

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

Volume 2: Community Area reports

MA02: Wimboldsley to Lostock Gralam

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MA02: Wimboldsley to Lostock Gralam



Department for Transport

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Structure of the HS2 Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

This report is part of the suite of documents that make up the SES1 and AP1 ES for High Speed Rail (Crewe – Manchester). The SES1 and the AP1 ES are separate documents, however, they are bound together and presented in a number of volumes shown in Figure 1 and described below:

- Non-technical summary (NTS). This provides a summary in non-technical language of the SES1 (Part 1) and the AP1 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, different or have been removed compared to those reported in the ES submitted to Parliament in January 2022 in support of the hybrid Bill for the HS2 Phase 2b Western Leg ('the main ES');
- Glossary of terms, list of abbreviations and references. This contains any new or different terms and abbreviations used throughout the SES1 and the AP1 ES which are not already explained in the main ES and provides the references cited in each of the volumes listed below;
- Volume 1: Introduction to the SES1 and the AP1 ES. This introduces the supplementary environmental information and changes to the design and construction assumptions included within the SES1 and amendments within the AP1 ES. The report explains the environmental impact assessment (EIA) process which 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 SES1 (Part 1), amendments within the AP1 ES (Part 2) and any new, different or removed likely significant environmental effects arising from these changes and amendments in the following community areas:
 - MA01: Hough to Walley's Green;
 - MA02: Wimboldsley to Lostock Gralam;
 - MA03: Pickmere to Agden and Hulseheath;
 - MA04: Broomedge to Glazebrook; and
 - MA05: Risley to Bamfurlong.

These effects are compared to those reported in the main ES (as amended by the SES1 for the AP1 amendments). 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.

The Community Area reports for MA04: Broomedge to Glazebrook and MA05 Risley to Bamfurlong are combined into one report for Volume 2 of the SES1 and AP1 ES.

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Note that changes to the design and the construction assumptions and environmental baseline information for the remaining community areas (MA06: Hulseheath to Manchester Airport, MA07: Davenport Green to Ardwick, MA08: Manchester Piccadilly Station) will be reported in a separate, future SES2 and AP2 ES.

- 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 SES1 (Part 1) and the amendments within the AP1 ES (Part 2) compared to those reported in the main ES (as amended by the SES1 for the AP1 amendments); and
- Volume 5: Appendices and map books. These contain supporting environmental information and associated maps.

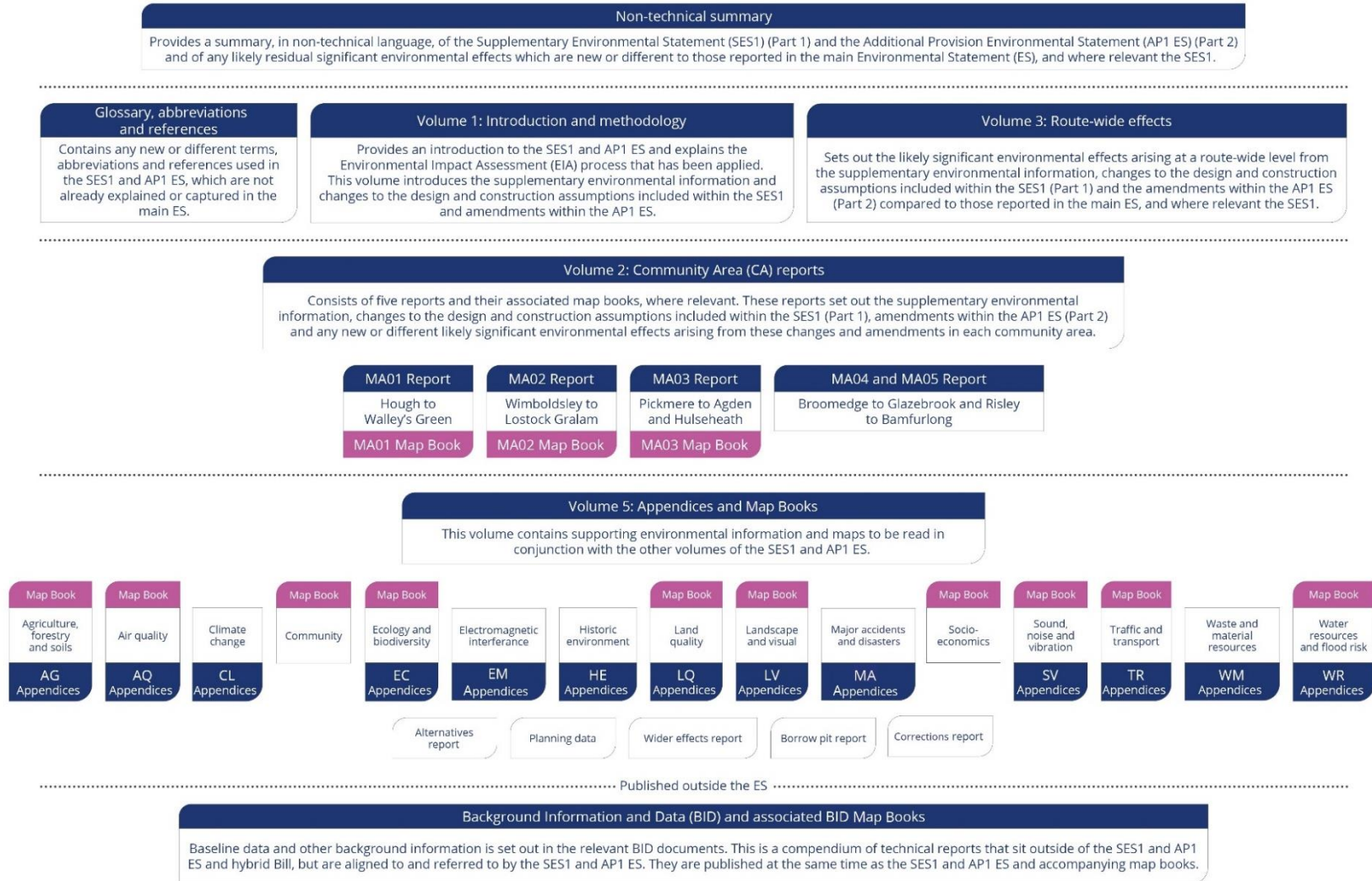
A Volume 4: Off-route effects report was produced as part of the main ES. An Off-route effects report has not been produced as part of this SES1 and AP1 ES. Any new or different off-route effects will be reported as part of SES2 and AP2 ES.

Certain reports and maps containing background information and data (BID) have been produced, which do not form part of the SES1 and AP1 ES. These documents are available online at <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>. The BID documents and maps present background survey information and other relevant background material.

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Figure 1: Structure of the SES1 and AP1 ES



Structure of this report

This volume of the SES1 and AP1 ES is divided into Community Area (CA) reports. Each of these reports is in turn divided into two parts.

Part 1 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;
- changes to the design and construction assumptions that do not require changes to the Bill; and
- corrections to the main ES.

Part 2 provides environmental assessment information relating to proposed amendments to the design that have resulted in the need to alter the powers conferred by the Bill.

Parts 1 and 2 also include the following, where relevant:

- a description of the SES1 changes (Part 1) or the proposed amendments (Part 2) within the community area that have triggered the need for reassessment;
- an assessment of the environmental effects of the SES1 changes (Part 1) or the proposed amendments (Part 2) 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.
- a summary of any new or different likely residual significant effects as a result of the SES1 changes (Part 1) and the proposed amendments (Part 2).

1 Introduction

- 1.1.1 The High Speed Rail (Crewe – Manchester) Bill was submitted to Parliament together with an Environmental Statement ('the main ES') in January 2022. Since submission of the Bill, a number of updates or changes to environmental baseline 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 SES1 or the AP1 ES, which form Part 1 and Part 2 of this document respectively.
- 1.1.2 The Bill and the Additional Provisions to the Bill described above, if enacted by Parliament, will provide the powers to construct, operate and maintain the HS2 Phase 2b Western Leg. Changes made through the SES1 and AP1 ES do not change the principle of the 'original scheme' (i.e. the Bill scheme which was assessed in the main ES) in terms of provision of a route between Crewe and Manchester and the essential components of the construction and operation of that scheme.
- 1.1.3 The SES1 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 SES1 changes within the Wimboldsley to Lostock Gralam area include:
- additional environmental baseline information (which may also be relevant to the SES1 scheme and/or AP1 revised scheme) for air quality; ecology and biodiversity; land quality; sound, noise and vibration; traffic and transport; and water resources and flood risk;
 - changes to the design and construction assumptions which do not require changes to the Bill; and
 - corrections to the main ES.
- 1.1.4 These changes are described in Part 1 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 SES1 is to describe the assessment and identify any new or different likely significant environmental effects arising from the changes.
- 1.1.6 The AP1 ES 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 Additional Provision to the Bill.
- 1.1.7 The AP1 ES reports the assessment of each amendment separately for all relevant topics. The purpose of the AP1 ES is to provide an assessment of any new or different likely significant environmental effects arising from the amendments.
- 1.1.8 A combined assessment of new or different significant construction and operation traffic and traffic related effects, as a result of changes in traffic flows, is reported in Section 7. This is because alterations in traffic flows cannot generally be directly attributed to particular SES1 changes or AP1 amendments. Traffic and transport effects are reported first, since the

effects arise from changes in traffic flows. Other topics affected by traffic and transport changes are then reported as necessary.

- 1.1.9 All other new or different significant traffic and transport effects are reported with the relevant SES1 change or AP1 amendment section of this report.
- 1.1.10 The standard measures that will be used to mitigate likely significant adverse environmental effects during construction and operation of the scheme are described in Section 9 of Volume 1 of the main ES and in the draft Code of Construction Practice (CoCP)¹ submitted in support of the Bill. Implementation of these measures has been assumed in this SES1 and AP1 ES.
- 1.1.11 The following terms are used to differentiate between changes included in the SES1 and those included in the AP1 ES:
- ‘SES1 design changes’ – changes to the scheme design reported in the SES1 that do not require additional powers;
 - ‘SES1 changes’ – all changes reported in the SES1 that do not require additional powers. This may include new baseline information, changes to the design and construction assumptions, and corrections; and
 - ‘AP1 amendments’ – changes to the scheme reported in the AP1 ES that include requirements for additional powers in the Bill.
- 1.1.12 In addition, the following terms are used to differentiate between the original scheme described in the main ES and subsequent changes and amendments:
- ‘the SES1 scheme’ – the original scheme with any changes described in the SES1 that are within the existing powers of the Bill; and
 - ‘the AP1 revised scheme’ – the original scheme as amended by the SES1 changes and AP1 amendments.

¹ HS2 Ltd (2021), *High Speed Rail (Crewe – Manchester) Environmental Statement, Volume 5, Technical appendices, draft Code of Construction Practice (Appendix: CT-002-00000)*. Available online at: <https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement>.

Part 1: Supplementary Environmental Statement 1

2 Summary of changes in the Wimboldsley to Lostock Gralam area

2.1 New environmental baseline information

- 2.1.1 It was reported within the main ES that five properties at Railway Cottages (and three associated single-storey buildings), Nantwich Road, Wimboldsley would be demolished due to the construction of Walley's Green embankment and A530 Nantwich Road overbridge. Since the main ES, updates to mapping highlighted two additional associated single-storey buildings, which will also be demolished in this location.

Air quality

- 2.1.2 Since the main ES, revised traffic data for the baseline year of 2018 and future baseline years for construction and operation has become available.

Ecology and biodiversity

- 2.1.3 Since the main ES, additional Phase 1 habitat, hedgerow, National Vegetation Classification (NVC), pond and canal, river habitat, bat, great crested newt, otter and water vole surveys have been completed in the Wimboldsley to Lostock Gralam area.
- 2.1.4 Details of additional ecological surveys completed in the Wimboldsley to Lostock Gralam area are provided in Background Information and Data (BID) documents² (BID EC-017-00000, BID EC-004-00000, BID EC-007-00000 and BID EC-011-00000, and BID Ecology Map Book³, Map Series EC-02, EC-04, EC-05, EC-06, EC-08, EC-10, EC-11, EC-12 and EC-16), which accompany the SES1 and AP1 ES.

² High Speed Two (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data accompanying Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement, Ecology and biodiversity baseline data*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>.

³ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data accompanying Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement, Ecology Map Book*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>.

- 2.1.5 New ecological baseline data relating to the designation of nature conservation sites has also been published by Cheshire Wildlife Trust for the Wimboldsley to Lostock Gralam area.
- 2.1.6 SES1 and AP1 ES Volume 5, Appendix: EC-001-00000 provides a summary of new ecological baseline data for designated sites. All new ecological survey data that has been taken into account in this assessment is set out in the background information and data documents. SES1 and AP1 ES Volume 5, Appendix: EC-015-00000 identifies additional local/parish level effects that are likely to occur as a consequence of SES1 changes and AP1 amendments.
- 2.1.7 Detail of supplementary ecological information that is relevant to the SES1 assessment is provided in Section 3.

Land quality

- 2.1.8 Since the main ES, environmental regulatory data has been updated. These data include information on pollution incidents, radioactive and hazardous substances consents, environmental permits (previously integrated pollution control and integrated pollution prevention and control licences), and ecological receptors.
- 2.1.9 In the Wimboldsley to Lostock Gralam area this includes an additional 14 pollution incidents to controlled waters, two substantiated pollution incidents, a new discharge consent, four environmental permits associated with a petrol station site and a gas governing station.
- 2.1.10 Further details of these in relation to the SES1 scheme and AP1 revised scheme are presented in the BID⁴ report (BID LQ-002-00000 SES1 and AP1 ES), which accompanies the SES1 and AP1 ES.
- 2.1.11 Where relevant the new information has been used in the land quality assessment undertaken for the SES1 changes, which is reported in Section 3 of this report.

Sound, noise and vibration

- 2.1.12 Road traffic information, such as flows and speeds, is used to determine the baseline sound levels. Since the main ES, additional road traffic information has been obtained for the AP1 revised scheme. Where relevant, this road traffic information has been used to update the existing baseline sound modelling. Details of the updated and additional baseline information that is relevant to the assessment are provided in the SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. This has been used in the sound, noise and vibration assessment undertaken for the SES1 changes and AP1 amendments, which are reported in Sections 3, 5 and 7 of this report.

⁴ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data accompanying Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement, Land quality baseline data, BID LQ-002-00000 SES1 and AP1 ES*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>.

Traffic and transport

- 2.1.13 Since the main ES, additional traffic information has been used in the development of updated baseline and future baseline models for the SES1 scheme and AP1 revised scheme. This includes new traffic data from National Highways, as set out in the Background Information and Data report Transport Assessment policy and data (BID TR-004-00001 SES1 and AP1 ES)⁵ which accompany the SES1 and AP1 ES. These data have been combined with information collected for local junction modelling, as set out in the Background Information and Data report Transport Assessment policy and data (BID TR-004-00001)⁶ which accompanied the main ES.
- 2.1.14 In addition, the baseline and future baseline models have been updated for the assessment of the SES1 scheme and AP1 revised scheme to reflect:
- refinement of network coding to improve model performance in key areas of interest and in response to stakeholder feedback;
 - inclusion of recently committed or completed transport schemes and development proposals that have come forward since the models used in the assessment reported in the main ES were developed;
 - refinements to future baseline traffic demand to reflect changes to future growth patterns since the models used in the assessment reported in the main ES were developed and the release of updated road traffic forecasts by the Department for Transport (DfT);
 - the change in the future baseline forecast year from 2046 to 2051 (as described in Volume 1 of the SES1 and AP1 ES); and
 - updates to transport model parameters to reflect the latest release of the DfT's Transport Analysis Guidance (TAG) data book.
- 2.1.15 The assessment of the changes to traffic flows associated with the updated baseline and future baseline models in combination with all SES1 changes and AP1 amendments is reported in Section 7 of this report.

⁵ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data accompanying Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement, Transport Assessment policy and data report, BID TR-004-00001 SES1 and AP1 ES*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>.

⁶ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data, Transport Assessment policy and data report, BID TR-004-00001*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

Water resources and flood risk

- 2.1.16 Since the main ES, additional water quality data have been collected for three watercourses within this area. These are:
- Puddinglake Brook;
 - Gad Brook; and
 - Wade Brook.
- 2.1.17 Laboratory analysis of this water quality sampling is presented in SES1 and AP1 ES Background Information and Data (BID): BID WR-004-0MA02⁷.
- 2.1.18 Since the main ES, the Environment Agency has issued updated datasets for groundwater source protection zones (SPZ), discharge consents and licensed water abstractions. However, these updated datasets do not introduce any new receptors or change existing receptors for water resources and flood risk topic in this area. For the AP1 revised scheme the additional data do not result in any new or different significant effects compared to the main ES.

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

Introduction

- 2.2.1 The need to make changes to the design and to construction assumptions has been identified since the main ES. The changes in the Wimboldsley to Lostock Gralam area relate to:
- changes to construction assumptions;
 - borrow pits; and
 - SES1 design changes.
- 2.2.2 These changes, which are described below, do not require a change to the Bill.

Changes to construction assumptions

- 2.2.3 The main ES provided indicative details of the construction works to be managed from the construction compounds in the area – see Section 2 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. The information included the duration of works, number of workers and a summary of the works to be undertaken. A

⁷ High Speed Two Ltd (2021), High Speed Rail (Crewe – Manchester), *Background Information and Data accompanying Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement, Water resources assessment baseline data*, BID WR-004-0MA02. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>.

construction programme was also provided, which included indicative periods for each of the core construction activities.

- 2.2.4 A route-wide review of earthworks and the movement of materials has been undertaken since the main ES. Changes to assumed construction methods have also been made. The review and the changes have resulted in the need to alter the indicative construction programme. The revised programme is shown in Section 6 and described in Section 3 of the SES1 and Section 5 of the AP1 ES.
- 2.2.5 There will be changes to the construction workforce at 11 compounds as a result of the AP1 revised scheme. An assessment of socio-economic effects on employment at a route-wide level is reported in Volume 3.

Borrow pits

- 2.2.6 The main ES provided details of four borrow pits located within the Wimboldsley to Lostock Gralam area. As part of the SES1 scheme, MA02 Borrow Pit D will be removed. This is reported as the SES1 design change removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) and assessed in Section 3 and 7 of this report.

SES1 engineering and utility design changes

- 2.2.7 Table 1 provides a summary of the SES1 design changes not requiring a change to Bill powers which result in new or different significant effects in the Wimboldsley to Lostock Gralam area. Figure 2 shows the locations of these changes.
- 2.2.8 Please note that all dimensions in the following sections are approximate.

Table 1: Summary of changes to the engineering or utility design not requiring a change to the Bill in Wimboldsley to Lostock Gralam area

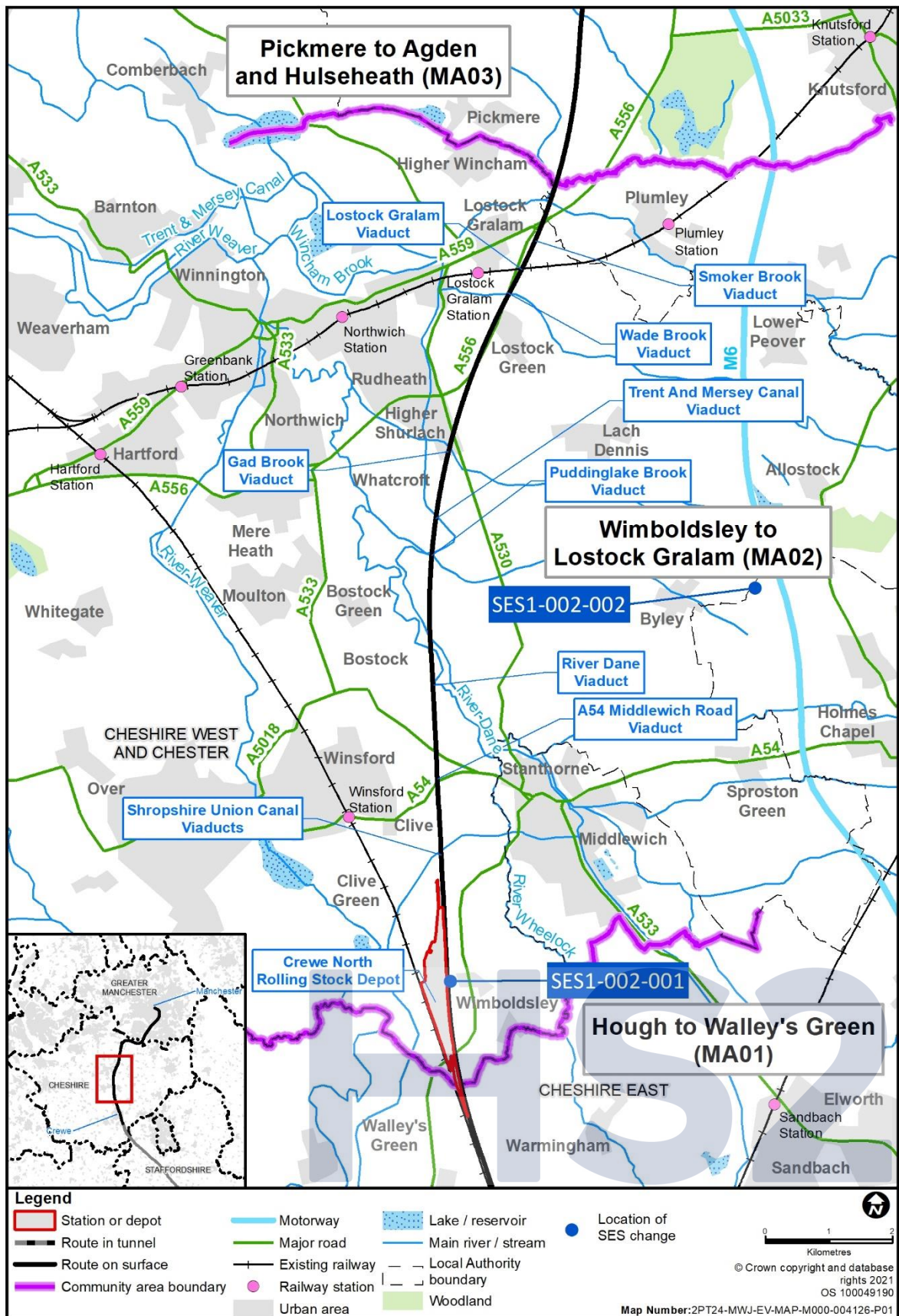
Name of SES1 design change	Description of the original scheme	Description of the SES1 scheme
<p>Enhancement of landscape mitigation at Walley's Green embankment</p> <p>SES1-002-001</p> <p>See map CT-06-309, C6 to D6 in the SES1 and AP1 ES Volume 2, MA02 Map Book</p>	<p>The provision of landscape earthworks and landscape mitigation planting on the eastern side of Walley's Green embankment. The Bill also includes a HS2 maintenance access road alongside the eastern side of the HS2 route.</p>	<p>The landscape earthworks along the eastern side of the Walley's Green embankment will be reduced in steepness, which will improve the integration of the embankment slopes into the surrounding landscape along the east of Crewe North rolling stock depot (RSD). This SES1 design change will use surplus excavated material from the arisings of Crewe tunnel.</p> <p>The proposed HS2 maintenance access road, included within the original scheme, will be realigned to follow the lower edge of the new landscape earthworks.</p>

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Name of SES1 design change	Description of the original scheme	Description of the SES1 scheme
Removal of MA02 Borrow Pit D, north of Moss Lane SES1-002-002 See map CT-05-312-R4, G10 to I7 and CT-05-312-R5, E9 to J6 in the SES1 and AP1 ES Volume 2, MA02 Map Book	The provision of four borrow pits in the Wimboldsley to Lostock Gralam area to provide material to construct elements of the original scheme, in particular to construct railway embankments.	There is no longer a requirement for granular material to be generated from MA02 Borrow Pit D as a result of the removal of the HS2 West Coast Main Line (WCML) connection (SES1-004-001) and associated infrastructure. Therefore, the MA02 Borrow Pit D has been removed from the scheme. MA02 Borrow Pits A, B and C will be retained.

Figure 2: Locations of SES engineering and utility design changes not requiring a change to the Bill in the Wimboldsley to Lostock Gralam area



SES1-002-001 Enhancement of landscape mitigation at Walley's Green embankment

- 2.2.9 The Bill provides for landscape earthworks and landscape mitigation planting on the eastern side of Walley's Green embankment. Landscape earthworks in this location would have a 1:3 slope on both sides. The Bill also includes a HS2 maintenance access road along the eastern side of the HS2 route (see Volume 5 MA02 Map Book, map CT-06-309 in the main ES).
- 2.2.10 Since the main ES, further work has identified that arisings from Crewe tunnel, located in the Hough to Walley's Green area (MA01), will result in the generation of additional surplus material compared to the original scheme. As a result, it has enabled opportunities for enhancement of landscape earthworks by maximising the re-use of surplus material. These enhancements will further mitigate significant landscape and visual effects reported within the main ES and also avoid construction traffic trips needed to transport surplus material for disposal.
- 2.2.11 The landscape earthworks along the eastern side of Walley's Green embankment will be reduced in steepness on the outer slope. This will improve the integration of the embankment slopes into the surrounding landscape along the east of Crewe North rolling stock depot (RSD). This will improve views for receptors with views from Wimboldsley, views from properties along the A530 Nantwich Road and for road users. The proposed HS2 maintenance access road, included within the original scheme, will be realigned to follow the lower edge of the new landscape earthworks (see map CT-06-309, C6 to D6 in the SES1 and AP1 ES Volume 2, MA02 Map Book).
- 2.2.12 Material for the landscape earthworks will be transported from Crewe tunnel to Crewe North RSD via conveyor belt, as included in the original scheme. Following treatment, the material will be taken to the landscape earthworks location via a site haul route.
- 2.2.13 This SES1 design change will be managed from Crewe North RSD satellite compounds 1 and 3. Walley's Green embankment will be constructed over a period of four years and six months, as set out in the indicative programme in Section 6, although these works do not alter the duration from that reported in the main ES.

Topics included in the SES1 assessment

- 2.2.14 This SES1 design change is considered to require reassessment of the environmental effects and mitigation reported in the main ES, for the following topics: landscape and visual and sound, noise and vibration. This is reported in Section 3.
- 2.2.15 A combined assessment of new or different significant traffic and traffic related effects, as a result of changes in traffic flows, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

SES1-002-002 Removal of MA02 Borrow Pit D, north of Moss Lane

- 2.2.16 The Bill provides for four borrow pits (three cohesive and one granular) in the Wimboldsley to Lostock Gralam area to provide material to construct elements of the original scheme, in particular railway embankments. Volume 1 of the main ES describes the requirement and use of borrow pits and the Borrow pit report: Appendix CT-008-00000 of the main ES describes the selection of borrow pits, the requirement for borrow pits and the restoration strategy for the borrow pits. The Borrow pit report outlines how acceptable materials excavated from cuttings along the HS2 route will be reused, where reasonably practicable, to construct embankments. It also details the shortfall of acceptable material required for construction of the original scheme, and the subsequent need for borrow pits. The Bill also provides for connections to the WCML at Golborne, beginning at Hoo Green junction in the Pickmere to Agden and Hulseheath area (MA03) and Lily Lane junction on the WCML in the Risley to Bamfurlong area (MA05).
- 2.2.17 The assessment of effects associated with the borrow pits, as reported in the main ES, was based on an assumed average depth of mineral extraction, including an average topsoil and subsoil depth. Based on available geological information, the assessment of the borrow pits also considered the effects of excavating to a greater maximum depth, which could allow refinement to the proposed working arrangements for the borrow pits (e.g. reducing the footprint required for mineral extraction) and reduce potential sterilisation of mineral resources.
- 2.2.18 Since the submission of the Bill, the Secretary of State has decided to remove the majority of the HS2 WCML connection and has given this commitment to Parliament (detailed in Volume 2, Community Area report: Broomedge to Glazebrook (MA04) under SES1 change removal of the HS2 WCML connection (SES1-004-001)). This SES1 design change will remove the requirement for granular MA02 Borrow Pit D (see map CT-05-312-R4, G10 to 7I and CT-05-312-R5, E9 to J6 in the SES1 and AP1 ES Volume 2, MA02 Map Book). Other excavated material from construction, material from MA02 Borrow Pits A, B and C and material imported from quarries will provide sufficient material for the AP1 revised scheme.

