High Speed Rail (West Midlands - Crewe)

Supplementary Environmental Statement and Additional Provision Environmental Statement

Volume 2: Community Area report

CA4: Whitmore Heath to Madeley

March 2018

G12

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Department for Transport

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High Speed Two (HS2) Limited,
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.gov.uk/hs2

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

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

This report is part of the suite of documents that make up the Supplementary Environmental Statement (SES) and Additional Provision Environmental Statement (AP ES) for Phase 2a of the High Speed Two (HS2) rail network between the West Midlands and Crewe. The SES and the AP ES are separate documents, however, they are bound together and presented in a number of volumes as described below. The structure of the SES and AP ES is shown in Figure 1.

- Non-technical summary (NTS). This provides a summary in non-technical language of the SES (Part 1) and the AP ES (Part 2). It presents a summary of any likely residual significant environmental effects (i.e. effects which are likely to remain after mitigation measures are put in place), both beneficial and adverse, which are new or different to those reported in the Environmental Statement (ES) submitted to Parliament in July 2017 in support of the hybrid Bill for Phase 2a of HS2 ('the main ES'), and where relevant the SES;

- Glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the SES and the AP ES which are not already explained in the main ES;

- Volume 1: Introduction to the SES and the AP ES. This introduces the supplementary environmental information, changes to the design and construction assumptions included within the SES and amendments within the AP ES. The report explains the environmental impact assessment (EIA) process that has been applied;

- Volume 2: Community area reports and map books. These report the supplementary environmental information and changes to the design and construction assumptions included within the SES (Part 1), amendments within the AP ES (Part 2) and any new or different likely significant environmental effects arising from these changes and amendments in each community area. These effects are compared to those reported in the main ES, and where relevant, the SES. The maps relevant to each community area are provided in separate Volume 2 map books and should be read in conjunction with the relevant community area report;

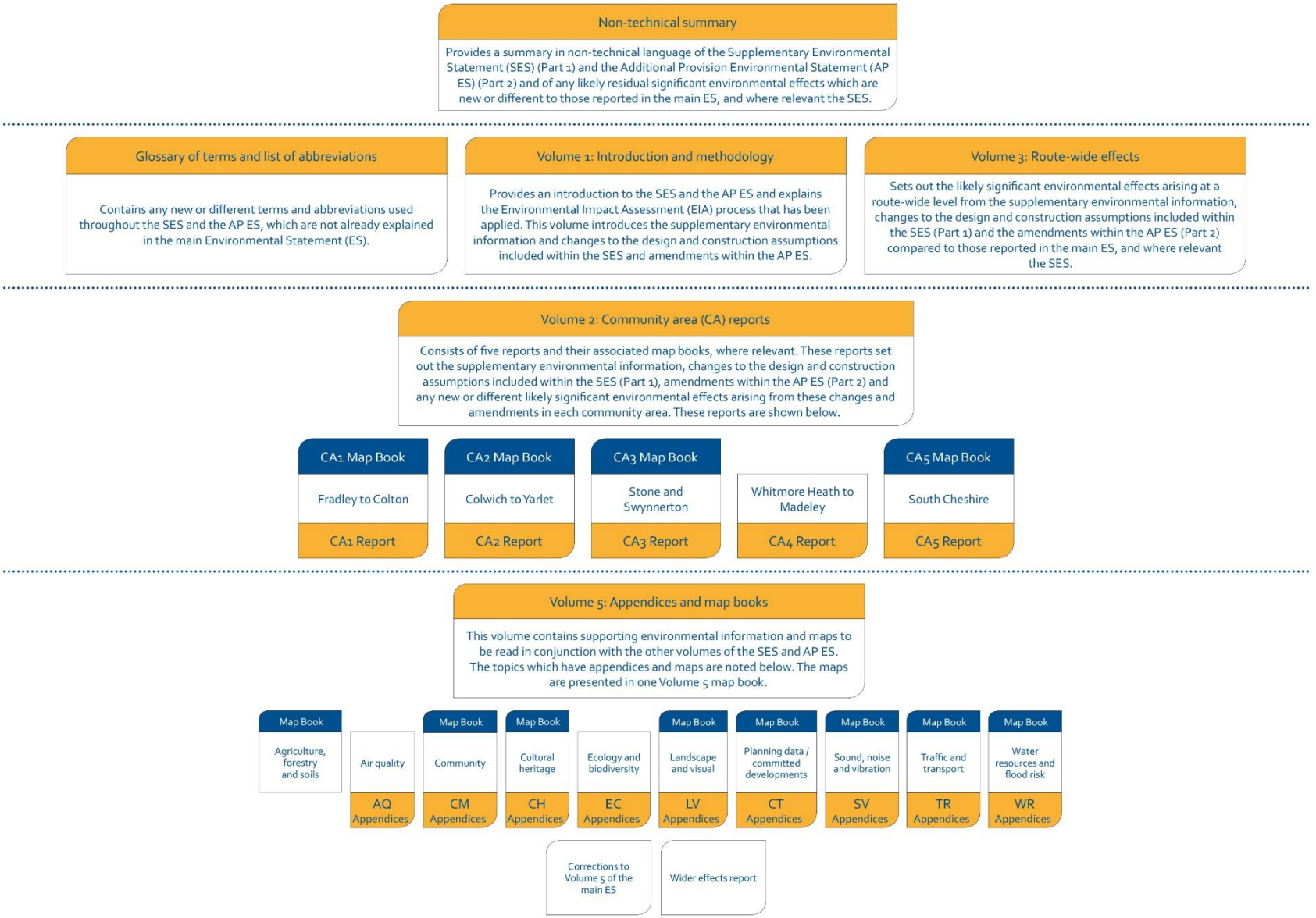
- Volume 3: Route-wide effects. This describes any new or different likely significant environmental effects arising at a route-wide level from the supplementary environmental information and changes to the design and construction assumptions included within the SES (Part 1) and the amendments within the AP ES (Part 2) compared to those reported in the main ES, and where relevant the SES; and

- Volume 5: Appendices and map book. These contain supporting environmental information and associated maps.

