.36 The historic mapping along the proposed route shows an area characterised by its rural nature. The 1887-1888 OS map shows the area around Bickenhill and Hampton in Arden and between the two settlements to be comprised of rural fields. There is little if any change to the rural character of the area on the 1889, 1904 and 1905 maps. The 1937 map does show some residential housing, for example along Clock Lane although the overriding character of the area remained unchanged.

*Modern (1900 AD to present)*

- 7.6.37 There are four recorded assets of modern date in the 500m study area. The earliest of these is the Bickenhill Landing Grounds used for flying circuses in 1933 and 1936 (1855). The second is the site of the Arden Brickworks (9302). The brickworks does not appear on the first edition OS map, suggesting it is of later, 20<sup>th</sup> Century date. The brickworks is no longer extant.

7.6.38 The other sites of modern date are related to World War II. These include a Second World War Starfish Bombing Decoy SF2E at Bickenhill (1841), which formed part of the defences of the industrial area of Birmingham and was a prime bombing target. The Birmingham and Elmdon Airport (1395007) was also used during World War II, and is now a civil airport (Birmingham Airport).

*Unknown*

7.6.39 There are 13 non-designated assets of unknown date recorded in the 500m study area. These include three possible quarries (5665; 5666; 5667) related to material extraction (the exact resource is not recorded). They are most likely to be of post-medieval or modern date.

7.6.40 A number of cropmarks of unknown date area also recorded. While these could possibly date to any period they may be of later prehistoric date, based on their form. These include an enclosure or settlement north-east of Woodhouse Farm (9063), an enclosure identified from an aerial photograph of the south of the study area (5838), a circular enclosure and ploughed out mound south of Shadow Brook Lane, Hampton in Arden (5661), a possible rectangular cropmark north of Bickenhill Lane, Hampton in Arden (5419), and a circular feature at Hampton in Arden (5409). A set of earthworks and possible lynchet has been noted at Henwood Hall Farm (5725) and two mounds are recorded off Jacobean Lane (5657). The exact nature and date of these features are unknown. There are also records of the line of a potential field boundary (5669), an ambiguous feature on the first edition OS map (5753), and a cropmark (5827), all noted on the HER. The function of the majority of the features visible as cropmarks or noted from historic mapping is unknown.

**Aerial photographs**

7.6.41 Aerial photographs held by the HER and Historic Environment Scotland [REF 7-17] were examined as part of the desk studies.

7.6.42 Archaeological features identified on the photographic collection held by the HER have already been recorded on the HER, and this data forms part of the assessment. No new features were identified as part of the examination.

7.6.43 Many of the features visible on the aerial photographs held by Historic Environment Scotland [REF 7-17] listed in **Table 7.4** are also recorded on the HER. They are mainly medieval in date, often consisting of ridge and furrow or other earthworks. Features associated with the local infrastructure, such as the West Coast Main Line and Birmingham Airport, are also visible. Some of the assets identified have been disturbed by later construction works.

7.6.44 The Iron Age site found during the development of the Damson Parkway site in Solihull [REF 7-19] was not visible in the aerial photographs taken of the site prior to evaluation. This indicates that the geology of the area may result in assets not being visible, rather than there being an absence of archaeological deposits in the area.

**Table 7.4: Historic Environment Scotland aerial photography**

Sortie	Frame	Description of feature noted	Associated record
JAS/0038/73	0116	Ridge and furrow.	8585
AF/89/0089	0872	Trackway.	10829
JAS/0038/73	0008	Ridge and furrow. Changes in field boundaries since 1973 noted.	10926
AF/89/0090	0766	Holloway south of Cottage Farm.	5727
AF/89/0090	0652	Lynchets possibly visible on images from 1989.	5660
AF/89/0090	0757	Enclosure/settlement of unknown date identified through cropmarks noted on images from 1989.	9063
AF/89/0090	0757	Undefined 'site' described on the HER as a triangular feature identified by cropmarks with other surrounding features depicting a differently aligned field system. Elements noted on photograph.	9062
AF/89/0090	0653	The line of a medieval moat faintly visible in photos from 1989.	10493
AF/89/0090	0653	A circular feature visible on aerial photograph.	5661
AF/89/0090	0759	Lynchet or Holloway.	5663
AF/89/0090	0759	Pit or quarry.	5664
AF/89/0090	0759	Pits of a possible quarry.	5665
AF/89/0090	0759	Circular features.	5409
JAS/0038/73	003	Site of Bickenhill Medieval Manor and settlement.	6198
AF/89/0090	0652	Ridge and furrow visible as faint crop marks on aerial photograph.	5787
AF/89/0090	0652	Ridge and furrow visible.	5798
JAS/0038/73	0137	Ridge and furrow.	5802
AF/89/0090	0758	Parson's Piece Field.	MS11842
AF/89/0089	0871	London and Birmingham Main Line Railway.	1363576
AF/89/0089	0873	Derby and Birmingham Junction Railway.	1366099
JAS/0038/73	0015	Birmingham Elmdon Airport (now Birmingham Airport).	1395007
AF/89/0090	0769	Ridge and furrow.	0585
JAS/0038/73	0007	Ridge and furrow.	0587
AF/89/0090	0768	Ridge and furrow faintly visible in 1989 aligned north south.	8588
AF/89/0090	0768	Ridge and furrow.	8586
AF/89/0090	0651	Ridge and furrow.	9060
AF/89/0090	0652	Ridge and furrow.	5792, 5803 & 5804

Sortie	Frame	Description of feature noted	Associated record
JAS/0038/73	0056	Cropmark or soilmark noted on 1973 photographs. Field boundary changes since that date.	New
JAS/0038/73	0086	Cropmark or soilmark. Possibly old field boundary shown 1973 and 1989.	New
JAS/0038/73	0035	Marks of an unknown feature visible at the bottom left of photograph from 1973 only.	New

### Ground investigation archaeological monitoring

- 7.6.45 Between 26 January and 8 May 2018, 31 ground investigation test pits were excavated under archaeological supervision. The test pits were between 3m and 5m long, and 0.40m and 4.5m deep at targeted locations where land access was obtained.
- 7.6.46 Subsoil was present in 26 of the test pits and one, pit 702, was found to be in an area of thick made ground that was not breached during the excavation.
- 7.6.47 Of the 31 test pits, seven contained one or more modern land drains, six of which were less than 1m below the surface. A further three, pits 700, 701 and 702, were found to contain made ground which was between 0.77m and 2.2m thick and was considered to relate to the construction of the M42.
- 7.6.48 No features of archaeological significance were identified during the ground investigations.
- 7.6.49 The Ground Investigation Archaeological Monitoring Report is contained in Appendix 7.2 [TR010027/APP/6.3].