Topics included in the SES1 assessment

- 2.2.19 This SES1 design change is considered to require reassessment of the environmental effects and mitigation reported in the main ES, for the following topics: agriculture, forestry and soils; community; ecology and biodiversity; health; historic environment; land quality; landscape and visual; sound, noise and vibration and water resources. This is reported in Section 3.
- 2.2.20 A combined assessment of new or different significant traffic and traffic related effects, as a result of changes in traffic flows, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

2.3 Corrections to the main ES

- 2.3.1 The need for a number of corrections to the contents of the main ES has been identified since submission of the Bill. Table 2 provides the following:
- corrections to the Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) that have the potential to alter the significant environmental effects reported in the main ES;
 - corrections to any factual inaccuracies relating to significant effects reported in the main ES;
 - clarifications to elements of the scheme description reported in the main ES;
 - the location of the text that is subject to the correction in the main ES;
 - the reason for the correction;
 - the original text from the main ES and, where applicable, revised text; and
 - whether the correction changes a significant effect reported in the main ES.
- 2.3.2 These corrections were considered, where relevant, in the technical assessments reported in Section 3 of this SES1.

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Table 2: Summary of corrections to the main ES Volume 2 Community Area report for the Wimboldsley to Lostock Gramam area

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Traffic and transport Paragraph 14.5.17, Volume 2, MA02 of the main ES	The main ES reports a change in journey length for some non-motorised users of Birches Lane of 581m. The correct length is 881m.	Paragraph 14.5.17, ninth bullet: <ul style="list-style-type: none"> Birches Lane – moderate adverse effect from increase in journey length for some users of 581m. 	Paragraph 14.5.17, ninth bullet: <ul style="list-style-type: none"> Birches Lane – moderate adverse effect from increase in journey length for some users of 881m. 	No change. This correction will not lead to a new or different significant effect.
Traffic and transport Paragraph 14.4.23, Volume 2, MA02 of the main ES	The need for a temporary closure on Coalpit Lane during utility works should have been reported in the main ES.	None included.	Paragraph 14.4.23, insert new bullet (fourth bullet): <ul style="list-style-type: none"> Coalpit Lane – temporary closure of Coalpit Lane during utility works for a period of six weeks. Traffic will be diverted via the A530 Nantwich Road and A54 Chester Road, increasing journey length for some users by 1.3km. 	Yes. This correction will lead to a new temporary minor adverse significant effect with regard to changes in journey lengths for vehicle occupants on Coalpit Lane. The assessment of the changes to traffic flows as a result of this correction is included in the assessment of the AP1 revised scheme reported in Section 7.
Traffic and transport Paragraph 14.4.23, Volume 2, MA02 of the main ES	The need for temporary traffic management and shuttle working on the A54 Middlewich Road / Chester Road / St Michael's Way / Kinderton Street / Holmes Chapel Road during utility works should have been reported in the main ES.	None included.	Paragraph 14.4.23 insert new bullets (fifth bullet): <ul style="list-style-type: none"> A54 Middlewich Road / Chester Road / St Michael's Way / Kinderton Street / Holmes Chapel Road – temporary traffic management and shuttle working for a period of three months, with no change in journey length; 	The assessment of the changes to traffic flows as a result of this correction is included in the assessment of the AP1 revised scheme reported in Section 7.

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Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Traffic and transport Paragraph 14.4.39, Volume 2, MA02 of the main ES	The need for a temporary closure on Coalpit Lane during utility works should have been reported in the main ES.	None included.	Paragraph 14.4.39, insert new bullet (third bullet): <ul style="list-style-type: none"> Coalpit Lane – minor adverse effect from an increase in journey length for some users of 1.3km; 	Yes. This correction will lead to a new temporary minor adverse significant effect with regard to changes in journey lengths for non-motorised users on Coalpit Lane.
Traffic and transport Paragraph 14.4.26, Volume 2, MA02 of the main ES	The main ES reports a major adverse effect on congestion and delay for vehicle occupants at the A54 Holmes Chapel Road/Pochin Way/Centurion Way junction during construction. The correct effect is moderate adverse.	Paragraph 14.4.26, fifteenth bullet: <ul style="list-style-type: none"> A54 Holmes Chapel Road/Pochin Way/Centurion Way - major adverse effect during scenarios 2, 3 and 4; 	Paragraph 14.4.26, fifteenth bullet: <ul style="list-style-type: none"> A54 Holmes Chapel Road/Pochin Way/Centurion Way - moderate adverse effect during scenarios 2, 3 and 4; 	Yes. The effect changes from major adverse to moderate adverse.
Traffic and transport Paragraph 14.5.10, Volume 2, MA02 of the main ES	The main ES reports a minor adverse effect on congestion and delay for vehicle occupants at the A556 Chester Road/A559 Manchester Road junction during operation in 2046. The main ES should have reported no effect.	Paragraph 14.5.10, thirteenth bullet: <ul style="list-style-type: none"> A556 Chester Road/A559 Manchester Road – minor adverse effect 	None included – main ES text removed.	Yes. The correction will remove the minor adverse effect on congestion and delay for vehicle occupants at the A556 Chester Road/A559 Manchester Road junction in 2046.

3 Assessment of changes in the Wimboldsley to Lostock Gramam area

3.1 Introduction

3.1.1 This section describes the effects of the SES changes in the Wimboldsley to Lostock Gramam area on:

- agriculture, forestry and soils;
- community;
- ecology and biodiversity;
- health;
- historic environment;
- land quality;
- landscape and visual;
- socio-economics;
- sound, noise and vibration; and
- water resources and flood risk.

3.1.2 Any new or different likely significant environmental effects as a result of the changes summarised in Section 2 are identified, compared to the original scheme.

3.2 Agriculture, forestry and soils

Introduction

3.2.1 The environmental baseline relevant to the agriculture, forestry and soils 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 those reported in the main ES.

Scope, assumptions and limitations

3.2.2 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1 and the EIA Scope and Methodology Report (SMR)⁸ of the main ES.

⁸ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Environmental Impact Assessment Scope and Methodology Report*, Volume 5, Appendix: CT-001-00001. Available online at: <http://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

3.2.3 The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) has the potential to result in new or different significant temporary and permanent construction effects only. Therefore, there is no operational assessment for agriculture, forestry and soils.

SES changes relevant to the assessment

3.2.4 The SES1 design change, the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002), is considered in this assessment.

Environmental baseline

Existing baseline

3.2.5 The baseline agriculture, forestry and soils information is described in Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

3.2.6 The area of agricultural land that would have been required for MA02 Borrow Pit D for the original scheme has soil in the Blackwood association. The land is classified as very good to good quality agricultural land in Grade 2 and Subgrade 3a.

3.2.7 Six farm holdings would have been affected by the operation of MA02 Borrow Pit D, as shown in Table 3.

Table 3: Summary characteristics of holdings affected by MA02 Borrow Pit D

Holding reference/name	Holding type	Holding size (ha)	Diversification	Agri-environment scheme	Sensitivity to change
MA02/2 Lea Hall Farm	Dairy heifer rearing	453	None	Mid-tier CSS	Medium
MA02/14 Shanks Farm, Byley	Arable, beef cattle, pigs and vegetables	144	Farm shop, dog walking area	None	Medium
MA02/15 Allumbrook Farm	Dairy	120	None	ELS	Medium
MA02/16 Pear Tree Farm, Cranage	Beef cattle and sheep	75	None	None	Medium
MA02/17 Wash Lane Farm	Arable and grassland	28	Not known	None	Medium
MA02/18 Stublach Farm	Arable and grassland	126	Not known	None	Medium

Future baseline

3.2.8 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the

equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant and none of the identified committed developments affect the assessment of the SES1 scheme’s likely construction and operation impacts on agriculture, forestry and soil.

Effects arising during construction

Avoidance and mitigation measures

3.2.9 No mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)¹ are required.

Assessment of impacts and effects

- 3.2.10 The removal of MA02 Borrow Pit D will reduce the area of subgrade 3a agricultural land required by 53.8ha. The total area of best and most versatile (BMV) agricultural land required by the SES1 scheme in the Wimboldsley to Lostock Gralam area will be 190.7ha, which represents 32% of the total agricultural land requirement in the Wimboldsley to Lostock Gralam area. This will not change the effect on agricultural land reported in the main ES, which was assessed as both temporary and permanent moderate adverse (significant).
- 3.2.11 The removal of MA02 Borrow Pit D will reduce or remove the impacts and effects on agricultural holdings set out in Table 4 and Table 5. For five of the holdings there will be the complete removal of any impacts or effects. For Lea Hall Farm (MA02/2), as land will still be required for the construction of Walley’s Green embankment, Crewe North RSD, Crewe North RSD satellite compound, Clive Green Lane realignment, utility diversions and soil stores, the removal of MA02 Borrow Pit D will only reduce the total area of land affected. For Lea Hall Farm, whilst there will be a reduction in the scale of construction impacts, there will be no change in overall the effect, which remains a moderate adverse (significant).

Table 4: Temporary impacts and effects on holdings following removal of MA02 Borrow Pit D (SES1-002-002)

Holding reference/ name	Total area required from holding	Construction severance	Disruption	Scale of construction effect	Change in effect from main ES
MA02/2 Lea Hall Farm	67.1ha (15%) Medium (Previously 78.6ha (17%) Medium)	Medium	Low	Moderate adverse	No change
MA02/14 Shanks Farm, Byley	None	None	None	None	Removal of a minor adverse effect

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Holding reference/ name	Total area required from holding	Construction severance	Disruption	Scale of construction effect	Change in effect from main ES
MA02/15 Allumbrook Farm	None	None	None	None	Removal of a minor adverse effect
MA02/16 Pear Tree Farm, Cranage	None	None	None	None	Removal of a moderate adverse effect
MA02/17 Wash Lane Farm	None	None	None	None	Removal of a major/moderate adverse effect
MA02/18 Stublach Farm	None	None	None	None	Removal of a minor adverse effect

Table 5: Permanent impacts and effects on holdings following removal of MA02 Borrow Pit D (SES1-002-002)

Holding reference/ name	Total area required from holding	Severance	Infrastructure	Scale of construction effect	Change in effect from main ES
MA02/2 Lea Hall Farm	37.6ha (8%) Low (previously 37.7ha (8%)) Low	Medium	Negligible	Moderate adverse	No change
MA02/14 Shanks Farm, Byley	None	None	None	None	Removal of a negligible effect
MA02/15 Allumbrook Farm	None	None	None	None	Removal of a negligible effect
MA02/16 Pear Tree Farm, Cranage	None	None	None	None	Removal of a negligible effect
MA02/17 Wash Lane Farm	None	None	None	None	Removal of a negligible effect
MA02/18 Stublach Farm	None	None	None	None	Removal of a negligible effect

Other mitigation measures

3.2.12 The land required temporarily for construction at MA02/2 Lea Hall Farm will be restored to its former agricultural condition once the works are completed, following good practice techniques in handling, storing and reinstating soils on that land, as set out in the draft CoCP. No other mitigation has been identified to that reported in the main ES.

Summary of likely residual significant effects

- 3.2.13 The SES1 design change will not result in any new or different residual significant effects.
- 3.2.14 The removal of MA02 Borrow Pit D, north of Moss Lane from the original scheme will:
- remove a temporary major/moderate adverse significant effect from Wash Lane Farm (MA02/17); and
 - remove a temporary moderate adverse significant effect from Pear Tree Farm, Cranage (MA02/16).

Cumulative effects

- 3.2.15 No new or different significant cumulative effects have been identified further to those reported in the main ES.

3.3 Community

Introduction

- 3.3.1 The environmental baseline relevant to the community 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 those reported in the main ES.

Scope, assumptions and limitations

- 3.3.2 The assessment scope, key assumptions and limitations for community are as set out in Volume 1 and the SMR of the main ES.
- 3.3.3 Community effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

SES1 changes relevant to the assessment

- 3.3.4 Changes to the sound, noise and vibration assessment resulting from changes to the baseline is considered in this assessment. Changes to the sound, noise and vibration assessment have the potential to result in new or different significant operational effects.

Environmental baseline

Existing baseline

- 3.3.5 The baseline community information is as described in Section 6 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the SES1 changes is provided below.

- 3.3.6 Stanthorne comprises approximately 70 residential properties and farmsteads, with the nearest residential properties located 70m east of the original scheme. Changes to the sound, noise and vibration baseline have occurred in Stanthorne.

Future baseline

- 3.3.7 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 3.3.8 No committed developments of relevance for the community assessment have been identified that would materially alter the future baseline in this area.

Effects arising during operation

Avoidance and mitigation measures

- 3.3.9 No mitigation measures additional to those reported in the main ES are identified.

Assessment of impacts and effects

- 3.3.10 The main ES reported a major adverse in-combination effect on approximately 25 residential properties in Stanthorne. The operation of the original scheme would result in significant noise effects on these properties during the daytime and night-time due to the running of the trains through Middlewich box structure and on Stanthorne South embankment no.1. These properties would experience significant adverse visual effects due to views of the original scheme, passing trains and overhead line equipment. Changes to the sound, noise and vibration baseline will remove the significant noise effect in Stanthorne. Visual effects reported in the main ES will remain the same. This change will result in the removal of the significant in-combination effect on amenity for residents of 25 residential properties in Stanthorne.

Other mitigation measures

- 3.3.11 No mitigation measures additional to those reported in the main ES are identified.

Summary of likely residual significant effects

- 3.3.12 The SES1 change will not result in any new or different residual significant effects.
- 3.3.13 The removal of the noise effect as a result of changes to the sound, noise and vibration baseline will result in the removal of a residual effect on 25 residential properties in Stanthorne.

Cumulative effects

- 3.3.14 No new or different significant cumulative effects have been identified further to those reported in the main ES.

3.4 Ecology and biodiversity

Introduction

- 3.4.1 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 those reported in the main ES.

Scope, assumptions and limitations

- 3.4.2 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1 and the SMR of the main ES.
- 3.4.3 The SES1 changes of relevance to this assessment have the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 3.4.4 Ecology and biodiversity effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

SES1 changes relevant to the assessment

- 3.4.5 New baseline information resulting from additional ecological surveys in the Wimboldsley to Lostock Gralam area is relevant to the assessment.
- 3.4.6 The SES1 design change removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) is also considered in this assessment.

Environmental baseline

Existing baseline

- 3.4.7 The baseline ecology and biodiversity information is as described in Section 7 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam area of the main ES. A summary of the baseline information relevant to the assessment of the updated baseline is provided below.

Designated sites

3.4.8 Cheshire Wildlife Trust has revised the boundaries of a number of Local Wildlife Sites (LWS) which has resulted in changes to three of these LWS as reported in the main ES. They are:

- Shropshire Union Canal (Middlewich Branch) LWS, has reduced in extent from 14.1ha, to 1.1ha. The LWS now comprises a 570m stretch of the canal within Polestead Wood, west of Walley's Green, wholly within the Hough to Walley's Green area (MA01) and is no longer within land required for original scheme as amended by the SES1 scheme in the Wimboldsley to Lostock Gralam area;
- Greenhays Farm Pasture and Woodland LWS, which has been renamed from Greenhays Farm Pasture LWS and increased in extent from 5.8ha as reported in the main ES to 6.2ha. The LWS, located to the north-west of Bostock House Farm, has been extended to the west and as a result, is now adjacent to the original scheme as amended by the SES1 scheme; and
- River Dane Bostock LWS, which has increased in extent from 21.2ha, reported in the main ES, to 24.1ha. This LWS is located partially within the land required the original scheme as amended by the SES1 scheme to the north-east of Bank Farm, immediately east of Bull's Wood and to the east and north-east of Hill Wood and has been extended to the south-east to include an additional stretch of the river at Middlewich.

3.4.9 Additional information received from Cheshire Wildlife Trust identified the presence of two new LWS not previously reported in the main ES. Both of these sites are of county/metropolitan value. They are:

- Bank Hall Farm Flush LWS, covering an area of 5ha, is designated for the presence of neutral semi-improved grassland with scattered trees and scrub and areas of damp flush and marshy grassland. The LWS is located partially within the land for the original scheme as amended by the SES1 scheme; and
- Veteran Ash Tree, Bank Hall Farm Flush LWS, covering an area of 0.1ha, comprises a mature veteran ash. The LWS is located 29m south-east of the land required for the original scheme as amended by the SES1 scheme.

Habitats

3.4.10 The main ES reported an area of marshy grassland, covering an area of 0.2ha, at Bank Farm, south-east of Bull's Wood, within the land required for the original scheme. This grassland was valued as district/borough value in the main ES. This grassland now forms part of Bank Hall Farm Flush LWS and is now considered to be of county/metropolitan value.

3.4.11 An area of semi-improved neutral grassland, covering an area of 4.8ha is also present within Bank Hall Farm Flush LWS. It is partially within the land required for the construction of the original scheme and is of county/metropolitan value.

3.4.12 The main ES reported a total of 88.9km of hedgerow within the land required for the construction of the original scheme. This comprised 47.7km of native species-poor

hedgerow and 41.2km of native species-rich hedgerow (including 37.9km of hedgerows not subject to survey and assumed to be species rich on a precautionary basis). The hedgerow network as a whole is of county/metropolitan value. Additional surveys of hedgerows that were previously not subject to survey have identified:

- a total of 279m of hedgerow, previously assumed on a precautionary basis to be species-rich, are species-poor; and
- a further 294m of species-poor hedgerow, not previously reported in the main ES.

3.4.13 The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) will result in a reduction in the area of land required, compared to the original scheme, which includes 1.2km of hedgerow, previously assumed on a precautionary basis, to be species-rich.

3.4.14 As a result of the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) and updated baseline, the total length of hedgerows within the land required for the SES1 scheme is 86.6km, comprising 47.9km of native species-poor hedgerow and 38.6km of native species rich hedgerow (including 35.4km of unsurveyed hedgerows assumed to be species rich on a precautionary basis). The change in length and composition of hedgerows reported does not change the value of hedgerow network as a whole from that reported in the main ES.

3.4.15 The main ES reported a total of 91.4ha of species-poor semi-improved grassland throughout the Wimboldsley to Lostock Gralam area, within land required for the original scheme. Areas of species-poor grassland are of local/parish value. The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) will result in a reduction in land required compared with the original scheme, which includes 10.1ha of species-poor semi-improved grassland.

Species

Amphibians

3.4.16 The outcomes of additional ecological surveys undertaken since the main ES for great crested newt have formed the basis of a review of the composition of meta-populations across the Wimboldsley to Lostock Gralam area. This review has considered the quality and connectivity of terrestrial habitat between ponds to determine the location of distinct clusters of ponds that are likely to support meta-populations of great crested newt. This review has resulted in the addition of one meta-population, changes to the composition of two meta-populations and the removal of one meta-population in comparison with those reported in the main ES. Each meta-population reported includes one or more ponds where the presence of great crested newt had been confirmed by survey, on a precautionary basis GCN populations are assumed to be present.

3.4.17 The main ES reported a population of great crested newt (GCNP1.2.15) located in two ponds. In the main ES, presence of great crested newt was assumed. Additional surveys have confirmed the presence of great crested newt within a single pond where great crested newt were previously assumed to be present. Whilst the presence of great crested newt has now been confirmed, the value of the population has not changed since the main ES.

- 3.4.18 The main ES reported a meta-population of great crested newt in a network of 54 ponds located to the north-east of Middlewich (GCNMP1.2.21), which includes populations identified through desk study records at one pond. The ponds are located between 198m and 986m from the land required for the original scheme and this meta-population is valued at up to county/metropolitan value in the main ES. However, the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) means that this meta-population is no longer adversely affected and relevant to the assessment of the SES1 scheme.
- 3.4.19 The main ES reported a great crested newt meta-population in a network of 147 ponds located to the east of Northwich (GCNMP1.2.26). This included populations identified through desk study records at two ponds. On a precautionary basis, the presence of a large population was assumed, as it is associated with a network of over 100 ponds. This meta-population is valued at up to county/metropolitan level in the main ES. Additional surveys have confirmed the absence of great crested newt within one pond where great crested newt populations were previously assumed to be present. This pond no longer forms part of the meta-population. The decrease in the number of ponds with confirmed or assumed populations of great crested newt does not change the value of GCNMP1.2.26, as reported in the main ES.
- 3.4.20 The main ES reported a great crested newt meta-population in a network of 132 ponds located to the west of Knutsford (GCNMP1.2.36). This included ponds in which the presence of great crested newt was confirmed by desk study and field survey data. A large meta-population is assumed to be present, as it is associated with a network of over 100 ponds. Additional surveys have confirmed presence of great crested newt in seven ponds where presence had previously been assumed as part of a precautionary assessment. The additional data does not change the basis for assuming the presence of large size class. There is no change in the value of this meta-population at county/metropolitan level, as reported in the main ES.

Bats

- 3.4.21 The main ES reported an assemblage of at least seven species of bats between Wimboldsley and Stanthorne. Occasional roosts of common pipistrelle, soprano pipistrelle, Pipistrellus species, brown long-eared bat, *Myotis* species and an unconfirmed species were recorded. This assemblage is considered to be of regional value on the basis of the high numbers of foraging and commuting *Myotis* species bats recorded, which are considered to be 'rarer'⁹ bats in England. Additional surveys identified further occasional roosts of previously recorded species, and noctule (as an additional species), within land required for the AP1 revised scheme, and a further occasional roost of common pipistrelle 10m to the west. The presence of these additional roosts does not change the value of the bat assemblage, as reported in the main ES.

⁹ Wray, S. Wells, D. Long, E. & Mitchell-Jones, T. (2010), *Valuing Bats in Ecological Impact Assessment*, In-Practice, 23-25. Chartered Institute of Ecology and Environmental Management, Winchester.

- 3.4.22 The main ES reported an assemblage of at least eight species of bats between Stanthorne and Rudheath. Field surveys recorded occasional roosts of at least five species, and possible maternity roosts of common pipistrelle and soprano pipistrelle. This assemblage is considered to be of regional value on the basis of the high numbers of foraging commuting noctule and *Myotis* species recorded, which are considered to be 'rarer' bats in England, although noctule are considered to be more common in Cheshire. Maternity roosts, including those of the most common species, are relatively infrequent and are important in maintaining bat populations. Additional surveys recorded further occasional roosts of previously recorded species, brown long-eared bat, *Myotis* species and soprano pipistrelle, located within, adjacent to and up to 55m from land required for original scheme as amended by the SES1 scheme; and a possible maternity roost of brown long-eared bat located within the land required for the original scheme as amended by the SES1 scheme. Additional surveys also recorded commuting and foraging activity by Daubenton's bat, a species not previously recorded within this assemblage. The recording of these additional roosts and species does not change the value of the bat assemblage reported in the main ES.
- 3.4.23 The main ES reported an assemblage of at least five species of bats between Broken Cross and Lostock Gralam including occasional roosts of common pipistrelle. This assemblage is considered to be of regional value on the basis of the high numbers of foraging and commuting *Myotis* species recorded. Additional surveys recorded occasional roosts of common pipistrelle and *Myotis* species within the land required for the original scheme as amended by the SES1. The recording of these additional roosts does not change the value of the bat assemblage, as reported in the main ES.
- 3.4.24 The main ES reported an assemblage of at least eight species of bats to the north-east of Lostock Gralam including occasional roosts of soprano pipistrelle. This assemblage is considered to be of regional value on the basis of the high numbers of foraging and commuting *Myotis* species recorded. Additional surveys recorded an occasional roost of Natterer's bat, a species not previously recorded within this assemblage, within the land required for the original scheme as amended by the SES1 scheme. This record does not change the value of the bat assemblage, as reported in the main ES.

Future baseline

- 3.4.25 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered within a future baseline where relevant, and their potential to give rise to cumulative effects has been assessed.
- 3.4.26 None of the identified developments affect the assessment of the SES1 scheme's likely construction impacts on ecology and biodiversity.

Effects arising during construction

Avoidance and mitigation measures

- 3.4.27 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

- 3.4.28 Construction of the original scheme will result in the permanent loss of 4.8ha (95.3%) of the newly designated Bank Hall Farm Flush LWS. This was not reported in the main ES as at the time of the assessment for the main ES this site was not designated as a LWS. Habitat loss from this LWS will result in a permanent adverse effect on the structure and function of the site that will be significant at the county/metropolitan level. Prior to designation, in the main ES, the loss of this habitat was assessed to be of significance at the local/parish level.

Habitats

- 3.4.29 The main ES reported that construction of River Dane viaduct would result in the loss of 0.3ha (100%) of marshy grassland habitat at Bank Farm, south-east of Bull's Wood, which now forms part of Bank Hall Farm Flush LWS. The loss of this marshy grassland habitat will result in a permanent adverse effect that is significant at the county/metropolitan level (rather than district/borough level as reported in the main ES).
- 3.4.30 Construction of Stanthorne North embankment and River Dane viaduct will also result in the loss of 4.8ha of semi-improved neutral grassland at Bank Farm, south-east of Bull's Wood, which now forms part of Bank Hall Farm Flush LWS. The loss of this grassland habitat will result in a permanent adverse effect that is significant at the county/metropolitan level (rather than local/parish level as reported in the main ES).
- 3.4.31 The main ES assumed that, on a precautionary basis, all hedgerows within the land required for the construction of the original scheme in the Wimboldsley to Lostock Gralam area would be permanently lost and the remaining hedgerow network fragmented, which would have a permanent adverse effect that is significant at county/metropolitan level. Following the SES1 changes and reflecting the updated baseline, the total extent of hedgerows lost within the Wimboldsley to Lostock Gralam area has decreased from 88.9km, as reported in the main ES, to 86.6km. The change will result in a different effect but will not change the level of significance of the effect as reported in the main ES.

Species

Amphibians

- 3.4.32 In the main ES, all ponds that had not been surveyed were assumed to contain great crested newt on a precautionary basis. The main ES therefore identified loss of such ponds as resulting in a significant adverse effect at up to county/metropolitan level. Further surveys

for GCNP1.2.15 have confirmed the presence of great crested newt in one of the two ponds of this population where their presence had been assumed. This confirms the level of effect is significant at the county/metropolitan level.

- 3.4.33 The main ES reported that the loss of habitat resulting from the construction of the original scheme would result in an adverse effect on the meta-population of great crested newt in a network of 54 ponds located to the north-east of Middlewich (GCNMP1.2.21). This would result in a permanent adverse effect on the meta-population that is significant at the county/metropolitan level. However, the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) means that this meta-population is no longer affected by the SES1 scheme. This will remove the permanent adverse effect reported in the main ES.
- 3.4.34 The main ES reported that the loss of habitat resulting from the construction of the original scheme would result in an adverse effect on the meta-population of great crested newt in a network of 147 ponds located to the east of Northwich (GCNMP1.2.26). This would result in a permanent adverse effect on the meta-population that is significant at the county/metropolitan level. Following additional surveys, the number of ponds associated with this meta-population has been reduced to 146. The change in the composition of the meta-population 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 as reported in the main ES.
- 3.4.35 The main ES reported that the loss of habitat resulting from the construction of the original scheme would result in an adverse effect on the meta-population of great crested newt in a network of 132 ponds located to the west of Knutsford (GCNMP1.2.36). This would result in a permanent adverse effect on this meta-population that is significant at the county/metropolitan level. Following additional surveys being undertaken, presence of great crested newt has been confirmed in one pond where presence was previously assumed on a precautionary basis. This will not result in a different significant effect or change the level of significance of the effect on the meta-population, as reported in the main ES.

