

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 3 and
Additional Provision 4 Environmental Statement

Volume 2 | Community forum area reports

CFA12 Waddesdon and Quainton

October 2015

SES3 and AP4 ES 3.2.1.12



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Department for Transport

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Structure of the HS₂ Supplementary Environmental Statement 3 and Additional Provision 4 Environmental Statement

The Supplementary Environmental Statement 3 (SES₃) and Additional Provision 4 Environmental Statement (AP₄ ES) comprises:

- non-technical summary (NTS). This provides a summary in non-technical language of the SES₃ (Part 1) and AP₄ 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') as updated by subsequent SES and AP ES documents;
- Volume 1: introduction to the SES₃ and AP₄ ES. This introduces the supplementary environmental information and design changes included within the SES₃ and amendments, which have resulted in the need to amend the Bill, within the AP₄ ES. It also explains any changes to the scope, methodology, assumptions and limitations required for the environmental assessment;
- Volume 2: community forum area (CFA) reports and map books. These describe the supplementary environmental information and design changes included within the SES₃ (Part 1) and amendments within the AP₄ ES (Part 2). Any new or different likely significant environmental effects arising from these changes and amendments in each CFA, compared to those reported in the main ES, as updated by SES and SES₂ documents (and SES₃ for the AP₄ amendments) are reported. The AP₁, AP₂ and AP₃ amendments are also taken into account where relevant. In addition, the main local alternatives that have been considered are described, where relevant;
- Volume 3: route-wide effects. This reports new or different likely significant route-wide effects arising from the supplementary environmental information and design changes included within the SES₃ (Part 1) and amendments within the AP₄ ES (Part 2) compared to those reported in the main ES as updated by SES and SES₂ (and SES₃ for the AP₄ amendments). The AP₁, AP₂ and AP₃ amendments are also taken into account where relevant;
- Volume 4: off-route effects. This reports new or different likely significant off-route effects arising from the supplementary environmental information and design changes included within the SES₃ and amendments within the AP₄ ES compared to those reported in the main ES as updated by SES and SES₂ (and SES₃ for the AP₄ amendments). The AP₁, AP₂ and AP₃ amendments are also taken into account where relevant;

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- Volume 5: appendices and map books. This contains environmental information and associated maps in support of the other volumes of the SES₃ and AP₄ ES; and
- glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the SES and AP ES reports, additional to those included in the main ES.

Structure of this report

This volume of the SES₃ and AP₄ ES is divided into CFA reports, which are in turn divided into two parts.

Part 1 of this CFA report provides supplementary environmental information relating to new baseline information with respect to ecological and traffic and transport surveys.

Part 1 of each CFA report includes, where relevant:

- a description of the changes or updates within the CFA that have triggered the need for reassessment;
- an assessment of the environmental effects of the changes for relevant environmental topics considering the:
 - scope, assumptions and limitations of the SES₃ assessment;
 - changes of relevance to the assessment;
 - environmental baseline;
 - effects arising during construction;
 - effects arising from operation; and
 - mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of the changes.

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

- a summary of the proposed amendments within each CFA that have triggered the need for reassessment;
- a description of each amendment;
- an assessment of the environmental effects of each amendment for relevant environmental topics considering the:
 - scope, assumptions and limitations of the AP₄ 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) in CFAs 7 – 26. The SES and AP2 ES which was submitted in July 2015, updated the main ES and contained a number of further amendments to the design of the original scheme in CFAs 4 – 26. The SES2 and AP3 ES which was submitted in September 2015, contained further updates to the main ES and reported the assessment of a number of amendments to the design of the original scheme in CFAs 1 – 5.
- 1.1.2 Since the submission of the main ES and subsequent SES and AP documents, updates to environmental baseline information and changes to scheme design or assumptions have occurred, which may lead to new or different significant effects. These effects, depending on the type of change, are reported in the SES3 (Part 1) or AP4 ES (Part 2) of this document, where they occur.
- 1.1.3 The Bill and associated Additional Provisions (APs) to the Bill described above, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS2.
- 1.1.4 In order to differentiate between the original scheme and the subsequent changes, the terms set out in Table 1 are used.

Table 1: Scheme definitions

Scheme name	Definition	Relevant CFAs
the original scheme	the Bill scheme submitted to Parliament in November 2013, which was assessed in the main ES	1 – 26
the AP1 revised scheme	the original scheme as amended by the AP submitted in September 2014	7 – 26
the SES scheme	the original scheme with the design changes described in the SES submitted in July 2015	4 – 26
the AP2 revised scheme	the SES scheme as amended by the AP2 submitted in July 2015	4 – 26
the SES2 scheme	the original scheme as updated by the SES scheme, with the design changes described in the SES2 submitted in September 2015	1 – 5 (i.e. this applies in the London area only)
the AP3 revised scheme	the SES2 scheme as amended by the AP3 submitted in September 2015	1 – 5 (i.e. this applies in the London area only)
the SES3 scheme	the SES2 scheme with the design changes described in the SES3 submitted in October 2015	4 – 26

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Scheme name	Definition	Relevant CFAs
the AP ₄ revised scheme	the SES ₃ scheme as amended by the AP ₄ submitted in October 2015	4 – 26

- 1.1.5 SES₃ (Part 1 of this report) contains updated environmental baseline information. This includes new baseline information with respect to ecological and traffic and transport surveys.
- 1.1.6 The updated baseline information is 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.
- 1.1.7 The purpose of SES₃ is to provide an assessment of any new or different likely significant environmental effects arising from the updated baseline information described.
- 1.1.8 There were no SES₂ changes in this CFA, so the SES₃ scheme has been compared to the SES scheme. There were AP₁ and AP₂ amendments, so these are taken into account as appropriate.
- 1.1.9 The AP₄ ES (Part 2 of this report) describes the likely significant effects of amendments to the design of the scheme, which require the use of land outside the original limits of the Bill, additional access rights, or other extensions to the powers conferred by the Bill, making it necessary to submit an AP to the Bill. The amendments assessed within the AP₄ ES for this CFA include changes to railway drainage that require new or repositioned balancing ponds.
- 1.1.10 The AP₄ ES assesses each amendment separately for all relevant topics. The purpose of the AP₄ ES is to provide an assessment of any new or different likely significant environmental effects arising from the amendments compared to the SES₃ scheme, taking into account AP₁ and AP₂ where relevant.
- 1.1.11 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 SES₃ and AP₄ ES.

Part 1: Supplementary Environmental Statement 3

2 Summary of changes

2.1 New environmental baseline information

Ecology

2.1.1 Details of all amphibian surveys undertaken in this area during 2015 are provided in SES3 and AP4 ES, Volume 5, Appendix EC-001-002 and Volume 5 map series EC-04.

2.1.2 The additional baseline data does not generate any new or different significant effects and therefore is not reported in Section 3.

Traffic and transport

2.1.3 Additional traffic surveys have been undertaken at junctions in the Waddesdon and Quainton area to update and supplement the information reported in the main ES. The impacts of traffic associated with HS2 construction has been reassessed in the context of this supplementary data.

