

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement and Additional Provision 2 Environmental Statement

Volume 2 | Community forum area report

CFA21 | Drayton Bassett, Hints and Weeford

July 2015

SES and AP2 ES 3.2.1.21



HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement and
Additional Provision 2 Environmental Statement

Volume 2 | Community forum area report

CFA21 | Drayton Bassett, Hints and Weeford

July 2015

SES and AP2 ES 3.2.1.21



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

Website: 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

Structure of the HS2 Supplementary Environmental Statement and Additional Provision 2 Environmental Statement	1
Structure of this report	3
1 Introduction	5
Part 1: Supplementary Environmental Statement	7
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	8
2.3 Corrections to the main ES	8
2.4 Topics included in the SES assessment	10
3 Assessment of changes	11
3.1 Cultural heritage	11
3.2 Ecology	13
Part 2: Additional Provision 2 Environmental Statement	18
4 Summary of amendments	18
5 Assessment of amendments	24
5.1 Drayton Bassett to Hints area amendments (AP2-021-001)	24
5.2 Summary of new or different likely residual significant effects as a result of the amendment	58
5.3 Additional land between Drayton Lane and Coppice Lane (AP2-021-002)	58
5.4 Permanent access rights required over Bangley Lane (private road) for maintenance access (AP2-021-003)	59
5.5 Revision of HS2 drainage in the Swinfen Cutting area (AP2-021-004)	59
5.6 Summary of new or different likely residual significant effects as a result of the amendment	67
5.7 Removal of balancing pond at Freeford Home Farm and revision of the access route to Inglehill and Horsley Brook Farms (AP2-021-005)	67

6	Combined effects of amendments in this CFA due to changes in traffic flows	69
6.1	Introduction	69
6.2	Changes of relevance to this assessment	69
6.3	Traffic and transport	69
6.4	Air quality	72
6.5	Community	74
6.6	Sound, noise and vibration	75
6.7	Summary	77
List of figures		
Figure 1:	Locations of amendments in CFA21	23
List of tables		
Table 1:	Summary of corrections to the main ES in CFA21	9
Table 2:	Summary of amendments in CFA21	19

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 SES and AP2 ES report focuses on CFA21 Drayton Bassett, Hints and Weeford and is divided into two parts.

Part 1 provides supplementary environmental information relating to:

- new baseline information with respect to European Protected Species surveys, additional ecology data relating to ancient woodlands and geophysical surveys for cultural heritage undertaken since the submission of the Bill; and
- corrections to the main ES.

Part 1 of the 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 the 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 This 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; and
 - corrections to the main ES.
- 1.1.4 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.
- 1.1.5 The purpose of the SES is to provide an assessment of any new or different likely significant environmental effects arising from the changes described.
- 1.1.6 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.
- 1.1.7 The amendments assessed within AP2 ES include:
- lowering of the vertical alignment between Gallows Brook floodplain to Black Brook viaduct including changes to infrastructure crossings such as roads, public right of ways (PRoW) and viaducts;
 - changes to permanent access rights at Bangle Lane;
 - redesign of the drainage in Swinfen cutting; and
 - removal of a balancing pond and revision of farm access close to the A51 Tamworth Road overbridge.
- 1.1.8 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.
- 1.1.9 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.

1.1.10 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).

1.1.11 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

Cultural heritage

- 2.1.1 Geophysical surveys have been undertaken in the Drayton Bassett, Hints and Weeford area (CFA21) since submission of the main ES.
- 2.1.2 Details of survey and desk-based work undertaken in this CFA since production of the main ES (September 2013¹) is provided in Volume 5: Appendix CH-004-021 and Volume 5 map series CH-07; CH-09 and CH-10, where this is relevant to the assessment of a new or different significant effect.
- 2.1.3 A summary of the supplementary cultural heritage information from these sources that is relevant to the SES assessment is provided in Section 3 under 'Cultural heritage'.

Ecology

- 2.1.4 Surveys for bats and great crested newt have been undertaken in this area since September 2013. In addition, habitat survey has been undertaken at selected woodland locations to assist in determining if these areas represent ancient woodland.
- 2.1.5 The boundary of Snake's Hill and River Oxbow, Black Brook Site of Biological Importance (SBI), a locally designated wildlife site, has been extended since publication of the main ES, and additional baseline data has been identified during review of survey information submitted with planning applications.
- 2.1.6 Details of all survey work and desk study information gathered since September 2013 which is relevant to this area are provided in Volume 5: Appendix EC-001-003 and Volume 5 map series EC-01; EC-04 and EC-05.
- 2.1.7 A summary of the supplementary ecological information that is relevant to the SES assessment is included within Section 3 under 'Ecology'.
- 2.1.8 Volume 5: Appendix EC-002-003 (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. Volume 5: Appendix EC-003-003 identifies additional local/parish level effects which occur as a consequence of SES changes but are not significant.

¹ The date after which it was no longer possible to include survey data for the main ES

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

- 2.2.1 There are no changes to the design or construction assumptions that do not require a change to the Bill affecting this CFA which will give rise to new or different significant environmental effects to those reported in the main ES or the AP1 ES.

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

- 2.2.2 As a result of design changes in adjoining CFAs, in particular the Lichfield area amendments in CFA22, there are changes to the amount of excavated material to be moved. This has resulted in changes to the forecast of heavy goods vehicle (HGV) traffic flows on roads in CFA21, in comparison to the original scheme. The assessment in relation to this is presented in Section 6: 'Combined effects' under Traffic and transport.

2.3 Corrections to the main ES

- 2.3.1 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 Drayton Bassett, Hints and Weeford CFA (CFA21) 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.

Table 1: Summary of corrections to the main ES in CFA21

Reference in the main ES	Reasons for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
<p>Sound, noise and vibration</p> <p>CFA21, Volume 2, Section 11, after paragraph 11.4.14</p>	<p>The residential dwellings represented by operational airborne noise assessment location 17311 were omitted from the list of properties estimated as being likely to qualify for noise insulation.</p>	<p>Text omitted from main ES</p>	<p>In this area the assessment has identified two residential dwellings; South Lodge and the adjoining dwelling, Tamworth Road, Lichfield, represented by receptor 17311, close to the Proposed Scheme, where noise would exceed the daytime trigger threshold set in the Noise Insulation Regulations 1975. As the overall sound levels at the receptor are not forecast to change by 1dB or more, these dwellings would be unlikely to qualify for noise insulation as a result of the Regulations. However, as the forecast night-time noise level would exceed the World Health Organization’s Interim Target of 55dB, it is estimated that these dwellings will also be offered noise insulation.</p> <p>The predicted operational airborne sound levels at this assessment location are presented in main ES Appendix SV-004-021.</p>	<p>Yes.</p> <p>Two additional dwellings have been identified as being subject to a significant adverse effect during night time operation and are consequently estimated to be likely to qualify for noise insulation.</p> <p>The mitigation measures, including noise insulation will reduce noise inside both dwellings such that it will not reach a level where it would significantly affect residents.</p> <p>Mapping for the sound, noise and vibration assessment that reflects this change is included in SES and AP2 ES Map series SV-01, SV-02 and SV-05 (Volume 5: Sound, Noise and Vibration Map Book).</p>

2.4 Topics included in the SES assessment

- 2.4.1 The changes described above in Sections 2.1 to 2.3 result in new or different significant effects in respect of cultural heritage and ecology. These are described in Section 3.

3 Assessment of changes

3.1 Cultural heritage

Introduction

- 3.1.1 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 changes introduced in Section 2 compared to the original scheme and also compared to any relevant AP1 amendments. Consideration is given to effects upon the value of heritage assets.

Scope, assumptions and limitations

- 3.1.2 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.

Changes of relevance to this assessment

- 3.1.3 The following change is relevant to this assessment:
- new geophysical survey data presented on SES and AP2 Es, Volume 5 map series, CH07.

Environmental baseline

Existing baseline

- 3.1.4 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walk-over survey and geophysical survey, remote-sensing data, and data from national and local registers. A full list of heritage assets is provided in Volume 2, CFA 21, Section 6.3 of the main ES. In addition, the baseline has been updated with the results of additional survey work comprising geophysical surveys for archaeology.
- 3.1.5 A summary of the baseline information relevant to the assessment of new or different significant effects is provided below. Further details of additional baseline information obtained since the main ES is provided in SES and AP2 ES Volume 5, Appendix CH-001-021 and CH-002-021. For those assets described in the main ES, further details are provided in the baseline reports, gazetteer of heritage assets, impact assessment tables and survey reports in Volume 5 of the main ES and are shown on maps CH-01 (Heritage Assets within Study Area), CH-02 (Designated Heritage Assets) and CH-03 Archaeological Character Sub-zones of the main ES.

Designated assets

- 3.1.6 No new designated assets² arising from additional baseline information have been identified within the study area.

Non-designated assets

- 3.1.7 Geophysical survey data identified one new archaeological asset (asset reference DHW403), near The Lodge, Hints (refer to SES and AP2 ES Volume 5 map CH-01-118) which is relevant to the assessment of new and different significant effects. This is a new asset (asset reference DHW403) of moderate value.

Future baseline

Construction (2017)

- 3.1.8 SES and AP2 ES 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.
- 3.1.9 None of the identified developments affect the assessment of the SES scheme's likely operational impacts on cultural heritage.

Operation (2026)

- 3.1.10 SES and AP2 ES 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.
- 3.1.11 None of the identified developments affect the assessment of the SES scheme's likely operational impacts on cultural heritage.

Effects arising during construction

Avoidance and mitigation measures

- 3.1.12 The draft Code of Construction Practice (CoCP) sets out the provisions that will be adopted to control effects on cultural heritage assets (Volume 5: Appendix CT-003-000).

Assessment of impacts and effects

Temporary effects

- 3.1.13 The new geophysical survey data 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.

² Cultural heritage assets are identified with a unique reference code, DHWXXX; further detail on these assets can be found in the Gazetteer in Volume 5 of the main ES: Appendix CH-002-021.

Permanent effects

- 3.1.14 Archaeological features of moderate value (asset reference DHW403) around The Lodge, identified by new geophysical survey data, will be removed for construction of the scheme. This will constitute a new high adverse impact and major adverse effect, which is significant (refer to SES and AP2 ES Volume 5: Appendix CH-003-021).

Other mitigation measures

- 3.1.15 No further mitigation measures are proposed other than those set out as part of the draft CoCP (Volume 5: Appendix CT-003-000).

Cumulative effects

- 3.1.16 There are no new or different likely significant cumulative effects for cultural heritage as a result of the SES changes acting in combination or with API amendments.

Summary of likely residual significant effects

- 3.1.17 There will be a new major adverse residual effect as a result of the removal of newly identified archaeological features (asset reference DHW403) near to The Lodge.

Effects arising from operation

- 3.1.18 There are no new or different operational effects arising for cultural heritage as a result of the new baseline information.

3.2 Ecology

Introduction

- 3.2.1 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 and also compared to any relevant AP1 amendments. 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

- 3.2.2 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-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 3.2.3 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 Scheme.

Changes of relevance to this assessment

- 3.2.4 The following changes are relevant to this assessment:

- a change in the boundary of Snake’s Hill and River Oxbow, Black Brook SBI, a locally designated wildlife site, which has been extended since publication of the main ES;
- additional habitat survey within a woodland copse off Drayton Lane; and
- new baseline data on bats arising from review of survey information submitted with planning applications obtained from Lichfield District Council records.

Environmental baseline

Existing baseline

- 3.2.5 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 the main ES Volume 2, CFA21, Section 7.
- 3.2.6 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 on woodland. In addition, further information has been obtained from Staffordshire Biological Records Centre and from other planning applications in the area.
- 3.2.7 A summary of the baseline information relevant to the assessment is provided below. Further details of all baseline information obtained since September 2013 are provided in SES and AP2 ES Volume 5: Appendix EC-001-003. For those receptors described in the main ES, further details are provided in Volume 2, CFA21, Section 7 and in Volume 5, including maps EC-01 to EC-12 of the main ES.

Designated sites

- 3.2.8 There is one change in relation to designated sites for this area. The boundary of Snake’s Hill and River Oxbow, Black Brook SBI has been extended by Staffordshire Wildlife Trust, since publication of the main ES, to include a grassland field containing an area of species-rich rush pasture and swamp habitat which overlaps the land required for the construction of the scheme. This extension has increased the area of the SBI from 4.8 ha to 16.2 ha. Although it was not part of the designated site at the time, the rush pasture and swamp habitat was valued in the main ES as of county/metropolitan value based on the results of surveys undertaken. The SBI is of county/metropolitan value.

Habitats

- 3.2.9 There is one change in baseline information in relation to habitats. An unnamed copse off Drayton Lane, which is 1.93 ha in area, was surveyed since publication of the main ES. Based on the survey results the copse shows some characteristics of ancient woodland, although this copse is not on the ancient woodland inventory. The copse off Drayton Lane was valued in the main ES as of local/parish value. Based on new survey data it is now considered that this copse is of district/borough value.

Protected and/or notable species

- 3.2.10 In the main ES, a Natterer's bat population was recorded within a farm near Hints, based on DNA analysis. This population, roosting at five buildings, was identified as likely to be using the buildings as summer (non-breeding) roosts. Natterer's bat is categorised as a 'rarer' species in England, so the population was reported as being of county/metropolitan value.
- 3.2.11 Two planning applications in Lichfield District relating to the farm near Hints included bat survey results from 2009 and 2012. In 2012, surveys for the planning application included DNA analysis confirming use of buildings by Natterer's bats, common pipistrelle and brown long-eared bats. The use by Natterer's bats was concluded to indicate a maternity roost.
- 3.2.12 Although in 2013 surveys for HS2 did not confirm a maternity roost, as a precaution, taking into account the survey results from the planning application, it is now assumed to be a maternity roost. This information alters the valuation of the population which was discussed in the main ES from county/metropolitan to regional value.

Future baseline

Construction (2017)

- 3.2.13 SES and AP2 ES 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.
- 3.2.14 None of the identified developments affect the assessment of the SES scheme's likely construction impacts on ecology.

Operation (2026)

- 3.2.15 SES and AP2 ES 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.
- 3.2.16 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

- 3.2.17 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

Designated sites

- 3.2.18 In the main ES, no impact, and therefore no significant effect on Snake's Hill and River Oxbow, Black Brook SBI was anticipated. The change in the boundary of Snake's Hill and River Oxbow, Black Brook SBI means that 6.6 ha, or 41%, of this designated site will be within the land required for the construction of the scheme. This was reported

as a loss of habitat in the main ES, but the SBI's boundary change means that the designated site is now affected. This loss will result in a permanent adverse effect on the integrity of the SBI which will be significant at a county/metropolitan level. This is a new significant effect that was not reported in the main ES.

Habitats

- 3.2.19 In the main ES, the loss of 2.6ha of species-rich rush pasture and swamp habitat at Hints Meadow West adjacent to Job's Hill was reported, causing an adverse effect on the conservation status of the habitat which will be significant at the county/metropolitan level. This area has been included within the Snake's Hill and River Oxbow, Black Brook SBI, but the habitat present has not changed. Therefore while, as described above, there is a new significant effect on the designated site, there is no new or different significant effect on the habitat.
- 3.2.20 In the main ES, the loss of the copse off Drayton Lane was reported as part of the total loss of 8.1 ha of woodland of all types. It was reported that this combined loss would result in a permanent adverse effect on the conservation status of the woodland, which would be significant at up to the district/borough level. However, the copse off Drayton Lane was understood to be secondary woodland of local/parish value and its loss was not identified in itself as a significant adverse effect. All of the woodland within the copse off Drayton Lane (1.93ha), which has characteristics of ancient woodland, is within the land required for construction of the scheme and its valuation has been revised to district/borough level. The scheme will result in a permanent adverse effect on the conservation status of the copse off Drayton Lane that is significant at the district/borough level. This is a new significant effect that was not reported in the main ES.
- 3.2.21 It is unlikely that the SES changes or new survey data will result in any other new or different effects on habitats of relevance at more than the local/parish level. Additional local/parish level effects (i.e. in addition to those identified in the main ES) arising from survey data collected since the main ES are listed in SES and AP2 ES Volume 5: Appendix EC-003-003.

Protected and/or notable species

- 3.2.22 The main ES stated that five confirmed bat roosts within buildings would be lost within the land required for construction of the scheme due to the demolition of buildings at the farm near Hints. In surveys for the main ES, five buildings were found to support small numbers of Natterer's bat. The loss of this collection of roosts would have an adverse effect on the conservation status of the population of Natterer's bat, which was stated in the main ES to be significant at a county/metropolitan level. Further information from planning applications has been included in the revised baseline, and indicates that the roosts include a maternity roost, and the valuation of the population has increased to regional as a result. This indicates that the loss of roosts at the farm near Hints as a result of the scheme will have an adverse effect on the conservation status of the population of Natterer's bat, which will be significant at a regional level. This is a different significant effect from that reported in the main ES.
- 3.2.23 It is unlikely that the SES changes or new survey data will result in any other new or different effects on species of relevance at more than local/parish level. Additional local/parish level effects (i.e. in addition to those identified in the main ES) arising

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

Cumulative effects

- 3.2.24 There are no new or different likely significant cumulative effects for ecology as a result of the SES changes acting in combination with other SES changes, or with AP1 amendments or as a result of any committed development.

