

# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 3 and  
Additional Provision 4 Environmental Statement

Volume 2 | Community forum area reports  
CFA20 Curdworth to Middleton

October 2015

SES3 and AP4 ES 3.2.1.20



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# Department for Transport

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**AECOM**

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**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)

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# Contents

<b>Structure of the HS2 Supplementary Environmental Statement 3 and Additional Provision 4 Environmental Statement</b>	<b>1</b>
<b>Structure of this report</b>	<b>3</b>
1 Introduction	5
<b>Part 1: Supplementary Environmental Statement 3</b>	<b>7</b>
2 Summary of changes	7
2.1 New environmental baseline information	7
2.2 Changes to the design or construction assumptions not requiring a change to the Bill	7
2.3 Topics included in the SES assessment	9
3 Assessment of changes	10
3.1 Ecology	10
3.2 Water resources and flood risk assessment	13
<b>Part 2: Additional Provision 4 Environmental Statement</b>	<b>16</b>
4 Summary of amendments	16
5 Assessment of amendments	19
5.1 Additional temporary land for the removal of electricity transmission line at Hams Hall (AP4-020-001)	19
6 Combined effects of amendments in this CFA due to changes in traffic flows	27
<b>List of figures</b>	
Figure 1: Locations of design changes in CFA20	8
Figure 2: Locations of amendments in CFA20	18
<b>List of tables</b>	
Table 1: Scheme definitions	5
Table 2: Summary of changes to the design or construction assumptions not requiring a change to the Bill in CFA20	7
Table 3: Summary of amendments in CFA20	16



# Structure of the HS<sub>2</sub> Supplementary Environmental Statement 3 and Additional Provision 4 Environmental Statement

The Supplementary Environmental Statement 3 (SES<sub>3</sub>) and Additional Provision 4 Environmental Statement (AP<sub>4</sub> ES) comprises:

- non-technical summary (NTS). This provides a summary in non-technical language of the SES<sub>3</sub> (Part 1) and AP<sub>4</sub> 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 (HS<sub>2</sub>) Phase One Environmental Statement (ES) submitted to Parliament in November 2013 in support of the hybrid Bill ('the Bill') for Phase One of HS<sub>2</sub> (hereafter referred to as 'the main ES') as updated by subsequent SES and AP ES documents;
- Volume 1: introduction to the SES<sub>3</sub> and AP<sub>4</sub> ES. This introduces the supplementary environmental information and design changes included within the SES<sub>3</sub> and amendments, which have resulted in the need to amend the Bill, within the AP<sub>4</sub> ES. It also explains any changes to the scope, methodology, assumptions and limitations required for the environmental assessment;
- Volume 2: community forum area (CFA) reports and map books. These describe the supplementary environmental information and design changes included within the SES<sub>3</sub> (Part 1) and amendments within the AP<sub>4</sub> ES (Part 2). Any new or different likely significant environmental effects arising from these changes and amendments in each CFA, compared to those reported in the main ES, as updated by SES and SES<sub>2</sub> documents (and SES<sub>3</sub> for the AP<sub>4</sub> amendments) are reported. The AP<sub>1</sub>, AP<sub>2</sub> and AP<sub>3</sub> amendments are also taken into account where relevant. In addition, 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<sub>3</sub> (Part 1) and amendments within the AP<sub>4</sub> ES (Part 2) compared to those reported in the main ES as updated by SES and SES<sub>2</sub> (and SES<sub>3</sub> for the AP<sub>4</sub> amendments). The AP<sub>1</sub>, AP<sub>2</sub> and AP<sub>3</sub> amendments are also taken into account where relevant;
- Volume 4: off-route effects. This reports new or different likely significant off-route effects arising from the supplementary environmental information and design changes included within the SES<sub>3</sub> (Part 1) and amendments within the AP<sub>4</sub> ES (Part 2) compared to those reported in the main ES as updated by SES

## SES<sub>3</sub> and AP<sub>4</sub> ES Volume 2 – CFA20, Curdworth to Middleton

and SES<sub>2</sub> (and SES<sub>3</sub> for the AP<sub>4</sub> amendments). The AP<sub>1</sub>, AP<sub>2</sub> and AP<sub>3</sub> amendments are also taken into account where relevant;

- Volume 5: appendices and map books. This contains environmental information and associated maps in support of the other volumes of the SES<sub>3</sub> and AP<sub>4</sub> ES; and
- glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the SES and AP ES reports, additional to those included in the main ES.

# Structure of this report

This volume of the SES<sub>3</sub> and AP<sub>4</sub> ES is divided into CFA reports, which are in turn divided into two parts.

Part 1 of this CFA report provides supplementary environmental information relating to:

- new baseline information with respect to ecological surveys conducted during 2015; and
- changes to the design or construction assumptions which do not require changes to the Bill.

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<sub>3</sub> 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 of this CFA report 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 AP<sub>4</sub> 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 AP<sub>1</sub> 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) in CFAs 7 – 26. The SES and AP<sub>2</sub> ES which was submitted in July 2015, updated the main ES and contained a number of further amendments to the design of the original scheme in CFAs 4 – 26. The SES<sub>2</sub> and AP<sub>3</sub> ES which was submitted in September 2015, contained further updates to the main ES and reported the assessment of a number of amendments to the design of the original scheme in CFAs 1 – 5.
- 1.1.2 Since the submission of the main ES and subsequent SES and AP documents, updates to environmental baseline information and changes to 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<sub>3</sub> (Part 1) or AP<sub>4</sub> ES (Part 2) of this document, where they occur.
- 1.1.3 The Bill and associated Additional Provisions (APs) to the Bill described above, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS<sub>2</sub>.
- 1.1.4 In order to differentiate between the original scheme and the subsequent changes, the terms set out in Table 1 are used.

