

# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

## Supplementary Environmental Statement and Additional Provision 2 Environmental Statement

Volume 2 | Community forum area report

CFA23 | Balsall Common and Hampton-in-Arden

July 2015

SES and AP2 ES 3.2.1.23



# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement and  
Additional Provision 2 Environmental Statement

Volume 2 | Community forum area report

CFA23 | Balsall Common and Hampton-in-Arden

July 2015

SES and AP2 ES 3.2.1.23



Department  
for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

A report prepared for High Speed Two (HS2) Limited:

**AECOM**

**ARUP**

**ATKINS**

**CAPITA**



**ineco**



**PARSONS  
BRINCKERHOFF**



High Speed Two (HS2) Limited,  
One Canada Square,  
London  
E14 5AB

Details of how to obtain further copies are available from HS2 Ltd.

Telephone: 020 7944 4908

General email enquiries: [HS2enquiries@hs2.org.uk](mailto:HS2enquiries@hs2.org.uk)

Website: [www.gov.uk/hs2](http://www.gov.uk/hs2)

Copyright © High Speed Two (HS2) Limited, 2015, except where otherwise stated.

High Speed Two (HS2) Limited has actively considered the needs of blind and partially sighted people in accessing this document. The text will be made available in full via the HS2 website. The text may be freely downloaded and translated by individuals or organisations for conversion into other accessible formats. If you have other needs in this regard please contact High Speed Two (HS2) Limited.



Printed in Great Britain on paper  
containing at least 75% recycled fibre.

# Contents

<b>Structure of the HS2 Supplementary Environmental Statement and Additional Provision 2 Environmental Statement</b>	<b>1</b>
<b>Structure of this report</b>	<b>3</b>
<b>1 Introduction</b>	<b>5</b>
<b>Part 1: Supplementary Environmental Statement</b>	<b>7</b>
<b>2 Summary of changes</b>	<b>7</b>
2.1 New environmental baseline information	7
2.2 Corrections to the main ES	7
2.3 Topics included in the SES assessment	8
<b>3 Assessment of changes</b>	<b>11</b>
3.1 Ecology	11
<b>Part 2: Additional Provision 2 Environmental Statement</b>	<b>15</b>
<b>4 Summary of amendments</b>	<b>15</b>
<b>5 Assessment of amendments</b>	<b>19</b>
5.1 Burton Green area amendments AP2-018-004	19
5.2 Extension to the Kenilworth Greenway (AP2-023-001)	20
5.3 Summary of new or different likely residual significant effects as a result of the amendment	26
5.4 Retention of temporary roundabout at Park Lane/A452 Kenilworth Road (AP2-023-002)	26
5.5 Summary of new or different likely residual significant effects as a result of the amendment	30
5.6 Additional land required at Marlowes woodland (AP2-023-003)	30
5.7 Summary of new or different likely residual significant effects as a result of the amendment	37
5.8 Extension of the River Blythe viaduct (AP2-023-004)	37
5.9 Summary of new or different likely residual significant effects as a result of the amendment	59

5.10	Realignment of Diddington Lane (AP2-023-005)	59
5.11	Summary of new or different likely residual significant effects as a result of the amendment	88
5.12	Agricultural land access across Shadow Brook (AP2-023-006)	88
5.13	Summary of new or different likely residual significant effects as a result of the amendment	91
<b>6</b>	<b>Combined effects of amendments in this CFA due to changes in traffic flows</b>	<b>92</b>
6.1	Introduction	92
6.2	Changes of relevance to this assessment	92
6.3	Traffic and transport	92
6.4	Air quality	96

### List of figures

Figure 1:	Locations of amendments in CFA23	18
-----------	----------------------------------	----

### List of tables

Table 1:	Summary of corrections to the main ES in CFA23	9
Table 2:	Summary of amendments in CFA23	15
Table 3:	Summary of temporary effects on holdings from construction	64
Table 4:	Summary of permanent effects on holdings from construction	64

# Structure of the HS2 Supplementary Environmental Statement and Additional Provision 2 Environmental Statement

The Supplementary Environmental Statement (SES) and Additional Provision 2 Environmental Statement (AP2 ES) comprises:

- non-technical summary (NTS). This provides a summary in non-technical language of the SES (Part 1) and AP2 ES (Part 2) and of any likely significant environmental effects, both beneficial and adverse, which are new or different to those reported in the High Speed Two (HS2) Phase One Environmental Statement (ES) submitted to Parliament in November 2013 in support of the hybrid Bill ('the Bill') for Phase One of HS2 (hereafter referred to as 'the main ES') and, where relevant, the AP ES submitted in September 2014 (hereafter referred to as 'the AP1 ES');
- Volume 1: introduction to the SES and the AP2 ES. This introduces the supplementary environmental information and design changes included within the SES and amendments which have resulted in the need to amend the Bill within the AP2 ES. It also explains any changes to the scope, methodology, assumptions and limitations required for the environmental impact assessment;
- Volume 2: community forum area (CFA) reports and map books. These describe the supplementary environmental information and design changes included within the SES (Part 1), amendments within the AP2 ES (Part 2) and report any new or different likely significant environmental effects arising from these changes in each CFA compared to those reported in the main ES and, where relevant, the AP1 ES. The main local alternatives that have been considered are described, where relevant;
- Volume 3: route-wide effects. This reports new or different likely significant route-wide effects arising from the supplementary environmental information and design changes included within the SES (Part 1) and amendments within the AP2 ES (Part 2) compared to those reported in the main ES and, where relevant, the AP1 ES;
- Volume 4: off-route effects. This reports new or different likely significant off-route effects arising from the amendments within the AP2 ES compared to those reported in the main ES and, where relevant, the AP1 ES;
- Volume 5: appendices and map books. This contains supporting environmental information and associated maps; and

- glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the SES and AP2 ES compared to those included in the main ES and AP1 ES.

# Structure of this report

This volume of the SES and AP2 ES is divided into CFA reports, which are in turn divided into two parts.

Part 1 provides supplementary environmental information relating to:

- new baseline information with respect to European Protected Species surveys undertaken since the submission of the Bill;
- changes to the design or construction assumptions which do not require changes to the Bill; and
- corrections to the main ES.

Part 1 of each CFA report includes, where relevant:

- a description of the changes or updates within the CFA that have triggered the need for reassessment;
- an assessment of the environmental effects of the changes for relevant environmental topics considering the:
  - scope, assumptions and limitations of the SES assessment;
  - changes of relevance to the assessment;
  - environmental baseline;
  - effects arising during construction;
  - effects arising from operation; and
  - mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of the changes.

Part 2 provides environmental assessment information relating to proposed amendments to the design, which have resulted in the need to alter the powers conferred by the Bill. The following is included, where relevant:

- a summary of the proposed amendments within each CFA that have triggered the need for reassessment;
- a description of each amendment;
- an assessment of the environmental effects of each amendment for relevant environmental topics considering the:
  - scope, assumptions and limitations of the AP2 ES assessment;
  - environmental baseline;
  - effects arising during construction;

- effects arising from operation; and
- mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of each proposed amendment.

# 1 Introduction

- 1.1.1 The Bill for High Speed Rail between London and the West Midlands was submitted to Parliament together with the main ES in November 2013. The AP1 ES, which was submitted in September 2014, contained generally minor amendments to the design of the original scheme (i.e. the scheme submitted in November 2013). The Bill and associated Additional Provisions to the Bill, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS2.
- 1.1.2 Since the submission of the main ES and AP1 ES, a number of changes or updates to environmental information and scheme design or assumptions have occurred, which may lead to new or different significant effects. These effects, depending on the type of change, are reported in the SES (Part 1) or AP2 ES (Part 2) of this document.
- 1.1.3 The SES contains updated environmental baseline information and scheme information relating to changes that have occurred within the current limits and powers of the Bill, and therefore do not require an Additional Provision to the Bill. This includes:
- additional environmental baseline information;
  - changes to the design or construction assumptions which do not require changes to the Bill; and
  - corrections contained within the main ES.
- 1.1.4 The AP2 ES reports the likely significant effects of amendments to the design of the scheme, which require the use of land outside the original limits of the Bill, additional access rights, or other extensions to the powers conferred by the Bill, making it necessary to submit an Additional Provision to the Bill.
- 1.1.5 The amendments assessed within AP2 ES include:
- extension to the Kenilworth Greenway;
  - retention of the temporary roundabout at Park Lane/A452 Kenilworth Road;
  - additional land at Marlowes Woodland;
  - extension of the River Blythe viaduct;
  - realignment of Diddington Lane; and
  - agricultural land access across Shadow Brook.
- 1.1.6 The AP2 ES assesses each amendment separately for all relevant topics. The purpose of the AP2 ES is to provide an assessment of any new or different likely significant environmental effects arising from the amendments.
- 1.1.7 The standard measures that will be used to mitigate likely significant adverse environmental effects during construction and operation of the scheme are described in the main ES, Volume 1, Section 9 and the draft Code of Construction Practice (CoCP) submitted in support of the Bill. Implementation of these measures has been assumed in this SES and AP2 ES.

1.1.8 It should be noted that, since submission of the Bill, the scheme design has been revised by SES design changes, amendments described in the AP1 ES (AP1 amendments) and amendments described in the AP2 ES (AP2 amendments).

1.1.9 In order to differentiate between the original proposals and subsequent changes, the following terms are used:

- 'the original scheme' - the Bill scheme submitted to Parliament in November 2013, which was assessed in the main ES;
- 'the AP1 revised scheme' - the original scheme as amended by the AP submitted in September 2014;
- 'the SES scheme' - the original scheme with the design changes described in the SES; and
- 'the AP2 revised scheme' - the original scheme as amended by the SES scheme and AP2.

# Part 1: Supplementary Environmental Statement

## 2 Summary of changes

### 2.1 New environmental baseline information

#### Ecology

- 2.1.1 Extended Phase 1 habitat, bats, dormouse, otter, great crested newt and amphibian surveys have been undertaken in the Balsall Common and Hampton-in-Arden area since September 2013.
- 2.1.2 Details of all survey work and desk-study information gathered since September 2013 which is relevant to this area is provided in SES and AP2 ES Volume 5: Appendix EC-001-004 (Baseline Data Appendix) and Volume 5 map series EC-02, EC-03, EC-04, EC-05, EC-11, and EC-12. A summary of the supplementary ecological information that is relevant to the SES assessment is included within Section 3 under 'Ecology'.
- 2.1.3 SES and AP2 ES Volume 5: Appendix EC-002-004 ('Summary of changes to ecology baseline data that do not generate new or different significant effects') provides a summary of additional baseline survey data collected since September 2013, which has resulted in no change to the conclusions of the main ES. SES and AP2 ES Volume 5: Appendix EC-003-004 identifies additional local/parish level effects which occur as a consequence of SES and AP2 ES changes but are not significant.

#### Changes to the design or construction assumptions not requiring a change to the Bill

- 2.1.4 There are no changes to the design or construction assumptions in the Balsall Common and Hampton-in-Arden CFA (CFA23) that result in a new or different significant effect.

#### Changes to the design or construction assumptions in other CFAs affecting this CFA.

- 2.1.5 Design changes in other CFAs, in particular changes to the Burton Green area amendments (AP2-018-004) within Stoneleigh, Kenilworth and Burton Green (CFA18), have resulted in changes to the movement of excavated material. This has resulted in changes to construction traffic flows in the Balsall Common and Hampton-in-Arden area (CFA23) in comparison with the original scheme. The assessment in relation to this is presented in Section 6.

### 2.2 Corrections to the main ES

- 2.2.1 Since submission of the Bill, the need for a number of corrections in the contents of the main ES has been identified. Table 1 provides a list of those instances where there has been a need to correct the Volume 2 CFA report for Balsall Common and Hampton-in-Arden because of the potential to alter the significant environmental effects reported in the main ES or a factual inaccuracy relating to significant effects

has been identified. The table gives the location of the correction in the main ES, the reason for the correction, replicates the text from the main ES, where applicable provides revised text, and identifies whether the correction changes a significant effect reported in the main ES. Where relevant, these corrections have been taken into account in the technical assessments contained within Section 3 of this SES.

## **2.3 Topics included in the SES assessment**

- 2.3.1 The changes described above in Section 2.1 result in new or different significant effects in respect of ecology.

Table 1: Summary of corrections to the main ES in CFA23

Reference in the main ES	Description of correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Landscape and visual  Map Book, LV-03-077b and LV-03-078, Volume 2, CFA23 of the main ES	Significant effect not represented on maps for viewpoints 285.2.002 (View north from residences along Ridings Hill) and 285.2.003 (View north-east across pastures from Footpath M196 adjacent to residences on Barrett's Lane).	N/A	Viewpoints 285.2.002 and 285.2.003 are missing from the maps. They should be shown as significantly affected viewpoints	No.  Effects were reported within the main ES text.
Sound, noise and vibration  Volume 2, CFA23 of the main ES, paragraph 11.4.24	The outbuildings at Patrick Farm were identified as a noise sensitive receptor for the construction sound, noise and vibration assessment, but not for the operational sound, noise and vibration assessment. The outbuildings at Patrick Farm have therefore been assessed as a noise sensitive receptor for the operational sound, noise and vibration assessment.	The assessment of operational noise and vibration indicates that significant direct effects on non-residential receptors are unlikely to occur in this area.	The assessment of operational noise and vibration indicates that a significant effect (OSV23-No1) is likely on the commercial buildings (offices) located in the outbuildings at Patrick Farm.  Further information can be found in SES and AP2ES Volume 5: Appendix SV-004-023.  The assessment of direct effects on non-residential receptors has been undertaken on a reasonable worst case basis taking account of publicly available information about each receptor.	Yes.  A previously unreported significant effect is identified on a non-residential receptor in comparison to the main ES.  HS2 Ltd will continue to seek reasonably practicable measures to further reduce or avoid this significant effect. In doing so HS2 Ltd will continue to engage with stakeholders.
Cultural heritage  Paragraph 6.4.10, Volume 2, CFA	An extension to Berkswell Conservation Area was adopted by Solihull Metropolitan Borough	Berkswell Conservation Area (asset reference BHA065), an asset of moderate value, will be	N/A	No  Whilst the assessment did not consider

Reference in the main ES	Description of correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Report 23 of the main ES	Council (SMBC) prior to the submission of the main ES but was not considered as part of the assessment.	<p>affected by the activities associated with the construction of the Park Lane cutting and the Lavender Hall Lane overbridge, and the presence of cranes, earthmoving plant and temporary material stockpiles, approximately zoom to the south, and Balsall Common viaduct satellite compound. The rural landscape and parkland character of this asset will be affected by these construction elements. This will constitute a medium adverse impact and a moderate adverse effect. Construction activity will take place over approximately one year and three months. The Balsall Common viaduct satellite compound will be present for approximately two years and nine months.</p> <p>The effect during operation was assessed as neutral.</p>		<p>impacts upon the extended Berkswell Conservation Area as a single unit, its component parts were considered fully during the assessment and therefore no reassessment is required. The assessment remains as reported in the main ES.</p> <p>No mitigation is proposed.</p>

## 3 Assessment of changes

### 3.1 Ecology

#### Introduction

3.1.1 This section of the report describes the environmental baseline in relation to ecology that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme. Consideration is given to the potential for impacts on species, habitats and sites designated on the basis of their importance for nature conservation.

#### Scope, assumptions and limitations

3.1.2 The assessment scope for ecology is as set out in Volume 1 of the SES and AP2 ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

3.1.3 To address any limitations in data, a precautionary baseline has been considered according to the guidance reported in the main ES, Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst-case' basis for the subsequent assessment. The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the SES changes.

#### Changes of relevance to this assessment

3.1.4 The following changes are relevant to this assessment:

- new baseline surveys relating to bats at the Berkswell Estate; and
- new baseline surveys relating to hazel dormouse.

#### Environmental baseline

##### *Existing baseline*

3.1.5 The ecological baseline for the assessment takes into account baseline information collected in support of the main ES, which included field survey data, aerial photography and relevant existing information gathered from national organisations and from regional and local sources. A full list is provided in the main ES (Volume 2, CFA Report 23, Section 7).

3.1.6 The assessment also takes into account additional desk-study and survey information collected since September 2013. Supplementary information relevant to the assessment in this CFA includes: additional survey work for bats at the Berkswell Estate and survey for hazel dormouse.

3.1.7 A summary of the baseline information relevant to the assessment is provided below. Further details of all baseline information obtained since September 2013 is provided in the SES and AP2 ES Volume 5: Appendix EC-001-004. For those receptors described

in the main ES, further details are provided in Volume 2, CFA23, Section 7 and in Volume 5, including maps EC-01 to EC-12.

### *Designated sites*

- 3.1.8 The baseline for designated sites remains unchanged from that reported in the main ES (Volume 2, CFA Report 23, Section 7).

### *Habitats*

- 3.1.9 The baseline for habitats remains unchanged from that reported in the main ES (Volume 2, CFA Report 23, Section 7).

### *Protected and/or notable species*

- 3.1.10 An assumed key area of foraging habitat for bats was reported in the main ES within Marlowes woodland (see main ES map EC-06-102, Volume 5 Map Book) as well as an assumed key commuting route (040-BA6-150002 as shown on main ES map EC-06-102, Volume 5 Map Book) within the same area.
- 3.1.11 The main ES reported a precautionary assessment for barbastelle bats within the Berkswell Estate, and assessed this as being of up to county/metropolitan value. Further bat surveys undertaken in 2014 recorded no barbastelle bats and it is concluded that a core colony area is not present within the study area although the species is known to exist within Marlowes woodland and the surrounding habitat. The precautionary assessment and valuation for barbastelle bats is revised from up to county/metropolitan value to up to district/borough level.
- 3.1.12 The 2014 surveys recorded a diverse assemblage of at least nine species of breeding bat concentrated within Marlowes woodland, and immediately adjacent to the HS2 route. This included a confirmed soprano pipistrelle bat roost. This assemblage of breeding bats was not reported in the main ES. The assemblage of nine species of breeding bat present within Marlowes woodland and the surrounding woodland habitats is evaluated as being collectively of county/metropolitan value.
- 3.1.13 The main ES reported a precautionary assessment for a population of hazel dormouse within Marlowes woodland and the Berkswell Estate. This population was assessed on a precautionary basis as being of up to county/metropolitan value. However, surveys undertaken in 2014 determined that hazel dormouse is absent from within the study area.

### *Future baseline*

#### **Construction (2017)**

- 3.1.14 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 3.1.15 None of the identified developments affect the assessment of the SES scheme's likely construction impacts on ecology.

### **Operation (2026)**

- 3.1.16 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 3.1.17 None of the identified developments affect the assessment of the SES scheme's likely operational impacts on ecology.

### **Effects arising during construction**

#### *Avoidance and mitigation measures*

- 3.1.18 The assessment also assumes implementation of the measures set out within the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES), which include translocation of protected species where appropriate.

#### *Assessment of impacts and effects*

### **Designated sites**

- 3.1.19 The new baseline data will not give rise to new or different significant effects on designated sites and will not change the level of significance of the effects reported in the main ES.

### **Habitats**

- 3.1.20 The new baseline data will not give rise to new or different significant effects on habitats and will not change the level of significance of the effects reported in the main ES.

### **Protected and/or notable species**

- 3.1.21 The main ES reported a potential adverse effect from habitat loss and degradation which would present a partial barrier to the movement of barbastelle bat across Park Lane cutting. This would result in an adverse effect on the conservation status of this species, which would be significant at up to district/borough level prior to the implementation of other mitigation and compensation measures. The additional baseline information identifies that Marlowes woodland and the surrounding habitats are peripheral to the local range of barbastelle bat. The construction of Park Lane cutting is therefore unlikely to result in a habitat severance effect on this species. This represents a change to the assessment reported in the main ES. For this species, any permanent adverse effects are expected to be no longer significant. This represents the removal of the potential significant effect on barbastelle reported in the main ES.
- 3.1.22 The original scheme would result in impacts on the assemblage of breeding bats recorded in 2014 as concentrated around Marlowes woodland. The construction of Park Lane cutting would result in loss of woodland habitat and interruption of woodland habitat continuity. Prior to the implementation of further mitigation, this is an adverse effect on the conservation status of the local populations of breeding bats, which is a new significant effect at county/metropolitan level.

### *Cumulative effects*

- 3.1.23 There are no new or different likely significant cumulative effects for ecology as a result of the SES changes acting in combination with any relevant committed development.

### *Other mitigation measures*

- 3.1.24 The mitigation, as reported in the main ES, included woodland and hedgerow planting adjacent to the route and provision of two bridges (M214 and M215) which crossed Park Lane cutting to the north and south of Marlowes woodland, and which supported woodland vegetation in order to connect retained woodland and new woodland planting. This mitigation would change the adverse effect on the assemblage of breeding bats from one which is significant at county/metropolitan level to one which is not significant.
- 3.1.25 The main ES stated that mitigation for bats in this location would be reviewed following further monitoring work for this species group. The change in baseline conditions and impacts at this location has led to a proposed change in the mitigation design as detailed in the amendment for the additional land required at Marlowes woodland AP2-023-003 (see Section 5.4).

### *Summary of likely residual significant effects*

- 3.1.26 The additional ecological baseline information from surveys conducted since preparation of the main ES indicates that Marlowes woodland is peripheral to the local range of barbastelle bat. This means that the adverse effect on the conservation status of barbastelle bat, at up to district/ borough level, reported in the main ES is removed.
- 3.1.27 No other new or different residual effects on ecological receptors occur as a consequence of the updated survey data.

### **Effects arising from operation**

- 3.1.28 There are no new or different significant operational effects for ecology as a result of the SES changes, in comparison with the main ES.