A Volume 4: Off-route effects report was produced as part of the main ES. A separate Volume 4 has not been produced as part of the SES and AP ES as off-route effects are very limited in number and so are reported in the most relevant Volume 2 community area report.

Certain reports and maps containing background information and data (BID) have been produced, which do not form part of the SES and AP ES. These documents are available on the HS2 website. The BID documents and maps present background survey information and other relevant background material.

Figure 1: Structure of the SES and AP ES



Structure of this report

This volume of the SES and AP ES is divided into five community area (CA) reports, which are in turn divided into two parts, except this CA.

Part 1 for this community area provides supplementary environmental information, where relevant, relating to:

- new baseline information with respect to environmental surveys completed and additional information received since the production of the main ES; and
- corrections to the main ES.

Part 1 includes, where relevant:

- a description of the SES changes within the community area that have triggered the need for reassessment;
- an assessment of the environmental effects of the SES changes for relevant environmental topics considering the:
  - scope, assumptions and limitations of 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 SES changes.

There are no proposed amendments to the design in the Whitmore Heath to Madeley area which have resulted in the need to alter the powers conferred by the Bill. Therefore, there is no Part 2 in this report.

1 Introduction

1.1.1 The High Speed Rail (West Midlands - Crewe) Bill was submitted to Parliament together with an Environmental Statement (ES) in July 2017 ('the main ES'). If enacted by Parliament, the Bill will provide the powers to construct, operate and maintain Phase 2a of HS2.

1.1.2 Since the deposit of the Bill, a number of updates or changes to environmental information, the design and construction 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.

1.1.3 The SES contains updated environmental baseline information and scheme information relating to changes within the current limits and powers of the Bill, and therefore, which do not require an Additional Provision to the Bill. The SES changes within the Whitmore Heath to Madeley area include:

- additional environmental baseline information for ecology and biodiversity; and
- corrections to the main ES.

1.1.4 These changes are described in the SES and are assessed on a topic by topic basis where relevant 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 There are no proposed amendments to the design in the Whitmore Heath to Madeley area which have resulted in the need to alter the powers conferred by the Bill.

1.1.7 The standard measures that will be used to mitigate likely significant adverse environmental effects during construction and operation of the scheme are described in the main ES, Volume 1, Section 9 and the draft Code of Construction Practice (CoCP)[1] submitted in support of the Bill. Implementation of these measures has been assumed in this SES.

1.1.8 In order to differentiate between the original proposals assessed as part of the main ES and subsequent changes, the following terms are used:

- 'the original scheme' – the Bill scheme submitted to Parliament in July 2017, which was assessed in the main ES; and
- 'the SES scheme' – the original scheme with any changes described in the SES that are within the existing powers of the Bill.

1.1.9 The term 'SES changes' is used to identify all changes reported in the SES that do not require additional powers, e.g. new baseline information.

[1] HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a

Part 1: Supplementary Environmental Statement

2 Summary of changes in the Whitmore Heath to Madeley area

2.1 New environmental baseline information

Ecology and biodiversity

2.1.1 Since the production of the main ES ecological surveys for Phase 1 habitat, hedgerow, wintering birds, bats, great crested newt, badger, otter and water vole have been completed in the Whitmore Heath to Madeley area.

2.1.2 Details of additional ecological surveys completed in the Whitmore Heath to Madeley area are provided in Background Information and Data (BID) documents[2] (BID-EC-004-000 and Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12), which accompany the SES and AP ES.

2.1.3 SES and AP ES Volume 5: Appendix EC-002-000 provides a summary of additional ecological survey data, which has resulted in no change to the conclusions of the main ES. SES and AP ES Volume 5: Appendix EC-003-000 identifies additional local/parish level effects that likely to occur as a consequence of SES changes but which will not be significant.

2.1.4 Detail of supplementary ecological information that is relevant to the SES assessment is provided in Section 3.

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 in the Whitmore Heath to Madeley area that result in a new or different significant effect.

[2] HS2 Ltd (2018), High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data, Available online at: www.gov.uk/hs2

2.3 Corrections to the main ES

2.3.1 Since submission of the Bill, the need for a number of corrections to 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 community area report for the Whitmore Heath to Madeley area because of the potential to alter the significant environmental effects reported in the main ES or a factual inaccuracy relating to a significant effect that has been identified. Table 1 also clarifies elements of the scheme description reported in the main ES. The table gives the location of the text that is subject to 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.