Other mitigation measures

- 3.2.25 With regard to the Snake's Hill and River Oxbow, Black Brook SBI, no additional land is required for mitigation. The species-rich rush pasture and swamp habitat within the SBI that is within the land required for construction of the scheme was identified as a feature of county/metropolitan value in the main ES and mitigation was provided accordingly, with grassland enhancement and creation in adjacent fields. The extension of the SBI boundary and new effect on the designated site does not increase the requirement for mitigation because the mitigation provided in the main ES for the habitats now included within the SBI is sufficient.
- 3.2.26 The copse off Drayton Lane, which has characteristics of ancient woodland, is within the land required for construction of the scheme. The landscape woodland planting area along Shirrall Drive and Drayton Lane adjacent to the copse will be changed to ecological woodland habitat creation, as shown on map CT-06-117 in the SES and AP2 ES Volume 2 Map Book to address the new significant effect.
- 3.2.27 With regard to bats, no additional land is required for mitigation. Mitigation for loss of roosts will be provided following the principles of ecological mitigation identified within the SMR Addendum (Volume 5 of the main ES: Appendix CT-001-000/2). A bat house was included in mitigation in the main ES for the loss of the Natterer's roosts at a farm near Hints and this would be suitable for a maternity roost so additional mitigation is not required.

Summary of likely residual significant effects

- 3.2.28 With the implementation of the mitigation and compensation measures proposed the new or different ecological effects arising from the updated baseline are reduced to a level where they are not significant. The significant residual effects of the SES scheme in this area are therefore unchanged from those reported in the main ES.

Effects arising from operation

- 3.2.29 There are no new or different operational effects for ecology as a result of the new baseline information.

Part 2: Additional Provision 2 Environmental Statement

4 Summary of amendments

- 4.1.1 Table 2 provides a summary of the amendments in the Drayton Bassett, Hints and Weeford community forum area (CFA21) and Figure 1 shows the locations.

Table 2: Summary of amendments in CFA21

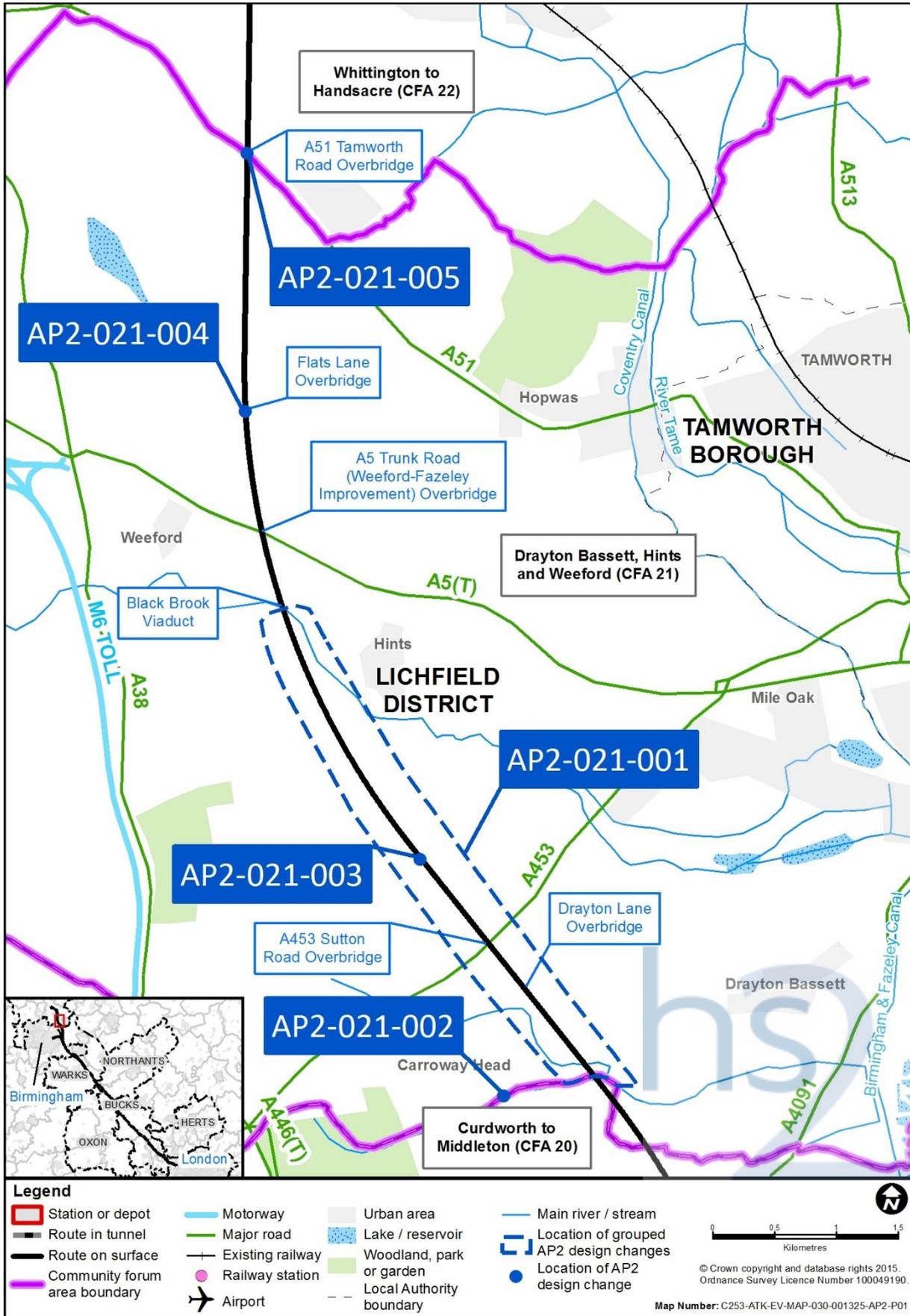
Name of amendment	Description of the original scheme or AP1 revised scheme	Description of the AP2 revised scheme
<p>Drayton Bassett to Hints area amendments (AP2-021-001)</p>		
<p>Lowering of the alignment of the HS2 route to the west of Drayton Bassett (continuing from the lowering in CFA 20 Curdworth to Middleton AP2-020-007)</p>	<p>The route will pass over the Gallows Brook floodplain on the proposed Drayton Bassett viaduct, which will extend to 155m in length 5.8m above ground level in height.</p> <p>A balancing pond will be positioned to the north east of this viaduct, as shown on map CT-06-116b in the main ES Volume 2, CFA21 Map Book.</p>	<p>Vertical alignment is lowered across the Gallows Brook floodplain at the interface with CFA20 (Curdworth to Middleton) by a maximum of 3.3m which will reduce visual intrusion and noise. The previously proposed viaduct and approach embankments are replaced by embankment with two underbridges (each spanning 10m), reducing the length of the required structure.</p> <p>The balancing pond north east of this structure is increased in volume, compensating for the removal of a previously proposed balancing pond south of Bangley Lane overbridge. Vertical alignment continues to be lowered north of the Gallows Brook floodplain, with landscape earthworks and planting adjusted accordingly.</p>
<p>Lowering of Drayton Lane and Shirrall Drive</p>	<p>The route then proceeds into cutting, passing under Drayton Lane.</p> <p>Drayton Lane is realigned across the HS2 route on a skew crossing approximately 150m to the south of its current alignment. Shirrall Drive is diverted at its eastern end to form a priority junction with the Drayton Lane realignment on the west side of the HS2 route, close to the back of the proposed overbridge abutment. This is shown on map CT-06-117 in the main ES Volume 2, CFA21 Map Book.</p>	<p>The lowered alignment of the HS2 route described above allows the vertical alignment of Drayton Lane and Shirrall Drive to be lowered by approximately 3.2m. The horizontal alignment of Drayton Lane remains unchanged from the original scheme. The horizontal alignment of Shirrall Drive is moved slightly westwards to improve sight lines for road users.</p>

Name of amendment	Description of the original scheme or AP1 revised scheme	Description of the AP2 revised scheme
<p>Lowering of the alignment of the HS2 route to the west of Hints village</p>	<p>The route continues in cutting under the A453 Sutton Road, Drayton Bassett Footpath 11 and Bangley Lane flanked by combinations of hedgerow habitat creation, landscape mitigation planting, and landscape earthworks. A balancing pond is located south east of Bangley Lane overbridge, linked to Bangley Lane by an access road.</p> <p>North of Bangley Lane, an underpass 3.30m in width with 2.60m clearance is provided for Hints Footpath 9. Hints Footpath 8 is diverted to share this crossing.</p> <p>The route will then cross under Hints Footpaths 13 and 14, then over Brockhurst Lane (also known locally as Rookery Lane) as it curves to the north and passes to the west of Hints.</p> <p>Between Roundhill Wood cutting and Brockhurst Lane underbridge the original scheme is in cutting with a depth of up to approximately 15m below ground level through Roundhill Wood. The route continues in cutting approximately up to the position of Brockhurst Lane. Land is required from the western edge of Roundhill Wood and from the eastern edge of Rookery Wood. This is shown on map CT-06-120 in the main ES Volume 2, CFA21 Map Book.</p> <p>Hints Footpaths 13 and 14 are diverted, crossing the original scheme on a green overbridge. Hints Footpath 11 is diverted to Brockhurst Lane.</p> <p>The original scheme then continues on embankment, crossing over Brockhurst Lane, reaching a maximum height of approximately 7m above ground level to Black Brook viaduct.</p> <p>Brockhurst Lane would be closed for a period of approximately 12 months during construction. Following the construction of HS2, Brockhurst Lane would have a height restriction of 2.7m.</p> <p>Landscape earthworks are provided on the east side of the HS2 route and landscape planting is provided on both sides of the HS2 route. Ecological mitigation areas are also provided on both sides of the HS2 route.</p>	<p>In order to achieve the required drainage flows, the northern section of Drayton Lane cutting rises approximately 0.4m above the original scheme. Correspondingly, the Bangley Lane overbridge increases in height slightly and the balancing pond located to the south east is no longer required.</p> <p>Modification of the underpass for Hints Footpath 9 to the north of Bangley Lane, in order to allow passage of agricultural vehicles, reducing agricultural severance.</p> <p>The vertical alignment adjacent to the west of Hints village is lowered by up to approximately 3m, this will visually screen the scheme and reduce noise. A retaining wall is also introduced to reduce the encroachment on Rookery Wood (by 1.1ha).</p> <p>Brockhurst Lane will be realigned to the south of Rookery Wood, crossing the HS2 route on a green overbridge south of the current Brockhurst Lane.</p> <p>Hints Footpaths 13 and 14 will be realigned to cross the HS2 route on the new Brockhurst Lane green overbridge.</p> <p>A false cutting to the east of the route will screen the realigned Brockhurst Lane from the village of Hints which will enhance landscape mitigation and reduce noise. Approximately 1.2ha of additional land will be permanently required to the east of the route, and approximately 0.4ha to the west of the route in order to construct the highway approaches to the overbridge and associated earthworks and mitigation</p> <p>The revised vertical alignment will re-join the vertical alignment reported in the main ES at Black Brook viaduct.</p>

Name of amendment	Description of the original scheme or AP1 revised scheme	Description of the AP2 revised scheme
<p>Additional land for utility works between Drayton Lane and Coppice Lane</p> <p>(AP2-021-002)</p> <p>Note that this amendment was described and assessed within AP1. It appears again within AP2 due to a drawing error on a Bill plan within the AP1 submission.</p>	<p>Original scheme:</p> <p>Temporary access to facilitate earthing at three pylons running northwards from Gallows Brook to Drayton Lane.</p> <p>AP1 revised scheme:</p> <p>Access via Upper House Farm to a further pylon 100m west of the farm for earthing works was not included in the Bill but was included and assessed in the main ES.</p> <p>The temporary access via Upper House Farm to the pylon 100m west of the farm has now been added to the Bill plans.</p> <p>Temporary access off Coppice Lane to facilitate earthing of two additional pylons to the north and south of Coppice Lane.</p> <p>Temporary diversion of fibre optic cable within a 100m wide corridor of land running along the line of the pylons between Coppice Lane and Drayton Lane for approximately 1.4km.</p>	<p>This amendment was described and assessed in full within the AP1 ES, in which it was given a reference number AP1-021-040. The amendment appears within the AP2 revised scheme, with reference number AP2-021-021, in order to correct a printing error within hard copy versions of the published Bill (Bill plan replacement sheet no. 3-56a). The electronic version of this plan, published at the same time did not contain the error.</p>
<p>Permanent access rights required over Bangley Lane (private road) for maintenance access</p> <p>(AP2-021-003)</p>	<p>Access for the purposes of maintenance to the balancing pond south of Bangley Lane to be achieved via a HS2 access road from Bangley Lane, east of Bangley Lane overbridge. Access to drainage and landscape and ecological compensation areas achievable directly from Bangley Lane.</p>	<p>The Bill incorrectly assumed that Bangley Lane was a public highway. Provision of permanent access rights for the purposes of maintenance over an approximately 1.6km section of Bangley Lane (private road), west of the east end of the Bangley Lane diversion to the junction with the public highway A453, Sutton Road is required.</p>
<p>Revision of HS2 drainage in the Swinfen cutting area</p> <p>(AP2-021-004)</p>	<p>Drainage design proposed for this area of the original scheme is not described in detail within the main ES. Elements of drainage design are however shown on maps CT-06-121 and CT-06-122 in the main ES Volume 2, CFA21 Map Book.</p>	<p>Amendments to improve the drainage design in the Swinfen cutting area, which will permanently require approximately 1.7ha of additional land compared to the original scheme. Amendments in this area include:</p> <ul style="list-style-type: none"> • changes to drainage to the north of the A5; • ground reprofiling and removal of Swinfen Hall aqueduct; • altered culvert and outfall at Moor Covert; and • changes to drainage and new soakaway at Horsley Brook Farm.

Name of amendment	Description of the original scheme or AP1 revised scheme	Description of the AP2 revised scheme
<p>Removal of balancing pond at Freeford Home Farm and revision of the access route to Inglehill and Horsley Brook Farms</p> <p>(AP2-021-005)</p>	<p>The Bill proposes a balancing pond immediately to the south of the A51 Tamworth Road, approximately 75m west of the HS2 route. A new access road to Inglehill and Horsley Brook Farms was provided from the existing Freeford Home Farm access through fields adjacent to the west of the original scheme, which diverted around the balancing pond.</p> <p>The Freeford Home Farm Balancing Pond and access diversions are shown on map CT-06-123a of the main ES Volume 2, CFA21 Map Book.</p>	<p>A balancing pond is no longer required at Freeford Home Farm, allowing the alignment of the Inglehill Farm and Horsley Brook Farm joint access road to be moved approximately 60m closer to the HS2 route, reducing its length by approximately 40m, to form a junction directly with Tamworth Road.</p> <p>The amended design requires less agricultural land than the original scheme.</p>

Figure 1: Locations of amendments in CFA21



5 Assessment of amendments

5.1 Drayton Bassett to Hints area amendments (AP2-021-001)

- 5.1.1 The Bill provides for the original scheme to cross Gallows Brook to the north of Middleton, and then proceed north-westwards, passing to the west of Drayton Bassett. It would cross the Gallows Brook floodplain, under Drayton Lane, the A453 Sutton Road, Drayton Bassett Footpath 11 and Bangley Lane (also known locally as Waggoner's Lane) which is also coincident with Hints Bridleway 20.
- 5.1.2 The route would then cross over Hints Footpaths 8 and 9, under Hints Footpaths 13 and 14, then over Brockhurst Lane (also known locally as Rookery Lane) as it curves to the north and passes to the west of Hints. The route would then cross over the Black Brook floodplain, then under Watling Street (also known locally as Rock Hill) and the A5 to the east of Weeford.
- 5.1.3 This section of the original scheme is approximately 6.4km in length, extending from Gallows Brook in the south to Black Brook in the north.
- 5.1.4 Since submission of the Bill, a revised design has been developed that features a lower vertical alignment of the HS2 route between Middleton and Hints. The revised design is intended to:
- reduce noise, visual impact and severance;
 - improve highway safety at the proposed junction of Drayton Lane and Shirrall Drive; and
 - lessen the impact of the original scheme on ancient woodland.
- 5.1.5 This change is a continuation of the change described as Middleton Area Amendments (AP2-020-007) in SES and AP2 ES Volume 2 – CFA20, Curdworth to Middleton.
- 5.1.6 Due to the scale of change in the Drayton Bassett to Hints area that the lowering of the alignment has resulted in, the design changes have been broken down into the following three distinct elements:
- lowering of the alignment of the HS2 route to the west of Drayton Bassett;
 - lowering of Drayton Lane and Shirrall Drive; and
 - lowering of the alignment of the HS2 route to the west of Hints village.
- 5.1.7 These three changes are described in further detail below.