# Part 2: Additional Provision 2 Environmental Statement

## 4 Summary of amendments

4.1.1 Table 2 provides a summary of the amendments in the Balsall Common to Hampton-in-Arden community forum area (CFA23) and Figure 1 shows the locations

Table 2: Summary of amendments in CFA23

Name of amendment	Description of the original scheme	Description of the AP2 revised scheme
<p>Burton Green area amendments (AP2-018-004)</p>	<p>The following describes the elements of the original scheme which are to be amended as part of the AP2 revised scheme within CFA23.</p> <p>A roadhead, for the storage of bulk earthworks associated with the Burton Green green tunnel, would be located in CFA18, in close proximity to the boundary with CFA23.</p> <p>Beechwood Farm accommodation underpass satellite compound would be located to the south-west of Kenilworth Greenway and west of the existing Footpath M198, which would be stopped up at this location.</p> <p>For elements of the original scheme to be amended within CFA18 see Kenilworth, Stoneleigh and Burton Green CFA report.</p>	<p>A roadhead will be relocated to the south-west of the Kenilworth Greenway, adjacent to existing areas of temporary material stockpiles. The roadhead will be located across the boundary of CFA23 and CFA18.</p> <p>The relocation of the roadhead requires the relocation of Beechwood Farm accommodation underpass satellite compound to a location adjacent to the B4101 Waste Lane overbridge satellite compound within CFA18.</p> <p>The vertical alignment of the HS2 route will reduce by approximately 0.6m at the boundary of CFA23 and CFA18 returning to the original scheme alignment at a location just west of Carol Green rail underbridge.</p>
<p>Extension to the Kenilworth Greenway (AP2-023-001)</p>	<p>Approximately 850m long section of Kenilworth Greenway would be removed during construction for use as a haul road. A temporary alternative route would be provided to the south-west of the existing Kenilworth Greenway. Kenilworth Greenway would be reinstated following construction.</p> <p>A short section of the Kenilworth Greenway would be required occasionally during operation for maintenance access to the proposed balancing ponds.</p>	<p>To improve non-motorised user connectivity between Burton Green, Berkswell and Berkswell Station, the reinstated Kenilworth Greenway will be extended beyond Footpath M191, passing alongside and to the west of Berkswell Station Car Park and connecting into the car park access road off Station Road /Truggist Lane. The extended section of the Kenilworth Greenway will be a permissive bridleway. The extension will increase the length of the Kenilworth Greenway by approximately 500m and additional land will be permanently required.</p> <p>Maintenance access to the balancing ponds during operation will be from the car park access road off Station Road/Truggist Lane and along the new Kenilworth Greenway extension. Access will no longer be through Berkswell Station car park.</p>
<p>Retention of the temporary roundabout at Park Lane/A452 Kenilworth Road (AP2-023-002)</p>	<p>A temporary roundabout is required during the construction phase at the Park Lane/A452 Kenilworth Road junction to provide an improved, all movements junction arrangement to facilitate access to the Park Lane cutting main compound.</p>	<p>To improve operational traffic movements, the temporary roundabout will be constructed as a permanent feature which will remain following construction of the scheme. A balancing pond and associated access track will be provided and a water main and an overhead power line will be</p>

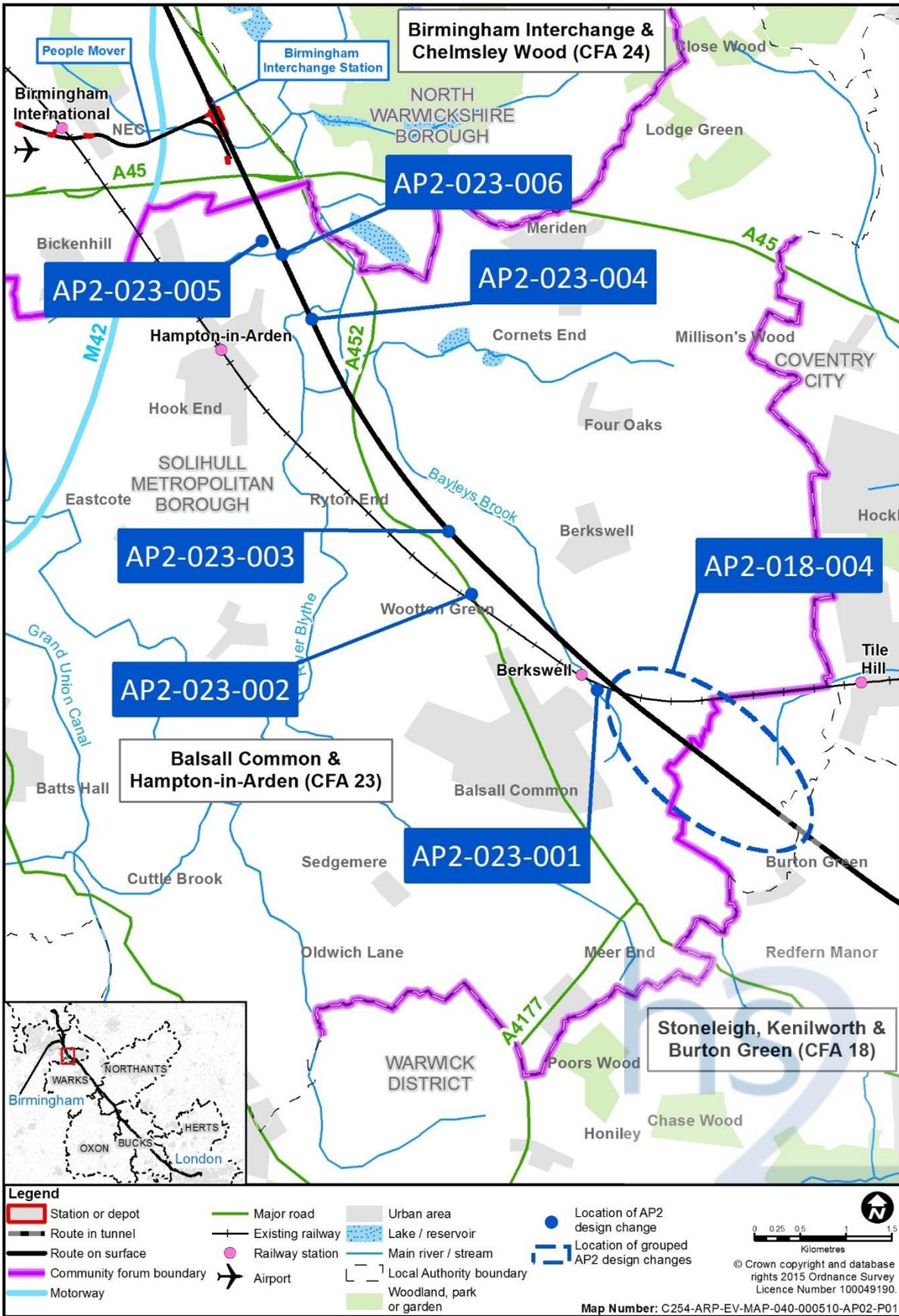
SES and AP2 ES Volume 2 - CFA 23, Balsall Common and Hampton-in-Arden

Name of amendment	Description of the original scheme	Description of the AP2 revised scheme
	<p>On completion of construction, the existing priority junction form would be reinstated.</p>	<p>required to be diverted. All are included within the original limits of the Bill.</p> <p>Additional permanent lighting columns will be installed on the A452 Kenilworth Road between the proposed Park Lane/A452 Kenilworth Road roundabout and the existing A452 Kenilworth Road/Hall Meadow Road roundabout, located approximately 600m to the south-east.</p> <p>Additional land, within the existing highway boundary, will be required temporarily for the installation of the lighting and signage.</p>
<p>Additional land required at Marlowes woodland  (AP2-023-003)</p>	<p>Footpath M214 overbridge (Heart of England Way) and Footpath M215 overbridge would be planted as a precautionary measure to reduce the effect of habitat loss and degradation on barbastelle bat and other bat species.</p>	<p>Broadleaved semi-natural woodland located in the Berkswell Estate between the HS2 route and the A452 Kenilworth Road will be reduced to a 20m strip. The planting on Footpath M214 overbridge (Heart of England Way) will be removed. In addition, a hedgerow between Footpath M215 overbridge and Marlowes woodland will be replaced with a 20m strip of broadleaved semi-natural woodland. This will require a minor realignment of a drainage ditch.</p> <p>New broadleaved semi-natural woodland will be provided on landscaped earthworks to the east of the HS2 route between Marlowes woodland and Sixteen Acre Wood, adjacent to Park Lane cutting. An additional area of land within Marlowes woodland, to the east of the HS2 route, will be acquired permanently for the enhancement of existing broadleaved semi-natural woodland.</p>
<p>Extension of the River Blythe viaduct  (AP2-023-004)</p>	<p>The HS2 route would cross the B4102 Meriden Road, via the B4102 Meriden Road underbridge, and continue on the Patrick embankment for approximately 260m before crossing the River Blythe and associated floodplain on the River Blythe viaduct which would be approximately 150m in length.</p> <p>A floodplain replacement storage area would be provided adjacent to the River Blythe.</p>	<p>To facilitate access between land holdings, the River Blythe viaduct will be extended to approximately 480m long which will replace the section of Patrick embankment between the B4102 Meriden Road and the River Blythe, the B4102 Meriden Road underbridge, and a short section of the Patrick embankment to the south-east of the underbridge. An additional private means of access will be provided. An access track off the B4102 Meriden Road for a balancing pond will be realigned closer to the HS2 route and Footpath M230A will be realigned accordingly. An underground diversion of the existing overhead power line will be diverted on a slightly different alignment under the viaduct to that reported in the main ES.</p> <p>The B4102 Meriden Road underbridge satellite compound will be renamed the River Blythe satellite compound and will be operational for approximately 12 months longer. Material stockpiles to the south-west of the HS2 route will be reduced in size and reconfigured which will require a minor realignment of the haul road.</p>

SES and AP2 ES Volume 2 - CFA 23, Balsall Common and Hampton-in-Arden

Name of amendment	Description of the original scheme	Description of the AP2 revised scheme
<p>Realignment of Diddington Lane (AP2-023-005)</p>	<p>A section of Diddington Lane between north of the residential properties, to the south of Diddington Lane, and south of the access to Diddington Farm would be permanently closed to vehicular traffic with access being maintained for agricultural vehicles. The closed section of Diddington Lane would be reinstated as a bridleway, which would improve non-motorised user connectivity between the A45 Coventry Road, The Island Project School and Hampton-in-Arden.</p> <p>During construction, Diddington Lane would be used as a construction traffic route providing access to Shadow Brook underbridge satellite compound and construction activities associated with the B4102 Meriden Road underbridge.</p> <p>Pasture Farm accommodation overbridge would provide access to agricultural land.</p>	<p>To reduce the severance of agricultural land and disruption to agriculture, Diddington Lane will not be closed and instead will be realigned to the west of the route of the original scheme, crossing the route at Diddington cutting via a new bridge (Diddington Lane overbridge). Two new balancing ponds will be provided with associated access tracks.</p> <p>A bridge will be provided where the new road crosses Shadow Brook.</p> <p>Footpath M114 will be diverted along the existing Pasture Farm access road.</p> <p>Pasture Farm accommodation overbridge will no longer be required with access to Pasture Farm being provided from the realigned Diddington Lane.</p> <p>Shadow Brook underbridge satellite compound will be relocated as will the construction haul road and temporary material stockpiles.</p>
<p>Agricultural land access across Shadow Brook (AP2-023-006)</p>	<p>A section of Diddington Lane between north of the residential properties, to the south of Diddington Lane, and south of the access to Diddington Farm would be permanently closed to vehicular traffic with access being maintained for agricultural vehicles. The closed section of Diddington Lane would be reinstated as a bridleway, which would improve non-motorised user connectivity between the A45 Coventry Road, The Island Project School and Hampton-in-Arden.</p> <p>During construction, Diddington Lane would be used as a construction traffic route providing access to Shadow Brook underbridge satellite compound and construction activities associated with the B4102 Meriden Road underbridge.</p>	<p>To provide access to agricultural land, the proposed bridleway, created on the alignment of the closed section of Diddington Lane, and an access track to a balancing pond will be realigned parallel to the HS2 route and cross Shadow Brook approximately 20m further east than in the original scheme.</p>

Figure 1: Locations of amendments in CFA23



## 5 Assessment of amendments

### 5.1 Burton Green area amendments AP2-018-004

- 5.1.1 The following describes the elements of the original scheme which are to be amended as part of the AP2 revised scheme within CFA23. For elements of the original scheme to be amended within CFA18 see SES and AP2 ES for Stoneleigh, Kenilworth and Burton Green.
- 5.1.2 The Bill provides for a roadhead, for the storage of bulk earthworks associated with the construction of the Burton Green green tunnel, which would be located in CFA18, in close proximity to the boundary with CFA23.
- 5.1.3 The Bill further provides for the establishment of Beechwood Farm accommodation underpass satellite compound, located to the south-west of Kenilworth Greenway and west of the existing Footpath M198, which is to be stopped up at this location. The compound, which would be operational for approximately four years and three months, would provide for civil engineering works predominantly for the construction of the Beechwood Farm accommodation underpass and Beechwood embankment earthworks.
- 5.1.4 Since submission of the Bill, a number of amendments have been made to the alignment of the Burton Green green tunnel resulting in the need to relocate the roadhead from CFA18 to the south-west of the Kenilworth Greenway, adjacent to existing areas of temporary material stockpiles, across the boundary of CFA23 and CFA18. The Burton Green amendments are part of a bigger set of amendments that require changes to Bill powers. The roadhead, approximately 5m in height and with a footprint of approximately 1.7ha, will be relocated within the original limits of the Bill to an area identified in the original scheme for temporary material stockpiles. The temporary material stockpiles will be reconfigured which will require the relocation of Beechwood Farm accommodation underpass satellite compound to a location adjacent to the B4101 Waste Lane overbridge satellite compound within CFA18. The compound will remain in place for the same duration as stated in the main ES. See grid reference F8 on map CT-05-100b in SES and AP2 ES, Volume 2, CFA23 Map Book for amendments.
- 5.1.5 The amendments to the Burton Green green tunnel will result in a lowering of the vertical alignment of the HS2 route within CFA23, by approximately 0.6m at the boundary of CFA23 and CFA18, returning to the original scheme alignment at a location just west of Carol Green rail underbridge.
- 5.1.6 The relocation of the roadhead and satellite construction compound and the lowering of the vertical alignment are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics<sup>1</sup> within the Balsall Common and Hampton-in-Arden area (CFA23).

---

<sup>1</sup> Significant effects arising from the relocation of the roadhead and Beechwood Farm accommodation underpass satellite compound within CFA 18 are reported in SES and AP2 ES for Kenilworth, Stoneleigh and Burton Green.

## 5.2 Extension to the Kenilworth Greenway (AP2-023-001)

- 5.2.1 The Bill provides for an approximately 850m long section of the Kenilworth Greenway to be used as a haul road transporting materials and waste arisings (see grid references F7, G7 and H7 on map CT-05-101 in the main ES Volume 2, CFA23 Map Book). The existing route of the Kenilworth Greenway would therefore be closed to the public for a period of approximately four years and three months. A temporary alternative route would be provided to the south-west of the existing Kenilworth Greenway which would be of an equivalent standard and approximately 100m longer. To the south-east, the temporary alternative route would continue into the Stoneleigh, Kenilworth and Burton Green area (CFA18). To the north-west the temporary alternative route would join with an existing Footpath M191, which is used to access the existing Kenilworth Greenway, adjacent to Berkswell Station. Following the construction, the Kenilworth Greenway would be reinstated to the existing alignment in this area.
- 5.2.2 During operation the Kenilworth Greenway would be required occasionally for maintenance access to balancing ponds to the south-west. Access would be through Berkswell Station car park and a new access track provided along a section of the Kenilworth Greenway between the car park and Footpath M191. This would be a shared access, meaning that there would be no need for temporary closures during maintenance, and users could still use the Kenilworth Greenway during maintenance activities.
- 5.2.3 Since submission of the Bill, it has been determined that in order to improve connectivity between Burton Green, Berkswell and Berkswell Station, the Kenilworth Greenway will be extended by approximately 500m, from the existing Kenilworth Greenway/Footpath M191 intersection. The extension will run west for approximately 250m towards Berkswell Station car park, along a section of the dismantled Kenilworth to Balsall Common line. The extension then runs south-west for approximately 250m adjacent to Berkswell Station car park, where it will connect to the car park access road off Station Road/Truggist Lane. The extension will be approximately 3.5m wide with 1.5m verges. Two passing bays will be provided, each approximately 2m wide. Footpath M196, which runs alongside Berkswell Station car park, will be permanently realigned to join up with the Kenilworth Greenway extension. Footpath M191 will remain and will still provide an alternative access to the Kenilworth Greenway. The gradient of the embankments of the Kenilworth Greenway extension will allow return of land to agricultural use. Part of the land required permanently, approximately 1.1ha, for the Kenilworth Greenway extension is outside the original limits of the Bill, hence the need for this amendment. The extension will be constructed for use as a permissive bridleway, extending the permissive bridleway status of the Kenilworth Greenway along its whole length. See map CT-05-101 and CT-06-101, in the SES and AP2 ES, Volume 2, CFA23 Map Book for amendments.
- 5.2.4 During operation, maintenance access to the balancing ponds will be from the access road off Station Road/Truggist Lane and along the Kenilworth Greenway extension. Access will no longer be through Berkswell Station car park.
- 5.2.5 The construction of the Kenilworth Greenway extension will be managed from the Carol Green rail underbridge (south) satellite compound and will take up to three months to complete. Works will commence in approximately 2021, in conjunction

with the reinstatement of the existing Kenilworth Greenway, as described in the main ES. During construction there will be a temporary closure of approximately 470m of Footpath M196 between Station Road/Truggist Lane and the intersection of Footpaths M196/M191 (adjacent to the Berkswell Station car park). A temporary alternative route will be provided along Footpath M196, Barretts Lane, Sunnyside Lane, Station Road and Truggist Lane, adding an additional 860m to the route.

- 5.2.6 The extension to Kenilworth Greenway will result in the permanent requirement for an additional 1.1ha of land. The current use of this land holding is unknown but is not considered to be agricultural use because Footpath M196 runs through the middle of the land holding reducing its agricultural value.
- 5.2.7 The extension to the Kenilworth Greenway is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; cultural heritage; ecology; land quality; landscape and visual assessment; socio-economics; and sound, noise and vibration. However, there are changes where reassessment is considered to be required in respect of community; traffic and transport and water resources and flood risk assessment.

## Community

### *Scope, assumptions and limitations*

- 5.2.8 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.2.9 The baseline community information for the area is described in the main ES (Volume 2, CFA Report 23, Section 5).
- 5.2.10 The Kenilworth Greenway, described as a linear country park and a permissive bridleway, is used by pedestrians, cyclists and horse riders. The Kenilworth Greenway runs from the A429 Coventry Road, in a north westerly direction to the outskirts of Balsall Common, south of Truggist Lane. The Kenilworth Greenway is approximately 6.1km in total length and runs along the line of the dismantled Kenilworth to Balsall Common line. The most northern section of the Kenilworth Greenway (located in CFA23) runs from the north of B4101 Waste Lane at Burton Green to the south of Berkswell Station and is approximately 850m in length.

### *Future baseline*

#### **Construction (2017)**

- 5.2.11 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.2.12 None of the identified developments affect the assessment of the amendment's likely construction impacts on community.

### **Operation (2026)**

- 5.2.13 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.2.14 None of the identified developments affect the assessment of the amendment's likely operational impacts on community.

#### *Effects arising during construction*

- 5.2.15 The main ES described that an 850m long section of the Kenilworth Greenway would be removed during construction for use as a haul road. The existing route of the Kenilworth Greenway would therefore be closed to the public for a period of approximately four years and three months, with a temporary alternative route provided. The temporary removal of the Kenilworth Greenway was assessed to be a negligible adverse effect, as a replacement would be provided, and is therefore not considered significant.
- 5.2.16 The amendment will extend the Kenilworth Greenway to Berkswell Station and Truggist Lane, replacing Footpath M191, south of the Kenilworth Greenway, and Footpath M196, between Truggist Lane and Footpath M191, which are currently used to access the northern extent of the Kenilworth Greenway. The Kenilworth Greenway extension will be constructed in parallel with works to reinstate the Kenilworth Greenway onto its existing route. During this time, access to the Kenilworth Greenway will not be available from Truggist Lane. An alternative route to access the temporary alternative route of the Kenilworth Greenway will be provided along Footpath M196, Barretts Lane, Sunnyside Lane, Station Road and Truggist Lane, adding an additional 860m to the route. The temporary removal of Footpaths M191 and M196 as well as access to the Kenilworth Greenway will not change the assessment of effects reported in the main ES as a replacement access will be provided via the wider footpath network.
- 5.2.17 The amendment to extend the Kenilworth Greenway will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### *Effects arising from operation*

- 5.2.18 The amendment will improve access between Burton Green, Berkswell, Berkswell Station and Balsall Common which will be a beneficial non-significant community effect.
- 5.2.19 The proposed extension of the Kenilworth Greenway will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.2.20 No mitigation measures are applicable to this amendment. The amendment will not result in any significant residual effects in construction or operation, which is unchanged from the main ES.

### *Cumulative effects*

- 5.2.21 There are no new or different likely significant cumulative effects for community as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

### **Traffic and transport**

#### *Scope, assumptions and limitations*

- 5.2.22 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

#### *Existing baseline*

- 5.2.23 The baseline traffic and transport information for the area is described in the main ES (Volume 2, CFA Report 23, Section 12).
- 5.2.24 The Kenilworth Greenway runs in a north-west to south-east direction connecting with the Berkswell Station car park access. The Kenilworth Greenway is a permissive bridleway. Footpath M191, is located to the south-east of Berkswell Station and runs in a north-east to south-west direction from Truggist Lane, crossing the Kenilworth Greenway before connecting with Footpath M196. Footpath M196, which heads in two directions, to Berkswell Station car park and Barretts Lane.

#### *Future baseline*

##### **Construction**

- 5.2.25 The future baseline for traffic and transport is as described in Volume 2 CFA23, Section 12 of the main ES. There is no change to the future baseline for construction as reported in the main ES.

##### **Operation (2026 and 2041)**

- 5.2.26 The future baselines for traffic and transport are set out in Volume 2, CFA23 Section 12 of the main ES. There is no change to the future baselines for operation as reported in the main ES.

#### *Effects arising during construction*

- 5.2.27 The construction of the amendment, to be undertaken from the Carol Green rail (south) underbridge satellite compound, will have a minimal effect on construction related traffic flows in the area. Compared to the traffic flows reported in the main ES, the change in traffic flows associated with the amendment is expected to be increased by 10 two-way Heavy Good Vehicles (HGV) trips per day. In isolation, the increase in trips is not expected to result in any new or amended traffic effects as a result of the amendment. These additional HGV trips, combined with those from other amendments, are considered in Section 6.
- 5.2.28 The temporary closure of Footpath M196 to the south of Truggist Lane, which is required to construct the amendment, will result in an increased walking distance for users of approximately 860m. This will introduce a new minor adverse significant

effect due to increased journey distance for users of the footpath (see SES and AP2 ES map TR-03-151, Volume 5 Map Book).

### *Effects arising from operation*

- 5.2.29 The amendment will improve the Kenilworth Greenway connectivity by providing an improved and shorter link between Burton Green and Berkswell Station. However, the change in distance, although beneficial, will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.2.30 No changes to the mitigation described in the main ES (Volume 2 CFA23, Section 12) are required.
- 5.2.31 The amendment will result in a new minor adverse significant effect due to increased journey distance for users of Footpath M196 during construction (see SES and AP2 ES map TR-03-151).

### *Cumulative effects*

- 5.2.32 Cumulative effects are reported in Volume 2, CFA23, Section 12 of the main ES. The assessment has taken into account these cumulative effects, including planned development by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in other areas.

## **Water resources and flood risk assessment**

### *Scope, assumptions and limitations*

- 5.2.33 The assessment scope, key assumptions and limitations for water resources and flood risk assessment are set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.2.34 The baseline water resources and flood risk information for the Balsall Common and Hampton-in-Arden area is described in the main ES (Volume 2, CFA Report 23, Section 13).
- 5.2.35 Bayleys Brook is an ordinary watercourse, which flows from east to west, and is crossed by the amendment. Bayleys Brook discharges to the River Blythe, approximately 4km north-west of the amendment. The River Blythe is a main river and is designated as a Special Site of Scientific Interest (SSSI).
- 5.2.36 The current (2009) overall Water Framework Directive (WFD) status for the River Blythe is moderate, while the objective for 2027 is to achieve good potential/ status. Bayleys Brook has not been classified and is assumed to be the same status as the River Blythe.
- 5.2.37 The superficial deposits consist of alluvium, which are present close to Bayleys Brook. These deposits are classed as a Secondary A aquifer. This aquifer does not have any WFD classification.

- 5.2.38 The underlying bedrock geology within the area of the amendment comprises of Mercia Mudstone Group. The Mercia Mudstone Group is classified as a Secondary B aquifer with a current overall WFD status of poor, while the objective for 2027 is to achieve good status. Within the Mercia Mudstone Group, the Arden Sandstone Formation is classified as a Secondary A aquifer.
- 5.2.39 The Environment Agency flood zone mapping shown on main ES map WR-01-039, Volume 5 Map Book indicates that the area where the amendment crosses a tributary of the Bayleys Brook would be inundated during a flood event with a 1 in 100 year annual probability (1%) of river flooding including climate change.

### *Future baseline*

#### **Construction (2017)**

- 5.2.40 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.2.41 None of the identified developments affect the assessment of the amendment's likely construction impacts on water resources and flood risk.

#### **Operation (2026)**

- 5.2.42 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.2.43 None of the identified developments affect the assessment of the amendment's likely operational impacts on water resources and flood risk.

### *Effects arising during construction*

- 5.2.44 The amendment will require construction of an embankment local to Bayleys Brook, within Flood Zone 3 associated with river flooding from the Brook giving rise to potentially new impacts.
- 5.2.45 During construction there will be no changes to existing culverts or the Bayleys Brook as a result of this amendment. With the draft CoCP measures in place the impact to surface water is assessed to be negligible and the effect is not significant.
- 5.2.46 There are no effects arising from this amendment with respect to superficial deposits or groundwater.
- 5.2.47 The amendment does not change the assessment for surface water and groundwater as reported in the main ES.
- 5.2.48 The Environment Agency flood mapping suggests the flood zone extends from the acknowledged watercourse location and into part of the earthworks for the extension to the Kenilworth Greenway. The encroachment of part of the embankment associated with the extension to the Kenilworth Greenway into the flood zone will be mitigated through the provision of floodplain replacement storage area adjacent to the brook. The area will be excavated to a maximum depth of approximately 0.2m

below existing ground level and regraded back to tie into the existing ground level. The resulting impact will be negligible and the effect not significant.

- 5.2.49 The amendment to extend Kenilworth Greenway will not give rise to new or different significant effects and will not change the level of significance of the effects reported in the main ES.

#### *Effects arising from operation*

- 5.2.50 There are no new or different significant operational effects for water resources and flood risk as a result of the amendment in comparison with the main ES.

#### *Mitigation and residual effects*

- 5.2.51 Other than the proposed replacement flood storage area no further mitigation measures are applicable to this amendment. The amendment will not result in any significant residual effects in construction or operation, which is unchanged from the main ES.