Bats

- 3.4.36 The main ES reported the loss of occasional soprano pipistrelle and brown long-eared roosts and the loss and fragmentation of foraging and commuting habitat used by the assemblage of bats between Wimboldsley and Stanthorne, which would result in a permanent adverse effect on this assemblage, significant at the regional level. Following additional surveys, the loss of occasional roosts of common pipistrelle and noctule 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 to that reported in the main ES.
- 3.4.37 The main ES reported the loss of a possible maternity roost of soprano pipistrelle and occasional roosts of at least three bat species from the assemblage of bats between Stanthorne and Rudheath. The loss and fragmentation of foraging and commuting habitat used by the assemblage was also reported, which, in combination with the loss of roosts,

would result in a permanent adverse effect on this assemblage, significant at the regional level. Additional possible maternity roost of brown long-eared bat and non-breeding occasional roosts were recorded adjacent to and up to 20m from the original scheme as amended by the SES1 scheme. The loss and disturbance of these additional roosts will result in a different significant effect to that reported in the main ES; however, this will not change the level of significance of effect to that reported in the main ES.

- 3.4.38 The main ES reported on a precautionary basis the assumed loss of roosts, and loss and fragmentation of foraging habitat used by the assemblage of bats to the east and north-east of Lostock Gralam. This would result in a permanent adverse effect on this assemblage, significant at the regional level. The loss of occasional roosts of *Myotis* species, recorded during additional surveys, 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 effect to that reported in the main ES.

Other mitigation measures

Habitats

- 3.4.39 A combined total of 5.6ha of species rich grassland will be newly created in four locations to the east of Bank Farm and alongside the Trent and Mersey Canal, north of Whatcroft Lane. This will compensate for the loss of 4.6ha of semi-improved neutral grassland at Bank Farm, south-east of Bull's Wood (now forming part of Bank Hall Farm Flush LWS). Following establishment, the adverse effect on semi-improved neutral grassland will be reduced to a level that is not significant.
- 3.4.40 The main ES reported that a combined total of 4.1ha of marshy grassland habitat would be created on the River Dane floodplain and adjacent to the Trent and Mersey Canal. This would among other effects, compensate for the loss of 0.3ha of marshy grassland at Bank Farm, south-east of Bull's Wood (now forming part of Bank Hall Farm Flush LWS). Following establishment and restoration, the adverse effect on marshy grassland will be reduced to a level that is not significant.
- 3.4.41 The main ES reported that a total of 32km of new hedgerows would be planted as replacement for those lost as a result of the original scheme. This represents a net reduction in hedgerow of 54.6km (reduced from 56.9km as reported in the main ES) after mitigation, which is a residual adverse effect that is significant at the county/metropolitan level. The SES1 scheme will result in a decrease in the overall net loss to hedgerows within the Wimboldsley to Lockstock Gralam area; the change will result in a different effect but will not change the level of significance of the effect reported in the main ES.

Species

Amphibians

- 3.4.42 The main ES reported that significant effects on the great crested newt populations within the Wimboldsley to Lostock Gralam area would be addressed by the provision of measures within the ecological habitat creation areas along the Shropshire Union Canal (Middlewich Branch), north of Clive Green Lane, west of Whatcroft Hall Lane, north of Davenham Road, south of the B5082 Penny's Lane and west of Cooke's Lane. These measures would comprise provision of ponds, grassland and woodland that would be designed to compensate for the loss of breeding sites, foraging habitat and places of shelter used by great crested newt. Following implementation, the adverse effects on the amphibian populations in the Wimboldsley to Lostock Gralam area would be reduced to a level that is not significant. Following the consideration of additional baseline information, the assessment has concluded that the impacts of the original scheme on great crested newt will have a different effect but will not change the significance of effect from those reported in the main ES. The provision of compensatory habitats as reported in the main ES will, once established, reduce adverse effects on amphibian populations to a level that is not significant.

Bats

- 3.4.43 The main ES reported that significant effects to the bat assemblage between Wimboldsley and Stanthorne would be addressed by the provision of artificial roosts, which would be provided in accordance with the Ecological Principals of Mitigation within the SMR, as well as a range of habitat creation measures. These include the provision of new woodland planting either side of Clive Green Lane and adjacent to Small Rookery Wood and Wimboldsley Wood, grassland creation along the Shropshire Union Canal (Middlewich Branch) and new hedgerows and scrub planting at the margins of Crewe North rolling stock depot (RSD) and along Walley's Green embankment. These measures will compensate for those bat roosting, foraging and commuting habitats lost to the original scheme. They 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. The loss of the additional occasional roosts of previously recorded species, and noctule (as an additional species), and a further occasional roost of common pipistrelle, within and up to 10m from the land required for the construction of the original scheme will be addressed through the provision of suitable replacement roosts within nearby retained woodland habitat as described in the main ES. Following implementation of these measures, the effects on the bat assemblage between Wimboldsley and Stanthorne will be reduced to a level that is not significant.
- 3.4.44 The main ES reported that significant effects to the bat assemblage between Stanthorne and Rudheath would be addressed by the provision of artificial roosts. They will be provided in accordance with the Ecological Principals of Mitigation within the SMR, and habitat creation measures including the provision of new woodland planting adjacent to The Willowbeds LWS, west of the A533 Northwich Road, and to the south-east of Bostock Hall and grassland creation to the south of the River Dane, Bostock LWS and alongside the Trent and Mersey

Canal LWS. These measures will compensate for those bat roosting, foraging and commuting habitats lost to the original scheme. 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. The loss of a possible maternity roost of brown long-eared bat, and additional occasional roosts of brown long-eared bat, *Myotis* species and soprano pipistrelle, all within 55m of the land required for the construction of the original scheme as amended by the SES1 scheme will be addressed through the provision of suitable replacement roosts within nearby retained woodland as described in the main ES. Following implementation of these measures, the effects on the bat assemblage between Stanthorne and Rudheath will be reduced to a level that is not significant.

- 3.4.45 The main ES reported that significant effects to the bat assemblage north and north-east of Lostock Gralam would be addressed by the provision of artificial roosts. They will be provided in accordance with the Ecological Principles of Mitigation within the SMR, and habitat creation measures including the provision of extensive woodland planting between Plumley Lime Beds SSSI and Leonard's and Smoker Woods to compensate for those bat roosting, foraging and commuting habitats lost to the original scheme. 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. The loss of occasional roosts of common pipistrelle and *Myotis* species within the land required for construction of the original scheme will be addressed through the provision of suitable replacement roosts within nearby retained woodland as described in the main ES. Following implementation of these measures, the effects on the bat assemblage north and north-east of Lostock Gralam will be reduced to a level that is not significant.

Summary of likely residual significant effects

- 3.4.46 On a precautionary basis, it is assumed that there will be a net loss in hedgerow of 54.6km (reduced from 56.9km as reported in the main ES). This will remain a permanent adverse residual effect that is significant at the county/metropolitan level, as reported in the main ES. In addition to the mitigation described, opportunities will be sought for additional retention and replacement of hedgerow within the land required for temporary works.

Cumulative effects

- 3.4.47 No new or different significant cumulative effects have been identified further to those identified in the main ES.

3.5 Health

Introduction

- 3.5.1 The environmental baseline relevant to the health assessment is described below. Any new or different likely environmental effects as a result of the changes introduced in Section 2 are identified, then compared to those reported in the main ES.

Scope, assumptions and limitations

- 3.5.2 The assessment scope, key assumptions and limitations for health are as set out in Volume 1 and the SMR of the main ES.
- 3.5.3 Health effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

SES1 changes relevant to the assessment

- 3.5.4 Implications of changes to the sound, noise and vibration assessment resulting from changes to the baseline are considered in this assessment. Changes to the sound, noise and vibration assessment have the potential to result in new or different significant operational effects.

Environmental baseline

Existing baseline

- 3.5.5 The baseline health information is as described in Section 8 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the SES1 changes is provided below.
- 3.5.6 Changes to the sound, noise and vibration baseline have occurred in Stanthorne. Stanthorne comprises approximately 70 residential properties and farmsteads, with the nearest residential properties located 70m east of the original scheme.

Future baseline

- 3.5.7 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.

- 3.5.8 No committed developments of relevance for the health assessment have been identified that would materially alter the future baseline in this area.

Effects arising during operation

Avoidance and mitigation measures

- 3.5.9 No mitigation measures additional to those reported in the main ES are identified.

Assessment of impacts and effects

- 3.5.10 The main ES reported an adverse neighbourhood quality effect for residents in Stanthorne. Overhead line equipment and trains running on Stanthorne South embankment No.1 were expected to be visible from street level in Stanthorne. Noise from passing trains and trains passing through Middlewich box structure would be noticeable in this area. Changes to the sound, noise and vibration baseline will remove the significant noise effect in Stanthorne. Visual effects reported in the main ES will remain the same. This SES1 change will result in the removal of the adverse neighbourhood quality effect in Stanthorne.

Other mitigation measures

- 3.5.11 No mitigation measures additional to those reported in the main ES are identified.

Cumulative effects

- 3.5.12 No new or different significant cumulative effects have been identified further to those identified in the main ES.

3.6 Historic environment

Introduction

- 3.6.1 The environmental baseline relevant to the historic environment assessment is described below. Any new or different likely significant environmental effects as a result of the SES1 changes introduced in Section 2 are then identified, compared to those reported in the main ES.

Scope, assumptions and limitations

- 3.6.2 The assessment scope, key assumptions and limitations for historic environment are as set out in Volume 1 and the SMR of the main ES.
- 3.6.3 The SES1 design change of relevance to this assessment only has the potential to result in new or different significant temporary and permanent effects during construction. Therefore, there is no operational assessment for historic environment.

SES1 changes relevant to the assessment

- 3.6.4 The SES1 design change, the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002), is considered in this assessment.

Environmental baseline

Existing baseline

- 3.6.5 The baseline historic environment information is as described in Section 9 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment is provided below:
- the World War II defences of the former airfield of RAF Cranage (MA02_0218) is a scheduled monument in six parts. It is located approximately 40m from the land required for the construction of the original scheme, now not required due to the SES1 design change;
 - RAF Cranage Airfield (MA02_0214) is a non-designated asset of low value. The land required for the construction of the original scheme is located within the boundary of the former airfield, now not required due to the SES1 design change; and
 - the former Command Centre at RAF Cranage (MA02_0325) is a non-designated asset of high value. It is located approximately 55m south of the land required for the construction of the original scheme, now not required due to the SES1 design change.

Future baseline

- 3.6.6 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 3.6.7 None of the identified developments will alter the baseline conditions in 2025 or 2038 for historic environment.

Effects arising during construction

Avoidance and mitigation measures

- 3.6.8 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

- 3.6.9 Changes to impacts on heritage assets resulting in a new or different significant effect, cumulative effect, or the removal of a significant effect are described in the assessment below. The SES1 and AP1 ES Volume 5, Appendix: HE-002-00000 provides a summary of all historic environment effects that have been changed as a result of the SES1 scheme.

Temporary effects

- 3.6.10 The main ES reported a temporary moderate adverse significant effect on the former RAF Cranage Airfield (MA02_0214), a non-designated asset of low value. The asset is partly located within the land that was identified as required for the excavation of MA02 Borrow Pit D. The excavation of MA02 Borrow Pit D would modify the characteristically flat topography of the former airfield and reduce the legibility of its layout. This would alter its character, which would reduce the ability to recognise it as an historic airfield and therefore adversely impact its heritage value. MA02 Borrow Pit D is no longer required and therefore the moderate adverse significant effect is removed.
- 3.6.11 The main ES reported a temporary major adverse significant effect on the World War II defences of the former airfield of RAF Cranage (MA02_0218), a scheduled monument of high value. The scheduled monument comprises six separate scheduled areas; the remains of a battle headquarters, an anti-aircraft gun, an aircrew sleeping shelter and four pill boxes. These are located around the land that would be required for excavation of MA02 Borrow Pit D, at a distance of around 50m. The excavation and use of MA02 Borrow Pit D would reduce the ability to appreciate the scheduled areas as related to one another and their relationship with the flat agricultural land chosen for the airfield, adversely impacting the heritage value of the asset. MA02 Borrow Pit D is no longer required and therefore the moderate adverse significant effect is removed.
- 3.6.12 The main ES reported a temporary major adverse significant effect on the former command centre of RAF Cranage (MA02_0325), a non-designated asset of high value. The asset is located 55m south of the land that would be required for the excavation of MA02 Borrow Pit D. The excavation and use of MA02 Borrow Pit D would be partially within the setting of the asset. This would reduce the ability to appreciate the relationship between the asset and the World War II defences of the former airfield of RAF Cranage (MA02_0218), and with the flat agricultural land chosen for the airfield and adversely impact its heritage value. MA02 Borrow Pit D is no longer required and therefore the moderate adverse significant effect is removed.

Permanent effects

- 3.6.13 The main ES reported a permanent moderate adverse significant effect on the former RAF Cranage Airfield (MA02_0214), a non-designated asset of low value. The asset is partly located within the land that would be required for the excavation of MA02 Borrow Pit D. The value of the asset is partly derived from the potential for unknown archaeological remains and its association with known archaeological features which help explain its former

function. The excavation of MA02 Borrow Pit D would remove any associated archaeological remains within the area of the borrow pit. This would impact on the archaeological interest of the asset and therefore its heritage value. MA02 Borrow Pit D is no longer required and the moderate adverse significant effect is removed.

Other mitigation measures

- 3.6.14 No mitigation measures, additional to those identified in the main ES and draft CoCP, are identified.

Summary of likely residual significant effects

- 3.6.15 The SES1 design change will not result in any new or different residual significant effects.
- 3.6.16 The SES1 scheme will remove the likely residual significant effects on the former RAF Cranage Airfield (MA02_0214).

Cumulative effects

- 3.6.17 No new, removed or different significant cumulative effects have been identified compared to the main ES.

3.7 Land quality

Introduction

- 3.7.1 The environmental baseline relevant to the land quality 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 those reported in the main ES.

Scope, assumptions and limitations

- 3.7.2 The assessment scope, key assumptions and limitations for land quality are as set out in Volume 1 and the SMR of the main ES.
- 3.7.3 The SES1 design change of relevance to this assessment has the potential to result in new or different significant temporary construction effects only. Therefore, there is no operational assessment for land quality.

SES1 changes relevant to the assessment

- 3.7.4 The SES1 design change for the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) is considered in this assessment.

Environmental baseline

Existing baseline

- 3.7.5 The baseline land quality information is as described in Section 10 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the SES1 design change is provided below.
- 3.7.6 The main baseline feature relevant to the SES1 design change is the former use of the area as an RAF airfield (RAF Cranage), which was present within the majority of land required for the construction of the original scheme as set out in the main ES. Former military sites can represent a source of contaminants such as: hydrocarbons including waste oils, heavy metals, solvents, inorganic compounds, explosive compounds and asbestos; possible radionuclides associated with aircraft dials as well as potentially low levels of ground gas (methane and carbon dioxide) where infilling activities have taken place. The former RAF airfield has been returned to agriculture.
- 3.7.7 Nine other sites with a potentially contaminative land use were identified within the study area at this location. These include farms, former light industrial sites and a former metal manufacturing facility.

Future baseline

- 3.7.8 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 3.7.9 None of the identified developments will materially alter the baseline conditions in 2025 or 2038 for land quality.

Effects arising during construction

Avoidance and mitigation measures

- 3.7.10 No avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP, are required.

Assessment of impacts and effects

- 3.7.11 The following sites, which were considered to pose a potential contamination risk to the original scheme, are no longer part of the baseline for the assessment of the SES1 scheme owing to the removal of the MA02 Borrow Pit D:
- on-site: Former RAF Cranage (MA02-342); and
 - off-site: Gas distribution station (MA02-298).
- 3.7.12 The removal of MA02 Borrow Pit D will mean that no intrusive groundworks or assessment will be required at this location.
- 3.7.13 A negligible to moderate significant beneficial effect was reported in the main ES associated with the potential remediation of MA02 Borrow Pit D. This significant beneficial effect will now not occur.

Other mitigation measures

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

Summary of likely residual significant effects

- 3.7.15 As a result of the removal of MA02 Borrow Pit D (SES1-002-002), the significant moderate beneficial residual effect associated with the potential remediation of land contamination at MA02 Borrow Pit D will not occur.

Cumulative effects

- 3.7.16 No new, removed or different significant cumulative effects have been identified compared to the main ES.

3.8 Landscape and visual

Introduction

- 3.8.1 The environmental baseline relevant to the landscape and visual 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 those reported in the main ES.

Scope, assumptions and limitations

- 3.8.2 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1 and the SMR of the main ES.
- 3.8.3 The SES1 design changes of relevance to this assessment have the potential to result in new or different significant construction and operational effects for landscape and visual.

3.8.4 All landscape and visual effects arising from the SES1 design changes are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

SES1 changes relevant to the assessment

3.8.5 The SES1 design changes considered in this assessment are:

- enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001); and
- the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002).

3.8.6 The SES1 design change, enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001), has the potential to significantly affect two viewpoints during operation.

3.8.7 The SES1 design change, removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002), removing all construction compounds and construction activities from the SES1 scheme, has the potential to remove significant visual effects at three viewpoints during construction.

3.8.8 All landscape and visual effects, arising from this amendment, are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Environmental baseline

Existing baseline

3.8.9 The baseline landscape and visual information is as described in Section 11 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

3.8.10 A summary of the baseline information relevant to the assessment of the SES1 changes is provided below.

Visual baseline

View west from Bellsmithy, A530 Nantwich Road (high sensitivity receptors) (306-02-005)

3.8.11 This viewpoint represents the views experienced by residents of Hopley House, Bellsmithy and Yewtree Farm, Manor Cottage, users of Footpath Wimboldsley 3/1 and Bridleway Wimboldsley 2/1, and road users of the A530 Nantwich Road. The open, unrestricted views west comprise managed hedgerows and isolated hedgerow trees, which give way to large arable fields, managed hedgerows and copses in the middle distance. Distant hedgerows and woodland belts border the River Weaver. Overhead line equipment and train movements along the WCML are visible in the distance, whilst overhead power lines occupy the skyline along with the rooflines of Wimboldsley Hall and Wimboldsley Grange.

**View west from Wimboldsley, A530 Nantwich Road (high sensitivity receptors)
(307-02-002, photomontage reference LV-01-711 – LV-01-713)**

- 3.8.12 This viewpoint represents the views experienced by residents of Wimboldsley, staff and pupils at Wimboldsley Community Primary School and road users of the A530 Nantwich Road. Unrestricted views comprise large arable fields, hedgerow and isolated field trees that extend into the middle-distance where hedge trees, copses and woodland belts form the skyline. Whilst overhead line equipment and train movements on the WCML are visible against this backdrop of vegetation, overhead power lines and pylons occupy the skyline, along with the visible roofline of Wimboldsley Grange.
- 3.8.13 Local roads in the area are unlit, with night-time lighting limited to individual properties. There is a distant skyglow from Winsford approximately 3km to the north-west.

**View south-west from King's Lane Farm, King's Lane (high sensitivity receptors)
(310-02-010)**

- 3.8.14 This viewpoint represents the views experienced by residents and road users on King's Lane. Views are open and capture a relatively flat agricultural landscape, with a large scale arable field in the foreground, bordered by planting belts and woodland. Views from King's Lane Farm are partially filtered by a dense roadside hedgerow. An existing development includes large industrial buildings which are partially visible.

View north-west from Byway Cranage 7/1, A54 Middlewich Road (high sensitivity receptors) (310-02-011)

- 3.8.15 This viewpoint represents the views experienced by residents of Holly House Farm and properties off the A54 Middlewich Road, users of Byway Cranage 7/1 and road users along the minor road and A54 Middlewich Road. It is located in a predominantly flat agricultural landscape, and views are of Holly House farm and associated farm buildings, arable fields separated by hedgerows and framed by interlinking belts of woodland, which combined, form continuous tree cover across the skyline. Vehicles on the M6 and King's Lane Overbridge are visible to the east.

View north-east from Moss Lane (high sensitivity receptors) (310-02-013)

- 3.8.16 This viewpoint represents the views experienced by residents of properties on Moss Lane and the B5081 to north of Byley, staff and pupils at Byley Primary School, visitors to Lowe's Farm Shop and by road users. Located within an agricultural landscape, views include a building which houses Lowe's Farm Shop, set within pasture, the boundaries to which are marked by wood fencing, scattered mature trees and woodland belts. The tree cover is combined within the view to form continuous feature of the skyline. Views from residential properties on Moss Lane north and east are filtered and screened by intervening farm buildings and existing vegetation. Views east from residential properties on the B5081 Byley Road are partly filtered by intervening vegetation.

Future baseline

- 3.8.17 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 3.8.18 None of the identified developments will alter the baseline conditions in 2025 or 2038 for landscape or visual amenity.

Effects arising during construction

Avoidance and mitigation measures

- 3.8.19 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Visual effects

View south-west from King's Lane Farm, King's Lane (high sensitivity receptors) (310-02-010)

- 3.8.20 The main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for residents of King's Lane of high susceptibility and road users of lower susceptibility, both with views of **medium** value due to the presence of large-scale construction work associated with MA02 Borrow Pit D in near-distance views.
- 3.8.21 As a result of the SES1 design change removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002), MA02 Borrow Pit D will no longer be required. The SES1 design change will therefore remove a significant effect.

View north-west from Byway Cranage 7/1, A54 Middlewich Road (high sensitivity receptors) (310-02-011)

- 3.8.22 The main ES reported a **medium** magnitude of change and a **moderate** adverse (significant) effect for residents of Holly House Farm and those off (or along) the A54 Middlewich Road and footpath users of high susceptibility, and road users of lower susceptibility, all experiencing views of **medium** value. This would be due to the presence of large-scale construction work associated with MA02 Borrow Pit D in middle-distance views.
- 3.8.23 As a result of the SES1 design change, removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002), MA02 Borrow Pit D will no longer be required. The SES1 design change will therefore remove a significant effect.

View north-east from Moss Lane (high sensitivity receptors) (310-02-013)

- 3.8.24 During construction, the main ES reported a **medium** magnitude of change and a moderate adverse (significant) for residents of Moss Lane of high susceptibility, staff and pupils at Byley Primary School, visitors to Lowes Farm Shop and road users of lower susceptibility, all with views of **medium** value. This would be due to the removal of existing vegetation and the presence of new landform and earthworks associated with MA02 Borrow Pit D in filtered views.
- 3.8.25 As a result of the SES1 design change, removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002), MA02 Borrow Pit D will no longer be required. The SES1 design change will therefore remove a significant effect.
- 3.8.26 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02 and SES1 and AP1 ES Volume 5: Landscape Map Book.

Other mitigation measures

- 3.8.27 No other mitigation measures additional to those reported in the main ES and draft CoCP are proposed.

Summary of likely residual significant effects

- 3.8.28 The SES1 design changes will not give rise to any new or different likely residual significant construction effects.
- 3.8.29 The SES1 design change, removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002), will remove likely residual significant construction effects at the following viewpoints:
- view south-west from King's Lane Farm, King's Lane (310-02-010);
 - view north-west from Byway Cranage 7/1, A54 Middlewich Road (310-02-011); and
 - view north-east from Moss Lane (310-02-013).

Cumulative effects

- 3.8.30 No new or different significant cumulative effects are identified further to those reported in the main ES.

Effects arising during operation

Avoidance and mitigation measures

- 3.8.31 No mitigation measures additional to those reported in the main ES are required.

Assessment of impacts and effects

Visual effects

View west from Bellsmithy, A530 Nantwich Road (high sensitivity receptors) (306-02-005)

- 3.8.32 At year 1, the main ES reported a **major** adverse (significant) effect for residents in properties bordering the A530 Nantwich Road at Hopley House, Bellsmithy and Yewtree Farm, Manor Cottage, users of Footpath Wimboldsley 3/1 and Bridleway Wimboldsley 2/1, and road users of A530 Nantwich Road, of **high** susceptibility and with **medium** value views. This would be a result of the introduction of the large-scale infrastructure across the majority of the view, including Walley's Green embankment, Crewe North rolling stock depot (RSD) and the A530 Nantwich overbridge.
- 3.8.33 At year 1, the enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001), will slightly change the visual effect at this viewpoint due to a combination of a more natural profile to the outer slope of Walley's Green embankment and the relocation of the upper edge of the earthwork closer to receptors. This will better integrate the new embankment in views and increase its effectiveness as a visual screen. More of the structures of the SES1 scheme will be screened than in the original scheme but due to the large scale of the new structures, the change in the view will be small. Landscape mitigation planting proposed as part of the original scheme, and in association with landscape earthworks will not be sufficiently mature to assist in the visual integration of Walley's Green embankment, or the visual screening of the SES1 scheme. Therefore, the SES1 design change will give rise to a different significant effect, however, the level of significance of the effect will remain as reported in the main ES.
- 3.8.34 In year 15, the main ES reported a **moderate** adverse (significant) effect. This would be a result of a combination of landscape earthworks and maturing mitigation planting which would partially screen Walley's Green embankment, Crewe North RSD and the A530 Nantwich overbridge and help integrate the original scheme into views across the wider landscape. However, the original scheme, most notably the Crewe North RSD would remain visible across the majority of the view, with some elements visible above the line of mitigation planting.
- 3.8.35 At year 15, the SES1 design change will slightly change the visual effect at this viewpoint, due to the maturing and increased depth of the landscape mitigation planting, in combination with the landscape earthworks, which will better integrate Walley's Green embankment into views and filter views north-west of the SES1 scheme. However, the large scale of Crewe North RSD means that the SES1 scheme will remain visible across the majority of the view above the establishing tree canopy. The SES1 design change will therefore give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.

- 3.8.36 In year 30, the main ES reported a **moderate** adverse (significant) effect. This would be a result of mature mitigation planting in association with landscape earthworks partially integrating the A530 Nantwich overbridge and providing a denser screen to views of Crewe North RSD, although the roofline would remain visible above the line of mitigation planting.
- 3.8.37 At year 30, the SES1 design change will slightly change the visual effect at this viewpoint due to the greater maturity and depth of landscape mitigation planting in combination with the landscape earthworks. The effect will be to integrate Walley's Green embankment into views and further filter views of the SES1 scheme. The roofline of Crewe North RSD will remain apparent above the maturing tree canopy. The amendment will therefore give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.

**View west from Wimboldsley, A530 Nantwich Road (high sensitivity receptors)
(307-02-002, photomontage reference LV-01-711 – LV-01-713)**

- 3.8.38 In year 1, the main ES reported a **major** adverse (significant) effect for residents in Wimboldsley of **high** susceptibility and staff and pupils at Wimboldsley Community Primary School and road users of the A530 Nantwich Road of lower susceptibility, all with **medium** value views. This would be a result of the introduction of the original scheme including overhead line equipment, passing trains, Walley's Green embankment and buildings within Crewe North RSD, visible across the majority of the view to the west. For some receptors, the original scheme would form the new skyline.
- 3.8.39 At year 1, the SES1 design change enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001), will slightly change the visual effect at this viewpoint. This is due to a combination of more natural profile to the outer slope of Walley's Green embankment and the relocation of the top of the earthwork closer to the receptors, which will better integrate the new embankment within views, and bring the edge of the earthwork closer, appearing to marginally lift the edge of the earthwork and with it, the screening within views west. However, due to the large scale of the Crewe North RSD area, there will only be a slight change in the view at year 1. This is due to the landscape earthworks in combination with landscape mitigation planting proposed as part of the original scheme, which will not be sufficiently mature to assist in the visual integration of Walley's Green embankment or the visual screening of the SES1 scheme. Therefore, the SES1 design change will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.
- 3.8.40 At year 15, the main ES reported a moderate adverse (significant) effect. This would be a result of landscape mitigation planting proposed as part of the original scheme, partially screening overhead line equipment and built structures within Crewe North RSD. Tall mast lighting columns would, however, remain visible on the skyline.
- 3.8.41 At year 15, the design change will slightly change the visual effect at this viewpoint. Maturing landscape mitigation planting proposed as part of the original scheme and increased in depth by the SES1 design change will provide some screening and better integration of

Walley's Green embankment. However, tall mast lighting columns will remain visible on the skyline above the mitigation planting provided by the original scheme. Therefore, the SES1 design change will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.