Table 1: Summary of corrections to the main ES in the Whitmore Heath to Madeley area

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Community Paragraph 6.4.7 and 6.4.26, Volume 2, CA4 of the main ES	The community assessment reported significant noise effects during construction on 29 properties in Whitmore and Whitmore Heath. The total number of properties with noise effects in this community is 25 rather than 29.	Paragraph 6.4.7: …These works will result in significant noise effects during the daytime on 29 residential properties due to construction works and construction traffic. Residents of all 29 residential properties will experience significant adverse visual effects due to views of the construction works. The significant noise and visual effects will result in an in-combination effect on the amenity of residents at these 29 properties for up to five years and seven months in total…. Paragraph 6.4.26 - first bullet: twenty-nine properties in Whitmore and Whitmore Heath due to the combination of noise and visual effects;	Paragraph 6.4.7 …These works will result in significant noise effects during the daytime on *25* residential properties due to construction works and construction traffic. Residents of *those 25* residential properties will experience significant adverse visual effects due to views of the construction works. The significant noise and visual effects will result in an in-combination effect on the amenity of residents at these *25* properties for up to five years and seven months in total…. Paragraph 6.4.26 - first bullet: *twenty-five* properties in Whitmore and Whitmore Heath due to the combination of noise and visual effects;	Yes. This correction will result in a different significant community effect, due to a reduction in the number of properties reported to be affected by noise during construction of the original scheme from 29 to 25, but will not change the level of significance of the effect reported in the main ES.
Community Paragraph 6.4.11 and 6.4.26, Volume 2, CA4 of the main ES	The community assessment reported significant noise effects during construction on 42 properties located on the A525 Bar Hill Road and Mallard Close with nine of these also experiencing night time noise effects. The construction of the original scheme will result in noise effects on 43 properties, with seven of these also experiencing night time noise effects.	Paragraph 6.4.11: …In addition, the use of the A525 Bar Hill Road as a construction traffic route will result in a significant increase in HGVs passing all of the properties on the A525 Bar Hill Road. There will be significant noise effects on 42 of the properties during the daytime due to construction works and construction traffic, and nine of these properties will also experience significant noise effects during the night-time due to tunnelling activity. The significant visual and HGV effects on all 43 properties, and noise effects on 42 of the properties, will result in an in-combination effect on the amenity of residents at these properties for up to two years and six months in total…. Paragraph 6.4.26 - third bullet: forty-three properties located on the A525 Bar Hill Road and Mallard Close due to the combination of visual and HGV effects, 42 of these properties will	Paragraph 6.4.11: …In addition, the use of the A525 Bar Hill Road as a construction traffic route will result in a significant increase in HGVs passing all *43* of the properties on the A525 Bar Hill Road. There will also be significant noise effects on *all 43* of the properties during the daytime due to construction works and construction traffic, and *seven* of these properties will also experience significant noise effects during the night-time due to tunnelling activity. The significant visual, HGV *and noise* effects on all 43 properties will result in an in-combination effect on the amenity of residents at these properties for up to two years and six months in total…. Paragraph 6.4.26 - third bullet: forty-three properties located on the A525 Bar Hill Road and Mallard Close due to the combination of visual, HGV *and noise* effects;	Yes. This correction will result in a different significant community effect, due to an increase in the number of properties reported to be affected by the contributing noise effect during the construction of the original scheme. The number of properties in the overall group and the significance of the effect will not, however, change from that reported in the main ES.

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
		also experience noise effects, in addition to the visual and HGV effects;		
Community Paragraph 6.4.12 and 6.4.26, Volume 2, CA4 of the main ES	The community in-combination assessment reported significant noise effects during construction, in addition to significant visual and HGV effects, for approximately five properties located at Moor Hall Farm and Bower End Farm. A significant noise effect should not be reported on this group as part of the community in-combination assessment. As a result of removing the noise effect, the duration of the in-combination effect in this location is also reduced from that reported.	Paragraph 6.4.12: … All of the properties will experience significant adverse visual effects due to views of the construction works. In addition, the presence of site haul routes will result in a significant increase in HGVs passing all of the properties. The significant noise, visual and HGV effects will result in an in-combination effect on the amenity of residents at these properties for up to two years and seven months in total… Paragraph 6.4.26 - fourth bullet: • five properties at Moor Hall Farm and Bower End Farm due to the combination of noise, visual and HGV effects;	Para 6.4.12: … *Five* properties will experience significant adverse visual effects due to views of the construction works. In addition, the presence of site haul routes will result in a significant increase in HGVs passing all *five* of the properties. The significant visual and HGV effects will result in an in-combination effect on the amenity of residents at these properties for up *to one year and 10 months* in total… Paragraph 6.4.26 - fourth bullet: • five properties at Moor Hall Farm and Bower End Farm due to the combination of visual and HGV effects;	Yes. This correction will result in a different significant community effect, due to the removal of the noise effect as a contributing factor to the in-combination effect, but will not change the level of significance of the effect reported in the main ES. The visual and HGV effects will remain, therefore the major adverse community effect will remain.
Community Paragraph 6.5.2 and 6.5.8, Volume 2, CA4 of the main ES	The community assessment reported significant noise effects during operation for approximately seven residential properties on Snape Hall Road, including a proposed development. This should have been reported as six residential properties with significant noise effects, and the reference to the proposed development	Paragraph 6.5.2: A group of residential properties on Snape Hall Road in Whitmore Heath (including a proposed dwelling under planning permission 15/00281/FUL) will be in proximity to the Proposed Scheme. … All seven of the properties will experience significant adverse visual effects due to views of the Proposed Scheme …. Paragraph 6.5.8 – first bullet: The operation of the Proposed Scheme will result in significant permanent in-combination effects on the following resources:	Paragraph 6.5.2: A group of residential properties on Snape Hall Road in Whitmore Heath will be in proximity to the Proposed Scheme. … All *six* of the properties will experience significant adverse visual effects due to views of the Proposed Scheme …. Paragraph 6.5.8 – first bullet: The operation of the Proposed Scheme will result in significant permanent in-combination effects on the following resources:	Yes. This correction will lead to a different significant community effect, due to a reduction in the number of residential properties reported to be affected by the operation of the original scheme from seven to six, but will not change the level of significance of the effect reported in the main ES.