#### *Cumulative effects*

- 5.2.52 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

### **5.3 Summary of new or different likely residual significant effects as a result of the amendment**

- 5.3.1 The temporary closure of Footpath M196 to the south of Truggist Lane will result in a new minor adverse significant effect, due to increased journey times and delays for users.
- 5.3.2 The amendment will improve access between Burton Green, Berkswell, Berkswell Station and Balsall Common which will be a beneficial effect. This will however not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### **5.4 Retention of temporary roundabout at Park Lane/A452 Kenilworth Road (AP2-023-002)**

- 5.4.1 The Bill provides for a temporary roundabout during construction at the Park Lane/A452 Kenilworth Road junction to provide an improved, all movements junction arrangement to facilitate access to the Park Lane cutting main compound (see grid references Eg and Fg on map CT-05-102 and CT-06-102 in the main ES Volume 2, CFA23 Map Book). In the original scheme, the temporary roundabout would be in place for approximately five years and on completion of construction, the existing priority junction would be reinstated.
- 5.4.2 Since submission of the Bill, it has been determined that to improve operational traffic movements, the temporary roundabout will be retained post construction. The roundabout size and configuration is similar to the temporary roundabout in the original scheme. A balancing pond will be provided to the south-east of the

roundabout, and will be accessed, via an access track, from the roundabout itself. An overhead power line, which is currently directly above the location of the roundabout, will be diverted around the eastern perimeter of the roundabout. A water main, which is currently located within the central reserve of the A452 Kenilworth Road, will be diverted around the western perimeter of the roundabout. A species-rich hedgerow will be provided around part of the circulatory carriageway. The land for the permanent roundabout, balancing pond and access track, and utility diversions is within the original limits of the Bill. See map CT-05-102 and CT-06-102 in SES and AP2 ES, Volume 2 Map Book for amendments.

- 5.4.3 Additional permanent lighting columns will be installed on the A452 Kenilworth Road between the proposed Park Lane/A452 Kenilworth Road roundabout and the existing A452 Kenilworth/Hall Meadow Road roundabout located approximately 600m to the south-east. Additional land, approximately 0.8ha, within the existing highway boundary, will be required temporarily for the installation of the lighting and signage, hence the need for this amendment. See map CT-06-102 in SES and AP2 ES, Volume 2 Map Book for amendments.
- 5.4.4 The material stockpile area located within Marlowes woodland, (see map CT-05-102, in the main ES Volume 2 Map Book), originally required for the storage of topsoil, will no longer be required as the existing priority junction will no longer be reinstated. The removal of this stockpile will reduce the area of woodland loss at Marlowes woodland by approximately 1.3ha. Amendment AP-023-003 (Additional land required at Marlowes woodland) details the ecological assessment associated with the removal of this stockpile.
- 5.4.5 The retention of the roundabout post construction, provision of the balancing pond and utility diversions are not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; land quality; landscape and visual assessment; socio-economics; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of: sound, noise and vibration; and traffic and transport.

## **Sound, noise and vibration**

### *Scope, assumptions and limitations*

- 5.4.6 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.4.7 Local assumptions and limitations for sound noise and vibration are set out in the main ES (Volume 2, CFA Report 23, Section 11).

### *Existing baseline*

- 5.4.8 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 2, CFA Report 23, Section 11 and Volume 5: Appendix SV-002-023). Baseline sound levels representative of the assessment locations affected by this amendment have been used in both the construction and operational assessments.

### *Future baseline*

#### **Construction (2017)**

- 5.4.9 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.4.10 None of the identified developments affect the assessment of the amendment's likely construction impacts on sound, noise and vibration.

#### **Operation (2026)**

- 5.4.11 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.4.12 None of the identified developments affect the assessment of the amendment's likely operational impacts on sound, noise and vibration.

### *Effects arising during construction*

- 5.4.13 The proposed retention of the temporary roundabout at Park Lane/A452 Kenilworth Road will not give rise to any new or different significant construction effects in comparison with those reported in the main ES.

### *Effects arising from operation*

- 5.4.14 The amendment will increase the road traffic noise component of the sound level at Final Home, Park Lane, Berkswell (assessment location 167781), but will not change the operational airborne noise level reported in the main ES. The amendment will not give rise to a new or different likely significant operational noise effects in comparison with those reported in the main ES.

### *Mitigation and residual effects*

- 5.4.15 No additional mitigation measures are applicable to this amendment. The amendment will not give rise to a new or different significant residual effect in comparison with those reported in the main ES.

### *Cumulative effects*

- 5.4.16 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **Traffic and transport**

### *Scope, assumptions and limitations*

- 5.4.17 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.4.18 The baseline traffic and transport information for the area is described in the main ES (Volume 2, CFA Report 23, Section 12).
- 5.4.19 The main strategic route within the area of the amendment is the A452 Kenilworth Road which runs in a north-south orientation providing access to Hampton-in-Arden and Meriden, and passing through Balsall Common.
- 5.4.20 The main local roads in the area of the amendment are Park Lane, Hall Meadow Road and Lavender Hall Lane. Park Lane provides a link between the A452 Kenilworth Road and Lavender Hall Lane. At the junction with the A452 Kenilworth Road, there is no right turn facility out of Park Lane. Lavender Hall Lane has a north-east to south-west orientation and provides a link between Berkswell and the A452 Kenilworth Road. Hall Meadow Road provides a connection between Lavender Hall Lane and the A452 Kenilworth Road. The A452 Kenilworth Road and local roads around Balsall Common operate at peak times with no major delays.

### *Future baseline*

#### **Construction**

- 5.4.21 The future baseline for traffic and transport is described in Volume 2 CFA23, Section 12 of the main ES. There is no change to the future baseline for construction as reported in the main ES.

#### **Operation (2026 and 2041)**

- 5.4.22 The future baselines for traffic and transport are set out in Volume 2, CFA23, Section 12 of the main ES. There are no changes to the future baselines for operation as reported in the main ES.

### *Effects arising during construction*

- 5.4.23 The construction of the amendment will have a minimal effect on construction related traffic flows with the change in flows expected to be less than 10 two-way HGV trips per day and to occur outside the peak construction months. In isolation, this will not result in a significant effect. The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.
- 5.4.24 These additional HGV trips, combined with flows from other amendments are considered in Section 6.

### *Effects arising from operation*

- 5.4.25 In the original scheme the temporary roundabout provided during construction would be removed and the existing priority junction at the A452 Kenilworth Road/Park Lane which prohibits the right turn out of Park Lane would be reinstated. As a result, traffic routeing would remain similar to the baseline and there would be no permanent significant effect.
- 5.4.26 The amendment to retain the temporary roundabout at Park Lane/A452 Kenilworth Road on a permanent basis will permit the right turn out of Park Lane on to the A452

Kenilworth Road. As a result it is expected that northbound traffic from Berkswell which is presently required to use Lavender Hall Lane, Hall Meadow Road and the A452 Kenilworth Road, will divert onto Park Lane as this provides a more direct route.

- 5.4.27 The amendment to retain the temporary roundabout at Park Lane/A452 Kenilworth Road will therefore result in an increase in traffic using Park Lane in relation to the baseline, which will result in a new moderate adverse traffic related severance<sup>2</sup> effect for non-motorised users seeking to cross Park Lane (see SES and AP2 ES map TR-04-152, Volume 5 Map Book).
- 5.4.28 The rerouting of traffic will result in small decreases in traffic flows on Lavender Hall Lane between Park Lane and Hall Meadow Road, on Hall Meadow Road between Lavender Hall Lane and the A452 Kenilworth Road, and on the A452 Kenilworth Road between Hall Meadow Road and Park Lane, compared to the baseline traffic levels. However, these beneficial impacts will not result in any new or different significant effects reported in the ES.

#### *Mitigation and residual effects*

- 5.4.29 No changes to the mitigation described in the main ES (Volume 2 CFA23, Section 12) are required.
- 5.4.30 The increase in traffic using Park Lane in operation will result in a new moderate adverse significant residual effect due to traffic related severance for non-motorised users (see SES and AP2 ES map TR-04-152, Volume 5 Map Book).

#### *Cumulative effects*

- 5.4.31 Cumulative effects are reported in Volume 2, CFA23, Section 12 of the main ES. The assessment has taken into account these cumulative effects, including planned development by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in other areas.

## **5.5 Summary of new or different likely residual significant effects as a result of the amendment**

- 5.5.1 The increase in traffic using Park Lane due to the amendment will result in a new residual moderate adverse significant effect due to traffic related severance for non-motorised users crossing Park Lane.

## **5.6 Additional land required at Marlowes woodland (AP2-023-003)**

- 5.6.1 The Bill provides for the establishment of woodland vegetation on Footpath M214 overbridge (Heart of England Way) and Footpath M215 overbridge to reduce the effect of habitat loss and fragmentation on barbastelle bat and other bat species. These mitigation measures were provided in the original scheme as a precautionary measure, in the absence of further survey data, to avoid potential significant adverse

---

<sup>2</sup> In the context of this traffic and transport section, Severance is used to relate to a change in ease of non-motorised users due to, for example, a change in travel distance or travel time or a change in traffic levels on a route that makes it harder for non-motorised users to cross. A reference to severance does not imply a route is closed to access.

effects on the conservation status of barbastelle bat. Footpath M214 overbridge (Heart of England Way) would cross over the route at ground level, with the HS2 route in cutting at this point. The overbridge would reinstate Footpath M214 on its original alignment. Footpath M214 overbridge would be approximately 20m wide. Footpath M215 overbridge would provide a combined diversion of Footpath M215 and M216 and an accommodation access over the HS2 route. Footpath M215 overbridge would be approximately 18m wide (see grid reference G6, map CT-06-102, in the main ES Volume 2, CFA23 Map Book).

- 5.6.2 Since submission of the Bill HS2 Ltd has continued to monitor for barbastelle bat and other bat species in this area. Further monitoring, as detailed in Section 3, has determined that habitats affected by the original scheme, including at Marlowes woodland, are not likely to support a core colony of barbastelle bat, and therefore are not used frequently by these species. However, as detailed in Section 3, Marlowes and adjacent woodland do support a diverse range of bat species which utilise this area for breeding. This assemblage is of greater value than those receptors of foraging and commuting bats reported in the main ES. In response to these survey results there will be a number of revisions to the original scheme, to reflect that there is no core breeding colony of barbastelle bats centred on Marlowes woodland, and to ensure that mitigation provision is appropriate for the assemblage of breeding bats.
- 5.6.3 The planting of Footpath M214 overbridge (Heart of England Way) will be removed and the width of the bridge reduced to 2m as a single vegetated overbridge will be sufficient to maintain current levels of bat dispersal across the HS2 route. Planting of Footpath M215 overbridge will remain as the original scheme. As a result of further design the width of M215 overbridge will be amended to approximately 21.6m (between parapets) and renamed Footpath M215 accommodation green overbridge. The Bill plans will be amended to illustrate the design specification of Footpath M215 overbridge. See map CT-06-102, in the SES and AP2 ES Volume 2, CFA23 Map Book for amendments.
- 5.6.4 Broadleaved semi-natural woodland located in the Berkswell Estate between the HS2 route and the A452 Kenilworth Road, close to Top Lodge, as included in the original scheme, will be reduced to a 20m (woodland depth) strip, adjacent and parallel to the HS2 route to maintain key bat dispersal corridors. New broadleaved semi-natural woodland will be provided on landscaped earthworks to the east of the HS2 route between Marlowes woodland and Sixteen Acre Wood, adjacent to Park Lane cutting; to accommodate for the redistribution of woodland planting in this area. The woodland will replace a length of hedgerow, as included in the original scheme. A hedgerow, included in the original scheme, between Footpath M215 overbridge and Marlowes woodland will be replaced with a 20m (woodland depth) strip of broadleaved semi-natural woodland, adjacent and parallel to the HS2 route. There will be a minor realignment of a drainage ditch proposed in the original scheme. Removal of the temporary material stockpile at Marlowes woodland (as described in Section 5.3 for the retention of temporary roundabout at Park Lane/A452 Kenilworth Road (AP2-023-002)) results in the associated 1.3ha woodland no longer being lost. In addition, 5.0ha of Marlowes woodland, to the east of the HS2 route, will be acquired permanently for the enhancement of existing broadleaved semi-natural woodland in order to provide immediate ecological benefits whilst woodland planting in the surrounding area establishes. Marlowes woodland is outside of the original limits of

the Bill, hence the need for this amendment. See map CT-06-102, in the SES and AP2 ES Volume 2, CFA23 Map Book for amendments.

- 5.6.5 The removal of planting of the Footpath M214 overbridge (Heart of England Way), reconfiguration of broadleaved semi-natural woodland and the acquiring of 6.4ha of Marlowes woodland permanently is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; landscape and visual assessment; land quality; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk. However, there are changes where reassessment is considered to be required in respect of ecology.

## Ecology

### *Scope, assumptions and limitations*

- 5.6.6 The assessment scope for ecology is as set out in Volume 1 of the SES and AP2 ES. The key assumptions and limitations, and the methodology for determining significance of effects is as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.6.7 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst-case' basis for the subsequent assessment. The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the AP2 revised scheme.

### *Existing baseline*

- 5.6.8 The ecological baseline of the land required for the amendment has been based on, field data collated for the main ES, additional bat, dormouse, otter, great crested newt and amphibian surveys, aerial photography, and relevant existing information gathered from national organisations and from regional and local sources including: Environment Agency, SMBC, Warwickshire Biological Records Centre, Warwickshire Wildlife Trust and the West Midland Bird Club.
- 5.6.9 A summary of the baseline information relevant to the assessment of the amendment is provided below. This takes account of any relevant new or updated baseline information provided in Volume 5 map series EC-02, EC-03, EC-04, EC-05, EC-11 and EC-12 of the AP2 revised scheme. For those receptors described in the main ES, further details are provided in Volume 2, CFA Report 23, Section 7 and in Volume 5, including maps EC-01 to EC-12.

### **Designated sites**

- 5.6.10 Berkswell Marsh SSSI is located 330m north of the land required for the amendment at its nearest point, and is of national value.
- 5.6.11 There is no ancient woodland within the land required for the amendment. Several areas of ancient woodland are present within the wider Berkswell Estate and this includes part of Sixteen Acre Wood, approximately 220m north of the land required for the amendment at its nearest point, and at The Bogs East, approximately 380m

north-east of the land required for the amendment at its nearest point. These areas of ancient woodland are collectively of county/metropolitan value.

- 5.6.12 There are no other statutory or non-statutory designated nature conservation sites or ancient woodland relevant to the assessment of this amendment.
- 5.6.13 Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA Report 23, Section 7 and are shown on maps EC-01-052 to EC-01-054a, Volume 5 Map Book.

### **Habitats**

- 5.6.14 Habitats within the land required for the amendment, including habitats reported in the Bill, comprise broadleaved semi-natural woodland and farmland to the north of A452 Kenilworth Road. From analysis of the Phase 1 habitat survey data collected for the main ES, habitat, including land identified in the Bill and still required, comprises approximately 13.1ha of arable farmland, 7.5ha of broadleaved semi-natural woodland, 1ha of mixed woodland plantation, 0.1ha of broadleaved plantation, 1.8ha of poor semi-improved grassland, 0.7ha of tall ruderal vegetation, 0.2ha of scattered scrub, 103m of species rich hedgerow and 422m of species poor hedgerow.
- 5.6.15 The arable farmland within the land required for the amendment is of negligible ecological value.
- 5.6.16 The scattered scrub within the land required for the amendment is located within poor semi-improved grassland. It is limited in extent and represents a common habitat type in the local and national context. For assessment purposes, this receptor is assessed as being part of the existing hedgerow network for the area and is of district/borough value.
- 5.6.17 The poor semi-improved grassland is potentially of principal importance and a conservation priority of the Local Biodiversity Action Plan (LBAP). This receptor (which includes some ruderal margins) is evaluated as part of the same resource of semi-improved grassland identified in the main ES for the area and is of district/borough value.
- 5.6.18 The hedgerow network within the land required for the amendment is part of the same network assessed in the main ES and is of district/borough value.
- 5.6.19 As reported within the main ES, woodland habitats within Marlowes woodland are oak woodland of National Vegetation Classification (NVC) community type W10 *Quercus robur* – *Pteridium aquilinum* – *Rubus fruticosus*. This is a LBAP habitat and is a habitat of principal importance as identified in Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>3</sup>. Areas of W10 broadleaved woodland in the area are collectively assessed within the main ES as being of county/metropolitan value.
- 5.6.20 The plantation woodland within Marlowes woodland is assessed as being part of a plantation woodland resource within the main ES and is of local/parish value.

---

<sup>3</sup> *Natural Environment and Rural Communities Act 2006*, (2006), Her Majesty's Stationery Office, London.

- 5.6.21 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA23, Section 7 and are shown on map EC-02-053, Volume 5 Map Book.

### **Protected and/or notable species**

- 5.6.22 Desk-study data and field surveys, as reported in the main ES, did not record any protected and/or notable species of flora within the land required for the amendment.
- 5.6.23 An assumed key area of foraging habitat for bats was reported in the main ES (as shown on main ES map EC-06-102, Volume 5 Map Book) and an assumed key commuting route (040-BA6-150002 as shown on main ES map EC-06-102, Volume 5 Map Book) was identified within Marlowes woodland.
- 5.6.24 Further bats surveys undertaken in 2014 recorded no barbastelle bat and it is concluded that a core colony area is not present within the study area. Barbastelle bat are assessed as being of up to district/borough value.
- 5.6.25 A diverse assemblage of at least nine species of breeding bat is reported within Marlowes woodland, and immediately adjacent to the amendment. This includes a confirmed soprano pipistrelle bat roost. The assemblage of nine species of breeding bat present within Marlowes woodland and the surrounding woodland habitats is assessed collectively as being of county/metropolitan value.
- 5.6.26 The main ES also reported a number of other bat species using Marlowes woodland for foraging and commuting. *Nyctalus* species, Leisler's bat and serotine, which were recorded and are assessed in the main ES as being of district/borough value.
- 5.6.27 An assemblage of more common bat species represented by common pipistrelle, soprano pipistrelle, brown long eared bat, noctule and *Myotis* species are also reported in the main ES as foraging and commuting within Marlowes woodland. These were assessed as being of local/parish value.
- 5.6.28 The main ES reported that a breeding bird survey (as shown on main ES map EC-08-102, Volume 5 Map Book) was undertaken within the area of the amendment. A heronry was reported as present within Marlowes woodland which was assessed as being of district/borough value within the main ES.
- 5.6.29 Badger activity was recorded within the land required for the amendment during surveys in support of the main ES. The various badger social groups within the area were assessed as being of local/parish value, and badgers within land required for the amendment are part of this same resource.
- 5.6.30 A reptile survey (as shown on main ES map EC-07-051, Volume 5 Map Book) was conducted within the area of the amendment. No reptiles were recorded and the main ES reports that they are presumed absent from this area.

### **Future baseline**

#### **Construction (2017)**

- 5.6.31 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).

- 5.6.32 None of the identified developments affect the assessment of the amendment's likely construction impacts on ecology.

### **Operation (2026)**

- 5.6.33 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.6.34 None of the identified developments affect the assessment of the amendment's likely operational impacts on ecology.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.6.35 The assessment assumes implementation of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES), which includes translocation of protected species where appropriate.

#### **Designated sites**

- 5.6.36 The amendment will not give rise to new or different significant effects on designated sites and will not change the level of significance of the effects reported in the main ES as amended by the SES.

#### **Habitats**

- 5.6.37 The main ES reported a precautionary assessment for which it is assumed all hedgerows within the land required for construction would be lost. This would also fragment the surrounding connected hedgerow network. These impacts would result in a permanent adverse effect on the conservation status of the hedgerow network which would be significant at district/borough level. There is no additional loss of hedgerow resulting from the amendment to that reported in the main ES and the level of significance of the effect remains unchanged.
- 5.6.38 The main ES reported that the loss of 13.1ha broadleaved semi-natural woodland would result in a permanent adverse effect on the conservation status of this habitat type that would be significant at the district/borough level. The retention of the temporary roundabout at Park Lane/A452 Kenilworth Road (AP2-023-002) will remove a temporary material stockpile located in Marlowes woodland thereby reducing the loss of broadleaved semi-natural woodland by approximately 0.9ha. However, the areas of woodland to be retained are small relative to the extent of loss of this habitat type within the Balsall Common and Hampton-in-Arden area. Consequently, the reduction in loss of broadleaved semi-natural woodland would give rise to a different effect to that reported in the main ES, although as reported in the main ES this would be significant at the district/borough level.
- 5.6.39 The main ES reported that a loss of 10ha of semi-improved grassland habitats would result in a permanent adverse effect on the conservation status of this receptor which would be significant at district/borough level. There is no additional loss of semi-improved grassland resulting from the amendment in addition to that reported within the main ES. The assessment in relation to semi-improved grassland habitats is therefore unchanged.

- 5.6.40 It is unlikely that any other effects on habitats of relevance at more than the local/parish level will occur. Additional local/parish level effects arising from survey data collected since the main ES are listed in SES and AP2 ES Volume 5: Appendix EC-003-004.

### **Species**

- 5.6.41 The SES scheme, as detailed in Section 3, would result in impacts on the assemblage of breeding bats concentrated around Marlowes woodland. The construction of Park Lane cutting would result in loss of woodland habitat and interruption of woodland habitat continuity. This is an adverse effect on the conservation status of the local populations of bats, which is a significant at the district/borough level. The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES as amended by the SES.
- 5.6.42 It is considered unlikely that any other effects on species of relevance at more than the local/parish level will occur. Additional local/parish level effects arising from survey data collected since the main ES are listed in SES and AP2 ES Volume 5: Appendix EC-003-004.

### **Cumulative effects**

- 5.6.43 There are no new or different likely significant cumulative effects for ecology as a result of the amendment acting in combination with another amendment in AP2.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.6.44 The main ES reported that habitat creation measures within the Berkswell Estate and wider Balsall Common and Hampton-in-Arden area includes the recreation of species-rich neutral grassland, marshy grassland, ponds and broadleaved semi-natural woodland. This will compensate for those bat foraging habitats lost within the original scheme.
- 5.6.45 Within the land required for the amendment, new woodland and hedgerow planting parallel to the HS2 route, as reported in the main ES, will further reduce the effect of habitat loss on bats, providing foraging and commuting habitat connections, replacing or providing alternative routes through the landscape.
- 5.6.46 There will be a minor reduction of 278m in the length of replacement hedgerows within the land required for the amendment when compared to the original scheme, but this will represent a negligible change to the provision of replacement planting in this area.
- 5.6.47 The amendment alters the distribution of woodland to reduce woodland planting around Top Lodge and increase woodland planting to the east of the HS2 route between the retained area of Marlowes woodland and Sixteen Acre Wood. The re-distribution of woodland planting will result in a reduced amount<sup>4</sup> of broadleaved

---

<sup>4</sup> This 1.3 ha area of replanting factors in woodland no longer removed at Marlowes woodland due to AP-023-002 (see Section 5.3)

semi-natural woodland planting in CFA23 by 0.9ha. The redistribution of woodland planting within the land required will have a negligible effect on the overall provision of replacement woodland planting within the context of this area.

- 5.6.48 As described in the main ES at Park Lane cutting, woodland and hedgerow planting will be provided at the top of the cutting slopes to the north and south of the retained portion of Marlowes woodland. Dense planting will also be provided across the cutting itself, supported by the structure of Footpath M215 Accommodation Green overbridge. This mitigation is designed to provide replacement linear habitat features alongside and across the HS2 route, allowing bat species to more easily cross the Park Lane cutting, reducing the effect of habitat loss and degradation. Retained habitats will be protected during construction, including shelter from artificial illumination where necessary. All new planting would be established in accordance with the ecological principles of mitigation set out in the SMR Addendum (see main ES Volume 5: Appendix CT-001-000/2).
- 5.6.49 Approximately 5ha of Marlowes woodland, immediately to the east of the HS2 route, is to be acquired as part of the amendment for the implementation of woodland management practices, which are over and above those to be implemented under the original scheme. This management will increase the capacity of the remaining woodland to support the assemblage of breeding bats identified as present. Following implementation of mitigation, the residual adverse effect on the conservation status of the assemblage of breeding bats at Marlowes woodland would be no more than local/parish level and therefore not significant. This would change to a beneficial effect following establishment of new woodland vegetation and woodland management practices to support the breeding bat assemblage.

#### *Residual effects*

- 5.6.50 With the implementation of the mitigation measures proposed the new or different ecological effects arising from the amendment are reduced to a level where they are not significant. The significant effects of the AP2 revised scheme in this area are therefore unchanged from those reported in the main ES as amended by the SES.

#### *Effects arising during operation*

- 5.6.51 There are no new or different significant operational effects for ecology as a result of the amendment, in comparison with the main ES.

## **5.7 Summary of new or different likely residual significant effects as a result of the amendment**

- 5.7.1 This amendment requiring additional land at Marlowes Woodland will not result in new or different significant effects or change the level of the effects reported in the main ES.