Table 1: Scheme definitions

Scheme name	Definition	Relevant CFAs
the original scheme	the Bill scheme submitted to Parliament in November 2013, which was assessed in the main ES	1 – 26
the AP <sub>1</sub> revised scheme	the original scheme as amended by the AP submitted in September 2014	7 – 26
the SES scheme	the original scheme with the design changes described in the SES submitted in July 2015	4 – 26
the AP <sub>2</sub> revised scheme	the SES scheme as amended by the AP <sub>2</sub> submitted in July 2015	4 – 26
the SES <sub>2</sub> scheme	the original scheme as updated by the SES scheme, with the design changes described in the SES <sub>2</sub> submitted in September 2015	1 – 5 (i.e. this applies in the London area only)
the AP <sub>3</sub> revised scheme	the SES <sub>2</sub> scheme as amended by the AP <sub>3</sub> submitted in September 2015	1 – 5 (i.e. this applies in the London area only)
the SES <sub>3</sub> scheme	the SES <sub>2</sub> scheme with the design changes described in the SES <sub>3</sub> submitted in October 2015	4 – 26
the AP <sub>4</sub> revised scheme	the SES <sub>3</sub> scheme as amended by the AP <sub>4</sub> submitted in October 2015	4 – 26

- 1.1.5 SES<sub>3</sub> (Part 1 of this report) contains updated environmental baseline information and describes changes to the scheme that have occurred within the current limits and powers of the Bill, and therefore do not require an AP to the Bill. This includes:
- new baseline information with respect to ecological surveys conducted during 2015; and
  - changes to the design or to construction assumptions which do not require changes to the Bill.
- 1.1.6 There is one design change assessed within the SES<sub>3</sub> for this CFA: the removal of the replacement floodplain storage areas around Middleton House Farm.
- 1.1.7 The changes are described in Part 1 under a series of sub-headings, and assessed on a topic by topic basis using the same approach adopted in the main ES.
- 1.1.8 The purpose of SES<sub>3</sub> is to provide an assessment of any new or different likely significant environmental effects arising from the changes described.
- 1.1.9 There were no SES<sub>2</sub> changes in this CFA, so the SES<sub>3</sub> change is compared to the SES scheme. There were AP<sub>1</sub> and AP<sub>2</sub> amendments, so these are taken into account as appropriate.
- 1.1.10 The AP<sub>4</sub> ES (Part 2 of this report) describes 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 AP to the Bill. The amendment assessed within the AP<sub>4</sub> ES for this CFA includes acquisition of additional land temporarily for the removal an electricity transmission line at Hams Hall.
- 1.1.11 The AP<sub>4</sub> ES assesses each amendment separately for all relevant topics. The purpose of the AP<sub>4</sub> ES is to provide an assessment of any new or different likely significant environmental effects arising from the amendments compared to the SES<sub>3</sub> scheme, taking into account AP<sub>1</sub>, AP<sub>2</sub> and AP<sub>3</sub> amendments where relevant.
- 1.1.12 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<sub>3</sub> and AP<sub>4</sub> ES.

# Part 1: Supplementary Environmental Statement 3

## 2 Summary of changes

### 2.1 New environmental baseline information

#### Ecology

- 2.1.1 Surveys for amphibians undertaken in this area during 2015 are relevant to the assessment.
- 2.1.2 Details of all amphibian surveys undertaken in this area during 2015 are provided in SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 5, Appendix EC-001-0003 and Volume 5 map series EC-04.
- 2.1.3 A summary of supplementary ecological information that is relevant to the SES<sub>3</sub> assessment is included within Section 3 under 'Ecology'.

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

- 2.2.1 Table 2 provides a summary of the changes to the design or construction assumptions in the Curdworth to Middleton area (CFA<sub>20</sub>). Figure 1 shows the locations of the changes.

Table 2: Summary of changes to the design or construction assumptions not requiring a change to the Bill in CFA<sub>20</sub>

Name of design change or construction assumption	Description of the SES scheme	Description of the SES <sub>3</sub> scheme
Potential removal of the replacement floodplain storage areas around Middleton House Farm (SES <sub>3</sub> -020-001).	Provision of two replacement flood storage areas at Middleton House Farm to mitigate an identified significant flood risk effect to a non-significant level.	Removal of the replacement flood storage areas at Middleton House Farm. However, the land required for provision of the full compensation area to mitigate flood risk will remain in the Bill (as was assessed in the main ES and the SES and AP <sub>2</sub> ES), to allow for an alternative which will be confirmed at detailed design, subject to agreements with the Environment Agency and the land owner.



## Description of changes to the design or construction assumptions

### *Potential removal of the replacement floodplain storage areas around Middleton House Farm (SES3-020-001)*

- 2.2.2 The Bill made provision for two areas of replacement floodplain storage in the area of Middleton House Farm (refer to main ES maps CT-06-114, G7 and H7/8, Volume 2, CFA20 Map Book).
- 2.2.3 Since submission of the Bill, it has been identified that a reduction in the size of the replacement floodplain storage adjacent to Middleton House Farm would be preferable in terms of minimising the disruption to agricultural activities. This change would result in increased flood risk of the Middleton House Farm fields attributable to restricted waterflow in the areas resulting from the two underbridges required for HS2, both upstream and downstream of the route, but reduce the amount of land removed from agricultural use.
- 2.2.4 At this location, both the extent of potential flooding and the proposed replacement floodplain storage occur entirely within a single land ownership, Middleton House Farm. As such, any potential effects resulting from a reduction in the replacement floodplain storage would only affect one land holding.
- 2.2.5 The impacts on flood risk with the proposed replacement floodplain storage areas are reported in the main ES as non-significant, because their implementation would fully mitigate the increase in flood risk; however, they would also remove the greatest extent of land from agricultural use.
- 2.2.6 The SES3 change assesses the full removal of the areas identified for replacement floodplain storage (1.34ha) at Middleton House Farm, and reports any new or different significant effects. However, during detailed design, the areas required for replacement floodplain storage will be reviewed with the land owner and Environment Agency, and changes may consist of either reducing the area required for replacement floodplain storage or removal of the area entirely.
- 2.2.7 Although this change is assessed, as a precautionary approach, the area of land required for replacement floodplain storage will not be removed from the Bill as any change to the provision of flood compensation mitigation is subject to agreement by the landowner and the Environment Agency (refer to main ES maps CT-05-114 G7 and H7/8 and CT-06-114 G7 and H7/8, Volume 2, CFA20 Map Book) (and the effects of retaining the mitigation in its entirety remain reported in the main ES).