- 3.8.42 At year 30, the main ES reported a **moderate** adverse (significant) effect. This would be a result of landscape mitigation planting proposed as part of the original scheme, screening overhead line equipment, and the majority of built structures within Crewe North RSD. Tall mast lighting columns would remain visible on the skyline.
- 3.8.43 At year 30, the SES1 design change will slightly change the visual effect at this viewpoint. Mature landscape mitigation planting proposed by the original scheme will be increased in depth by the SES1 design change in combination with the landscape earthworks. This will better integrate Walley's Green embankment into views, raising the height of screen planting within views of the original scheme. However, tall mast lighting columns will remain visible on the skyline above the mitigation planting provided by the original scheme and extended by the SES1 design change. Therefore, the SES1 design change will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.

Night-time

- 3.8.44 At year 15, the main ES reported a **major** adverse (significant) effect. This would be a result of night-time lighting associated with Crewe North RSD in the middle distance of the view, above establishing mitigation planting provided as part of the original scheme.
- 3.8.45 At year 15, the SES1 design change will slightly change the visual effect at this viewpoint. Maturing landscape mitigation planting proposed as part of the original scheme and increased in depth by the SES1 design change will provide additional screening of low level light sources at Crewe North RSD. However, tall lighting will remain visible in the middle-distance of the view. Therefore, the SES1 design change will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.
- 3.8.46 At year 30, the main ES reported a **moderate** adverse (significant) effect. This would be a result of night-time lighting associated with Crewe North RSD in the middle distance of the view, above establishing mitigation planting provided as part of the original scheme.
- 3.8.47 At year 30, the SES1 design change will slightly change the visual effect at this viewpoint. This is due to greater maturity of landscape mitigation planting proposed as part of the original scheme and increased in depth by the SES1 design change. The effect of this will provide further screening of low level light sources at Crewe North RSD. However, tall lighting will remain visible in the middle-distance of the view. Therefore, the SES1 design change will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.

Other mitigation measures

3.8.48 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

3.8.49 In many cases, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. However, the SES1 design change, enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001), will give rise to a different likely residual significant operation effect at the following viewpoints, but where the level of effect will be unchanged to that reported in the main ES:

- view west from Bellsmithy, A530 Nantwich Road (306-02-005). The effect will reduce but will remain **moderate** adverse (significant); and
- view west from Wimboldsley, A530 Nantwich Road (307-02-002). The effect, including night-time effect, will reduce but will remain **moderate** adverse (significant).

Cumulative effects

3.8.50 No new or different significant cumulative effects are identified further to those in the main ES.

3.9 Socio-economics

Introduction

3.9.1 The environmental baseline relevant to the socio-economic 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 those reported in the main ES.

Scope, assumptions and limitations

3.9.2 The assessment scope, key assumptions and limitations for socio-economics are as set out in Volume 1 and the SMR of the main ES.

3.9.3 The SES1 change of relevance to this assessment has the potential to result in new or different construction (temporary) effects only. Therefore, there is no operational assessment for socio-economics.

3.9.4 Socio-economic effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

SES1 changes relevant to the assessment

- 3.9.5 The SES1 changes to the construction design programme (construction assessment only) are considered in this assessment.

Environmental baseline

Existing environmental baseline

- 3.9.6 The baseline socio-economics information is as described in Section 12 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

Future environmental baseline

- 3.9.7 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant. No committed developments of relevance for the socio-economic assessment have been identified that would materially alter the future baseline in this area.

Effects arising during construction

Avoidance and mitigation measures

- 3.9.8 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

- 3.9.9 The main ES reported that the construction of the original scheme would result in a temporary adverse significant in-combination effect on the Holford Hall Estate wedding venue, located east of Lostock Gralam. This was as a result of significant noise effects (for one year and two months) and effects from heavy goods vehicle construction traffic (traffic-related severance for non-motorised users).
- 3.9.10 The SES1 change will increase the duration of the significant noise effects to one year and six months. This will result in a different temporary adverse significant in-combination effect on the Holford Hall Estate wedding venue.

Other mitigation measures

- 3.9.11 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 3.9.12 The SES1 change will result in the Holford Hall Estate wedding venue being subject to a different adverse residual significant in-combination effect.

Cumulative effects

- 3.9.13 No new or different significant cumulative effects have been identified further to those reported in the main ES.

3.10 Sound, noise and vibration

Introduction

- 3.10.1 The environmental baseline relevant to the sound, noise and vibration 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 those reported in the main ES.

Scope, assumptions and limitations

- 3.10.2 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1 and the SMR of the main ES.
- 3.10.3 The SES1 changes have the potential to result in new or different likely significant construction and operational effects for sound, noise and/or vibration.
- 3.10.4 Sound, noise and vibration effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

SES1 changes relevant to the assessment

- 3.10.5 The following SES1 changes are considered in the construction and operational phase assessments:
- additional environmental baseline information; and
 - changes to the construction design programme (construction assessment only).

Environmental baseline

Existing baseline

- 3.10.6 In the Wimboldsley to Lostock Gralam area, the updated sound modelling described in Section 2 has resulted in updates to the existing baseline sound levels at receptors in the community of Stanthorne. Further information on the updated baseline sound levels relevant to the assessment is provided in the SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. Where no updates to baseline sound levels are required, the baseline sound, noise and vibration information is as described in Section 13 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

Future baseline

- 3.10.7 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 3.10.8 The committed developments have been considered to determine whether they would result in a material change to the future baseline or have the potential to give rise to cumulative effects. None of the identified developments affect the assessment of sound, noise and vibration from the SES1 scheme.
- 3.10.9 Updates have also been made to future baseline sound levels at the location identified in the existing baseline section above, where updates to the existing baseline sound levels have been made for the SES1 and AP1 ES.

Effects arising during construction

Avoidance and mitigation measures

- 3.10.10 No avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP, are required.

Assessment of impacts and effects

Non-residential receptors: direct effects

- 3.10.11 The main ES identified, on the basis of a precautionary assessment, a significant adverse construction noise effect at Holford Hall, a wedding venue located off the A556 Chester Road in Plumley for a duration of up to one year and two months. This was denoted as MA02-C-N1 in Table 2 of the Volume 2, Community Area report MA02, in Volume 5, Appendix: SV-002-

OMA02 and in Volume 5, Sound, noise and vibration Map Book, Map Series SV-03 in the main ES. The SES1 changes to the construction programme will increase the duration of impact to one year and six months. This will give rise to a different likely significant effect on the non-residential receptor.

- 3.10.12 For further information see SES1 and AP1 ES Volume 5, Appendix: SV-002-00000 and SES1 and AP1 ES Volume 5, Sound, noise and vibration Map Book.

Other mitigation measures

- 3.10.13 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 3.10.14 The SES1 changes will give rise to a different likely temporary residual adverse significant construction noise effect on Holford Hall, a wedding venue located off the A556 Chester Road in Plumley, due to an increased impact duration.

Cumulative effects

- 3.10.15 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Effects arising during operation

Avoidance and mitigation measures

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

Assessment of impacts and effects

- 3.10.17 The main ES identified a likely significant adverse operational airborne noise effect on a community basis with a minor to major noise impact at approximately 25 dwellings in Stanthorne in the vicinity of Birch Lane and Coalpit Lane. This was denoted as MA02-O-C3 in the Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), in the Volume 2, MA02 Map Book and in Volume 5, Appendix: SV-003-0MA02 in the main ES. The SES1 changes do not alter the operational airborne noise level from the original scheme, however higher existing baseline noise levels in this area will reduce noise impacts to minor adverse only at approximately 15 dwellings, which is not considered to be significant on a community basis. As a result, the likely significant adverse effect identified in Stanthorne in the main ES is removed. This is summarised in Table 6.

Table 6: Direct adverse operational effects on residential communities and shared open areas that are removed compared to those reported in the main ES

Significant effect number and Map reference¹⁰	Source of significant effect (type)	Time of day	Location and details
MA02-O-C2 (SV-05-305)	Airborne noise increase from new train services (Removed)	Daytime and night-time	Stanthorne Approximately 15 dwellings in the vicinity of Birch Lane and Coalpit Lane. Forecast increases in sound from the railway are likely to cause a minor noise increase affecting the acoustic character of the area around the dwellings, which is not considered to be significant on a community basis. There are no shared open spaces identified as being affected in this community.

3.10.18 For further information see SES1 and AP1 ES Volume 5, Appendix: SV-003-00000 and SES1 and AP1 ES Volume 5, Sound, noise and vibration Map Book.

Other mitigation measures

3.10.19 No mitigation measures additional to those reported in the main ES are required.

Summary of likely residual significant effects

3.10.20 The SES1 changes will not result in any new or different residual significant effects.

3.10.21 The SES1 changes will result in the removal of the significant operational noise effect in the vicinity of approximately 15 dwellings at Stanthorne reported in the main ES.

Cumulative effects

3.10.22 No new or different significant cumulative effects have been identified further to those reported in the main ES.

3.11 Water resources and flood risk

Introduction

3.11.1 The environmental baseline relevant to the water resources and flood risk assessment is described below. Any new or different likely significant environmental effects as a result of the SES1 design changes introduced in Section 2 are then identified, compared to those reported in the main ES.

¹⁰ See SES1 and AP1 ES Volume 5, Appendix: SV-002-00000 and SES1 and AP1 ES Volume 5 Sound, noise and vibration Map Book, Map Series SV-05.

Scope, assumptions and limitations

- 3.11.2 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1 and the SMR of the main ES.
- 3.11.3 Unless indicated otherwise, the spatial scope of the assessment (the study area) is based upon the identification of surface water and groundwater features within 1km of the original scheme, as described in the main ES. In the Wimboldsley to Lostock Gralam area, the main ES study area was extended to include the land required for MA02 Borrow Pit D, located 4.5km to the east of the original scheme, north of Moss Lane and immediately west of the M6.
- 3.11.4 The SES1 design change of relevance to this assessment has the potential to result in the removal of a significant construction effect on water resources. There is no operational assessment for water resources, and no operational or construction assessment for flood risk.
- 3.11.5 Water resources and flood risk effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

SES1 changes relevant to the assessment

- 3.11.6 The SES1 design change for the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) is considered in this assessment.

Environmental baseline

Existing baseline

- 3.11.7 The baseline water resources and flood risk information is as described in Section 15 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the SES1 design change is provided below.
- 3.11.8 This SES1 design change removes MA02 Borrow pit D, previously located 4.5km to the east of the original scheme, near Byley. The underlying superficial geology in this area consists of the glaciofluvial sheet deposits, which are designated as a Secondary A aquifer (moderate value receptor). The glaciofluvial deposits would be affected by the original scheme and are relevant to this SES1 design change.
- 3.11.9 Puddinglake Brook, a high value main river, runs within 120m of the southern side of the land required for MA02 Borrow Pit D. A moderate significant adverse effect was reported in the main ES on this watercourse as it is likely to be in hydraulic connection with the underlying glaciofluvial sheet deposits aquifer and is likely to receive baseflow from groundwater. It is relevant to this SES1 design change.

Future baseline

- 3.11.10 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). The developments have been considered to determine whether they would result in a material change to the future baseline or have the potential to give rise to cumulative effects. None of the identified developments affect the assessment of the SES scheme's likely construction and operation impacts on water resources and flood risk.

Effects arising during construction

Avoidance and mitigation measures

- 3.11.11 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Surface water

- 3.11.12 There are no new impacts or significant effects on surface water arising from the SES1 design change.

Groundwater

- 3.11.13 MA02 Borrow Pit D would be located in the glaciofluvial sheet deposits (Secondary A aquifer) north of Moss Lane, and it was assumed that dewatering would be required. In the main ES, the excavation of the glaciofluvial sheet deposits was reported to lead to a moderate impact on the moderate value aquifer, leading to a significant moderate adverse effect. The removal of the MA02 Borrow Pit D will result in the removal of this temporary significant moderate adverse effect on the local glaciofluvial sheet deposits.
- 3.11.14 A moderate impact on the glaciofluvial sheet deposits, a Secondary A aquifer, was reported in the main ES due to the backfilling of the MA02 Borrow Pit D with lower permeability material. This would result in a moderate adverse effect on the glaciofluvial sheet deposits aquifer. This effect would be reduced to negligible due to the implementation of the measures set out in the draft CoCP and the borrow pit report of the main ES (see Volume 5, Appendix: CT-008-00000 of the main ES). With the removal of the MA02 Borrow Pit D, the permanent significant adverse effect on this aquifer will be removed.

Groundwater – surface water interactions

- 3.11.15 In the main ES it was reported that the dewatering in the glaciofluvial sheet deposits would lead to a reversal of the hydraulic gradient between the aquifer and Puddinglake Brook. This would result in a moderate adverse impact to flow in Puddinglake Brook, resulting in a temporary significant moderate adverse effect. The removal of MA02 Borrow Pit D removes this temporary moderate adverse effect on Puddinglake Brook.
- 3.11.16 There are no new impacts and significant effects on groundwater – surface water interactions arising from the SES1 changes.

Other mitigation measures

- 3.11.17 No mitigation measures additional to those reported in the main ES and draft CoCP are required for the SES1 changes in this community area for water resources and flood risk.

Summary of likely residual significant effects

- 3.11.18 The SES1 changes will not result in any new or different residual significant effects.
- 3.11.19 The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) will lead to the removal of the temporary and permanent moderate adverse effects reported in the main ES on the glaciofluvial sheet deposits (Secondary A aquifer) and the temporary moderate adverse effect on Puddinglake Brook.

Cumulative effects

- 3.11.20 No new, removed or different significant cumulative effects have been identified compared to the main ES.

3.12 Summary of new or different likely residual significant effects as a result of the SES1 changes

Construction

Ecology and biodiversity

- 3.12.1 As a result of the SES1 scheme, there will be a net loss in hedgerow of 54.6km (reduced from 56.9km as reported in the main ES), which will result in a permanent adverse residual effect that is significant at the county/metropolitan level for ecology and biodiversity.

Landscape and visual

- 3.12.2 Enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001), will give rise to a different likely residual significant operation effect at the following viewpoints. However, this will not change the level of significance of the effects reported in the main ES for landscape and visual:
- view west from Bellsmithy, A530 Nantwich Road (306-02-005). The effect will reduce but will remain moderate adverse (significant); and
 - view west from Wimboldsley, A530 Nantwich Road (307-02-002). The effect will reduce but will remain moderate adverse (significant).

Socio-economics

- 3.12.3 The SES1 changes will result in the Holford Hall Estate wedding venue being subject to a different adverse residual significant in-combination effect for socio-economics.

Sound, noise and vibration

- 3.12.4 The SES1 changes will give rise to a different residual likely significant adverse construction noise effect on Holford Hall, a wedding venue located off the A556 Chester Road in Plumley, due to an increased impact duration.

Water resources and flood risk

- 3.12.5 The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) will lead to the removal of the temporary and permanent moderate adverse effects reported in the main ES on the glaciofluvial sheet deposits (Secondary A aquifer) and the temporary moderate adverse effect on Puddinglake Brook. There will be no new or different residual significant effects resulting from the SES1 changes in this community area for water resources.

Operation

Landscape and visual

- 3.12.6 The SES1 design change, enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001), will give rise to a different likely residual significant operation effect at the following viewpoints, but where the level of effect will be unchanged to that reported in the main ES:
- view west from Bellsmithy, A530 Nantwich Road (306-02-005). The effect will reduce but will remain **moderate** adverse (significant); and
 - view west from Wimboldsley, A530 Nantwich Road (307-02-002). The effect, including night-time effect, will reduce but will remain **moderate** adverse (significant).

3.13 Summary of likely residual significant effects that will be removed

- 3.13.1 The SES changes will remove the following likely residual significant effects reported in the main ES:
- the temporary major/moderate adverse significant effect from Wash Lane Farm (MA02/17), as a result of the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002);
 - the temporary moderate adverse significant effect from Pear Tree Farm, Cranage (MA02/16), as a result of the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002);
 - the removal of the noise effect as a result of changes to the sound, noise and vibration baseline will result in the removal of a residual effect on 25 residential properties in Stanthorne for community;
 - the adverse effect on GCNMP 1.2.21, as a result of the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002);
 - the likely residual significant effects on the former RAF Cranage Airfield (MA02_0214) for historic environment, as a result of the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002);
 - the significant moderate beneficial residual effect associated with the potential remediation of land contamination at MA02 Borrow Pit D will not occur, as a result of the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002);
 - likely residual significant construction effects at the following viewpoints, as a result of the removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002):
 - view south-west from King's Lane Farm, King's Lane (310-02-010);
 - view north-west from Byway Cranage 7/1, A54 Middlewich Road (310-02-011);
 - view north-east from Moss Lane (310-02-013); and
 - the significant operational noise effect in the vicinity of approximately 15 dwellings at Stanthorne reported in the main ES for sound, noise and vibration.

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4 Summary of AP1 amendments in the Wimboldsley to Lostock Gralam area

4.1 Introduction

- 4.1.1 The need to make changes to the design and to construction assumptions has been identified since the main ES. The changes in the Wimboldsley to Lostock Gralam area relate to engineering and utility amendments, and are described below.
- 4.1.2 Please note that all dimensions in the following sections are approximate.

4.2 Engineering and utility amendments

- 4.2.1 Engineering and utility amendments will be required in the Wimboldsley to Lostock Gralam area that will result in changes to the land or Bill powers required for the original scheme. Table 7 provides a summary of the engineering and utility amendments. Figure 3 shows the locations of the engineering amendments.

Table 7: Summary of AP1 amendments requiring changes to Bill powers in the Wimboldsley to Lostock Gralam area

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
Additional land temporarily required for the provision of surface water drainage at A530 Nantwich Road satellite compound AP1-002-001 See map CT-05-308b, E10 to F8 and CT-05-308b-R1, E5 to F1 in the SES1 and AP1 ES Volume 2, MA02 Map Book	Land would be required for the temporary establishment of A530 Nantwich Road satellite compound. No drainage was proposed for this compound as part of the original scheme.	The extension of a 10m wide strip of the land required temporarily for construction from the A530 Nantwich Road satellite compound to allow for a gravity surface water drainage outfall (an outfall ditch and/or carrier drain) to Hoggins Brook watercourse during construction.
Additional land permanently required for the provision of landscape mitigation planting at Wimboldsley AP1-002-002	Landscape mitigation planting, landscape earthworks and hedgerow planting to the east of the HS2 route and west of Wimboldsley	Additional landscape mitigation planting as well as changes to the original scheme design mitigation planting programme, to bring forward landscape mitigation and hedgerow planting into the earliest stage of the scheme as advance works, where

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Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
See map CT-05-309, C8 and CT-06-309, B6 to E6 and B7 to B8 in the SES1 and AP1 ES Volume 2, MA02 Map Book.	Community Primary School.	reasonably practicable, to assist in the screening of construction works.
Change to Bill powers required for the retention of Footpath Wimboldsley 1/1 between the Shropshire Union Canal towpath and Crewe North Rolling Stock Depot AP1-002-003 See map CT-06-309, F4 to H1 and map CT-06-309-L1 F10 to I7 on SES1 and AP1 ES Volume 2, MA02 Map Book.	The permanent closure of Footpath Wimboldsley 1/1 between the Shropshire Union Canal and A530 Nantwich Road. No diversions are proposed.	Footpath Wimboldsley 1/1 from the Shropshire Union Canal up to the access road into Crewe North RSD will remain open as a route for pedestrians to access the Crewe North RSD via a small earthwork ramp. A section of Footpath Wimboldsley 1/1 will be realigned along the proposed Stanthorne Park Mews accommodation access.
Additional land permanently required for the provision of a shared use cycle and pedestrian path at Clive Green Lane AP1-002-004 See map CT-06-310, B3 to C3 and map CT-06-310-L1 A10 to B9 in the SES1 and AP1 ES Volume 2, MA02 Map Book.	The permanent realignment of Clive Green Lane, from a point 120m south of its existing alignment. The realigned Clive Green Lane would connect to the A530 Nantwich Road and Coal Pit Lane via a new roundabout to replace the existing junction.	A new 3m shared use pedestrian and cycle path, with 1.5m wide verges on either side and associated drainage, parallel to Clive Green Lane from its junction with Clive Back Lane to the existing Clive Green Lane canal bridge. The existing steps to the canal will be replaced by a ramp 130m in length.
Additional land temporarily required for the provision of surface water drainage at Shropshire Union Canal North satellite compound AP1-002-005 See map CT-05-310, D5 to E5 in the SES1 and AP1 ES Volume 2, MA02 Map Book.	Land would be required for the temporary establishment of Shropshire Union Canal North satellite compound. No drainage was proposed for this compound as part of the original scheme.	The extension by a 120m long strip of the land required for construction from the Shropshire Union Canal North satellite compound to allow for a temporary gravity surface water drainage outfall (an outfall ditch and/or carrier drain) to Tributary of River Weaver 4 watercourse during construction.
Change to Bill powers required for the realignment of reception tracks at Crewe North rolling stock depot AP1-002-006	Crewe North rolling stock depot (RSD) and associated connections and infrastructure	An amendment to the alignment of the Crewe North RSD HS2 reception tracks to improve operational safety and timetable robustness. The route of the Crewe North RSD northern reception tracks will be realigned between Clive Green South embankment No.3 (west of Lea House Farm) and Stanthorne North embankment. Associated changes to earthworks, drainage, viaducts and Middlewich box structure.

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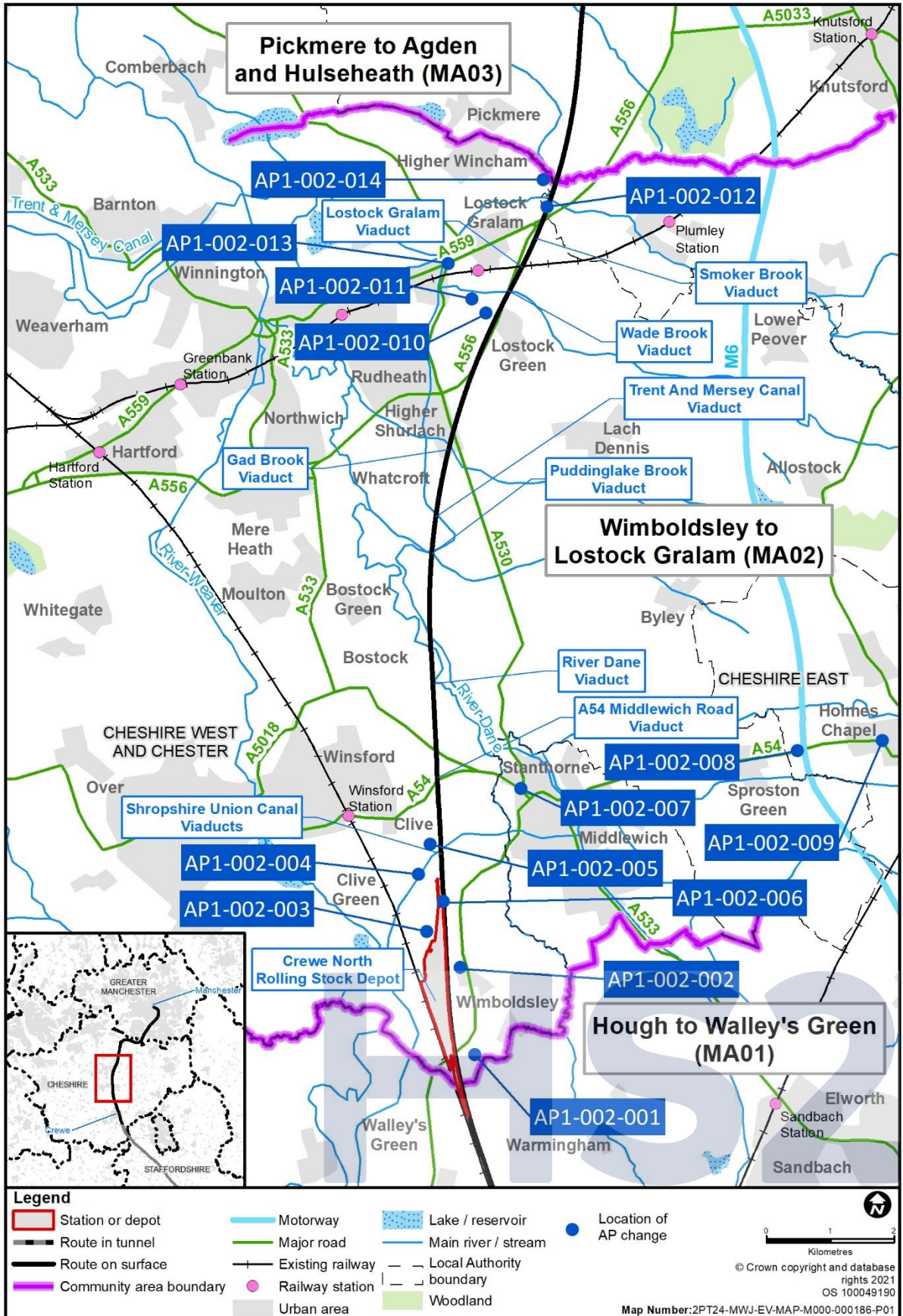
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Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
<p>See map CT-06-309 I5 to J4 and CT-06-310, A5 to J6 in the SES1 and AP1 ES Volume 2, MA02 Map Book.</p>		
<p>Additional land required for modifications to the A54 Chester Road/A530 Croxton Lane junction</p> <p>AP1-002-007</p> <p>See map CT-05-310-R1, I8 to I9 in the SES1 and AP1 ES Volume 2, MA02 Map Book.</p>	<p>There would be temporary construction traffic route along the A54 Chester Road. No mitigation was provided in the original scheme.</p>	<p>Modifications to the existing junction arrangement consisting of changing from a mini roundabout to a junction with traffic signals, carriageway widening to enable the formation of a right-turn lane on A530 Newton Bank Road and a left turn lane on A54 Chester Road.</p>
<p>Additional land required for the provision of temporary traffic signals around the M6 junction 18</p> <p>AP1-002-008</p> <p>See map CT-05-311-R6, A6 to B4 in the SES1 and AP1 ES Volume 2, MA02 Map Book.</p>	<p>There would be a temporary construction vehicle access route from the strategic road network at the M6 at junction 18, and onto the A54 Holmes Chapel Road.</p>	<p>Introduction of temporary traffic management to mitigate the impact of the construction traffic movements on existing road users. The installation of temporary traffic lights is proposed on the A54 eastbound approach arm and on the gyratory. Additional land will be temporarily required within the highway boundary.</p>
<p>Additional land permanently required for the widening of the A54 Middlewich Road and Chester Road junction</p> <p>AP1-002-009</p> <p>See map CT-05-311-R7, B8 and C7 to C8 in the SES1 and AP1 ES Volume 2, MA02 Map Book.</p>	<p>No effects were identified in this location and therefore no provision made in the original scheme.</p>	<p>The junction of the A54 Middlewich Road and Chester Road will be permanently widened to enable the construction of a right-turn lane on the A54 Middlewich Road to improve capacity.</p>
<p>Additional land permanently required for modifications to the A556 Shurlach Road and Birches Lane and provision of a shared use cycle and pedestrian path along A556 Shurlach Road</p> <p>AP1-002-010</p> <p>See map CT-06-314, E3 to J5 and CT-06-315, A5 to E5 in the SES1 and AP1 ES Volume 2, MA02 Map Book.</p>	<p>The permanent realignment of the A556 Shurlach Road up to 90m to the north-west of its current alignment for 2.3km, including improvement of the junction with Birches Lane/Lostock Hollow.</p>	<p>A 3m wide shared-use pedestrian and cycle path, and associated highway drainage, will be constructed with a separation of at least 3.5m from the A556 Shurlach Road west edge of carriageway between the A530 King Street/A556 Shurlach Road roundabout and the A556 Shurlach Road/Birches Lane junction. Additionally, the central reserve of the realigned A556 Shurlach Road will be widened along the bend to improve visibility on the A556 southbound on the approach to the A556/A530 roundabout.</p>