### Geophysical survey

- 7.6.50 An archaeological geophysical survey was undertaken by Phase Site Investigations in March and May 2018, the purpose of which was to help establish the presence/absence, extent, character, relationships and date (as far as circumstances and the inherent limitations of the technique permits) of archaeological features that could be affected by the Scheme.
- 7.6.51 The results of the survey suggest that there has been a great deal of modern disturbance from tipped material and made ground. There is also evidence for general rubble and ferrous debris mixed within the topsoil which makes identification of possible weaker anomalies more difficult. The geophysical survey revealed evidence for linear and curvilinear features of uncertain origin in some areas. These have been interpreted as evidence of infilled features though major patterns or relationships could not be determined.

- 7.6.52 Agricultural responses suggest that the local soils have a relatively low magnetic susceptibility with the result that infilled features only produce weak or not measureable anomalies. The survey produced a lack of responses suggestive of archaeological activity. Potentially this could be due to the nature of the local conditions with more archaeological features present than have been identified. It is not certain, therefore, if the absence of anomalies related to definite archaeological features/activity is due to a lack of such features/activity or an inability to detect them.
- 7.6.53 The details of the techniques used in the geophysical surveys, the results and the interpretation of the findings are presented in the Geophysical Survey Report within Appendix 7.3 [TR010027/APP/6.3].

#### Archaeological potential

- 7.6.54 Given the number of archaeological assets recorded within the 500m study area, potential exists for previously unrecorded buried archaeology to be present.
- 7.6.55 **Table 7.5** summarises the current visibility of archaeological sites within the 500m study area, with the potential likelihood of discovery examined below.

**Table 7.5: Predictability of sites**

Period	Visibility	Presence	Likelihood of further discovery
Prehistoric	Limited – revealed by field investigation, aerial photographs and artefacts.	Present - limited	Medium
Roman	Limited – evidence through find spots	Present - limited	Medium
Early medieval	Limited – revealed by documentary evidence and field investigation.	Present - limited	Low
Medieval	Moderate – generally revealed by aerial photography and field investigation, but also documentary evidence and some remains.	Present - frequent	Low
Post-medieval	Moderate – some remains are still present and there is fair cartographic coverage.	Present – frequent	Low

#### *Prehistoric and Roman*

- 7.6.56 There are 14 assets of prehistoric date recorded in the 500m study area. While the majority of these are find spots, there is some occupation evidence of Neolithic date. The number of artefacts located in the area indicates that human activity was taking place in the area during all periods from the Mesolithic onwards. The trackway of Iron Age date (1376) indicates that the area was being traversed, if not definitely settled. It is considered likely that further remains could be located.
- 7.6.57 While only finds of Roman date have been recorded, settlement activity has been located just outside of the 500m study area at Damson Parkway. This, coupled with the Scheme being located close to two Roman roads, indicates that further activity is likely to be found in this area.
- 7.6.58 Based on this evidence, the potential for the discovery of previously unrecorded prehistoric and Roman sites is considered to be medium.

*Early medieval, medieval and post-medieval*

- 7.6.59 There are three recorded sites of early medieval date within the 500m study area. This includes settlement activity at Bickenhill (10503). Other settlement sites are recorded in the Domesday Book. Therefore, it is considered unlikely that further settlement activity of early medieval date would be found, although associated activity, such as agriculture, cannot be discounted.
- 7.6.60 There are a large number of assets of medieval date recorded, including two scheduled and three known or potential moated sites as well as settlements, evidence of agriculture, and pits related to industrial activity.
- 7.6.61 The post-medieval period is well documented with recorded archaeological sites. Map coverage documents the changes to the area during this period, with many of the settlements and transport routes still present.
- 7.6.62 Based on this evidence, the potential of discovering early medieval, medieval and post-medieval remains is considered to be low.

**Historic buildings**

*Hampton in Arden Conservation Area*

- 7.6.63 Hampton in Arden was established by the Domesday Survey in 1086, recorded as Hartene and as having a church and a mill. The historic core of the village of Hampton in Arden, which largely comprises the village area west of the Rugby to London Railway Line, is covered by the Hampton in Arden Conservation Area which was designated by Warwickshire County Council in 1969.
- 7.6.64 The conservation area covers the medieval core, historic high street and several back lanes. The character of the conservation area is defined by the narrow and curving medieval street plan, which contrasts to the more planned 19<sup>th</sup> Century streets. The contrast is also apparent in surviving historic buildings, which primarily comprise 17<sup>th</sup> Century vernacular buildings and 19<sup>th</sup> Century buildings of the picturesque vernacular style. The architect William Eden Nesfield had a significant influence on the character of the village during the 19<sup>th</sup> Century. His commissions in the picturesque vernacular style continue to inform the character of the village in the present day and are a substantial contribution to the significance of the conservation area.
- 7.6.65 Views from within the conservation area are largely inward looking, with some views towards open agricultural land to the south-west from the south of the area. Despite proximity to the M42 motorway to the west, and to Birmingham Airport, the conservation area remains rural in character and the historically isolated rural setting is tangible. Open green space, particularly of that concentrated around the church yard, as well as a high density of mature trees which punctuate the streetscape of the conservation area act to reinforce the historically rural character of the village. Equally a diversity of both pavement edge properties and front yards enhance the sense of an organically developed settlement.