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
	15/00281/FUL should be removed.	• seven properties on Snape Hall Road in Whitmore Heath due to the combination of noise and visual effects;	• *six* properties on Snape Hall Road in Whitmore Heath due to the combination of noise and visual effects;	
Community Paragraph 6.5.3 and 6.5.8, Volume 2, CA4 of the main ES	The community assessment reported significant noise effects during operation for approximately 14 properties located on the A525 Bar Hill Road and Red Lane. This should have been reported as noise effects during operation on 11 properties.	Paragraph 6.5.3: …The operation of the Proposed Scheme will result in significant noise effects during the daytime and night-time on approximately 14 residential properties due to trains running…The significant noise and visual effects will result in an in-combination effect on the amenity of residents at these properties…. Paragraph 6.5.8 - second bullet: • fourteen properties on the A525 Bar Hill Road and Red Lane in Madeley due to the combination of noise and visual effects;	Paragraph 6.5.3: …The operation of the Proposed Scheme will result in significant noise effects during the daytime and night-time on approximately *11* residential properties due to trains running…The significant noise and visual effects will result in an in-combination effect on the amenity of residents at these *11* properties…. Paragraph 6.5.8 - second bullet: • *eleven* properties on the A525 Bar Hill Road and Red Lane in Madeley due to the combination of noise and visual effects;	Yes. This correction will lead to a different significant community effect, due to a reduction in the number of residential properties reported to be affected by the contributing effects during the construction of the original scheme from 14 to 11, but will not change the level of significance of the effect reported in the main ES.
Cultural heritage Paragraph 7.4.7, Volume 2, CA4 of the main ES	A temporary impact on the setting of a Grade II listed milepost (WHM015) was reported in the cultural heritage assessment, but the impact of the temporary removal (followed by replacement) of the milepost was not included in the assessment.	Paragraph 7.4.7: A Grade II listed milepost (WHM015), an asset of moderate value, will be subject to a temporary change in its setting….	Paragraph 7.4.7: A Grade II listed milepost (WHM015), an asset of moderate value, will be subject to a *physical impact and a* temporary change in its setting….	No change. The temporary change in setting is a medium adverse impact on an asset of moderate value, leading to a moderate adverse significant effect, as reported in the main ES. The temporary removal of the milepost would result in a new medium adverse impact on this asset, however would not change the level of significance of the effect reported in the main ES.

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Cultural heritage Paragraph 7.4.8, Volume 2, CA4 of the main ES	A permanent significant effect on the setting of Snape Hall Farm (WHM023) was assessed and reported in the Volume 5: Appendix CH-003-004. This should have also been reported in Volume 2.	No text exists in the Volume 2, CA4, of the main ES for this correction.	New paragraph to be inserted following paragraph 7.4.21: Snape Hall Farm (WHM023), an asset of moderate value and a Grade II listed farmhouse, will be subject to a permanent change in its setting. The historical and functional relationship of the farmhouse with the hill-slopes above it are an important element of its significance, and will be altered by the construction of the Madeley tunnel and the Checkley South embankment less than 200m to the north. In addition, the historic setting of this building in relation to Snape Hall Lane would be affected due to the permanent closure of Snape Hall Road (see Photomontage LV.01.552 in Volume 5: Appendix LV-001-004). This will constitute a medium adverse impact and a moderate adverse significant effect.	No change. The permanent effect is correctly reported in Volume 5: Appendix CH-003-004.
Ecology and biodiversity Paragraphs 8.3.3, and 8.3.5, Volume 2, CA4 in the main ES	The distance between the original scheme and a designated site (and its associated Natural England Impact Risk Zone for the Site of Special Scientific Interest (SSSI)) was incorrectly reported in Volume 2 for CA4.	Paragraph 8.3.3: There are no statutory designated sites of international importance within 2km of the Proposed Scheme in the Whitmore Heath to Madeley area. Paragraph 8.3.5: The land required for the Proposed Scheme is not located within the Natural England Impact Risk Zone for any Site of Special Scientific Interest (SSSI).	Paragraph 8.3.3: There is one internationally important site of potential relevance to the assessment in the Whitmore Heath to Madeley area. The Midland Meres and Mosses Phase 1 Ramsar Site, covering an area of approximately 510.9ha, is designated for its nutrient-rich water bodies (meres), associated fringe habitats of reed swamp, fen carr and damp pasture, and quaking peat bog. The wide range of habitats support numerous associated rare species of plants and invertebrates. The closest component unit of the Ramsar Site to the Proposed Scheme is Betley Mere Site of Special Scientific Interest (SSSI), which is located 1.2km from the Proposed Scheme in this area. Paragraph 8.3.5: The land required for the Proposed Scheme is located within the Natural England Impact Risk Zone for Betley Mere SSSI. Betley Mere SSSI, covering an area of approximately 29.4ha, is part of the Midland Meres and Mosses Phase 1 Ramsar Site. This SSSI is designated as one of the few	No change. Potential impacts upon Midland Meres and Mosses Phase 1 Ramsar site and Betley Mere SSSI are reported in the main ES, South Cheshire area (Volume 2, CA5 of main ES), where the SSSI is located approximately 280m to the north-east of the land required for the original scheme. Volume 2, CA5 in the main ES concluded that the Midland Meres and Mosses Phase 1 Ramsar Site was sufficiently distant from the original scheme that there would be no significant effects, and no likely significant effects on Betley Mere SSSI on the basis of the avoidance and mitigation