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Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
<p>Additional land permanently required for the underground realignment of a 11kV Scottish Power Energy Network overhead line at Birches Lane</p> <p>AP1-002-011</p> <p>See map CT-05-315, C1 to D2, in the SES1 and AP1 ES Volume 2, MA02 Map Book.</p>	<p>The permanent diversion of a Scottish Power 11kV overhead power line for 1.3km, to pass under the route of the original scheme and the A556 Shurlach Road realignment 95m north of Birches Lane.</p>	<p>The Scottish Power 11kV underground cable diversion will be re-routed to the south of a property on Birches Lane, removing it from the property's garden and will tie back into the diversion route of the utility presented in the original scheme 165m west of the property.</p>
<p>Additional land permanently required for the realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood</p> <p>AP1-002-012</p> <p>See map CT-06-315, F5 to J5 and CT-06-316a, A3 to J3 in the SES1 and AP1 ES Volume 2, MA02 Map Book and map CT-06-317, A7 to J7 in the SES1 and AP1 ES Volume 2, MA03 Map Book</p>	<p>Smoker Brook viaduct for the HS2 route to cross over Peover Eye, Smoker Brook and the associated floodplain, the A559 Manchester Road and Linnards Lane. Smoker Brook viaduct would be 806m in length and 25m in height above ground level.</p>	<p>Smoker Brook viaduct will be extended to 827m in length, commencing further south to accommodate the access track adjacent to the southern abutment and will be moved 8m west to tie into the revised railway alignment that will result from the amendment. The extension will enable the installation of a rail expansion device.</p>
<p>Additional land permanently required for modifications to A530 Griffiths Road and A559 Manchester Road junction</p> <p>AP1-002-013</p> <p>See map CT-05-315-L1, E4 to F6 in the SES1 and AP1 ES Volume 2: MA02 Map Book.</p>	<p>There would be a temporary construction traffic route along the A530 Griffiths Road and A559 Manchester Road.</p>	<p>The carriageway of the A530 Griffiths Road will be widened from a single carriageway in both directions to enable the formation of a right-turn lane and the introduction of traffic signals.</p>
<p>Additional land permanently required for the provision of a combined HS2 maintenance access track from Linnards Lane and accommodation access for Warrens Lake Cottage</p> <p>AP1-002-014</p> <p>See map CT-05-316a E3 to F2, in the SES1 and AP1 ES, Volume 2, MA02 Map Book.</p>	<p>An access track from Linnards Lane 70m west of the HS2 route for the creation of an area of environmental mitigation planting.</p>	<p>The maintenance access provided for the original scheme will no longer be required. The existing access for Warrens Lake Cottage will be extended. The 75m new section of access track extending beyond Warrens Lake Cottage included as part of the amendment will be of a similar width and construction, also with a turning head.</p>

Figure 3: Locations of amendments in the Wimboldsley to Lostock Gralam area



5 Assessment of engineering and minor utility amendments in the Wimboldsley to Lostock Gralam area

5.1 Additional land temporarily required for the provision of surface water drainage at A530 Nantwich Road satellite compound (AP1-002-001)

- 5.1.1 The Bill provides for the A530 Nantwich Road satellite compound for a period of five years, but no temporary surface water drainage is included (see maps CT-05-308b, F8 to F10 and CT-06-308b, F8 to F10 in the main ES Volume 2, MA02 Map Book).
- 5.1.2 Since the main ES, additional design development has identified a temporary requirement for an additional 10m wide strip of land required during construction south-east of the A530 Nantwich Road satellite compound to allow for a temporary surface water drainage outfall to Hoggins Brook.
- 5.1.3 Where the drainage outfall joins the watercourse, measures will be provided to protect the bed and banks from erosion.
- 5.1.4 The amendment will cross the existing Footpath Wimboldsley 3/1. Access will be maintained along the existing public right of way (PRoW) during the works to construct the surface water drainage outfall.
- 5.1.5 The works will be managed by the A530 Nantwich Road satellite compound. The amendment will be constructed and used within the period for which the A530 Nantwich Road satellite compound is operational, a period of five years and nine months for the AP1 revised scheme. The drainage outfall will be removed and the land restored to its previous use once the construction compound is no longer required, prior to the operation of the AP1 revised scheme.
- 5.1.6 The land required to provide surface water drainage from the A530 Nantwich Road satellite compound is outside the limits of the Bill and will result in the requirement for an additional 0.53ha of land (see map CT-05-308b, E10 to F8 and CT-05-308b-R1, E5 to F1 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.1.7 The assessment of this amendment has identified new, different or removed likely significant effects for the following topic: agriculture, forestry and soils, and this is reported in this section.

5.1.8 The assessment of the changes to traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Agriculture, forestry and soils

Scope, assumptions and limitations

- 5.1.9 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1 and the EIA Scope and Methodology Report (SMR)⁸ of the main ES.
- 5.1.10 The amendment has the potential to result in new or different significant temporary and permanent construction effects only. Therefore, there is no assessment of operational effects for agriculture, forestry and soils.

Environmental baseline

Existing environmental baseline

- 5.1.11 The baseline agriculture, forestry and soils information is as described in Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.
- 5.1.12 The agricultural land associated with this amendment has soils of the Crewe association. These soils are comprised of fine loamy over clay soils, developed in reddish, stoneless, glacial till and lake deposits overlying the Sidmouth Mudstone. The soils are seasonally waterlogged for long periods during the winter (Wetness Class IV) and the land is limited by soil wetness to Grade 4.
- 5.1.13 One new agricultural holding, not impacted by the original scheme, will be affected by this amendment, as detailed in Table 8.

Table 8: Summary characteristics of the holding affected by the additional land temporarily required for the provision of surface water drainage at A530 Nantwich Road satellite compound (AP1-002-001)

Holding reference/name	Holding type	Holding size (ha)	Diversification	Agri-environment scheme	Sensitivity to change
MA02/35 New Farm, Occlestone Green	Grassland	43	Not known	None	Medium

Future baseline

- 5.1.14 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the

equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant and none of the identified committed developments affect the assessment of the AP1 revised scheme’s likely construction and operation impacts on agriculture, forestry and soil.

Effects arising during construction

Avoidance and mitigation measures

- 5.1.15 No mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)¹ are required.

Assessment of impacts and effects

- 5.1.16 The amendment will require a further 0.3ha of agricultural land. The agricultural land in this area is classified as Grade 4 and this amendment will not change the effect on agricultural land generally as reported in the main ES, which was assessed as temporary and permanent moderate adverse (significant).
- 5.1.17 The impacts on the holding affected are set out in Table 9 and Table 10.

Table 9: Temporary impacts and effects on holdings arising from the additional land temporarily required for the provision of surface water drainage at A530 Nantwich Road satellite compound (AP1-002-001)

Holding reference/name	Total area required from holding	Construction severance	Disruption	Scale of construction effect	Change in effect from main ES
MA02/35 New Farm, Occlestone Green	0.3ha, 1% Negligible	Negligible	Negligible	Negligible	New holding assessed

Table 10: Permanent impacts and effects on holdings arising from the additional land temporarily required for the provision of surface water drainage at A530 Nantwich Road satellite compound (AP1-002-001)

Holding reference/name	Land required from holding	Severance	Infrastructure	Scale of effect	Change in effect from main ES
MA02/35 New Farm, Occlestone Green	0ha, 0% Negligible	Negligible	Negligible	Negligible	New holding assessed

Other mitigation measures

- 5.1.18 The land required temporarily for construction will be restored to its former agricultural condition once the works are completed, following good practice techniques in handling, storing and reinstating soils on that land, as set out in the draft CoCP. No other mitigation has been identified.

Summary of likely residual significant effects

- 5.1.19 The amendment will not result in any new or different agriculture, forestry and soil significant effects.

Cumulative effects

- 5.1.20 No new or different significant cumulative effects have been identified further to those reported in the main ES.

5.2 Additional land permanently required for the provision of landscape mitigation planting at Wimboldsley (AP1-002-002)

- 5.2.1 The Bill provides for landscape mitigation planting, landscape earthworks and hedgerow planting to the east of the HS2 route and west of Wimboldsley Community Primary School. However, the main ES reported residual significant visual effects during construction and operation for various visual receptors in the vicinity of Wimboldsley (see maps CT-05-309 and CT-06-309 in the main ES Volume 2, MA02 Map Book).
- 5.2.2 Since the main ES and following engagement with local stakeholders, a reduction in the area of grassland habitat creation, additional landscape mitigation planting and hedgerow planting is proposed, to provide additional screening of the construction and operation of the HS2 route and overhead line equipment, Crewe North RSD and borrow pits. This will provide additional screening for residents east and west of the A530 Nantwich Road and staff, pupils and visitors to Wimboldsley Community Primary School. In addition, to help screen construction works the landscape mitigation and hedgerow planting will be included as part of the advance works.
- 5.2.3 The amendment will result in the planting of landscape mitigation areas and hedgerow being brought forward to within the advance works period set out in the main ES and the indicative construction programme in Section 6.
- 5.2.4 The land required for the additional landscape mitigation planting is within the limits of the Bill, however the land required for additional hedgerow planting along the west side of the A530 Nantwich Road is outside the limits of the Bill. The amendment will result in the permanent requirement for an additional 476m² of land (see map CT-05-309, C8 and CT-06-309, B6 to E6 and B7 to B8 in the SES and AP ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.2.5 The assessment of this amendment has identified new, different or removed likely significant effects for the following topic: landscape and visual, and this is reported in this section.

- 5.2.6 The assessment of the changes to traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Landscape and visual

Scope, assumptions and limitations

- 5.2.7 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1 and the SMR of the main ES.
- 5.2.8 This amendment has the potential to result in new significant visual effects in operation only. Therefore, there is no construction assessment for visual effects. No new or different significant construction or operational landscape effects are anticipated, therefore there is no construction and operational assessments for landscape effects.
- 5.2.9 All visual effects, arising from this amendment, are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Environmental baseline

Existing environmental baseline

- 5.2.10 The baseline landscape and visual information is as described in Volume 5, Appendix: LV-001-0MA02 of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.

Visual baseline

- 5.2.11 The amendment has the potential to affect two viewpoints, which are described in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02 and summarised below.

View west from Bellsmithy, A530 Nantwich Road (high sensitivity receptors) (306-02-005)

- 5.2.12 This viewpoint represents the views experienced by residents of Hopley House, Bellsmithy and Yewtree Farm, Manor Cottage, as well as users of Footpath Wimboldsley 3/1 and Bridleway Wimboldsley 2/1, and road users of A530 Nantwich Road. The open, unrestricted views west comprise managed hedgerows and isolated hedgerow trees, which give way to large arable fields, managed hedgerows and copses in the middle distance. Distant hedgerows and woodland belts border the River Weaver. Overhead line equipment and train movements along the WCML are visible in the distance, whilst overhead power lines are visible on the skyline along with the rooflines of Wimboldsley Hall and Wimboldsley Grange.
- 5.2.13 Local roads in the area are unlit, with night-time lighting limited to individual properties. There is a far distance skyglow from Winsford approximately 3km to the north-west.

**View west from Wimboldsley, A530 Nantwich Road (high sensitivity receptors)
(307-02-002, photomontage reference LV-01-711 – LV-01-713)**

- 5.2.14 This viewpoint represents the views experienced by residents of Wimboldsley, staff and pupils at Wimboldsley Community Primary School and road users of the A530 Nantwich Road. Unrestricted views comprise large arable fields, hedgerow and isolated field trees that extend into the middle-distance where hedge trees, copses and woodland belts form the skyline. Whilst overhead line equipment and trains movements on the WCML are visible against this backdrop of vegetation, overhead power lines and pylons occupy the skyline, along with the visible roofline of Wimboldsley Grange.
- 5.2.15 Local roads in the area are unlit, with night-time lighting limited to individual properties. There is a distant skyglow from Winsford approximately 3km to the north-west.

Future baseline

- 5.2.16 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.2.17 None of the identified committed developments affect the assessment of the amendment's likely impact on landscape and visual.

Effects arising during operation

Avoidance and mitigation measures

- 5.2.18 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Visual assessment

View west from Bellsmithy, A530 Nantwich Road (high sensitivity receptors) (306-02-005)

- 5.2.19 At year 1, the main ES, as amended by the SES1 reported a **major** adverse (significant) effect for residents in properties bordering the A530 Nantwich Road at Hopley House, Bellsmithy and Yewtree Farm, Manor Cottage, users of Footpath Wimboldsley 3/1 and Bridleway Wimboldsley 2/1, and road users of A530 Nantwich Road, of high susceptibility and with **medium** value views. This would be a result of the introduction of the large-scale infrastructure across the majority of the view, including Walley's Green embankment, its

associated landscape earthworks and mitigation planting, Crewe North RSD and the A530 Nantwich overbridge.

- 5.2.20 At year 1, the amendment will slightly change the visual effect at this viewpoint as the landscape earthwork, provided as part of the original scheme and amended by the SES1 design change (SES1-002-001, Enhancement of landscape mitigation at Walley's Green embankment), will provide some additional screening, visible in the middle distance, and to the north-west for receptors at this location, most notably for residents of Yewtree Farm. However, when considered in the context of the SES1 scheme, the view will remain unchanged for the majority of receptors at this viewpoint. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.
- 5.2.21 At year 15, the main ES as amended by SES1 reported a **moderate** adverse (significant) effect. This would be a result of a combination of maturing mitigation planting and landscape earthworks which would partially screen Walley's Green embankment, Crewe North RSD and the A530 Nantwich overbridge and help to integrate the original scheme into views across the wider landscape. However, the of the Crewe North RSD will mean that SES1 scheme would remain visible across the majority of the view, with some elements visible above the line of mitigation planting.
- 5.2.22 At year 15, the amendment will slightly change the visual effect at this viewpoint as maturing mitigation planting, provided as part of the original scheme would also be increased in area by the SES1 scheme. This will provide some additional density to the screening in the middle distance and to the north-west for receptors at this location, most notably for residents at Yewtree Farm, further filtering views of the SES1 scheme. However, when considered in the context of the SES1 scheme, the view will remain unchanged for the majority of receptors at this viewpoint. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.
- 5.2.23 At year 30, the main ES and SES1 reported a **moderate** adverse (significant) effect. This would be a result of mature mitigation planting in association with landscape earthworks, further integrating the A530 Nantwich Road into views of wider landscape and providing a denser screen to views of Crewe North RSD, although the roofline of the maintenance shed would remain apparent above the tree canopies.
- 5.2.24 At year 30, the amendment will slightly change the visual effect at this viewpoint as maturing mitigation planting, provided as part of the original scheme and also increased in area by the SES1 scheme will additionally filter views of the SES1 scheme in the middle distance and to the north-west for receptors this location, most notable residents at Yewtree Farm. However, when considered in the context of the SES1 scheme, the view will remain unchanged for the majority of receptors at this viewpoint. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.

Night -time

- 5.2.25 At year 15, the main ES, as amended by SES1, reported a **moderate** adverse (significant) effect. This would be a result of operational lighting at Crewe North RSD, noticeable in the middle-distance of the view in a predominantly rural and unlit area. However, views would remain partially screened by maturing landscape mitigation planting.
- 5.2.26 At year 15, the amendment will slightly change the visual effect at this viewpoint at night-time as maturing landscape mitigation planting, provided as part of the original scheme and as amended by SES1 by an increased depth, will partially screen light sources at Crewe North RSD. However, lighting will remain noticeable in the middle-distance of the view. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.
- 5.2.27 At year 30, the main ES, as amended by SES1, reported a **moderate** adverse (significant) effect. This would be a result of operational lighting associated with Crewe North RSD remaining noticeable in the middle-distance of the view in a predominantly rural and unlit area, with some views partially screened by mature landscape mitigation planting.
- 5.2.28 At year 30, the amendment will slightly change the visual effect at this viewpoint as maturing mitigation planting, provided as part of the original scheme and also increased in area by the SES1 scheme will further filter views of the SES1 scheme. However, lighting will remain noticeable in the middle-distance of the view above the tree canopy. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.

View west from Wimboldsley, A530 Nantwich Road (high sensitivity receptors) (307-02-002, photomontage reference LV-01-711 - LV-01-713)

- 5.2.29 At year 1, the main ES, as amended by SES1, reported a **major** adverse (significant) effect for residents in Wimboldsley of **high** susceptibility and staff and pupils at Wimboldsley Community Primary School and road users of the A530 Nantwich Road of lower susceptibility, all with **medium** value views. This would be a result of overhead line equipment, passing trains, Walley's Green embankment, associated landscape earthworks and mitigation planting and buildings within Crewe North RSD, being introduced across the majority of the view to the west, and creating the skyline for some receptors.
- 5.2.30 At year 1, the amendment will benefit residents of Wimboldsley and users of Wimboldsley Community Primary School, due to hedgerow planting in addition to advanced hedgerow planting as reported in the main ES, and amended by the SES1 scheme which will assist in partially filtering views in the middle-distance for residents of Wimboldsley and users of Wimboldsley Community Primary School. Wider views of the SES1 scheme will remain more open for residents of School Cottages. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.

- 5.2.31 At year 15, the main ES, as amended by SES1, reported a **moderate** adverse (significant) effect. This would be a result of maturing mitigation planting, in addition to that reported in the main ES, and amended by the SES1 scheme, which would be establishing, in association with landscape earthworks, further filtering views of overhead line equipment and reinstating the intervening field pattern. Views of tall mast lighting and rooflines of the taller Crewe North RSD buildings would remain above the line of mitigation planting proposed as part of the original scheme.
- 5.2.32 At year 15, the amendment will slightly change the visual effect at this viewpoint as maturing hedgerow planting, in addition to advanced hedgerow planting as reported in the main ES, and amended by the SES1 scheme, will further filter middle-distance views for residents of Wimboldsley and users of Wimboldsley Community Primary School. However, wider views of the SES1 scheme will remain more open for residents of School Cottages. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.
- 5.2.33 At year 30, the main ES and the SES1 reported a **moderate** adverse (significant) effect. This would be a result of maturing landscape mitigation planting, provided as part of the original scheme, partially filtering views of overhead line equipment, and the majority of built structures within Crewe North RSD, beyond which high mast lighting would remain visible on the skyline.
- 5.2.34 At year 30, the amendment will slightly change the visual effect at this viewpoint as mature hedgerow planting provided by the original scheme and modified by this amendment will further filter views of the SES1 scheme for residents of Wimboldsley and users of Wimboldsley Community Primary School. However, wider views of the SES1 scheme will remain more open for residents of School Cottages. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.

Night -time

- 5.2.35 At year 15, the main ES and the SES1 reported a **major** adverse (significant) effect at night-time. This would be a result of night-time lighting associated with Crewe North RSD and lighting for the stabling sidings in the middle distance, above establishing mitigation planting.
- 5.2.36 At year 15, the amendment will slightly change the visual effect at this viewpoint. This is because maturing hedgerow planting, in addition to advanced hedgerow planting as reported in the main ES, and amended by the SES1 scheme, will further filter middle-distance views for residents of Wimboldsley and users of Wimboldsley Community Primary School. Views of operational lighting for residents of School Cottages will remain unchanged. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.

- 5.2.37 At year 30, the main ES and the SES1 reported a **moderate** adverse (significant) effect at night-time. This would be a result of night-time lighting associated with Crewe North RSD and lighting for the stabling sidings, being noticeable elements within the view.
- 5.2.38 At year 30, the amendment will slightly change the visual effect at this viewpoint as the greater maturity of mitigation planting, in addition to advanced hedgerow planting as reported in the main ES, and amended by the SES1 scheme, will further filter middle-distance views for residents of Wimboldsley and users of Wimboldsley Community Primary School. Views of operational lighting for residents of School Cottages will remain unchanged. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES as amended by SES1.

Other mitigation measures

- 5.2.39 No mitigation measures additional to those reported in the main ES are required.

Summary of likely residual significant effects

- 5.2.40 In many case, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. However, the amendment will give rise to a different likely residual significant operation effect at the following viewpoints. However, this will not change the level of significance of the effect reported in the main ES and SES1:
- view west from Bellsmithy, A530 Nantwich Road (306-02-005). The effect will reduce but will remain **moderate** adverse (significant) as will night-time effects; and
 - view west from Wimboldsley, A530 Nantwich Road (307-02-002). The effect will reduce but will remain **moderate** adverse (significant), as will night-time effects.

Cumulative effects

- 5.2.41 No new or different significant cumulative effects have been identified further to those reported in the main ES.

5.3 Change to Bill powers required for the retention of Footpath Wimboldsley 1/1 between the Shropshire Union Canal towpath and Crewe North rolling stock depot (AP1-002-003)

- 5.3.1 The Bill provides for the permanent closure of Footpath Wimboldsley 1/1 between the Shropshire Union Canal and the A530 Nantwich Road. There would be a temporary diversion of Footpath Wimboldsley 1/1 for a period of two years and one month, where users would be diverted along Footpath Winsford 3/4 and Clive Green Lane, increasing journey length by

1.5km. On completion of construction of the Crewe North RSD and surrounding elements of the original scheme, Footpath Wimboldsley 1/1 would be permanently closed and users would be diverted via a permanent pedestrian route from the direction of Winsford to enable pedestrian access between the Shropshire Union Canal towpath and the Crewe North RSD. The existing Footpath Wimboldsley 1/1 from the Shropshire Union Canal up to the access road into Crewe North RSD would therefore remain open.

- 5.3.2 Since the main ES, an opportunity has been identified to improve pedestrian access to the Crewe North RSD. Under this amendment, the route of Footpath Wimboldsley 1/1 will remain open on its existing alignment south-east of the Shropshire Union Canal, to the proposed Stanthorne Park Mews accommodation access. A small earthwork ramp 36m in length and up to 1.7m in height will be constructed to connect the level of the existing Footpath Wimboldsley 1/1 into the level of the proposed Stanthorne Park Mews accommodation access. Footpath Wimboldsley 1/1 will also be realigned in this location, for 128m, to follow the same route as the proposed accommodation access until it reaches the Crewe North RSD access road. At this point pedestrians will be able to walk south along the eastern side of the Crewe North RSD access road to reach Crewe North RSD (public access will be restricted at the location of the Security Gate house). The residual section of Footpath Wimboldsley 1/1 between the Crewe North RSD access road and the A530 Nantwich Road will remain closed, as proposed within the original scheme.
- 5.3.3 The amendment will be managed by crewe North RSD satellite compound 3 and will be constructed within the period set out in the main ES for this compound.
- 5.3.4 The land required to extend the diversion of Footpath Wimboldsley 1/1 is within the limits of the Bill but will require a change to Bill powers (see map CT-06-309, F4 to H1 and map CT-06-309-L1 F10 to I7 on SES1 and AP2 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.3.5 The amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to any environmental topics.

5.4 Additional land permanently required for the provision of a shared use cycle and pedestrian path at Clive Green Lane (AP1-002-004)

- 5.4.1 The Bill provides for the permanent realignment of Clive Green Lane, 120m south of its existing alignment. The realigned Clive Green Lane would connect to the A530 Nantwich Road and Coal Pit Lane via a new roundabout to replace the existing junction. Clive Green Lane would cross the Shropshire Union Canal via the Shropshire Union Canal offline overbridge, which would be located on the route of the realigned Clive Green Lane. The existing Clive Green Lane canal bridge, which is adjacent to and north of the Shropshire Union Canal offline overbridge, would be retained but no longer used by motorised vehicles.

The existing steps connecting Clive Green Lane to the canal towpath on the western side of the canal which would not be affected by the original scheme (see map CT-06-310, B3 in the main ES Volume 2, MA02 Map Book).

5.4.2 Since the main ES, an opportunity to improve the access to the canal towpath for cyclists and connection to the wider National Cycle Network route 5 that forms part of the canal towpath in this area, and links Middlewich and Winsford has been identified. Access will also be improved for depot workers to cycle to Crewe North RSD via the Crewe North RSD access road proposed within the original scheme. A new 3m-wide shared-use path, with 1.5m wide verges on either side, will be provided parallel to Clive Green Lane from its junction with Clive Back Lane to the existing Clive Green Lane canal bridge. The existing steps to the canal will be replaced by a ramp approximately 130m in length, with a ramp gradient designed to be suitable for use by cyclists. To accommodate this, the following amendments will be required:

- the Clive Green Lane offline culvert will be extended in length and the proposed balancing pond for highway drainage will be relocated 11m north-east, along with its associated access road (see map CT-06-310, B3 in the SES1 and AP1 ES Volume 2, MA02 Map Book); and
- filter drains will be provided to the north-east of the shared-use pedestrian and cycle path for both drainage of the shared-use pedestrian and cycle path and to intercept surface water flows from the Clive Green Lane embankment and flows towards the canal towpath. On the southern side of the embankment, a drainage ditch will be provided which will discharge into a proposed attenuation ditch and subsequently into the Tributary of River Weaver 4. On the western side of the cycle path, filter drains will outfall into a balancing pond for highway drainage (see map CT-06-310, B3 to C3 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

5.4.3 Additional landscape mitigation planting will be provided along the new ramp from the canal to replace trees removed as part of the AP1 revised scheme.

5.4.4 Construction of the amendment will be managed from Clive Green Lane satellite compound. Works will be constructed within the period set out in the main ES for this compound.

5.4.5 The land required for the shared-use pedestrian and cycle path is outside the limits of the Bill. The amendment will result in the permanent requirement for 0.35ha of additional land (see map CT-06-310, B3 to C3 and map CT-06-310-L1 A10 to B9 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

5.4.6 The assessment of this amendment has identified new, different or removed likely significant effects for the following topics: ecology and biodiversity, landscape and visual and traffic and transport, and these are reported in this section.

5.4.7 The assessment of the changes to traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in

Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Ecology and biodiversity

Scope, assumptions and limitations

- 5.4.8 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1 and the SMR of the main ES.
- 5.4.9 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.4.10 Where there are limitations in data, a precautionary baseline has been taken following the approach set out in the SMR which constitutes a 'reasonable worst-case' basis for the subsequent assessment. The precautionary approach to the assessment that has been adopted identifies the likely significant effects of the AP1 revised scheme.
- 5.4.11 Ecology and biodiversity effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing baseline

- 5.4.12 The baseline ecology and biodiversity information is as described in Section 7 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.

Designated sites

- 5.4.13 The land required for the amendment is located within the Natural England Impact Risk Zone (IRZ) for two SSSI, both of which are of national value. These are:
- Wimboldsley Wood SSSI, located south-east of Winsford, approximately 1.2km south-west of the land required for the construction of the amendment; and
 - Sandbach Flashes SSSI, located west of Sandbach, approximately 3.7km south-east of the land required for the construction of the amendment.

Habitats

- 5.4.14 Habitats within the land required for the construction of the amendment include semi-natural broad-leaved woodland, species-poor semi-improved grassland, amenity grassland, hardstanding and species-poor hedgerow. The habitats of relevance to the assessment are described in further detail below.

- 5.4.15 Species-poor semi-improved grassland occurs to the west of Shropshire Union Canal (Middlewich Branch), north of Clive Green Lane, partially within land required for the construction of the amendment. This grassland contributes to a wider resource of species-poor semi-improved grassland across the Wimboldsley to Lostock Gramam area that is of local/parish value.
- 5.4.16 A species-poor hedgerow (104m) is present within the land required for the construction of the amendment. This hedgerow may qualify as a habitat of principal importance and a conservation priority of the Cheshire Biodiversity Action Plan (BAP). This hedgerow contributes to a wider hedgerow network across the Wimboldsley to Lostock Gramam area that is of county/metropolitan value.

Future baseline

- 5.4.17 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.4.18 None of the identified developments affect the assessment of the likely construction impacts on ecology and biodiversity from the amendment.

Effects arising during construction

Avoidance and mitigation measures

- 5.4.19 No avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP, are required.