- 7.6.66 The Grade I listed parish church of St Mary and St Bartholomew (NHLE 1055777) was established in the 12<sup>th</sup> Century, with successive phases dated to the 13<sup>th</sup> to 16<sup>th</sup> Centuries. The church is set within a churchyard (which also contains the Grade II listed Churchyard Cross (NHLE 1017815), on an area of higher ground overlooking the village to the south and east. The setting of the church comprises the wider village, being designed to be a prominent feature of the landscape. Mature vegetation and the undulating topography of the village limit to some extent the visibility of the church and its tower from the north and east.
- 7.6.67 Other surviving historic buildings within the village represent the development of the settlement from the post-medieval period. Notable is the first of two Grade II\* listed buildings in Hampton in Arden, the Moat House (NHLE 1057655): a large timber framed house dated to the 16<sup>th</sup> Century, with a later red brick phase of the 17<sup>th</sup> Century.
- 7.6.68 The Grade II listed Church Farmhouse (NHLE 1076769) is dated to the 17<sup>th</sup> Century and reflects the vernacular architectural style of the region. The farmhouse is constructed of red brick, with timber framed gables, and a tiled roof. Also dated to the 17<sup>th</sup> Century is the Grade II listed White Lion Public House (NHLE 1055786) of timber frame construction with white washed plaster render, and Yew Tree Cottage (NHLE 1342866) constructed of timber framing with noggin and gabled dormers. A single non-designated building in the village dates to the 17<sup>th</sup> Century and comprises Adkin Cottage (18/309), a timber framed and white washed cottage. 77 and 79 High Street (NHLE 1055732) comprises an early timber framed structure with noggin, though with considerable alterations dated to the 19<sup>th</sup> Century.
- 7.6.69 Dated to the 18<sup>th</sup> Century is the Grade II listed Beech House (NHLE 1055774), located east of the High Street, constructed of red brick with tiled roof. Dated to later in the century is the Grade II listed 22-30 High Street (NHLE 1076762), a row of red brick cottages with a tiled roof.
- 7.6.70 After the death of the local businessman George Fentham in 1698, son of the parish vicar, an annual sum was bequeathed to the village to aid the less prosperous in Hampton in Arden. The Grade II listed George Fentham School (NHLE 1076761), built in 1782 of red brick with tiled roof, owes its construction to this fund and is evidence of philanthropy in the village. As does the Fentham Library (NHLE 1055820; Grade II listed) built in the early 19<sup>th</sup> Century, both of which are designated primarily for their historic interest. The Fentham Club (NHLE 1342829; Grade II listed) is of a similar date and comprises a neo-classical building, with stuccoed facades, with a later non-designated phase constructed of red brick with ashlar dressings built in 1913.

- 7.6.71 The Lodge (Grade II listed NHLE 1076765) was constructed in approximately 1870 to the east of Hampton Manor on the High Street, constructed of red brick and ashlar dressings with a tile clad jetty. The Lodge and the neighbouring contemporary Manor Cottage (Grade II listed NHLE 1055725) are of similar design and both constructed in a picturesque vernacular style by W. E. Nesfield. W. E. Nesfield is also responsible for the design of the Grade II listed 32-42 High Street (NHLE 1076763) built 1868 and 69-75 High Street (NHLE 1342868) built in approximately 1870, in picturesque vernacular styles in common with the Lodge and Manor Cottage.
- 7.6.72 The second Grade II\* listed building in Hampton in Arden is the Clock Tower attached to Hampton Manor (NHLE 1261972), of ashlar construction with an octagonal roof and lantern in a Tudor revival style, built in 1872 by W. E. Nesfield. The clock tower is associated with additions which were made to the Grade II listed Hampton Manor (NHLE 1055754) from 1871-3. Hampton Manor was built in 1855 in the Tudor revival style by the Derby architect Mr Giles, of ashlar construction with crenelated parapets. Mid-19<sup>th</sup> Century garden terraces, walls and steps (NHLE 1342867) at the house are separately Grade II listed. The boundary of the conservation area was extended to the west in 1995 to capture the historic boundary of the park and pleasure grounds of Hampton Manor. The old manor house had been built in the 17<sup>th</sup> Century, and no parkland or pleasure grounds are recorded in enclosure mapping dated to 1843, being first recorded in OS mapping of 1887. The development of parkland and pleasure grounds is therefore most likely associated with the construction of the extant house in 1855, or to alterations to the house in 1872 undertaken by W.E. Nesfield. Historic boundaries and a number of groups of trees are well preserved in the former parkland, despite being presently used as pastoral land. The parkland follows a former vista created from the west of Hampton Manor, directed out towards the rural landscape away from the village to the west. The construction of the M42 motorway from 1976 resulted in new screen planting within the former pleasure grounds, dividing them off from the wider parkland. Despite the dislocation of the manor from the former parklands, the grounds continue to form part of the setting of the Manor, and positively contribute to the ability to understand its significance. The architectural interest which is derived from the relationship between the manor and its parkland also positively contributes to the significance of the conservation area, reflecting the idealised rural setting of the village and the influence of the manor on the village.
- 7.6.73 The special interest of the Hampton in Arden Conservation Area is enhanced by the non-designated historic buildings which lie within it, and which reflect its 18<sup>th</sup> to early 20<sup>th</sup> Century residential expansion. Although these lie outside the 500m study area, they have been considered within the assessment due to their contribution to the significance of the conservation area as a heritage asset.
- Bickenhill Conservation Area*
- 7.6.74 The village of Bickenhill is of early-medieval origins, and the manor is known to have been held by Alward during the reign of Edward the Confessor.

- 7.6.75 The historic core of the village is contained within the Bickenhill Conservation Area. The village is located on flat ground and, although located adjacent to the busy B4438 Catherine-de-Barnes Lane (Catherine-de-Barnes Lane), the village retains its historic agricultural character with a good survival of historic buildings of a vernacular character. These are located on an irregular arrangement of winding lanes. Surviving vernacular buildings in the village are of historic and architectural interest, and their character and appearance contribute positively to the significance of the conservation area.
- 7.6.76 The village is largely well screened by mature vegetation; however, the wider landscape is evident, particularly the proximity of Birmingham Airport where air traffic significantly detracts from the historic character of the village. Noise from the nearby road connections, including the M42 motorway and A45 Coventry road (A45) are less intrusive, but still detract from the sense of place. Despite this, the historic agricultural setting of the village remains tangible when approaching the village from St Peter's Lane and Church Lane.
- 7.6.77 The historical development of Bickenhill is represented in a number of surviving historic buildings; these comprise two listed buildings and nine non-designated structures. Most notable is the Grade I listed Church of St Peter (NHLE 1343224), constructed in the 12<sup>th</sup> Century with later phases dates to the 14<sup>th</sup>, 15<sup>th</sup> and 17<sup>th</sup> Centuries. The setting of the church comprises the village of Bickenhill and the wider surrounding countryside. Views towards the church from within the village are limited due to the enclosed nature of the settlement, due to the prevalence of narrow lanes bounded by mature vegetation. Views towards the church are largely made from outside of the village, for example from the B4438 in the north of the conservation area, which contribute positively towards the asset's significance.
- 7.6.78 The second listed building comprises Grange Farmhouse (NHLE 1075949), largely dating to the 19<sup>th</sup> Century with a potentially earlier structure contained within the fabric of the colour washed render farmhouse. Grange Farmhouse's South Barn (10539), a 17<sup>th</sup> Century timber framed barn with whitewashed noggin, is amongst non-designated assets in the conservation area.
- 7.6.79 Non-designated heritage assets reveal the historical development of the village from the 16<sup>th</sup> Century, and comprise agricultural and domestic buildings in the vernacular style. Glebe Farmhouse (1894; 10542) on St Peter's Lane originates in the 16<sup>th</sup> or 17<sup>th</sup> Century, and comprises a timber framed farmhouse encased in 19<sup>th</sup> Century brick. Also dating to the 17<sup>th</sup> Century is the Croft (10534) on St Peter's Lane, comprising a timber framed farmhouse extensively refaced in red brick. On Church Lane are three non-designated 19<sup>th</sup> Century farm buildings of red brick construction; these include Yew Tree Farmhouse (1889), Church Farmhouse (10532) and a Barn (10538) at Church Farm. Located on Coventry Road, the Barn of Pasture Farmhouse is similarly of 19<sup>th</sup> Century date and constructed of red brick (1891). Rose Bank (10540), on St Peter's Lane, is dated to the late 18<sup>th</sup> or early 19<sup>th</sup> Century and comprises a colour-washed pebble-dashed house with modern box dormers.