## **5.8 Extension of the River Blythe viaduct (AP2-023-004)**

- 5.8.1 The Bill provides for the provision of the River Blythe viaduct for the HS2 route to cross over the River Blythe and associated floodplain. The River Blythe viaduct would be approximately 150m in length and approximately 10.5m in height above ground level (see grid reference D6, map CT-06-104 in the main ES Volume 2, CFA23 Map

Book). Prior to this the HS2 route would cross over the B4102 Meriden Road, via the B4102 Meriden Road underbridge (see grid reference F6, map CT-06-104 in the main ES Volume 2, CFA23 Map Book), and continue on the Patrick embankment for approximately 260m. A 4m tall noise barrier would be provided on the south-west side of the route for the section between the B4102 Meriden Road underbridge and the River Blythe viaduct. To compensate for the loss of floodplain associated with the Patrick embankment and the River Blythe viaduct a replacement flood storage area adjacent to the River Blythe would be provided. This area would be excavated to a maximum depth of approximately 2.3m below existing ground level. Following excavation, the area will be regraded back to tie into existing ground level (see grid reference D8, map CT-06-104 in the main ES Volume 2, CFA23 Map Book). Marshy grassland would be provided in the replacement flood storage area to compensate for loss elsewhere within the area. An existing water main and overhead power line would be diverted beneath the River Blythe viaduct. The overhead power line would be diverted underground around the Patrick embankment.

- 5.8.2 Since submission of the Bill a design solution has been developed which will facilitate access between land holdings by extending the River Blythe viaduct to approximately 480m long which will replace the section of Patrick embankment between the B4102 Meriden Road and the River Blythe, the B4102 Meriden Road underbridge, and a short section, approximately 6m, of the Patrick embankment to the south-east of the underbridge. The vertical alignment of the HS2 route through this section will remain unchanged. The private means of access as detailed in the original scheme, will remain. An additional private means of access to Patrick Farm will be provided adjacent to the southern abutment of the River Blythe viaduct, south of the B4102 Meriden Road. An access track off the B4102 Meriden Road for a balancing pond, as detailed in the original scheme, will be realigned closer to the route of the original scheme and Footpath M230A will be realigned accordingly. The underground diversion of the existing overhead power line would be diverted on a slightly different alignment under the viaduct. See map CT-06-104 on SES and AP2 ES Volume 2, CFA23 Map Book for amendments.
- 5.8.3 The B4102 Meriden Road underbridge satellite construction compound, which will be renamed the River Blythe viaduct satellite construction compound, will be operational for approximately 12 months longer to support the construction of the viaduct which is planned to start in 2017 and will take approximately two years and three months to complete (approximately 12 months longer than previously). The construction duration of Patrick embankment will reduce by approximately two months. Material stockpiles to the south-west of the HS2 route will be reduced in size and reconfigured which will require a minor realignment of the haul road. The extension to the viaduct will require a change to the Bill powers, hence the need for this amendment. The changes will be located within the existing limits of the Bill and no additional land will be required. See map CT-05-104 on SES and AP2 ES Volume 2, CFA23 Map Book for amendments.
- 5.8.4 The extension of the River Blythe viaduct and removal of the B4102 Meriden Road underbridge and a section of Patrick embankment is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; land quality and socio-economics. However, there are changes where reassessment is

considered to be required in respect of: community; cultural heritage; ecology; landscape and visual assessment; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment.

## **Community**

### *Scope, assumptions and limitations*

- 5.8.5 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.8.6 The baseline community information for the area is described in the main ES (Volume 2, CFA Report 23, Section 5).
- 5.8.7 Diddington Lane is located to the north of the village of Hampton-in-Arden. There are a number of residences located to the south of Diddington Lane, where it joins the B4102 Meriden Road, closest to the village. Further north, Diddington Lane provides access to The Island Project School at Diddington Hall.

### *Future baseline*

#### **Construction (2017)**

- 5.8.8 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.9 None of the identified developments affect the assessment of the amendment's likely construction impacts on community.

#### **Operation (2026)**

- 5.8.10 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.11 None of the identified developments affect the assessment of the amendment's likely operational impacts on community.

### *Effects arising during construction*

- 5.8.12 The main ES reported that construction activities, including those associated with the River Blythe viaduct, Patrick embankment and the B4102 Meriden Road underbridge, in close proximity to The Island Project School would result in significant noise and visual effects. This resulted in a major adverse effect on the amenity of pupils of the Island Project School for approximately four months in total, which was considered significant. The proposed extension to the River Blythe viaduct will not give rise to a new or different significant community amenity effect and will not change the level of significance of the community amenity effect reported in the main ES.

### *Effects arising from operation*

- 5.8.13 The amendment will not give rise to a new or different significant operational community effect and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.8.14 No mitigation measures are applicable to this amendment. The amendment will not result in any significant residual effects in construction or operation, which is unchanged from the main ES.

### *Cumulative effects*

- 5.8.15 There are no new or different likely significant cumulative effects for community as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **Cultural heritage**

### *Scope, assumptions and limitations*

- 5.8.16 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.8.17 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walk-over survey, geophysical survey, remote-sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6.3 of the main ES. In addition, the baseline has been updated with the results of additional geophysical surveys for archaeology.
- 5.8.18 The baseline cultural heritage information for the Balsall Common and Hampton-in-Arden area is described in the main ES (Volume 2, CFA Report 23, Section 6).
- 5.8.19 The amendment will be constructed in close proximity to four designated heritage assets, which comprise: Grade II\* listed Diddington Hall (asset reference BHA216), approximately 800m north-west of the amendment; Grade II\* listed Diddington Farmhouse (asset reference BHA222), approximately 950m north-west of the amendment; Grade II listed Meriden Mill Farmhouse (asset reference BHA170), approximately 600m north of the amendment; and Grade II listed Mouldings Green Farm (asset reference BHA175), approximately 550m north of the amendment.

### *Future baseline*

#### **Construction (2017)**

- 5.8.20 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).

- 5.8.21 None of the identified developments affect the assessment of the amendment's likely construction impacts on cultural heritage.

### **Operation (2026)**

- 5.8.22 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.23 None of the identified developments affect the assessment of the amendment's likely operational impacts on cultural heritage.

### *Effects arising during construction*

- 5.8.24 The main ES reported that there would be a permanent impact on the setting of Diddington Hall (asset reference BHA216) as a result of the River Blythe viaduct and Patrick embankment, which would introduce a new visual element into the rural setting. The impact on setting was reported as low adverse resulting in a moderate adverse effect. The extended viaduct will still introduce a new visual element in the rural setting, therefore this effect will remain as reported in the main ES.
- 5.8.25 No further significant effects additional to those reported in the main ES are anticipated.
- 5.8.26 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### *Effects arising from operation*

- 5.8.27 The amendment will not give rise to a new or different significant operational effect for cultural heritage and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.8.28 No additional mitigation measures are applicable to this amendment. The amendment will not result in any new or different significant residual effects in construction or operation at this location, and will not change the level of significance of the effects reported in the main ES.

### *Cumulative effects*

- 5.8.29 There are no new or different likely residual significant effects for cultural heritage as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **Ecology**

### *Scope, assumptions and limitations*

- 5.8.30 The assessment scope for ecology is as set out in Volume 1 of the SES and AP2 ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-

001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

- 5.8.31 To address any limitations in data, a precautionary baseline has been considered according to the guidance reported in the main ES, Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst-case' basis for the subsequent assessment. The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

### *Existing baseline*

- 5.8.32 The ecological baseline of the land required for the amendment has been based on: field data collated for the main ES; additional otter surveys; aerial photography; and relevant existing information gathered from national organisations and from regional and local sources including: Environment Agency; SMBC; Warwickshire Biological Records Centre; Warwickshire Wildlife Trust and the West Midland Bird Club.
- 5.8.33 A summary of the baseline information relevant to the assessment of the amendment is provided below. This takes account of any relevant new or updated baseline information provided in Volume 5 map series EC-02, EC-03, EC-04, EC-05, EC-11 and EC-12 of the amendment. For those receptors described in the main ES, further details are provided in Volume 2, CFA Report 23, Section 7 and in Volume 5, including Maps EC-01 to EC-12.

### **Designated sites**

- 5.8.34 River Blythe SSSI and Mouldings Green Farm Local Wildlife Site (LWS) are located within the area of land required for the amendment, as shown on main ES map EC-01-052, Volume 5 Map Book. The River Blythe SSSI is reported as being of national value in the main ES. Mouldings Green Farm LWS is reported as being of county/metropolitan value in the main ES.
- 5.8.35 Patrick Farm Meadow LWS is located approximately 390m south of the land required for the amendment at its nearest point, as shown on main ES map EC-01-052, Volume 5 Map Book. This LWS is reported as being of county/metropolitan value in the main ES.
- 5.8.36 Marsh Lane Nature Reserve is located approximately 490m south of the land required for the amendment at its nearest point. The site is privately owned and is managed for wetland bird and other wildlife interests, which are assessed under the 'Species' section below.
- 5.8.37 Designated sites are described in the main ES, Volume 2, CFA Report 23, Section 7 and are shown on main ES maps EC-01-052 to EC-01-054a, Volume 5 Map Book.

### **Habitats**

- 5.8.38 Habitats reported in the main ES which are of relevance to the area of the amendment include a section of the River Blythe watercourse, broadleaved semi-natural woodland, NVC MG4 marshy grassland (*Alopecurus pratensis* - *Sanguisorba officinalis*) and poor semi-improved grassland.

- 5.8.39 The section of the River Blythe which flows through land required for the amendment is of national value. The broadleaved semi-natural woodland and NVC MG<sub>4</sub> marshy grassland (*Alopecurus pratensis* - *Sanguisorba officinalis*) habitats within the land required for the amendment are both of county/metropolitan value. The poor semi-improved grassland in this area is of local/parish value.
- 5.8.40 This area mainly comprises agricultural fields, poor semi-improved grassland and a section of the River Blythe north of the B4102 Meriden Road.
- 5.8.41 Habitats within the land required for the amendment, including habitats reported in the Bill, comprise of an estimated 3.8ha of arable farmland, 3ha of poor semi-improved grassland, 0.2ha of NVC MG<sub>4</sub> marshy grassland (*Alopecurus pratensis* - *Sanguisorba officinalis*), 0.3ha of broadleaved semi-natural woodland, 100m<sup>2</sup> of standing water, 0.1ha of hard standing, 97m of running water (River Blythe), 206m of species-rich hedgerow, 519m of species-poor hedgerow and 205m of dry ditch.
- 5.8.42 The hard standing (the B4102 Meriden Road) is not vegetated and is of negligible ecological value. The arable land is also of negligible ecological value and does not qualify as a habitat of principal importance. The poor semi-improved grassland is part of the wider grassland resource identified in the main ES for the area and is of local/parish value.
- 5.8.43 Broadleaved semi-natural woodland is potentially a habitat of principal importance. This area of woodland was not subject to NVC assessment, but is detailed in the main ES as having similarities to NVC W8 (*Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis*) which is a common woodland type in lowland England. The area of woodland within the land required for the amendment is small in extent (0.1ha) and for assessment purposes this receptor is considered to be part of the same overall resource of broadleaved woodland in this area identified in the main ES. It is assessed on a precautionary basis as being of county/metropolitan value.
- 5.8.44 The NVC MG<sub>4</sub> marshy grassland (*Alopecurus pratensis* - *Sanguisorba officinalis*) within the land required for the amendment is a habitat of principal importance. Semi-improved MG<sub>4</sub> grassland is also included within Annex 1 of the Habitats Directive (Habitat Biotope H6510)<sup>5</sup>. It is considered part of the same resource of MG<sub>4</sub> marshy grassland (*Alopecurus pratensis* - *Sanguisorba officinalis*) identified in this area in the main ES and is of county/metropolitan value.
- 5.8.45 The River Blythe SSSI is a lowland river which represents a habitat of principal importance. The section of the river which flows through the land required for the amendment is of high habitat quality and diversity and is the same watercourse identified in the main ES as being of national value. The small area of standing water that exists within the land required for the amendment is located immediately adjacent to the River Blythe and is considered to be regularly inundated by river waters. It is therefore considered to be part of the same resource of running water as the section of the River Blythe which flows through the land required for the amendment.

---

<sup>5</sup> European Commission; *The Habitats Directive*; <http://ec.europa.eu/environment/nature/legislation/habitatsdirective/>; accessed: March 2013.

- 5.8.46 The hedgerows within the land required for the amendment are part of the same network evaluated in the main ES and are of district/borough value.
- 5.8.47 The section of dry ditch within the land required for the amendment is of low conservation value and is of local/parish value.

### **Protected and/or notable species**

- 5.8.48 Desk-study data and field surveys, as reported in the main ES and undertaken since submission of the main ES, did not record any protected and/or notable species of flora or fauna within the area of the AP2 revised scheme.
- 5.8.49 The main ES reported a number of bat species using the wider landscape, particularly the River Blythe river valley, for foraging and commuting (see main ES map EC-06-104, Volume 5 Map Book). These species included populations of less common species (*Nyctalus* species, serotine and Leisler's) within the survey extent of this section of the original scheme and in the vicinity of the River Blythe SSSI. These populations, which may use habitats within the land required for the amendment for foraging and dispersal, were assessed in the main ES as being of district/borough value.
- 5.8.50 An assemblage of more common bat species represented by noctule, common pipistrelle, soprano pipistrelle and *Myotis* species is also reported in the main ES as associated with the vicinity of the River Blythe and the main ES reported a key commuting route which runs through the land required for the amendment (see main ES map EC-06-104, Volume 5 Map Book). The same assemblage of bat species recorded along the River Blythe is likely to be present along the stretch of river and adjacent habitats within the land required for the amendment. This assemblage was assessed in the main ES as being of local/parish value.
- 5.8.51 Two trees identified in the main ES and within the area of the land required for the amendment as having moderate potential to support roosting bats (040-BT3-154029 as shown on main ES map EC-05-052, Volume 5 Map Book). The main ES identifies a network of small tree and building roosts used by populations of common species (common pipistrelle; soprano pipistrelle; and brown long-eared bat) which are of local/parish value and for the purposes of this assessment, the two trees are considered to be part of the same resource.
- 5.8.52 The main ES reported a peak count of 234 widgeon (an Amber list bird species), recorded during a wintering bird survey in a field approximately 190m south of the area of amendment at its nearest point (040-WB1-153001, main ES map EC-09-104, Volume 5 Map Book). This species was assessed as being of district/borough value within the main ES. An assemblage of wintering birds in the vicinity of Diddington Lane included two teal recorded within the land required for the amendment as shown on main ES map EC-09-104, Volume 5 Map Book. This assemblage, which may use the habitats within the land required for the amendment for foraging, was assessed as being of local/parish value.
- 5.8.53 A diverse assemblage of fish species, including stone loach, brown trout and bullhead were recorded within the section of the River Blythe SSSI which flows through the land required for the amendment (see main ES map EC-11-104, Volume 5 Map Book). This assemblage was assessed as being of district/borough value within the main ES.

- 5.8.54 A small population of otter was identified within the main ES and signs of their presence were recorded alongside the River Blythe SSSI which runs through the land required for the amendment. This included an active otter holt (040-OT2-154001 as shown in main ES map EC-11-104, Volume 5 Map Book) in a location 10m to the east of the land required for the amendment at its nearest point. The population as a whole was assessed in the main ES as being of district/borough value.
- 5.8.55 A water vole survey was undertaken within the land required for the amendment (040-WV1-154017 as shown on main ES map EC-12-104-R1, Volume 5 Map Book). No water voles or signs of water vole presence were recorded and they are presumed absent from this area.
- 5.8.56 A badger social group territory is partially within the land required for the amendment. The various badger social groups within the area were assessed as being of local/parish value.
- 5.8.57 A reptile survey was conducted within the area of the AP2 revised scheme (040-RE2-153001 as shown on main ES map EC-07-052, Volume 5 Map Book). No reptiles were recorded and they were assumed absent.

### *Future baseline*

#### **Construction (2017)**

- 5.8.58 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.59 None of the identified developments affect the assessment of the amendment's likely construction impacts on ecology.

#### **Operation (2026)**

- 5.8.60 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.61 None of the identified developments affect the assessment of the amendment's likely operational impacts on ecology.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.8.62 Construction of the extension of the River Blythe viaduct over the River Blythe SSSI and the associated floodplain in place of embankment will reduce impacts on dispersal routes used by birds, bats and river-based fauna and allow riparian plant habitat to remain in place.
- 5.8.63 The assessment assumes implementation of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES), which includes translocation of protected species where appropriate.

### **Designated sites**

- 5.8.64 The main ES reported that the construction of the original scheme, including the River Blythe viaduct that would result in the loss of 0.4ha (51.5%) of the marshy grassland at Mouldings Green Farm LWS. The loss of habitats within the LWS would result in an adverse effect on site integrity that is significant at county/metropolitan level. There are no new potential impacts arising from amendment and the assessment for Mouldings Green Farm LWS reported in the main ES is unchanged.
- 5.8.65 The main ES reported there are no works proposed within the River Blythe SSSI and consequently no adverse effect is anticipated on site integrity. The amendment does not change the potential impacts on the SSSI and the assessment remains unchanged.

### **Habitats**

- 5.8.66 The main ES reported a precautionary assessment in which it is assumed the poor semi-improved grassland, marshy grassland, broadleaved semi-natural woodland, standing water, species-rich hedgerow and species-poor hedgerow within the land required for the amendment would be lost..
- 5.8.67 The main ES reported that a loss of marshy grassland habitat within the land required for the amendment would result in a permanent adverse effect on the conservation status of this receptor which would be significant at the district/borough level. The extent of marshy grassland lost would not change as a result of the amendment. Consequently, the assessment in relation to this habitat is unchanged by the amendment.
- 5.8.68 The main ES reported that a loss of broadleaved semi-natural woodland within the land required for the amendment would result in a permanent adverse effect on the conservation status of this receptor which would be significant at the district/borough level. There will be minor reduction of approximately 1.3ha of replacement broadleaved semi-natural woodland within the land required for the amendment when compared to the original scheme owing to the reduction of the length of and planting on Patrick embankment. The amendment will give rise to a different effect, but will not change the significance of the effect reported in the main ES.
- 5.8.69 The main ES reported that there are no works proposed within the watercourse habitats of the River Blythe and consequently no adverse effect on the conservation status of this habitat type is expected to occur. There are no new potential impacts arising from the amendment and the assessment in relation to watercourse habitats is unchanged by the amendment.
- 5.8.70 The main ES reported that a loss of hedgerow habitat within the land required for the amendment would result in a permanent adverse effect on the conservation status of the hedgerow network which was assessed to be significant at district/borough level. The extent of hedgerow loss would not change as a result of the amendment. Consequently, the assessment in relation to the hedgerow network is unchanged by the amendment.
- 5.8.71 It is considered unlikely that any other effects on habitats of relevance at more than the local/parish level will occur. Additional local/parish level effects arising from survey

data collected since the main ES are listed in SES and AP2 ES Volume 5: Appendix EC-003-004.

### **Species**

- 5.8.72 The loss of woodland and grassland habitats from within the land required for the amendment will lead to a reduction in suitable foraging habitat, and the potential disruption of dispersal corridors used by a number of less common bat species including *Nyctalus* species, and Leisler's bat in various locations within this section of the original scheme. All the land required for the amendment is within the limits of the existing Bill and consequently, habitat losses within the land required for the amendment have already been assessed. The amendment will not change the adverse effect at local/parish level reported in the main ES with regard to these species.
- 5.8.73 Two trees with moderate potential to support bat roosts within the land required for the amendment would be removed by the original scheme. It is assumed that a small roost of common species (common pipistrelle; soprano pipistrelle; and brown long-eared bat) exists. The main ES reported that the removal would result in a permanent adverse effect on the conservation status of the species concerned at local/parish level. The assessment is unchanged by the amendment.
- 5.8.74 Vegetation clearance and construction activities within the land required for the amendment will be likely to result in the loss of badger foraging habitat. However, through implementation of the ecological principles of mitigation, it is expected that there would be no significant adverse effect upon this species. All the land required for the amendment is within the limits of the existing Bill and consequently, habitat losses and disturbance within the land required for the amendment have already been assessed. The amendment will not change the adverse effect at local/parish level reported in the main ES with regard to these species.
- 5.8.75 It is considered unlikely that any other effects on species of relevance at more than the local/parish level will occur. Additional local/parish level effects arising from survey data collected since the main ES are listed in SES and AP2 ES Volume 5: Appendix EC-003-004.

### *Cumulative effects*

- 5.8.76 There are no new or different likely significant cumulative effects for ecology as a result of the amendment acting in combination with another amendment in AP2.

### *Mitigation and residual effects*

#### *Other mitigation measures*

- 5.8.77 Owing to reduction of the length of Patrick embankment and loss of planting area, there will be a minor reduction of approximately 1.3ha of replacement broadleaved semi-natural woodland within the land required for the amendment. This represents a negligible reduction in the overall provision of replacement woodland planting in this area.
- 5.8.78 No additional mitigation measures (i.e. additional to those identified in the main ES and SES) are required with regard to the amendment.

### *Summary of likely residual effects*

- 5.8.79 The reduction in the area of replacement broadleaved semi-natural woodland as a result of the amendment will give rise to a different effect but will not change the level of significance of the effect reported in the main ES.
- 5.8.80 No other new or different residual effects on ecological receptors occur as a consequence of the amendment.

### *Effects arising from operation*

- 5.8.81 There are no new or different significant operational effects for ecology as a result of the amendment, in comparison with the main ES.

## **Landscape and visual assessment**

### *Scope, assumptions and limitations*

- 5.8.82 The assessment scope, key assumptions and limitations for the landscape and visual assessment are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. An update to the methodology for the landscape and visual assessment is also described in Volume 1 of the AP1 ES.

### *Existing baseline*

- 5.8.83 The area of land required for the amendment is located entirely within the Solihull Rural Heartland and Blythe Valley Landscape Character Areas (LCAs) as described in the main ES (Volume 2, CFA Report 23, Section 9).
- 5.8.84 The context of the amendment features a number of visual receptors including recreational and transport receptors. The following viewpoints are also located in close proximity to the area and are described in the main ES (Volume 2, CFA Report 23, Section 9). Views north from the B4102 Meriden Road encompass the area of the amendment and are represented by:

- viewpoint 293.4.002 - view east across the Blythe Valley from B4102 Meriden Road;
- viewpoint 293.4.003 - view north across Blythe Valley from B4102 Meriden Road;
- viewpoint 295.3.001 - view east across the Blythe Valley from Footpath M118; and
- viewpoint 296.2.001 - view west along B4102 Meriden Road from Patrick Farm.

### *Future baseline*

#### **Construction (2017)**

- 5.8.85 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).

- 5.8.86 None of the identified developments affect the assessment of the amendment's likely construction impacts on landscape and visual.

**Operation (2026)**

- 5.8.87 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.88 None of the identified developments affect the assessment of the amendment's likely operational impacts on landscape and visual.

*Effects arising during construction*

**Landscape assessment**

- 5.8.89 Solihull Rural Heartland LCA was assessed as being affected by the original scheme and will also be affected by the amendment. Solihull Rural Heartland LCA is in good condition and is of borough value and therefore it is considered to be of medium sensitivity to change. The main ES reported a moderate adverse effect during construction due to construction activity and loss of characteristic landscape elements such as trees, hedges and agricultural land severing land parcels where the HS2 route crosses the centre of a succession of fields.
- 5.8.90 Blythe Valley LCA was assessed as being affected by the original scheme. The Blythe Valley LCA is in good condition and is of borough/district value and therefore it is considered to be of high sensitivity to change. The main ES reported a major adverse effect as the majority of the LCA would be directly affected by the construction of new built elements, earthworks and activity within the relatively unenclosed context of the LCA.
- 5.8.91 The amendment will result in the presence of construction activity for an additional 12 months longer than proposed by the original scheme, and involve creation of a longer section of viaduct and shorter sections of embankment.
- 5.8.92 For both LCAs, effects would occur in the context of the construction of other elements of the original scheme, although the distribution and balance of viaduct to embankment is different. Consequently, the proposed change to the River Blythe viaduct will give rise to a different significant landscape effect but will not change the level of significance of the effects reported in the main ES.

**Visual assessment**

- 5.8.93 Viewpoint 293.4.002 was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a moderate adverse effect due to the prominence of construction activity in close proximity to the viewpoint with limited intervening screening. The construction of the amendment will result in effects consistent with the original scheme, as a result of the removal of vegetation and other construction activity across the panorama. However, the temporary material stockpile within the middle ground of the view to form the Patrick embankment, north of B4102 Meriden Road, as in the original scheme, will be replaced by views of the construction of the extended River Blythe viaduct. The duration of visual effects will increase by approximately 12 months as a result of the

amendment. The amendment will give rise to a different significant visual effect but this does not change the level of significance of the effects reported in the main ES.