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
			natural standing waters in Staffordshire and occupies a shallow valley in glacial deposits, bound on three sites by extensive peat deposits on which a wide range of vegetation types have developed. The zonation from open water with floating-leaved aquatic plants through emergent reed swamp, fen and carr to mature fen woodland, is considered to be as complete an example of a wetland hydrosere as occurs in the country. This SSSI is located 1.2km north from the land required for Proposed Scheme in this area.	measures set out in the main ES. The same conclusion can be reached for CA4. At 1.2km distance, the original scheme in CA4 is further from the designated site than in CA5, and is therefore sufficiently distant from the original scheme that there would be no significant effects.
Ecology and biodiversity Paragraph 8.3.9, and 8.4.10, Volume 2, CA4 of the main ES	Wrinehill Wood (east of) Biodiversity Alert Site (BAS) is reported in the ecology assessment as being impacted by the construction of Madeley tunnel and Checkley South embankment. However, the BAS itself is not impacted by the construction of the original scheme. Fragments of ancient woodland adjacent to, but not within, the BAS are impacted by construction of the original scheme.	Paragraph 8.3.9 - third bullet: • Wrinehill Wood (east of), covering an area of approximately 3.6ha, part of which is located within Wrinehill Wood (east of) BAS. This includes a small easterly extension of Wrinehill Wood, to the east of Wrinehill Wood and Checkley Brook, located partially within the land required for the Proposed Scheme. Paragraph 8.4.10: Construction of the Madeley tunnel and Checkley South embankment will result in the permanent loss of approximately 0.4ha (11%) of ancient woodland from Wrinehill Wood (east of) BAS….	Paragraph 8.3.9 - third bullet: • an extension to the margin of Wrinehill Wood and a number of small fragments in the same area, adjacent to Wrinehill Wood and including much of Wrinehill Wood (east of) BAS. Whereas the BAS covers an area of 1.3ha, the additional fragments combine to cover an area of approximately 3.6ha, the eastern most of which are partially within the land required for the Proposed Scheme. Paragraph 8.4.10: Construction of the Madeley tunnel and Checkley South embankment will result in the permanent loss of approximately *0.1ha (3%)* of ancient woodland from *fragments adjacent to* Wrinehill Wood (east of) BAS….	No change. Despite the reduced area affected by the construction of the original scheme, the loss of ancient woodland remains a significant adverse effect at the county level, as reported in the main ES.
Ecology and biodiversity Paragraph 8.4.37, 8.4.39, 8.4.45, 8.4.47 and 8.4.63, Volume 2, CA4 of the main ES	Areas of woodland, grassland and hedgerow habitat creation were incorrectly reported in the ecology assessment, but were shown correctly on the Volume 2: Maps	Paragraph 8.4.37 - first bullet: • approximately 35ha of woodland planting will be provided east of Whitmore South cutting and Whitmore North cutting…. In addition, the remaining area of approximately 11.9ha of Whitmore Wood will be incorporated within the land required for the Proposed Scheme for woodland enhancement…;	Paragraph 8.4.37 - first bullet: • approximately *36ha* of woodland planting will be provided east of Whitmore South cutting and Whitmore North cutting…. In addition, the remaining area of approximately *12.9ha* of Whitmore Wood will be incorporated within the land required for the Proposed Scheme for woodland enhancement….;	No change. The assessment was based on the correct areas and therefore this correction will not change the level of significance of the effect reported in the main ES.

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
	CT-06 of the main ES for CA4. There is no requirement for additional land as a result of this correction.	Paragraph 8.4.39: Within the Whitmore Heath to Madeley area, approximately 8.1ha of further woodland habitat creation will be undertaken to compensate primarily for adverse effects upon non-ancient woodland, at locations including the following: First bullet: • approximately 4.7ha to the east and west of Meece Brook; Paragraph 8.4.45, fourth bullet: • approximately 1.6ha of species-rich grassland will be created on land to the east of Baldwin's Gate and north of the WCML. Paragraph 8.4.47: …Approximately 19.9km of new hedgerows will be planted and the species composition will be characteristic of the surrounding area. This represents a net loss in hedgerow of approximately 2.8km after mitigation, which is a residual adverse effect that is significant at the district/borough level…. Paragraph 8.4.63: On a precautionary basis, it is assumed that there is a net loss in hedgerow of approximately 2.8km, which will result in a permanent adverse residual effect that is significant at the district/borough level. However, restoration of land required only for the construction of the Proposed Scheme to its current use, offers potential for reinstatement of a further 10.1km of existing hedgerow. The provision of the majority of this reinstated hedgerow would reduce the residual effect to a level that is not significant.	Paragraph 8.4.39: Within the Whitmore Heath to Madeley area, approximately *9ha* of further woodland habitat creation will be undertaken to compensate primarily for adverse effects upon non-ancient woodland, at locations including the following: First bullet: • approximately *4.8ha* to the east and west of Meece Brook; Paragraph 8.4.45, fourth bullet: • approximately *1.7ha* of species-rich grassland will be created on land to the east of Baldwin's Gate and north of the WCML. Paragraph 8.4.47: …Approximately *16km* of new hedgerows will be planted and the species composition will be characteristic of the surrounding area. This represents a net loss in hedgerow of approximately *6.7km* after mitigation, which is a residual adverse effect that is significant at the district/borough level…. Paragraph 8.4.63: On a precautionary basis, it is assumed that there is a net loss in hedgerow of approximately *6.7km*, which will result in a permanent adverse residual effect that is significant at the district/borough level. However, restoration of land required only for the construction of the Proposed Scheme to its current use, offers potential for reinstatement of a further 10.1km of existing hedgerow. The provision of the majority of this reinstated hedgerow would reduce the residual effect to a level that is not significant.	