Lowering of the alignment of the HS2 route to the west of Drayton Bassett

- 5.1.8 To the west of Drayton Bassett, the Bill provides for:
- an embankment approximately 1.1km in length (Trickley Coppice embankment, starting in Curdworth to Middleton CFA20) varying in height up to approximately 7.5m and including a culvert crossing over a minor watercourse (Gallows Brook, south branch);
 - viaduct approximately 155m long (Drayton Bassett viaduct) over the Gallows Brook floodplain;
 - an embankment approximately 190m long (between Drayton Bassett viaduct and Drayton Lane cutting) with a height of approximately 4.5m; and
 - a cutting (Drayton Lane cutting) starting adjacent to Oak Dairy Farm for a length of approximately 2.2km, with a depth of approximately 16.5m.
- 5.1.9 An underpass for Hints Footpath 9 and a connection with the diverted Hints Footpath 8 is provided for to the north of Bangley Lane. A green overbridge is provided for Hints Footpath 14 and connections with the diverted Hints Footpath 13 to the north of Roundhill Wood.
- 5.1.10 Landscape earthworks with landscape planting are provided for on both sides of the route where not in cutting. An ecological mitigation area is provided for to the east of the route south of the A453 Sutton Road and ecological mitigation areas on both sides of the route west of Black Brook, with woodland habitat creation west of the route and grassland habitat creation east of the route.
- 5.1.11 A noise fence barrier is provided along the east side of Drayton Bassett viaduct and the embankments to the north and south of the viaduct.
- 5.1.12 A balancing pond and Drayton Lane auto-transformer station is provided for on the east side of the route approximately 100m to the south of Oak Dairy Farm. A balancing pond is also provided for on the east side of the route just to the south of Bangley Lane.
- 5.1.13 This section of the route is shown on map CT-05-116b in the main ES Volume 2, CFA21 Map Book. The Drayton Bassett viaduct was intended to carry the route over the Gallows Brook floodplain, which includes two distinct watercourses, allowing for the flow of water and flooding below the HS2 route.
- 5.1.14 Since submission of the Bill, a proposal has been developed to reduce the elevation of the route at Gallows Brook. In order to achieve this, a revised design replaces the Drayton Bassett viaduct and its approaches as proposed in the original scheme with a single embankment approximately 155m in length and to a maximum of 3.3m lower than the original scheme. A noise barrier is included on the eastern side of the embankment and landscape planting will be extended along both sides of the embankment.

- 5.1.15 Two underbridges, each spanning 10 metres, will pass through the embankment, allowing the existing watercourses and any associated flood water to pass beneath the route. The southern underbridge will provide similar headroom to the viaduct proposal, maintaining the ability to move cattle under the route.
- 5.1.16 To the north of the embankment, the lowering continues into Drayton Lane cutting.
- 5.1.17 The revised vertical alignment requires revision of drainage design in this area. As a result, the balancing pond on the east side of the route just to the south of Bangley Lane is no longer required. Instead, the balancing pond approximately 100m to the south of Oak Dairy Farm is expanded from approximately 0.5ha to 0.9ha.
- 5.1.18 The alternative design requires different land to that of the original scheme. Construction of embankments will require additional land in the immediate vicinity, but less land will be required at the approaches to the structure due to a reduction in embankment height to the north and south.
- 5.1.19 The change from the original scheme is shown in maps CT-06-16b and CT-06-117, in the SES and AP2 ES Volume 2 CFA21 Map Book.

Lowering of Drayton Lane and Shirrall Drive

- 5.1.20 North of the Drayton Bassett viaduct, the Bill provides for the permanent diversion of Drayton Lane and Shirrall Drive, including the provision of a new overbridge that would cross the HS2 route approximately 150m to the south of Drayton Lane's current alignment (see map CT-05-117 in Volume 2, CFA21 Map Book in the main ES). This design brings the junction of Drayton Lane with Shirrall Drive east of the existing junction, allowing for a single point of crossing over the HS2 route.
- 5.1.21 Since submission of the Bill, a revised design has been developed that will provide improved visibility at the junction of Drayton Lane and Shirrall Drive and across the Drayton Lane overbridge, when compared to the original scheme.
- 5.1.22 The lowered alignment of the HS2 route allows the vertical alignment of Drayton Lane to be lowered by approximately 3.6m where it crosses the HS2 route in Drayton Lane cutting, improving visibility for road users. The Shirrall Drive vertical alignment on the approach to the Drayton Lane junction is also lowered, by a maximum of approximately 3.7m at its junction with Drayton Lane.
- 5.1.23 The horizontal alignment of Drayton Lane remains unchanged from the Bill. The horizontal alignment of Shirrall Drive is altered slightly with an increased curve radius that results in a maximum change of alignment westwards of approximately 9.5m, while remaining within the Bill's limit of land required as shown in the original scheme.
- 5.1.24 This revised design has reduced the total permanent area of land required to operate the scheme in this area by approximately 1.8ha compared to that presented in the Bill.
- 5.1.25 The revised design is shown on map CT-06-117 in the SES and AP2 ES Volume 2 Map Book.

Lowering of the alignment of the HS2 route to the west of Hints village

- 5.1.26 The Bill provides for:
- Bangley Lane overbridge;
 - an embankment approximately 500m long beginning just south of the Hints Footpath 9 PRoW, reaching a height of approximately 4.5m;
 - a cutting for a length of approximately 850m with a depth of approximately 15m, commencing at the southern boundary of Roundhill Wood;
 - an embankment approximately 670m long beginning just to the south of Brockhurst Lane, reaching a maximum height of approximately 7m; and
 - viaduct over Black Brook approximately 105m long.
- 5.1.27 The Bill also provides for an underpass for Hints Footpath 9 and a connection with the diverted Hints Footpath 8 provided to the north of Bangley Lane. A green overbridge for Hints Footpath 14 and connections with the diverted Hints Footpath 13 would be provided to the north of Roundhill Wood. This area of the original scheme is shown on main ES maps CT-06-117, CT-06-118 and CT-06-120 in the main ES Volume 2, CFA21 Map Book.
- 5.1.28 In the original scheme Brockhurst Lane was to be diverted under the HS2 route with limited headroom (2.7m), restricting motorised users passing under the route. The underbridge would also have accommodated the permanent diversion of Hints Footpath 11, which would continue along the west side of the route to connect from Brockhurst Lane to the existing footpath approximately 500m to the north of Brockhurst Lane. The construction of the Brockhurst Lane underbridge would have required closure of Brockhurst Lane for a period of twelve months.
- 5.1.29 South of Roundhill Wood the Bill provides for raised landscape earthworks and landscape planting on both sides of the railway line. North of Roundhill Wood, raised landscape earthworks and planting were provided along the east side and landscape planting along the west side. Ecological mitigation areas were provided on both sides of the route, with woodland habitat creation west of the route and grassland habitat creation east of the route, west of Black Brook.
- 5.1.30 Two balancing ponds were located in the ecological mitigation areas west of the proposed route, to either side of Job's Hill Plantation.
- 5.1.31 Since submission of the Bill, it is proposed to reduce the elevation of the route as it passes west of Hints village. At Roundhill Wood, the vertical alignment is unchanged in order to protect the ancient woodland from further encroachment. The Hints cutting then begins to deepen when compared to the original scheme. Deepening adjacent to Rookery Wood is achieved through the introduction of a retaining wall reducing the loss of ancient woodland by 1.1ha when compared to the original scheme. The cutting is also extended north by approximately 200m allowing the route to exit the cutting north of Rookery Wood onto embankment approximately 2.8m lower than the route presented in the Bill.

- 5.1.32 Hints Footpath 14 green overbridge is no longer proposed. Instead, Hints Footpaths 13 and 14 will be diverted to connect with Brockhurst Lane to provide a link across the route. Footpath 11 will be realigned along the east side of the route and under Black Brook viaduct.
- 5.1.33 On the eastern side of the route, Brockhurst Lane will be screened from views from Hints within a false cutting running parallel to the railway to join the existing alignment of Brockhurst Lane into Hints. This false cutting will integrate with the landscape earthworks that will screen the railway.
- 5.1.34 Planting arrangements are altered accordingly, including:
- additional woodland habitat creation and landscape mitigation planting to the south and south-west of Rookery Wood;
 - woodland habitat creation to link the Brockhurst Lane green overbridge with Roundhill Wood;
 - the substitution of landscape planting for woodland habitat creation north of the existing Brockhurst Lane alignment west of the HS2 route; and
 - an altered mix of landscape mitigation planting and grassland habitat creation north of the existing Brockhurst Lane alignment east of the HS2 route to suite the revised landscape earthwork profile.
- 5.1.35 As a consequence of retaining the level of the route past Roundhill wood and lowering the route to the west of Hints, the vertical alignment between the A453 Sutton Road and Bangley Lane rises by up to 0.4m, with adjustment of landscape earthworks and landscape planting to suit. The Bangley Lane overbridge is raised slightly as a result. These changes mean that a balancing pond south of Bangley Lane is no longer required. The drainage has been amended to improve maintenance access and to suit the new railway levels, resulting in the removal of the balancing pond at Bangley Lane, but with corresponding increases in pond sizes at Drayton Lane and Brockhurst Lane.
- 5.1.36 The width of the underpass for Hints Footpath 9 will be increased by approximately 1.2m to the north of Bangley Lane, in order to allow passage of agricultural vehicles, reducing agricultural severance. This underpass will be approximately 4.5m wide with approximately 4.2m headroom.
- 5.1.37 Construction arrangements for the AP2 scheme will be largely unchanged from those in the main ES (See CT05 maps). However two previous satellite compounds (Hints Footpath 14 green overbridge, with a duration of 15 months, and Brockhurst Lane underbridge, with a duration of 41 months) have been combined into Brockhurst Lane green overbridge satellite compound, which has also been relocated to be adjacent to the main activities. The number of workers needed for the construction of the infrastructure at Hints has been increased to maintain the duration for the new compound at 41 months.
- 5.1.38 The construction of the realigned Brockhurst Lane will be undertaken offline. Brockhurst Lane will remain open until diverted to its new alignment with the exception of overnight or weekend closures for tying in of the road surface.

- 5.1.39 When compared to the Bill, the revised design will require less land permanently along the eastern edge of Rookery Wood, and more land permanently along (but outside) the southern perimeter of Rookery Wood. More land will also be permanently required to form the false cutting between Brockhurst Lane overbridge and Roundhill Wood.
- 5.1.40 North of the existing alignment of Brockhurst Lane, the AP2 revised scheme ties into the original scheme vertical alignment at Black Brook viaduct. The changes to the west of Hints village are shown on map CT-06-120, in the SES and AP2 ES Volume 2, CFA21 Map Book.

Main local alternatives

- 5.1.41 In developing the AP2 revised scheme, alternative options were considered in order to provide standard headroom for Brockhurst Lane's crossing of the route. Options that included an underpass were explored further, but these required unacceptably steep approaches to the underbridge that would not have been compliant with highway design standards and would have precluded any lowering of the route.
- 5.1.42 An option including an overbridge located to the north of the existing lane was also investigated. This option used the same railway vertical alignment as the AP2 revised scheme, to provide many of the benefits also reported within this assessment. However as the HS2 route to the north of the existing lane will be approximately at existing ground level, this would require an overbridge to be approximately 10m above ground level, creating a visually prominent elevated form in the landscape. This option compared poorly to the AP2 design, where the overbridge is positioned to cross at a point where the route is in a cutting approximately 6m deep, therefore requiring a much lower overbridge. Although in the AP2 scheme the route of Brockhurst Lane would be visible from the village of Hints, it was felt that visual impact could be adequately mitigated using landscape earthworks which will combine with the landscape planting proposed in the original scheme.

Scope of assessment

- 5.1.43 The Drayton Bassett to Hints area amendments will require an additional 3.6ha outside of the bill limits, primarily as a result of the altered diversion of Brockhurst Lane.
- 5.1.44 The AP2 revised scheme is not considered likely to alter assessed effects or proposed mitigation as set out in the main ES with respect to land quality, or socio-economics. However, there are changes where reassessment is considered to be required in respect of: agriculture, forestry and soils, air quality, community, cultural heritage, ecology, landscape and visual impact, sound noise and vibration, traffic and transport, and water resources and flood risk assessment.

Agriculture, forestry and soils

Scope, assumptions and limitations

- 5.1.45 The assessment scope, key assumptions and limitations for agriculture, forestry and soils 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.

- 5.1.46 It is also assumed that access across the HS2 route for Brook Farms (Holding CFA21/6) is available throughout the construction period, either under the provisions of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES) or via the modified Hints Footpath 9 underpass.

Existing baseline

- 5.1.47 The Mercia Mudstone Group underlies the HS2 route almost as far north as Roundhill Wood, and is described as red and green-grey mudstones and subordinate siltstones with widespread thin beds of gypsum and anhydrite. Superficial deposits of glacial till are located between Shirrall Hall Farm and the A453 Sutton Road. Most of the soils affected by this amendment are grouped in the Brockhurst 1 and Clifton associations, with some soils in the Whimple 3 association in the south. Land north of the A453 Sutton Road, as far as White House Farm, has soils of the Brockhurst 1 association developed on mudstones with thin superficial drift. Topsoils and upper subsoils are loamy or silty, but the slowly permeable clayey lower subsoils cause the dominant soils to be seasonally waterlogged for long periods over the winter (Wetness Class (WC) IV). These soils give rise to agricultural land in Subgrade 3a and occasionally Subgrade 3b.
- 5.1.48 A tract of land south of the A453 Sutton Road has soils of the Clifton association in deep, reddish light and medium loamy drift. Subsoils are slowly permeable, so that most soils are seasonally waterlogged (WC IV). Similar soils that experience only slight seasonal waterlogging occur on shedding sites with natural run-off (WC III). The agricultural land developed in these soils is in Subgrade 3a and some Subgrade 3b where the topsoil is heavy (clayey) on the wettest ground.
- 5.1.49 Whimple 3 association is mapped on land overlying reddish mudstones to the north of Gallows Brook in the south of the study area. A thin drift cover gives loamy or silty topsoils and upper subsoils. The soils experience slight seasonal waterlogging on upper slopes (WC II), but on lower slopes and in hollows soils are seasonally waterlogged (WC III). Here, the agricultural land is mainly in Subgrade 3a, with some wetter areas in Subgrade 3b.
- 5.1.50 This amendment affects six agricultural holdings. These are South View Farm (CFA21/2) which is a 6.9ha livestock holding, Brook Farms (CFA21/6) a 451.2ha arable and livestock holding, Rookery Farm (CFA21/9) a 50.6ha holding, mainly under grassland with some arable, Home Farm (CFA21/10) a 103.2ha livestock (sheep) enterprise, Buck's Head Farm (CFA21/11) a 180.0ha holding involved with general cropping (cereals and potatoes), and Oak Dairy Farm (CFA21/17) a 24.2ha holding under a mixture of arable and grassland.
- 5.1.51 Five out of the six affected holdings are mainly livestock enterprises under grassland, or they are a mixture of arable and livestock and are considered to be of medium sensitivity. One holding, Buck's Head Farm (CFA21/11) is considered to be of high sensitivity as it produces crops, such as potatoes, which require irrigation.

Future baseline

Construction (2017)

- 5.1.52 SES and AP2 ES 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.
- 5.1.53 None of the identified developments affect the assessment of the amendment's likely construction impacts on agriculture, forestry and soils.
- 5.1.54 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.
- 5.1.55 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 support 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)

- 5.1.56 SES and AP2 ES 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.
- 5.1.57 None of the identified developments affect the assessment of the amendment's likely operational impacts on agriculture, forestry and soils.

Effects arising during construction

- 5.1.58 The proposed amendment will give rise to a further 3.3ha of agricultural land in Subgrade 3a being required during construction. However, this is a small change in comparison to the 133.8ha of agricultural land in Grades 2 and 3a required permanently for the original scheme and will not change the level of significance of the effects on the best and most versatile (BMV) agricultural land reported in the main ES (i.e. a moderate adverse effect which is significant).
- 5.1.59 The proposed amendment will affect six agricultural holdings. The amendment would require:
- an additional 0.6ha (or 8.6% of the holding) of land permanently from South View Farm;
 - an additional 1.4ha (or 2.3% of the holding) of land permanently from Rookery Farm;

- an additional 0.3ha (or 0.3% of the holding) of land permanently from Home Farm; and
- an additional 1.3ha (or 5.4% of the holding) of land permanently from Oak Dairy Farm.

5.1.60 While no additional land is required for this amendment at Brook Farm (Bangley Lane), approximately 0.6ha (or 0.1% of the holding) will change from land required temporarily to land required permanently. The small changes to land required from these holdings will not result in any new or different significant effects or change the level of significance of the effects reported in the main ES.

5.1.61 The permanent severance impact on Brook Farms was assessed as being of medium magnitude in the main ES resulting in a moderate adverse effect (significant). Modification of the Hints Footpath 9 underpass will reduce this. Agricultural vehicles and machinery will be able to access severed land along tracks belonging to the holding without needing to use the public highway. Following the methodology in the main ES, the impact of this alternative design is assessed as being of low magnitude, reducing the significant permanent effect on Brook Farms to minor adverse (temporarily during construction and permanently), which is not significant.

Effects arising from operation

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

Mitigation and residual effects

5.1.63 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.

5.1.64 The impact of permanent severance on Brook Farms will be reduced as a result of the amendments. This results in a reduction from a moderate adverse effect, which is significant, to a minor adverse effect (not significant).

Cumulative effects

5.1.65 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the proposed amendment acting in combination with another amendment in AP2 or in AP1.

Air quality

Scope, assumptions and limitations

5.1.66 The assessment scope, key assumptions and limitations for air quality 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 as amended by the SMR Addendum 2 (Volume 5: Appendix CT-001 -000/3).