- 5.8.94 Viewpoint 294.4.003 was assessed as being affected by the original scheme and will be further affected by this amendment. The main ES reported a moderate adverse effect due to construction activity associated with the B4102 Meriden Road underbridge, Patrick embankment and the River Blythe viaduct and the B4102 Meriden Road underbridge satellite compound.
- 5.8.95 The amendment will result in the removal of vegetation and other construction activity associated with the HS2 route in the open landscape of the valley which are effects consistent with the original scheme. Part of the temporary material stockpile within the middle ground of the view that would form the short section of the Patrick embankment (south of B4102 Meriden Road) will be replaced by views of the construction of the extended River Blythe viaduct. The construction programme will increase by approximately 12 months as a result of the amendment. The amendment does give rise to a different significant visual effect but this does not change the level of significance of the effects reported in the main ES.
- 5.8.96 Viewpoint 295.3.001 was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a major adverse effect due to the prominence of construction activity including the removal of substantial areas of vegetation including woodland and hedgerows, cranes required for the B4102 Meriden Road underbridge and other construction plant required to construct Patrick Farm cutting and Patrick embankment in the middle ground in close proximity to the viewpoint, with limited intervening screening.
- 5.8.97 The amendment will result in views largely as described for the original scheme. However, the placement of temporary stockpiles within the middle ground of the view to form the short section of the Patrick embankment north of B4102 Meriden Road, proposed in the original scheme will be replaced by views of the construction of the extended River Blythe viaduct, and the duration of visual effects will increase by approximately 12 months as a result of the amendment. However, the nature of construction activity will be similar to that assessed in the original scheme. The amendment does give rise to a different significant visual effect but this does not change the level of significance of the effects reported in the main ES.
- 5.8.98 Viewpoint 296.2.001 was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a major adverse effect due to the elevated nature of the HS2 route and the scale of the construction plant required in proximity to the viewpoint. The amendment will result in views of the construction of the extended River Blythe viaduct. The duration of visual effects will increase by approximately 12 months as a result of the amendment. However, the nature of construction activity will be similar to that in the original scheme. The amendment does give rise to a different significant visual effect but this does not change the level of significance of the effects reported in the main ES.

### *Effects arising from operation*

#### **Landscape assessment**

- 5.8.99 Solihull Rural Heartland LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a moderate adverse effect in year 1 of operation due to the presence of new elements in the natural landscape affecting a relatively small part of the LCA.
- 5.8.100 By year 15 and beyond to year 60 of operation effects were predicted to reduce to non-significant.
- 5.8.101 The proposed extended River Blythe viaduct will retain a degree of the existing openness within the valley and will be a more sympathetic structure than the embankment proposed in the original scheme. The amendment will give rise to a different significant landscape effect in year 1, year 15 and 60 but will not change the level of significance of the effects reported in the main ES.
- 5.8.102 Blythe Valley LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a major adverse effect in year 1 of operation due to the presence of rail infrastructure, landforms and the scale of the viaducts at Marsh Farm and the River Blythe, evident across a large proportion of the LCA.
- 5.8.103 By year 15 and beyond to year 60 of operation, the views of the original scheme would remain clearly visible despite the incremental growth of vegetation resulting in effects remaining unchanged.
- 5.8.104 The amendment will reduce the scale of change on openness in comparison with the original scheme though the effects relating to introduction of rail infrastructure will remain. The amendment will give rise to a different significant landscape effect but does not change the level of significance of the effects reported in the main ES.

#### **Visual assessment**

- 5.8.105 Viewpoint 293.4.002 was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a moderate adverse significant effect in Years 1 due to the route within Patrick cutting centrally within the view, emerging on the Patrick embankment in close proximity to Patrick Farm on the approach to the River Blythe viaduct.
- 5.8.106 The amendment will reduce visual obstruction and allow a degree of openness due to greater visibility through the viaduct in comparison with embankments. The amendment does give rise to a different significant visual effect but this does not change the level of significance of the effects reported in the main ES.
- 5.8.107 Viewpoint 293.4.003 was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a moderate adverse effect in the winter of year 1 due to the presence of the River Blythe viaduct, which would disrupt the view towards a wooded backdrop.
- 5.8.108 The amendment to extend the River Blythe viaduct will allow the retention of long views along the Blythe Valley. The amendment does give rise to a different significant

visual effect but this does not change the level of significance of the effects reported in the main ES.

- 5.8.109 A photomontage of the extended River Blythe viaduct amendment is illustrated on Figure LV-01-167, in SES and AP2 ES, Volume 2, CFA23 Map Book.
- 5.8.110 Viewpoint 295.3.001 was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a major adverse effect in the winter of year 1 due to views of the Patrick cutting and Patrick embankment in close proximity to Patrick Farm leading up to the River Blythe viaduct in the middle ground and remaining major adverse in year 15 and year 60.
- 5.8.111 Views of the amendment will comprise the viaduct, trains, overhead line equipment, noise barriers and embankments in the background of the view. The amendment does give rise to a different significant visual effect but this does not change the level of significance of the effects reported in the main ES.
- 5.8.112 Viewpoint 296.2.001 was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a major adverse effect in the winter of year 1 due to views of the River Blythe viaduct in the middle ground of the view, approximately 100m from the viewpoint.
- 5.8.113 The amendment will reduce the extent of embankment and mitigation planting within the view. The amendment does give rise to a different significant visual effect but this does not change the level of significance of the effects reported in the main ES.
- 5.8.114 A photomontage of the River Blythe viaduct extension amendment is illustrated from this viewpoint on Figure LV-01-169 in the SES and AP2 ES, Volume 2, CFA23 Map Book.

#### *Mitigation and residual effects*

- 5.8.115 No mitigation measures are proposed in relation to this amendment. The amendment to extend the River Blythe viaduct in place of earth embankments will allow a degree of openness to be retained across the Blythe Valley. However, the change also removes the opportunity to plant on embankments, which was part of the mitigation strategy and assisted in integrating the original scheme into the landscape and views.
- 5.8.116 Overall the amendment will result in a localised improvement in comparison with the original scheme as there are unobstructed views through the viaduct. There are different residual significant construction and operational effects for landscape and visual as a result of the amendment, but these do not change the level of significance of the effects reported in the main ES.

#### *Cumulative effects*

- 5.8.117 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with another amendment in AP2 or as a result of any relevant committed development interacting with the amendment.

## Sound, noise and vibration

### *Scope, assumptions and limitations*

- 5.8.118 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.8.119 Local assumptions and limitations for sound, noise and vibration are set out in main ES Volume 2 CFA Report 23, Section 11.

### *Existing baseline*

- 5.8.120 The baseline sound, noise and vibration information for the area is as described in the main ES (Volume 2, CFA Report 23, Section 11 and Volume 5: Appendix SV-002-023).

### *Future baseline*

#### **Construction (2017)**

- 5.8.121 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.122 Since the submission of the main ES, planning permission has been granted for a further nine commercial units at Patrick Farm (reference 2013/2137) and is considered relevant to this assessment.

#### **Operation (2026)**

- 5.8.123 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.124 None of the identified developments affect the assessment of the amendment's likely operational impacts on sound, noise and vibration.

### *Effects arising during construction*

- 5.8.125 SES and AP2 Volume 5: Appendix SV-003-023 details the relevant changes to the results reported in the main ES, Volume 5: Appendix, SV-003-023.
- 5.8.126 Construction activities to extend the River Blythe viaduct, replace the activities to construct Patrick embankment in this area which were assessed in the main ES. The extended viaduct also replaces the B4102 Meriden Road underbridge. Patrick Farm is located adjacent to the southern end of the River Blythe viaduct. The residential property at Patrick Farm was estimated in the main ES as likely to qualify for noise insulation as a result of daytime construction noise levels being above the noise insulation trigger. In addition, an adverse daytime construction vibration effect was predicted at the property. A significant effect was anticipated at the commercial units at Patrick Farm due to daytime construction noise levels.
- 5.8.127 At Patrick Farm the typical monthly daytime construction noise levels associated with the amendment decrease by 1 dB from 65dB to 64dB, and no change to the highest monthly level is predicted. The duration of the impact at the residential property at

Patrick Farm is anticipated to be reduced from 17 months to nine months, and at the commercial units from six months to three months. This is due to the removal of the B4102 Meriden Road underbridge, which concentrated a range of activities in close proximity to Patrick Farm. The replacement of this bridge with an extended viaduct means works are not as concentrated in the vicinity of the farm. However, as the noise levels are comparable with the original scheme, the residential property remains as estimated to be likely to qualify for noise insulation, and the significant effect at the commercial units remains.

- 5.8.128 A slight change to the daytime vibration impact at Patrick Farm, reported in the main ES, is anticipated. The adverse effect at the residential property due to the vibro-compaction of earthworks remains as reported in the main ES.

#### *Effects during operation*

- 5.8.129 The amendment will not give rise to a new or different significant operational effects for sound, noise and vibration in comparison with those reported in the main ES.

#### *Mitigation and residual effects*

- 5.8.130 No additional mitigation measures are applicable to this amendment, over and above those described in the main ES.

#### *Cumulative effects*

- 5.8.131 Since the submission of the main ES, planning permission has been granted for a further nine commercial units at Patrick Farm (reference 2013/2137) in addition to the existing units. The construction and operational noise impacts at these additional units are assumed to be comparable to those at the existing units. The construction and operational noise significant effects reported in the main ES and SES at the existing commercial units at Patrick Farm therefore also apply to the new nine additional proposed units. This is reflected in an increase in the number of impacts represented at Patrick Farm from nine to 18. For more information, refer to SES and AP2 ES Volume 5 technical appendices SV-003-023 and SV-004-023.
- 5.8.132 Therefore, the amendment does not result in a new or different significant cumulative effect for sound, noise and vibration effect as a result of the amendment acting in combination with another amendment in AP2 or as a result of any relevant committed development interacting with the AP2 revised scheme.

### **Traffic and transport**

#### *Scope, assumptions and limitations*

- 5.8.133 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

#### *Existing baseline*

- 5.8.134 The baseline traffic and transport is as described in the main ES (Volume 2, CFA Report 23, Section 12).

- 5.8.135 The main strategic route within the area of the amendment is the A452 Kenilworth Road which runs in a north-south orientation providing access to Hampton-in-Arden and Meriden, and passing through Balsall Common.
- 5.8.136 The main local road in the area of the amendment is the B4102 Meriden Road. The B4102 Meriden Road has an east-west orientation and connects Hampton-in-Arden with the A452 Kenilworth Road. It also provides access to Patrick Farm, just to the east of the River Blythe. The A452 Kenilworth Road and local roads around Hampton-in-Arden operate reasonably well at peak times with no major delays.
- 5.8.137 Footpath M230A runs in a north to south direction, between the B4102 Meriden Road and Marsh Lane, and along the eastern side of Patrick Farm.

### *Future baseline*

#### **Construction**

- 5.8.138 The future baseline for traffic and transport is described in Volume 2 CFA23, Section 12 of the main ES. There is no change to the future baseline for construction as reported in the main ES.

#### **Operation (2026 and 2041)**

- 5.8.139 The future baselines for traffic and transport are set out in Volume 2, CFA23 Section 12 of the main ES. There are no changes to the future baselines for operation as reported in the main ES.

### *Effects arising during construction*

- 5.8.140 The construction of the amendment will have no significant effect on construction related traffic flows in the area. The change in traffic associated with construction is expected to be an increase of 10 two-way HGV trips per day. The main ES reported a minor adverse effect on traffic severance on the A452 Kenilworth Road. In isolation the additional HGV trips will result in no changes to the significant effects reported in the main ES. However, the additional HGV trips, combined with flows from other amendments are considered in Section 6.

### *Effects arising from operation*

- 5.8.141 The amendment to the River Blythe viaduct will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.8.142 No changes to the mitigation described in the main ES (Volume 2 CFA23, Section 12) are required.
- 5.8.143 The amendment will not result in any new or different significant residual effects in construction or operation at this location, which is unchanged from the main ES.

### *Cumulative effects*

- 5.8.144 Cumulative effects are reported in Volume 2, CFA23, Section 12 of the main ES. The assessment has taken into account these cumulative effects, including planned

development by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in other areas

## **Water resources and flood risk assessment**

### *Scope, assumptions and limitations*

- 5.8.145 The assessment scope, key assumptions and limitations for water resources and flood risk assessment are set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.8.146 The River Blythe is a main river flowing towards the north to east, and will be crossed by the River Blythe viaduct as proposed in the original scheme. The channel of the River Blythe is designated as a SSSI.
- 5.8.147 The current (2009) overall WFD status for the River Blythe is moderate, while the objective for 2027 is to achieve good status.
- 5.8.148 The superficial deposits in the River Blythe valley consist of alluvium, and River Terrace Gravels. These deposits are classified as Secondary A aquifers. These aquifers do not have any WFD classification.
- 5.8.149 The underlying bedrock geology comprises of the Mercia Mudstone Group, including the Arden Sandstone Formation in the River Blythe Valley. The Mercia Mudstone Group is classified as a Secondary B aquifer with a current overall WFD status of poor, whilst the objective for 2027 is to achieve good status. Within the Mercia Mudstone Group, the Arden Sandstone Formation is classified as a Secondary A aquifer.
- 5.8.150 The Environment Agency flood zone mapping and results from hydraulic modelling shown on main ES map WR-01-040 and map WE-05-153, Volume 5 Map Book, indicates that the area of the proposed viaduct extension will be inundated during a flood event with a 1 in 100 annual probability (1%) of river flooding from the River Blythe including climate change. As reported in the SES and AP2 ES flood risk assessment (SES and AP2 ES Volume 5: Appendix WR-003-023) the hydraulic modelling indicates that the B4102 Meriden Road is flooded during the same baseline flooding event.
- 5.8.151 A preliminary hydrological investigation of the River Blythe has been undertaken in order to understand the magnitude of flows generated by the catchment up to a point a short distance downstream of the amendment. The hydrology report is included in Volume 5: Appendix WR-004-016 of the main ES.
- 5.8.152 The B4102 Meriden Road is a flood receptor of moderate value. Meriden Mill Farm, and Mouldings Green Farm, as residential receptors, are both flood receptors of high value. These farm buildings are located downstream of where the River Blythe viaduct will cross the River Blythe.

### *Future baseline*

#### **Construction (2017)**

- 5.8.153 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.154 None of the identified developments affect the assessment of the amendment's likely construction impacts on water resources and flood risk.

#### **Operation (2026)**

- 5.8.155 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.8.156 None of the identified developments affect the assessment of the amendment's likely operational impacts on water resources and flood risk.

### *Effects arising during construction*

- 5.8.157 Similar to the original scheme, the amendment will also involve construction activity within the floodplain and in close proximity to the River Blythe. The Patrick embankment will be reduced in scale and the viaduct structure will be extended.
- 5.8.158 The amendment will relocate the haul road, and the proposed underground power line diversion slightly closer to the embankment. The reduction in construction time for the smaller Patrick embankment due to the amendment will slightly reduce the potential for mobilisation of sediment to the River Blythe compared to that assessed in the main ES. The implementation of measures within the draft CoCP will help ensure that the impact to surface water is negligible and the effect is not significant. The amendment does not change the assessment for surface water as reported in the main ES.
- 5.8.159 Construction of below-ground structures will be required to support the viaduct piers as in the original scheme and for the amendment as the viaduct traverses the floodplain. These structures will be likely to penetrate through any superficial deposits present into the underlying Mercia Mudstone Group. The piers to support the viaduct extension will also involve below ground construction and dewatering. These below-ground structures have the potential to act as barriers of low permeability and construction could affect groundwater quality. The below-ground structures for the viaduct were identified within the main ES as having a minor impact on the River Blythe, the permeable superficial deposits and the Mercia Mudstone Group. Following mitigation, the impact was reported as negligible and not significant. The impact and mitigation measures identified in the main ES for the original scheme viaduct are not altered by this amendment.
- 5.8.160 The extension of the River Blythe viaduct will require construction activity local to the River Blythe that will be within the flood zones. The River Blythe viaduct satellite compound is also within the defined flood zone and the temporary changes to floodplain storage will also require mitigation. Implementation of mitigation and measures within the draft CoCP will reduce the temporary impacts from flood risk

resulting in a neutral effect and not significant, as was reported for the main ES. The amendment will not change the level of significance of the effects reported in the main ES with respect to temporary construction effects on flood risk.

- 5.8.161 The flood risk assessment (FRA) undertaken for the original scheme (see main ES Volume 5: Appendix WR-002-023) demonstrated that the proposed Patrick embankment would not increase flood risk to Meriden Mill Farm and Mouldings Green Farm downstream of the River Blythe viaduct, but would result in an increase in flood levels on the B4102 Meriden Road for the 1 in 100 annual probability (1%) event including climate change. Mitigation was proposed in the form of a replacement flood storage area. Although the flood storage area minimised the change in flood level, post-scheme flood levels were still higher in the 1 in 100 annual probability event including climate change when compared to the baseline. The increase in flood level was predicted to be small, resulting in an impact of minor magnitude, which combined with the receptor value of moderate resulted in a slight adverse effect and hence not significant.
- 5.8.162 The extension of the River Blythe viaduct proposed for this amendment removes the majority of the embankment that would have previously been within the River Blythe floodplain for the original scheme (see SES and AP2 ES Volume 5: Appendix WR-003-023). The amendment therefore reduces the overall flood volume displacement compared to the original scheme but there is still a requirement for a replacement flood storage area to mitigate flood displacement for the amendment compared to the baseline. Replacement flood storage will be required to replace volumes occupied by the viaduct piers and the access track to the balancing pond. The increase to flood levels on the B4102 Meriden Road for the 1 in 100 annual probability (1%) event including climate change as reported in the main ES will remain with the amendment. The magnitude of the increase in flood level is predicted to be small, resulting in a minor impact, which combined with the receptor value of moderate results in a slight adverse effect and hence not significant. The amendment therefore does not change the level of significance of the effects reported in the main ES with respect to permanent flood risk effects.
- 5.8.163 In summary, the proposed extension of the River Blythe viaduct amendment will not give rise to a new or different significant construction effect and will not change the level of significance of the construction effects reported in the main ES.

#### *Effects arising from operation*

- 5.8.164 The amendment for the extension of the River Blythe viaduct will not give rise to a new or different significant operational effect and will not change the level of significance of the operational effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.8.165 No additional mitigation measures are applicable to this amendment. The amendment will not result in any significant residual effects in construction or operation at this location, which is unchanged from the main ES.

### *Cumulative effects*

- 5.8.166 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **5.9 Summary of new or different likely residual significant effects as a result of the amendment**

- 5.9.1 The reduction in the area of replacement broadleaved semi-natural woodland as a result of the amendment will give rise to a different effect but will not change the significance of the effect reported in the main ES.
- 5.9.2 The amendment to extend the River Blythe viaduct will result in different residual significant construction and operational effects on the character of the landscape and on visual effects from all viewpoints assessed. However, these do not change the level of significance of the effects reported in the main ES.

## **5.10 Realignment of Diddington Lane (AP2-023-005)**

- 5.10.1 The Bill provides for the permanent closure of Diddington Lane to vehicular traffic, between north of the residential properties, to the south of Diddington Lane, and south of the access to Diddington Farm, with access being maintained for agricultural vehicles, albeit with height restrictions beneath Shadow Brook underbridge. The closed section of Diddington Lane would be reinstated as a bridleway, which would improve non-motorised user connectivity between the A45 Coventry Road, The Island Project School and Hampton-in-Arden. The bridleway would pass under the HS2 route via the Shadow Brook underbridge. At the location which Diddington Lane would be closed, turning heads would be provided. An additional turning head would be provided in close proximity to Shadow Brook underbridge to provide access to a balancing pond for construction and maintenance. During construction Diddington Lane would be used as a construction traffic route providing access to Shadow Brook underbridge satellite compound and construction works associated with the B4102 Meriden Road underbridge. Access to Pasture Farm would be provided by the Pasture Farm accommodation overbridge. See map CT-05-105a and CT-06-105a, in the main ES, Volume 2, CFA23 Map Book.
- 5.10.2 Since submission of the Bill, Diddington Lane is proposed to be realigned to reduce the severance of agricultural land and disruption to the movement of agricultural vehicles. Diddington Lane will be realigned to the west of the HS2 route, with sections of the road on embankment, and will cross the HS2 route at Diddington cutting via the new Diddington Lane overbridge. Access to agricultural land holdings will be provided, as required, along the alignment of the new road. A bridge will be provided where the road crosses Shadow Brook, approximately 14m in length and 16m in width. The realigned section of Diddington Lane will tie into the existing Diddington Lane to the north, in close proximity to an existing access track to Pasture Farm, and to the south, north of the residential properties on the existing Diddington Lane. Two new balancing ponds and associated access tracks will be required, one located to the east of Shadow Brook and the other in close proximity to where the new Diddington Lane ties into the existing Diddington Lane, north of the HS2 route. Water from the

balancing ponds will outfall to Shadow Brook and the River Blythe respectively. Species-rich hedgerow will be provided on both sides of the realigned road, balancing ponds and associated access tracks. Semi-natural woodland will be provided to the west of the access track to Pasture Farm. See map CT-06-105a in SES and AP2 ES, Volume 2, CFA23 Map Books for amendments.

- 5.10.3 Pasture Farm accommodation overbridge will no longer be required, as access to Pasture Farm will be provided from the realigned Diddington Lane. The diversion of the overhead power lines will be partly incorporated into the Diddington Lane overbridge.
- 5.10.4 The stopping up of the existing Diddington Lane will remain, with the stopped up section being designated as a bridleway, as in the original scheme. The bridleway will be slightly realigned to further reduce the severance of agricultural land (as detailed in AP2-023-006 - Agricultural land access across Shadow Brook). Footpath M114 will be diverted along the existing Pasture Farm access road to avoid crossing the proposed realigned Diddington Lane, where it will be on embankment. This will increase the length of the footpath route by approximately 110m. See map CT-06-105a in SES and AP2 ES, Volume 2, CFA23 Map Book for amendments.
- 5.10.5 The realignment of Diddington Lane will be managed from the A45/A45 Service Road overbridges satellite compound (located in CFA 24 Birmingham Interchange and Chelmsley Wood) (see grid reference E5, map CT-05-105a in the main ES Volume 2, CFA23 Map Book). The compound will be required for approximately nine months, as stated in the main ES. The average number of workers supported by the compound will increase from 25, as stated in the main ES, to 28. Shadow Brook underbridge satellite compound will be relocated approximately 75m east of the location stated in the main ES. The haul road will also be relocated to facilitate access to the works and the relocated construction compound. Once the realigned Diddington Lane is operational, the haul road will cross the road using a construction plant crossing. To facilitate the construction of the realigned Diddington Lane there will be a requirement to reconfigure and relocate temporary material stockpiles within the area. Construction of the realigned Diddington Lane, including construction of Diddington Lane overbridge and Shadow Brook bridge (Diddington Lane), is planned to start in 2017 and will take approximately 12 months to complete. See map CT-05-105a in SES and AP2 ES, Volume 2, CFA23 Map Book for amendments.

### **Main local alternatives**

- 5.10.6 Land for the realignment of Diddington Lane, the balancing ponds, the access track to Pasture Farm and environmental mitigation are outside of the original limits of the Bill, hence the need for this amendment. Three main options for the amendment were considered as follows:
- Option 1: realignment of Diddington Lane to the west of the HS2 route (this amendment);
  - Option 2: lowering the vertical alignment of the existing Diddington Lane so as to create sufficient head room for vehicular traffic under Shadow Brook underbridge; and
  - Option 3: realignment of Diddington Lane to the east of the HS2 route.

- 5.10.7 When compared against Option 2 and 3, Option 1 was identified as the preferred option as it is the simplest to construct, with the majority of the construction being offline, which maintains connectivity between the properties off Diddington Lane and Hampton-in-Arden. This option crosses over the HS2 route at Diddington cutting and crosses over Shadow Brook at the narrowest part of its floodplain. Shadow Brook underbridge is retained, as in the original scheme, which enables the provision of a segregated bridleway away from the public highway to be retained. Option 1 does however result in an increased loss of agricultural land and severance of land holdings.
- 5.10.8 Option 2 is likely to require a forded crossing of Shadow Brook and the crossing under the HS2 route is at such a skew that it would require a complex structure and transition measures as at this location the HS2 route will change from a two track rail to four track rail on its approach to Birmingham Interchange station. In addition, the low point near the crossing under the HS2 route would require surface water pumping to discharge to Shadow Brook.
- 5.10.9 Option 3 would result in an increase in construction activities in close proximity to The Island Project School and would also require surface water pumping to discharge to Shadow Brook.
- 5.10.10 The realignment of Diddington Lane is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to socio-economics. However there are changes where reassessment is considered to be required with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; landscape and visual assessment; land quality; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment.