- 7.6.80 Hazel Cottage and The Old School House (10541) on St Peters Lane is of 19<sup>th</sup> Century date and is atypical of the vernacular character of the buildings within the conservation area. Constructed of brick and stuccoed, the cottage is constructed in a Tudor revival style with chamfered reveal window architraves and ornate stacks. Harpsford (10543) comprises a 19<sup>th</sup> Century dwelling, converted from a former stable. The vicarage (10533) is also dated to the 19<sup>th</sup> Century and is of a more polite style atypical of the vernacular tradition.

*Assets beyond the conservation areas*

- 7.6.81 Approximately 1km west of Bickenhill is located Castle Hills Farmhouse (NHLE 1075950), built from the 17<sup>th</sup> Century. The earliest phase is of timber frame and noggin, with flanking later wings rebuilt in red brick. The structure is screened from the scheme in the east by associated farm buildings and mature vegetation.
- 7.6.82 In the north of the study area, adjacent to the busy A452, is the Grade II\* listed (NHLE 1367098) Park Farmhouse. The farmhouse is dated to the late 18<sup>th</sup> or early 19<sup>th</sup> Century, and is constructed in a gothic style with stuccoed facades. Of note are crowstepped gables, crenelated parapets and a crenelated porch. The farmhouse is enclosed to the west by existing farm buildings which contribute to its significance as a farm complex. Associated agricultural land similarly contributes to the ability to understand the significance of the asset.
- 7.6.83 South of the A45 is located the Grade II listed Pasture Farmhouse (NHLE 1343225), dated to 1666 and incorporating an earlier structure. The farmhouse is constructed of timber frame with noggin, and includes a central porch wing. The farmhouse is well screened scheme by associated farm buildings to the west and the built area east of the M42 motorway. The setting of the asset comprises associated farm buildings and surrounding agricultural land.
- 7.6.84 A further seven listed buildings have been identified in the village of Eastcote, located in the south-east of the study area. All six listed buildings are dated to the 17<sup>th</sup> Century and earlier, most noteworthy of which is the Grade II\* listed Eastcote Hall (NHLE 1393163) located on the western periphery of the village. The house is dated to the 15<sup>th</sup> Century, and includes the remains of a two bay hall. The building is constructed of close set timber framing with whitewashed plaster infill, with ornate 16<sup>th</sup> Century red brick stacks. A pebble-dashed dovecote at Eastcote Hall (NHLE 1045901) is separately listed Grade II, as group value with the hall. The Grade II listed Eastcote House (NHLE 1343230) is located inside the historic core of the settlement, and is dated to 1669 constructed of red brick in a polite style with a tiled hipped roof, ground storey pedimented window heads and pilasters. Opposite Eastcote House of Barston lane is Eastcote Manor (NHLE 1253299), built late in the 16<sup>th</sup> Century and constructed of close set timber frame with white washed plaster infill. Neighbouring Wharley Hall (NHLE 1075967) is dated to 1669 and constructed in a polite style of red brick with a hipped tiled roof and pilasters. A 17<sup>th</sup> Century barn (NHLE 1370065), associated with Wharley Hall, constructed of timber frame and noggin is separately listed Grade II reflecting value as an individual asset as well as group value with the hall. These assets recursively contribute to each other's significance, giving insight to the historically agricultural base of wealthy local estates.

- 7.6.85 Approximately 550m to the east of Catherine-de-Barnes is the Grade II\* listed Walford Hall Farmhouse (NHLE 1342830, 186), a 15<sup>th</sup> Century hall house modified in the 16<sup>th</sup> Century by the insertion of a first floor. The farmhouse is constructed of timber frame and noggin, on stone foundations, with partial re-facing in red brick. The farmhouse is located amongst a group of historic and modern farm buildings, and is partially screened towards the north and east by mature vegetation.
- 7.6.86 Opposite Walford Hall Farmhouse, north of B4102 Solihull Road (Solihull Road), is the non-designated Hampton Lane Farmhouse (4172). The farmhouse mostly comprises 18<sup>th</sup> Century brickwork, with some earlier framing. The building's significance is derived from its historic interest as a demonstration of historic rural building techniques over time. The rural setting of the asset also contributes to the ability to understand this significance; however this is subject to extensive existing impacts from Solihull Road and the M42 motorway to the east.
- 7.6.87 Further to the west is the Grade II\* listed Bogay Hall. Built c.1500 with later additions dated from its stacks as of 1883, the house is constructed of close set timber frame with whitewashed plaster infill. Of note are ornate Tudor style stacks.
- 7.6.88 Approximately 850m west of the scheme area is the Grade II\* listed Ravenshaw Hall (NHLE 1203384). Built in the late 15<sup>th</sup> or 16<sup>th</sup> Century the large house is of timber framed and red brick construction with prominent gables and ridge height stacks. The setting of the asset comprises surrounding woodland and the River Blythe and lake to the west of the asset; this setting contributes to the significance of the asset. The Grade II listed barn at Ravenshaw Hall (NHLE 1076729), also of red brick and timber framed construction with a similar date, is located immediately east of the hall, and forms part of the setting of the Hall.
- 7.6.89 Henwood Hall Farmhouse (NHLE 1045893), located c.280m south-east of the scheme area was rebuilt in 1824, is constructed of red brick with later cement lintels and keystones. The house's setting comprises surrounding associated farmland which contributes to the ability to understand the significance. This setting is curtailed in the west by the wooded boundary of the M42 road. A brewhouse and outbuildings (6339) immediately north-east of the farm are also recognised as a non-designated heritage asset and contributes to the setting and significance of the farmhouse.
- 7.6.90 Grove Farmhouse (NHLE 1076722), located c.740m south of the scheme area, comprises a large stuccoed 17<sup>th</sup> Century farmhouse with 19<sup>th</sup> Century alterations. The setting of the asset comprises the walled garden in which it is located and adjacent farmland. Views towards the M42 are limited, although existing lighting presents some impact.
- 7.6.91 Located to the east of Grove Farmhouse at the boundary of the 1 kilometre study area is Grange Cottage (NHLE 1203297), a 17<sup>th</sup> Century timber frame house, with whitewashed brick noggin. The setting comprises gardens which surround the house, as well as agricultural land to the north. Modern development in Copt Heath is located immediately to the south, however this not contribute to the setting and significance of the asset.