Assessment of impacts and effects

Designated sites

- 5.4.20 Whilst the amendment is within the IRZ for Wimboldsley Wood SSSI and Sandbach Flashes SSSI, no adverse effects on the integrity of these sites are predicted due to the limited nature of the changes and the distance of the land required for the amendment.

Habitats

- 5.4.21 On a precautionary basis, the main ES, reported a loss of 88.9km of hedgerow habitat within the land required for construction of the original scheme within the Wimboldsley to Lostock Gramam area, resulting in a permanent adverse effect significant at the county/metropolitan level. Accounting for additional baseline data and SES1 design changes, the overall loss resulting from the SES1 scheme will be 86.6km and the total loss resulting from the AP1 revised scheme will be 87.6km. The amendment will result in the loss of 104m of species-

poor hedgerow included within this total. This will give rise to a different significant effect on the hedgerow network but will not change the level of significance of the effect reported in the main ES.

Other mitigation measures

- 5.4.22 The main ES, as amended in the SES1 scheme ES, reported that a total of 32km of new hedgerows will be planted as replacement for those lost as a result of the SES1 scheme, resulting in an overall net loss of 54.6km of hedgerow after mitigation. This will result in a permanent adverse effect that is significant at the county/metropolitan level. The amendment will result in the loss of an additional 104m of existing hedgerow, as part of a further 900m combined loss resulting from this amendment. This will result in a different residual effect on hedgerow to that reported in the main ES, as amended in the SES1. However this will not change the level of significance of the effect reported in the main ES on hedgerows within the Wimboldsley to Lostock Gralam area.

Summary of likely residual significant effects

- 5.4.23 The main ES, as amended in the SES1 scheme ES, reports a net loss of 54.6km of hedgerow across the Wimboldsley to Lostock Gralam area, which represents an adverse residual effect that is significant at the county/metropolitan level. The amendment will result in the loss of an additional 104m of hedgerow habitat in this location; this will result in a different effect but will not change the level of significance of the adverse residual effect on hedgerows, as reported within the main ES.

Cumulative effects

- 5.4.24 No new or different significant effects have been identified further to those reported in the main ES.

Landscape and visual

Scope, assumptions and limitations

- 5.4.25 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1 and the SMR of the main ES.
- 5.4.26 This amendment has the potential to result in new significant construction and operational effects for visual amenity. However, it does not have the potential to give rise to new significant construction and operational effects for landscape. Therefore, there is no construction and operational assessments for landscape effects.
- 5.4.27 All visual effects arising from this amendment are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Environmental baseline

Existing baseline

- 5.4.28 The baseline landscape and visual information is as described in Volume 5, Appendix: LV-001-0MA02 of the main ES.
- 5.4.29 A summary of the baseline information relevant to the assessment of the amendment is provided below.

Visual baseline

- 5.4.30 The amendment has the potential to affect two viewpoints, which are described in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02 and summarised below. Of these, the amendment has the potential to significantly affect one viewpoint in construction and two in operation as summarised below.

View east from Clive Green Lane, Clive Green (high sensitivity receptors) (307-02-008)

- 5.4.31 This viewpoint represents the views experienced by residents along Clive Green Lane and by road users of Clive Green Lane. Located within a predominantly agricultural landscape, views comprise medium sized fields, bordered by hedgerows. The Shropshire Union Canal (Middlewich Branch) and narrow boats are visible in the near distance. Fields gently rise towards Park Farm and its associated buildings which are visible on the skyline in the middle distance. Hedgerows and mature field trees limit views to the far distance.

View east from the Shropshire Union Canal (Middlewich Branch) Park Farm (high sensitivity receptors) (307-02-010)

- 5.4.32 This viewpoint represents the views experienced by residents of Park Farm, users of Footpath Winsford 3/1 and National Cycle Network (NCN) Route 5, and users of the Shropshire Union Canal (Middlewich Branch) including the recreational canal moorings. It is located on the towpath of the canal and the view comprises the canal itself and narrowboat moorings. Beyond the canal, the ground gently rises as a series of fields, bordered by hedgerows and infrequent mature trees. Outbuildings at Park Farm are a prominent near distance and skyline element on the canal bank.

Future environmental baseline

- 5.4.33 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.

- 5.4.34 None of the identified developments will alter the baseline conditions in 2025 or 2038 for landscape or visual amenity.

Effects arising during construction

Avoidance and mitigation measures

- 5.4.35 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Visual assessment

View east from the Shropshire Union Canal (Middlewich Branch) Park Farm (high sensitivity receptors) (307-02-010)

- 5.4.36 The main ES reported a **major** adverse (significant) effect for residents of Park Farm, users of Footpath Winsford 3/1 and NCN Route 5, and canal users of high susceptibility and with **medium-high** value views experiencing a substantial change to the composition of near distance views. This would be due to the introduction of large-scale construction works in the near-distance and across the majority of the view, including construction of Crewe North RSD reception tracks, Stanthorne south embankment No. 1, Clive Green north and south embankments No.s 1-3 and the Shropshire Union Canal viaducts No.s 1-3.
- 5.4.37 During construction, the amendment will change the visual effect at this viewpoint. This will be due to additional activity in association with construction of a ramp adjacent to the canal that will be introduced into views for the users of the canal and residents of Park Farm. In the context of the scale of the original scheme, the amendment will represent a minor change to the view. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.
- 5.4.38 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Other mitigation measures

- 5.4.39 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 5.4.40 In many case, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. The amendment will give rise to a different likely significant residual construction effect at the following viewpoint. However, this will not change the level of significance of the effect reported in the main ES for the view east from the Shropshire Union Canal (Middlewich Branch) Park Farm (307-02-010). Effects will increase but remain **major** adverse (significant).

Cumulative effect

- 5.4.41 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Effects arising during operation

Avoidance and mitigation measures

- 5.4.42 No mitigation measures additional to those reported in the main ES are required.

Assessment of impacts and effects

Visual assessment

View east from Clive Green Lane, Clive Green (high sensitivity receptors) (307-02-008)

- 5.4.43 At year 1, the main ES reported a **moderate** adverse (significant) effect for residents along Clive Green Lane of **high** susceptibility and road users of Clive Green Lane of lower susceptibility all with **medium** value views. This would be a result of the realignment of Clive Green Lane, visible in intermittent and partially filtered views from properties on the western side of the Shropshire Union Canal (Middlewich Branch) and across the majority of near-distance views for residents of Wharf Cottages.
- 5.4.44 At year 1, the amendment will slightly change the visual effect at this viewpoint as the amendment will be visible in the middle distance of views from the west. Views for residents of Wharf Cottages will be largely filtered through intervening vegetation. In the context of the scale of the original scheme, the amendment will represent a minor change to the view and characteristic of its highway context. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.
- 5.4.45 At year 15 and 30, the level of significance of the effect will reduce to non-significant as reported in the main ES.

View east from the Shropshire Union Canal (Middlewich Branch) Park Farm (high sensitivity receptors) (307-02-010)

- 5.4.46 At year 1, the main ES reported a **major** adverse (significant) effect for residents of Park Farm, users of Footpath Winsford 3/1 and NCN Route 5, and canal users of **high** susceptibility and with **medium-high** value views experiencing a substantial change to the composition of near distance views. This would be due to the introduction of infrastructure elements including overhead line equipment and passing trains on Clive Green south and north embankments No.s 1-3 and over the Shropshire Union Canal viaducts No.s 1-3, into near distance views, across the width of the view.

- 5.4.47 At year 1, the amendment will change the visual effect at this viewpoint. This is because the amendment will introduce a cycleway and new and widened embankments, which will be noticeable in views. The removal of canal side vegetation during construction will open near-distance views towards the cycle path earthworks. In the context of the scale of original scheme, the amendment will represent a slight change to the view. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.
- 5.4.48 In year 15, the main ES reported a **major** adverse (significant) effect. This would be a result of the original scheme remaining a prominent element spanning the canal corridor despite maturing mitigation planting on Clive Green south and north embankments No.s 1-3, partially filtering views of the lower elements of overhead line equipment and train movements.
- 5.4.49 At year 15, the amendment will change the visual effect at this viewpoint. This is because the cycle path will remain a noticeable element in views. However, maturing mitigation planting, proposed as part of the amendment, along the embankments of the cycle/pedestrian path, will partially filter and integrate the amendment into views along the canal corridor. In the context of the scale of the original scheme, the amendment will represent a slight change to the view. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.
- 5.4.50 At year 30, the main ES reported a **major** adverse (significant) effect. This would be due to the original scheme remaining a prominent element spanning the canal corridor despite the greater maturity of mitigation planting proposed as part of the original scheme, largely filtering views of the lower elements of overhead line equipment and train movements.
- 5.4.51 At year 30, the amendment will change the visual effect at this viewpoint as the cycle path will remain noticeable in views. However, mature mitigation planting, proposed as part of the amendment along the embankments of the cycle/pedestrian path, will further filter and integrate the amendment into views along the canal corridor. In the context of the scale of the original scheme, the amendment will represent a slight change to the view. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.
- 5.4.52 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-OMA02.

Other mitigation measures

- 5.4.53 No mitigation measures additional to those reported in the main ES are required.

Summary of likely residual significant effects

- 5.4.1 In many cases, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. The amendment will give rise to a different likely residual significant operational effect at the following viewpoint. However, this will not change the level of significance of the effect reported within the main ES for the view east

from the Shropshire Union Canal (Middlewich Branch) Park Farm (307-02-010), which will remain **major** adverse (significant).

Cumulative effects

- 5.4.2 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Traffic and transport

Scope, assumptions and limitations

- 5.4.3 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1 and the SMR of the main ES.
- 5.4.4 This amendment has the potential to result in new or different significant construction and operational effects for traffic and transport.
- 5.4.5 The assessment of the changes to traffic flows during construction and operation as a result of all AP1 amendments in combination with all SES1 changes is reported in Section 7.
- 5.4.6 The assessment in this section considers the potential effects on PRoW and roadside footway/cycleway users. No further traffic and transport effects reported in the main ES are considered to require reassessment as a result of the amendment.

Environmental baseline

Existing environmental baseline

- 5.4.7 The baseline traffic and transport information is described in Section 14 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES, as amended in Sections 2 and 7 of this report. A summary of the baseline information relevant to the assessment of the amendment is provided below.
- 5.4.8 Clive Green Lane is an unclassified local road in the Wimboldsley to Lostock Gralam area, which connects the A530 Nantwich Road with Clive Lane. Surveys undertaken to inform the assessment of the original scheme showed that Clive Green Lane was used by 32 non-motorised users on the day of the survey, of which 21 were cyclists.
- 5.4.9 There are a number of PRoW in the Wimboldsley to Lostock Gralam area. The PRoW of relevance to the assessment of this amendment is Footpath Winsford 3/1 along the Shropshire Union Canal (Middlewich Branch). No survey information is available for Footpath Winsford 3/1; however in the absence of information the assessment is based on conservative assumptions regarding usage. The Shropshire Union Canal (Middlewich Branch) is located to the south of the Wimboldsley to Lostock Gralam area on a south-west to north-east alignment, extending between Wardle and Middlewich.

- 5.4.10 There are a number of cycle routes which form part of the National Cycle Network in the Wimboldsley to Lostock Gralam area. This includes National Route 5, which runs from south-east to north-west through the Wimboldsley to Lostock Gralam area between Middlewich and Weaverham, connecting Winsford and Northwich and utilises a section of the Shropshire Union Canal (Middlewich Branch) towpath.

Future environmental baseline

- 5.4.11 The future baseline relevant to the assessment of the amendment remains unchanged from that reported in Section 14 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

Effects arising during operation

Avoidance and mitigation measures

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

Assessment of impacts and effects

- 5.4.13 The main ES reported no significant effects on non-motorised users on the Shropshire Union Canal (Middlewich Branch), National Cycle Route 5 and Footpath Winsford 3/1 as a result of the original scheme.
- 5.4.14 The amendment will provide a new shared use cycle and pedestrian path parallel to Clive Green Lane from its junction with Clive Back Lane to the existing Clive Green Lane canal bridge. A ramped connection will replace the existing stepped access between the Shropshire Union Canal (Middlewich Branch), National Cycle Route 5 and Footpath Winsford 3/1 and Clive Green Lane. This will give rise to a new minor beneficial effect on non-traffic related severance, which is significant, because of a decrease in journey length of 474m for cyclists between Middlewich and Clive Green Lane. Removal of the existing stepped access will give rise to a new moderate adverse effect on non-traffic related severance, which is significant. This is significant due to an increase in journey length of up to 609m for pedestrians travelling between the Shropshire Union Canal (Middlewich Branch) (south of Clive Green Lane) and Clive Green Lane (east of the Shropshire Union Canal (Middlewich Branch)).

Other mitigation measures

- 5.4.15 No mitigation measures additional to those reported in the main ES are required.

Summary of likely residual significant effects

- 5.4.16 The amendment will give rise to a new likely residual permanent moderate adverse effect on the Shropshire Union Canal (Middlewich Branch), National Cycle Route 5 and Footpath Winsford 3/1, due to the increase in journey length for pedestrians by up to 609m.

- 5.4.17 The amendment will give rise to a new likely residual permanent minor beneficial effect on non-traffic related severance on the Shropshire Union Canal (Middlewich Branch), National Cycle Route 5 and Footpath Winsford 3/1, due to the decrease in journey length for cyclists by up to 474m.

Cumulative effects

- 5.4.18 There are no new or different significant cumulative effects on PRow and roadside footway/cycleway users further to those reported in the main ES.

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

Construction

Ecology and biodiversity

- 5.4.19 The amendment will result in the loss of an additional 104m of hedgerow habitat in this location; this will result in a different effect but will not change the level of significance of the adverse residual effect on hedgerows, as reported within the main ES for ecology and biodiversity.

Landscape and visual

- 5.4.20 The amendment will give rise to a different likely residual significant construction and operational effect at the following viewpoint for landscape and visual. However, this will not change the level of significance of the effect reported within the main ES for the view east from the Shropshire Union Canal (Middlewich Branch) Park Farm (307-02-010). Effects will increase but will remain **major** adverse (significant).

Traffic and transport

- 5.4.21 The amendment will give rise to a new likely residual permanent moderate adverse effect for traffic and transport on the Shropshire Union Canal (Middlewich Branch), National Cycle Route 5 and Footpath Winsford 3/1, due to the increase in journey length for pedestrians by up to 609m.
- 5.4.22 The new shared use cycle and pedestrian path will give rise to a new minor beneficial effect for traffic and transport on non-traffic related severance, which is significant, because of a decrease in journey length of 474m for cyclists between Middlewich and Clive Green Lane.

Operation

Landscape and visual

- 5.4.23 The amendment will give rise to a different likely residual significant operational effect at the following viewpoint. However, this will not change the level of significance of the effect reported within the main ES for the view east from the Shropshire Union Canal (Middlewich Branch) Park Farm (307-02-010), which will remain **major** adverse (significant).

5.5 Additional land temporarily required for the provision of surface water drainage at Shropshire Union Canal North satellite compound (AP1-002-005)

- 5.5.1 The Bill provides for Shropshire Union Canal North satellite compound, but no temporary surface water drainage is included (see map CT-05-310 in main ES Volume 2, MA02 Map Book).
- 5.5.2 Since the main ES, additional design development has identified a requirement for an area of additional land for construction adjacent to the Shropshire Union Canal North satellite compound. This additional land is to allow for a temporary surface water drainage outfall from the compound to Tributary of River Weaver 4 during construction. The length of the surface water drainage outfall from the construction compound to the outfall at the Tributary of River Weaver 4 will be 120m.
- 5.5.3 The works will be managed from the Shropshire Union Canal North satellite compound. The amendment will be constructed and used within the period for which the Shropshire Union Canal North satellite compound is operational, a period of five years for the AP1 revised scheme. the drainage outfall will be removed and the land restored to its previous use once the construction compound is no longer required, prior to the operation of the AP1 revised scheme.
- 5.5.4 The land required to provide surface water drainage from the Shropshire Union Canal North satellite compound is outside the limits of the Bill and will result in the temporary requirement for an additional 0.6ha of land (see map CT-05-310, D5 to E5 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.5.5 The amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to any environmental topics.

5.6 Change to Bill powers required for the realignment of reception tracks at Crewe North rolling stock depot (AP1-002-006)

- 5.6.1 The Bill provides for the Crewe North RSD and Crewe North RSD reception tracks. Crewe North RSD will be located 5km to the north of Crewe on land between the existing WCML and diverging HS2 route (see maps CT-06-310 and CT-06-311 in the main ES Volume 2, MA02 Map Book).
- 5.6.2 Since the main ES, it has been identified that there is a need to amend the proposed alignment of the HS2 reception tracks to improve operational safety and efficiency. The alignment of the Crewe North RSD northern reception tracks will be changed between Clive Green South embankment No. 3 (west of Lea House Farm) and Stanthorne South embankment No. 2. To accommodate this, the following amendments will be required:
- Shropshire Union Canal viaduct No. 2 will be modified to tie into the northern reception tracks. The Shropshire Union Canal viaduct No. 2 will move west from the location identified in the original scheme by 1m at the southern end and by 3m at the northern end. The length of the viaduct will remain as set out in the original scheme (see map CT-06-310, D5 to D6 and E5 to E6 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
 - Middlewich box structure will be extended by 16m to the south and shortened by 4m at the northern end. An overall increase in length of the structure by 12m will be necessary to accommodate the new reception track alignment (see map CT-06-310, G5 to G6 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
 - removal of four crossings and two terminating sidings;
 - the retaining walls along the southern end of Clive Green North embankment will be lengthened from 89m to 105m. The retaining walls at the northern end of Stanthorne South embankment will be increased from 194m to 209m (see map CT-06-310, E5 to E6 and I5 to I6 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
 - the footprint of earthworks within Crewe North RSD, adjacent to Shropshire Union Canal viaduct No. 1, Shropshire Union Canal viaduct No. 2 and Middlewich box structure, will be revised to accommodate the new reception track alignment. The changes to the earthworks will be negligible (see map CT-06-310, F5 to F6 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
 - where the footprint of the earthworks within the Crewe North RSD will be changed from the original scheme, adjacent HS2 maintenance access roads will be realigned along the edge of the footprint of the revised earthworks (see map CT-06-310, F5 to F6 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
 - an additional HS2 maintenance access road will be added at the northern end of the Middlewich box structure to ensure that an access point is provided at both ends of the tunnel (see map CT-06-310, G5 in the SES1 and AP1 ES Volume 2, MA02 Map Book);

- modifications to drainage to accommodate the revised reception track alignment within the Crewe North RSD (see map CT-06-309, I4 to I5 and J4 to J5 in the SES1 and AP1 ES Volume 2, MA02 Map Book); and
- the hedgerow mitigation planting around the drainage pond north of Yew Tree Farm, proposed in the main ES, will be extended to run along the northern edge of the HS2 maintenance access road (see map CT-06-310, G7 to H7 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

5.6.3 Construction of the amendment will be managed from Clive Green Lane satellite compound. Works will be constructed within the period set out in the main ES for this compound.

5.6.4 No additional land is required for the amendment. There will be negligible adjustments to the footprints of permanent features and the land required for construction, within the Bill limits. However, the alignment of the HS2 mainline would change, requiring a change in Bill powers (see map CT-06-309 I5 to J4 and CT-06-310, A5 to J6 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

5.6.5 The amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to any environmental topics.

5.7 Additional land required for modifications to the A54 Chester Road/A530 Croxton Lane junction (AP1-002-007)

5.7.1 The Bill provides for a temporary construction traffic route along the A54 Chester Road. The main ES reported significant delays (major adverse effects) due to construction traffic along the A54 Chester Road/A530 Newton Bank and the A530 Croxton Lane (see map CT-05-310-R1, I10 to J1 in the main ES Volume 2, MA02 Map Book).

5.7.2 Since the main ES, further work has identified modifications to the existing A54 Chester Road/A530 Croxton Lane junction layout that will increase capacity and mitigate the impacts of construction traffic movements on existing road users. This amendment will temporarily modify the existing junction arrangement from a mini roundabout to a junction with traffic signals and will necessitate carriageway widening into the grass verges. The carriageway will be widened from a single carriageway to enable the formation of a right-turn lane, 29m in length, on the A54 Newton Bank Road and a left-turn lane, 50m in length, on the A54 Chester Road. These additional lanes will enable safer turning manoeuvres and will mitigate potential vehicular conflicts for road users caused by construction traffic.

5.7.3 In addition, modifications to the existing kerb lines, road markings and the relocation of highway drainage along these new kerb lines will be required.

- 5.7.4 To enable widening of the carriageway, up to 980m² of existing grass verge and tree planting will be lost from within the highway boundary, some in front of residential properties along the A54 Chester Road. This vegetation will be replaced where reasonably practicable within the remaining highway boundary on the eastern side of the A54 Chester Road and the eastern side of the A530 Newton Bank, south of the junction with the A530 Croxton Lane, as landscape mitigation planting.
- 5.7.5 The modification and widening of the A54 Chester Road/A530 Croxton Lane junction will be constructed over a period of up to one year, commencing in 2026. The original configuration of the junction will be reinstated following the completion of construction and use of the construction traffic route.
- 5.7.6 The land required for the junction modification and carriageway widening is outside the limits of the Bill and will result in the requirement for an additional 0.18ha of land. The additional land required is within the highway boundary (see map CT-05-310-R1, I8 to I9 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.7.7 The assessment of this amendment has identified new, different or removed likely significant effects for the following topics: community, ecology and biodiversity; health; landscape and visual; socio-economics and sound, noise and vibration, which are reported in this section.
- 5.7.8 The assessment of the changes to construction traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Community

Scope, assumptions and limitations

- 5.7.9 The assessment scope, key assumptions and limitations for community are as set out in Volume 1 and the SMR of the main ES.
- 5.7.10 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for community.
- 5.7.11 Community effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing environmental baseline

- 5.7.12 The baseline community information is as described in Section 6 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.
- 5.7.13 Middlewich is a settlement comprising approximately 5,600 residential properties. The nearest residential properties are located adjacent to land required for the construction of the AP1 revised scheme.

Future baseline

- 5.7.14 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.7.15 The following committed development of relevance to the community assessment that would materially alter the future baseline during construction of the AP1 revised scheme in this area, are set out in Table 11.

Table 11: Committed developments that materially alter the future baseline during construction of the AP1 revised scheme

Map book reference ¹¹	Planning reference	Description	How this is considered in the assessment
MA02/416A	Site MID 2 (Cheshire East Site Allocations and Development Policies Document)	Location: Lane east and west of Croxton Lane. Land east and west of Croxton Lane is allocated for residential development for around 50 new homes. Development proposals for the site must: 1. safeguard and protect, through an undeveloped and open landscaped buffer zone, the existing Trent and Mersey Canal Conservation Area; 2. provide an offset from the existing recycling centre and achieve an acceptable level of residential amenity for prospective residents including in terms of noise and disturbance; 3. retain existing mature hedgerows around the boundaries of the site as far as possible; and 4. provide for improvements to the surface of canal towpath to encourage its use as a traffic-free route for pedestrians and cyclists between the site and town centre.	Informing future baseline

¹¹ Volume 5, Committed Development Map Book: maps CT-13-304b to CT-13-309a.

- 5.7.16 Committed development MA02/416A has been included as part of the future baseline and considered in this assessment. The implementation of this committed development will result in a new residential development approximately 300m to the north- east of land required for the construction of the AP1 revised scheme.

Effects arising during construction

Avoidance and mitigation measures

- 5.7.17 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Assessment of impacts and effects

- 5.7.18 Junction modifications will result in a new moderate adverse in-combination effect on approximately 30 residential properties in the vicinity of the A54 Chester Road/A530 Croxton Lane junction, Middlewich. New significant construction noise effects that will combine with new significant visual effects for approximately one year and five months. Together these noise and visual effects will result in a new moderate adverse in-combination effect on amenity for residents at these properties, which is significant.

Other mitigation measures

- 5.7.19 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Summary of likely residual significant effects

- 5.7.20 The amendment will result in a new residual effect on approximately 30 residential properties in the vicinity of the A54 Chester Road/A530 Croxton Lane junction, Middlewich due to new noise and visual traffic effects.

Cumulative effects

- 5.7.21 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Ecology and biodiversity

Scope, assumptions and limitations

- 5.7.22 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1 and the SMR of the main ES.
- 5.7.23 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.

- 5.7.24 Where there are limitations in data, a precautionary baseline has been taken following the approach set out in the SMR which constitutes a 'reasonable worst-case' basis for the subsequent assessment. The precautionary approach to the assessment that has been adopted identifies the likely significant effects of the AP1 revised scheme.
- 5.7.25 Ecology and biodiversity effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing environmental baseline

- 5.7.26 The baseline ecology and biodiversity information is as described in Section 7 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.

Designated sites

- 5.7.27 The land required for the amendment is located within the Natural England IRZ for Sandbach Flashes SSSI. The SSSI is located west of Sandbach, approximately 3.4km north-west of the land required for the amendment.

Species

- 5.7.28 The land required for the amendment contains trees which, on a precautionary basis, are assumed to support roosting bats. Several species of bat are Species of Principal Importance and a conservation priority of the Cheshire BAP. In the absence of survey information, on a precautionary basis, assumed roosts present within the land required for the amendment are of up to regional value.

Future environmental baseline

- 5.7.29 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.7.30 None of the identified developments affect the assessment of the likely construction and operation impacts on ecology and biodiversity from the amendment.

Effects arising during construction

Avoidance and mitigation measures

- 5.7.31 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Designated sites

- 5.7.32 Whilst the amendment is within the IRZ for Sandbach Flashes SSSI, due to the limited nature of the works required and the distance to the SSSI, the proposed amendment will not result in a significant adverse effect on the integrity of the SSSI.

Species

- 5.7.33 The amendment will result in the loss of trees, which on a precautionary basis, are assumed to support roosting bats. This would result in a permanent adverse effect on the species of bats present, which would be significant at up to regional level.

Other mitigation measures

- 5.7.34 To replace roosts that will be lost to construction, artificial roosts will be provided in retained areas as close to the roost being lost as possible, in accordance with the Ecological Principles of Mitigation within the SMR. Following the implementation of these measures, the effects of the potential loss of roosts on the bat assemblage will be reduced to a level that is not significant.

Summary of likely residual significant effects

- 5.7.35 There are no changes to the likely residual significant effects identified in the main ES as a result of the amendment.

Cumulative effects

- 5.7.36 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Health

Scope, assumptions and limitations

- 5.7.37 The assessment scope, key assumptions and limitations for health are as set out in Volume 1 and the SMR of the main ES.

- 5.7.38 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for health.
- 5.7.39 Health effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing environmental baseline

- 5.7.40 The baseline community information is as described in Section 8 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.
- 5.7.41 Middlewich is a settlement comprising approximately 5,600 residential properties. The nearest residential properties are located adjacent to land required for the construction of the amendment.

Future baseline

- 5.7.42 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.7.43 The following committed development of relevance to the health assessment that would materially alter the future baseline during construction of the amendment in this area, are set out in Table 12.

Table 12: Committed development that materially alter the future baseline during construction of the AP1 revised scheme

Map book reference ¹²	Planning reference	Description	How this is considered in the assessment
MA02/416A	Site MID 2 (Cheshire East Site Allocations and Development Policies Document)	Location: Lane east and west of Croxton Lane. Land east and west of Croxton Lane is allocated for residential development for around 50 new homes. Development proposals for the site must: 1. safeguard and protect, through an undeveloped and open landscaped buffer zone, the existing Trent and Mersey Canal Conservation Area; 2. provide an offset from the existing recycling centre and achieve an acceptable level of residential amenity for prospective residents including in terms of noise and disturbance;	Informing future baseline

¹² Volume 5, Committed Development Map Book: maps CT-13-304b to CT-13-309a.

Map book reference ¹²	Planning reference	Description	How this is considered in the assessment
		3. retain existing mature hedgerows around the boundaries of the site as far as possible; and 4. provide for improvements to the surface of canal towpath to encourage its use as a traffic-free route for pedestrians and cyclists between the site and town centre.	