### **Agriculture, forestry and soils**

#### *Scope, assumptions and limitations*

- 5.10.11 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. On completion of the works the land required temporarily for the construction of the realignment of Diddington Lane will be restored to its former agricultural use.

#### *Existing baseline*

- 5.10.12 The baseline agriculture, forestry and soils for the area are described in the main ES (Volume 2, CFA Report 23, and Section 3).
- 5.10.13 The area of land required for the amendment has soil resources of the Brockhurst 1 association. Brockhurst 1 soils comprise variably drained clay loam soils developed over clay subsoils. Drainage limitations affect the agricultural capability of the land which is assessed as Subgrade 3b quality in the Agricultural Land Classification (ALC).
- 5.10.14 Home Farm, Hampton-in-Arden (CFA23/16) and Firs Farm (CFA23/17) are land holdings in the vicinity of the amendment. Home Farm is a 324ha arable and livestock holding, which has also diversified into farmhouse bed and breakfast. Firs Farm is also an arable and livestock holding of unknown size and extent. A further third land

holding (CFA 23/18) is newly affected by the amendment to a marginal degree, but no information is currently available on the scale and nature of this holding.

### *Future baseline*

#### **Construction (2017)**

- 5.10.15 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.16 None of the identified developments affect the assessment of the amendment's likely construction impacts on agriculture, forestry and soils.
- 5.10.17 Most existing environmental stewardship agreements will expire in 2015 and be replaced by a new environmental land management scheme (countryside stewardship) which is voluntary but competitive. It is more targeted than previous schemes, with its priorities being to protect and enhance biodiversity and water quality.
- 5.10.18 The widespread basic environmental management associated with entry level stewardship will be replaced by a new concept of greening introduced by Common Agricultural Policy reform, which will now be the main means by which farmers will provide environmental benefits in return for their direct payments. Greening will encourage the retention of permanent grasslands, greater crop diversification and the creation of Ecological Focus Areas. These changes will affect the detailed management of individual farm holdings but are not expected to change fundamentally the baseline circumstances described.

#### **Operation (2026)**

- 5.10.19 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.20 None of the identified developments affect the assessment of the amendment's likely operational impacts on agriculture, forestry and soils.

### *Effects arising during construction*

- 5.10.21 The amendment makes changes to the temporary and permanent land requirements and to the routing of agricultural traffic movements in the vicinity of Diddington Lane.
- 5.10.22 In addition to the provision of a realigned Diddington Lane, the amendment introduces consequential changes to other access provisions in the original scheme. The requirement for an overbridge to provide access to Pasture Farm (Pasture Farm accommodation overbridge) and nearby farmland is no longer necessary and is removed. A replacement access is provided in the amendment direct from the realigned Diddington Lane, as are field accesses to the land crossed by the proposed realignment. In terms of the availability of access to property and land, there is no change from the effects reported in the main ES.
- 5.10.23 The effect of the original scheme on Home Farm is reported in the main ES. In terms of temporary land requirements these are approximately 25.4ha or 8% of the total

area of the holding, which is assessed as a low impact. The permanent requirement for land at Home Farm, primarily for Diddington cutting and the provision of balancing ponds, is approximately 11.1ha or 3% of the total area of the holding which is assessed as a negligible impact. These land requirements are inclusive of those affecting parts of the holding located in Birmingham Interchange and Chelmsley Wood (CFA24).

- 5.10.24 The main ES reported that the construction of the original scheme will sever field units and disrupt the farm business's operational movements between the affected area and the main farm centre at Home Farm. While the severance effects would represent a medium adverse impact during construction, this is reduced to a low impact following permanent alternative access provision in the original scheme, including the use of an accommodation overbridge at Pasture Farm. However, the closure of Diddington Lane would introduce long term disruption to operational movements within the farm holding and the consequences of this were assessed as a medium impact, causing a moderate adverse effect on the farm holding, which is significant.
- 5.10.25 The amendment will generate no additional areas of temporary land requirements at Home Farm beyond those identified in the original scheme, but some rationalisation of uses is proposed. However, it will require additional permanent land for the realigned Diddington Lane. To the north of Shadow Brook, the new road will permanently require approximately 2.4ha of land within Home Farm. This is land previously identified in the original scheme for temporary construction purposes. The additional permanent land requirements will not change the moderate adverse significant effect as reported in the main ES.
- 5.10.26 Home Farm will experience an increased severance of field units arising from the amendment, but field access to the severed land parcels from the realigned Diddington Lane will enable their continued agricultural use. The amendment removes the adverse consequences of the closure of Diddington Lane on agricultural movements, as in the original scheme, which will enable the continued direct access to field units in this locality from the centre of Home Farm's activities, without a requirement to use the B4102 Meriden Road and the A452 Kenilworth Road. In this respect, the amendment will be a substantive improvement on the original scheme reducing the effects on Home Farm from a moderate adverse to a minor adverse impact and therefore removing the significant effect reported in the main ES. The disposition of the affected Home Farm land is shown on SES and AP2 ES map AG-01-052 in the Volume 5 Map Book.
- 5.10.27 To the south of Shadow Brook the amendment affects Firs Farm. Approximately 0.8ha of additional land will be required for temporary construction purposes and 1ha for permanent works from Firs Farm. Within the holding, the additional temporary land requirements primarily relate to the extension of the construction area required for the amendment. There will also be rationalised construction uses introduced between Shadow Brook and the realigned Diddington Lane in the form of a realigned haul road in the location of the Shadow Brook underbridge satellite construction compound.
- 5.10.28 The original scheme has only a marginal effect on Firs Farm associated with a land requirement for a small part of the Diddington Lane embankment, which introduced no severance effects. The effect reported in the main ES was minor adverse. The

amendment will introduce a permanent severance where the realigned Diddington Lane crosses a field unit. However field accesses are proposed within the amendment to enable continued agricultural use of the affected land. These changes will represent a marginal increase in the level of construction effects on the holding but not sufficient to change the assessed minor adverse effect reported for the original scheme in the main ES.

- 5.10.29 To the south-east of Pasture Farm, the realigned Diddington Lane and proposed woodland planting will impinge marginally on an additional land holding, not affected in the original scheme. No information is currently available on the scale and nature of this land holding although, given the limited land required (approximately 0.4ha), it is unlikely to represent anything other than a negligible impact and no other adverse effects would be introduced.
- 5.10.30 Amendments to the temporary and permanent effects on holdings from construction detailed in the main ES (Volume 2, CFA Report 23, Section 3) as a result of the amendment are detailed in Table 3 and Table 4.

Table 3: Summary of temporary effects on holdings from construction

Holding reference/name	Total area required	Construction severance	Disruptive effects	Scale of construction effect	Area to be restored
CFA23/16 Home Farm, Hampton -in -Arden	25.4ha -8% Low (inclusive of effects in CFA24)	Medium – access to severed land via the public highway.	Medium – longer operational journeys.	Moderate – severance effects and disruption to operational journeys.	14.3ha
CFA23/17 Firs Farm*	6.4ha – 6% Low	Low-medium	Negligible	Minor	4.9ha
CFA23/18 Unknown*	0.4ha Negligible	Negligible	Negligible	Negligible	0ha

\* No Farm Impact Assessment interview conducted; data estimated

Table 4: Summary of permanent effects on holdings from construction

Holding reference/name	Land required	Severance	Infrastructure	Scale of effects
CFA23/16 Home Farm, Hampton -in -Arden	11.1ha - 3% Low (inclusive of effects in CFA24)	Low- access to severed land primarily via reinstated field accesses.	Low – severance of route of operational journeys removed.	Minor
CFA23/17 Firs Farm*	1.5ha Negligible	Low-medium	No effects - Negligible	Minor

CFA23/18	0.4ha	No effects - Negligible	No effects – Negligible	Negligible
Unknown*				

\* No Farm Impact Assessment interview conducted, data estimated

### *Effects arising from operation*

- 5.10.31 The proposed realignment of Diddington Lane will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.
- 5.10.32 The retention of Diddington Lane will provide further mitigation for the severance effects of the HS2 route as it crosses Moulding Green Farm (CFA23/15). Overall the changes will not affect the assessment of effects reported in the main ES.

### *Mitigation and residual effects*

- 5.10.33 The land required temporarily for construction will be restored to its former agricultural use once the works are completed. The soil handling will involve stripping, storing and reinstating topsoils on land required for the temporary works, following best practice guidance for handling soil set out in the draft CoCP.
- 5.10.34 The amendment will result in the removal of the moderate adverse effect reported in the main ES on Home Farm due to the severance of Diddington Lane and the consequential lengthening of journeys as a result of a traffic diversion (see SES and AP2 ES map AG-01-052, Volume 5 Map Book).

### *Cumulative effects*

- 5.10.35 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **Air quality**

### *Scope, assumptions and limitations*

- 5.10.36 The assessment scope, key assumptions and limitations for air quality are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.10.37 The baseline air quality information for the area is as described in the main ES (Volume 2 CFA Report 23, Section 4).

### *Future baseline*

#### **Construction (2017)**

- 5.10.38 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).

- 5.10.39 None of the identified developments affect the assessment of the amendment's likely construction impacts on air quality.

### **Operation (2026)**

- 5.10.40 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.41 None of the identified developments affect the assessment of the amendment's likely operational impacts on air quality.

### *Effects arising during construction*

- 5.10.42 The amendment will introduce a source of potential dust and odour emissions to the nearby receptors that include Pasture Farm, Diddington Farm and The Island Project School.
- 5.10.43 The mitigation measures in the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES), will be sufficient to control impacts such that a significant effect will not occur. Therefore, no new or different significant effects are anticipated as a result of this amendment.

### *Effects arising from operation*

- 5.10.44 The amendment will not result in a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.10.45 No additional mitigation measures are applicable to this amendment. The amendment will not result in any significant residual effects in construction or operation at this location, which is unchanged from the main ES.

### *Cumulative effects*

- 5.10.46 There are no new or different likely significant cumulative effects for air quality as a result of the amendment acting in combination with another amendment in combination with AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **Community**

### *Scope, assumptions and limitations*

- 5.10.47 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.10.48 The baseline community information for the area is described in the main ES (Volume 2, CFA Report 23, Section 5).
- 5.10.49 Diddington Lane is located to the north of the village of Hampton-in-Arden. There are a number of residences located to the south of Diddington Lane, closest to the village.

Further north, Diddington Lane provides access to The Island Project School at Diddington Hall. This is a special needs school, catering for children with autism and Asperger's Syndrome.

### *Future baseline*

#### **Construction (2017)**

- 5.10.50 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.51 None of the identified developments affect the assessment of the amendment's likely construction impacts on community.

#### **Operation (2026)**

- 5.10.52 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.53 None of the identified developments affect the assessment of the amendment's likely operational impacts on community.

### *Effects arising during construction*

- 5.10.54 The pupils at The Island Project School regularly walk to Hampton-in-Arden village along Diddington Lane as part of life skills education. In the original scheme Diddington Lane would be closed permanently to vehicles, and to pedestrians throughout the construction period. An alternative pedestrian route is available along the A452 Kenilworth Road and the B4102 Meriden Road, however this is not considered to be a suitable alternative for the pupils. The closure of Diddington Lane was reported in the main ES as a major adverse isolation effect on pupils at The Island School Project for approximately three years, and therefore considered to be significant.
- 5.10.55 The realignment of Diddington Lane will take place early in the construction programme and prior to the closure of the existing road. This will mean that there will always be a route available during the construction period that pupils at The Island School Project can use to access Hampton-in-Arden. The new Diddington Lane will, however, be located within a large construction area, including heavy machinery and tall cranes, large scale earth moving operations, haul roads and construction compounds. Due to the sensitivity of the pupils the new Diddington Lane is unlikely to be an appropriate alternative route for the pupils. The major adverse isolation effect will therefore remain, which is significant (see SES and AP2 ES Volume 5: CM-001-023).
- 5.10.56 In the main ES, construction works in proximity to the Island Project School were reported to result in significant noise and visual effects. This would result in a major adverse effect on the amenity of pupils for approximately four months in total, which is therefore considered significant. The construction of the realigned Diddington Lane will form part of the wider construction of the HS2 route. Therefore the amenity effect will be unchanged by the amendment and remain as reported in the main ES.

### *Effects arising from operation*

- 5.10.57 The amendment will not give rise to a new or different significant operational community effect and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.10.58 No mitigation measures are applicable to this amendment. The amendment will not result in any significant residual effects in construction or operation at this location, which is unchanged from the main ES.

### *Cumulative effects*

- 5.10.59 There are no new or different likely residual significant effects for community as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **Cultural heritage**

### *Scope, assumptions and limitations*

- 5.10.60 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.10.61 The baseline cultural heritage information for the area is described in the main ES (Volume 2, CFA Report 23, Section 6 and Volume 5, CH-002-023).
- 5.10.62 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walk-over survey, geophysical survey, remote-sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6 of the main ES. In addition, the baseline has been updated with the results of additional survey work comprising geophysical surveys for archaeology.
- 5.10.63 The amendment will be constructed to the north-west of three designated heritage assets, which comprise: Grade II\* listed Diddington Hall (asset reference BHA216), approximately 330m south-east of the amendment; Grade II\* listed Diddington Farmhouse (asset reference BHA222), approximately 170m east of the amendment; and Grade II listed Pasture Farmhouse (asset reference BHA225), approximately 170m west of the amendment.
- 5.10.64 A section of the land required permanently for the amendment will be within the known area of medieval settlement of Diddington (asset reference BHA211), a non-designated asset of low value.
- 5.10.65 Since submission of the main ES geophysical surveys at land west of Diddington Lane were undertaken to confirm if below ground archaeological remains were present that may have predated the extensive areas of medieval and post-medieval ridge and furrow. A former field boundary that bisected the area was identified, but no other

archaeological remains were recorded. Details of survey work undertaken is provided in the SES and AP2 ES Volume 5: Appendix CH-004-023.

### *Future baseline*

#### **Construction (2017)**

- 5.10.66 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.67 None of the identified developments affect the assessment of the amendment's likely construction impacts on cultural heritage.

#### **Operation (2026)**

- 5.10.68 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.69 None of the identified developments affect the assessment of the amendment's likely operational impacts on cultural heritage.

### *Effects arising during construction*

- 5.10.70 The main ES reported that the setting of Diddington Hall (asset reference BHA216) would be temporarily affected predominantly by the construction of the Shadow Brook underbridge and the presence of the Shadow Brook underbridge satellite compound. The main ES reported a low adverse impact and moderate adverse temporary effect. The setting of Diddington Hall (asset reference BHA216) will be affected by activity associated with the construction of the amendment, including relocation of the Shadow Brook underbridge satellite compound. The Shadow Brook underbridge satellite compound and reconfiguration of temporary material stockpiles will temporarily affect the isolated setting of the asset, which contributes to its significance. However, the amendment will not result in a change to the temporary, moderate adverse effect reported in the main ES.
- 5.10.71 The main ES reported a low adverse impact, resulting in a moderate adverse permanent effect from the presence of Diddington Lane embankment, Diddington cutting and the River Blythe viaduct on Diddington Hall (asset reference BHA216). The amendment will introduce new elements, Diddington Lane overbridge and the earthworks associated with the realigned Diddington Lane, into the existing rural setting of Diddington Hall (asset reference BHA216), which will permanently affect its setting. However, the amendment will not result in a change to the moderate adverse permanent effect reported in the main ES.
- 5.10.72 The main ES reported that Diddington Farmhouse (asset reference BHA222) would be temporarily affected by the construction activities associated with the construction of Pasture Farm accommodation overbridge, the Diddington cutting, construction of balancing ponds and the presence of the A45/A45 Service Road overbridges satellite compound (located within CFA24), resulting in a moderate adverse temporary effect. The setting of Diddington Farmhouse (asset reference BHA222) will be affected by activity associated with the construction of the amendment, namely Diddington Lane

overbridge and the earthworks associated with the realigned Diddington Lane. However, the amendment will involve the removal of Pasture Farm accommodation overbridge. Therefore the effect will remain as reported in the main ES, with a low adverse impact, resulting in a moderate adverse effect.

- 5.10.73 The main ES reported that Pasture Farmhouse (asset reference BHA 225) would be affected by construction activities associated with the construction of Pasture Farm accommodation overbridge and earthworks, resulting in a medium adverse impact and a moderate adverse temporary effect. The amendment will remove Pasture Farm overbridge which will reduce effects. However, the construction of Diddington Lane overbridge, the earthworks associated with the realigned Diddington Lane embankments and the presence of the Diddington Lane overbridge satellite compound will result in a moderate adverse effect as reported in the main ES.
- 5.10.74 The construction of the amendment will permanently impact a small part of the medieval limits of Diddington Settlement (asset reference BHA211) (see main ES map CH-01-153, Volume 5 Map Book). However, as only a small portion of the asset will be removed, the archaeological and historic value will be retained. The construction effect will therefore constitute a low adverse impact resulting in a negligible effect, which is not significant.
- 5.10.75 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### *Effects during operation*

- 5.10.76 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.10.77 No additional mitigation measures are applicable to this amendment. The amendment will not result in any significant residual effects in construction or operation at this location, and will not change the level of significance of the effects reported in the main ES.

#### *Cumulative effects*

- 5.10.78 There are no new or different likely residual significant effects for cultural heritage as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

### **Ecology**

#### *Scope, assumptions and limitations*

- 5.10.79 The assessment scope for ecology is as set out in Volume 1 of the SES and AP2 ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

- 5.10.80 To address any limitations in data, a precautionary baseline has been considered according to the guidance reported in the main ES, Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst-case' basis for the subsequent assessment. The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the AP2 revised scheme.

### *Existing baseline*

- 5.10.81 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES, additional extended Phase 1 habitat surveys undertaken since September 2013, aerial photography, and relevant existing information gathered from national organisations and from regional and local sources including: Environment Agency; SMBC; Warwickshire Biological Records Centre; Warwickshire Wildlife Trust and the West Midland Bird Club.
- 5.10.82 A summary of the baseline information relevant to the assessment of the amendment is provided below. This takes account of any relevant new or updated baseline information provided in SES and AP2 ES Volume 5: Appendix EC-001-004 and map series EC-02, EC-03, EC-04, EC-05, EC-11 and EC-12.
- 5.10.83 For those receptors described in the main ES, further details are provided in Volume 2, CFA Report 23, Section 7 and in Volume 5, including Maps EC-01 to EC-12.

### **Designated sites**

- 5.10.84 The River Blythe SSSI is located approximately 290m east of the amendment, and is of national value.
- 5.10.85 Mouldings Green Farm LWS is located approximately 360m south-east of the amendment, and is of county/metropolitan value.
- 5.10.86 There are no other statutory or non-statutory designated nature conservation sites or ancient woodland sites relevant to the assessment.

### **Habitats**

- 5.10.87 Habitats reported in the main ES for the Balsall Common and Hampton-in-Arden area which are of relevance to the amendment include NVC W10 broadleaved woodland (*Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus*), a section of Shadow Brook, the network of species-rich and species-poor hedgerows and improved and species poor semi-improved grasslands.
- 5.10.88 The NVC W10 broadleaved woodland (*Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus*) within this area is identified in the main ES as being of county/metropolitan value. Both the hedgerow network and the section of Shadow Brook which flows through this area are identified in the main ES as being of district/borough value. The improved and species poor semi-improved grasslands within this area are identified in the main ES as being of local/parish value.
- 5.10.89 Habitats within the land required for the amendment, including habitats reported in the Bill, comprise agricultural land to the north and south of Shadow Brook and west of Diddington Lane, as well as an estimated 24.8ha of arable farmland, 0.5ha of broadleaved semi-natural woodland, 2.1ha of species poor semi-improved grassland,

2ha of improved grassland, 415m of running water (Shadow Brook), 1.6km of species-rich hedgerow and 2.7km of species-poor hedgerow.

- 5.10.90 The arable land within the land required for the amendment is of negligible ecological value and does not qualify as a habitat of principal importance.
- 5.10.91 The broadleaved semi-natural woodland within the land required for the amendment is considered to be part of the same resource of NVC W10 broadleaved woodland (*Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus*) identified in the main ES for the area and is of county/metropolitan value.
- 5.10.92 Four hedgerows within the land required for the amendment have been identified as important, as defined by the Hedgerows Regulations 1997<sup>6</sup>. These are either partially or wholly located with the area of the amendment. The hedgerows within the land required for the amendment are part of the same network evaluated in the main ES and are of district/borough value.
- 5.10.93 The section of Shadow Brook which flows through the land required for the amendment is a habitat of principal importance and is assessed as being of district/borough value.
- 5.10.94 The improved and species poor semi-improved neutral grassland within the land required for the amendment are considered to be part of the same grassland resource identified in the main ES for the area and is of local/parish value.

#### **Protected and/or notable species**

- 5.10.95 Desk-study data and field surveys undertaken on land required for the amendment, as reported in the main ES, did not record any protected and/or notable species of flora or fauna.
- 5.10.96 The main ES reported a number of bat species using the wider landscape and particularly the River Blythe SSSI for foraging and commuting. The River Blythe SSSI is approximately 290m east of the land required for the amendment at its nearest point. The main ES reported populations of rarer species (*Nyctalus* species, serotine and Leisler's) within the survey extent of this section of the original scheme in the vicinity of the River Blythe SSSI. Serotine and *Nyctalus* species were also recorded foraging and commuting along Shadow Brook. These populations, which may also use the habitats within the land required for the amendment for foraging and dispersal, were assessed in the main ES as being of district/borough value.
- 5.10.97 An assemblage of more common bat species represented by noctule, common pipistrelle, soprano pipistrelle, *Myotis* species and brown long-eared bat are also reported in the main ES as associated with the vicinity of the River Blythe SSSI and Shadow Brook. These species were assessed in the main ES as being of local/parish value.
- 5.10.98 The River Blythe SSSI is approximately 290m east of the area of the land required for the amendment at its nearest point, Shadow Brook flows through the area of the land required for the amendment. A key commuting route and foraging area passes

---

<sup>6</sup> *The Hedgerows Regulations 1997* (1997 No. 1160). Her Majesty's Stationery Office, London.

through the land required by the amendment. The same assemblage of bat species present along Shadow Brook are likely to be present within the stretch which flows through the land required for the amendment and they may also use the habitats adjacent to Shadow Brook for foraging and dispersal.

- 5.10.99 An extended Phase 1 Habitat survey undertaken since submission of the main ES identified four trees within the land required for the amendment with potential to support roosting bats (see SES and AP2 ES map EC-05-052, Volume 5 Map Book). Three were identified as having moderate bat roost potential, and one was identified as having high roost potential. These are potentially part of the network of small tree and building roosts of common species (common pipistrelle; soprano pipistrelle; and brown long-eared bat) which were reported in the main ES as being of local/parish value. These potential tree roosts are therefore assessed on a precautionary basis as being of local/parish value.
- 5.10.100 The main ES reported a metapopulation of great crested newt south of Pasture Farm with a peak count of five adults (small population size class) and assessed this population as being of district/borough value. The western extent of the land required for the amendment lies within 40m and 240m of the two ponds detailed on main ES map EC-04-052, Volume 5 Map Book. No great crested newts were recorded at either of these ponds and this species considered to be absent from these water bodies.
- 5.10.101 Populations of smooth newt, common frog and common toad were also reported in the main ES to the south of Pasture Farm and were assessed as being of local/parish value. There is potential for the same populations of each of these species to exist partly within the hedgerows and the broadleaved semi-natural woodland within the land required for the amendment. However, there is no suitable breeding habitat for these species within the land required for the amendment.
- 5.10.102 An assemblage of wintering birds was reported in the main ES in the vicinity of Diddington Lane, and included one woodcock (an Amber List species). This assemblage, which may use habitats within the land required for the amendment for foraging and shelter, was assessed as being of local/parish value.
- 5.10.103 The extents of two badger territories are partially located within the area of the land required for the amendment. The various badger social groups within the area were reported as being of local/parish value in the main ES.
- 5.10.104 A population of otter was reported within the main ES and field signs of otter were recorded alongside the River Blythe SSSI which flows approximately 290m east of the area of the land required for the amendment at its nearest point. This population, which may use the section of Shadow Brook which flows through the land required for the amendment for foraging and dispersal as well as other habitats for shelter, was reported in the main ES as being of district/borough value.
- 5.10.105 A water vole survey was undertaken within the area of the land required for the amendment. No water voles or signs of water vole presence were recorded and they are presumed absent from this area.
- 5.10.106 A reptile survey was conducted within the land required for the amendment. No reptiles were recorded and they were assumed absent from this area.

### *Future baseline*

#### **Construction (2017)**

- 5.10.107 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.108 None of the identified developments affect the assessment of the amendment's likely construction impacts on ecology.