- 7.6.92 The non-designated Warwick and Birmingham Canal travels for 35km from the Digbeth Branch of the Birmingham and Fazeley Canal to Warwick. It was completed in 1800 and passes inside of the study area in the south-west. The study area however saw little impact from industrialisation, which had been of such significance in nearby urban centres from the late 18<sup>th</sup> Century to 20<sup>th</sup> Century. In close proximity to the canal is the Grade II listed Henwood Mill (NHLE 1045849), the only industrial building in the 1km study area and preceding the construction of the canal. Built in the 18<sup>th</sup> Century, and altered in the 19<sup>th</sup> Century, the mill is constructed of red brick with a weatherboarded lucam over mill doors. A waterwheel and pond survive. The mill is located in an area enclosed by mature vegetation, and views beyond its immediate stream-side setting are limited.
- 7.6.93 A number of non-designated assets have been identified which relate to the historically rural character of the post-medieval landscape. These include Heath Farm (5759), Home Farm (5760), a barn (5762) east of Bickenhill, Hurdle Hall farm (10510), and a 16<sup>th</sup>/17<sup>th</sup> Century timber framed cottage recorded as 'Building, Middle Bickenhill Lane'.
- 7.6.94 No registered parks and gardens, or non-designated parks and gardens are located within the 1km study area.

#### **Historic landscape**

- 7.6.95 The area has remained rural in character, despite the encroachment of Birmingham Airport to the north and the M42 motorway running to the east. The Grade II\* registered park and garden, Packington Hall, is located approximately 1.5km to the north-east of the Scheme. There are 189 entries on the record of Historic Land Use Characterisation within the 500m study area. Many of these character areas relate to the land around the Birmingham NEC and Birmingham Airport. The areas along the Scheme are largely agricultural in nature.
- 7.6.96 The majority of the records relate to the over-riding rural nature of the study area, describing fields, many of which have medieval origins, with irregular or 'S' shaped boundaries and of varying size from 'small' to 'very large'. Some of the fields bear the hallmarks of enclosure. At least two record the historic core of Bickenhill and Middle Bickenhill and others relate to Hampton in Arden.
- 7.6.97 Two areas of replanted ancient woodland are recorded: Barber's Coppice and Aspbury's Copse. In addition two of the farmsteads with historic origins are listed; Hampton Land Farm has potential for 17<sup>th</sup> Century origins, and Walford Hall Farm has medieval origins and is the site of a moated settlement. These have been discussed in detail in the historic buildings section.

## **7.7 Potential impacts**

- 7.7.1 The process of scoping identified that the introduction and/or modification of road infrastructure associated with the Scheme would potentially result in different types and durations of impact on cultural heritage, during both the construction and operational phases.

## Construction

- 7.7.2 Temporary construction impacts that would last for all or part of the construction phase are likely to include the following:
- a. the presence and movement of construction plant and equipment, which may impact on the setting of heritage assets;
  - b. the siting of construction compounds and activities within working areas, including associated construction noise and lighting, which may impact on the setting of heritage assets; and
  - c. the use of traffic management and increased volumes of traffic on the local road network, which may impact on the setting of heritage assets.
  - d. permanent construction impacts that would last beyond the construction phase are likely to include the following:
  - e. physical impacts on known archaeological assets arising from construction activities such as earthworks excavation, the formation of construction compounds and the installation of drainage infrastructure;
  - f. the truncation of conservation areas, and the introduction of new road infrastructure into proximity of conservation areas;
  - g. physical impacts on historic landscapes associated with the loss of key landscape components as a consequence of construction, such as those resulting from site clearance activities;
  - h. the disturbance, compaction or removal of undiscovered sub-surface archaeological deposits through construction activities; and
  - i. impacts on built heritage assets and the historic landscape associated with the introduction of the physical form and appearance of the Scheme in their setting.

## Operation

- 7.7.3 Operational impacts of the Scheme are likely to include the following:
- a. changes to traffic movements (and associated vehicle lighting), which could affect the setting of built heritage assets;
  - b. changes in road noise from vehicle movements, which may affect the setting of built heritage assets; and
  - c. the operation of road lighting at junctions and on junction approaches, which may affect the setting of heritage assets.

## 7.8 Design, mitigation and enhancement measures

- 7.8.1 The Scheme has been designed, as far as possible, to avoid and minimise impacts and effects on cultural heritage through the process of design-development (see Chapter 4 Scheme history and alternatives), and by embedding measures into the design of the Scheme.

7.8.2 A number of standard measures have been identified, which would be implemented by the contractor to reduce the impacts and effects that construction of the Scheme would have on cultural heritage receptors.

7.8.3 No compensation or enhancement measures have been identified as being required.

#### **Embedded mitigation measures**

7.8.4 The alignment and permanent landtake requirements of the mainline link road have been developed to minimise the extent of truncation of the Bickenhill Conservation Area.

7.8.5 The mainline link road has been designed to position the majority of its length within an earthwork cutting, the objective being to visually contain much the new carriageway and traffic movements from existing views available from within the western fringes of Bickenhill Conservation Area, and to contain traffic-sourced noise which can also influence the setting of the area.

7.8.6 Lighting of new and improved sections of road within the Scheme has been confined to locations where road safety is a priority, in order to reduce the potential for light spill to intrude into the setting of heritage assets.

#### **Standard mitigation measures**

7.8.7 The Outline Environmental Management Plan [TR010027/APP/6.11] details the measures that would be undertaken prior to, and during construction of, the Scheme to mitigate effects on cultural heritage.

7.8.8 In relation to mitigation of impacts on buried archaeological remains, the scope of mitigation required to record and evaluate currently unknown archaeological assets shall be established on the basis of the results of the archaeological evaluation trenching described in Section 7.4.