5.7.44 Committed development MA02/416A has been included as part of the future baseline and considered in this assessment. The implementation of this committed development will result in a new residential development approximately 300m to the north-east of land required for construction of the amendment.

Effects arising during construction

Avoidance and mitigation measures

5.7.45 No mitigation measure additional to those reported in the main ES and draft CoCP are identified.

Assessment of impacts and effects

5.7.46 Junction modifications will result in a new adverse neighbourhood quality effect for residents in the vicinity of the A54 Chester Road/ A530 Newton Bank junction, Middlewich. New significant airborne noise effects will combine with new significant visual effects for approximately one year and five months. People in this community are likely to experience these effects as changing the quality of their neighbourhood and to regard that change as adverse, diminishing the amenity of the settlement.

Other mitigation measures

5.7.47 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Cumulative effects

5.7.48 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Landscape and visual

Scope, assumptions and limitations

5.7.49 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1 and the SMR of the main ES.

- 5.7.50 This amendment has the potential to result in new significant construction and operational effects for visual amenity only. Therefore, there is no construction and operational assessment for landscape included in this report.
- 5.7.51 All landscape and visual effects, arising from this amendment, are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Environmental baseline

Existing baseline

- 5.7.52 The baseline landscape and visual information is as described in Volume 5, Appendix: LV-001-0MA02 of the main ES.
- 5.7.53 A summary of the baseline information relevant to the assessment of the amendment is provided below.

Visual baseline

- 5.7.54 The amendment has the potential to affect one viewpoint, which would be unaffected by the original scheme. This viewpoint is described in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02 and summarised below.

View north-west from A54 Chester Road, Middlewich (high sensitivity receptors) (308-02-016)

- 5.7.55 This new viewpoint is located in an area which was not part of the original scheme and represents the views experienced by residents of properties on the A54 Chester Road, Middlewich and road users. Views are predominantly residential in nature and focused on the near distance, with mature roadside trees and boundary vegetation screening red brick properties. There are longer oblique views along the A54 on either side of the view, with road signage and street furniture visible, and views of a nearby supermarket.

Future baseline

- 5.7.56 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.7.57 None of the identified committed developments will alter the baseline conditions in 2025 or 2038 for landscape or visual amenity.

Effects arising during construction

Avoidance and mitigation measures

- 5.7.58 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Visual assessment

View north-west from A54 Chester Road, Middlewich (high sensitivity receptors) (308-02-016)

- 5.7.59 This new viewpoint is located in an area where there will be changes to the original scheme, close to the centre of Middlewich. Residents of **high** susceptibility and road users of **lower** susceptibility, all with **medium** value views, will experience a noticeable change to near and middle-distance views during construction of the amendment. The removal of several mature lime trees within the roadside verge will substantially reduce local tree cover and open up partially screened views from the residential properties towards the A54 Chester Road and associated traffic movements. Construction activity in the near distance will be noticeable in views but will be characteristic of an urban setting. There will be a **medium** magnitude of change and a **moderate** adverse (significant) effect. The amendment will therefore give rise to a new significant effect not reported in the main ES.
- 5.7.60 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Other mitigation measures

- 5.7.61 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 5.7.62 In many cases, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. However, the amendment will give rise to a new likely significant residual construction effect, following construction phase mitigation, in an area which was not affected by the original scheme for views north-west from A54 Chester Road, Middlewich (308-02-016). Effect will be **moderate** adverse (significant).

Cumulative effects

- 5.7.63 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Effects arising during operation

Avoidance and mitigation measures

- 5.7.64 No mitigation measures additional to those reported in the main ES are required.

Assessment of impacts and effects

Visual assessment

View north-west from A54 Chester Road, Middlewich (high sensitivity receptors) (308-02-016)

- 5.7.65 This new viewpoint is located in an area where there will be changes to the original scheme. At year 1, residents of **high** susceptibility and road users of **lower** susceptibility, all with **medium** value views, will experience a noticeable change to near-distance views as a result of the amendment. The loss of mature trees in the highway verge during construction will substantially reduce local tree cover and open up views from the adjacent residential properties towards the A54 Chester Road and associated traffic movements. Where boundary screening is absent, traffic movements will be visible. Where space allows, replacement roadside trees will be immature and will not contribute to the integration of the AP1 revised scheme into the local townscape. There will be a **medium** magnitude of change and a **moderate** adverse (significant) effect. The amendment will therefore give rise to a new significant effect not reported in the main ES.
- 5.7.66 At year 15 and 30, the level of significance of the effect will reduce to non-significant as reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.
- 5.7.67 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Other mitigation measures

- 5.7.68 No mitigation measures additional to those reported in the main ES are required.

Summary of likely residual significant effects

- 5.7.69 No new, removed or different significant operational effects are anticipated as a result of the amendment.

Cumulative effects

- 5.7.70 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Socio-economics

Scope, assumptions and limitations

- 5.7.71 The assessment scope, key assumptions and limitations for socio-economics are as set out in Volume 1 and the SMR of the main ES.
- 5.7.72 This amendment has the potential to result in new or different construction effects only. Therefore, there is no operational assessment for socio-economics.
- 5.7.73 Socio-economic effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing environmental baseline

- 5.7.74 The baseline socio-economics information is as described in Section 12 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

Future environmental baseline

- 5.7.75 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant. No committed developments of relevance for the socio-economic assessment have been identified that would materially alter the future baseline in this area.

Effects arising during construction

Avoidance and mitigation measures

- 5.7.76 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

- 5.7.77 As a result of the amendment The Golden Lion Hotel, located in Middlewich, will experience new significant visual effects during construction, as well as significant effects from HGV construction traffic (traffic congestion and delay effects) that were identified as part of the original scheme. The sensitivity of this establishment is assessed to be medium as customers are considered to be sensitive to impacts on the local environment and setting. The construction works may discourage them from using this facility. Given the duration of

effects and the medium level of sensitivity, the amendment is assessed to have a significant adverse in-combination effect on this business.

Other mitigation measures

- 5.7.78 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 5.7.79 The amendment will result in The Golden Lion Hotel being subject to a new adverse residual in-combination effect, which is significant.

Cumulative effects

- 5.7.80 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Sound, noise and vibration

Scope, assumptions and limitations

- 5.7.81 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1 and the SMR of the main ES.
- 5.7.82 This amendment has the potential to result in new or different likely significant construction effects only. Therefore, there is no operational assessment for sound, noise and vibration.
- 5.7.83 Sound, noise and vibration effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing baseline

- 5.7.84 The baseline sound, noise and vibration information is as described in Section 13 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. Baseline sound levels representative of the assessment locations affected by this amendment have been used in the construction assessment.
- 5.7.85 This amendment involves works close to dwellings which were outside of the spatial scope of the assessment of direct noise and vibration effects in the main ES . The additional baseline sound levels are presented in in SES1 and AP1 ES Volume 5, Appendix: SV-002-00000.

Future baseline

- 5.7.86 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.7.87 The committed developments have been considered to determine whether they would result in a material change to the future baseline or have the potential to give rise to cumulative effects. None of the identified developments affect the assessment of sound, noise and vibration from the amendment.

Effects arising during construction

Avoidance and mitigation measures

- 5.7.88 No avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP, are required.

Assessment of impacts and effects

Residential receptors: direct effects – individual dwellings

- 5.7.89 Taking account of the avoidance and mitigation measures as outlined in the main ES, the following 10 dwellings are forecast to experience noise levels above the eligibility criteria for noise insulation, as defined in the draft CoCP: 41 to 59 Chester Road, Middlewich (assessment location ref.: 610961).
- 5.7.90 For daytime construction, the threshold for eligibility for noise insulation is 75dB measured outdoors as specified in the draft CoCP.
- 5.7.91 The mitigation measures, including noise insulation, will reduce noise inside all dwellings such that it does not reach a level where it will significantly affect residents.

Residential receptors: direct effects – communities

- 5.7.92 The amendment may give rise to new and different temporary direct adverse noise effects, which may be considered to be significant on a community basis. The potential new or different likely significant effects are discussed in the following paragraphs and summarised in Table 13. In this table, the duration of impact is the period where the relevant assessment category is exceeded. The predicted monthly construction noise level will vary throughout this period and as a guide the typical and highest monthly noise levels at the closest dwellings in the community identified are presented in the 'cause' column of this table.

5.7.93 The amendment will introduce a new likely significant effect as a result of construction noise at approximately 30 dwellings in the vicinity of the A54 Chester Road/A530 Croxton Lane junction at Middlewich (MA02-C-C7). The predicted duration of the construction noise impact is up to one year and five months during the daytime. This may be considered by the local community as an effect on the acoustic character of the area and hence be perceived as a change in the quality of life for that community. This effect is likely to be considered as significant when assessed on a community basis.

Table 13: Direct adverse construction effects on residential communities and shared open areas that are considered to be significant on a community basis and are new or different to those reported in the main ES

Significant effect number (and Map reference) ¹³	Type of significant effect	Time of day	Location	Cause (construction activities) ¹⁴	Assumed approximate duration of impact
MA02-C-C7 (SV-03-306R1)	Construction noise (New)	Daytime	Middlewich: approximately 30 dwellings in the vicinity of the A54 Chester Road / A530 Croxton Lane junction.	During the daytime, general site works in the vicinity of the A54 Newton Bank/A54 Chester Road/A530 Newton Bank/A530 Croxton Lane junction. The typical and highest monthly noise levels will both be approximately 80dB ¹⁵ .	Up to one year and five months.

5.7.94 For further information see SES1 and AP1 ES Volume 5, Appendix: SV-002-00000 and SES1 and AP1 ES Volume 5, Sound, noise and vibration Map Book.

Non-residential receptors: direct effects

5.7.95 The amendment will give rise to a new likely significant direct construction effect on the following non-residential receptor where the predicted airborne sound levels exceed both the relevant screening criteria and the noise change criterion (typically a change of greater than 3dB¹⁶ compared with the existing baseline sound level): chapel at Middlewich Cemetery (place of worship), Chester Road, Middlewich (assessment location ref.: 610953).

5.7.96 This location is identified in the Wimboldsley to Lostock Gralam area, as shown in Volume 5, Sound, noise and vibration Map Book, Map Series SV-03 in the main ES.

¹³ See SES1 and AP1 ES Volume 5, Appendix: SV-002-00000 and SES1 and AP1 ES, Volume 5, Sound, noise and vibration Map Book, AP1 Map Series SV-03.

¹⁴ The construction activity giving rise to the highest predicted noise or vibration level is reported. Multiple construction activities may contribute to the typical noise levels and the approximate duration of impact.

¹⁵ Equivalent continuous sound level at the facade, $L_{pAeq, 0700-1900}$.

¹⁶ The exception is where the use and sensitivity of the receptor or land use is very sensitive to noise and have been included in the detailed assessment where there is a change less than 3dB. Further information can be found in the SES1 and AP1 ES, Volume 5, Appendix: SV-002-0MA01.

- 5.7.97 Middlewich Cemetery is located to the east of the A530 Croxton Lane, with a chapel approximately 80m east of the A530 Croxton Lane. The receptor is approximately 90m to the north-east of the land required for the amendment. The chapel is in a poor state of repair and currently does not hold any funeral services. However, the chapel may in the future be repaired and reinstated as a venue for funeral services which may, therefore, coincide with the proposed junction improvement works. The chapel building has been assessed against the criteria for places of worship. The predicted daytime monthly construction noise level is above the screening criterion defined in the SMR¹⁷ for a period of 18 months. The highest predicted daytime monthly construction noise level is 6dB above the screening criterion defined in the SMR. The typical predicted monthly daytime construction noise level is 2dB above the screening criterion defined in the SMR. The Middlewich Cemetery chapel is identified, on the basis of a precautionary assessment, as being subject to a likely significant adverse effect (denoted by MA02-C-N4). This temporary adverse effect from construction site noise may take the form of activity disturbance to users of the chapel.
- 5.7.98 For further information see SES1 and AP1 ES Volume 5, Appendix: SV-002-00000 and SES1 and AP1 ES Volume 5, Sound, noise and vibration Map Book.

Other mitigation measures

- 5.7.99 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 5.7.100 The amendment will give rise to a new likely temporary residual adverse significant construction noise effect on the residential community of Middlewich.
- 5.7.101 Noise from specific construction activities has been identified as resulting in new likely temporary significant adverse residual effects on the non-residential buildings at Middlewich Cemetery, Chester Road.

Cumulative effects

- 5.7.102 No new or different significant cumulative effects have been identified further to those reported in the main ES.

¹⁷ 50dB L_{pAeq,0700-2300} (free-field) during the day, which is equivalent to 53dB L_{pAeq,0700-2300} (façade).

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

Construction

Community

- 5.7.103 The amendment will result in a new residual effect during construction on approximately 30 residential properties in the vicinity of the A54 Chester Road/A530 Croxton Lane junction, Middlewich due to new noise and visual effects for community.

Landscape and visual

- 5.7.104 The amendment will give rise to a new likely significant residual construction effect at the following viewpoint, which was not reported in the main ES, for the view north-west from A54 Chester Road, Middlewich (308-02-016). The effect will be **moderate** adverse (significant).

Socio-economics

- 5.7.105 The amendment will result in The Golden Lion Hotel being subject to a new adverse residual in-combination effect, which is significant for socio-economics.

Sound, noise and vibration

- 5.7.106 The amendment will give rise to a new likely temporary residual adverse significant construction noise effect on the residential community of Middlewich.
- 5.7.107 Noise from specific construction activities has been identified as resulting in new likely temporary residual adverse significant effects on the non-residential buildings at Middlewich Cemetery, Chester Road.

5.8 Additional land required for the provision of temporary traffic signals around the M6 junction 18 (AP1-002-008)

- 5.8.1 The Bill provides for a temporary construction vehicle access route from the strategic road network at the M6 at junction 18, and onto the A54 Holmes Chapel Road. The main ES reported significant delays (a moderate adverse effect) due to construction traffic along the A54 Holmes Chapel Road/Pochin Way/Centurion Way. The main ES did not propose any mitigation works in this location for road users.
- 5.8.2 Since the main ES, further traffic assessment and engagement with National Highways has identified a need for temporary traffic management to mitigate the impact of the

construction traffic movements on existing road users. Temporary traffic signals will be installed within the existing public highway boundary on the A54 Middlewich Road eastbound approach arm and on the M6 junction 18 gyratory, which are likely to be operated during peak traffic periods only. This will reduce the impact of construction traffic on the A54 Middlewich Road and assist vehicles to enter the M6 junction 18 roundabout junction as well as managing queues along the A54 Middlewich Road eastbound approach.

- 5.8.3 The temporary traffic lights will be installed prior to the commencement of the major earthworks and removed during the demobilisation of the construction compounds.
- 5.8.4 The additional land required for the temporary traffic management will be 1.5ha, which is within the existing public highway boundary, but is outside the limits of the Bill (see map CT-05-311, R6, B4 to B6 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.8.5 The amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to any environmental topics.
- 5.8.6 The assessment of the changes to construction traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

5.9 Additional land permanently required for modifications to the A54 Middlewich Road and Chester Road junction (AP1-002-009)

- 5.9.1 Since the main ES, further work and engagement with National Highways has identified that there is a need to mitigate the impacts of HS2 construction workforce traffic on existing road users and improve road safety at the junction of the A54 Middlewich Road and Chester Road. The junction will be permanently widened from a single carriageway, with the addition of a right-turn lane on the A54 Middlewich Road, turning onto Chester Road. This change will improve capacity and reduce impacts on road users.
- 5.9.2 The modification of the A54 Middlewich Road/Chester Road junction will be constructed over a period of up to four months, commencing in 2026.
- 5.9.3 The land required for the permanent modification of the A54 Middlewich Road/Chester Road junction is outside the limits of the Bill. The amendment will result in a requirement for an additional 5.4ha of land, all within the existing highway boundary (see map CT-05-311-R7 and C7 to C8 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.9.4 The assessment of this amendment has identified new, different or removed likely significant effects for the following topics: community; ecology and biodiversity; health; landscape and visual; and sound, noise and vibration, which are reported in this section.
- 5.9.5 The assessment of the changes to construction traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Community

Scope, assumptions and limitations

- 5.9.6 The assessment scope, key assumptions and limitations for community are as set out in Volume 1 and the SMR of the main ES.
- 5.9.7 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for community.
- 5.9.8 Community effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing environmental baseline

- 5.9.9 The baseline community information is as described in Section 6 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.
- 5.9.10 Holmes Chapel is a settlement comprising approximately 2,400 residential properties. The nearest residential properties are located adjacent to land required for the construction of the AP1 revised scheme. Community resources in the area include The Cedars Care Home and Holmes Chapel Primary School. Middlewich Road playground is located approximately 490m to the east of land required for construction of the amendment.

Future baseline

- 5.9.11 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.

- 5.9.12 No committed developments of relevance for the community assessment have been identified that would materially alter the future baseline in this area.

Effects arising during construction

Avoidance and mitigation measures

- 5.9.13 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Assessment of impacts and effects

- 5.9.14 Junction modifications will result in a new moderate adverse in-combination effect on approximately 35 residential properties in the vicinity of the A54 Middlewich Road, A54 Chester Road and the B5308 Middlewich Road in Holmes Chapel. New significant airborne noise effects will combine with new significant visual effects for four months. Together these noise and visual effects will result in a new moderate adverse in-combination effect on amenity for residents at approximately 35 properties in Holmes Chapel, which is significant.

Other mitigation measures

- 5.9.15 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Summary of likely residual significant effects

- 5.9.16 The amendment will result in a new residual effect on approximately 35 residential properties in the vicinity of the A54 Middlewich Road, A54 Chester Road and the B5308 Middlewich Road in Holmes Chapel, due to new noise and visual effects.

Cumulative effects

- 5.9.17 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Ecology and biodiversity

Scope, assumptions and limitations

- 5.9.18 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1 and the SMR of the main ES.
- 5.9.19 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.9.20 To address any limitations in data, a precautionary baseline has been considered according to the guidance reported within the SMR. 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 AP1 revised scheme.

- 5.9.21 Ecology and biodiversity effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing environmental baseline

- 5.9.22 The land required for this amendment is remote to the land required for the original scheme. The baseline ecology and biodiversity information is therefore not based on field data collected for the main ES, but instead on aerial photography and relevant existing information from regional and local sources. A summary of the baseline information relevant to the assessment of the amendment is provided below.

Habitats

- 5.9.23 Habitats within the land required for the amendment include grassland which is assumed to be species-poor and semi-improved, scattered trees and hardstanding. The habitats of relevance to the assessment of the amendment are described in further detail below.
- 5.9.24 Species-poor semi-improved grassland occurs alongside the A54 Middlewich Road and Chester Road. This grassland contributes to a wider resource of species-poor semi-improved grassland across the Wimboldsley to Lostock Gralam area that is of local/parish value.

Species

- 5.9.25 The land required for the amendment contains trees which, on a precautionary basis, are assumed to support roosting bats. Several species of bat are Species of Principal Importance and a conservation priority of the Cheshire BAP. On a precautionary basis bat roosts are assumed to be present within the land required for the amendment and are considered to be of up to regional value.

Future environmental baseline

- 5.9.26 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.9.27 None of the identified developments affect the assessment of the amendment's likely construction and operation impacts on ecology and biodiversity.

Effects arising during construction

Avoidance and mitigation measures

- 5.9.28 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

- 5.9.29 The amendment will result in the loss of trees which, on a precautionary basis, are assumed to support roosting bats. This will result in a permanent adverse effect on the species of bats present, which will be significant at up to regional level.

Other mitigation measures

- 5.9.30 Where practicable, trees containing roosts will be retained and where roosts will be lost to construction, artificial roosts will be provided in retained areas as close to the roost being lost as possible, in accordance with the Ecological Principles of Mitigation within the SMR. Following the implementation of these measures, the effects of the potential loss of roosts on the bat assemblage will be reduced to a level that is not significant.

Summary of likely residual significant effects

- 5.9.31 There are no changes to the likely residual significant effects identified in the main ES as a result of the amendment.

Cumulative effects

- 5.9.32 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Health

Scope, assumptions and limitations

- 5.9.33 The assessment scope, key assumptions and limitations for health are as set out in Volume 1 and the SMR of the main ES.
- 5.9.34 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for health.
- 5.9.35 Health effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing environmental baseline

- 5.9.36 The baseline community information is as described in Section 8 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.
- 5.9.37 Holmes Chapel is a settlement comprising approximately 2,400 residential properties. The nearest residential properties are located adjacent to land required for the construction of the AP1 revised scheme. Community resources in the area include The Cedars Care Home and Holmes Chapel Primary School. Middlewich Road playground is located approximately 490m to the east of land required for construction of the amendment.

Future baseline

- 5.9.38 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.9.39 No committed developments of relevance for the health assessment have been identified that would materially alter the future baseline in this area.

Effects arising during construction

Avoidance and mitigation measures

- 5.9.40 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Assessment of impacts and effects

- 5.9.41 Junction modifications will result in a new adverse neighbourhood quality effect for residents in the vicinity of the A54 Chester Road, A54 Middlewich Road and the B5308 Middlewich Road in Holmes Chapel. Significant airborne noise effects will combine with new significant visual effects for four months. People in this community are likely to experience these effects as changing the quality of their neighbourhood and to regard that change as adverse, diminishing the amenity of the settlement.

Other mitigation measures

- 5.9.42 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Cumulative effects

- 5.9.43 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Landscape and visual

Scope, assumptions and limitations

- 5.9.44 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1 and the SMR of the main ES.
- 5.9.45 This amendment has the potential to result in new significant construction and operational effects for visual amenity only. Therefore, there is no construction and operational assessment for landscape included this report.
- 5.9.46 All landscape and visual effects, arising from this amendment, are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Environmental baseline

Existing baseline

- 5.9.47 The amendment has the potential to affect one viewpoint, which is described in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02 and summarised below. The viewpoint is located in an area which was not affected by the original scheme and therefore not described in the main ES.

Visual baseline

View west from B5308 Middlewich Road (high sensitivity receptors) (308-02-019)

- 5.9.48 This new viewpoint is located in an area which was not affected by the original scheme and represents the views experienced by residents in properties overlooking the B5308 Middlewich Road and road users. The B5308 Middlewich Road in Holmes Chapel is visible in closely framed views, bordered by prominent mature street trees and hedgerows on the boundaries of neighbouring residential properties. Dwellings are partially screened with upper floors visible above the vegetation. The A54 Chester Road junction can be seen in the middle of the view.

Future environmental baseline

- 5.9.49 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES

Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.

- 5.9.50 None of the identified developments will alter the baseline conditions in 2025 or 2038 for landscape or visual amenity.

Effects arising during construction

Avoidance and mitigation measures

- 5.9.51 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Visual assessment

View west from B5308 Middlewich Road (high sensitivity receptors) (308-02-019)

- 5.9.52 This new viewpoint represents residents of **high** susceptibility and road users of lower susceptibility, all with **medium** value views. The viewpoint will experience a noticeable change to near and middle-distance views as a result of vegetation clearance and construction activity, including changes to the A54 Middlewich Road/Chester Road junction and the realignment of the local road. The removal of several mature roadside trees, in the context of those retained beyond the land required for construction of the AP1 revised scheme, will be noticeable. For residents, construction activity will be partially screened by boundary vegetation, particularly in summer months; however road users will experience direct uninterrupted views of construction activity. There will be a **low** magnitude of visual change and a **moderate** adverse (significant) effect. The amendment will therefore give rise to a new significant effect not reported in the main ES.
- 5.9.53 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Other mitigation measures

- 5.9.54 No mitigation measures additional to those reported in the main ES are required.

Summary of likely residual significant effects

- 5.9.55 In many case, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. However, the amendment will give rise to a new likely significant residual construction effect in an area which was not part of the original scheme and represents the views at the following viewpoint, view west from B5308 Middlewich Road (308-02-019). Effects will be **moderate** adverse (significant).

Cumulative effects

- 5.9.56 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Effects arising during operation

Avoidance and mitigation measures

- 5.9.57 No mitigation measures additional to those reported in the main ES are required.

Assessment of impacts and effects

Visual assessment

View west from B5308 Middlewich Road (high sensitivity receptors) (VP 308-02-019)

- 5.9.58 At year 1, residents of **high** susceptibility and road users of **lower** susceptibility, all with **medium** value views, will experience a noticeable change. The amendment will change near and middle-distance views that will include the loss of several mature roadside trees during construction, impacting the tree-lined character of the immediate view. For residents, changes to the junction layout will be partially screened by garden boundary vegetation and retained roadside planting, particularly in summer months. However, road users will experience direct views of the new highway layout associated with the amendment. At year 1, replacement trees will be immature and will not contribute towards restoring views of the local road junction. There will be a **low** magnitude of visual change and a **moderate** adverse (significant) effect. The amendment will therefore give rise to a new significant effect not reported in the main ES.
- 5.9.59 At year 15 and 30, the level of significance of the effect will be non-significant as reported in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.
- 5.9.60 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Other mitigation measures

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

Summary of likely residual significant effects

- 5.9.62 In many cases, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. No new, removed or different significant operational effects are anticipated as a result of the amendment.

Cumulative effects

- 5.9.63 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Sound, noise and vibration

Scope, assumptions and limitations

- 5.9.64 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1 and the SMR of the main ES.
- 5.9.65 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for sound, noise and vibration.
- 5.9.66 Sound, noise and vibration effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing baseline

- 5.9.67 The baseline sound, noise and vibration information is as described in Section 13 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. Baseline sound levels representative of the assessment locations affected by this amendment have been used in the construction assessment.
- 5.9.68 This amendment involves works close to residential dwellings which were outside of the spatial scope of the assessment of direct noise and vibration effects in the main ES. The additional baseline sound levels are presented in SES1 and AP1 ES Volume 5, Appendix: SV-002-00000.

Future baseline

- 5.9.69 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.9.70 The committed developments have been considered to determine whether they would result in a material change to the future baseline or have the potential to give rise to cumulative effects. None of the identified developments affect the assessment of sound, noise and vibration from the amendment.

Effects arising during construction

Avoidance and mitigation measures

5.9.71 No avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP, are required.

Assessment of impacts and effects

5.9.72 The amendment may give rise to new and different temporary direct adverse noise effects which may be considered to be significant on a community basis. The duration of impact is the period where the relevant assessment category is exceeded. The predicted monthly construction noise level will vary throughout this period and as a guide the typical and highest monthly noise levels at the closest dwellings in the community identified are presented in the 'cause' column of Table 14. The potential new or different likely significant effects are discussed in the following paragraphs and summarised in Table 14.

5.9.73 The amendment will introduce a new likely significant effect as a result of construction noise at approximately 35 dwellings in the vicinity of the A54 Middlewich Road/Chester Road junction at Holmes Chapel (MA02-C-C8). The predicted duration of the construction noise impact is up to four months during the daytime. This may be considered by the local community as an effect on the acoustic character of the area and hence be perceived as a change in the quality of life for that community. This effect is likely to be considered as significant when assessed on a community basis.

Table 14: Direct adverse construction effects on residential communities and shared open areas that are considered to be significant on a community basis and are new or different to those reported in the main ES

Significant effect number (and Map reference) ¹⁸	Type of significant effect	Time of day	Location	Cause (construction activities) ¹⁹	Assumed approximate duration of impact
MA02-C-C8 (SV-03-306-R2)	Construction noise (New)	Daytime	Holmes Chapel: approximately 35 dwellings in the vicinity of the A54 Middlewich Road/Chester Road junction.	During the daytime, general site works in the vicinity of the A54 Middlewich Road/Chester Road junction. The typical and highest monthly noise levels will both be approximately 65dB to 75dB ²⁰ .	Up to 4 months

¹⁸ See SES1 and AP1 ES Volume 5, Appendix: SV-002-00000 and SES1 and AP1 ES Volume 5, Sound, noise and vibration Map Book, Map Series SV-03.