2.1.4 Details of the survey data are included in SES3 and AP4 ES, Volume 5: Appendix TR-001-000. The assessment of the additional baseline data is reported in Section 3.

2.2 Topics included in the SES3 assessment

2.2.1 The changes described above in Section 2.1 result in new or different significant effects in respect of traffic and transport.

3 Assessment of changes

3.1 Traffic and transport

Introduction

- 3.1.1 This section of the report provides a description of the environmental baseline in relation to traffic and transport that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the SES scheme and any relevant AP2 amendments.

Scope, assumptions and limitations

- 3.1.2 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the Scope and Methodology Report (SMR) (Volume 5: Appendix CT-010 -000/1) and the SMR Addendum (Volume 5: Appendix CT-010-000/2) of the main ES.

SES3 changes of relevance to this assessment

- 3.1.3 Supplementary traffic data has been collected at the following highway junctions and section of highway that are the subject of a revised assessment:
- A41/Blackgrove Road (Waddesdon crossroads);
 - A41/Station Road;
 - Edgcott Road/Main Street/The Broadway;
 - Grendon Road/Edgcott Road/Marsh Gibbon Road;
 - A41 Aylesbury Road/The Broadway; and
 - A41 Aylesbury Rd, between Broadway and Bicester (in the Calvert, Steeple Claydon, Twyford and Cetwode area (CFA13), but used for the revised junction assessment in this area).

Environmental baseline

Existing baseline

- 3.1.4 The existing baseline for traffic and transport is as set out in Volume 2, CFA12, Section 12 of the main ES, updated by the additional traffic surveys presented in the SES3 and AP4 ES, Volume 5: Appendix TR-001-000.

Future baseline

Construction

- 3.1.5 The future baseline for construction is as set out in Volume 2, CFA12, Section 12 of the main ES, updated by the additional traffic surveys.

Operation (2026 and 2041)

- 3.1.6 The future baselines for operation are as set out in Volume 2, CFA₁₂, Section 12 of the main ES, updated by the additional traffic surveys.

Effects arising during construction

Avoidance and mitigation measures

- 3.1.7 No avoidance or mitigation measures, additional to those reported in Volume 2 CFA₁₂, Section 12 of the main ES, are proposed.

Assessment of impacts and effects

Temporary effects

- 3.1.8 The supplementary traffic data has the potential to change the impacts of HS₂ construction traffic on the local network in relation to congestion and delays at junctions, and to traffic related severance for non-motorised users.
- 3.1.9 The revised assessment has identified one different likely significant effect and the removal of two significant effects in relation to congestion and delays to vehicle users at the following junctions:
- A₄₁/Blackgrove Road (Waddesdon crossroads) – a major adverse significant effect (previously a minor adverse significant effect reported in Part 1 of the SES and AP₂ ES);
 - A₄₁/Station Road: the removal of the minor adverse significant effect reported in Part 1 of the SES and AP₂ ES; and
 - A₄₁ Aylesbury Road/The Broadway – the removal of the minor adverse significant effect reported in Part 1 of the SES and AP₂ ES.
- 3.1.10 The revised assessment of the Edgcott Road/Main Street/The Broadway and Grendon Road/Edgcott Road/Marsh Gibbon Road junctions has not resulted in any new or different likely residual significant effects compared to those reported in the main ES or Part 1 of the SES and AP₂ ES.
- 3.1.11 The revised assessment has identified one different likely residual significant effect in relation to traffic related severance for non-motorised users at the A₄₁, between The Broadway (Grendon Underwood) in CFA₁₂ and A₄₄₂₁ (Bicester) in CFA₁₃. Although the change in overall traffic levels remains small, the revised baseline heavy goods vehicle (HGV) flows are lower than considered in the SES assessment and this changes the assessment to a major adverse significant effect in relation to the percentage increase in HGV traffic (previously a moderate adverse significant effect reported in Part 1 of the SES and AP₂ ES). This change in significant effect is also reported in CFA₁₃ of the SES₃ and AP₄ ES.

Permanent effects

- 3.1.12 The permanent effects of construction on traffic and transport are reported under 'Effects arising from operation'.

Other mitigation measures

- 3.1.13 No changes to mitigation measures reported in Volume 2, CFA₁₂, Section 12 of the main ES are proposed.

Cumulative effects

- 3.1.14 The above assessment has taken into account cumulative effects, including planned developments by taking account of background traffic growth, as well as traffic and transport impacts of HS₂ construction being undertaken in neighbouring areas.
- 3.1.15 The assessment has also taken into account the cumulative impact of the SES₃ scheme and AP₂ amendments.

Summary of likely residual effects

- 3.1.16 The revised assessment identifies a major adverse significant residual effect in relation to junction congestion and delay at the junction of A₄₁ with Blackgrove Road (Waddesdon crossroads) (a minor adverse significant effect was reported in Part 1 of the SES and AP₂ ES). The revised assessment also results in the removal of the minor adverse significant residual effects on congestion and delays at the junctions of A₄₁ with Station Road and of the A₄₁ Aylesbury Road with the Broadway reported in Part 1 of the SES and AP₂ ES).
- 3.1.17 In addition, the revised assessment identifies a major adverse significant residual effect at the A₄₁, between The Broadway (Grendon Underwood) in CFA₁₂ and A₄₄₂₁ (Bicester) in CFA₁₃, in relation to traffic related severance for non-motorised users (a moderate adverse effect was reported in Part 1 of the SES and AP₂ ES).
- 3.1.18 The significant effects that result from construction of the SES₃ scheme are shown on map series TR-03 in the SES₃ and AP₄ ES, Volume 5, Traffic and transport Map Book.

Effects arising from operation

- 3.1.19 There are no new or different significant operation effects for traffic and transport as a result of the SES₃ scheme, in comparison with those described in the main ES and AP₂ ES.