7.8.9 An appropriate methodology shall be identified for this mitigation, which may take the form of, but not be limited to: the recording of landscape features; strip, map and record; open area excavation; watching briefs (involving the monitoring of construction works); and palaeoenvironmental sampling. This shall be recorded in a WSI, with any requirement for archaeological fieldwork and recording being proportionate to the level of impact and the value of archaeological assets affected.

7.8.10 Delivery of the mitigation strategy within the WSI would be within the Scheme's Order Limits and would be secured through the requirements incorporated into the DCO.

7.8.11 Other measures that would be implemented during construction would relate to:

- a. raising the awareness of construction workers and operatives to any control and reporting procedures to be followed, should archaeological deposits be encountered during the works, for example through toolbox talks and regular briefings;

- b. the protection of built heritage assets and archaeological sites during construction, for example through the demarcation of buffer zones around such interests with fencing and signage; and
- c. the control of light spillage, noise and dust within construction compounds and working areas, for example by adhering to working hours and through good site layout and working practices, to minimise impacts on the setting of built heritage and conservation areas.

## 7.9 Assessment of significant effects

- 7.9.1 The prediction of impacts and the assessment of effects (and their significance) during construction and operation of the Scheme has taken account of the embedded and standard mitigation measures identified within Section 7.8.

### **Construction**

- 7.9.2 The assessment has focused on only reporting the impacts on those heritage assets that have the potential to be affected by the Scheme by virtue of their proximity to the works, or through a shared relationship or setting.

### *Archaeology*

- 7.9.3 The assessment has identified that construction would have adverse impacts on the following archaeological assets:

- a. a post-medieval farmhouse and rabbit warren visible as earthworks (5668);
- b. the remains of Gorsey Lane trackway preserved by field boundaries and a farm track (10827);
- c. industrial pits of post-medieval date (5758);
- d. four areas of medieval ridge and furrow (5797; 5804; 10926; 10975);
- e. an undated enclosure (5797);
- f. a linear ditch of uncertain date (10833); and
- g. a trackway with Iron Age origins and use in the medieval period (1376).

- 7.9.4 The earthworks of the post-medieval farmhouse and rabbit warren (5668) have archaeological and historical significance because of the information they contain about the agricultural development and land management of the area. Its setting does not contribute to its significance, other than in relation to its rural location. The site is considered to be of no more than low value. The Scheme would physically affect the western side of this asset, affecting less than a fifth of the feature, resulting in a minor adverse magnitude of impact.

- 7.9.5 Gorse Lane (10827) is a post-medieval to modern dated old road with no visible remains. Its archaeological and historic significance lies in its ability to provide information on the connections between places in this landscape. It is considered to be of no more than negligible value. Any buried remains relating to this asset, particularly along the western third of the trackway, would be physically impacted by the Scheme, although the survival of any remains below the existing road surface is uncertain. Although totally contained within the Scheme's Order Limits, it would not result in total loss of the asset and therefore it would result in a magnitude of impact of moderate adverse.
- 7.9.6 The site of an industrial pit of post-medieval to modern date lies adjacent to the M42 motorway (5758). It has some limited historic significance related to the information it provides regarding local industrial processes. It is of no more than negligible value. The Scheme would run very close to or over this asset, with construction resulting in a physical impact on any existing buried remains. A magnitude of impact of moderate adverse would result.
- 7.9.7 The undated enclosure (5797) has been identified from analysis of aerial photographs. This asset has archaeological and historical significance as it can provide information regarding the medieval agricultural process and land management of the area. However, its value is considered to be no more than negligible. The Scheme would have a physical effect on this asset, resulting in a magnitude of impact of moderate adverse.
- 7.9.8 A linear ditch of unknown date runs parallel to the motorway, along with an undated enclosure in the northern corner of the field (10833). The former is speculated to date between the Neolithic and post-medieval periods. The archaeological and historic value of this asset lies in its ability to inform about movement through the landscape and land use over time. As a feature of unknown date, its value is considered to be negligible. The route of the Scheme clips the eastern side of this asset. This results in a magnitude of impact of minor adverse.
- 7.9.9 A trackway with origins in the Iron Age and use during the medieval period runs east-west across the Scheme (1376). Solihull Road follows the alignment of this asset. It holds archaeological and historic significance in its ability to inform on movement across the landscape over time. It is considered to be of low value. The Scheme intersects the line of this trackway in two places. This results in a magnitude of impact of moderate adverse.
- 7.9.10 The four areas of medieval ridge and furrow (5797; 5804; 10926; 10975) have archaeological and historical significance as they can provide information regarding the medieval agricultural process and land management of the area. Their value is considered to be no more than negligible. The Scheme would have a physical effect on these areas, resulting in a magnitude of impact of minor adverse.

7.9.11 The assessment has identified that there is a high potential for archaeological deposits to be present within the Scheme’s Order Limits, particularly dating from the prehistoric and Roman periods. At this stage, the location and nature of any such archaeological deposits is unknown and their archaeological significance and value cannot be determined accurately. However, should archaeological deposits be identified, it is likely they would be of medium value as they would contribute to the understanding of the settlement and landscape development of the area, and may contribute to regional research objectives. Depending on the location and nature of construction activity, it is considered that any archaeological deposits within the Scheme’s Order Limits could potentially be physically affected by construction, which accordingly could result in a magnitude of impact of major adverse.

7.9.12 A summary of the predicted impacts and effects on known archaeological assets arising from construction of the Scheme is presented in **Table 7.6** below. The assessment has concluded that all archaeological assets subjected to an adverse impact would experience effects no greater than slight adverse.

**Table 7.6: Summary of construction impacts and effects on known archaeological assets**

Asset ID	Description	Heritage value	Magnitude of impact	Significance of effect
5668	Earthworks of a post-medieval farmhouse and rabbit warren.	Low	Minor adverse	Slight adverse
10827	Gorsey Lane. No visible remains of old road. Post-medieval to modern.	Negligible	Moderate adverse	Slight adverse
5758	Post-medieval to modern industrial pit.	Negligible	Moderate adverse	Slight adverse
5797	Undated enclosure.	Negligible	Moderate adverse	Slight adverse
10833	Linear ditch parallel to motorway, identified by cropmarks, speculated to date between the Neolithic to post-medieval periods. Undated enclosure also visible in north corner of the field.	Negligible	Minor adverse	Slight adverse
1376	Trackway with Iron Age origins and use in the medieval period.	Low	Moderate adverse	Slight adverse
5797	Medieval ridge and furrow.	Negligible	Minor adverse	Slight adverse
5804	Medieval ridge and furrow.	Negligible	Minor adverse	Slight adverse
10926	Medieval ridge and furrow.	Negligible	Minor adverse	Slight adverse
10975	Medieval ridge and furrow.	Negligible	Minor adverse	Slight adverse

7.9.13 In relation to unrecorded archaeological deposits, construction of the Scheme has the potential to result in the permanent removal or truncation of previously unrecorded remains within the Scheme’s Order Limits. In the absence of the findings of the planned archaeological evaluation trenching, the assessment has assumed that unrecorded archaeological deposits would have a heritage value of no greater than medium, based on the evidence presented within **Table 7.5**. As total asset removal could occur, a magnitude of impact of major adverse applies, resulting in a large adverse significance of effect.