## 2.3 Topics included in the SES assessment

- 2.3.1 The changes described in Sections 2.1 and 2.2 result in new or different significant effects in respect of ecology, and water resources and flood risk assessment.

## 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 SES3 assessment. It then identifies any new or different likely residual significant environmental effects as a result of the changes introduced in Section 2, compared to the SES 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 Updates to the scope of the assessment for ecology are as set out in Volume 1 of the SES3 and AP4 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 CT001-000/01 and CT-001-000/02 of the main ES) of the main ES and in Addendum 4 to the SMR (SES 3 and AP4 ES Volume 5: Appendix CT-001-000/5).
- 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 SES3 scheme.

#### Changes of relevance to this assessment

- 3.1.4 The only changes that are relevant to this assessment are in relation to new baseline surveys for great crested newt.

#### 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 of data sources is provided in CFA20, Volume 2, Section 7 of the main ES. The assessment also takes into account additional desk-study and survey information that is reported in Volume 5 of the SES and AP2 ES.
- 3.1.6 Supplementary information relevant to the SES3 assessment in this CFA relates to additional survey work for great crested newt. Details of all amphibian surveys undertaken in this area during 2015 are provided in SES3 and AP4 ES, Volume 5: Appendix EC-001-003 and Volume 5 map series EC-04.
- 3.1.7 A summary of the baseline information relevant to the SES3 assessment is provided below.

### **Designated sites**

- 3.1.8 There is no new baseline information or SES<sub>3</sub> design changes in relation to designated sites.

### **Habitats**

- 3.1.9 There is no new baseline information or SES<sub>3</sub> design changes in relation to habitats.

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

- 3.1.10 In the main ES and SES and AP<sub>2</sub> ES, water bodies which were unsurveyed or had received incomplete surveys within the land required for the original scheme, were assumed as a precaution to support a medium population of great crested newt and in each case, were valued at up to a county/metropolitan level.
- 3.1.11 Between April and June 2015 eDNA surveys were undertaken at water bodies that were scoped in for detailed survey for great crested newt but which had previously been unsurveyed or had received incomplete surveys due to land access restrictions.
- 3.1.12 A single water body (a garden pond located adjacent to Marston Lane Bridge, to the north of Lea Marston) surveyed in 2015 located within the land required for the construction of the original scheme has returned a negative result for great crested newt eDNA, indicating that great crested newts are absent.

### *Future baseline*

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

- 3.1.13 Volume 5: Appendix CT-004-000 of the SES<sub>3</sub> and AP<sub>4</sub> ES provides details of the developments which are assumed to have been implemented by 2017, additional to those reported in the main ES and the SES and AP<sub>2</sub> ES.
- 3.1.14 None of the identified developments affect the assessment of the SES<sub>3</sub> scheme's likely construction impacts on ecology assets.

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

- 3.1.15 Volume 5: Appendix CT-004-000 of the SES<sub>3</sub> and AP<sub>4</sub> ES provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES and the SES and AP<sub>2</sub> ES.
- 3.1.16 None of the identified developments affect the assessment of the SES<sub>3</sub> scheme's likely operational impacts on ecology assets.

### **Effects arising during construction**

#### *Avoidance and mitigation measures*

- 3.1.17 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.

### *Assessment of impacts and effects*

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

- 3.1.18 The main ES reported 17 water bodies deemed suitable for amphibians would be lost within the land required for the construction of the original scheme. Six of these waterbodies were surveyed, and smooth newts were found in two water bodies. Eleven of these water bodies were unsurveyed or received incomplete surveys and were therefore assumed to support a medium population of great crested newt and were given a precautionary value up to a county/metropolitan level. The main ES stated that loss of these unsurveyed water bodies could result in an adverse effect on the conservation status of great crested newt populations which would be significant, in each case, at up to a county/metropolitan level.
- 3.1.19 The 2015 eDNA surveys provided negative results for great crested newt at one of the eleven water bodies that were previously assumed to support a medium population of great crested newt. At this location (a garden pond adjacent to Lea Marston Bridge) the significant effect at the county/metropolitan level reported in the main ES will not occur.
- 3.1.20 The loss of the remaining 10 unsurveyed water bodies is still assumed to have an adverse effect on the conservation status of great crested newt populations which will remain significant, in each case, at up to a county/metropolitan level.
- 3.1.21 It is unlikely that the new baseline data will result in any other new or different effects on species receptors of relevance at more than the local/parish level. Local/parish level effects which are in addition to those identified in the main ES and in the SES and AP2 ES are listed in Volume 5: Appendix EC-002-003 of the SES3 and AP4 ES.

#### *Cumulative effects*

- 3.1.22 There are no new or different likely cumulative effects for ecology as a result of the new baseline data interacting with the AP1 amendments or AP2 amendments or as a result of any relevant committed development.

#### *Other mitigation measures*

- 3.1.23 No additional mitigation measures (i.e. in addition to those identified in the main ES, and SES and AP2 ES) are required.

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

- 3.1.24 No new or different residual effects on ecological receptors occur as a consequence of the updated survey data. The significant residual effects of the SES3 scheme in this area are therefore unchanged from those reported in the main ES, and Part 1 of the SES and AP2 ES.

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

- 3.1.25 The SES3 changes do not change the operation of the scheme and so there are no new or different significant operational effects for ecology as a result of the proposed SES3 changes, in comparison with the main ES and the SES and AP2 ES.

## 3.2 Water resources and flood risk assessment

### Introduction

- 3.2.1 This section of the report describes the environmental baseline in relation to water resources and flood risk 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 SES scheme.

### Scope, assumptions and limitations

- 3.2.2 The assessment scope, key assumptions and limitations for water resources and flood risk 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.