Part 2: Additional Provision 4 Environmental Statement

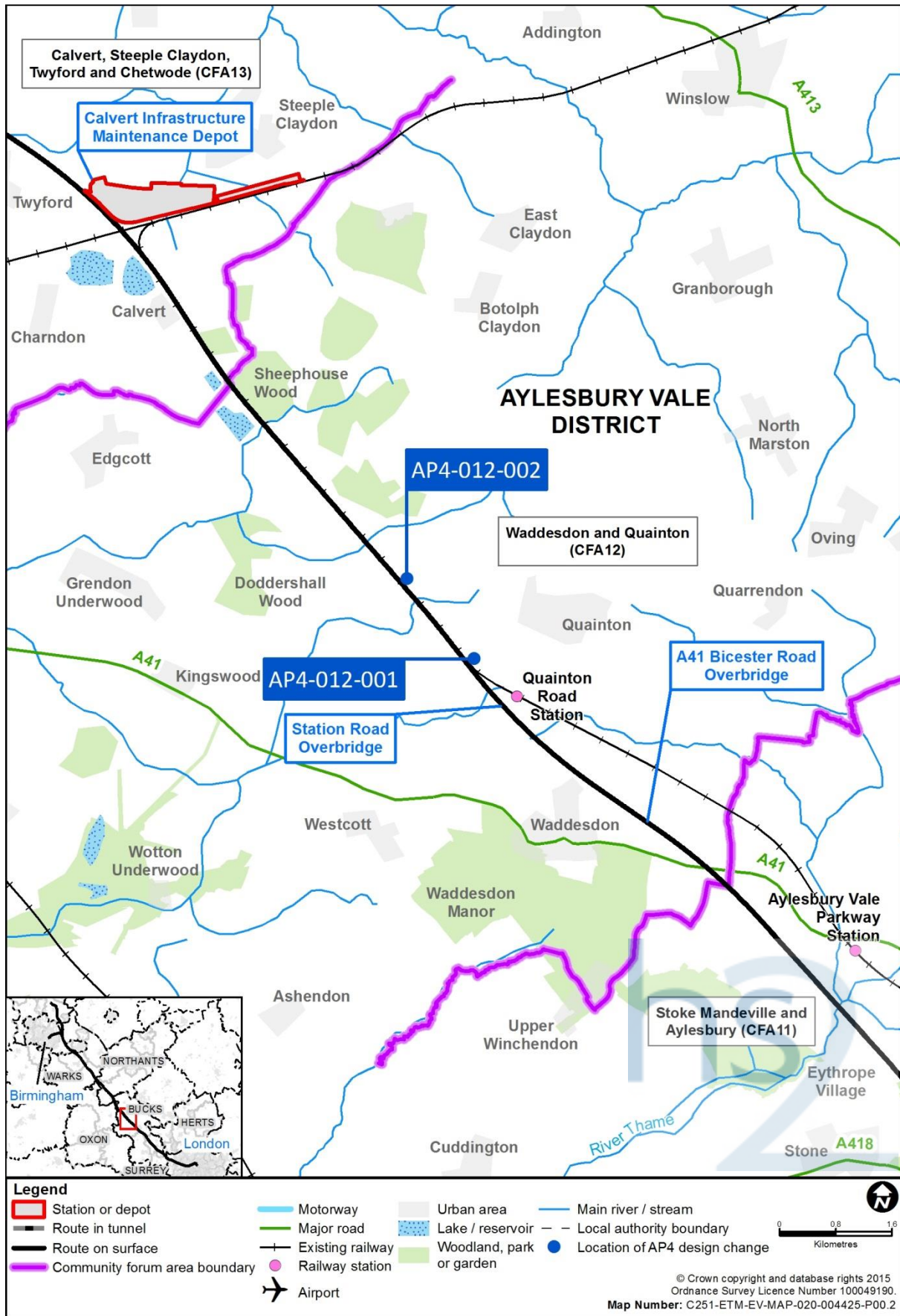
4 Summary of amendments

- 4.1.1 Table 2 provides a summary of the amendments in the Waddesdon and Quainton CFA (CFA12). Figure 1 shows the locations.

Table 2: Summary of amendments in CFA12

Name of amendment	Description of the SES3 scheme and AP2 revised scheme	Description of the AP4 revised scheme
<p>Additional land required for balancing ponds near Footpath QUA/31</p> <p>AP4-012-001</p>	<p>Railway drainage north of Station Road, Quainton, discharges to two balancing ponds, one west of the route near Crossroads Farm and the other further north and east of the route.</p>	<p>The balancing pond west of the route near Crossroads Farm has been reduced in size and moved further south and closer to the route to prevent a drainage clash. An additional, smaller pond will be placed in the location of the original pond. The drainage pond further north and to the east of the route will be moved further south, to a location outside the surface water flood zone. The access track for this pond will be amended, resulting in additional land being permanently required outside of Bill limits.</p>
<p>Additional land required for reconfiguration of balancing ponds near Footpath QUA/26 and Bridleway QUA/28A</p> <p>AP4-012-002</p>	<p>Railway drainage north of Footpath QUA/26 accommodation underbridge discharges into a balancing pond south-east of Footpath QUA/26 accommodation underbridge.</p> <p>In the AP2 revised scheme (AP2-012-002), the balancing pond proposed in the original scheme will be reduced in size. Part of the railway drainage will be redirected to a new balancing pond at Footpath QUA/26 accommodation underbridge. The amendment will permanently require land outside the limits of the Bill.</p>	<p>The balancing pond south-east of Footpath QUA/26 accommodation underbridge, which was reduced in size as part of the AP2 revised scheme, will not be constructed in the AP4 revised scheme. Instead, two additional balancing ponds will be constructed, one close to Footpath QUA/26 accommodation underbridge and the other at Bridleway QUA/28A overbridge.</p> <p>The amendment will permanently require land outside the limits of the Bill.</p> <p>The AP4 amendment modifies the AP2 amendment (AP2-012-002: 'balancing pond at Footpath QUA/26 accommodation underbridge') and is dependent on the AP2 amendment being approved.</p>

Figure 1: Locations of amendments in CFA12



5 Assessment of amendments

5.1 Additional land required for balancing ponds near Footpath QUA/31 (AP4-012-001)

- 5.1.1 The Bill provides for two balancing ponds for railway drainage north of Station Road at Quainton. The balancing ponds would both have associated maintenance access tracks. One balancing pond would be located to the west of the route and north of Crossroads Farm (see grid reference G7 on map CT-06-050 in the main ES, Volume 2, CFA12 Map Book). The second balancing pond would be located further north and on the east of the route (see grid reference B6 on map CT-06-050 in the main ES, Volume 2, CFA12 Map Book).
- 5.1.2 Since the submission of the Bill, it has been identified that there would be a conflict between the railway drainage and a culvert conveying a watercourse under the route. The railway drainage outfall will therefore be moved south of the culvert to avoid the conflict. The balancing pond proposed in the original scheme adjacent to Crossroads Farm, west of the route, will be reduced in size and moved further south and closer to the route to discharge into the amended drainage and culvert. An additional, smaller balancing pond, also to the west of the route, will be located adjacent to Crossroads Farm, to the south-east of the original balancing pond (see grid reference G7 on map CT-06-050 in the SES3 and AP4 ES, Volume 2, CFA12 Map Book). A new track, off the realigned Quainton Road, will provide maintenance access for both balancing ponds to the west of the HS2 route (refer to maps CT-05-050 and CT-06-050 in the SES3 and AP4 ES, Volume 2, CFA12 Map Book).
- 5.1.3 The balancing pond east of the route will be constructed in a revised location approximately 200m further south than the location proposed in the main ES (see grid reference C6 on map CT-06-050 in the SES3 and AP4 ES, Volume 2, CFA12 Map Book). The new location will allow the balancing pond to be placed outside the surface water flood zone. Land proposed for the site of this balancing pond in the original scheme will be part of a grassland mitigation area in the AP4 revised scheme. The maintenance access track proposed in the original scheme will be realigned to accommodate the revised location of the balancing pond. Hedgerow planting at this location will also be amended to maintain visual screening (refer to maps CT-05-050 and CT-06-050 in the SES3 and AP4 ES, Volume 2, CFA12 Map Book).
- 5.1.4 The estimated duration of construction for the three balancing ponds is six months and does not extend the two year construction duration for Quainton cutting, reported in the main ES.
- 5.1.5 Approximately 0.6ha of additional land outside of the limits of the Bill is required permanently for the access track for the pond to the east of the route. Approximately 0.4ha of land that was temporarily required for construction in the original scheme is now permanently required for the balancing pond west and adjacent to the route.
- 5.1.6 The alterations to the drainage and balancing ponds 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: air quality, community, land quality, landscape and visual assessment, socio-economics, sound, noise and

vibration, traffic and transport, and water resources and flood risk assessment. However, reassessment was considered to be required in respect of agriculture, forestry and soils, cultural heritage, and ecology.