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Traffic and transport Map CT-05-232, Volume 2 Map Book, CA4 of the main ES	The section of Manor Road between the junction with the A525 Bar Hill Road and the A53 Newcastle Road at Baldwin's Gate is shown on Volume 2: Map CT-05-232 of the main ES as an HGV construction traffic route. The HGV construction traffic route should have been shown as the section from the A525 Bar Hill Road to the access to the River Lea viaduct satellite compound. The remaining section, including the route past Madeley Park Wood, should not have been included, and will not be used as an HGV construction traffic route. In the main ES, the sound, noise and vibration assessment and community assessment consequently reported likely significant effects on properties along this section of Manor Road, which will no longer occur.	No text exists within the Volume 2, CA4, of the main ES for this correction.	No text would be added in the Volume 2, CA4, of the main ES for this correction.	No change. The traffic and transport assessment was based on the correct traffic route between the A525 Bar Hill Road and the River Lea viaduct satellite compound.
Sound, noise and vibration Paragraph 13.4.22 and 13.4.33, Volume 2 CA4 of the main ES		Paragraph 13.4.22 – third bullet: • Manor Road, Madeley between the junction with the A525 Bar Hill Road and the A53 Newcastle Road at Baldwin's Gate. Approximately 50 dwellings located immediately adjacent to the road are forecast to experience a change in road traffic noise levels of around 4dB LpAeq, 0700 – 2300 during the peak months. A likely significant effect, denoted as CSV04-C05 as presented in Volume 5: Appendix SV-002-004 has been identified at the residential dwellings on this route; … Paragraph 13.4.33 – third bullet: • Manor Road, Madeley between the junction with Bar Hill Road and A53 Baldwin's Gate; …	Paragraph 13.4.22: Bullet removed. No replacement text required. Paragraph 13.4.33: Bullet removed. No replacement text required.	Yes. This correction results in the removal of a significant construction noise effect. The number of properties located adjacent to Manor Road that would be subject to construction noise effects would be reduced from approximately 50 to approximately five properties. The classification of the change in sound levels at these properties would be low impact. A low impact on a low number of properties would not be significant, and the likely significant indirect construction traffic noise effect at Manor Road (ref: CSV04-C02) would be removed. Further information regarding the construction sound levels are provided in SES and AP ES Volume 5: Appendix SV-002-004.
Community Paragraph 6.4.8 and 6.4.26,		Paragraph 6.4.8: A group of residential properties on Manor Road in Madeley Park Wood and Madeley will be in proximity to the construction of the Proposed Scheme. The works will include the construction of	Paragraph 6.4.8: Paragraph removed. No replacement text required.	Yes. The removal of construction traffic from a section of Manor Road will remove the construction traffic noise effect

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Volume 2, CA4 of the main ES		the cutting through Whitmore Wood, the River Lea viaduct, Lea South embankment and the realignment of Manor Road. These works will result in significant noise effects during the daytime for 20 properties due to construction traffic noise. Residents of all 20 properties will experience significant adverse visual effects due to views of the construction works. The significant noise and visual effects will result in an in-combination effect on the amenity of residents at these properties for up to five months in total. This will result in a major adverse effect, which is significant. Paragraph 6.4.26 – second bullet: • twenty properties on Manor Road due to the combination of noise and visual effects;	 Paragraph 6.4.26 – second bullet: Bullet removed. No replacement text required.	on the group of properties, thereby removing the significant temporary in-combination effect (which was significant due to a combination of noise and visual effects). The visual effect will remain and is reported in the landscape and visual assessment in the main ES.

3 Assessment of changes in the Whitmore Heath to Madeley area

3.1 Introduction

3.1.1 Section 3 reports the assessment for ecology and biodiversity as a result of the SES changes.

3.2 Ecology and biodiversity

3.2.1 The environmental baseline relevant to the ecology and biodiversity assessment is described below. Any new or different likely significant environmental effects as a result of the changes introduced in Section 2 are then identified, compared to the original scheme. Consideration is given to the potential for impacts on habitats, species and sites designated on the basis of their importance for nature conservation.

Scope, assumptions and limitations

3.2.2 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the Scope and Methodology Report (SMR)[3] and the SMR Addendum[4] of the main ES.

3.2.3 To address any limitations in data, a precautionary baseline has been considered according to the guidance reported within the SMR and SMR Addendum. This constitutes a 'reasonable worst-case' basis for the subsequent assessment.

SES changes of relevance to this assessment

3.2.4 New baseline information on great crested newt and bats resulting from additional ecological surveys in the Whitmore Heath to Madeley area is relevant to the assessment.

Environmental baseline

Existing baseline

3.2.5 The baseline ecology and biodiversity information for the Whitmore Heath to Madeley area is as described in Volume 2, CA4, Section 8 of the main ES. A summary of the baseline information relevant to the assessment of the SES change is provided below.

3.2.6 Details of surveys completed since the production of the main ES are provided in the BID documents (BID-EC-004-000 and Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12), which accompany the SES and AP ES.

[3] HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a

[4] HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a

Species

3.2.7 The outcomes of additional ecological surveys undertaken for great crested newt have formed the basis of a review of the composition of metapopulations[5] across the Whitmore Heath to Madeley area. This review has included a consideration of the quality and connectivity of terrestrial habitat between ponds in order to determine the location of distinct clusters of ponds that are likely to support metapopulations of great crested newt. This review has resulted in changes to the composition of all metapopulations reported within the main ES, and in the addition of new metapopulations. Each metapopulation includes one or more ponds where the presence of great crested newt has been confirmed by survey, in addition to any ponds that are considered likely to support this species (on the basis of their habitat quality and quantity) and that are connected to the confirmed population (or populations) by suitable terrestrial habitat.