### SES3 changes of relevance to this assessment

- 3.2.3 The SES3 change that has the potential to impact on water resources and flood risk is the removal of the replacement floodplain storage areas around Middleton House Farm (SES3-020-001).

### Environmental baseline

#### *Existing baseline*

- 3.2.4 Two tributaries of Langley Brook flow from west to east, across the HS2 route through the North Wood underbridge and the Hunts Green underbridge. The watercourses are Ordinary Watercourses and the catchment areas draining to this location are 5.6km<sup>2</sup> and 2.3km<sup>2</sup> respectively. The Environment Agency updated flood map for surface water indicates that the width of the 1 in 100 (1%) floodplain at the location of the Hunts Green underbridge is approximately 125m. The Environment Agency updated flood map for surface water indicates there is no flooding associated with the 1 in 100 (1%) surface water flood event at the location of the North Wood underbridge. There are no residential properties within the floodplain near to the route. The land use within the floodplain is agriculture, which is categorised as less vulnerable (moderate value receptor).
- 3.2.5 Bedrock in the area is the Mercia Mudstone, which is a Secondary B aquifer. Superficial deposits, including river terrace gravels and alluvium, which are secondary A aquifers are associated with the watercourses in the area. There are no source protection zones within the study area.

#### *Future baseline*

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

- 3.2.6 Volume 5: Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES and the SES and AP2 ES.
- 3.2.7 None of the identified developments affect the assessment of the SES3 scheme's likely construction impacts on water resources and flood risk.

### **Operation (2026)**

- 3.2.8 Volume 5: Appendix CT-004-000 of the SES<sub>3</sub> and AP<sub>4</sub> ES provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES and the SES and AP<sub>2</sub> ES.
- 3.2.9 None of the identified developments affect the assessment of the SES<sub>3</sub> scheme's likely operational impacts on water resources and flood risk.

### **Effects arising during construction**

#### *Avoidance and mitigation measures*

- 3.2.10 No avoidance or mitigation measures, additional to those reported in the main ES, are required.

#### *Assessment of impacts and effects*

### **Temporary effects**

- 3.2.11 The removal of the replacement floodplain storage areas around Middleton House Farm, will not give rise to a new or different significant temporary effect and will not change the level of significance of the effects reported in the main ES.

### **Permanent effects**

- 3.2.12 The removal of the replacement floodplain storage areas around Middleton House Farm has been assessed to determine the impact on the significance of effect for flood risk. The FRA in the main ES Volume 5: Appendix WR-003-020 provides the details of the impact of the scheme without the replacement floodplain storage (i.e. it assesses the effect of the railway on flood risk if no replacement floodplain storage was provided, before then assessing the impacts after replacement floodplain storage is provided).
- 3.2.13 The impact on flood risk associated with the tributary flowing through the North Wood underbridge is only minor without replacement floodplain storage. The increase in flood level during the 1 in 100 (1%) plus climate change flood event is 41mm (1.6 inches). This increase in flood level is a minor impact, therefore the replacement floodplain storage can be removed from the scheme in this location without introducing a new or different significant effect.
- 3.2.14 The impact on flood risk associated with the tributary flowing through the Hunts Green underbridge is significant (moderate) if replacement floodplain storage is not provided, and the increase in flood level during the 1 in 100 (1%) plus climate change flood event is a maximum of 96mm (3.8 inches). This increase in flood level is a moderate impact, which without mitigation, introduces a new significant effect at Middleton House Farm. The maximum increase in flood level is localised adjacent to the upstream side of the Hunts Green underbridge.
- 3.2.15 The land affected by changes to flood risk is agricultural land and is categorised as less vulnerable. The area of land affected by a minor or moderate increase in flood risk (i.e. an increase greater than 10mm (0.4 inch)) is approximately 0.79ha, of which approximately 0.2ha is affected by a moderate increase in flood risk (i.e. an increase greater than 50mm (2 inches)). This is less than the area of approximately 1.34ha that

would be required for the construction of the replacement floodplain storage area. The impacts due to both the increase in flood risk and the construction of the replacement floodplain storage are all within the same landholding.

- 3.2.16 The removal of the replacement floodplain storage area around Middleton House Farm will give rise to a new significant effect. The change will increase the flood risk local to the Hunts Green underbridge. This will change the level of significance of the effect reported in the main ES from negligible to moderate. The removal of the replacement floodplain storage area around Middleton House Farm is subject to detailed design and agreements with the Environment Agency and land owner.

#### *Other mitigation measures*

- 3.2.17 Aside from the potential removal of the flood compensation areas at Middleton House Farm as a result of the SES<sub>3</sub> change, no change to mitigation measures (i.e. in addition to those identified in the main ES) is required.

#### *Cumulative effects*

- 3.2.18 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the change interacting with the AP<sub>1</sub> or AP<sub>2</sub> amendments or as a result of any relevant committed development.

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

- 3.2.19 The removal of the replacement floodplain storage area around Middleton House Farm will give rise to a new likely residual significant effect. The change will increase the flood risk local to the Hunts Green underbridge. This will change the level of significance of the effects for flood risk reported in the main ES from negligible to moderate. The change will only affect land at this individual holding.

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

- 3.2.20 The removal of the replacement floodplain storage area does not change the operation of the scheme and no new or different significant operational effects for water resources and flood risk will occur as result of the SES<sub>3</sub> change, in comparison with the main ES.

# Part 2: Additional Provision 4 Environmental Statement

## 4 Summary of amendments

4.1.1 Table 3 provides a summary of the amendments in the Curdworth to Middleton CFA (CFA20) and Figure 2 shows the locations.