Existing baseline

- 5.1.67 The baseline conditions with regard to air quality have not changed from those reported in the main ES.
- 5.1.68 Receptors relevant to the amendment that could potentially be affected by changes in air quality include residential properties on Drayton Lane, Drayton Bassett and at Drayton Lane End Farm, the A453 Sutton Road, Tamworth.
- 5.1.69 There are no statutory designated sites within the Drayton Bassett, Hints and Weeford area.
- 5.1.70 There is one non-statutory designated site that could potentially be affected by changes in air quality as a result of the amendment. This is Rookery SBI, located south of the existing alignment of Brockhurst Lane (locally known as Rookery Lane).

Future baseline

Construction (2017)

- 5.1.71 SES and AP2 ES 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.
- 5.1.72 None of the identified developments affect the assessment of the amendment's likely construction impacts on air quality.

Operation (2026)

- 5.1.73 SES and AP2 ES 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.
- 5.1.74 None of the identified developments affect the assessment of the amendment's likely operational impacts on air quality.

Effects arising during construction

- 5.1.75 The elements of the amendment of relevance to air quality are associated with changes to the vertical alignment, associated embankments and cuttings and heights of roads.
- 5.1.76 The magnitude of the overall dust generating potential of the construction activities is not considered to be materially changed by the amendment. The distance of earthworks and construction activities relative to the relevant receptors does not change sufficiently from that in the main ES to alter the outcome of the dust assessment.
- 5.1.77 The main ES reported no significant effects on air quality during construction in this area. The proposed amendment will not give rise to any 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

- 5.1.78 The proposed amendment will not give rise to any new or different significant operational effects and will not change the level of significance of the effects reported in the main ES.

Mitigation and residual effects

- 5.1.79 Emissions to the atmosphere will be controlled and managed during construction through the route-wide implementation of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES), where appropriate.
- 5.1.80 No additional avoidance and mitigation measures are required for the amendment during construction in relation to air quality.
- 5.1.81 As reported in the main ES no mitigation measures are required during operation in relation to air quality.
- 5.1.82 There are no new or different significant residual effects for air quality as a result of the proposed amendment, in comparison with the main ES.

Cumulative effects

- 5.1.83 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 AP2, or in AP1.

Community

Scope, assumptions and limitations

- 5.1.84 The assessment scope, key assumptions and limitations for the community assessment are as set out in Volume 1 of the main ES, 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

- 5.1.85 The existing baseline remains unchanged from that reported in the main ES, Volume 2, CFA21, Section 5.3.
- 5.1.86 Possible residential receptors for community impacts in this area include residents of the nearby villages of Hints and Weeford and scattered rural properties along Drayton Lane, Shirrall Drive, on parts of the A453 Sutton Road, along Bangley Lane, Brockhurst Lane, and Watling Street.
- 5.1.87 Other possible receptors include users of local community facilities such as those within the villages of Hints and Weeford, which include village halls and churches, the Little Acorns children's day care nursery located at Oak Farm on Drayton Lane, a small campsite at the nearby Oak Tree Farm, and The Heart of England Way, which runs along Drayton Lane, before crossing the A453 Sutton Road and heading north towards Hints.

Future baseline

Construction (2017)

- 5.1.88 SES and AP2 ES 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.
- 5.1.89 None of the identified developments affect the assessment of the amendment's likely construction impacts on community.

Operation (2026)

- 5.1.90 SES and AP2 ES 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.
- 5.1.91 None of the identified developments affect the assessment of the amendment's likely operational impacts on community.

Effects arising during construction

Temporary amenity effects

- 5.1.92 The main ES described that the original scheme would give rise to adverse effects on amenity for residents in the area of this amendment, including significant visual effects for some residents of Shirrall Drive and Bangley Lane. Some residents at Bangley Lane would also experience adverse noise effects including at Mill House where construction noise levels were estimated to qualify for noise insulation. Little Acorns Day Nursery would also be affected by a significant adverse visual effect.
- 5.1.93 The element of this amendment relevant to this assessment is the lowering of the route's vertical alignment in the vicinity of Shirrall Drive, and the small increase in vertical alignment for Bangley Lane. This amendment does not alter the anticipated visual or noise effects at the receptors near Shirrall Drive and Bangley Lane; therefore, as with the original scheme, there are no likely significant combined amenity effects on properties or community facilities in the vicinity of this amendment.

Temporary effects on recreational PRoW

- 5.1.94 The original scheme was assessed in the main ES as giving rise to a moderate adverse (significant) amenity effect on the users of the Heart of England Way at Drayton Lane during construction due to a combination of significant visual effects and a significant increase in HGV construction traffic. The amendment makes provision for the lowering of the diverted Drayton Lane compared to the original scheme, however this is not expected to alter the anticipated significant visual or traffic effects, therefore the amendment will not alter the conclusions of the main ES assessment in this regard.

Temporary isolation effects on residents and community facilities

- 5.1.95 The construction of the original scheme was assessed in the main ES as giving rise to major adverse (significant) temporary isolation effects on residents of Brockhurst Lane, which is located to the south-west of Hints village. This isolation would have been caused by a twelve month closure of Brockhurst Lane during which time the new

Brockhurst Lane underbridge, was to be constructed. This closure of Brockhurst Lane would have precluded access to Hints village, nearby residential properties, the local church and village hall, and direct routes to the primary school at Whittington and secondary schools at Lichfield. In addition, journeys via an alternate route to Lichfield would have been affected by significant traffic congestion at the junction of the A38/A5148 and A5206 which would have caused delays to journeys to access facilities.

- 5.1.96 The amendment would require only a limited temporary closure of Brockhurst Lane. It makes provision for a new green overbridge, approximately 370m south of Brockhurst Lane's current alignment, and new sections of highway that will divert Brockhurst Lane across the new overbridge. The new green overbridge and sections of highway will be built offline to ensure continuous passage of Brockhurst Lane, initially along its existing alignment, and then along its diverted alignment for the construction period, with only an overnight or weekend closure required during the tie-in of the newly built carriageway.
- 5.1.97 During construction of the AP2 revised scheme no congestion or disruption to journeys is predicted to affect vehicular journeys to Hints village, nearby residential properties, the church and village hall. As with the original scheme, significant congestion is anticipated at the junction of the A38, the A5148 and the A5206 which will affect journeys to access facilities at Lichfield, including secondary schools. However an alternative route via Flats Lane exists where, although crossed by the HS2 route, no significant congestion is predicted to occur. This route may also be used for accessing Whittington Primary School. The amendment will therefore result in a minor temporary isolation effect for residents of Brockhurst Lane which is not significant, avoiding the major adverse (significant) isolation effect that would have occurred with the original scheme (refer to SES and AP2 ES Volume 5: Appendix CM-001-021 and map series CM-01-118).

Permanent effects

- 5.1.98 The number and location of residential properties to be demolished in the vicinity of this amendment remains unchanged from the original scheme.
- 5.1.99 The main ES identified that the original scheme would result in a minor permanent isolation effect, not significant overall, for residents of Brockhurst Lane due to limited headroom clearance through the Brockhurst Lane underbridge. This limited headroom would have restricted passage by higher vehicles, including some emergency vehicles.
- 5.1.100 The AP2 revised scheme includes a new green overbridge for Brockhurst Lane instead of Brockhurst Lane underbridge and will therefore avoid the minor (non-significant) permanent isolation effect associated with limited headroom clearance that would have occurred with the original scheme. However, the realignment of Brockhurst Lane will increase journey distance between properties on Brockhurst Lane and properties and community facilities within Hints village by approximately 300m. This permanent increase in journey distance will result in a short delay to journeys, likely to be noticeable for trips made by foot only, which will give rise to a different minor isolation effect, which is not significant overall.

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

Effects arising from operation

- 5.1.102 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

- 5.1.103 The construction of the amendment will not give rise to any new significant effects on community resources and therefore no further mitigation is required.

- 5.1.104 The amendment will remove the major adverse residual significant temporary isolation effect reported for Brockhurst Lane in the main ES. Otherwise, there are no new or different significant residual effects for community as a result of the proposed amendment, in comparison with the main ES.

Cumulative effects

- 5.1.105 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 in AP1.

Cultural heritage

Scope, assumptions and limitations

- 5.1.106 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

- 5.1.107 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walk-over, geophysical survey, remote-sensing data, and data from national and local registers. A full list of heritage assets is provided in Volume 2, Section 6.3 of the main ES. In addition, the baseline has been updated with the results of additional survey work comprising geophysical surveys for archaeology.

- 5.1.108 The main ES baseline is provided in Volume 5: Appendix CH-002-021 Gazetteer of heritage assets of the main ES.

- 5.1.109 Details of further survey work undertaken in this CFA since September 2013 is provided in SES and AP2 ES Volume 5: Appendix CH-004-021 and Volume 5 map series CH-07; CH-09 and CH-10, where this is relevant to the assessment of a new or different significant effect.

- 5.1.110 Heritage assets potentially affected through physical change or changes to their setting are:

- asset reference DHW166 enclosure at Roundhill (low value);
- asset reference DHW119 Roundhill Wood ancient woodland (high value);

- asset reference DHW123 Rookery ancient woodland (high value); and
- asset reference DHW360 Hints Village (moderate value).

Future baseline

Construction (2017)

- 5.1.111 SES and AP2 ES 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.
- 5.1.112 None of the identified developments affect the assessment of the amendment's likely construction impacts on cultural heritage.

Operation (2026)

- 5.1.113 SES and AP2 ES 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.
- 5.1.114 None of the identified developments affect the assessment of the amendment's likely operational impacts on cultural heritage.

Effects arising during construction

- 5.1.115 The following aspects of the amendment have the potential to cause new or changed impacts on heritage assets:
- revised land requirement for embankments and culverts over Gallows Brook floodplain;
 - additional land required at Brockhurst Lane for realignment and new landscape earthworks;
 - reduction of the cut slope at Rookery Wood; and
 - the overall lowering of the route.
- 5.1.116 Any archaeological remains within the footprint of the AP2 revised scheme will be removed or disturbed.
- 5.1.117 The main ES reported a major adverse significant effect on the enclosure at Roundhill (asset reference DHW166) which would be removed during construction. The amendment will not change the land required in this area and the major adverse effect reported in the main ES remains unchanged.
- 5.1.118 The effect of partially removing the site of a medieval forge and mill with ponds (asset reference DHW126) was assessed as not significant in the main ES. The amendment will not change the land required from this asset and the effect on the asset remains unchanged.
- 5.1.119 The main ES reported a major adverse effect (significant) on Roundhill Wood ancient woodland (asset reference DHW119) and Rookery ancient woodland (asset reference DHW123), assets of high value which would both be partially removed during construction of the original scheme.

- 5.1.120 The amendment does not change the land requirements around Roundhill Wood and therefore the major adverse effect remains unchanged. The amendment reduces the land requirements around Rookery ancient woodland by approximately 0.9ha. Although the land requirement is reduced, there is still partial removal of an asset of high value and the character of the remaining woodland will still be affected. This will result in a different significant effect on the Rookery ancient woodland. However, this will not change the level of significance of the effects reported in the main ES.
- 5.1.121 The effect on Hints village conservation area (asset reference DHW360) was assessed as a moderate adverse significant effect in the main ES. Although the amendment will further screen the AP2 revised scheme from Hints village and is therefore an improvement on the original scheme, it will not change the separation of the western edge of the village from its local historic landscape and will still create a notable change in the character of the village around the brook. This will result in a different significant effect on the Hints village. However, this will not change the level of significance of the effects reported in the main ES.
- 5.1.122 The amendment will not give rise to a new significant effect and will not change the level of significance of the effects reported in the main ES.

Effects arising from operation

- 5.1.123 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

- 5.1.124 Impacts upon cultural heritage assets will be addressed in accordance with the provisions set out in the draft CoCP (see Volume 5: Appendix CT-003-000 of the main ES).
- 5.1.125 There are no new significant residual effects for cultural heritage as a result of the amendment, in comparison with the main ES.
- 5.1.126 The amendment will result in two different likely residual significant construction effects compared to that reported in the main ES, due to the reduction in land required at Rookery ancient woodland and reduction in the effect on setting of Hints village. However, the level of significance reported in the main ES will remain the same.

Cumulative effects

- 5.1.127 There are no new or different likely significant cumulative effects for cultural heritage as a result of the amendment acting in combination with another amendment in AP2, or in AP1.

Ecology

Scope, assumptions and limitations

- 5.1.128 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.

- 5.1.129 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

- 5.1.130 The ecological baseline of the land required for the amendment has been based on field data collected for the main ES, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: Staffordshire Wildlife Trust and the Staffordshire Ecological Record. It also includes additional information provided by Staffordshire Ecological Record since publication of the main ES.
- 5.1.131 A summary of the baseline information relevant to the assessment of the amendment is provided in the next section. This takes account of any new or updated baseline information provided in SES and AP2ES Volume 5: Appendix Ec-001-003. For those receptors described in the main ES, further details are provided in Volume 2, CFA21, Section 7 and in Volume 5 of the main ES, including maps EC-01 to EC-12.

Designated sites

- 5.1.132 There are no statutory designated sites located within 500m of the land required for the amendment.
- 5.1.133 There are four non-statutory designated sites, all of which are SBI, partially within the land required for the amendment; each is of county/metropolitan value. These are Rookery SBI; Waggoner's Lane (Hedge 1) SBI; Roundhill Wood SBI; and Snake's Hill and River Oxbow, Black Brook SBI.
- 5.1.134 As described in the SES (refer to Section 3.2 in Part 1 of this document), the boundary of Snake's Hill and River Oxbow, Black Brook SBI has been extended since the main ES was published.
- 5.1.135 Rookery SBI is partially within the land required for the construction of the original scheme and the AP2 revised scheme. This SBI is ancient semi-natural woodland and is listed on the ancient woodland inventory.
- 5.1.136 There are four other non-statutory designated sites, comprising one SBI and three Biodiversity Alert Sites (BAS), within 500m of the land required for the construction of the AP2 revised scheme; each is of county/metropolitan value. These are Black Brook Corridor: Black Brook Bridge – Heart of England Way BAS; Bourne Brook Corridor, Ford (Oxbow Woodland) to Botley House BAS; Bourne Brook Corridor, Botley House to Bourne Bridge BAS; and Rough Leasow SBI. There are no amendments affecting these designated sites and they are not discussed further.

Habitats

- 5.1.137 The area of habitat relevant to the amendment is dominated by improved grassland and arable land, with species-poor hedgerows, woodland and an area of rush pasture and swamp habitat. These habitats are described in the main ES.
- 5.1.138 Habitats of county/metropolitan value include ancient woodland at Rookery Wood, the rush pasture and swamp vegetation included within Snake’s Hill and River Oxbow, Black Brook SBI, and the Black Brook corridor.
- 5.1.139 Improved grassland is of up to local/parish value, and arable land is of negligible value.

Protected and/or notable species

- 5.1.140 The land required for the amendment includes areas used by bat assemblages and populations of up to regional value, populations of birds of up to county/metropolitan value, a population of otter of up to county/metropolitan value, invertebrate assemblages of district/borough value and plants of local/parish value. There is one change relating to species compared to the baseline reported in the main ES, and this is the change in valuation of a bat population at a farm near Hints, which is described in the SES (refer to Section 3.2 of Part 1 of this document).
- 5.1.141 The bat assemblages and populations include the Natterer's bat population at a farm near Hints which is of regional value, and the potential assemblage of rarer bat species associated with roosting habitat at Rookery and Job’s Hill Plantation, which is of up to regional value. The assemblage of bats using foraging and commuting habitat bounded by the A5 and the A543, centred on Hints, and the assemblage of bats using foraging and commuting habitat south-west of Drayton Bassett, including Gallows Brook, are both of district/borough value. Populations of common pipistrelle and brown long-eared bats using a farm near Hints are both of local/parish value.
- 5.1.142 A population of great yellow-cress of local/parish value was recorded within the field forming the extension of the Snake’s Hill and River Oxbow, Black Brook SBI.

Future baseline

Construction (2017)

- 5.1.143 SES and AP2 ES 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.
- 5.1.144 None of the identified developments affect the assessment of the amendment’s likely construction impacts on ecology.

Operation (2026)

- 5.1.145 SES and AP2 ES 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.
- 5.1.146 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

- 5.1.147 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

- 5.1.148 These amendments affect two designated sites, including Snake's Hill and River Oxbow, Black Brook SBI. As described in the SES (Section Part 1, 3.2), there is 6.6ha of the SBI, or 41% of this designated site, within land required for construction of the scheme. As reported in the SES (Section 3.2), this will result in a permanent adverse effect on the integrity of the SBI which will be significant at a county/metropolitan level. The land within the SBI that is required for construction has altered very slightly as a result of this amendment but the net overall area is unchanged. The amendment will result in a different significant effect on the SBI but will not change the level of significance of the effects reported in the SES (Section 3.2).
- 5.1.149 The lowering of the alignment to the west of Hints village affects Rookery SBI. The main ES reported 2.0ha of ancient woodland, or 27% of the total 7.5ha SBI being within land required for the construction of the original scheme. This impact was expected to result in a permanent adverse effect on the integrity of Rookery SBI, which would be significant at a county/metropolitan level. The changes associated with this amendment will reduce loss at the eastern side within this SBI, with a reduction to 0.9 ha of ancient woodland, or 12% of the SBI, at Rookery. The AP2 revised scheme will result in a different significant effect due to the reduced amount of ancient woodland being lost at Rookery SBI. However, this will not change the level of significance of the effects reported in the main ES.