3.2.8 Many ponds described within the main ES as supporting assumed populations of great crested newt were not allocated to metapopulations due to their limited proximity to confirmed populations of great crested newt. For some of these ponds the additional surveys have confirmed the presence of great crested newt either within these ponds, or within nearby ponds connected by suitable terrestrial habitat, which has resulted in them being added to a new or revised metapopulation. Overall this means that the number of ponds associated with metapopulations, either new or revised, has increased and the number of individual assumed populations outside of metapopulations has decreased. The details of the revised composition of each metapopulation are provided within BID-EC-004-000, which accompanies the SES and AP ES. The changes to metapopulations from those described within the main ES are summarised below.

3.2.9 The main ES reported a great crested newt metapopulation in 28 ponds to the north-west of Whitmore Heath (assumed metapopulation (AMP) 4.2). Field surveys recorded great crested newt presence within one pond, comprising a population of small size class. On a precautionary basis, the presence of medium size populations of great crested newt was assumed in 27 further ponds.

3.2.10 This metapopulation is valued at up to county level in the main ES.

3.2.11 Additional surveys have confirmed:

- absence of great crested newt within 11 ponds where great crested newt populations were previously assumed to be present and form part of this metapopulation. These ponds no longer form part of the metapopulation;
- presence of great crested newt within seven ponds where great crested newt populations were previously assumed to be present and form part of this metapopulation. These ponds still form part of the metapopulation; and

[5] A metapopulation is a group of spatially separated populations that interact.

- presence of great crested newt within nine ponds that were not previously considered to form part of this metapopulation. These ponds are now included in this metapopulation.

3.2.12 In addition to the confirmed great crested newt population within this metapopulation reported in the main ES (one pond) and the confirmed populations within this metapopulation identified from additional surveys (16 ponds), there are 27 further ponds with assumed populations that are considered to form part of AMP 4.2. The revised metapopulation, therefore, includes 44 ponds with confirmed or assumed populations of great crested newt, with the largest population being of medium size class. This metapopulation occurs partially within the land required for the original scheme. The increase in the number of ponds with confirmed or assumed populations of great crested newt does not change the value of AMP 4.2, as reported in the main ES.

3.2.13 The main ES reported a great crested newt metapopulation in 11 ponds to the west of Onneley (AMP 4.3). Field surveys recorded great crested newt presence within five ponds, with the largest population being of medium size class. On a precautionary basis, the presence of medium size populations of great crested newt was assumed in six further ponds. This metapopulation is valued at county level in the main ES.

3.2.14 Additional surveys have not been undertaken on ponds within this metapopulation. However, the review of metapopulations across the Whitmore Heath to Madeley area has resulted in a change to the composition of this metapopulation. In addition to the confirmed great crested newt populations within this metapopulation reported in the main ES (five ponds), there are five further ponds with known or assumed populations that are considered to form part of AMP 4.3. The revised metapopulation, therefore, includes 10 ponds with confirmed or assumed populations of great crested newt, with the largest population being of medium size class. This metapopulation occurs partially within the land required for the original scheme. The reduction in the number of ponds with confirmed or assumed populations of great crested newt does not change the value of AMP 4.3, as reported in the main ES.

3.2.15 In addition to the known and assumed great crested newt populations that are considered to form metapopulations, there are two additional ponds that occur within the land required for the original scheme in this area where the presence or absence of great crested newt has not been confirmed. On a precautionary basis, each of these ponds is assumed to support a medium size breeding population of great crested newt of up to county value.

3.2.16 The main ES reported a bat assemblage associated with habitats in the Whitmore area. Field surveys recorded roosts of brown long-eared bat, a Myotis species bat and soprano pipistrelle, and foraging and commuting activity by common pipistrelle, a Myotis species bat, serotine and a Nyctalus species bat. The bat assemblage is valued at county level in the main ES. Additional surveys recorded two additional bat roosts associated with this bat assemblage, within and adjacent to the land required for the original scheme. These comprise an additional soprano pipistrelle tree roost to the north-west of Whitmore Wood, and an additional maternity roost for brown long-eared bat within a residential building at Limpits Farm, to the east of Whitmore Heath. The recording of these additional roosts does not change the value of the bat assemblage, as reported in the main ES.

3.2.17 The main ES reported a bat assemblage associated with habitats between Hey Sprink and Barhill Wood. Field surveys recorded roosts of common and soprano pipistrelle and Myotis species bat. The bat assemblage is valued at county level in the main ES. Additional surveys recorded an additional feeding roost of an unknown bat species in a garage building at Hey House Lodge, within the land required for the original scheme. The recording of this additional roost does not change the value of the bat assemblage, as reported in the main ES.

3.2.18 The main ES reported a bat assemblage associated with habitats north of the Barhill area. Field surveys recorded roosts of brown long-eared bat, pipistrelle species and unidentified bat species. The bat assemblage is valued at up to county value in the main ES. Additional surveys recorded an additional day/summer roost of pipistrelle species and brown long-eared bat within a residential building at Bower End Farm, west of Madeley, adjacent to the land required for the original scheme. The recording of this additional roost does not change the value of the bat assemblage, as reported in the main ES.

Future baseline

Construction (2020) and operation (2027)

3.2.19 SES and AP ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2020 and 2027 respectively, additional to those identified in the main ES (Volume 5: Appendix CT-004-000).

3.2.20 None of the identified developments affect the assessment of the SES scheme's likely construction and operational impacts on ecology and biodiversity.

Effects arising during construction

Avoidance and mitigation measures

3.2.21 No further measures are applicable to this assessment, above those stated in the draft Code of Construction Practice[6].