#### **Operation (2026)**

- 5.10.109 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.110 None of the identified developments affect the assessment of the amendment's likely operational impacts on ecology.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.10.111 The assessment assumes implementation of the measures set out within the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES), which includes translocation of protected species where appropriate.

#### **Designated sites**

- 5.10.112 The main ES reported that there would be no works proposed within the River Blythe SSSI, consequently no adverse effect would be anticipated on the integrity of the site. The main ES also reported that the construction of the Diddington Lane embankment and River Blythe viaduct would result in the loss of 0.4ha (51.5%) of the marshy grassland at Mouldings Green Farm LWS, resulting in an adverse effect on site integrity that is significant at county/metropolitan level. There will be no additional impacts on the River Blythe SSSI and Mouldings Green Farm LWS as a result of the amendment. Consequently, these change to not generate any new or different significant adverse effects to that reported in the main ES for this species.

#### **Habitats**

- 5.10.113 The main ES reported a permanent adverse effect significant at district/borough level on broadleaved semi-natural woodland habitats in the vicinity of the amendment. The additional loss of 0.3ha of broadleaved semi-natural woodland habitat associated with the amendment will result in a different significant effect on broadleaved semi-natural woodland. However, this will not result in a change in the level of significance of the effect reported in the main ES.
- 5.10.114 The main ES reported a precautionary assessment in which it is assumed hedgerows within the land required for the original scheme would be lost. This would also fragment the remaining hedgerow network. The main ES reported a permanent adverse effect on the conservation status of the hedgerow network which was assessed to be significant at district/borough level. The amendment will result in an

additional loss of 49m of species-rich hedgerow and 79m of species-poor hedgerow habitat due to vegetation clearance associated with the amendment. This will result in a different effect on this habitat type. However, this will not result in a change to the level of significance of the effect reported in the main ES for this habitat type.

- 5.10.115 It is unlikely that any other effects on habitats of relevance at more than the local/parish level will occur. Additional local/parish level effects arising from survey data collected since the main ES are listed in SES and AP2 ES Volume 5: Appendix EC-003-004.

### **Species**

- 5.10.116 The main ES reported a permanent adverse effect on bat species at up to local/parish level. Vegetation clearance associated with the amendment will involve the removal of four trees with either moderate or high potential to support roosting bats as well as the loss of habitats of potential value to foraging and dispersing bats. The loss of these trees and potential foraging habitats represents additional vegetation clearance to that reported in the main ES. For the purpose of this assessment it is assumed that these trees support small roosts of common species, and that the habitats are used by common as well as rarer bat species for foraging and dispersal. The additional loss of habitat for common and less common bat species will result in a different effect. However, this will not result in a change in the level of significance of the effect reported in the main ES.
- 5.10.117 The main ES reported no significant effect on the conservation status of amphibian species. Vegetation clearance associated with the amendment will involve the loss of terrestrial habitats which may be used by local metapopulations of common toad, common frog and smooth newt. However, no breeding habitats will be affected and there will be only limited loss of terrestrial habitat types within the land required for the amendment. Consequently, through implementation of the draft CoCP and ecological principles of mitigation, there will be no additional significant adverse effects upon these species. Therefore, these changes do not generate any new or different significant adverse effects to that reported in the main ES for this species.
- 5.10.118 The main ES reported that there would be no significant effect on breeding and wintering bird populations. Vegetation clearance associated with the amendment will involve the loss of additional habitats which are likely to be used by foraging and sheltering wintering birds. However, the losses of habitats of value to these species are small in extent and do not generate any new or different significant adverse effects to that reported in the main ES for these species.
- 5.10.119 The main ES reported a temporary adverse impact on otter, from noise, vibration and visual disturbance during construction, which would have an effect at up to local/parish level. Vegetation clearance and construction activities associated with the amendment may result in additional disturbance of otters, in the vicinity of Shadow Brook, as well as additional loss of habitat potentially used by otter for resting and shelter. However, these changes do not generate a new or different significant adverse effect to that reported in the main ES for this species.
- 5.10.120 Through implementation of the draft CoCP and the ecological principles of mitigation, potentially including translocation activities it is considered unlikely that any other effects on species of relevance at more than the local/parish level will occur.

Additional local/parish level effects arising from survey data collected since the main ES are listed in SES and AP2 ES Volume 5: Appendix EC-003-004.

### **Cumulative effects**

- 5.10.121 There are no new or different likely cumulative effects for ecology as a result of the amendment acting in combination with another amendment in AP2.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.10.122 Approximately 1.8km of species rich hedgerow will be planted along both sides of the realigned Diddington Lane and approximately 0.8ha of semi-natural broadleaved woodland will be planted around the balancing ponds and alongside the associated access tracks. Whilst the primary purpose of this planting is for landscape integration, it will also provide ecological benefits.

#### *Residual effects*

- 5.10.123 No new or different residual effects on ecological receptors occur as a consequence of the amendment. The significant residual effects of the AP2 revised scheme in this area are therefore unchanged from those reported in the main ES.

#### *Effects arising from operation*

- 5.10.124 There are no new or different significant operational effects for ecology as a result of the amendment in comparison with the main ES.

### **Land quality**

#### *Scope, assumptions and limitations*

- 5.10.125 The assessment scope, key assumptions and limitations for land quality are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

#### *Existing baseline*

- 5.10.126 The baseline land quality information for the area is as described in the main ES (Volume 2, CFA Report 23, Section 8). All features described are presented in the main ES Volume 5: Maps LQ-01-050b to LQ-01-052.
- 5.10.127 The amendment requires additional land within the Jacksons Brickworks (historical) landfill which was assessed in the main ES as site CFA23-50/CFA24-1.
- 5.10.128 There are sensitive receptors to contamination in the form of Shadow Brook, and localised areas of Secondary A aquifer designations (glaciofluvial deposits), although the dominant aquifer type is Secondary B in this area (Mercia Mudstone).
- 5.10.129 There is limited historical ground investigation in the area of the amendment, although the ground conditions are likely to be discontinuous glacial superficial deposits overlying Mercia Mudstone bedrock, with alluvium in the valley bottom and along the route of the Shadow Brook.

- 5.10.130 There are no known additional groundwater or surface water abstractions over and above those described in the main ES.

### *Future baseline*

#### **Construction (2017)**

- 5.10.131 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.132 None of the identified developments affect the assessment of the amendment's likely construction impacts on land quality.

#### **Operation (2026)**

- 5.10.133 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.134 None of the identified developments affect the assessment of the amendment's likely operational impacts on land quality.

### *Effects arising during construction*

- 5.10.135 The increased land required for the amendment results in an increased study area when compared to the original scheme. In line with the assessment methodology, as set out in the SMR, SMR Addendum and its appendices, an initial screening process was undertaken on the increased study area (identified in the methodology as Stages A and B) to identify any additional areas of current or historical contaminative use, and to consider which of these might pose contaminative risks. No additional sites were identified.
- 5.10.136 Jacksons Brickworks (historical) landfill (site CFA23-50/ CFA24-1) has already been identified and reported in the main ES. An area of additional land required for the amendment is in the south-eastern part of this site. Aerial and historical mapping of this site indicate that clay extraction and subsequent landfilling have not occurred in the southern and eastern part of the site whereas historical pits shown in the north and west of the site appear to have been infilled. Desk-study information indicates that the site has extant minerals permission for clay extraction, with no extraction of clay having occurred in the eastern or southern parts of the site.
- 5.10.137 The qualitative risk assessment carried out for this site (CFA23-50/CFA24-1) in the main ES has been reviewed in light of the amendment. The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### *Effects during operation*

- 5.10.138 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.10.139 No mitigation is required for this amendment. The amendment will result in no change in the likely residual significant effects reported in the main ES.

### *Cumulative effects*

- 5.10.140 There are no new or different likely significant cumulative effects for land quality as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **Landscape and visual assessment**

### *Scope, assumptions and limitations*

- 5.10.141 The assessment scope, key assumptions and limitations for the landscape and visual assessment are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. An update to the methodology for the landscape and visual assessment is also described in Volume 1 of the AP1 ES.

### *Existing baseline*

- 5.10.142 The area of land required for the amendment is located entirely within the Solihull Rural Heartland LCA as described in the main ES (Volume 2, CFA Report 23, Section 9) and any potential effects will be limited to this LCA. The baseline is as described in the main ES (Volume 2, CFA Report 23, Section 9). Indirect effects on the setting of adjacent LCAs are not anticipated since the amendment will not introduce construction and operational activities that are substantially different to those assumed for the original scheme.
- 5.10.143 The context of the amendment features a number of visual receptors including recreational and transport receptors. Views west from Diddington Lane encompass the amendment (Viewpoint 298.3.001, in the main ES Volume 2, CFA Report 23, Section 9) from a distance of approximately 100m with no intervening screening. Views north from Viewpoint 295.3.002 include land through which the realigned Diddington Lane will pass. The visual baseline descriptions for these receptors are as described in the main ES.

### *Future baseline*

#### **Construction (2017)**

- 5.10.144 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.145 None of the identified developments affect the assessment of the amendment's likely construction impacts on landscape and visual.

### **Operation (2026)**

- 5.10.146 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.147 None of the identified developments affect the assessment of the amendment's likely operational impacts on landscape and visual.

### *Effects arising during construction*

#### **Landscape assessment**

##### *Solihull Rural Heartland LCA*

- 5.10.148 Solihull Rural Heartland LCA was assessed as being affected by the original scheme and will be further affected by this amendment. The main ES reported a moderate adverse effect on the LCA due to the medium magnitude of change to the LCA due to construction activities associated with the original scheme resulting in loss of characteristic landscape elements such as trees, hedges and agricultural land, and severing land parcels where the HS2 route crosses the centre of a succession of fields, assessed alongside the medium sensitivity of the character area.
- 5.10.149 Construction of the amendment will locally increase field severance and the removal of hedgerows within the Solihull Rural Heartland LCA, beyond those identified in the original scheme. However, there will also be a reduction in impacts due to the removal of the Pasture Farm accommodation overbridge from the scheme, which is no longer required. The location of temporary material stockpiles and the configuration and footprint of construction activity will change but the effect, when considered on the wider LCA, will be localised. Although the location is different from the original scheme, the nature of the construction works is similar, therefore the effects from the amendment are not sufficient to increase the overall magnitude of change reported in the main ES.
- 5.10.150 Consequently, the construction of the realigned Diddington Lane will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### **Visual assessment**

##### *Viewpoint 295.3.002: View north-east across farmland adjacent to Diddington Lane from Footpath M115*

- 5.10.151 Viewpoint 295.3.002 was assessed as being affected by the original scheme and will be further affected by this amendment. The main ES reported a moderate adverse effect during construction due to a medium magnitude of change, assessed against the high sensitivity of the receptor. Construction of the amendment to realign Diddington Lane will be largely screened from view by intervening hedgerows, with the exception of the southern section which connects to the existing Diddington Lane, which will be visible. A gap in the treeline along Shadow Brook, west of the Shadow Brook underbridge, will be apparent once trees are removed during construction. Views of the construction of the realigned Diddington Lane will be indistinct from the construction of the Diddington Lane embankment and the Shadow Brook underbridge, both of which will be prominent in the view.

- 5.10.152 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

*Viewpoint 298.3.001: View south-west across farmland from Footpath M114*

- 5.10.153 Viewpoint 298.3.001 was assessed as being affected by the original scheme and will be further affected by this amendment. The main ES reported a major adverse effect during construction due to a high magnitude of change assessed alongside the high sensitivity of the receptor.
- 5.10.154 The amendment will result in views which will encompass construction activities to realign Diddington Lane in the foreground and the Diddington cutting in the background. The realigned Diddington Lane will be on embankment above existing ground level, closer to the viewpoint and therefore more prominent.
- 5.10.155 The amendment will give rise to a different effect arising from construction of the embankment. However, this will not change the level of significance of the effects reported in the main ES.

### *Effects arising from operation*

#### **Landscape assessment**

##### *Solihull Rural Heartland LCA*

- 5.10.156 Solihull Rural Heartland LCA was assessed as being affected by the original scheme and will be further affected by this amendment. The main ES reported a moderate adverse effect in year 1 of operation due to the medium magnitude of change, assessed alongside the medium sensitivity of the receptor. By year 15 and at year 60 effects would reduce to non-significant.
- 5.10.157 The amendment will locally influence the Solihull Rural Heartland LCA through increased highway infrastructure within the rural landscape. Its position on embankment will introduce an engineered landform into the largely natural topography. Hedgerow planting along the realigned section of Diddington Lane will help to integrate the road into the landscape but will not mitigate the adverse impacts from the highway and associated landform in year 1. While the proposed realigned section of Diddington Lane will give rise to a different significant landscape effect, due to its restricted scale and localised effect, it will not change the level of significance of the effects in operation reported in the main ES at year 1, year 15 or year 60.

#### **Visual assessment**

##### *Viewpoint 295.3.002: View north-east across farmland adjacent to Diddington Lane from Footpath M115*

- 5.10.158 Viewpoint 295.3.002 was assessed as being affected by the original scheme and will be further affected by this amendment. The main ES reported a moderate adverse effect in the winter of year 1 of operation due to the medium magnitude of change arising from views of noise barriers, Shadow Brook underbridge and Diddington embankment, assessed alongside the high sensitivity of the receptor. Although reduced by year 15 of operation, as a result of planting, the change in the nature of the view would remain at medium magnitude resulting in a moderate adverse effect in the winter of year 15 of operation. By year 60 of operation, planting established as

part of the original scheme would have matured, helping to integrate it into the landscape and substantially screen the new infrastructure. This would reduce effects to being non-significant.

5.10.159 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES in year 1. By year 15 of operation, planting, including hedgerows along the realigned Diddington Lane, will have matured, helping to integrate it and the original scheme into the landscape and add to screening of the original scheme. This will change the level of significance of the effects reported in the main ES from moderate adverse effect in the winter of year 15 of operation reported in the main ES to effects of low magnitude and minor significance (non-significant), therefore removing a significant effect.

5.10.160 Effects at year 60 will remain non-significant as described in the main ES.

*Viewpoint 298.3.001: View south-west across farmland from Footpath M114*

5.10.161 Viewpoint 298.3.001 was assessed as being affected by the original scheme and will be further affected by this amendment. The main ES reported a moderate adverse effect in year 1 of operation due to the medium magnitude of change assessed alongside the high sensitivity of the receptor. At or before year 15 and beyond to year 60 of operation, planting established as part of the original scheme will have matured, largely screening it (including the overhead line equipment) such that this would reduce effects to being non-significant.

5.10.162 The amendment will realign Diddington Lane on embankment which will cross the field in the middle ground of the view. This will screen any elements of the Diddington cutting and associated rail infrastructure, such as the overhead line equipment. Although views will be foreshortened slightly, mature vegetation will remain visible above the relatively low embankment. At year 1 of operation vehicles using the realigned Diddington Lane will be visible in the foreground although traffic will be unchanged from future baseline levels. The amendment will give rise to a different significant effect as a result of the presence of the embankment.

5.10.163 By year 15, vehicles using the realigned Diddington Lane will be screened by the hedgerow planting along the road. The amendment will increase the screening of the original scheme. Due to the screening effect of the maturing planting at year 15, the level of significance of effects reported in the main ES at year 15 will remain unchanged, as non-significant.

5.10.164 Effects at year 60 will remain non-significant as described in the main ES.

*Mitigation and residual effects*

5.10.165 No additional mitigation measures are applicable to this amendment.

5.10.166 The amendment will result in a different visual effect during construction at viewpoint 298.3.001 due to the prominence of the Diddington Lane embankment but will not change the level of significance of the effects reported in the main ES.

5.10.167 The amendment will reduce the visual effects reported in the main ES at viewpoint 295.3.002 from moderate adverse to minor adverse and non-significant in the winter of year 15, thereby removing a significant effect.

### *Cumulative effects*

- 5.10.168 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with another amendment in AP2, as a result of any relevant committed development interacting with the AP2 revised scheme.

### **Sound, noise and vibration**

#### *Scope, assumptions and limitations*

- 5.10.169 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.10.170 Local assumptions and limitations for sound, noise and vibration are set out in main ES (Volume 2, CFA Report 23, Section 11).

#### *Existing baseline*

- 5.10.171 The baseline sound, noise and vibration information for the area is as described in the main ES (Volume 2, CFA Report 23, Section 11 and Volume 5: Appendix SV-002-023).

#### *Future baseline*

##### **Construction (2017)**

- 5.10.172 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.173 None of the identified developments affect the assessment of the amendment's likely construction impacts on sound, noise and vibration.

##### **Operation (2026)**

- 5.10.174 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.175 None of the identified developments affect the assessment of the amendment's likely operational impacts on sound, noise and vibration.

#### *Effects arising during construction*

- 5.10.176 SES and AP2 Volume 5: Appendix SV-003-023 details the relevant changes to the results reported in the main ES, Volume 5, Appendix, SV-003-023, Sound, noise and vibration assessment.
- 5.10.177 The amendment introduces additional construction activities not assessed in the main ES. No receptors are immediately adjacent to the works, the closest receptors being Pasture Farmhouse and The Island Project School.
- 5.10.178 The main ES identified a significant daytime construction noise effect at the Island Project School. No significant effect was identified at Pasture Farmhouse, although adverse noise effects were forecast for around seven months.

- 5.10.179 An assessment has been undertaken to determine whether these construction works would result in any likely significant effects, using the significance criteria detailed in the main ES (Volume 5: Appendix SV-001-000).
- 5.10.180 At Pasture Farmhouse the typical and highest monthly daytime construction noise levels are unchanged from those reported in the main ES. The duration of the impact is, however, reduced by two months due to the removal of Pasture Farm accommodation overbridge under the amendment. The significance of the effect remains as reported in the main ES.
- 5.10.181 At the Island Project School, the typical daytime construction noise level will remain unchanged and there will be a slight increase in the highest monthly level of 1dB from 59db to 60db. The duration of the impact will remain as reported in the main ES at four months. Therefore, the significant effect reported in the main ES at the Island Project School will remain.
- 5.10.182 The proposed realignment of Diddington Lane will not give rise to a new or different significant effect in comparison with those reported in the main ES.

#### *Effects arising during operation*

- 5.10.183 The amendment will not give rise to a new or different significant effects in comparison to those reported in the main ES.

#### *Mitigation and residual effects*

- 5.10.184 No mitigation measures are applicable to this amendment. The amendment will not give rise to any new or different significant effects in comparison to those reported in the main ES.

#### *Cumulative effects*

- 5.10.185 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of the amendment acting in combination with AP1, or as a result of any relevant committed development interacting with the AP2 revised scheme.

### **Traffic and transport**

#### *Scope, assumptions and limitations*

- 5.10.186 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.10.187 This assessment considers the local impacts on traffic and non-motorised users of the changes to roads and PRoWs. The impacts on the wider highway network are considered in combination with other changes in Section 6

#### *Existing baseline*

- 5.10.188 The baseline for traffic and transport for the area is as described in the main ES (Volume 2, CFA Report 23, Section 12).

- 5.10.189 The main strategic route within the area of the amendment is the A452 Kenilworth Road which runs in a north-south orientation providing access to Hampton-in-Arden and Meriden, and passing through Balsall Common.
- 5.10.190 The main local roads in the area of the amendment are the B4102 Meriden Road and Diddington Lane. Diddington Lane runs in a north to south direction linking the A452 Kenilworth Road and the B4102 Meriden Road. The B4102 Meriden Road has an east to west orientation and connects Hampton-in-Arden with the A452 Kenilworth Road.
- 5.10.191 Diddington Lane provides access to Pasture Farm to the west, and Diddington Farm and The Island Project School to the east. The A452 Kenilworth Road and local roads around Hampton-in-Arden operate reasonably well at peak times with no major delays.
- 5.10.192 Footpath M114 runs in a north to south direction, between the A45 Service Road (located within Birmingham Interchange and Chelmsley Wood (CFA24)) and Diddington Lane.

### *Future baseline*

#### **Construction**

- 5.10.193 The future baseline for traffic and transport is described in Volume 2 CFA23, Section 12 of the main ES. There is no change to the future baseline for construction as reported in the main ES.

#### **Operation (2026 and 2041)**

- 5.10.194 The future baselines for traffic and transport are set out in Volume 2, CFA23, Section 12 of the main ES. There is no change to the future baselines for operation as reported in the main ES.

### *Effects arising during construction*

- 5.10.195 The construction of the original scheme in this area resulted in a minor adverse traffic related severance effect for non-motorised users on Diddington Lane due to construction traffic. The impact of the amendment on this is considered in Section 6.
- 5.10.196 The construction of the amendment will have a minimal effect on construction related traffic flows, which are considered in Section 6.

### *Effects arising from operation*

- 5.10.197 The main ES reported that existing users of Diddington Lane would experience a moderate adverse significant effect as a result of traffic diversion of 1.3km due to the road closure of Diddington Lane. The amendment removes the road closure and consequently will remove this significant adverse effect (see SES and AP2 map TR-04-153, Volume 5 Map Book).
- 5.10.198 Due to traffic diverted from Diddington Lane, the main ES reported a moderate adverse significant traffic related severance effect for non-motorised users on the B4102 Meriden Road. The amendment will remove this significant adverse effect (see SES and AP2 ES map TR-04-153, Volume 5 Map Book).

- 5.10.199 The amendment requires the permanent diversion of Footpath M114 which increases the distance by 110m and leads to a new minor adverse significant effect on severance for non-motorised users (see SES and AP2 map TR-04-153, Volume 5 Map Book).
- 5.10.200 Changes in traffic flow resulting from this amendment together with a number of other amendments in this area and in the adjoining areas contribute to the overall traffic effects across the area. The combined effects of these with regard to traffic flows are considered in the Section 6.

#### *Mitigation and residual effects*

- 5.10.201 No changes to the mitigation described in the main ES (Volume 2 CFA23, Section 12) are required.
- 5.10.202 The amendment will result in a new minor adverse significant residual effect in operation due to severance for users from the diversion of Footpath M114. A moderate adverse significant effect in operation on existing users of Diddington Lane due to increased travel distance in the original scheme will be removed. A moderate adverse significant effect in operation due to traffic related severance for non-motorised users of the B4102 Meridan Road will be removed.

#### *Cumulative effects*

- 5.10.203 Cumulative effects are reported in Volume 2, CFA23, Section 12 of the main ES. The assessment has taken into account these cumulative effects, including planned development by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in other areas.

### **Water resources and flood risk assessment**

#### *Scope, assumptions and limitations*

- 5.10.204 The assessment scope, key assumptions and limitations for water resources and flood risk assessment are set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

#### *Existing baseline*

- 5.10.205 The baseline water resources and flood risk assessment information for the area is described in the main ES (Volume 2, CFA Report 23, Section 13).
- 5.10.206 Shadow Brook, a tributary of the River Blythe, is a main river which flows from west to east, and is to be crossed by the amendment. The River Blythe is a main river and the channel is designated as a SSSI.
- 5.10.207 The current (2009) overall WFD status for the River Blythe is moderate, while the objective for 2027 is to achieve good status. Shadow Brook has not been classified and is assumed to be of the same status as the River Blythe. Shadow Brook is considered to be a receptor of very high value due to its direct connection with the River Blythe.
- 5.10.208 The superficial deposits consist of alluvium close to Shadow Brook, and glaciofluvial sands and gravels, in the area north of the amendment. These deposits are classified as Secondary A aquifers. These aquifers do not have any WFD classification.

- 5.10.209 The underlying bedrock geology, in the area of the amendment, comprises the Mercia Mudstone Group and Arden Sandstone Formation within the Mercia Mudstone Group. The Mercia Mudstone Group is classified as a Secondary B aquifer with a current overall WFD status of poor, while the objective for 2027 is to achieve good status. Within the Mercia Mudstone Group, the Arden Sandstone Formation is classified as a Secondary A aquifer.
- 5.10.210 The amendment requires additional land within the Jacksons Brickworks (historical) landfill.
- 5.10.211 The Environment Agency flood zone mapping and hydraulic modelling for Shadow Brook, indicate that an area around the crossing point of the amendment will be inundated during a flood event with a 1 in 100 annual probability (1%) of river flooding including climate change (see main ES Volume 5: map WR-05-153 and SES and AP2 Volume 5: Appendix WR-003-023).

### *Future baseline*

#### **Construction (2017)**

- 5.10.212 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.213 None of the identified developments affect the assessment of the amendment's likely construction impacts on water resources and flood risk.

#### **Operation (2026)**

- 5.10.214 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.10.215 None of the identified developments affect the assessment of the amendment's likely operational impacts on water resources and flood risk.