Habitats

- 5.1.150 The main ES reported a loss of 2.6ha of species-rich rush pasture and swamp habitat at Hints Meadow West adjacent to Job's Hill plantation. All of the rush pasture within this field lies within the land required for the construction of the original scheme. This was reported in the main ES as causing an adverse effect on the conservation status of the habitat that would be significant at a county/metropolitan level. The AP2 revised scheme in this area has not increased the area of rush pasture and swamp habitat within the land required. The AP2 revised scheme 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.
- 5.1.151 The lowering of the alignment to the west of Hints village affects ancient woodland at Rookery SBI. The main ES reported 2.0ha of ancient semi-natural woodland at Rookery being within the land required for the construction of the original scheme. This impact was predicted to result in a permanent adverse effect on the conservation status of ancient woodland at Rookery, which would be significant at the county/metropolitan level. The changes associated with this amendment will reduce loss within the eastern side of the ancient woodland, with a reduction to 0.9ha at Rookery. As the physical area of habitat affected will be reduced, the AP2 revised

scheme will result in a different significant effect. However, this will not change the level of significance of the effects reported in the main ES.

- 5.1.152 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. Additional local/parish level effects (i.e. in addition to those identified in the main ES amended by the SES) are listed in Volume 5: Appendix EC-003-003.

Protected and/or notable species

- 5.1.153 The main ES reported that the assemblage of bats recorded between the A5 and A453 would be affected by the combination of woodland loss and loss and severance of commuting routes. The combination of these impacts was predicted to result in an adverse effect on the conservation status of the assemblage of bats that will be significant at a district/borough level. The revised design to the west of Hints village will result in 1.1ha less woodland being lost. The amendment will result in a different significant effect on the assemblage of bats between the A5 and A453 due to the reduction in loss of woodland. However, this will not change the level of significance of the effects reported in the main ES.
- 5.1.154 In the main ES, it was reported that the assemblage of bats using habitats south-west of Drayton Bassett would be affected by severance and loss of foraging and commuting habitats. It was reported that these impacts would result in an adverse effect on the conservation status of the assemblage of bats that will be significant at a district/borough level. The replacement of the Drayton Bassett viaduct with two underbridges reduces connectivity for bats, but would still provide opportunities for bats to cross in normal and high flow conditions. The amendment will result in a different significant effect on the assemblage of bats using habitats south west of Drayton Bassett. However, this change will not change the level of significance of the effects reported in the main ES.
- 5.1.155 It is unlikely that any other effects on species of relevance at more than the local/parish level will occur. Additional local/parish level effects are listed in Volume 5: Appendix EC-003-003.

Cumulative effects

- 5.1.156 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, or in AP1.

Mitigation and residual effects

Other mitigation measures

- 5.1.157 As a result of design changes, the amount of habitat creation in the Hints area between Roundhill Wood and the Black Brook has increased from 4ha to 4.4ha and has been supplemented by 2.1ha of habitat enhancement and management within the adjacent Snake's Hill and River Oxbow, Black Brook SBI.
- 5.1.158 In the main ES, it was reported that to the east of the route in the Hints area between Roundhill Wood and the Black Brook, ecological compensation would include 4ha of species-rich grassland creation to replace that lost during construction within the wet

meadows at Hints. The overall area of grassland creation and enhancement has been increased within the AP2 revised scheme, to a total of 6.5ha. This includes 2.1ha within the Snake's Hill and River Oxbow, Black Brook SBI, which would be subject to habitat enhancement and management rather than removal of existing habitat and new habitat creation. The remaining 4.4ha of grassland creation is outside the SBI boundary. Some of this is on new embankments, where creation of wet grassland would not be possible, but over 2ha will be on level ground in fields close to the Black Brook.

- 5.1.159 This increase in the area of grassland creation is not due to any new or different impact resulting from the amendment. Instead it is due primarily to the design change, in which some of the land on the embankment is proposed for grassland creation where woodland creation was previously proposed. These areas of grassland would be adjacent to areas of wet grassland to be created or enhanced, so it is appropriate to include them in the management regime as ecological mitigation. However, the grassland habitat for which compensation is to be provided is wet grassland. Therefore, the drier grassland that would be created on the embankment would not provide equivalent compensation to wet grassland habitat, so it is not appropriate to reduce the area of wet grassland created. The boundaries have also been designed to form practical management units.
- 5.1.160 Different significant impacts have been identified on the assemblage of bats between the A5 and A4533 and the assemblage of bats using habitat south-west of Drayton Bassett. Lowering of the alignment in this area means that the mitigation for reduced habitat connectivity for the assemblage of bats between the A5 and A543 will change. One element of mitigation, the underpass at Rookery Lane, would no longer be provided so alternative mitigation has been identified.
- 5.1.161 In the original scheme, there would have been an underpass at Brockhurst Lane and a separate green bridge supporting Hints Footpath 14 to the south. Due to the amendment, the lane and the footpath will cross the route on a green bridge south of Rookery wood. Although its location has altered, the green bridge would still provide connectivity. The loss of the underpass would mean that overall the connectivity in the area for bats would be reduced compared to the mitigation proposals in the main ES. Therefore, in addition, the culvert at Milditch Wood Ditch will be increased in size to give a height of 2.5m, to allow bats to use it to cross the route. Overall, the effectiveness of the mitigation is maintained.
- 5.1.162 As explained above, the replacement of the Drayton Bassett viaduct with two culverts would still provide opportunities for bats to cross in normal and high flow conditions. No additional mitigation is required with regard to the assemblage of bats using habitat south-west of Drayton Bassett as a result of the amendment.
- 5.1.163 With regard to bats, no additional land is required for mitigation. Mitigation for severance of habitats used by commuting bats during construction will be provided by measures in accordance with the principles of ecological mitigation identified within the SMR Addendum (Volume 5 of the main ES: Appendix CT-001-000/2). Habitat creation in the ecological compensation areas will provide new foraging and commuting habitat for bats.

Summary of likely residual effects

- 5.1.164 The main ES reported that there would be a permanent adverse effect on ancient woodland that would be significant at the county/metropolitan level due to the loss of 2.0ha within Rookery SBI. This loss is reduced to 0.9ha of ancient woodland with the amendment, resulting in a different significant effect. However, there will still be a permanent adverse residual effect that is significant at the county/metropolitan level due to the loss of approximately 0.9ha of ancient woodland, an irreplaceable resource within Rookery SBI.

Effects arising from operation

- 5.1.165 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.

Landscape and visual assessment

Scope, assumptions and limitations

- 5.1.166 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

- 5.1.167 The area of land required for the amendment is located within the Lowland Village Farmlands landscape character area (LCA) which extends from the boundary with CFA20 up to Bangley Lane (known locally as Waggoner's Lane), and the Sandstone Hills and Heaths LCA which covers the section of the route north of Bangley Lane up to the A5 Watling Street, as described in the main ES (Volume 2, CFA21, Section 9.3).
- 5.1.168 The following viewpoints are also located in close proximity to the amendment and are described in the main ES (Volume 2, CFA21, Section 9): 330.3.002 (PRoW Drayton Bassett 13); 330.2.003 and 332.3.002 (The Pump House at Brook Farm and PRoW Heart of England Way, on Drayton Lane); 330.2.005, 330.2.006 and 332.2.001 (Drayton Lane and the edge of Drayton Bassett); 331.3.001 and 331.2.002 (PRoW Drayton Bassett Footpath 10, and Shirrall Hall Farm and Pool Farm); 332.2.003 (Heathley Farm); 332.3.004: (PRoW Drayton Bassett footpath 2); 332.2.005 (Oak Farm/Heart of England Way); 333.3.001: (PRoW Drayton Bassett footpath 9 north of Shirrall Hall Farm); 333.2.002 (Drayton Lane End Farm); 333.3.004 (Heart of England Way, PRoW Drayton Bassett 12); 333.3.006 (Drayton Lane on Heart of England Way near Barn Cottage); 333.3.007 (Drayton Lane on Heart of England Way near Lone Oak/Cranebrook); 334.3.001 (Drayton Lane part of Heart of England Way); 334.2.002 (Hill Farm and Bourne Croft); 334.3.003 (PRoW Drayton Bassett footpath 11 close to Oakleigh); 335.2.002 (Hints Farm complex); 335.2.004 (Brockhurst Farm); 335.3.001 (PRoW Hints Footpath 20) part of Heart of England Way); 335.3.003: (Heart of England Way PRoW Hints 15a); 335.2.004, 337.2.002 and 337.2.004: (Brockhurst Farm, Brockhurst Lane adjacent to White Owl Farm and Heart of England Way near Rookery Farm); 336.2.001 (Orchard Farm); 336.2.002: (Lower Bangley on Bangley Lane); 336.2.003: (PRoW (Hints footpath 20) near Fordway Farm); 336.2.004 (PRoW Drayton

Bassett footpath 3 near New House Farm); 336.2.006 (Holt Farm/Old Barn); 337.3.001 (Heart of England Way); 338.3.001 (PRoW footpath Hints 13); 338.2.002 (edge of Hints); 338.2.004 and 338.2.005 (Bangley Lodge Farm and property on Watling Street, Hints); and 338.3.003, 340.2.002 and 340.3.005 (PRoW Hints Footpath 6, Watling Street, and PRoW Hints Footpath 1(a)).

Future baseline

Construction (2017)

- 5.1.169 SES and AP2 ES 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.
- 5.1.170 None of the identified developments affect the assessment of the amendment's likely construction impacts on landscape character and views.

Operation (2026)

- 5.1.171 SES and AP2 ES 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.
- 5.1.172 None of the identified developments affect the assessment of the amendment's likely operational impacts on landscape character and views.

Effects arising during construction

Landscape assessment

- 5.1.173 The Lowland Village Farmlands LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The condition of the LCA is assessed as good and as being of local value, therefore it is considered to be of medium sensitivity to change. The main ES reported a major adverse effect during construction due to the wide visibility of construction works and a loss of tranquillity.
- 5.1.174 The Sandstone Hills and Heaths LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The condition of the LCA is regarded as good and as being of district value, and is therefore considered to have a high sensitivity to change. The main ES reported a major adverse effect during construction, due to the removal of field boundaries and areas of woodland and a loss of tranquillity.
- 5.1.175 The nature of the construction activity associated with the peak construction phase, incorporating the amendment, is not expected to change relative to the original scheme reported in the main ES.
- 5.1.176 The Drayton Bassett to Hints area amendments will not give rise to a new or different significant landscape effect and will not change the level of significance of the effects reported in the main ES.

Visual assessment

- 5.1.177 The nature of the construction activity associated with the peak construction phase will result in some changes for those viewpoints in close proximity to the amendment, relative to the original scheme reported in the main ES.
- 5.1.178 The following viewpoints would have had a view of the construction of a viaduct over the Gallows Brook at Drayton Basset, and for the amendment will have a view of the construction of an embankment incorporating two underbridges: 330.3.002 (PRoW Drayton Bassett 13); 330.2.003 and 332.3.002 (The Pump House at Brook Farm and PRoW Heart of England Way, on Drayton Lane); 330.2.005, 330.2.006 and 332.2.001 (Drayton Lane and the edge of Drayton Bassett); 331.3.001 and 331.2.002 (PRoW Drayton Bassett Footpath 10, and Shirrall Hall Farm and Pool Farm) and 332.3.005 (Oak Farm/Heart of England Way).
- 5.1.179 The proposed amendment will not give rise to a new or different significant visual effect and will not change the level of significance of the effects on these viewpoints reported in the main ES (Volume 2, CFA21, Section 9.4).
- 5.1.180 The following viewpoints would have had a view of the construction of works west of Hints village which included an overbridge to accommodate Hints Footpath 14 and an underbridge to accommodate Brockhurst Lane, and for the amendment will have a view of the construction of an overbridge and approach embankments to accommodate a joint crossing of Brockhurst Lane and Hints Footpath 14 and a retaining wall adjacent to Rookery Wood: 337.3.001 (Heart of England Way); 338.3.001 (PRoW footpath Hints 13); 338.2.002 (edge of Hints); 338.2.004 and 338.2.005 (Bangley Lodge Farm and property on Watling Street, Hints); and 338.3.003, 340.3.001 (PRoW Hints footpath 0.378); 340.2.002 and 340.3.005 (PRoW Hints Footpath 6, Watling Street, and PRoW Hints Footpath 1(a)).
- 5.1.181 The proposed amendment will not give rise to a new or different significant visual effect on these viewpoints and will not change the level of significance of the effects reported in the main ES (Volume 2, CFA21, Section 9.4).

Effects arising from operation

Landscape assessment

- 5.1.182 The amendment will result in a general lowering of the route through the Lowland Village Farmlands LCA and the Sandstone Hills and Heaths LCA between the boundary with CFA20 and Black Brook viaduct.
- 5.1.183 The Lowland Village Farmlands 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 during year 1 of operation, due to the introduction of engineering infrastructure into a predominantly rural area and a reduction in tranquillity due to the presence of trains. The moderate adverse effects on landscape character would continue to year 15, then reducing to minor adverse (non-significant) by year 60, due to the maturing of planting.
- 5.1.184 The Sandstone Hills and Heaths 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 during year 1 of operation due to the introduction of engineered

embankments and deep cuttings affecting existing rural landform, the loss of woodland and a reduction in tranquillity due to the presence of trains. The effects on landscape character would reduce to be moderate adverse by year 15 and beyond to year 60, due to the maturing of planting.

- 5.1.185 The amendment is considered to be small in scale in comparison to the overall scale of the LCAs in which it is located. 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.

Visual assessment

- 5.1.186 The proposed amendment will result in the following effects on viewpoints:
- 5.1.187 Viewpoint 330.3.002 View west from the (PRoW) (Drayton Bassett 13), between Drayton Bassett and Middleton, was assessed as being affected by the original scheme which is on embankment and will also be affected by this amendment. The main ES reported a major adverse effect in the winter of year 1, reducing to moderate adverse at year 15 and minor adverse (non-significant) for year 60, due to the maturing of planting. The amendment will lower the HS2 route west of Drayton Bassett, however the scheme on embankment across Gallows Brook will remain visible, therefore the change 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.
- 5.1.188 Viewpoints 330.2.003 and 332.3.002 Views south-west from The Pump House at Brook Farm and from the PRoW Heart of England Way, on Drayton Lane were assessed as being affected by the original scheme which was on embankment and viaduct to the west of these viewpoints. The main ES reported a moderate adverse effect in the winter of year 1, reducing to be minor adverse (non-significant) at years 15 and 60, due to the maturing of planting. The proposed amendment will give rise to a change in views when compared with those reported in the main ES, due to the change from a viaduct to an embankment and the provision of additional areas of landscape earthworks and planting east of the HS2 route. The combination of the lowered route with the maturing of these areas of planting will provide greater integration of the AP2 revised scheme into the local landscape setting. This change will not alter the level of significance of the effects for the amendment at year 1 but will reduce the non-significant effects for years 15 and 60 from minor adverse to negligible (non-significant).
- 5.1.189 Viewpoint 332.2.005 View to the south from Oak Farm, Drayton Lane/The Heart of England Way 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 and would continue to be in year 15 and beyond to year 60, due to the continued visibility of the Drayton Basset viaduct. The amendment will give rise to a reduction in effects when compared with those reported in the main ES, due to the lowered alignment of the HS2 route, the change from viaduct to embankment with underbridges and the additional areas of landscape planting around the enlarged balancing pond east of the HS2 route. The amendment will also reduce the visibility of the upper elements of trains and overhead line equipment above the noise fence barriers as the route crosses the Gallows Brook floodplain. The level of significance reported in the main ES will reduce to minor adverse (non-significant) in year 1,

reducing to negligible (non-significant) for years 15 and 60. This removes the significant adverse effects reported in the main ES for the original scheme (refer to map LV-04-088b in the Volume 2: CFA21 Map Book).