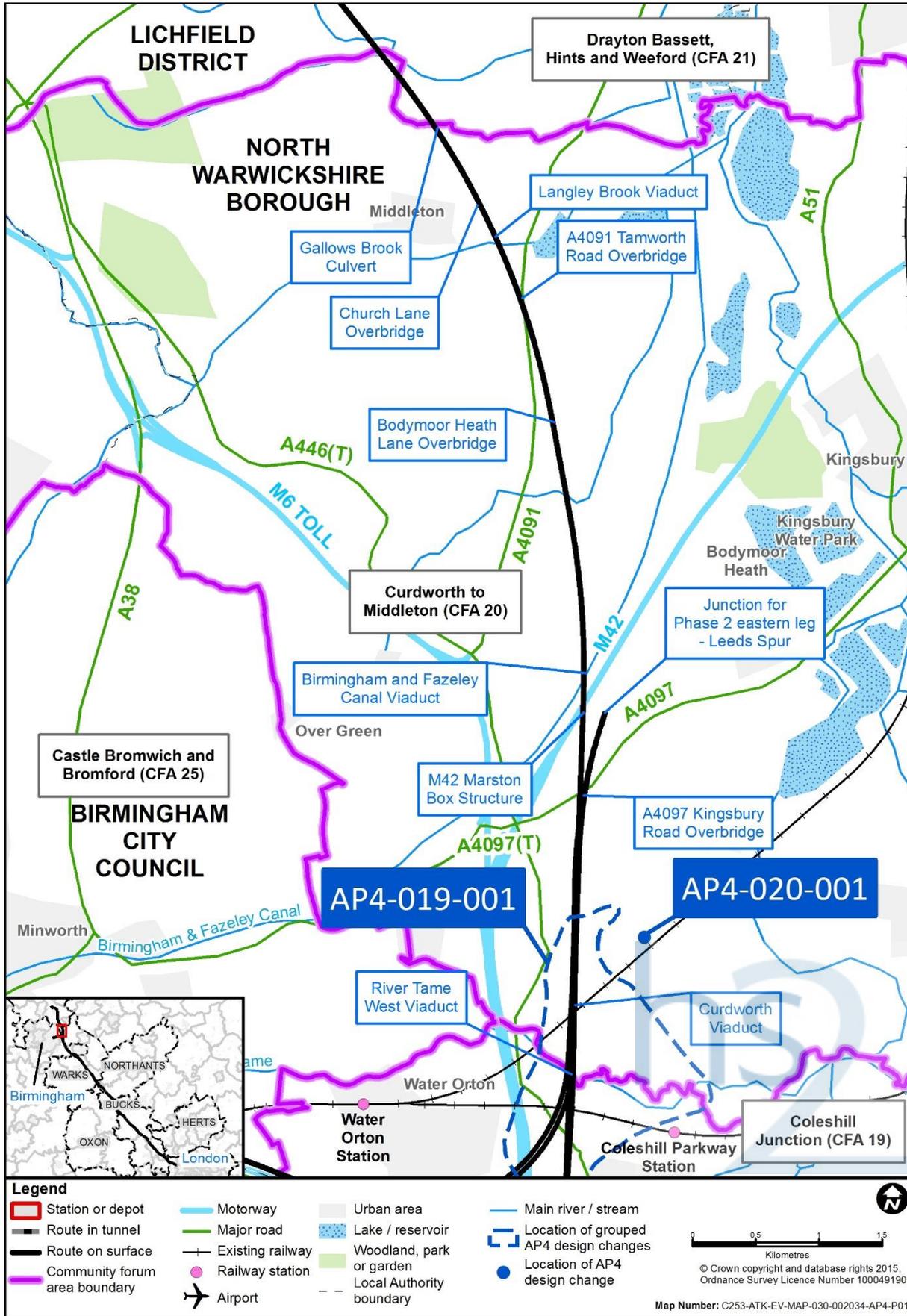
Table 3: Summary of amendments in CFA20

Name of amendment	Description of the SES <sub>3</sub> scheme	Description of the AP <sub>4</sub> revised scheme
<p>Additional temporary land for the removal of electricity transmission line at Hams Hall</p> <p>(AP<sub>4</sub>-020-001)</p>	<p>Provision of a cutting to accommodate the Kingsbury Road railhead reception sidings, creating a temporary main construction compound area as well as for construction of a permanent pumping station and associated balancing pond and access.</p>	<p>Removal of the existing high-voltage electricity pylons within the footprint of the proposed cutting for the Kingsbury Road railhead reception sidings, the transmission line over the Birmingham and Derby Line and pylons on both sides of the railway.</p> <p>2.3ha of land will be required temporarily on both sides of the Kingsbury Road railhead reception sidings for removal of the power lines and pylons.</p> <p>Provision of temporary access rights along the private road extending northwards from the roundabout with Faraday Avenue and for a route across an existing carpark to allow for access to the works to the south of the railway.</p> <p>Erection of temporary scaffolding over the Birmingham and Derby Line during the removal works.</p>
<p>Chattle Hill area amendments</p> <p>(AP<sub>4</sub>-019-001)</p> <p>This amendment primarily affects the Coleshill Junction area (CFA19) and is therefore reported in its entirety in the SES<sub>3</sub> and AP<sub>4</sub> ES CFA19 Volume 2 report. The individual elements of this change that occur within the Curdworth to Middleton area (CFA20) are highlighted in this summary table but are reported in full in the CFA19 report.</p>		<p>The Chattle Hill area amendment that occur within the Curdworth to Middleton area (CFA20) are shown in SES<sub>3</sub> and AP<sub>4</sub> ES Volume 2, CFA20 Map Book, Maps CT-05-111b, CT-05-112b, CT-06-111b, CT-06-111b-R1, and CT-06-112b.</p> <p>The Chattle Hill area amendments are shown in their entirety in SES<sub>3</sub> and AP<sub>4</sub> ES Volume 2, CFA19 Map Book, Maps CT-05-110, CT-05-111a, CT-05-111a-R1, CT-05-112a, CT-06-110, CT-06-111a, CT-06-111a-R1 and CT-06-112a.</p>
<p>Utilities</p>	<p>The permanent diversion of a 12-inch (300mm) high-pressure gas main starting from the Bromwich Court</p>	<p>The permanent diversion of a 12-inch (300mm) high-pressure gas main starting from the Bromwich Court building and running to</p>