Assessment of impacts and effects

Species

3.2.22 The main ES reported the loss of nine ponds associated with the great crested newt metapopulation north-west of Whitmore Heath (AMP 4.2), all of which were assumed to support great crested newt. The main ES also reported the loss of great crested newt terrestrial habitat associated with construction. This would result in a permanent adverse effect on the great crested newt metapopulation that is significant at a county level. Following additional surveys being undertaken, the number of ponds associated with this metapopulation that will be lost as a result of the construction of the original scheme will reduce to two. The reduction in the number of great crested newt populations to be impacted by the original scheme will result in a different

[6] HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a

significant effect to that reported in the main ES, however, this will not change the level of significance of the effect reported in the main ES.

3.2.23 The main ES reported the loss of two ponds associated with the great crested newt metapopulation west of Onneley (AMP 4.3), comprising one pond with a confirmed great crested newt population and one pond assumed to support great crested newt. The main ES also reported the loss of great crested newt terrestrial habitat and fragmentation effects associated with construction. This would result in a permanent adverse effect on the great crested newt metapopulation that is significant at a county level. Following additional surveys being undertaken, no ponds associated with this metapopulation will be lost as a result of the construction of the original scheme, although loss and fragmentation of habitat will still occur. The reduction in the number of great crested newt populations to be impacted will result in a different significant effect to that reported in the main ES, however, this will not change the level of significance of the effect reported in the main ES.

3.2.24 In summary, taking account of the baseline information from additional surveys undertaken, there is a reduction in the number of known or assumed great crested newt ponds to be lost across the Whitmore Heath to Madeley area as result of construction of the original scheme. The number of great crested newt ponds that will be lost will reduce from up to 19, as reported in the main ES, to up to six.

3.2.25 The main ES reported a direct loss of bat roosts and the loss and fragmentation of foraging and commuting habitat used by the assemblage of bats in the Whitmore area, which would result in a permanent adverse effect that is significant at a county level. Following additional surveys being undertaken, there will be a direct loss of an additional soprano pipistrelle tree roost and loss of foraging habitat in proximity to an additional maternity roost for brown long-eared bats, approximately 60m from the land required for construction of the original scheme, which will result in additional impacts on the bat assemblage. This will result in a different significant effect to that reported in the main ES, however, this will not change the level of significance of the effect reported in the main ES.

3.2.26 The main ES reported a direct loss of bat roosts used by the assemblage of bats associated with habitats between Hey Sprink and Barhill Wood, which would result in a permanent adverse effect that is significant at a county level. Following additional surveys being undertaken, there will be a direct loss of an additional feeding roost of an unknown bat species within a building, which will result in an additional impact on the bat assemblage. This will result in a different significant effect to that reported in the main ES, however, this will not change the level of significance of the effect reported in the main ES.

3.2.27 The main ES reported a direct loss of a bat roost and the loss and fragmentation of foraging and commuting habitat used by the assemblage of bats associated with habitats north of the Barhill area, which would result in a permanent adverse effect that is significant at up to county level. Following additional surveys being undertaken, the loss of foraging and commuting habitat is likely to be used by bats from an additional building roost of a pipistrelle species and brown long-eared bat, which will result in an additional impact on the bat assemblage. This will result in a different significant effect to that reported in the main ES, however, this will not change the level of significance of the effect reported in the main ES.

Other mitigation measures

Species

3.2.28 The main ES reported that significant effects to the great crested newt metapopulations within the Whitmore Heath to Madeley area would be addressed by provision of measures within the ecological habitat creation areas near the Meece Brook viaduct, near Whitmore Wood, between Whitmore Wood and Hey Sprink, near Madeley Bridleway 1 accommodation overbridge, and north of Wrinehill Wood. These measures would comprise provision of ponds, species-rich neutral grassland and broadleaved woodland that would be designed to compensate for the loss of breeding sites, foraging habitat and places of shelter used by great crested newt and other amphibian species. Provision of these habitats will also contribute to compensation for route-wide losses of ponds, grassland and woodland. Following implementation, the adverse effects on the amphibian populations in the Whitmore Heath to Madeley area would be reduced to a level that is not significant.

3.2.29 The assessment undertaken, following the consideration of additional baseline information, has concluded that the impacts of the original scheme on great crested newt will be reduced from those reported in the main ES. The provision of compensatory habitats as reported in the main ES, once established, will reduce the adverse effects on amphibian populations to a level that is not significant.

3.2.30 The main ES reported that significant effects to the bat assemblages in the Whitmore area, between Hey Sprink and Barhill Wood, and to the north of the Barhill area, would be addressed by habitat creation and enhancement measures throughout the Whitmore Heath to Madeley area. Habitat creation includes the provision of species-rich grassland, ponds, hedgerows and semi-natural woodland. The retained area of Whitmore Wood would be incorporated into the land required for the original scheme for habitat enhancement purposes. The newly created and enhanced habitats would compensate for those bat roosting, foraging and commuting habitats lost to the original scheme.

3.2.31 The habitat creation and enhancement measures within the original scheme will also compensate for the losses of foraging and commuting habitat likely to be used by bats from those additional roosts identified through additional surveys. Additional replacement of bat roosting structures will be provided within habitat creation areas to compensate for those additional roosts that will be lost to the original scheme. Once established, the habitat creation areas and new roosting structures will reduce the adverse effects upon the conservation status of the bat assemblages in the Whitmore area, between Hey Sprink and Barhill Wood, and to the north of the Barhill area to a level that is not significant.

Summary of likely residual significant effects

3.2.32 There are no changes to the likely residual significant construction ecology and biodiversity effects identified in the main ES as a result of the new baseline information.

Cumulative effects

3.2.33 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the new baseline information acting in combination with any other SES changes.

Effects arising from operation

3.2.34 There are no new or different significant operational effects for ecology and biodiversity as a result of the new baseline information, in comparison with the main ES.

High Speed Two (HS2) Limited
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

08081 434 434
HS2Enquiries@hs2.org.uk