- 5.1.190 Viewpoints 335.2.004, 337.2.002 and 337.2.004 Views north-east from Brockhurst Farm, from Brockhurst Lane adjacent to White Owl Farm and east from the Heart of England Way near Rookery Farm were 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 and in year 15, reducing to minor adverse (non-significant) by year 60, due to the maturing of planting. The proposed lowering of the HS2 route west of Hints village and the change from underbridge to overbridge at Brockhurst Lane including the road realignment will give rise to a change in view. This is due to the visibility of the overbridge, the land required for the western approach, associated landscape earthworks and mitigation planting. Both the overbridge and land required for earthworks and mitigation will be visible in the middle ground and background of these views, however, due to the lowering of the route, views of the upper elements of overhead line equipment and train movements will be reduced in comparison to the effects reported in the main ES. Although the amendment does generate a change in view, this 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.
- 5.1.191 Viewpoints 336.2.001 View south-west from Orchard Farm, Bangley Lane (known locally as Waggoner's Lane); 336.2.002: View south west from Lower Bangley on Bangley Lane and 336.2.003: View south west from PRoW (Hints footpath 20) near Fordway Farm. These viewpoints were assessed as being affected by the original scheme and will also be affected by the amendment. The main ES reported a moderate adverse effect in the winter of year 1 and would continue to be in year 15, reducing to minor adverse (non-significant) by year 60, due to the maturing of planting. Although the amendment includes the slight raising of Bangley Lane (Hints Bridleway 20) accommodation overbridge, this additional bridge height will not be discernible from this viewpoint, therefore this 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.
- 5.1.192 Viewpoint 336.2.006 View south west from Holt Farm/the Old Barn; this viewpoint was assessed as being affected by the original scheme and will also be affected by the amendment. The main ES reported a major adverse effect in the winter of year 1, reducing to moderate adverse in year 15, and beyond to year 60, due to the maturing of planting. Although the provision of additional landscape earthworks and areas of planting east of the HS2 route will not alter the views from those reported in the main ES for years 1 and 15, in year 60, effects on views will reduce from moderate adverse to minor adverse (non-significant) due to the maturing of mitigation planting. This will not give rise to a new or different significant effect.
- 5.1.193 Viewpoint 338.3.001 View south-west from PRoW (footpath) Hints 13, off Brockhurst Lane, was assessed as being affected by the original scheme and will also be affected by the amendment. The main ES reported a major adverse effect in the winter of year 1, reducing to moderate adverse for year 15 and minor adverse (non-significant) by year 60, due to the maturing of planting. The lowering of the HS2 route west of Hints

village and the change from underbridge to overbridge at Brockhurst Lane will give rise to a change in view. The realigned lane will rise across the view from foreground to middle ground, with an increased area of land required for landscape earthworks and planting. The lowering of the route will screen views of overhead line equipment and train movement and the use of a retaining wall west of Hints cutting, immediately adjacent to Rookery Wood, will allow the retention of a larger area of ancient woodland, maintaining the easily recognisable shape of this locally prominent feature. However, due to the visual prominence of Brockhurst Lane green overbridge, this 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.

- 5.1.194 Viewpoint 338.2.002 View south-west from the edge of Hints was assessed as being affected by the original scheme and will also be affected by the amendment. The main ES reported a major adverse effect in the winter of year 1, reducing to minor adverse (non-significant) in year 15 and negligible (non-significant) by year 60, due to the maturing of planting. The upper elements of Brockhurst Lane green overbridge and its approach embankments from Hints village will be visible in the middle ground, seen through garden vegetation and field boundary hedgerows, together with the increased areas of landscape earthworks and mitigation planting. However, the lowering of the AP2 revised scheme will screen views of overhead line equipment and train movement. The change in view 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.
- 5.1.195 Viewpoints 338.2.004 and 338.2.005 View south-west from Bangley Lodge Farm and from property on Watling Street, Hints, were assessed as being affected by the original scheme and will continue to be affected by the amendment. The main ES reported a moderate adverse effect in the winter of year 1, reducing to negligible (non-significant) in year 15 and beyond to year 60, due to the maturing of mitigation planting. The amendment will retain views of the upper elements of overhead line equipment and train movement and Hints footpath 14 green overbridge will be substituted with a view of the wider Brockhurst Lane green overbridge further to the north. This 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.
- 5.1.196 Viewpoints 338.3.003, 340.2.002 and 340.3.005 Views south-west from PRow Hints Footpath 6, near Home Farm, from Watling Street and from PRow Hints Footpath 1(a), to the rear of properties at Watling Street, Hints, were assessed as being affected by the original scheme and will continue to be affected by the amendment. The main ES reported a moderate adverse effect in the winter of year 1, reducing to minor adverse (non-significant) for year 15 and beyond to year 60, due to the maturing of mitigation planting. The proposed amendment to lower the HS2 route west of Hints village will give rise to a change in views. Due to the retaining wall on the western side of Hints cutting, the amendment will retain a greater area of ancient woodland in Rookery Wood compared with the original scheme and the lowering will screen views of overhead line equipment and train movement. However, the view of Hints footbridge 14 green bridge will be substituted with the wider and more prominent Brockhurst Lane green overbridge and approach embankments further to the north. Although this amendment does change the views from that presented in the main ES it 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. The view of the AP2 revised scheme from viewpoint 338.3.003, in the winter of year one of operation is illustrated on the photomontage in Figure LV-01-142 (Volume 2: CFA21 Map Book).

Mitigation and residual effects

- 5.1.197 To further reduce the significant effects described above, consideration of where planting can be established early in the construction programme will be given during the detailed design stage. This may include consideration of early planting in landscape and ecological mitigation planting sites which would have the additional benefit of providing some visual screening. However, not all landscape and visual effects can be practicably mitigated due to the visibility of construction activity and the sensitivity of surrounding receptors.
- 5.1.198 There are no new or different residual construction effects for landscape and visual as a result of the proposed amendment, in comparison with the main ES.
- 5.1.199 In most cases, significant operational effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention.
- 5.1.200 One significant residual operational effect reported in the main ES has been removed as a result of this amendment. This is viewpoint 332.2.005: View to the south from Oak Farm, Drayton Lane/The Heart of England Way where the previously assessed moderate adverse effect at year 15 would become a negligible effect, removing the significant residual effect. There are no other new or different significant effects.

Cumulative effects

- 5.1.201 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 in AP1.

Sound, noise and vibration

Scope, assumptions and limitations

- 5.1.202 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, Volume 2 CFA report 21, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.1.203 Local assumptions and limitations for sound, noise and vibration are set out in the Volume 2, CFA21 report of the main ES.

Existing baseline

- 5.1.204 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 5: Appendix SV-002-021). Baseline sound levels representative of the assessment locations affected by the AP2 scheme have been used in the construction and operational assessments.

Future baseline

- 5.1.205 Without the original scheme, existing sound levels in this area are likely to increase gradually over time. This is primarily due to road traffic growth on the existing road

network. Changes in car technology may offset some of the expected sound level increases due to traffic growth on low speed roads. On higher speed roads, tyre sound dominates overall levels and hence the expected growth in traffic is likely to continue to increase ambient sound levels.

Construction (2017)

- 5.1.206 SES and AP2 ES 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.
- 5.1.207 None of the identified developments affect the assessment of the amendment's likely construction impacts on sound, noise and vibration.

Operation (2026)

- 5.1.208 SES and AP2 ES 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.
- 5.1.209 None of the identified developments affect the assessment of the amendment's likely operational impacts on sound, noise and vibration.

Effects arising during construction

- 5.1.210 The main ES reported that one residential receptor (located on Bangley Lane closest to the Bangley Lane accommodation overbridge) is forecast to experience noise levels higher than the noise insulation trigger levels as defined in the draft CoCP (Volume 5: Appendix CT-003-000) of the main ES. This is reported as a significant effect in the main ES Appendix SV-003-021 Table 3 reference CSV21-Do1.
- 5.1.211 The proposed changes brought about by the amendment, and associated construction activities, in the vicinity of Bangley Lane do not represent a substantive change to that detailed in the main ES, when considered in the context of the magnitude of change brought about by the original scheme. As a consequence, the predicted construction noise and vibration levels will not give rise to a new or different significant effect in comparison to those reported in the main ES.

Effects arising from operation

- 5.1.212 There are no new or different residual operational significant effects for sound, noise and vibration as a result of the proposed amendment, in comparison to those reported in the main ES.

Mitigation and residual effects

- 5.1.213 The assessment of construction noise and vibration assumes the implementation of the principles and management processes set out in the draft CoCP, as summarised in the main ES Volume 2 CFA21. No additional mitigation is considered necessary as a result of the proposed amendment.
- 5.1.214 There are no new or different significant construction residual effects for sound noise and vibration as a result of the amendment, in comparison with the main ES.

5.1.215 In addition to the mitigation proposed within the main ES (CFA21, Volume 2, Section 11), the amendments include changes to the noise barriers appropriate to the revised design as shown on maps CT-06-116b to CT-06-121 presented in SES and AP2 ES Volume 2 Map book.

5.1.216 There are no new or different significant operational residual effects for sound noise and vibration as a result of the amendment, in comparison with the main ES.

Cumulative effects

5.1.217 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, AP1.

Traffic and transport

Scope, assumptions and limitations

5.1.218 The assessment scope, key assumptions and limitations of the traffic and transport assessment are set out in Volume 1, the SMR (Volume 5: Appendix CT-0001-000/1) and the SMR Addendum (Volume 5: Appendix CT-0001-000/2) of the main ES.

5.1.219 This section considers the impacts of the amendment in relation to changes to PRoWs and the diversion of Brockhurst Lane. The effects resulting from the amendment in relation to changes to construction traffic flows are reported in Section 6.

Existing baseline

5.1.220 The existing and future baselines are described in the main ES (Volume 2, CFA21, Section 12).

5.1.221 Non-motorised daily user surveys in the area affected by the amendment showed the following:

- Drayton Bassett Bridleways 9 and 10 have less than 30 users per day with 24 and 19 cyclists per day respectively;
- Hints Bridleway 20 and Hints footpaths 9, 8, 14, and 13 each have less than 10 users per day;
- Hints footpath 11 has less than 20 users per day; and
- Brockhurst Lane has 52 users per day including 17 equestrians and 24 cyclists.

5.1.222 Surveys on the use of Brockhurst lane in the area affected by the amendment showed a total traffic flow of 110 vehicles in each direction.

Future baseline

Construction

5.1.223 The future baseline for traffic and transport is as described in the main ES (Volume 2 CFA21, Chapter 12) to the main ES. There is no change to the future baseline for construction as reported in the main ES.

Operation (2026 and 2041)

- 5.1.224 The future baselines for traffic and transport are set out in Volume 2, CFA21 (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

- 5.1.225 There are changes to a number of PROW during construction. However, these are permanent and reported under Effects arising from operation.
- 5.1.226 In the original scheme, Brockhurst Lane was to be closed during construction for up to 12 months. This was not reported as a significant effect in the main ES. In the AP2 revised scheme the permanent diversion of Brockhurst Lane will be constructed prior to closure of the lane and this is also considered below under operation.
- 5.1.227 There are also changes to construction traffic as a result of this amendment, which are considered in Section 6.

Effects arising from operation

- 5.1.228 The amendment makes minor changes to Drayton Bassett Bridleway 10 and Hints Footpaths 8 and 9. This will not result in any new or different significant effects or change the level of significance of effects reported in the main ES.
- 5.1.229 Hints Footpath 14 had a diversion of 50m via a new overbridge in the original scheme and with the amendment will now be diverted to use the new Brockhurst Lane green overbridge resulting in an additional diversion of 150m. There was no significant effect reported for the original scheme and this remains the case for the amendment.
- 5.1.230 Hints Footpath 13 was also diverted via a new overbridge in the original scheme and with the amendment is now diverted to use the new Brockhurst Lane green overbridge as for Hints Footpath 14. There is a 50m reduction in the diversion distance with the amendment compared with the original scheme but this will not give rise to a new or different significant effect and will not change the level of significance of the minor adverse significant effect reported in the main ES.
- 5.1.231 Hints Footpath 11 has been realigned to run along the eastern side of the HS2 route compared with the original scheme where the diversion used the Brockhurst Lane underbridge. The realignment results in an increase of 150m over the existing situation, which is less than the 300m with the original scheme. This change removes the minor adverse significant effect reported in the main ES.
- 5.1.232 Brockhurst Lane is permanently diverted to cross the HS2 route via the new Brockhurst Lane green overbridge, located approximately 370m to the south of its current location. In the original scheme Brockhurst Lane was retained along its existing alignment but with reduced headroom of 2.7m under the HS2 route. This resulted in the need for a diversion of 10 km for the affected vehicles. However, this was not considered a significant effect with the original scheme, as Brockhurst Lane is not adopted 200m west of the route. The amendment enables all traffic on Brockhurst Lane to use the new Brockhurst Lane green overbridge with an increased journey distance of approximately 300m. These changes 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

- 5.1.233 No changes to the mitigation described in the main ES (Volume 2 CFA21, Chapter 12) are required.
- 5.1.234 The amendment removes the minor adverse significant residual effect on Hints Footpath 11 reported in the main ES.

Cumulative effects

- 5.1.235 Cumulative effects are reported in Section 12, Volume 2, CFA21 of the main ES. The above 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

- 5.1.236 The assessment scope, key assumptions and limitations of the water resources and flood risk assessment are set out in Volume 1, the SMR (Volume 5: Appendix CT-0001-000/1) and the SMR Addendum (Volume 5: Appendix CT-0001-000/2) of the main ES.

Existing baseline

- 5.1.237 The scheme crosses Gallows Brook, which is of moderate value, and two unnamed tributaries of the River Tame, which are also of moderate value. Other surface water features including springs, ponds and drains are also present, as detailed in the main ES.
- 5.1.238 The scheme crosses the Gallows Brook floodplain, which in this area is underlain by the Mercia Mudstone Group, which is a Secondary B aquifer³. This is a receptor of moderate value. Other features which are dependent on groundwater are described in the main ES.
- 5.1.239 The two unnamed tributaries of the River Tame are minor tributaries of the River Tame with a combined catchment area of 5km². The width of the modelled 1 in 100 (1%) annual probability event floodplain, allowing for climate change, is approximately 140m. In the vicinity of the scheme the land use within the 1 in 100 (1%) annual probability event floodplain is agricultural and therefore less vulnerable (moderate value receptor).
- 5.1.240 An area at risk of flooding from rivers with an annual probability of occurrence of 1% (1 in 100 year) is shown on Environment Agency mapping associated with the tributaries of the River Tame. This is shown on Map WR-01-035 in Volume 5 of the main ES. Environment Agency data shows areas susceptible to surface water flooding are associated with Gallows Brook.

³ Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering

Future baseline

Construction (2017)

- 5.1.241 SES and AP2 ES 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.
- 5.1.242 None of the identified developments affect the assessment of the amendment's likely construction impacts on water resources and flood risk.

Operation (2026)

- 5.1.243 SES and AP2 ES 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.
- 5.1.244 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

Surface water

- 5.1.245 The main ES assessed the effects of building a viaduct crossing of the tributaries of the River Tame which involved the construction of a series of supporting piers across the floodplain associated with the tributaries. Each of these piers would require some degree of construction within the floodplain, the temporary effects of which were addressed through the draft CoCP such that there were no significant environmental effects.
- 5.1.246 The permanent effects arising from construction (i.e. due to the physical placement of the infrastructure within the floodplain) were assessed as not being significant as the proposed works did not involve modifications to the banks of the tributaries.
- 5.1.247 The replacement of the Drayton Bassett viaduct with underbridges will require additional works in the floodplain to build the approach embankments and the bridge abutments. However there will still be no changes to the watercourses themselves and temporary effects will be managed through application of the CoCP. Therefore there are no new or different significant temporary effects during construction in comparison with the main ES.
- 5.1.248 As the Drayton Bassett underbridges will not impinge on the channel, no significant impacts on surface water will arise.
- 5.1.249 There are no new or different significant effects with regards to surface water as a result of the proposed amendment, in comparison with the main ES.

Groundwater

- 5.1.250 The vertical alignment would be lower than the alignment assessed in the main ES and therefore a new shallow (less than 2m deep) cutting, Marl Pit cutting, is also required between Gallows Brook and the Drayton Bassett embankment. As a result the amount by which groundwater levels are reduced by the cutting may increase and this would increase the area over which groundwater levels may be affected.

However, the changes to the vertical alignment are limited and given the low permeability of the Mercia Mudstone Group it is concluded that only a minor impact on groundwater or groundwater supported surface water would be caused. Therefore the likely environmental effect is slight (i.e. not significant).

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

Flood risk

- 5.1.252 The reduction in the width of openings over the tributaries of the River Tame as a result of the change from a viaduct to two 10m-wide bridges could change the flow characteristics on the floodplain during flooding. The effect of this change has been assessed using flood modelling which indicates an increase in flood levels, without mitigation, upstream of the underbridges of 21mm. This is a minor impact on flood risk and the agricultural land affected is classified as less vulnerable and therefore of moderate value. The significance is therefore slight (not significant). The main ES noted that the proposed viaduct would change flood levels by less than 10mm and the impact was therefore negligible leading to a neutral significance of effect.
- 5.1.253 Further details of the flood risk assessment, including the determination of the potential impacts that will not have significant effects are provided in SES and AP2 ES Volume 5, WR-003-021.
- 5.1.254 The amendment will not give rise to a new or different significant effect with regards to flood risk and will not change the level of significance of the effects reported in the main ES.

Effects arising from operation

- 5.1.255 The proposed amendment will not give rise to a new or different significant effect on water resources and flood risk from operation and will not change the level of significance of the effects reported in the main ES.

Mitigation and residual effects

- 5.1.256 The assessment of the amendment has assumed that the general measures detailed in the draft CoCP (Volume 5: Appendix CT-003-000) in the main ES will be implemented.
- 5.1.257 There are no new or different significant residual effects for water resources and flood risk as a result of the amendment, in comparison with the main ES.

Cumulative effects

- 5.1.258 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 in AP1.