## SES3 and AP4 ES Volume 2 – CFA20, Curdworth to Middleton

Name of amendment	Description of the SES3 scheme	Description of the AP4 revised scheme
	<p>building to the east of the HS2 route through the Coleshill Sewage Treatment Works.</p> <p>The permanent diversion of three high-pressure gas mains commencing near the junction of the A446 Lichfield Road and Gorsey Lane and extending to locations to the west of the HS2 route.</p> <p>The permanent diversion of a 400kV overhead line to the west of the HS2 route between Gilson Drive and Faraday Avenue with a temporary diversion to enable this between Gilson Road and B4117 Watton Lane.</p> <p>There is an AP1 amendment which is relevant to this amendment: AP1-020-033 Additional land for protection of Birmingham and Derby Line near Lichfield Road/Faraday Avenue; land required for the AP1 amendment is also required for the temporary overhead line diversion.</p>	<p>the west of the HS2 route, before crossing back to reconnect on the east side of the route.</p> <p>The permanent diversion of three high-pressure gas mains commencing near the junction of the A446 Lichfield Road and Gorsey Lane, then following the same route under the A446 Lichfield Road and HS2 route before diverging to locations to the west of the route.</p> <p>The permanent diversion of a 400kV overhead line to the east of the HS2 route between Gilson Road (CFA 19) and Faraday Avenue (within CFA20) with a temporary diversion to enable this between the River Tame and Faraday Avenue (within CFA20).</p>
Satellite construction compounds	<p>The temporary provision of four satellite construction compounds within CFA19 and one within CFA20 for the construction of this part of the scheme.</p> <p>The temporary provision of a roadhead split to the north and south of the A446 Lichfield Road.</p>	<p>The temporary provision of four satellite construction compounds within CFA19 and one within CFA20 located to suit the AP4 revised scheme required for the construction of this part of the scheme.</p> <p>The temporary provision of a roadhead located to the south of the A446 Lichfield Road due to the introduction of a viaduct to the north.</p>
Provision of additional grassland habitat creation area adjacent to the River Tame	<p>The construction of the SES3 scheme requires the loss of 5.9ha of the Coleshill Sludge Lagoons Local Wildlife Site (LWS).</p>	<p>The permanent provision of a 1.6ha grassland habitat creation area to the east of the route adjacent to the River Tame (within CFA20), in order to compensate for the level of permanent impact of the SES3 scheme.</p>

Figure 2: Locations of amendments in CFA20



## 5 Assessment of amendments

### 5.1 Additional temporary land for the removal of electricity transmission line at Hams Hall (AP4-020-001)

- 5.1.1 The Bill provides for a cutting to accommodate the Kingsbury Road railhead reception sidings to facilitate access to the main construction compound area as well as to construct a permanent pumping station and associated balancing pond and access (refer to main ES maps CT-05-112-R1 and CT-06-112-R1, grid references C5 to C7, D6 to D10, E8 to E10, and F10, Volume 2, CFA20 Map Book). The resulting earthworks from the reception sidings would remain as a permanent feature.
- 5.1.2 Since submission of the Bill, it was identified that a redundant high voltage electricity pylon is located within the footprint of the proposed cutting for the Kingsbury Road railhead reception sidings (refer to SES3 and AP4 ES maps CT-05-112-R1, E2, and CT-06-112-R1, E9, Volume 2, CFA20 Map Book). The associated transmission line crosses the Birmingham and Derby Line, a private road, and land used for car parking for Birmingham Airport. The transmission line is not in use and as a result a diversion is not required. The amendment removes the disused transmission line over the Birmingham and Derby Line as well as two pylons, one on either side of the railway. To facilitate this, approximately 1.6ha of additional temporary land will be required on both sides of the Kingsbury Road railhead reception sidings to provide access to enable the transmission lines and pylons to be removed. This area of temporary land will be east of the proposed permanent location of an access road to the Kingsbury Road railhead reception sidings pumping station within the proposed cutting.
- 5.1.3 Temporary rights for access will also be required along the private road extending northwards from the roundabout with Faraday Avenue and for a route across an existing carpark. There will be a temporary loss of approximately 0.85ha of a secure parking area for Birmingham Airport for approximately two weeks to allow for access to the works to the south of the railway.
- 5.1.4 A temporary scaffold will be required over the Birmingham and Derby Line. The erection of the scaffolding, removal of transmission line over the railway and dismantling of the scaffolding will take approximately three months to complete. Works over the railway are expected to be undertaken during scheduled overnight or weekend closures of the line.
- 5.1.5 The removal of the pylons and transmission line is not considered to result in changes that will require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils, air quality, community, land quality, landscape and visual assessment, socio-economics, sound, noise and vibration, traffic and transport, and water resources and flood risk assessment. However, reassessment is considered to be required in respect of cultural heritage and ecology.

## Cultural heritage

### *Introduction*

- 5.1.6 This section of the report describes the environmental baseline in relation to cultural heritage that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme.

### **Scope, assumptions and limitations**

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

### *Existing baseline*

- 5.1.8 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which includes 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 was updated with the results of additional survey work reported in the SES and AP2 ES.
- 5.1.9 Details of survey and desk-based work undertaken in this CFA since September 2013 is provided in SES and AP2 ES Volume 5: Appendix CH-004-020 and Volume 5 map series CH-07; CH-09 and CH-10, where this was relevant to the assessment of a new or different significant effect.
- 5.1.10 A heritage asset potentially affected by the amendment through physical change or change to its setting is asset reference<sup>1</sup> CWM002 Birch Wood ridge and furrow (low value).

### *Future baseline*

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

- 5.1.11 Volume 5: Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments which are assumed to have been implemented by 2017, additional to those reported in the main ES and the SES and AP2 ES.
- 5.1.12 None of the identified developments affects the assessment of the AP4 revised scheme's likely construction impacts on cultural heritage.

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

- 5.1.13 Volume 5: Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments which are assumed to have been implemented by 2026, additional to those reported in the main ES and the SES and AP2 ES.
- 5.1.14 None of the identified developments affects the assessment of the AP4 scheme's likely operational impacts on cultural heritage.