Agriculture, forestry and soils

Introduction

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

Scope, assumptions and limitations

- 5.1.8 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.1.9 The area of agricultural land affected by the SES₃ changes is small and will not alter the significance of effect, or result in a different significant effect, on best and most versatile (BMV) agricultural land or forestry land within the Waddesdon and Quainton area. The route-wide effects on BMV land and forestry land are reported in Volume 3.

Existing baseline

- 5.1.10 Two holdings will be affected: Upper South Farm (CFA_{12/9})¹ which is a 142ha beef cattle and arable holding, and Crossroads Farm (CFA_{12/7}) which is a 10ha grassland holding used for grazing as described in the main ES (Volume 2, CFA₁₂, Section 3.3).

Future baseline

Construction (2017)

- 5.1.11 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA₁₂, Section 3.3).
- 5.1.12 Most existing environmental stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (countryside stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings. These are not expected to change fundamentally the baseline circumstances described.

Operation (2026)

- 5.1.13 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA₁₂, Section 3.3).

Effects arising during construction

- 5.1.14 A further 0.6ha of land will be required permanently from Upper South Farm. This increases the total area removed to 28.8ha which represents 20% of the holding.

¹ Holding reference number assigned in the main ES.

However, the requirement for 28.2ha for the construction of the original scheme already represented 20% of the holding and was assessed as a major/moderate adverse effect due to the proportion of the holding required. The requirement for this additional area of land does not give rise to a new or different significant effect or change the level of significance of the effects reported in the main ES.

- 5.1.15 A further 0.4ha of land will also be required from Crossroads Farm. This increases the total area permanently removed to 3.6ha which represents 37% of the holding. However, the permanent requirement for 3.2ha for the construction of the original scheme already represented 33% of the holding and was assessed as a moderate adverse effect due to the proportion of the holding required. The requirement for this additional area of land does not give rise to a new or different significant effect or change the level of significance of the effects reported in the main ES.

Effects arising from operation

- 5.1.16 The change to balancing ponds at Quainton 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

- 5.1.17 No additional mitigation measures (i.e. in addition to those identified in the main ES) are required. No new or different significant residual effects on agriculture, forestry and soils have been identified during construction or operation as a result of this amendment.

Cumulative effects

- 5.1.18 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the AP₄ amendments interacting with one another, the AP₁ amendments, AP₂ amendments, or any relevant committed development.

Cultural heritage

Introduction

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

Scope, assumptions and limitations

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

Existing baseline

- 5.1.21 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walk-over survey, geophysical survey, remote-sensing data, and data from national and local registers. A full list is

provided in Volume 2, Section 6.3 and Volume 5, Gazetteer of heritage assets (CH-002-012) of the main ES.

- 5.1.22 The two balancing ponds to the west of the route near Crossroads Farm will be in Quainton medieval landscape (asset reference WAD135²). The pond to the east of the route will be partially in an area of ridge and furrow earthworks (asset reference WADo44) and 190m to the south of the Doddershall medieval landscape (asset reference WAD136). Quainton medieval landscape (asset reference WAD135), Doddershall medieval land (asset reference WAD136) and the area of ridge and furrow (asset reference WADo44) are all assets of moderate heritage value.
- 5.1.23 There is a moated site (asset reference WADo48) of low heritage value approximately 15m to the east of the pond to the east of the route. A civil war earthwork (asset reference WADo50), an asset of moderate heritage value, is also located approximately 185m to the west of the pond located to the east of the route.

Future baseline

Construction (2017)

- 5.1.24 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA12, Section 6.3).

Operation (2026)

- 5.1.25 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA12, Section 6.3).

Effects arising during construction

- 5.1.26 A significant major adverse effect was reported in the main ES on the area of ridge and furrow earthworks (asset reference WADo44) as nearly the full extent of the earthworks was required to be removed. The new balancing pond to the east of the route and the creation of the grassland habitat adjacent to it will still require most of these earthworks to be removed, consequently the significant effect remains.
- 5.1.27 The two balancing ponds near to Crossroads Farm are in the land required for the original scheme, and therefore there will be no change to the effect reported in the main ES. No other significant construction effects were reported as a result of the balancing ponds and associated drainage in this location in the main ES.
- 5.1.28 The additional land required for balancing ponds near Footpath QUA/31 will not give rise to a new or different significant effect on cultural heritage during construction and will not change the level of significance of the effects reported in the main ES.

Effects arising from operation

- 5.1.29 No significant operational effects were reported in the main ES as a result of the balancing ponds and associated drainage in this location.

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

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

Mitigation and residual effects

- 5.1.31 There will be no change to the mitigation and residual effects reported in the main ES.

Cumulative effects

- 5.1.32 There are no new or different likely significant cumulative effects for cultural heritage as a result of the AP₄ amendments interacting with one another, the AP₁ amendments, AP₂ amendments or any relevant committed development.

Ecology

Introduction

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

Scope, assumptions and limitations

- 5.1.34 Updates to the scope of the assessment for ecology are set out in Volume 1 of the SES₃ and AP₄ ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR and the SMR Addendum (Volume 5: Appendix CT-001-000/01 and CT-001-000/02 of the main ES) and in Addendum 4 to the SMR (SES₃ and AP₄ ES, Volume 5: CT-001-000/5).
- 5.1.35 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 AP₄ revised scheme.

Existing baseline

- 5.1.36 The ecological baseline for the amendment has been based on field data collated for the main ES, additional survey work for bats and great crested newt undertaken from September 2013 to March 2015, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: Buckinghamshire and Milton Keynes Environmental Records Centre; the Amphibian and Reptile Group for Buckinghamshire; and North Bucks Bat Group.
- 5.1.37 A summary of the baseline information relevant to the assessment of the amendment is provided below. This takes account of any relevant new or updated baseline information provided in Volume 5: Appendix EC-001-002 of the SES and AP₂ ES and Volume 5: Appendix EC-001-002 of the SES₃ and AP₄ ES. For those receptors described in the main ES refer to Volume 2, CFA12, Section 7.3 and Volume 5, including maps EC-01 to EC-12.

Designated sites

- 5.1.38 One non-statutory site is relevant to the amendment. Grendon and Doddershall Meadows Local Wildlife Site (LWS) (24.5ha) is designated for diverse grassland, scrub and pond habitats. The main ES reports that this designated site is of county/metropolitan value. Land required for the balancing pond to the east of the route is 510m south-east of this LWS.