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

- 5.2.1 The following new or different likely residual significant effects will result from the Drayton Bassett to Hints area amendments:
- 5.2.2 The impact of permanent severance on Brook Farms will be reduced as a result of the amendments. This results in a reduction from a moderate adverse effect, which is significant, to a minor adverse effect (not significant).
- 5.2.3 For community, the amendment will reduce a major adverse significant temporary isolation effect at Brockhurst Lane reported in the main ES to a minor adverse temporary isolation effect, which is not significant.
- 5.2.4 The amendment will result in two different likely residual significant construction effects compared to that reported in the main ES, due to the reduction in land required at Rookery ancient woodland and reduction in the effect on setting of Hints village. However, the level of significance reported in the main ES will remain the same.
- 5.2.5 For ecology the amendment reduces the land required from Rookery Wood SBI, although the permanent adverse effect on the conservation status of the SBI and the ancient woodland habitat remains significant at the county/metropolitan level as reported in the main ES. This is a different significant residual effect.
- 5.2.6 For landscape and visual assessment the amendment will change the level of significance of the visual effects during operation reported in the main ES at Oak Farm, Drayton Lane/The Heart of England Way (viewpoint 332.2.005) where the previously assessed moderate adverse visual effect at year 15 would become a negligible effect (non-significant).
- 5.2.7 For traffic and transport, the amendment removes the minor adverse residual significant effect on Hints Footpath 11 which was reported in the main ES.

5.3 Additional land between Drayton Lane and Coppice Lane (AP2-021-002)

- 5.3.1 This amendment was described and assessed in full within the AP1 ES, in which it was given a reference number AP1-021-040. The amendment appears within AP2, with reference number AP2-021-002, in order to correct a printing error within hard copy versions of the published Bill (Bill plan replacement sheet no. 3-56a). The electronic version of this plan, published at the same time did not contain the error. Bill plan sheet no. 3-56b now shows the amendment correctly.
- 5.3.2 The amendment described within the AP1 ES included temporary rights over land to facilitate earthing of two pylons and the temporary diversion of fibre optic cable within a 100m wide corridor of land running along the line of the pylons between Coppice Lane and Drayton Lane for approximately 1.4km. The amendment is shown correctly on map CT-05-116b-L1 (AP1 ES Volume 2, CFA21 Map Book). The printed version of Bill plan sheet 3-56a did not show the area shaded correctly.
- 5.3.3 The assessment in AP1 was not affected by the drawing error and therefore no reassessment is required.

5.4 Permanent access rights required over Bangley Lane (private road) for maintenance access (AP2-021-003)

- 5.4.1 The Bill provides for access to elements of the route in this area from Bangley Lane for the purposes of maintenance during operation.
- 5.4.2 Bangley Lane is a private road but was assumed to be a public highway in the Bill. The right of access needed between the route and the public highway along Bangley Lane is not included within the Bill, hence the need for this provision.
- 5.4.3 Permanent access rights over Bangley Lane will achieve connection with the public highway (A453 Sutton Road) on the west side of the HS2 route (refer to map CT-05-118, Volume 2, CFA21 map book in the main ES). The section of Bangley Lane over which access rights are required is approximately 1.6km in length from the A453 Sutton Road to the eastern extent of the route.
- 5.4.4 No works to Bangley Lane other than those currently provided for within the Bill will be required. The amendment concerns access rights during operation only and will not affect the construction or design of the overbridge.
- 5.4.5 The main ES (Section 12.5.6 Volume 2 CFA21) assumed access would be taken along Bangley Lane for maintenance during operation and impacts were assessed accordingly. Provision of a permanent right of access for maintenance traffic over Bangley Lane is not considered to require a reassessment of the effects or proposed mitigation with respect to any environmental topic.

5.5 Revision of HS2 drainage in the Swinfen Cutting area (AP2-021-004)

- 5.5.1 The Bill provides for drainage infrastructure as part of the original scheme design, in order to protect HS2 from flooding and to ensure that HS2 does not cause or worsen flooding. Elements of the proposed drainage design for the Swinfen cutting area are shown on maps CT-06-121 and CT-06-122 (Volume 2, CFA21 Map Book in the main ES).
- 5.5.2 Since submission of the Bill, amendments are proposed to improve the drainage design in the Swinfen cutting area (between Bucks Head Farm and the A51 Tamworth Road overbridge). The revised design permanently requires areas of land (approximately 1.7 ha in total) that were not included within the limits of the Bill. Proposed amendments to the drainage design comprise:
- a culvert under the A5 and a carrier pipe east of HS2 to a ditch, leading to the Black Brook (north) attenuation pond (map CT-06-121, G6 to I6 in the SES and AP2 ES Volume 2 CFA21 Map Book);
 - ground reprofiling to the east of HS2 (approximately 2m in height to fill in a natural low point), opposite Flats Lane auto transformer station, with perimeter cut off ditches, to avoid the need for the Swinfen Aqueduct over the HS2 route as presented in the Bill (map CT-06-121, D5 to E5 in the SES and AP2 ES Volume 2 CFA21 Map Book);
 - a culvert between Flats Lane and HS2 'Flats Lane culvert', north of Knox's

Grave Lane, for which additional land is required (map CT-06-122, H6 to H7 in the SES and AP2 ES Volume 2 CFA21 Map Book);

- additional land required for construction of a drainage ditch along the south western boundary of Moor Covert (a woodland copse presented on map CT-06-122, H8 in the SES and AP2 ES, Volume 2, CFA21 Map Book) prior to discharge into an existing pool on the western boundary of the copse. The pool is fed by a spring that emerges on the eastern boundary of Moor Covert and flows through the woodland to the pool. The design presented in the Bill discharged drainage to an infiltration trench just up gradient of the spring;
- an infiltration basin east of the HS2 route, adjacent to the existing access road to Horsley Brook Farm, on part of the land previously proposed for heathland habitat creation, into which drainage ditches from the north and south (east of HS2) will be drained (map CT-06-122, B5 in the SES and AP2 ES Volume 2 CFA21 Map Book). The basin removes the need for the ditch shown in the original scheme that passed east towards the rear of properties fronting the A51 Tamworth Road; and
- a new earth bund (approximately 2m high) at the existing low point between the proposed infiltration basin and the HS2 route (map CT-06-122, A6 to D6 and map CT-06-123a, G6 in the SES and AP2 ES Volume 2 CFA21 Map Book).

5.5.3 The above changes are presented on map CT-06-121 to 123b, in the SES and AP2 ES Volume 2 CFA21 Map Book.

5.5.4 The amendments to the drainage design are not considered likely to alter assessed 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 impact; socio-economics, sound noise and vibration, and traffic and transport. The amendments to the drainage design are, however considered to require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: cultural heritage, ecology and water resources and flood risk assessment.

Cultural heritage

5.5.5 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.

Environmental baseline

5.5.6 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 of heritage assets is provided in Volume 2, Section 6.3 of the main ES. In addition, the baseline has been updated with the results of additional survey work comprising geophysical surveys for archaeology.

5.5.7 The main ES baseline is provided in Volume 5 Gazetteer of Heritage Assets (Appendix CH-002-021).

- 5.5.8 Details of further survey work undertaken in this CFA since September 2013 are provided in Volume 5: Appendix CH-004-021 and Volume 5 map series CH-07, CH-09 and CH-10, where this is relevant to the assessment of a new or different significant effect.
- 5.5.9 Non-designated heritage assets potentially affected through physical change or changes to their setting are:
- asset reference DHW125 Roman field system (moderate value); and
 - asset reference DHW141 pit alignment and enclosures (moderate value confirmed by new survey (CNo41) since September 2013 and boundary extended, refer to SES and AP2 ES, Volume 5: Appendix CH-004-021).

Effects arising during construction

- 5.5.10 The change in land requirements associated with the revised drainage design would have the potential to cause new or changed impacts on heritage assets through additional earth moving and the consequent removal of additional archaeological deposits.
- 5.5.11 The main ES reported a major adverse effect (significant) on a Roman field system (asset reference DHW125), an asset of moderate value which would be almost completely removed by the original scheme. The amendment requires slightly more land from this asset but this will not result in a new or different significant effect, nor will it change the level of significance of effect reported in the main ES.
- 5.5.12 The main ES reported a major adverse effect (significant) on pit alignment and enclosures (asset reference DHW141), an asset of moderate value which would be almost completely removed by the original scheme. Additional survey undertaken since 2013 has extended the boundary of this asset. The amendment requires slightly more land from this asset but this will not result in a new or different significant effect, nor will it change the level of significance of effect reported in the main ES.

Effects arising from operation

- 5.5.13 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

- 5.5.14 Impacts on cultural heritage assets will be addressed in accordance with the provisions set out in the draft Heritage Memorandum and draft CoCP (see Volume 5: Appendix CT-003-000 of the main ES).
- 5.5.15 The amendment will not give rise to a new or different residual significant effect and will not change the level of significance of the effects reported in the main ES.

Cumulative effects

- 5.5.16 There are no new or different likely significant cumulative effects for cultural heritage as a result of the amendment acting in combination with another amendment in AP2, or in AP1.

Ecology

Scope, assumptions and limitations

- 5.5.17 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.
- 5.5.18 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

- 5.5.19 The ecological baseline of the land required for the amendment has been based on field data collected for the main ES, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: Staffordshire Wildlife Trust, the Environment Agency and Staffordshire Ecological Record.
- 5.5.20 A summary of the baseline information relevant to the assessment of the amendment is provided in the next section. This takes account of any new or updated baseline information provided in SES and AP2 ES Volume 5, Appendix EC-001-003. For those receptors described in the main ES, further details are provided in Volume 2, CFA21, Section 7 and in Volume 5 of the main ES, including maps EC-01 to EC-12.

Designated sites

- 5.5.21 There are no statutory designated sites located within 500m of the land required for the amendment.
- 5.5.22 There is one non-statutory designated site within 500m of the land required for the amendment, Moor Covert and Pool SBI. This site is adjacent to the land required for the amendment. This site contains mixed deciduous and conifer plantation with an adjacent pool. There are alder and crack willow adjacent to a stream within the woodland. The site is of county/metropolitan value.

Habitats

- 5.5.23 The habitats within the area relevant to the amendment are dominated by arable land, with species-poor hedgerows and improved grassland. These habitats are described in the main ES.
- 5.5.24 Within Moor Covert and Pool SBI, which is adjacent to the land required for the amendment, the woodland contains species-poor oak woodland with a canopy dominated by sycamore. The mosaic of woodland and water at the SBI is collectively of county/metropolitan value.
- 5.5.25 Individually, species-poor hedgerows are considered to be of local/parish value. However, due to the wildlife corridors created by hedgerows, the hedgerow network

within the land required for the construction of the scheme is of district/borough value. Improved grassland is of up to local/parish value, and arable land is of negligible value.

Protected and/or notable species

- 5.5.26 The land required for the amendment includes areas used by bat assemblages of up to district/borough value and populations of birds of up to county/metropolitan value.
- 5.5.27 There are no trees or buildings supporting known bat roosts within the additional land required for the amendment, but the land is within the foraging habitat used by a diverse assemblage of bats. This assemblage was defined in the main ES as the assemblage of bats using foraging and commuting habitats bounded by A5 and A51, centred on Packington Moor Farm, which is of district/borough value. Outside of the land required for the amendment there is a bat roost defined in the main ES as the common pipistrelle population using a roost at a farm near Packington Moor, which is of local/parish value.
- 5.5.28 The populations of birds are described in the main ES. They include populations of breeding tree sparrow, wintering common gull and wintering black-backed gull at Packington Moor Farm, which are each of county/metropolitan value. The assemblages of breeding and wintering birds at Packington Moor Farm are both of local/parish value.

Future baseline

Construction (2017)

- 5.5.29 SES and AP2 ES 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.
- 5.5.30 None of the identified developments affect the assessment of the amendment's likely construction impacts on ecology.

Operation (2026)

- 5.5.31 SES and AP2 ES 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.
- 5.5.32 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

- 5.5.33 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

- 5.5.34 The amendment of drainage at Swinfen cutting includes works adjacent to Moor Covert and Pool SBI. The main ES assumed that no land would be required from the SBI and did not predict any hydrological impacts on this SBI. This was based on a design in which an infiltration trench along the eastern edge of the woodland, which took drainage from the scheme, would overflow into an existing ditch on the SBI boundary. The creation of the infiltration trench would maintain the current water regime by allowing surface water to discharge to ground while allowing storm water to discharge to the existing ditch in extreme events. This was not expected to affect the water balance within the SBI. No significant effect on the integrity of Moor Covert and Pool SBI was expected to occur.
- 5.5.35 The amendment does not require any land within the SBI. The revised drainage will include installation of a pipe adjacent to the SBI, offset 5m outside the SBI boundary to protect the root zones of trees within the SBI. The infiltration trench will no longer be provided, so water inputs to the woodland, where a stream currently arises, will be reduced. The discharge will be downstream of the woodland but will feed into the pool. Water will still flow into the pool that forms the downstream part of the designated site, so no significant effect on the pool is predicted. The stream within the woodland would effectively be cut off from the part of the catchment east of the proposed railway. Water from the western part of the existing catchment would still feed into the woodland, but there is uncertainty whether this would be sufficient to maintain the flow arising within the wood itself. If the stream through the wood dries out over time this would alter the mixture of trees adjacent to the stream, altering the character of part of the wood. As there is uncertainty a precautionary approach is taken to the impact assessment. The AP2 revised scheme will therefore result in a new permanent adverse effect on the integrity of Moor Covert and Pool SBI, which is significant at up to county/metropolitan level.

Habitats

- 5.5.36 The amendment of drainage at Swinfen cutting to include installation of a pipe adjacent to Moor Covert, rather than use of an infiltration trench is likely to reduce water inputs to the woodland, where a stream currently arises, as described above. The stream within the woodland would effectively be cut off from the part of the catchment east of the proposed railway. Water from the western part of the existing catchment would still feed into the woodland, but there is uncertainty whether this would be sufficient to maintain the flow arising within the wood itself. If the stream through the wood dries out over time this would alter the mixture of trees adjacent to the stream, altering the character of part of the wood. As there is uncertainty a precautionary approach is taken to the impact assessment. The AP2 revised scheme will therefore result in a new permanent adverse effect on the conservation status of woodland at Moor Covert, which is significant at up to county/metropolitan level.
- 5.5.37 It is unlikely that the amendment will result in any other new or different significant effects on habitat receptors of relevance at more than the local/parish level.

Species

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

Cumulative effects

- 5.5.39 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, or in AP1.

Mitigation and residual effects

Other mitigation measures

- 5.5.40 No further mitigation measures have been identified at this stage, but future hydrogeological studies may inform potential mitigation measures.

Residual effects

- 5.5.41 In the absence of mitigation the amendment will result in new potential permanent adverse residual effects on the integrity of Moor Covert and Pool SBI and on the conservation status of woodland at Moor Covert, both of which will be significant at the county/metropolitan level.

Effects arising from operation

- 5.5.42 There are no new or different significant operational effects for ecology as a result of the proposed amendment, compared with the main ES.

Water resources and flood risk assessment

Scope, assumptions and limitations

- 5.5.43 The assessment scope, key assumptions and limitations for the Water Resources and Flood Risk assessment are the same as those for the main ES, as set out in Volume 1, the SMR (Appendix CT-001-000/1) and the SMR Addendum (Appendix CT-001-000/2) of the main ES.

Existing baseline

- 5.5.44 Swinfen Cutting is underlain by the Bromsgrove Sandstone Formation which is designated by the Environment Agency as a Principal aquifer⁴.
- 5.5.45 No surface watercourses cross the route of the cutting but Ordnance Survey mapping shows a spring rising within Moor Covert (a woodland) approximately 145m to the west of the route. The woodland is also a SBI, and further details are provided in the ecology baseline section for this amendment.

⁴ These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

Future baseline

Construction (2017)

- 5.5.46 SES and AP2 ES 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.
- 5.5.47 None of the identified developments affect the assessment of the amendment's likely construction impacts on water resources and flood risk.

Operation (2026)

- 5.5.48 SES and AP2 ES 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.
- 5.5.49 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

- 5.5.50 The drainage design has been developed further, relative to that assessed in the main ES and therefore provides increased certainty regarding the effectiveness of the mitigation included therein. Key changes are inclusion of a culvert under the railway at Flats Lane, alterations to the drainage around Moor Covert and deletion of the proposed Swinfen Hall Aqueduct. It should be noted that Swinfen Hall Aqueduct was for the conveyance of drainage only rather than a watercourse.
- 5.5.51 Culverts are included in the amendment for new drainage ditches created to control surface water runoff from the AP2 revised scheme. As these are required for conveyance of drainage water as opposed to flow in natural watercourses, there are no adverse impacts from the proposed use of these features.
- 5.5.52 The main ES reported a negligible impact to the stream within Moor Covert. The redesign of the drainage in the Swinfen cutting area has resulted in the removal of the infiltration trench between the railway and Moor Covert. The infiltration trench would have fed the spring arising in Moor Covert with the scheme drainage, which would have compensated for the cutting reducing the baseflow (i.e. groundwater flow) to the spring and associated stream. On a precautionary basis it has been assumed that the amendment is likely to have a negative impact on the water balance of the stream within Moor Covert and that the new drainage design cannot achieve the drainage levels required to feed the spring and the associated stream located within the woodland.
- 5.5.53 Surface water flow will be directed into the stream at a point further downstream and prior to its entry into Moor Pool. On a precautionary basis it has been assumed that due to the reduction in base flow to the spring there will be a new moderate impact to this the stream through Moor Covert which is of moderate value leading to an effect of moderate significance.
- 5.5.54 This is a new significant effect not reported in the main ES. This change may also have impacts upon the integrity of the SBI and reference should be made to the ecology section for further information.