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<sup>1</sup> Cultural heritage assets within CFA20 are identified with a unique reference code, CWM002; further detail on this asset can be found in the gazetteer in Volume 5 of the main ES: Appendix CH-002-020.

### *Effects arising during construction*

- 5.1.15 The main ES reported a permanent high adverse impact on Birch Wood ridge and furrow (asset reference CWM002), an asset of low value, as a result of the construction of Kingsbury Road railhead construction sidings, giving rise to a moderate adverse effect, which was significant. The additional removal of the pylons will result in a greater portion of the heritage asset being removed as a result of the work, approximately 10% more than previously reported in the main ES. However, as the majority of the asset was proposed to be removed by the original scheme, the impact remains as reported in the main ES, a permanent high adverse impact, resulting in a moderate adverse effect. When considered in the context of the original scheme, there will be an increased impact on the physical fabric of the asset. However, this does not change the level of impact and effect on the significance of the asset.
- 5.1.16 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*

- 5.1.17 The proposed 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*

- 5.1.18 No additional mitigation measures (i.e. in addition to those identified in the main ES) are required.

### *Cumulative effects*

- 5.1.19 There are no new or different likely significant cumulative effects for cultural heritage as a result of the AP<sub>4</sub> amendments interacting with one another, the AP<sub>1</sub>, or AP<sub>2</sub> amendments or any relevant committed development.

## **Ecology**

### *Introduction*

- 5.1.20 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 amendment, compared to those of the SES<sub>3</sub> scheme.

### *Scope, assumptions and limitations*

- 5.1.21 Updates to the scope of assessment for ecology are as set out in Volume 1 of the SES<sub>3</sub> and AP<sub>4</sub> 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 CT001-000/01 and CT-001-000/02 of the main ES) of the main ES and in Addendum 4 to the SMR (SES<sub>3</sub> and AP<sub>4</sub> ES Volume 5: Appendix CT-001-000/5).
- 5.1.22 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 AP<sub>4</sub> revised scheme.

### *Existing baseline*

- 5.1.23 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES and SES and AP<sub>2</sub> ES, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including Warwickshire County Council (Warwickshire Biological Records Centre) and Warwickshire Wildlife Trust.
- 5.1.24 A summary of the baseline information relevant to the assessment of the amendment is provided below. This takes account of any relevant 2015 survey information provided in SES<sub>3</sub> and AP<sub>4</sub> ES Volume 5: Appendix EC-001-003. For those receptors described in the main ES, further details are provided in Volume 2, CFA<sub>20</sub>, Section 7 of the main ES and in Volume 5, including maps EC-01 to EC-12.

### **Designated sites**

- 5.1.25 There are no statutory designated nature conservation sites within 500m of the land required for the amendment, or otherwise relevant to the assessment.
- 5.1.26 Part of the land required for the amendment is located within Hams Hall Woodlands LWS. As reported in the main ES, Hams Hall Woodlands LWS comprises: Hams Lane Woodland, Sych Wood and Church Pool Covert, and covers an area of 13.8ha. The land required for the amendment is located within the Hams Lane Woodland portion of the LWS. Hams Hall Woodlands LWS supports lowland mixed deciduous woodland, a habitat of principal importance and the LWS was identified in the main ES as being of county/metropolitan value.

### **Habitats**

- 5.1.27 The land required for the construction of the original scheme includes an area of Hams Lane Woodland, part of which forms Hams Hall Woodlands LWS. The area of land required for the amendment includes an area of Hams Lane Woodland, to the north (within the LWS) and south (outside the LWS) of the Birmingham and Derby Railway Line. This habitat was identified as being of county/metropolitan value in the main ES.
- 5.1.28 Hams Lane Woodland to the south of the railway line was not evaluated within either the main ES, AP<sub>1</sub> ES or SES and AP<sub>2</sub> ES. However, other similar broadleaved woodlands were assessed as being of local/parish value and as such Hams Hall Woodland located to the south of the railway line is considered to be of no more than local/parish value. Additional land required for the amendment includes a pond, tall ruderal herbs and hardstanding in the form of an existing car park. Within the main ES, the pond was evaluated as of local/parish value, and the remaining habitats were reported as being of negligible value.

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

- 5.1.29 No records of protected or notable species within the land required for the amendment were reported in the main ES, in the SES and AP<sub>2</sub> ES or in the SES<sub>3</sub>.

- 5.1.30 Within the main ES the assemblage of bats (including common pipistrelle, soprano pipistrelle, brown long-eared bat, Natterer's bat, noctule and *Myotis* species) using roosting, foraging and commuting habitats associated with woodland along Hams Lane and Faraday Avenue, which are located adjacent to the amendment, was evaluated at a district/borough level. The additional land required for the amendment, to the north of the Birmingham and Derby Railway Line, was reported in the main ES as being an assumed key area of foraging habitat for this assemblage of bats. In addition, an assumed key commuting route for bats was reported along Hams Lane, directly adjacent to the land required for the amendment. Two confirmed tree roosts were found within Hams Lane Woodland: of these, one supported a single soprano pipistrelle (found in situ during tree climbing surveys) within 30m of the land required for the amendment; the other confirmed roost of unknown species is located within land required for construction of the original scheme, within 60m of the land required for the amendment. The remaining unsurveyed trees within Hams Lane Woodland could support roosting bats associated with the assemblage of bats using roosting, foraging and commuting habitats associated with woodland along Hams Lane and Faraday Avenue.
- 5.1.31 There are no known great crested newt breeding ponds within 250m of the land required for the amendment. Great crested newt are assumed absent from the pond within the land required for the amendment to the south of the Birmingham and Derby Line, based on the survey findings reported in the main ES. The remaining ponds located within 250m of the land required for the amendment are either not considered suitable to support breeding populations of great crested newt or are separated from land required for construction of the scheme by physical barriers such as major roads and flowing water courses.
- 5.1.32 The habitat present in the areas of woodland within the land required for the amendment has the potential to support common and widespread breeding birds. No breeding bird surveys were undertaken within this area as part of the assessment reported in the main ES or SES and AP2 ES. These bird populations would be of no more than local/parish value.