Habitats

- 5.1.39 The additional land required for the balancing pond east of the route comprises approximately 0.45ha of improved grassland and bare ground, as well as approximately 0.15ha of scrub and scattered trees. These habitats are assessed as part of the wider resource of improved grassland, scrub and scattered trees that the main ES reports are of local/parish value. Also present is an approximately 65m long section of an unnamed ditch. This habitat was not described in the main ES and is unlikely to exceed local/parish value.
- 5.1.40 It is unlikely that the amendment will result in any other new or different effects on habitat receptors of relevance at more than the local/parish level. Local/parish level effects, which are in addition to those identified in the main ES and the SES and AP₂ ES are listed in Volume 5: Appendix EC-003-002 of the SES₃ and AP₄ ES.

Protected and/or notable species

- 5.1.41 The main ES reports that land from Station Road north to Edgcott Road provides habitat for an assemblage of bats of up to county/metropolitan value. Shrubs and scattered trees within the land required to the east of the route are adjacent to the Aylesbury Link railway line and provide suitable foraging and commuting habitat for this assemblage of bats.
- 5.1.42 The main ES and Part 1 of the SES and AP₂ ES reports that land to the south of Edgcott Road overbridge, is used by a population of Bechstein's bat that is of national value. There are no known roosts present in the vicinity of the amendment, but the Aylesbury Link railway line to the west of the land required for the balancing ponds and access road is used for foraging and commuting.
- 5.1.43 The main ES reports the presence of an assumed metapopulation of great crested newt associated with ponds on land in and adjacent to Grendon and Doddershall Meadows LWS. It includes ponds within 50m of the revised location for the balancing pond east of the route. This metapopulation is of up to county/metropolitan value as reported in the main ES.
- 5.1.44 The main ES reports that the population of grass snake potentially present at Grendon and Doddershall Meadows LWS is up to county/metropolitan value. The area of scattered scrub in land required for the balancing pond east of the route is likely to provide suitable habitat for this population.

Future baseline

Construction (2017)

- 5.1.45 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA12, Section 7.3).

Operation (2026)

- 5.1.46 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA12, Section 7.3).

Effects arising during construction

Avoidance and mitigation measures

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

Designated sites

- 5.1.48 The land required for the additional balancing ponds is more than 500m from the Grendon and Doddershall Meadows LWS. Therefore, the amendment will not give rise to new or different significant effects on designated sites and will not change the level of significance of the effects reported in the main ES.

Habitats

- 5.1.49 The amendment will result in the loss of 0.6ha of improved grassland, scrub and scattered trees of local/parish value. 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.

Protected and/or notable species

- 5.1.50 The main ES reports the removal of vegetation along the Aylesbury Link railway line north of Station Road to Edgcott Road, as well as fragmentation of adjoining hedgerows. Both could affect the conservation status of populations of bats in this area. The extent of habitat loss would result in a permanent adverse effect on bat conservation status that is significant at up to county/metropolitan level. The amendment will result in an additional loss of approximately 0.15ha of scrub and scattered trees adjacent to the Aylesbury Link railway line that may be used by foraging and commuting bats. However, due to the small scale of this change, this will not give rise to a new or different significant effect on the conservation status of the bat assemblage present between Station Road and Edgcott Road and will not change the level of significance of the effects reported in the main ES.
- 5.1.51 As reported in the main ES, the original scheme will remove approximately 11.6ha of breeding and terrestrial habitat for a potential metapopulation of great crested newt in and adjacent to Grendon and Doddershall Meadows LWS. In the absence of mitigation, this will result in an adverse effect on the conservation status of this metapopulation that is significant at up to county/metropolitan level. The construction of the balancing pond east of the route will not remove breeding habitat but an additional 0.15ha of terrestrial habitat within 20m of a potential breeding pond will be lost. The balancing pond to the east of the route near Footpath QUA/31 will result in a different significant effect on the conservation status of the metapopulation at Grendon and Doddershall Meadows LWS. However, this will not change the level of significance of the effects reported in the main ES.

- 5.1.52 The loss of approximately 11.6ha of grassland and wetland habitat at Grendon and Doddershall Meadows LWS, reported in the main ES, will give rise to a permanent adverse effect on the conservation status of a population of grass snake potentially present in this area. This is significant at up to the county/metropolitan level. The balancing pond to the east of the route will result in the loss approximately 0.15ha of scattered trees and shrubs adjacent to the Aylesbury Link railway line that is potentially suitable for reptiles. However, the small scale of habitat loss will not generate any new or different significant effects on the conservation status of this population, or change the level of significance of the effects reported in the main ES.
- 5.1.53 It is unlikely that the amendment will result in any other effects on species 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) arising from the AP4 revised scheme are listed in SES3 and AP4 ES, Volume 5: Appendix EC-003-002.

Cumulative effects

- 5.1.54 Amendment AP4-012-002 ('Additional land required for reconfiguration of balancing ponds near Footpath QUA/26' and Bridleway QUA/28A) has the potential to cause new or different significant cumulative effects with this amendment.
- 5.1.55 Following assessment, there are no new or different likely cumulative effects for ecology as a result of the amendment acting in combination with another amendment in AP4, or in AP1 or AP2, or as a result of any relevant committed development interacting with the AP4 revised scheme.

Mitigation and residual effects

Other mitigation measures

- 5.1.56 The mitigation measures reported in the main ES include the creation of approximately 30ha of grassland habitat creation on fields adjacent to the Grendon and Doddershall Meadows LWS and 3.3ha of grassland habitat creation near Crossroads Farm. The former area will be available prior to construction and will be used as a receptor site for reptiles and amphibians in advance of construction. The reduction in size of the original balancing pond west of the HS2 route will increase the area of grassland habitat creation proposed in the main ES by approximately 0.2ha. The revised mitigation will address the different effect on the potential metapopulation of great crested newt in and adjacent to Grendon and Doddershall Meadows LWS arising from the amendment.
- 5.1.57 No additional mitigation measures (i.e. in addition to those identified in the main ES) are required.

Summary of likely residual effects

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

Effects arising from operation

- 5.1.59 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.

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

- 5.1.60 The alterations to the drainage and balancing pond near Footpath QUA/31 do not give rise to any new or different significant effects or change the significance of the environmental effects or proposed mitigation as set out in the main ES.