### *Effects arising during construction*

- 5.10.216 The construction of the realigned Diddington Lane will potentially give rise to new effects, since this is an additional crossing of the Shadow Brook that was not in the original scheme and therefore not reported in the main ES. The Shadow Brook is of very high value.
- 5.10.217 The crossing for Diddington Lane will be a bridge spanning the existing floodplain. The release of sediments into the Shadow Brook during the construction period and any disturbance to the floodplain will be minimised by the construction methods selected and the implementation of measures as set out in the draft CoCP. Therefore the impacts to surface water are assessed to be negligible and temporary. Therefore the effect is anticipated to be neutral and not significant.
- 5.10.218 The amendment requires additional land within the Jacksons Brickworks (historical) landfill. The exposure of existing subsurface contamination to rainfall infiltration during construction could result in its mobilisation in the subsurface towards the superficial deposits (Secondary A aquifer) and Shadow Brook.

- 5.10.219 The information currently available suggests the ground conditions are likely to be discontinuous glacial superficial deposits overlying Mercia Mudstone Group bedrock, with alluvium in the valley bottom and along the route of the Shadow Brook. The superficial deposits aquifer is of moderate value. Aerial and historical mapping of the Jacksons Brickworks indicate that clay extraction and subsequent landfilling have not occurred in the southern and eastern parts of the Brickworks, where the amendment is to be located, whereas historical pits shown in the north and west of the Brickworks appear to have been infilled.
- 5.10.220 As such given the location of the road realignment in the eastern areas of the Jacksons Brickworks that are unlikely to have been infilled, and the limited below-ground construction required, it is considered that the impact on groundwater quality in the superficial deposits aquifer is anticipated to be negligible and temporary. Therefore the effect is assessed to be neutral and not significant.
- 5.10.221 Shadow Brook is likely to receive contributions from groundwater in the superficial deposits aquifer. The impact on groundwater in the superficial deposits aquifer is negligible; therefore the impact on surface water quality in Shadow Brook from contributions of contaminated groundwater is also anticipated to be negligible and temporary. Therefore the effect is anticipated to be neutral and not significant. The Mercia Mudstone Group aquifer is at depth here in vicinity of the amendment (approximately 5m below ground level). It is not anticipated to be penetrated during construction and is of low permeability. Therefore no effects on the Mercia Mudstone Group/Arden Sandstone Formation aquifers as a result of changes to groundwater quality are anticipated.
- 5.10.222 The proposed bridge crossing for the realigned Diddington Lane will span the existing floodplain. The floodplain will be left undisturbed and changes to the hydraulic performance of Shadow Brook at this location will be prevented. Therefore the flood risk effect is assessed to be neutral and not significant.
- 5.10.223 The proposed realignment of Diddington Lane will not give rise to a new or different significant construction effect and will not change the level of significance of the effects reported in the main ES.

#### *Effects arising from operation*

- 5.10.224 The amendment to realign Diddington Lane will not give rise to a new or different significant operational effect and will not change the level of significance of the operational effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.10.225 No additional mitigation measures are applicable to this amendment. The amendment will not result in any significant residual effects in construction or operation at this location, which is unchanged from the main ES.

#### *Cumulative effects*

- 5.10.226 There are no new or different likely residual significant effects for water resources and flood risk as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **5.11 Summary of new or different likely residual significant effects as a result of the amendment**

- 5.11.1 The amendment to realign Diddington Lane will result in changes to several residual significant effects reported in the main ES. A moderate adverse effect on users of Diddington Lane and a moderate adverse significant effect for non-motorised users of the B4102 Meriden Road will be removed as well as reduced visual effects for two viewpoints from moderate adverse in year 15 to minor adverse and non-significant.
- 5.11.2 In addition, the amendment will result in a different visual effect during construction at viewpoint 298.3.001 due to the prominence of the Diddington Lane embankment but will not change the level of significance of the effects reported in the main ES.
- 5.11.3 The amendment will result in a new minor adverse significant effect, due to severance, from the permanent diversion of Footpath M114.

## **5.12 Agricultural land access across Shadow Brook (AP2-023-006)**

- 5.12.1 The Bill provides for the permanent closure of Diddington Lane to vehicular traffic, between north of the residential properties, to the south of Diddington Lane, and south of the access to Diddington Farm, with access being maintained for agricultural vehicles, albeit with height restrictions beneath Shadow Brook underbridge. The closed section of Diddington Lane would be reinstated as a bridleway, which would improve non-motorised user connectivity between the A45 Coventry Road, The Island Project School and Hampton-in-Arden. The bridleway would pass under the HS2 route via the Shadow Brook underbridge. At the location which Diddington Lane would be closed, turning heads would be provided. An additional turning head would be provided in close proximity to Shadow Brook underbridge to provide access to a balancing pond for construction and maintenance. During construction Diddington Lane would be used as a construction traffic route providing access to Shadow Brook underbridge satellite compound and construction works associated with the B4102 Meriden Road underbridge (see map CT-05-105a and CT-06-105a, in the main ES, Volume 2, CFA23 Map Book).
- 5.12.2 Since submission of the Bill it has been determined that the proposed bridleway, created on the alignment of the closed section of Diddington Lane, and an access track to a balancing pond, to the east of the HS2 route, will be realigned to reduce the severance of agricultural land. The bridleway and the access track will be realigned parallel to the HS2 route and cross Shadow Brook approximately 20m further east than in the original scheme. The land for the realignment of the bridleway and the access track is within the original limits of the Bill however, as the amendment includes the crossing of a designated watercourse, a change to the Bill powers is required. The realignment of the bridleway and the access track will take approximately three months to complete, commencing in 2017.
- 5.12.3 The realignment of the bridleway and the access track are not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; land quality; landscape and visual assessment; sound, noise and vibration; socio-economics; and traffic and transport.

However, reassessment is considered to be required in respect of water resources and flood risk assessment.

## **Water resources and flood risk assessment**

### *Scope, assumptions and limitations*

- 5.12.4 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.12.5 The baseline water resources and flood risk information for the Balsall Common and Hampton-in-Arden area is described in the main ES (Volume 2, CFA Report 23, Section 13).
- 5.12.6 Shadow Brook, a tributary of the River Blythe, is a main river which flows from west to east, and is to be crossed by the amendment. The River Blythe is a main river and the channel is designated as a SSSI.
- 5.12.7 The current (2009) overall WFD status for the River Blythe is moderate, while the objective for 2027 is to achieve good status. Shadow Brook has not been classified and is assumed to be of the same status as the River Blythe. Shadow Brook is considered to be a receptor of very high value due to its direct connection with the River Blythe.
- 5.12.8 The superficial deposits consist of alluvium close to Shadow Brook, and glaciofluvial sands and gravels, in the area north of the amendment. These deposits are classified as Secondary A aquifers. These aquifers do not have any WFD classification.
- 5.12.9 The underlying bedrock geology, in the area of the amendment, comprises the Mercia Mudstone Group and Arden Sandstone Formation within the Mercia Mudstone Group. The Mercia Mudstone Group is classified as a Secondary B aquifer with a current overall WFD status of poor, while the objective for 2027 is to achieve good status. Within the Mercia Mudstone Group, the Arden Sandstone Formation is classified as a Secondary A aquifer.
- 5.12.10 The Environment Agency flood zone mapping as provided in the main ES (see map WR-01-040, and in the SES and AP2 ES Volume 5: Appendix WR-003-023) and hydraulic modelling for Shadow Brook, indicate that the area of the amendment local to the brook crossing and south bank will be inundated during a flood event with a 1 in 100 annual probability (1%) event including climate change.
- 5.12.11 The key flood receptors in the vicinity of the amendment are agricultural land (less vulnerable) of moderate value, located both upstream and downstream of the existing Diddington Lane crossing over Shadow Brook and a wooded area located on the left bank.

### *Future baseline*

#### **Construction (2017)**

- 5.12.12 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).

- 5.12.13 None of the identified developments affect the assessment of the amendment's likely construction impacts on water resources and flood risk.

### **Operation (2026)**

- 5.12.14 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 5.12.15 None of the identified developments affect the assessment of the amendment's likely operational impacts on water resources and flood risk.

### *Effects during construction*

- 5.12.16 In the original scheme, construction of the new bridleway on the alignment of the existing Diddington Lane would involve construction activity local to Shadow Brook and within the floodplain. The release of sediments into the Shadow Brook during the construction period and any disturbance to the river bank will be minimised by the construction methods selected and the implementation of measures as set out in the draft CoCP. The impacts to surface water were assessed as negligible and temporary. The effect is anticipated to be neutral and not significant.
- 5.12.17 The amendment will also involve construction activity local to Shadow Brook and will also be within the floodplain. With the application of the same measures identified above, impacts to surface water are anticipated to be negligible and temporary. Therefore the effect is anticipated to be neutral and not significant, as reported in the main ES.
- 5.12.18 For the amendment, the results from the hydraulic modelling of Shadow Brook for a range of flood events together with the 1 in 100 annual probability (1%) including climate change event show that the change in flood level is negligible. As reported in the flood risk assessment (see SES and AP2 ES Volume 5: Appendix WR-003-023) there will be a small loss of floodplain storage resulting from the amendment. The small encroachment of the embankment associated with the field access onto the floodplain would be mitigated through the addition of suitable replacement floodplain storage. This will be incorporated into the replacement floodplain storage area in the original scheme. The resulting impact on flood risk will therefore be negligible and not significant.
- 5.12.19 The proposed agricultural land access across Shadow Brook amendment will not give rise to a new or different significant construction effect and will not change the level of significance of the construction effects reported in the main ES.

### *Effects arising from operation*

- 5.12.20 There are no new or different significant operational effects for water resources and flood risk as a result of the amendment, in comparison with the main ES.

### *Mitigation and residual effects*

- 5.12.21 Other than the replacement flood storage noted above, no additional mitigation measures are applicable to this amendment. The amendment will not result in any

significant residual effects in construction or operation at this location, which is unchanged from the main ES.

### *Cumulative effects*

- 5.12.22 There are no new or different likely residual significant effects for water resources and flood risk as a result of the amendment acting in combination with another amendment in AP2, or as a result of any relevant committed development interacting with the AP2 revised scheme.

## **5.13 Summary of new or different likely residual significant effects as a result of the amendment**

- 5.13.1 This amendment to provide agricultural land access across Shadow Brook will not result in new or different significant effects or change the level of effects reported in the main ES.

## 6 Combined effects of amendments in this CFA due to changes in traffic flows

### 6.1 Introduction

6.1.1 Where transport effects can be directly attributed to an amendment the effects related to such changes are reported within the Traffic and transport section under each of the relevant amendments. There are however, amendments in this and other CFAs that in combination result in changed traffic flows that cannot be directly attributed to one specific amendment. This section of the AP2 ES reports any new or different significant effects as a result of this combined assessment.

6.1.2 Traffic and transport effects are reported first, since the effects arise from changes in traffic flows. Air quality is affected by traffic and transport so follows the transport assessment.

### 6.2 Changes of relevance to this assessment

6.2.1 Changes in this and other CFAs result in changes to the construction flows through the area. These include:

- Burton Green area amendments – AP2-018-004. The amendment is described in detail in the AP2 ES for CFA18. The amendment results in additional excavated material and changes in the HGV traffic movements associated with the amendment. The amendment also removes the Cromwell Lane compound with a new roadhead provided off Waste Lane. The changes to the vertical alignment in CFA18 also impact on the alignment in CFA23 and the traffic movements associated with the Beechwood Farm accommodation underpass satellite compound, which is also to be relocated; and
- changes in construction vehicle movements associated with the following amendments:
  - AP2-023-001 Extension to the Kenilworth Greenway;
  - AP2-023-002 Retention of the temporary roundabout at Park Lane/A452 Kenilworth Road;
  - AP2-023-004 Extension of the River Blythe viaduct; and
  - AP2-023-005 Realignment of Diddington Lane.

### 6.3 Traffic and transport

#### Scope, assumptions and limitations

6.3.1 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

## **Environmental baseline**

### *Existing baseline*

- 6.3.2 The existing baseline for traffic and transport is set out in the main ES (Volume 2, CFA Report 23, Section 12). There is no change to the existing baseline reported in the main ES.
- 6.3.3 The main route through the area is the A452 Kenilworth Road which runs in a north to south orientation providing access to Hampton-in-Arden and Meriden, and passing through Balsall Common.
- 6.3.4 The main local roads affected by the amendments are Diddington Lane and the B4102 Meriden Road and the B4101 Kelsey Lane/Waste Lane in Balsall Common. These roads connect into the A452 Kenilworth Road.

### *Future baseline*

#### **Construction**

- 6.3.5 The future baseline for traffic and transport is described in Volume 2 CFA23, Section 12 of the main ES. There is no change to the future baseline for construction as reported in the main ES.

#### **Operation (2026 and 2041)**

- 6.3.6 The future baselines for traffic and transport are set out in Volume 2, CFA23, Section 12 of the main ES. There is no change to the future baselines for operation as reported in the main ES.

## **Effects arising during construction**

### *Avoidance and mitigation measures*

- 6.3.7 Avoidance and mitigation measures are set out in Volume 2, CFA23, Section 12 of the main ES. No changes to these mitigation measures are proposed.

### *Assessment of impacts and effects*

#### **Temporary effects**

- 6.3.8 The construction assessment of the original scheme assessed the traffic and transport impacts and effects in three peak months of construction activity (months 22, 27 and 36), based on the proposed phasing of the works. In considering the relevant amendments, the same methodology has been adopted.
- 6.3.9 As with the original scheme, the A452 Kenilworth Road will provide the primary HGV access routes for construction vehicles, off which HGVs will access construction compounds. The relevant amendments particularly affect the A452 Kenilworth Road, the B4101 Kelsey Lane/Waste Lane, the B4102 Meriden Road and Diddington Lane. Additionally, construction activities in other areas will affect roads within this area, including Hob Lane and Windmill Lane.
- 6.3.10 The main ES identified significant effects on congestion and delays on the A452 Kenilworth Road between Diddington Lane and Park Lane (minor adverse effect in month 27), A452 Kenilworth Road between Hallmeadow Road and Wootton Green

Lane (minor adverse effect in months 22 and 27), Park Lane (major adverse effect in months 22 and 27), Truggist Lane, between Hallmeadow Road and Baulk Lane (minor adverse effect in month 27 and major adverse effect in month 22), Truggist Lane, between Baulk Lane and Hodgett's Lane (minor adverse effect in month 27 and moderate adverse in month 22), Truggist Lane, between Hodgett's Lane and Spencer Lane (minor adverse effect in month 22) and Spencer Lane, between Lavender Hall Lane and Truggist Lane (moderate adverse effect in month 22).

6.3.11 While the relevant amendments will increase traffic flows, particularly on the A452 Kenilworth Road and the B4101 Kelsey Lane/Waste Lane, there is not expected to be any change to the significant effects reported in the main ES with regard to congestion and delays in the area.

6.3.12 The increase in traffic flows on the B4101 Kelsey Lane/Waste Lane, the A452 Kenilworth Road and the B4102 Meriden Road will result in the following changes to the level of significance of the significant effects with respect to traffic related severance for non-motorised road users:

- Diddington Lane – the main ES reported a minor adverse significant effect in month 22 and 27 due to the volume of construction related traffic accessing the area prior to the completion of the haul road and also as a result of the low level of baseline HGV traffic. The amendments remove the minor adverse significant effect in month 27. The minor adverse significant effect reported in the main ES in month 22 remains;
- A452 Kenilworth Road, between B4102 Meriden Road and Hallmeadow Road – The amendment results in a new minor adverse significant effect in month 22 on the A452 Kenilworth Road between the B4102 Meriden Road and Park Lane due to the increase in construction HGV traffic to the B4101 Kelsey Lane/Waste Lane area. On the A452 Kenilworth Road between Park Lane and Hallmeadow Road the main ES reported a minor adverse significant effect in months 27 and 36. The amendment increases this to a moderate adverse significant effect, and there is a new moderate adverse significant effect in month 22 due to increased construction HGV traffic to the B4101 Kelsey Lane/Waste Lane area;
- A452 Kenilworth Road, between Hallmeadow Road and Lavender Hall Lane – the original scheme identified a moderate adverse significant effect in months 22, 27 and 36 due to the volume of construction related traffic accessing the B4101 Kelsey Lane/Waste Lane area. The amendment increases the moderate adverse significant effect reported in months 22 and 27 to a major adverse significant effect due to the increased traffic to the B4101 Kelsey Lane/Waste Lane area associated with the change in alignment of the Burton Green tunnel and associated relocation of a roadhead and compound (AP2-018-004 amendments). The moderate adverse significant effect reported in the main ES in month 36 is unchanged;
- A452 Kenilworth Road, between Lavender Hall Lane and B4101 Kelsey Lane – the main ES reported a minor adverse significant effect in months 22, 27 and 36 due to the volume of construction related traffic accessing the B4101 Kelsey

Lane/Waste Lane area. The amendment increases the minor adverse significant effect reported in months 22 and 27 to a moderate adverse significant effect due to the increased traffic to the B4101 Kelsey Lane/Waste Lane area. The minor adverse significant effect reported in month 36 in the main ES is unchanged;

- B4101 Waste Lane, between Windmill Lane and the HS2 route – the main ES reported a moderate adverse significant effect in months 22, 27 and 36 due to the volume of construction related traffic accessing the B4101 Kelsey Lane/Waste Lane area. The amendment increases the moderate adverse significant effect reported in months 22, 27 and 36 to a major adverse significant effect due to the increased traffic associated with the relocated roadhead to the south-west of the Kenilworth Greenway (AP2-023-001);
- Windmill Lane, between Hob Lane and B4101 Waste Lane – the main ES reported a major adverse significant effect in months 22, 27 and 36. The amendment for the Burton Green tunnel (AP2-018-004 amendments) removes the compounds on Cromwell Lane and the associated access route via Windmill Lane and the major adverse significant effect is removed;
- Hob Lane – the main ES reported a minor adverse significant effect in months 22, 27 and 36. The amendment for the Burton Green tunnel (AP2-018-004 amendments) removes the compounds on Cromwell Lane and the associated access route via Hob Lane and the minor adverse significant effect is removed; and
- B4102 Meriden Road, between A452 Kenilworth Road and haul road – there were no effects reported on this section in the main ES. The AP2 revised scheme increases the use of this section of the B4102 Meriden Road for access to the haul road for the construction of works in the area and results in a new minor adverse significant effect in months 22, 27 and 36.

### **Permanent effects**

- 6.3.13 Permanent effects of construction on traffic and transport are reported under operational effects.

#### *Other mitigation measures*

- 6.3.14 No changes to the mitigation described in the main ES (Volume 2 CFA23, Section 12) are required.

#### *Cumulative effects*

- 6.3.15 Cumulative effects are reported in Volume 2, CFA23, Section 12 of the main ES. The assessment has taken into account these cumulative effects, including planned development by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in other areas.

#### *Summary of likely residual significant effects*

- 6.3.16 The combined effects of the AP2 revised scheme are expected to increase the peak number of construction vehicles through the area. These changes however are not

expected to alter the significant effects with respect to traffic congestion and delays during construction as identified in the main ES.

6.3.17

The changes to construction vehicle movements as a result of the proposed amendments will give rise to the following changes in traffic related severance effects for non-motorised road users compared to the main ES:

- Diddington Lane - the minor adverse significant effect in month 27 will be removed;
- A452 Kenilworth Road, between the B4102 Meriden Road and Hallmeadow Road – a new minor adverse significant effect will be introduced on the A452 Kenilworth Road between Hallmeadow Road and Park Lane in month 22;
- A452 Kenilworth Road, between Park Lane and Hallmeadow Road – a new moderate adverse significant effect will be introduced in month 22, and the minor adverse effect in months 27 and 36 will be increased to a moderate adverse significant effect;
- A452 Kenilworth Road, between Hallmeadow Road and Lavender Hall Lane – the moderate adverse significant effect in months 22 and 27 will be increased to a major adverse significant effect. The moderate adverse significant effect in month 36 will be unchanged;
- A452 Kenilworth Road, between Lavender Hall Lane and B4101 Kelsey Lane - the minor adverse significant effect in months 22 and 27 will increase to a moderate adverse effect. The minor adverse significant effect in month 36 will be unchanged;
- B4101 Waste Lane, between Windmill Lane and the HS2 route - the moderate adverse significant effect in months 22, 27 and 36 will be increased to a major adverse effect;
- Windmill Lane, between Hob Lane and B4101 Waste Lane – the major adverse significant effect in months 22, 27 and 36 will be removed;
- Hob Lane - the major adverse significant effect in months 22, 27 and 36 will be removed; and
- B4102 Meriden Road, between A452 Kenilworth Road and haul road – a new minor adverse significant effect will be introduced in months 22, 27 and 36.

### Effects arising from operation

6.3.18

There are no changes to the significant traffic and transport effects in operation as a result of these amendments which only affect the construction phase.

## 6.4 Air quality

### Scope, assumptions and limitations

6.4.1

The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

## **Environmental baseline**

### *Existing baseline*

- 6.4.2 The existing baseline conditions within the area are as set out in the main ES (Volume 2, CFA Report 23, Section 4). There is no change to the existing baseline as reported in the main ES.

### *Future baseline*

#### **Construction (2017)**

- 6.4.3 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 6.4.4 None of the identified developments affect the assessment of the amendment's likely construction impacts on air quality.

#### **Operation (2026)**

- 6.4.5 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).
- 6.4.6 None of the identified developments affect the assessment of the amendment's likely operational impacts on air quality.

## **Effects arising during construction**

### *Avoidance and mitigation*

- 6.4.7 The assessment assumes implementation of the measures set out within the draft CoCP, which includes, amongst other measures, a requirement for contractors to manage dust, air pollution, odour and exhaust emissions during construction.

### *Assessment of impacts and effects*

#### **Temporary effects**

- 6.4.8 The impact of emissions associated with the amendments have been assessed following the methodology as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 6.4.9 The screening of the updated traffic data identified that there were a number of road links within Balsall Common and a stretch of the A45 Coventry Road that met the criteria for detailed air quality assessment. Where there are sensitive receptors within 200m of these road links, a detailed assessment has been undertaken. Model verification was possible using baseline NO<sub>2</sub> diffusion tube data gathered at locations within Balsall Common.
- 6.4.10 The detailed assessment of local air quality identified several sensitive receptors within 200m of some of the links that now meet the need for modelling criteria. The following receptors have been selected as being representative of other receptors located within 200m of the affected road links:

- The Rookery, north of the A45 Coventry Road;
- Bibury, west of the A452, north of Balsall Common;
- Lodge Farm, east of the A452, north of Balsall Common;
- 101 Kenilworth Road, Balsall Common;
- 175 Kenilworth Road, Balsall Common;
- 495 Kenilworth Road, Balsall Common; and
- 67 Kelsey Lane, Balsall Common.

6.4.11 The detailed modelling assessment undertaken for these locations indicates that the amendments will have a small impact on annual mean concentrations of NO<sub>2</sub> at some locations adjacent to the A452 Kenilworth Road and Kelsey Lane, in Balsall Common. However, this will not constitute a significant effect.

6.4.12 Elsewhere, the amendments will have a negligible impact on annual mean concentrations of NO<sub>2</sub>. At all receptors, there will be a negligible impact on annual mean concentrations of PM<sub>10</sub>.

#### **Permanent effects**

6.4.13 There are no permanent effects relating to air quality due to the changes in construction traffic.

#### *Other mitigation measures*

6.4.14 No other mitigation measures are required above the measures reported in the main ES.

#### *Cumulative effects*

6.4.15 There are no new or different likely significant cumulative effects for air quality during operation as a result of the SES and AP2 scheme amendments acting in combination, or as a result of any relevant committed development interacting with the AP2 revised scheme.

#### *Summary of likely residual significant effects*

6.4.16 The changes in traffic will result in no new or different likely residual significant air quality effects compared to those reported in the main ES.

#### **Effects arising from operation**

##### *Avoidance and mitigation measures*

6.4.17 Avoidance and mitigation measures are set out in the main ES (Volume 2, CFA Report 23, Section 4). No further air quality avoidance or mitigation measures during operation are proposed.

##### *Assessment of impacts and effects*

6.4.18 There are no new or different significant operational effects for air quality as a result of the SES and AP2 revised scheme amendments acting in combination.

*Other mitigation*

- 6.4.19 No other mitigation measures are required above the measures reported in the main ES.

*Cumulative effects*

- 6.4.20 There are no new or different likely significant cumulative effects for air quality as a result of the SES and AP2 revised scheme amendments acting in combination or as a result of any committed development interacting with the AP2 revised scheme.

*Summary of likely residual significant effects*

- 6.4.21 The changes in traffic will result in no new or different likely residual significant air quality effects compared to those reported in the main ES.



**High Speed Two (HS2) Limited**

One Canada Square  
London E14 5AB

**T** 020 7944 4908

**E** [hs2enquiries@hs2.org.uk](mailto:hs2enquiries@hs2.org.uk)

X29