#### *Future baseline*

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

- 5.1.33 Volume 5: Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES and the SES and AP2 ES.
- 5.1.34 None of the identified developments affect the assessment of the amendment's likely construction impacts on ecology.

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

- 5.1.35 Volume 5: Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES and the SES and AP2 ES.
- 5.1.36 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**

- 5.1.37 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**

- 5.1.38 The main ES reported that the permanent loss of 1.8ha of Hams Hall Woodlands LWS as a result of the original scheme will cause an adverse effect on the integrity of Hams Hall Woodlands LWS that will be significant at a county/metropolitan level. The amendment will result in the loss of an additional 0.16ha of Hams Hall Woodlands LWS, comprising 0.01ha of broadleaved woodland, and 0.15ha of continuous bracken where woodland has been cleared for existing overhead powerlines. The amendment will result in a different significant effect on Hams Hall Woodlands LWS. However, this will not change the level of significance of the effects reported in the main ES.

#### **Habitats**

- 5.1.39 The amendment results in the loss of broadleaved woodland from Hams Lane Wood as described in the above paragraph. There is no loss of woodland outside this site. In the main ES, the loss of 1.8ha of Synch Wood and Hams Lane Woodland combined was assessed as part of the overall effect on broadleaved woodland habitat within the three woodlands that make up Hams Hall Woodlands LWS. The loss and fragmentation of the woodlands resulting from the original scheme will cause an adverse effect on the integrity of the broadleaved woodland that will be significant at a county/metropolitan level. The land required for the amendment will result in the loss of an additional 0.01ha of broadleaved woodland within Hams Lane Woodland to the north of the Birmingham and Derby Railway Line. The amendment will result in a different significant effect on broadleaved woodland at Hams Lane Woodland. However, this will not change the level of significance of the effects reported in the main ES.
- 5.1.40 The amendment will result in the loss of an additional 0.23ha of broadleaved woodland south of the Birmingham and Derby Railway Line, 0.13ha of tall ruderal vegetation, 1.7ha of hardstanding and a pond. However, these changes will not generate any new or different significant effects.
- 5.1.41 It is unlikely that the amendment will result in any other new or different effects on habitat receptors of relevance at more than the local/parish level. Local/parish effects which are in addition to those identified in the main ES and the SES and AP<sub>2</sub> ES are listed in Volume 5: Appendix EC-003-003 of the SES<sub>3</sub> and AP<sub>4</sub> ES.

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

- 5.1.42 The main ES reported an adverse effect on the conservation status of the bat assemblage associated with woodland along Hams Lane and Faraday Avenue that will be significant at a district/borough level. This effect results from the loss and severance of foraging and commuting habitat and the loss of roosts (including a confirmed tree roost). The amendment will result in the additional loss of approximately 0.24ha of broadleaved woodland (0.01ha north of the Birmingham and

Derby Railway Line and 0.23ha south of the Birmingham and Derby Railway Line) within an area assumed to be roosting, foraging and commuting habitat used by the bat assemblage associated with woodland along Hams Lane and Faraday Avenue. However, the woodland lost is contiguous with that affected by the original scheme and consequently, no additional habitat severance and fragmentation will occur in this area. The amendment will give rise to a different significant effect with the loss of this suitable roosting, foraging and commuting habitat. However, this change will not alter the level of significance of the effects reported in the main ES.

- 5.1.43 It is considered unlikely that the amendment will result in any other additional effects on species of relevance at more than the local/parish level. Local/parish effects which are in addition to those identified in the main ES and the SES and AP2 ES are listed in Volume 5: Appendix EC-003-003 of the SES3 and AP4 ES.

### **Cumulative Effects**

- 5.1.44 There are no new or different likely cumulative effects for ecology.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.1.45 Existing mitigation measures for the loss of woodland habitat within Hams Hall Woodlands LWS reported in the main ES include the creation of approximately 22ha of woodland near Seeney Lane. This is sufficient to provide compensation for the 0.01ha of additional broadleaved woodland habitat lost within Hams Hall Woodland LWS and Hams Lane Wood and addresses the different effect on site integrity arising from the amendment. The woodland creation area will also compensate the loss of 0.23ha of broadleaved woodland which is of local/parish value. With the implementation of the main ES mitigation, adverse impacts on the conservation status of broadleaved woodland or on the integrity of Hams Hall Woodlands LWS resulting from the amendment will be reduced to a level where it will not be significant.
- 5.1.46 Mitigation reported in the main ES to reduce disturbance impacts on roosting, foraging and commuting bats will be in accordance with the principles of ecological mitigation identified within the SMR Addendum (Volume 5: Appendix CT-001-000/2 of the main ES). In addition, ecology mitigation areas, including woodland planting near Dunton Wood LWS, planting near the A4097 Kingsbury Road and Seeney Lane will provide additional habitat for foraging, commuting and roosting bats. With the implementation of these mitigation measures, adverse impacts on the conservation status of the assemblage of bats using roosting, foraging and commuting habitats associated with woodland along Hams Lane and Faraday Avenue will be reduced to a level where it will not be significant.
- 5.1.47 No additional mitigation measures (i.e. in addition to those identified in the main ES and subsequent SES reports) are required.

#### *Summary of likely residual effects*

- 5.1.48 No new or different residual effects on ecological receptors occur as a consequence of the amendment. The significant residual effects of the AP4 revised scheme in this

area are therefore unchanged from those reported in the main ES and SES and AP2 ES (Part 1).

*Effects arising from operation*

- 5.1.49 The AP4 revised scheme does not change the operation of the scheme and so there are no new or different significant operational effects for ecology as a result of the AP4 revised scheme, in comparison with the main ES or SES.

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

- 5.1.50 The use of the additional land for the removal of the pylon at Kingsbury Road railhead construction sidings will not result in new or different significant effects and does not change the significance of the environmental effects as set out in the main ES (Volume 2, CFA20, Curdworth to Middleton).

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

- 6.1.1 All of the effects of the changes proposed in this CFA have been described above and there are no further combined effects to report.



**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)

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