5.2 Additional land required for reconfiguration of balancing ponds near Footpath QUA/26 and Bridleway QUA/28A (AP₄-012-002)

- 5.2.1 The Bill provides for a section of railway drainage at Doddershall embankment, north of Footpath QUA/26 accommodation underbridge. This drainage will discharge into a balancing pond at the accommodation underbridge (refer to maps CT-05-051 and CT-06-051 in main ES, Volume 2, CFA₁₂ Map Book). The AP₂ revised scheme proposed a reduction in the size of the balancing pond by approximately half and introduced a second balancing pond west of Footpath QUA/26 accommodation underbridge. The AP₂ revision was reported as amendment AP₂-012-002 and shown on maps CT-05-051 and CT-06-051 in the SES and AP₂ ES, Volume 2, CFA₁₂ Map Book.
- 5.2.2 Since submission of the SES and AP₂ ES, new surface water flooding maps received from the Environment Agency have identified that the original balancing pond would lie in an area at risk of flooding and should be relocated. In the AP₄ revised scheme, the original balancing pond will be constructed elsewhere as two separate balancing ponds. Both new balancing ponds will be located east of the route, one at Footpath QUA/26 accommodation underbridge and the other at Bridleway QUA/28A accommodation overbridge. The proposed access track in the original scheme will be extended southwards to allow maintenance access to the balancing pond at Bridleway QUA/28A overbridge. A turning head³ will be provided (refer to maps CT-05-051 and CT-06-051 in the SES₃ and AP₄ ES, Volume 2, CFA₁₂ Map Book).
- 5.2.3 The AP₄ amendment modifies the AP₂ amendment (AP₂-012-002: 'balancing pond at Footpath QUA/26 accommodation underbridge') and is dependent on the AP₂ amendment being approved.
- 5.2.4 The estimated duration of construction is three months and does not extend the three years and nine months construction duration of Doddershall embankment reported in the main ES and the SES and AP₂ ES.
- 5.2.5 This AP₄ amendment will permanently require 0.4ha of additional land that is not in the Bill limits of the original scheme. However, there will be 1.7ha of land that would be required permanently in the original scheme and will no longer be needed for this amendment. The net land requirement for the AP₄ amendment is therefore 1.3ha less compared to the original scheme. As the AP₂ amendment will permanently require 0.4ha of land that is not in Bill limits, combined net land requirement for both the AP₂ and AP₄ amendments is 0.9ha less compared to the original scheme.

³ A space where vehicles can turn around.

- 5.2.6 The extension of the access track to the balancing pond at Bridleway QUA/28A overbridge will require approximately 0.3ha of land that is temporarily required by the original scheme to be permanently required by this AP₄ amendment.
- 5.2.7 The additional railway drainage works 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: air quality, community, land quality, landscape and visual assessment, socio-economics, sound, noise and vibration, traffic and transport, and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of agriculture, forestry and soils; cultural heritage; and ecology.

Agriculture, forestry and soils

Introduction

- 5.2.8 This section of the report describes the environmental baseline in relation to agriculture, forestry and soils that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES₃ scheme, taking account of amendment for a balancing pond at Footpath QUA/26 accommodation underbridge (AP₂-012-002) reported in the SES and AP₂ ES.

Scope, assumptions and limitations

- 5.2.9 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.2.10 The area of agricultural land affected by the amendment is small and will not alter the significance of effect, or result in a different effect, on BMV agricultural land or forestry land within the Waddesdon and Quainton area. The route-wide effects on BMV land and forestry land are reported in Volume 3.

Existing baseline

- 5.2.11 One holding will be affected: Doddershall Estate (CFA₁₂/10) which is a 567ha beef cattle and arable holding, as described in the main ES (Volume 2, CFA₁₂, Section 3.3).

Future baseline

Construction (2017)

- 5.2.12 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA₁₂, Section 3.3).
- 5.2.13 Most existing environmental stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (countryside stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings. These are not expected to change fundamentally the baseline circumstances described.

Operation (2026)

- 5.2.14 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA12, Section 3.3).

Effects arising during construction

- 5.2.15 Compared to the SES3 scheme, an additional 0.4ha will be required for the AP4 amendment from Doddershall Estate for one of the additional balancing ponds.
- 5.2.16 In total, the area permanently removed from the holding is 28.3ha which represents 5% of the holding. The requirement for 27.9ha for the construction of the SES3 scheme also represented 5% of the holding and was assessed as a minor impact, which is not significant, due to the proportion of the holding required. The assessment of the permanent effects on Doddershall Estate is unchanged as a result of the two additional balancing ponds.
- 5.2.17 The amendment will not give rise to a new or different significant effect or change the level significance of the effects assessed in the main ES and the SES and AP2 ES.

Effects arising from operation

- 5.2.18 The two additional balancing ponds 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 and the SES and AP2 ES.

Mitigation and residual effects

- 5.2.19 No additional mitigation measures (i.e. in addition to those identified in the main ES) are required. No significant residual effects on agriculture, forestry and soils have been identified during construction or operation due to this amendment.

Cumulative effects

- 5.2.20 Compared to the SES3 scheme, the AP2 and AP4 amendments will require 0.9ha less land from Doddershall Estate during construction.
- 5.2.21 In total, the area permanently removed from the holding due to the AP2 and AP4 amendments combined is 27.4ha which represents 5% of the holding. The requirement for 27.9ha for the construction of the SES3 scheme also represented 5% of the holding and was assessed as a minor impact, which is not significant. The cumulative assessment of the permanent effects on Doddershall Estate is not significant as a result of the AP2 and AP4 amendments combined.
- 5.2.22 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the AP4 amendments interacting with one another, the AP1 amendments, AP2 amendments, or any relevant committed development.

Cultural heritage

Introduction

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

those of the SES3 scheme taking account of amendment for a balancing pond at the Footpath QUA/26 accommodation underbridge (AP2-012-002) reported in the SES and AP2 ES.

Scope, assumptions and limitations

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

Existing baseline

- 5.2.25 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walk-over survey, geophysical survey, remote-sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6.3 of the main ES.
- 5.2.26 The new balancing ponds will be partially in Doddershall deserted medieval village (asset reference WADo63) on the junction of two historic hedgerows that form part of a hedgerow complex (asset reference WADo62), to the north of the deserted medieval village. The new balancing ponds will also be in the wider Doddershall medieval landscape (asset reference WAD136). The deserted village is an asset of high heritage value and the historic landscape and hedgerow complex an asset of moderate heritage value.

Future baseline

Construction (2017)

- 5.2.27 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA12, Section 6.3).

Operation (2026)

- 5.2.28 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA12, Section 6.3).

Effects arising during construction

- 5.2.29 The main ES (Volume 2, CFA12, Section 6.4) reported that construction activities will cause a high impact resulting in a major significant adverse effect on Doddershall deserted medieval village (asset reference WADo63) and the hedgerow complex (asset reference WADo62) and a medium impact resulting in a moderate significant adverse effect on Doddershall medieval landscape (asset reference WAD136).
- 5.2.30 When the AP4 amendment is taken together with the modified AP2 amendment, there will be a net reduction of 1.3ha in land required for construction of the balancing ponds. The AP4 revised scheme no longer required 1.7ha within Doddershall deserted medieval village (asset reference WADo63) and Doddershall medieval landscape (asset reference WAD16). However, a new area of land 0.4ha, will be required, which also falls within both assets (asset reference WASo63 and WAS136) as well as the historic hedgerow complex (asset reference WADo62), that was not part of the SES3 scheme.