Effects arising from operation

- 5.5.55 There are no new or different likely significant residual effects during/from operation for water resources and flood risk as a result of the proposed amendment, in comparison with the main ES.

Mitigation and residual effects

- 5.5.56 No further mitigation measures have been identified at this stage, but future hydrogeological studies may inform potential mitigation measures.
- 5.5.57 In the absence of mitigation there is a new likely significant residual effect on the stream within Moor Covert associated with the amendment. This is because the stream within the woodland may be adversely affected by the removal of the infiltration system included in the original scheme.
- 5.5.58 No other new or different likely significant environmental effects have been identified as a result of the proposed amendment, in comparison with the main ES.

Cumulative effects

- 5.5.59 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 in AP1.

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

- 5.6.1 The new drainage design cannot achieve the required drainage falls to maintain the water balance of a spring which feeds a stream flowing through Moor Covert and Pool SBI. The ecological and water resources assessments have assumed, on a precautionary basis, that this amendment will result in the spring drying up.
- 5.6.2 For ecology, in the absence of mitigation the amendment will result in new potential permanent adverse residual effects on the integrity of Moor Covert and Pool SBI and on the conservation status of woodland at Moor Covert, both of which will be significant at the county/metropolitan level.
- 5.6.3 For water resources and flood risk, in the absence of mitigation there is a new likely moderate adverse significant residual effect on the stream within Moor Covert associated with the amendment. This is because the stream within the woodland may be adversely affected by the removal of the infiltration system included in the original scheme.

5.7 Removal of balancing pond at Freeford Home Farm and revision of the access route to Ingleyhill and Horsley Brook Farms (AP2-021-005)

- 5.7.1 The Bill provides for a highway balancing pond to the west of the A51 Tamworth Road overbridge. This was added to the Bill in case the existing road drainage outfalls could not be used. Additionally a joint access to Ingleyhill Farm and Horsley Brook Farm was provided off the existing Freeford Farm access to the west of the overbridge.

- 5.7.2 The access roads and balancing pond were shown on maps CT-06-123a, Volume 2 CFA21 Map Book of the main ES. The Bill also provides for a second balancing pond, to the east of the A51 Tamworth Road, however this pond is located within the adjacent CFA22.
- 5.7.3 Since submission of the Bill, further drainage design has identified that surface water can be discharged via grass swales in the southern verge of the A51 Tamworth Road where ground conditions allow infiltration. Both balancing ponds proposed for the original scheme are no longer required. This has allowed the farm access to Ingleyhill Farm and Horsley Brook Farm to be realigned. A new direct access will be formed off the A51 Tamworth Road approximately 70m to the west of the A51 Tamworth Road overbridge. This brings the access closer to the route and reduces the area of agricultural land needed temporarily and permanently in comparison to the Bill by approximately 0.2ha and 0.22ha respectively. The revised drainage design and access route are shown on map CT-06-123a, in the SES and AP2 ES Volume 2 CFA21 Map Book. The landscape proposals have been amended to suit the revised arrangement without any loss of functionality.
- 5.7.4 During construction the access road will connect with the temporary alignment of the A51 Tamworth Road and will be extended to join the reinstated A51 Tamworth Road upon completion.
- 5.7.5 The removal of the balancing pond at Freeford Home Farm and revision of the access route to Ingleyhill and Horsley Brook Farms 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 any environmental topic.

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 (e.g. changing the length of a PRow and localised traffic changes) the effects related to such changes are reported within the Traffic and transport section under each of the relevant amendments. There are however, transport effects which it is not possible to directly attribute to any one amendment or amendments and activities within other CFAs which in combination result in changed traffic flows.

6.1.2 These combined changes could result in a change in traffic flow on a particular road or at a particular junction and it would not be possible to attribute the change to one particular amendment (i.e. it would be a combined effect arising from different sources). In some cases, the traffic flows affect highways some distance away from the amendments (sometimes in a different CFA). This section of the AP2 ES reports any new or different significant effects as a result of this combined assessment

6.1.3 Traffic and transport effects are reported first, since the effects arise from changes in traffic flows. The following topics are affected by traffic and transport changes and are reported in the following sequence:

- Air quality;
- Community; and
- Sound, noise and vibration.

6.2 Changes of relevance to this assessment

6.2.1 The following changes are relevant to this assessment

- Drayton Bassett to Hints area amendments; and
- changes to the movement of excavated material due to changes in other CFAs, in particular those arising from the amendments in CFAs 20 and 22.

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 remains as set out within Volume 2, CFA21 (Section 12) of the main ES.

Future baseline

Construction

- 6.3.3 The future baseline for traffic and transport during construction remains as set out in Volume 2, CFA21 (Section 12) of the main ES.

Operation (2026 and 2041)

- 6.3.4 The future baselines for traffic and transport during operation remain as set out in Volume 2, CFA21 (Section 12) of the main ES.

Effects arising during construction

Avoidance and mitigation measures

- 6.3.5 Avoidance and mitigation measures are set out in Volume 2, CFA21 (Section 12) of the main ES. No further traffic and transport avoidance or mitigation measures during construction are proposed.

Assessment of impacts and effects

Temporary effects

- 6.3.6 The changes in traffic flows with the original scheme led to a significant increase in delay and congestion to vehicle users at the following junctions:
- A38 London Road/A453 Sutton Road/A446 London Road junction (minor adverse significant effect);
 - A38 /A5148/A5206 London Road junction (moderate adverse significant effect); and
 - A5/A5127 Birmingham Road /A5148 junction (moderate adverse significant effect).
- 6.3.7 There are substantial changes, between the original scheme and the AP2 revised scheme, in relation to roadheads dealing with excavated material. At the A453 Sutton Road roadhead HS2 construction HGVs are reduced to a maximum of 1000 per day in the peak month, arriving from CFA 19 along the A446 to the south, compared with 1100 per day in the peak month with the original scheme. At the Watling Street roadhead HS2 construction HGVs are reduced to a maximum of 500 per day in the peak month, arriving via the M6 Toll Road junction T4, compared with 1000 per day in the peak month with the original scheme.
- 6.3.8 In addition construction traffic including 780 HGVs and 550 cars and LGVs pass through CFA 21, along the A38 from M6 Toll Road junction T4, into CFA22, compared with 1480 HGV's and 470 cars and LGV's in the main ES.
- 6.3.9 These changes result in HS2 construction traffic levels reducing on some roads. In particular:
- A453 Sutton Road, east of the route and the A5 east of the junction with the A38 have reduced traffic flows compared with the original scheme; and

- As there is less traffic to roadheads in CFA22 there are also lower levels of traffic on the A38 between the A5 junction and A5206 in South Lichfield compared with the original scheme.

6.3.10 These changes result in HS2 construction traffic levels increasing on other roads. In particular:

- A5 between the junction with the A38 and M6 Toll junction T5; and
- A5127 Birmingham Road between the M6 Toll junction T5 and A5206 south of Lichfield.

6.3.11 Although traffic levels have reduced on some routes and increased on others the same level of effects remains at the junctions as reported in the main ES.

6.3.12 The changes in traffic flows with the original scheme led to substantial increases in daily traffic (i.e. more than 30% for HGV's or all vehicles) that will cause significant adverse effects in traffic related severance⁵ for non-motorised users, making it more difficult to cross the road. These effects remain the same with the amendment except at the A453/Drayton Lane junction where the moderate adverse significant effect in the original scheme changes to a major adverse significant effect.

Permanent effects

6.3.13 Permanent effects of construction on traffic and transport are considered under operations.

Other mitigation measures

6.3.14 No changes to the mitigation measures reported in Volume 2, CFA21, Section 12 of the main ES are required.

Cumulative effects

6.3.15 Cumulative effects are reported in Section 12, Volume 2, CFA21 of the main ES. The above 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 effects

6.3.16 There will be an increase in traffic related severance for non-motorised users at the A453/Drayton Lane junction where the moderate adverse significant residual effect reported in the main ES will change to a major adverse significant effect.

6.3.17 The revised significant effects from the AP2 revised scheme are shown on map TR-03-106 (SES and AP ES Volume 5: Map Book Traffic and Transport).

⁵ In the context of traffic and transport, 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 arising from operation

- 6.3.18 There are no changes in traffic in operation arising from the combined assessment and consequently no new or different significant operational effects compared with those reported in the main ES.

6.4 Air quality

- 6.4.1 There are changes in construction traffic in the Drayton Bassett to Hints area compared to the main ES. Although these changes result in an overall reduction in HGV levels when compared to the original scheme within CFA21, there are increases at a local level. On this basis the combined effects of construction traffic have been assessed for air quality.
- 6.4.2 There are no changes to traffic during operation from that reported in the main ES.

Scope, assumptions and limitations

- 6.4.3 The assessment scope, key assumptions and limitations for air quality 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 as amended by the SMR Addendum 2 (Volume 5: Appendix CT-001 -000/3).

Environmental baseline

Existing baseline

- 6.4.4 The baseline conditions with regard to air quality have not changed from those reported in the main ES.
- 6.4.5 Relevant receptors that could potentially be affected by changes in air quality due to changes to the movement of excavated material include residential properties; along the A453 Sutton Road, Tamworth; along the A5 east of the junction with the A38; along the A5 between the junction with the A38 and M6 Toll junction T5; adjacent to the A38 between A5 and A5148; and A5127 Birmingham Road between the M6 Toll junction T5 and A461 south of Lichfield.
- 6.4.6 There is one non-statutory designated site (Rookery Wood SBI) located south of Brockhurst Lane (locally known as Rookery Lane). This area is not expected to be affected by changes in air quality as a result of the combined effects of changes to the movement of excavated material. Therefore, this receptor has not been included in the assessment of traffic emissions during construction.

Future baseline

Construction (2017)

- 6.4.7 The future baseline for construction in 2017 remains unchanged from that reported in the main ES.

Operation (2026 and 2041)

- 6.4.8 The future baseline for operation in 2026 remains unchanged from that reported in the main ES.

Effects arising during construction

Avoidance and mitigation

- 6.4.9 Emissions to the atmosphere will be controlled and managed during construction through the route-wide implementation of the draft CoCP, where appropriate.
- 6.4.10 The assessment has assumed that the general measures detailed in Section 7 of the draft CoCP (Volume 5: Appendix CT-003-000) in the main ES will be implemented.

Assessment of impacts and effects

Temporary effects

- 6.4.11 There are reductions in construction traffic on the A453 Sutton Road, east of the HS2 route; the A5 east of the junction with the A38; and the A38 between A5 and A5148, compared to the main ES. There are increases in construction traffic on the A5 between the junction with the A38 and M6 Toll junction T5 and the A5127 Birmingham Road between the M6 Toll junction T5 and A5206 south of Lichfield, compared to the main ES. An assessment has been undertaken for relevant receptors adjacent to these sections of roads to determine any changes to the impact of construction emissions on air quality. Construction traffic at other locations is unchanged from the main ES.
- 6.4.12 The main ES reported that the magnitude of impact was negligible for all receptors for NO₂ and PM₁₀ and therefore no significant effects were identified. There is no change to the magnitude of impact for NO₂ or PM₁₀ for the AP2 revised scheme, compared to the main ES.
- 6.4.13 The combined changes to traffic flows 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.

Permanent effects

- 6.4.14 There are no permanent effects anticipated to arise during construction of the AP2 revised scheme.

Other mitigation measures

- 6.4.15 No other mitigation measures during construction are required in relation to air quality due to the combined changes to traffic.

Summary of likely residual significant effects

- 6.4.16 The main ES reported no residual significant effects on air quality during construction and operation and there is no change from the main ES as a result of the combined changes to traffic associated with the AP2 revised scheme.

Effects arising from operation

- 6.4.17 There are no new or different operational effects for air quality as a result of the combined effects of traffic changes in this CFA in comparison to those reported in the main ES.

6.5 Community

Scope, assumptions and limitations

- 6.5.1 The assessment scope, key assumptions and limitations for the community assessment are as set out in Volume 1 of the main ES, 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

- 6.5.2 The existing baseline remains unchanged from that reported in the main ES, Volume 2, CFA21, Section 5.3.

Future baseline

Construction

- 6.5.3 SES and AP2 ES 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.
- 6.5.4 None of the identified developments affect the assessment of the amendment's likely construction impacts on community.

Operation (2026 and 2041)

- 6.5.5 SES and AP2 ES 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.
- 6.5.6 None of the identified developments affect the assessment of the amendment's likely operational impacts on community.

Effects arising during construction

Avoidance and mitigation

- 6.5.7 The measures that have been incorporated into the draft CoCP to avoid or reduce community effects during construction remain as stated in the main ES (Volume 2, CFA21, Section 5).

Assessment of impacts and effects

Temporary effects

- 6.5.8 The transport assessment of the main ES reported a moderate adverse significant traffic related severance effect for non-motorised users of the A453 Sutton Road Drayton Lane junction. The construction of the AP2 revised scheme will increase this significant severance effect to major adverse. Residents of Shirrall Drive are likely to use Drayton Lane on a daily basis, including for access to the Manor Primary School at Drayton Bassett and/or the Rawlett School at Tamworth (secondary). It is anticipated that these journeys will be made by motor vehicle, therefore the worsening of severance along this route for non-motorised traffic is not considered to affect these

receptors. As reported in the main ES, Drayton Lane will remain open, except for overnight or weekend closures during the tie-in of the newly built carriageway and given that no significant delays are predicted in this area, the isolation effects on residents at Shirrall Drive, despite their high dependency on this route will be minor and not significant.

Permanent effects

- 6.5.9 No new or different significant permanent effects on community are expected to arise during construction of the AP2 revised scheme other than those described in section 5.1.

Other mitigation measures

- 6.5.10 No additional mitigation measures during construction are required in relation to community due to the combined changes to construction traffic flows in this CFA.

Summary of likely residual significant effects

- 6.5.11 There are no new or different community significant residual effects associated with the combined effects of amendments in this area in comparison to those reported in the main ES.

Effects arising from operation

- 6.5.12 There are no new or different significant operational community effects as a result of combined effects of amendments in this CFA in comparison to those reported in the main ES.

6.6 Sound, noise and vibration

Scope, assumptions and limitations

- 6.6.1 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.
- 6.6.2 Local assumptions and limitations for sound, noise and vibration are set out in main ES Volume 2 CFA21 Report.

Environmental baseline

Existing baseline

- 6.6.3 The existing baseline is as described in the sound, noise and vibration section of Volume 2, CFA21 and Volume 5: Appendix SV-002-021 of the main ES.

Future baseline

Construction

- 6.6.4 The assessment of noise from construction traffic assumes a baseline year of 2021, representative of the middle of the construction period when the construction traffic flows are expected to be at their peak. Further information can be found in the Traffic and Transport assessment of the main ES (Volume 5 Appendix TT-001-021).

Operation (2026 and 2041)

- 6.6.5 The assessment is based upon the predicted change in sound levels that result from the scheme. The assessment initially considered a worst case (that would overestimate the change in levels) by assuming that sound levels would not change from the existing baseline year of 2012/2013. Where significant effects were identified on this basis, the effects have been assessed using the baseline year of 2026 to coincide with the proposed start of passenger services. The future baseline is for the sound environment that would exist in 2026 without the scheme.

Effects arising during construction

Avoidance and mitigation

- 6.6.6 The measures that have been incorporated into the draft CoCP to avoid or reduce noise and vibration effects during construction remain as stated in the main ES (Volume 2, CFA21, Section 11).

Assessment of impacts and effects

Temporary effects

- 6.6.7 No significant noise effects due to construction traffic were reported in the main ES.
- 6.6.8 An assessment has been undertaken to determine whether the combined construction traffic from the AP2 revised scheme would result in a likely significant effect using the methodology and significance criteria detailed in the main ES (Volume 5: Appendix SV-001-000).
- 6.6.9 Although there are some changes to traffic flows, no new or different significant noise effects from construction traffic have been identified. Therefore the AP2 revised scheme does not alter the likely significant noise effects from construction road traffic reported in the main ES.

Permanent effects

- 6.6.10 There are no permanent effects on sound noise and vibration anticipated to arise during construction of the AP2 revised scheme.

Other mitigation measures

- 6.6.11 No additional mitigation measures during construction are required in relation to sound, noise and vibration due to the combined changes to construction traffic flows in this CFA.

Summary of likely residual significant effects

- 6.6.12 There are no new or different construction noise and vibration significant residual effects associated with the combined effects of amendments in this area in comparison to those reported in the main ES.

Effects arising from operation

- 6.6.13 There are no new or different operational sound, noise and vibration significant effects as a result of combined effects of amendments in this CFA in comparison to those reported in the main ES.

6.7 Summary

- 6.7.1 Combined changes to traffic flows will result in an increase in traffic related severance for non-motorised users at the A453/Drayton Lane junction compared to the effects reported in the main ES. The moderate adverse significant residual effect reported in the main ES will change to a major adverse significant residual effect.
- 6.7.2 There are no other changes to the significance of the environmental effects as set out in the main ES (Volume 2, CFA21, Drayton Bassett, Hints and Weeford).

High Speed Two (HS2) Limited

One Canada Square
London E14 5AB

T 020 7944 4908

E hs2enquiries@hs2.org.uk

X27