7.9.14 Although this represents a worst case effect on unrecorded archaeological deposits the significance of this effect shall be re-evaluated upon completion of the archaeological evaluation trenching described in Section 7.4.

*Historic buildings*

- 7.9.15 The assessment has identified that Scheme construction would have adverse impacts on the following historic building assets:
- four listed buildings;
  - two conservation areas (Hampton in Arden and Bickenhill); and
  - ten non-designated buildings.
- 7.9.16 Assets that would not be impacted by the Scheme have not been considered further within the assessment.
- 7.9.17 Construction of M42 Junction 5A would result in increased visual intrusion to views from the west of Hampton in Arden Conservation Area, attributed to the junction being elevated above the existing level of the M42 motorway and forming a new feature in existing views. This would adversely impact the relationship between the former parkland of Hampton Manor and its rural setting by increasing the visual impact on the parkland, decreasing the ability to understand the significance of the asset and resulting in a magnitude of impact of minor adverse. Similarly, this effect upon the former parklands, which form the setting of the Grade II listed Garden Terrace, Walls and Steps at Hampton Manor would impact upon this listed asset. This would result in a magnitude of impact of minor adverse.
- 7.9.18 Hampton Manor, the setting of which also includes the affected former parklands, would be affected by the increased visual intrusion into its historic setting, resulting in a magnitude of impact of minor adverse.
- 7.9.19 The assessment has concluded that the Grade II\* Clock Tower at Hampton Manor would not be affected by the Scheme, as its significance is derived from its relationship with the Manor and not views towards the M42 motorway.
- 7.9.20 Bickenhill Conservation Area is located immediately east of Catherine-de-Barnes Lane. As the mainline link road would pass through the western edge of the conservation area, an area of the historic approach to the village from the west on St Peters Lane would be removed as a result of its construction. The mainline link road would further cut off the village from its rural setting. These impacts are considered to affect the ability to understand the significance of the conservation area. Taking into account the existing influence exerted by the M42 motorway, the A45 and passing aircraft, the magnitude of impact on this conservation area would be moderate adverse.

- 7.9.21 Located within the Bickenhill Conservation Area, the setting of the Grade I listed Church of St Peter would be impacted by Scheme construction by isolating the village from the wider rural area. Furthermore, the construction of the mainline link road in fields to the north-west of the Church of St Peter would result in an increased visual intrusion to views towards the church from the north. As these views are made from modern roads including Catherine-de-Barnes Lane and the A45, they do not represent key historic views. Accounting for the existing impacts associated with the A45 upon views from the north, a magnitude of impact of minor adverse on the ability to understand the significance of the asset would result.
- 7.9.22 The Grade II listed Grange Farmhouse would experience increased noise and light from traffic associated with Scheme construction. A magnitude of impact of minor adverse on the ability to understand the significance of the asset would result.
- 7.9.23 The non-designated assets located within the Bickenhill Conservation Area, include Glebe Farmhouse, The Croft, Yew Tree Farmhouse, Church Farmhouse, Barn at Church Farm, Rose Bank, Hazel Cottage and The Old School House, the Vicarage and Harpsford, would be subject to the same effects as Bickenhill Conservation Area, which they contribute to the significance of, albeit less directly. This would result in a magnitude of impact of minor adverse.
- 7.9.24 Hampton Lane Farmhouse would be subjected to direct visual and noise impacts to its agricultural setting during construction, due to the proximity of works on Solihull Road directly south of the farmhouse and those associated with construction of the mainline link road some 300m to the north. This would result in a loss of sense of place which is derived from its setting, and therefore a magnitude of impact of moderate adverse applies.
- 7.9.25 A summary of the predicted impacts and effects on historic buildings from the construction of the Scheme is presented in **Table 7.7** below. The assessment has concluded that all historic buildings subjected to an adverse impact during construction would experience effects no greater than moderate adverse.

**Table 7.7: Summary of construction impacts and effects on historic buildings**

Asset ID	Description	Heritage value	Magnitude of impact	Significance of effect
-	Hampton in Arden Conservation Area	Medium	Minor adverse	Slight adverse
NHLE 1342867	Garden Terrace, Walls and Steps at Hampton Manor (Listed Grade II)	Medium	Minor adverse	Slight adverse
NHLE 1055754	Hampton Manor (Listed Grade II)	Medium	Minor adverse	Slight adverse
-	Bickenhill Conservation Area	Medium	Moderate adverse	Moderate adverse
NHLE 1343224	St Peter's Church, Bickenhill (Listed Grade I)	High	Minor adverse	Slight adverse
NHLE 1075949	Grange Farmhouse, Bickenhill (Listed Grade II)	Medium	Minor adverse	Slight adverse
10542	Glebe Farmhouse (Non-designated)	Low	Minor adverse	Neutral
10534	The Croft (Non-designated)	Low	Minor adverse	Neutral

Asset ID	Description	Heritage value	Magnitude of impact	Significance of effect
1889	Yew Tree Farmhouse (Non-designated)	Low	Minor adverse	Neutral
10538	Church Farmhouse (Non-designated)	Low	Minor adverse	Neutral
10538	Barn at Church Farm (Non-designated)	Low	Minor adverse	Neutral
10540	Rose Bank (Non-designated)	Low	Minor adverse	Neutral
10541	Hazel Cottage and The Old School House (Non-designated)	Low	Minor adverse	Neutral
10533	The Vicarage (Non-designated)	Low	Minor adverse	Neutral
10543	Harsford (Non-designated)	Low	Minor adverse	Neutral
4172	Hampton Lane Farmhouse (Non-designated)	Low	Moderate adverse	Slight adverse

### *Historic landscape*

- 7.9.26 The historic landscape is considered to have historic interest and low heritage value as it is a robust fieldscape which, whilst it has its origins in the medieval period, has been subjected to further field sub-division in the 19<sup>th</sup> Century and from the construction of the M42 motorway, the A45, Birmingham Airport and the NEC.
- 7.9.27 The historic landscape would be physically impacted during construction of the Scheme, particularly from the mainline link road, which would require the removal of several historic field boundaries, some of which potentially have medieval origins.
- 7.9.28 Construction would result in the partial loss of this medieval and post-medieval enclosed landscape; however, areas of the wider surrounding landscape to the east and west of the mainline link road would be preserved and this landscape has capacity to absorb change.
- 7.9.29 As the landscape has capacity to absorb change, and only retains limited elements of historic legibility in the form of field boundaries, the magnitude of impact on the historic landscape is considered to be no more than minor adverse.
- 7.9.30 Due to the extent of physical alteration that would occur as a consequence of Scheme construction, the assessment has concluded that this would result in a slight adverse effect on the historic landscape.