- 5.2.31 A different effect will result because of the new area of land temporarily affected. This will comprise the removal of an additional 36m of historic hedgerow (asset reference WADo62), the additional of a new area of land required within Doddershall medieval landscape (asset reference WAD₁₃₆) and Doddershall deserted medieval village (WADo63), and the reduced potential to remove archaeological remains. However, given the overall extent of Doddershall deserted medieval village (asset reference WADo63), Doddershall medieval landscape (asset reference WAD₁₃₆) and the hedgerow complex (asset reference WADo62) to be removed by the AP₄ revised scheme, compared with the SES₃ scheme the impact on Doddershall deserted medieval village (asset reference WADo63) and the hedgerow complex (asset reference WADo62) remains high with a major significant adverse effect. The medium impact and moderate significant effect on Doddershall medieval landscape (asset reference WAD₁₃₆) also remains.

Effects arising from operation

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

Mitigation and residual effects

- 5.2.33 There will be no change to the mitigation reported in the main ES.

- 5.2.34 The AP₄ amendment will give rise to a different significant residual effect on Doddershall deserted medieval village (asset reference WADo63), the hedgerow complex (asset reference WADo62) and Doddershall medieval landscape (asset reference WAD₁₃₆), due to construction affecting a new area of land and, overall, less groundworks that will be required. However, this amendment will not change the level of significance of the effects reported in the main ES.

Cumulative effects

- 5.2.35 The SES and AP₂ ES reported a different significant effect due to amendment AP₂-012-002 compared to that reported in the main ES for Doddershall deserted medieval village (asset reference WADo63), Doddershall medieval landscape (asset reference WAD₁₃₆) and the historic hedgerow (asset reference WADo62). This was due to an additional 0.4ha of land within the assets (asset references WADo63 and WAD₁₃₆) being required for the AP₂ amendment and an additional stretch of hedgerow (asset reference WADo62) being removed, when compared to the SES scheme. This different significant effect did not change the level of significant effect reported in the main ES, with the high impact and major adverse significant effect remaining for Doddershall deserted medieval village (asset reference WADo63) and the historic hedgerow (asset reference WADo62) remaining. The medium impact and moderate adverse significant effect on the Doddershall medieval landscape (asset reference WAD₁₃₆) also remains in the AP₂ revised scheme.
- 5.2.36 The cumulative effect of the AP₂ and AP₄ amendments will result in a net reduction of 0.9ha of land required within Doddershall deserted medieval village (asset reference WADo63) and Doddershall medieval landscape (asset reference WAD₁₃₆) when compared to the SES₃ scheme. This will result in an overall reduction in disturbance and removal of any archaeological remains within the assets (asset references WADo63 and WAD₁₃₆). The combined amendments will also result in an additional

36m of historic hedgerow (asset reference WADo62) being removed. This will result in different significant effects for all three assets (asset references WADo62, WADo63 and WAD163) from that reported in the main ES and SES and AP2 ES.

- 5.2.37 Although there are different significant effects, with the reduction in land required and additional hedgerow to be removed, from that reported in the main ES and SES and AP2 ES, this will not change the level of effects reported. This is due to the total amount of land still required within the assets and subsequent disturbance or removal of the assets and any associated archaeological remains by the AP2 and AP4 revised schemes in combination.
- 5.2.38 With the exception of the different effects described above, there are no new or different likely significant cumulative effects for cultural heritage as a result of the amendment acting in combination with any other amendments in AP4, or AP2, or as a result of any relevant committed development interacting with the AP4 revised scheme.

Ecology

Introduction

- 5.2.39 This section of the report describes the environmental baseline in relation to ecology that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to the SES3 scheme, taking into account an amendment for a balancing pond at a Footpath QUA/26 accommodation underbridge (AP2-012-001) reported in the SES and AP2 ES.

Scope, assumptions and limitations

- 5.2.40 Updates to the scope of the assessment for ecology are set out in Volume 1 of the SES3 and AP4 ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR and the SMR Addendum (Volume 5: Appendix CT-001-000/01 and CT-001-000/02 of the main ES) and in Addendum 4 to the SMR (SES3 and AP4 ES Volume 5: CT-001-000/5).
- 5.2.41 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 AP4 revised scheme.

Existing baseline

- 5.2.42 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES, additional survey work for great crested newt undertaken from September 2013 to March 2015, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: Buckinghamshire and Milton Keynes Environmental Records Centre; Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust; the Amphibian and Reptile Group for Buckinghamshire; North Bucks Bat Group and the Bernwood Forest Bechstein's Project.

- 5.2.43 A summary of the baseline information relevant to the assessment of the amendment is provided below. This takes account of relevant 2015 survey information for great crested newt provided in SES3 and AP4 ES, Volume 5, Appendix EC-001-002. For those receptors described in the main ES, further details are provided in Volume 2, CFA12, Section 7.3 of the main ES and in Volume 5, including maps EC-01 to EC-12 of the main ES.

Designated sites

- 5.2.44 One non-statutory designated site for nature conservation is relevant to the amendment; Grendon and Doddershall Meadows LWS (24.5ha). It is designated for diverse grassland, scrub and pond habitats, and plants that are uncommon in Buckinghamshire. It is of county/metropolitan value. The balancing pond on the east side of the route that forms part of the amendment that will be located in the LWS.
- 5.2.45 There are no other statutory or non-statutory designated nature conservation sites or ancient woodland relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA12, Section 7 and are shown on Maps EC-01-025b to EC-01-028a, Volume 5, Ecology Map Book.

Habitats

- 5.2.46 Grendon and Doddershall Meadows LWS contains an extensive area of grassland likely to qualify as lowland meadow, which is a habitat of principal importance. The habitat in land required for balancing ponds near the Footpath QUA/26 accommodation underbridge is assumed to be predominantly unimproved neutral grassland, which is identified in the main ES as being of county/metropolitan value.
- 5.2.47 Land required for the balancing pond to the east of the HS2 route is immediately east of scrub along the Aylesbury Link railway line that is of local/parish value, as reported in the main ES.
- 5.2.48 The balancing pond near Bridleway QUA/28A accommodation overbridge is on the southern edge of Grendon and Doddershall Meadows LWS. It is in an arable field that forms a wider resource of arable land that was not assessed in the main ES, but is unlikely to be of more than local/parish value.
- 5.2.49 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA12, Section 7 and are shown on Maps EC-02-028b to EC-02-29, Volume 5, Ecology Map Book.

Protected and/or notable species

- 5.2.50 As reported in the main ES, roosts used by a population of Bechstein's bat of national value are present in land at Doddershall, approximately 500m from the amendment. Section 3 of the SES and AP2 ES reports that land to the south of Edgcott Road overbridge, also approximately 500m from the amendment, is used by this population of Bechstein's bat for foraging and commuting.
- 5.2.51 The main ES reports the presence of an assemblage of bats, including common and soprano pipistrelle, noctule, whiskered and Brandt's bat, which is of up to county/metropolitan value associated with land from Station Road north to Edgcott

Road. These bats are likely to use scrub, grassland and wetland habitat in the vicinity of the amendment for foraging.

- 5.2.52 A potential great crested newt population identified in the main ES as being associated with unaccessed land in and adjacent to Grendon and Doddershall Meadows LWS is relevant to this amendment. Owing to the extent of suitable habitat and connectivity between ponds at this location, it is reasonable to assume that a medium-sized population may be present. Based on the extent of both terrestrial and aquatic habitat, it is unlikely that the potential metapopulation would exceed county/metropolitan value.
- 5.2.53 Grendon and Doddershall Meadows LWS is suitable for grass snake. The potential population is identified as being of up to county/metropolitan value in the main ES.
- 5.2.54 The assemblage of notable plants at Grendon and Doddershall Meadows LWS includes county rare and county scarce species and is identified in the main ES as being of county/metropolitan value.
- 5.2.55 Locations of species records for CFA₁₂ are illustrated in the main ES on Maps EC-04 to EC-12, Volume 5, Ecology Map Book.

Future baseline

Construction (2017)

- 5.2.56 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA₁₂, Section 7.3).

Operation (2026)

- 5.2.57 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA₁₂, Section 7.3).

Effects arising during construction

Avoidance and mitigation measures

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

Designated sites

- 5.2.59 The SES₃ scheme would result in 11.6ha of habitat loss at Grendon and Doddershall Meadows LWS and results in a permanent adverse effect on the site's integrity, which would be significant at the county/metropolitan level.
- 5.2.60 The AP₄ amendment involves provision of two additional balancing ponds, one is located within Grendon and Doddershall Meadows LWS near Footpath QUA/26 accommodation underbridge and will result in the additional loss of approximately 0.4ha of lowland meadow from the site. The second is outside of the LWS boundary at Bridleway QUA/28A accommodation overbridge and will not result in any additional land being required from the LWS.

- 5.2.61 As well as the additional balancing ponds, a balancing pond that was included as part of the SES₃ scheme is no longer required. The amendment therefore also results in a reduction of the land required within the LWS boundary of 1.3ha.
- 5.2.62 The total extent of habitat loss at Grendon and Doddershall Meadows LWS resulting from the AP₄ revised scheme is therefore reduced by approximately 1.3ha overall in comparison with the SES₃ scheme. The amendment will result in a different significant effect on the integrity of Grendon and Doddershall Meadows LWS. However, this will not change the level of significance of the effects reported in the main ES.

Habitats

- 5.2.63 The main ES reports a permanent adverse effect on the conservation status of lowland meadow that is significant at the county/metropolitan level. Approximately 1.3ha less lowland meadow from Grendon and Doddershall Meadows LWS will be required in the AP₄ revised scheme. This will result in a different significant effect on the conservation status of lowland meadow. However, this will not change the level of significance of the effects reported in the main ES.
- 5.2.64 It is unlikely that the amendment will result in any other new or different effects on habitat receptors of relevance at more than the local/parish level. Local/parish level effects, which are in addition to those identified in the main ES and the SES and AP₂ ES, are listed in Volume 5: Appendix EC-003-002 of the SES₃ and AP₄ ES.

Protected and/or notable species

- 5.2.65 As reported in Section 3, habitat loss in the vicinity of Grendon and Doddershall Meadows LWS will result in a significant adverse effect on the metapopulation of great crested newt in this area that is significant at up to the county/metropolitan level. The amendment will result in a reduction of approximately 1.3ha in the total loss of lowland meadow from Grendon and Doddershall Meadows LWS (which also forms suitable terrestrial habitat for great crested newt) in comparison with the SES₃ scheme. This will result in a different significant effect on the conservation status of the great crested newt metapopulation. However, this will not change the level of significance of the effects reported in the main ES.
- 5.2.66 As reported in the main ES, habitat loss at Grendon and Doddershall Meadows LWS will have an adverse effect on colonies of notable plants and a population of grass snake associated with the site that is significant at up to the county/metropolitan level. A reduction in the net loss of habitat potentially supporting these species totalling approximately 1ha will result in a different significant effect on the conservation status of grass snake and notable plants. However, this will not change the level of significance of the effects reported in the main ES.
- 5.2.67 It is unlikely that the amendment will result in any other new or different effects on species receptors of relevance at more than the local/parish level. Local/parish level effects, which are in addition to those identified in the main ES and the SES and AP₂ ES, are listed in Volume 5: Appendix EC-003-002 of the SES₃ and AP₄ ES.

Cumulative effects

- 5.2.68 The main ES reports that the loss of 11.6ha of habitat from Grendon and Doddershall Meadows LWS will result in an adverse effect on the integrity of the site which would be significant at the county/metropolitan level. Compared with the SES3 scheme, this amendment in combination with amendment AP2-012-002 in the AP2 revised scheme will result in a 0.9ha reduction in habitat loss at Grendon and Doddershall Meadows LWS. This will cause a different adverse effect, but will not change the level of significance reported in the main ES.

Apart from the different effect described above, there are no new or different likely significant cumulative effects for ecology as a result of the amendment acting in combination with any other amendments in AP4, or AP2, or as a result of any relevant committed development interacting with the AP4 revised scheme.

Mitigation and residual effects

Other mitigation measures

- 5.2.69 The mitigation measures presented in the main ES include the creation of approximately 30ha of grassland habitat on fields adjacent to the Grendon and Doddershall Meadows LWS. The amendment requires 0.2ha of land in the grassland creation area to the south of the LWS for use as a balancing pond, which reduces the total area of habitat compensation provided for losses from Grendon and Doddershall Meadows LWS.
- 5.2.70 As discussed in the construction effects section, the AP4 revised scheme results in a net reduction in habitat loss from the LWS itself totalling approximately 1ha. This offsets the 0.2ha reduction the total area of grassland compensation. The mitigation measures presented in the main ES are therefore sufficient to effectively mitigate the different effect at Grendon and Doddershall Meadows LWS.
- 5.2.71 The areas of grassland habitat creation specified in the main ES will also provide suitable replacement terrestrial habitat for amphibians and reptiles, and for translocation of any notable plants from the land required for the amendment. These measures will ensure that there are no significant adverse effects on great crested newt or grass snake.
- 5.2.72 No additional mitigation measures (i.e. in addition to those identified in the main ES and SES) are required.

Summary of likely residual effects

- 5.2.73 No new or different residual effects on ecological receptors occur as a consequence of the amendment. The significant residual effects of the AP4 revised scheme in this area are therefore unchanged from those reported in the main ES, and the SES and AP2 ES.

Effects arising from operation

- 5.2.74 The amendment does not change the operation of the scheme and so there are no new or different significant operation effects for ecology as a result of the amendment, in comparison with the SES3 scheme.

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

- 5.2.75 The two additional balancing ponds near Footpath QUA/26 will give rise to a different residual significant effect with respect to a historic hedgerow (asset reference WASo62), Doddershall medieval landscape (asset reference WAS136) and potential archaeological remains at Doddershall deserted medieval village. However, this will not change the level of significance of effects reported in the main ES and the SES and AP2 ES.
- 5.2.76 There will be no other changes to the significance of the environmental effects or proposed mitigation as set out in the main ES, or the SES and AP2 ES with respect to this amendment.

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

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

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