### **Operation**

#### *Archaeology*

- 7.9.31 As archaeological assets directly impacted by Scheme construction would have been removed during that phase of work, the assessment has concluded that there would be no physical impacts arising from operation of the Scheme on these assets, and thereby no effects.
- 7.9.32 Similarly, no impacts or effects are predicted in respect of changes to the setting of such assets associated with the presence and operation of lighting, traffic movements or road noise.

*Historic buildings*

- 7.9.33 The operational phase of the Scheme would impact upon the 16 historic buildings and associated assets identified as part of the assessment of construction-related impacts on built heritage.
- 7.9.34 The operation of M42 Junction 5A would result in impacts on the Hampton in Arden Conservation Area; these would be associated with lighting visible in the setting of the conservation area during night-time periods. This would specifically affect the former parklands of Hampton Manor, which are reflected in the boundary of the conservation area. The magnitude of impact is considered to be minor adverse.
- 7.9.35 The impacts upon the former parkland of Hampton Manor would result in an impact upon the setting of the Garden Terrace, Walls and Steps at Hampton Manor. The magnitude of impact is considered to be minor adverse.
- 7.9.36 Impact upon the former parkland within the Hampton in Arden Conservation Area would also result in an impact upon Hampton Manor, as the parkland comprises part of its historic setting. The magnitude of impact is considered to be minor adverse.
- 7.9.37 In relation to the setting of the Bickenhill Conservation Area, the assessment has identified that as the mainline link road would be positioned within an earthwork cutting and be landscaped, operation of the Scheme would not alter the ability to understand its significance (heritage value). Accordingly, a magnitude of impact rating of no change is predicted.
- 7.9.38 Operation of the Scheme would result in increased visual intrusion from road lighting into views towards the Church of St Peter from the north. These views, which are now made from modern roads, are not key historic views and therefore a magnitude of impact of minor adverse would result in relation to the ability to understand the significance of this asset.
- 7.9.39 Grange Farmhouse would experience an erosion of its rural setting due to increased light and noise from traffic from the mainline link road. This would result in a further loss of its sense of place, resulting in a minor adverse magnitude of impact.
- 7.9.40 The non-designated assets located within the Bickenhill Conservation Area, including Glebe Farmhouse, The Croft, Yew Tree Farmhouse, Church Farmhouse, Barn at Church Farm, Rose Bank, Hazel Cottage and The Old School House, the Vicarage and Harpsford, would be subject to comparable effects as the Bickenhill Conservation Area, which they contribute to the significance of, albeit less directly. Operation of the Scheme would result in a minor adverse magnitude of impact on these assets.
- 7.9.41 The non-designated Hampton Lane Farmhouse would be affected by increased light and noise from traffic and from lighting at new junctions. This would result in a degree of perceived severance from the asset's historically rural setting, and a magnitude of impact of moderate adverse.

7.9.42 A summary of predicted impacts and effects on historic buildings from the operation of the Scheme is presented in **Table 7.8** below. The assessment of operational effects has concluded that all historic buildings would be subjected to effects of neutral to slight adverse significance.

**Table 7.8: Summary of operational impacts and effects on historic buildings**

Asset ID	Description	Heritage value	Magnitude of impact	Significance of effect
-	Hampton in Arden Conservation Area	Medium	Minor adverse	Slight adverse
NHLE 1342867	Garden Terrace, Walls and Steps at Hampton Manor	Medium	Minor adverse	Slight adverse
NHLE 1055754	Hampton Manor	Medium	Minor adverse	Slight adverse
4172	Hampton Lane Farmhouse	Low	Moderate adverse	Slight adverse
-	Bickenhill Conservation Area	Medium	No Change	Neutral
NHLE 1343224	St Peter's Church, Bickenhill	High	Minor adverse	Slight adverse
NHLE 1075949	Grange Farmhouse, Bickenhill	Medium	Minor adverse	Slight adverse
10542	Glebe Farmhouse	Low	Minor adverse	Neutral
10534	The Croft	Low	Minor adverse	Neutral
1889	Yew Tree Farmhouse	Low	Minor adverse	Neutral
10538	Church Farmhouse	Low	Minor adverse	Neutral
10538	Barn at Church Farm	Low	Minor adverse	Neutral
10540	Rose Bank	Low	Minor adverse	Neutral
10541	Hazel Cottage and The Old School House	Low	Minor adverse	Neutral
10533	The Vicarage	Low	Minor adverse	Neutral
10543	Harpsford	Low	Minor adverse	Neutral

#### *Historic landscape*

7.9.43 The assessment has identified that impacts on the historic landscape would principally derive from Scheme construction, and therefore any impacts during its operational phase would be limited by the extent to which road noise, operational lighting or traffic movements would influence the character and perception of the historic landscape.

7.9.44 The magnitude of impact from any such changes would be negligible adverse. As there would be no physical alteration of the historic landscape during the operation phase of the Scheme, the assessment has concluded that a neutral effect would result.

## 7.10 Monitoring

7.10.1 The identified significant effects that construction of the Scheme may have on unrecorded archaeological deposits are not considered to require monitoring, as the value and significance of any such assets shall be validated through the process of archaeological evaluation trenching (see Section 7.4) undertaken prior to construction.

7.10.2 The identified significant effects on Bickenhill Conservation Area are also not considered to require monitoring, as these would be associated with the truncation of this designated area and the separation of Bickenhill village from its rural setting. As these construction-related impacts were considered during the design-development process, embedded mitigation measures have been incorporated into the design of the Scheme (see Section 7.8) to minimise the related effects on Bickenhill Conservation Area.

## 7.11 References

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