¹⁹ The construction activity giving rise to the highest predicted noise or vibration level is reported. Multiple construction activities may contribute to the typical noise levels and the approximate duration of impact.

²⁰ Equivalent continuous sound level at the facade, $L_{pAeq, 0700-1900}$.

- 5.9.74 For further information see SES1 and AP1 ES Volume 5, Appendix: SV-002-00000 and SES1 and AP1 ES Volume 5, Sound, noise and vibration Map Book.

Other mitigation measures

- 5.9.75 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 5.9.76 The amendment will give rise to a new likely temporary residual adverse significant construction noise effect on the residential community of Holmes Chapel.

Cumulative effects

- 5.9.77 No new or different significant cumulative effects have been identified further to those reported in the main ES.

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

Construction

Community

- 5.9.78 The amendment will result in a new residual effect during construction on approximately 35 residential properties in the vicinity of the A54 Middlewich Road, A54 Chester Road and the B5308 Middlewich Road in Holmes Chapel, due to new noise and visual effects.

Landscape and visual

- 5.9.79 The amendment will give rise to a new likely significant residual construction effect at the following viewpoint, which was not reported in the main ES for the view west from the B5308 Middlewich Road (308-02-019). Effects will be moderate adverse (significant).

Sound, noise and vibration

- 5.9.80 The amendment will give rise to a new likely temporary residual adverse significant construction noise effect on the residential community of Holmes Chapel.

5.10 Additional land permanently required for modifications to the A556 Shurlach Road and Birches Lane and provision of a shared use cycle and pedestrian path along A556 Shurlach Road (AP1-002-010)

- 5.10.1 The Bill provides for the permanent realignment of the A556 Shurlach Road up to 90m to the north-west of its current alignment for 2.3km, including improvement of the junction with Birches Lane/Lostock Hollow. The original scheme does not include any specific cycle provision or space for future provision for cycle routes as part of the realignment of the A556 Shurlach Road. However, there is a cycle lane running along the southern arm of the existing A556 Shurlach Road at the A556/A530 roundabout (see map CT-06-314 in the main ES Volume 2, MA02 Map Book).
- 5.10.2 Since the main ES, an opportunity to improve the safety of the realigned A556 Shurlach Road has been identified. The central reserve will be widened along the bend to improve visibility on the A556 southbound on the approach to the A556/A530 roundabout (see map CT-06-314, E3 to G5 in the SES and AP ES Volume 2, MA02 Map Book).
- 5.10.3 Additionally, since the main ES, further work has been undertaken to review cycling provision in this location and connectivity with the wider cycle network. This work highlights a potential future demand for cycling along the A556 Shurlach Road corridor. A wider shared use pedestrian and cycle path is proposed with a widened verge along the A556 Shurlach Road to increase the separation between cyclists and motorised vehicular traffic. It is also proposed to link this shared use pedestrian and cycle path along the A556 Shurlach Road towards Lostock Green through the upgrade of a new PRow (proposed as part of the original scheme) under the realigned A556 Shurlach Road. Segregation of cyclists from other vehicular traffic will provide safety benefits and reduce the risk of collisions between motorised vehicles and cyclists.
- 5.10.4 The amendment will result in a change to the alignment of the new PRow at Lostock Green, which under the AP1 revised scheme will now connect Birches Lane on the western side of the A556 Shurlach Road realignment and Restricted Byway Lostock Gralam 1/1 on the eastern side of the A556 Shurlach Road realignment. As a result, users of Birches Lane will be diverted via Restricted Byway Lostock Gralam 1/1, before turning west on a new PRow, passing beneath the Wade Brook overbridge and the Wade Brook viaduct before turning south to re-join Birches Lane to the west of the route of the AP1 revised scheme and the realigned A556 Shurlach Road.
- 5.10.5 To accommodate these changes, the following amendments will be required:
- a 3m wide shared-use pedestrian and cycle path will be constructed at least 3.5m from the western edge of the A556 Shurlach Road carriageway between the A530/A556

Shurlach Road roundabout and the A556 Shurlach Road/Birches Lane junction (see maps CT-06-314, E5 to J5 and CT-06-315, A5 to E5 in the SES1 and AP1 ES Volume 2, MA02 Map Book);

- an area of existing vegetation in the verge of the eastbound Birches Lane approach to the A556 Shurlach Road/Birches Lane junction will be cleared to achieve compliant visibility for this junction (see map CT-06-315, C4 to C5 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- additional filter drains and ditches will be constructed to provide drainage for the shared-use pedestrian and cycle path, and for which run off will be captured in a balancing pond for highway drainage included in the original scheme; and
- change to the diversion of watercourse Broken Cross Drains to reflect the change in carriageway alignment of the realigned A556 Shurlach Road and an associated change to the parallel pond access road (see map CT-06-315, E3 to E5 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

5.10.6 This amendment will be managed from the Gad Brook Viaduct North and Birches Lane satellite compounds. It will be constructed within the period set out in the main ES for the A556 Shurlach Road realignment, over a period of three years and three months.

5.10.7 The land required for the permanent changes to the A556 Shurlach Road is outside the limits of the Bill. The amendment will result in the permanent requirement for 0.18ha of additional land (see map CT-06-314, E3 to J5 and CT-06-315, A5 to E5 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

5.10.8 The assessment of this amendment has identified new, different or removed likely significant effects for the following topic: traffic and transport, which is reported in this section.

5.10.9 The assessment of the changes to traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Traffic and transport

Scope, assumptions and limitations

5.10.10 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1 and the SMR of the main ES.

5.10.11 This amendment has the potential to result in new or different operational effects only.

5.10.12 The assessment of the changes to traffic flows during construction and operation as a result of all AP1 amendments in combination with all SES1 changes is reported in Section 7. Topics

where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

- 5.10.13 The assessment in this section considers the potential effects on PRow and roadside footway/cycleway users and changes in journey lengths for vehicle occupants. No further traffic and transport effects reported in the main ES are considered to require reassessment as a result of the amendment.

Environmental baseline

Existing environmental baseline

- 5.10.14 The baseline traffic and transport information is described in Section 14 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES, as amended in Sections 2 and 7 of this report. A summary of the baseline information relevant to the assessment of the amendment is provided below.
- 5.10.15 The A556 Shurlach Road, which connects the A530 King Street with the A559 Manchester Road, is a primary 'A' road in the Wimboldsley to Lostock Gralam area. It generally operates well although some localised delays can be experienced, particularly at peak times.
- 5.10.16 The main local roads of relevance to the assessment of this amendment are:
- B5082 Pennys Lane, which connects Crowder's Lane with the A556 Shurlach Road;
 - Cookes Lane, which connects to B5082 Pennys Lane;
 - Birches Lane and Station Road (Lostock Gralam), which connect the A556 Shurlach Road with the A559 Manchester Road; and
 - Birches Lane, which connects the A556 Shurlach Road with Greenside Drive.
- 5.10.17 The local road network in this area generally operates well although some localised delays can be experienced, particularly at peak times.
- 5.10.18 There are a number of PRow in the Wimboldsley to Lostock Gralam area. The PRow of relevance to the assessment of this amendment are:
- Footpath Rudheath 3/4;
 - Footpath Rudheath 3/3;
 - Footpath Lach Dennis 3X/2;
 - Footpath Lach Dennis 3X/1; and
 - Restricted Byway Lostock Gralam 1/1.
- 5.10.19 Surveys undertaken to inform the assessment of the original scheme showed that no users were recorded using Footpath Rudheath 3/4, Footpath Rudheath 3/3, Footpath Lach Dennis 3X/2 and Footpath Lach Dennis 3X/1 on the day of the survey. Restricted Byway Lostock Gralam 1/1 was used by 24 users on the day of the survey.

Future environmental baseline

- 5.10.20 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. These committed developments have been considered as part of the future baseline where relevant.

Effects arising during operation

Avoidance and mitigation measures

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

Assessment of impacts and effects

- 5.10.22 The main ES reported that the original scheme would require the permanent realignment of a section of the A556 Shurlach Road up to 90m to the north-west of its current alignment for 2.3km. This resulted in a negligible change in journey length for vehicle occupants and non-motorised users, which would not result in a significant effect. The amendment will result in a change to the permanent realignment of the A556 Shurlach Road. This will result in a negligible change in journey length for vehicle occupants and non-motorised users and will not give rise to a new or different significant effect.
- 5.10.23 The main ES also reported that the original scheme would require the permanent realignment of a section of footway that runs along the eastern side of Birches Lane (west of the original scheme). The realigned footway would follow the realigned Birches Lane beneath Wade Brook viaduct, then turn north to pass beneath Wade Brook offline overbridge, before turning south as a new PRoW to re-join Birches Lane to the west of the original scheme and the realigned A556 Shurlach Road. As a result, pedestrian users of Birches Lane would be subject to a moderate adverse effect on non-traffic related severance, which is significant, because of an increase in journey length of up to 881m, corrected in Section 2 of this report. The amendment will result in a change to the alignment of the new PRoW at Lostock Green, which under the AP1 revised scheme will now connect Birches Lane on the western side of the A556 Shurlach Road realignment and Restricted Byway Lostock Gralam 1/1 on the eastern side of the A556 Shurlach Road realignment. As a result, users of Birches Lane will be diverted via Restricted Byway Lostock Gralam 1/1, before turning west on a new PRoW, passing beneath the Wade Brook overbridge and the Wade Brook viaduct before turning south to re-join Birches Lane to the west of the route of the AP1 revised scheme and the realigned A556 Shurlach Road. The AP1 amendment will extend the increase in journey length for some non-motorised users of Birches Lane from 881m, as corrected in Section 2 of this report, to 927m. However, this will not change the level of significance of the effect reported in the main ES, which remains a moderate adverse effect.
- 5.10.24 The changes to the new PRoW at Lostock Green include the provision of a new shared use cycle path, enabling cyclists to travel between Birches Lane (east) and Birches Lane (west) via

the new PRoW. This will reduce the journey length for cyclists by up to 2.6km, resulting in a moderate beneficial effect on non-traffic related severance, which is significant.

- 5.10.25 The main ES reported that the original scheme would require the permanent closure of Footpath Rudheath 3/4, Footpath Rudheath 3/3, Footpath Lach Dennis 3X/2 and Footpath Lach Dennis 3X/1. As a result, users of Footpath Rudheath 3/4, Footpath Rudheath 3/3, Footpath Lach Dennis 3X/2 and Footpath Lach Dennis 3X/1 would be subject to a moderate adverse effect on non-traffic related severance, which is significant, because of an increase in journey length of up to 1.7km. Due to the change to the A556 Shurlach Road alignment, the amendment will reduce the journey length for some non-motorised users of Footpath Rudheath 3/4, Footpath Rudheath 3/3, Footpath Lach Dennis 3X/2 and Footpath Lach Dennis 3X/1 by 10m compared to the change in journey length reported in the main ES. However, this will not change the level of significance of the effect reported in the main ES, which remains a moderate adverse effect.
- 5.10.26 The main ES reported that the original scheme would require the closure of the north-eastern section of Cookes Lane. As a result, non-motorised users of Cookes Lane would be subject to a moderate adverse effect on non-traffic related severance, which is significant, because of an increase in journey length of up to 588m. The amendment will provide a new connection for non-motorised users at the southern extent of Cookes Lane, allowing access between Cookes Lane and a new shared use cycle path alongside the A556 Shurlach Road. The amendment will reduce the increase in journey length for some non-motorised users of Cookes Lane from 588m, as reported in the main ES, to 35m. This will remove the moderate adverse effect on non-traffic related severance reported in the main ES.
- 5.10.27 The main ES reported that the original scheme would require the diversion of the B5082 Pennys Lane. Non-motorised users of the B5082 Pennys Lane would be subject to a moderate adverse effect on non-traffic related severance, which is significant, because of an increase in journey length for some users of 913m. Due to the change to the A556 Shurlach Road alignment, the amendment will reduce the increase in journey length for some non-motorised users of the B5082 Pennys Lane from 913m, as reported in the main ES, to 908m. However, this will not change the level of significance of the effect reported in the main ES, which remains a moderate adverse effect.

Other mitigation measures

- 5.10.28 No mitigation measures additional to those reported in the main ES are required.

Summary of likely residual significant effects

- 5.10.29 The amendment will remove the likely residual permanent moderate adverse effect on non-traffic related severance for non-motorised users of Cookes Lane reported in the main ES.
- 5.10.30 The amendment will give rise to a new likely residual permanent moderate beneficial effect on non-traffic related severance as a result of the new PRoW at Lostock Green, due to the decrease in journey length for cyclists of up to 2.6km.

Cumulative effects

- 5.10.31 There are no new, removed or different significant cumulative effects on PRoW and roadside footway users and changes in journey lengths for vehicle occupants compared to the main ES.

5.11 Additional land permanently required for the underground diversion of a 11kV Scottish Power Energy Network overhead line at Birches Lane (AP1-002-011)

- 5.11.1 The Bill provides for the permanent underground diversion of a Scottish Power 11kV overhead power line for 1.3km, to pass under the HS2 route and the A556 Shurlach Road realignment 95m north of Birches Lane (see map CT-05-315, A6 to D3 in the main ES Volume 2, MA02 Map Book). Diversion of the overhead power line would take three months to complete and would be managed from Birches Lane satellite compound.
- 5.11.2 Since the main ES, an opportunity has been identified through engagement with a local stakeholder to amend the route of the below ground diversion along Birches Lane to avoid a private garden.
- 5.11.3 The below ground diversion will be re-routed to the south of the garden at the property on Birches Lane and will tie back into the diversion route presented in the original scheme, 165m west of the property.
- 5.11.4 The new diversion route will be located within agricultural land. The new diversion route will follow the route of existing access tracks through the farmland, so as to reduce hedgerow and vegetation loss during the works.
- 5.11.5 Footpath Lostock Gralam 3/1 will be crossed by the utility route and a temporary diversion of this public right of way, including a temporary closure during construction, will be required. There will be a negligible change in the journey length.
- 5.11.6 The additional land required will be restored as agreed with the landowner and the relevant planning authority once construction works are complete.
- 5.11.7 The works will be managed from Birches Lane satellite compound and constructed within the period set out in the main ES, over a period of three months.
- 5.11.8 The amendment will result in the permanent requirement for an additional 0.18ha of land. The land no longer required in the route presented in the original scheme is 0.17ha. The net increase in additional land required will be 75m² (see map CT-05-315, C1 to D2, in the SES1 and AP1 ES Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.11.9 The assessment of this amendment has identified new, different or removed likely significant effects for the following topic: landscape and visual, which is reported in this section.
- 5.11.10 The assessment of the changes to traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Landscape and visual

Scope, assumptions and limitations

- 5.11.11 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1 and the SMR of the main ES.
- 5.11.12 This amendment has the potential to result in new significant construction and operational effects for visual amenity only. Therefore, there is no construction and operational assessment for landscape included in this report.
- 5.11.13 All visual effects arising from this amendment are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Environmental baseline

Existing environmental baseline

- 5.11.14 The baseline landscape and visual information is as described in Section 11 Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.
- 5.11.15 A summary of the baseline information relevant to the assessment of the amendment is provided below.

Visual baseline

- 5.11.16 The amendment has the potential to affect one viewpoint, which is described in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02 and summarised below.

View north-east from Springbank Farm, Birches Lane (high sensitivity receptors) (VP 312-02-001)

- 5.11.17 This viewpoint represents the views experienced by residents of Springbank Farm and residential properties on Birches Lane. Far-reaching views comprise gently undulating arable farmland overlooked by residents and road users on Birches Lane and at Springbank Farm, both of which are visible in the foreground. A nearby copse of trees interrupts foreground

views, and an overhead line mounted on wood poles is visible across the view. Mature trees and vegetation along Wade Brook and alongside the A556 Shurlach Road is visible in the distance. Rooflines of residential development bordering the Mid-Cheshire railway at Lostock Gralam are visible on the skyline.

Future environmental baseline

- 5.11.18 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 5.11.19 None of the identified developments will alter the baseline conditions in 2025 or 2038 for landscape or visual amenity.

Effects arising during construction

Avoidance and mitigation measures

- 5.11.20 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Visual assessment

View north-east from Springbank Farm, Birches Lane (high sensitivity receptors) (VP 312-02-001)

- 5.11.21 The main ES reported a **major** adverse effect for residents of Springbank Farm and residential properties on Birches Lane of **high** susceptibility and with **medium** value views. This would be as a result of the introduction of large-scale construction activity including Birches Lane satellite compound, the realignment of the A556 Shurlach Road and construction of Rudheath embankment into near and middle-distance views.
- 5.11.22 During construction, the amendment will slightly change the visual effect at this viewpoint. This is because the nature and scale of the rerouting of the cable diversion from the north of the properties (original scheme) to the south of the properties (the amendment) will allow for retention of garden vegetation at two residential properties on Birches Lane. This will result in a slight improvement in the view, compared with the original scheme. However, the amendment will be a minor and highly localised change in the context of the large-scale of construction works for the original scheme, which will be prominent in the view. Therefore, the amendment will give rise to a different significant effect; however, the level of significance of the effect will remain as reported in the main ES.

5.11.23 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Other mitigation measures

5.11.24 No mitigation measures, additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

5.11.25 In many case, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. The amendment will give rise to a different likely significant residual construction effect at view north-east from Springbank Farm, Birches Lane (VP 312-02-001). The effect will slightly decrease but will remain major adverse (significant).

Cumulative effects

5.11.26 No new or different significant cumulative effects have been identified further to those reported in the main ES.

Effects arising during operation

Avoidance and mitigation measures

5.11.27 No mitigation measures additional to those reported in the main ES are required.

Assessment of impacts and effects

Visual assessment

View north-east from Springbank Farm, Birches Lane (high sensitivity receptors) (VP 312-02-001)

5.11.28 At year 1, the main ES reported a **major** adverse (significant) effect for residents of Springbank Farm and residential properties on Birches Lane of **high** susceptibility and with **medium** value views. This would be a result of the introduction of large-scale infrastructure elements including the realigned A556 Shurlach Road, Rudheath embankment and Wade Brook viaduct into the near and middle distance of the view.

5.11.29 At year 1, the amendment will slightly change the visual effect at this viewpoint as the route of the electricity cable diversion will allow for retention of garden vegetation at two properties on Birches Lane. This will be a noticeable improvement in the view for these receptors compared with the original scheme. However, given the large scale of the original scheme, including embankments and viaducts, the AP1 revised scheme will still be prominent in the view. Therefore, the amendment will give rise to a different significant effect; however, the level of significance will remain as reported in the main ES.

5.11.30 At year 15 and 30, the amendment will not give rise to a different significant effect and the level of significance of the effect will remain as reported in the main ES.

5.11.31 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA02.

Other mitigation measures

5.11.32 No mitigation measures, additional to those reported in the main ES are required.

Summary of likely residual significant effects

5.11.33 There are no new or different likely significant operation effects for landscape and visual as a result of the amendment.

Cumulative effects

5.11.34 No new or different significant cumulative effects have been identified further to those reported in the main ES.

5.12 Additional land permanently required for the realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-012)

5.12.1 The Bill provides for the Smoker Brook viaduct on which the HS2 route would cross over: Peover Eye, Smoker Brook and its associated floodplain, the A559 Manchester Road, the A556 Shurlach Road and Linnards Lane. Smoker Brook viaduct would be 806m in length and 25m in height above ground level (see map CT-06-316a, B4 to F4 in the main ES Volume 2, MA02 Map Book). To the south of the viaduct, the HS2 route would be carried along Lostock Gralam North embankment and to the north of the viaduct would continue for 2.5km on Pickmere embankment in the Pickmere to Agden and Hulseheath area (MA03). A 3m tall noise barrier would be provided on the eastern side of the route extending from the A559 Manchester Road to Peover Eye, to provide acoustic screening for properties on Ascol Drive. Two areas of wetland habitat would be created to the west of the HS2 route either side of Smoker Brook to provide replacement habitat and maintain connectivity to the floodplain (see map CT-06-316a, E3 in the main ES Volume 2, MA02 Map Book).

5.12.2 Since the main ES, further design development has identified the need for the inclusion of a rail expansion device within Smoker Brook viaduct, which will result in a maximum shift in the horizontal track alignment of up to 15m west. The vertical alignment of the HS2 route through this section will remain unchanged. In addition, the length of Smoker Brook viaduct will also be extended by 21m to the south to become 827m in total. This change in the length of the viaduct is to accommodate the expansion device and the revised location of an access track adjacent to the south abutment that will be moved 8m west (see map CT-06-

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316a, A4 to J4 in the SES and AP2 ES Volume 2, MA02 Map Book). To accommodate this, the following amendments will be required:

- the A556 Chester Road auto-transformer station will be relocated 9m west, subsequently reducing the length of the access track from the A556 Shurlach Road by 9m (see map CT-06-316a, A3 to B4 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- an existing access track from the A556 Shurlach Road will be realigned over a length of 72m where Smoker Brook viaduct passes over Winnington Wood. The realignment will be to accommodate the revised location of a viaduct pier (see map CT-06-316a, D4 in the SES and AP ES Volume 2, MA02 Map Book);
- two balancing ponds for railway drainage (one of which is located within the Pickmere to Agden and Hulseheath area (MA03)) will be moved a negligible distance to the west (see map CT-06-316a, B4 and G4 to G5 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- the HS2 access tracks surrounding the northern extent of Lostock Gralam North embankment will be moved west to accommodate the revised HS2 track alignment (see map CT-06-316a, A3 to B4 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- realignment of Footpath Tabley Inferior 1/1 accommodation underbridge 13m to the west (see map CT-06-316a, J3 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- modification of the Cheshire Showground accesses which run parallel and adjacent to Pickmere embankment (see map CT-06-316a, I9 to J3 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- realignment of the diversions of five CLH fuel pipelines, which is required to avoid the revised pier and foundations for Smoker Brook viaduct (see map CT-05-315, C8 to J8, D9 to J9 and E10 to J10 and CT-05-316a, A3 to A7, B3 to B7 and C3 to C5 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- site haul routes and stockpiles will be relocated to accommodate the new HS2 track alignment (see map CT-05-315, D6 to J6 and CT-05-316a, A3 to J3 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- two areas of landscape mitigation planting will be moved, one west and one east, to accommodate the realignment of Smoker Brook viaduct (see map CT-06-316a, G3 to H3 and I3 to J3 in the SES1 and AP1 ES Volume 2, MA02 Map Book);
- minor alterations to the locations of two ecological mitigation ponds, and extents of the surrounding grassland habitat creation (see map CT-06-316a, H3 to I3 in the SES1 and AP1 ES Volume 2, MA02 Map Book); and
- changes to the areas of woodland loss reported in the main ES. At Leonards and Smoker Wood AWI and Winnington Wood AWI, there would be a small overall change in woodland loss (an additional 53m² and 10m² net loss respectively) (see map CT-05-316a, D4, E3, F3 and F4 in the SES1 and AP1 ES Volume 2, MA02 Map Book).

5.12.3 The construction of the amendment will be managed from Smoker Brook viaduct south satellite compound and will be constructed within the period set out in the main ES, over a period of two years and six months.

- 5.12.4 The amendment will result in the permanent requirement for an additional 1.79ha of land. The amendment will reduce the amount of land that is required by 1.09ha. The net increase in additional land required will be 0.69ha (see map CT-06-315, F5 to J5 and CT-06-316a, A3 to J3 in the SES1 and AP1 ES Volume 2, MA02 Map Book and map CT-06-317, A7 to H7 in the SES1 and AP1 ES Volume 2, MA03 Map Book).

Topics included in the AP1 assessment

- 5.12.5 The assessment of this amendment has identified new, different or removed likely significant effects for the following topic: ecology and biodiversity, which is reported in this section.
- 5.12.6 Smoker Brook viaduct is located in the Wimboldsley to Lostock Gralam community area on the boundary of the Pickmere to Agden and Hulseheath community area (MA03) and therefore this amendment will also impact the Pickmere to Agden and Hulseheath (MA03) community area. A description of this assessment is provided in the SES1 and AP1 ES Volume 2 Pickmere to Agden and Hulseheath Area report (MA03).
- 5.12.7 The assessment of the changes to traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Ecology and biodiversity

Scope, assumptions and limitations

- 5.12.8 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1 and the SMR of the main ES.
- 5.12.9 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.12.10 To address any limitations in data, a precautionary baseline has been considered according to the guidance reported within the SMR. This constitutes a 'reasonable worst-case' basis for the subsequent assessment. The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.
- 5.12.11 Ecology and biodiversity effects that result from the assessment of the changes to traffic flows as a result of all AP1 amendments in combination with all SES1 changes are reported in Section 7.

Environmental baseline

Existing baseline

5.12.12 The baseline ecology and biodiversity information is as described in Section 7 of Volume 2, Community Area reports: Wimboldsley to Lostock Gralam (MA02) and Pickmere to Agden and Hulseheath (MA03) of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.

Designated sites

5.12.13 The land required for the construction of the amendment is located within the Natural England IRZ for the following SSSI, which are of national value:

- Plumley Lime Beds SSSI, approximately 540m south-east of the land required for the amendment; and
- Tabley Mere SSSI, approximately 1.3km east of the land required for the amendment.

5.12.14 There are two LWS of relevance to the assessment of the amendment, each of which is of county/metropolitan value. They are:

- Winnington and Peas Wood LWS, located partially within the land required for the construction of the amendment; and
- Leonard's and Smoker Wood LWS, located partially within the land required for the construction of the amendment.

5.12.15 There are two Ancient Woodland Inventory (AWI) sites of potential relevance to the assessment of the amendment, each of which is of national value. They are:

- Winnington Wood AWI site (which is also part of the Winnington and Peas Wood LWS), located partially within the land required for the construction of the amendment; and
- Leonard's and Smoker Wood AWI site (which is also part of the Leonard's and Smoker Wood LWS), located partially within the land required for the construction of the amendment. This AWI site is located partially within the Wimboldsley to Lostock Gralam area, with the remainder of the AWI site in the Pickmere to Agden and Hulseheath area (MA03).

Habitats

5.12.16 In addition to the ancient woodland reported above, the following habitats are located within the land required for the construction of the amendment and include semi-natural broadleaved, mixed and broad-leaved plantation woodland, semi-improved neutral, species-poor-semi-improved and improved grassland, dense scrub, five ponds, hedgerows, two watercourses (Peover Eye and Smoker Brook), veteran and ancient trees, buildings, hardstanding and arable land. The habitats of relevance to the assessment of the amendment are described in further detail below.

- 5.12.17 Semi-improved neutral grassland, covering an area of 0.3ha, is present at Providence Farm, partially within the land required for the construction of the amendment. The sward includes Yorkshire fog and perennial rye grass with timothy, meadow foxtail and soft rush and is of district/borough value. It was not reported within the main ES as it was not within land required for the original scheme.
- 5.12.18 Both species-poor and assumed species-rich hedgerows are present within the land required for the construction of the amendment. These hedgerows may qualify as a habitat of principal importance and a conservation priority of the Cheshire BAP. These hedgerows contribute to a wider hedgerow network across the Wimboldsley to Lostock Gramam area that is of district/borough value.
- 5.12.19 On a precautionary basis it is assumed that the five ponds within the land required for the construction of the amendment are a habitat of principal importance and a conservation priority of the Cheshire BAP and each is of district/borough value.
- 5.12.20 The main ES reports six LWS within the Wimboldsley to Lostock Gramam area designated, at least in part, for the presence of veteran trees. This includes Leonard's and Smoker Wood LWS, which is located partially within the land required for the construction of the amendment. The veteran trees within Leonard's and Smoker Wood are of national value.

Species

- 5.12.21 The land required for the amendment contains trees which, on a precautionary basis, are assumed to support roosting bats. Several species of bat are Species of Principal Importance and a conservation priority of the Cheshire BAP. In the absence of survey information, on a precautionary basis, assumed roosts present within the land required for the amendment are of up to regional value.

Future environmental baseline

- 5.12.22 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as future baseline where relevant.
- 5.12.23 None of the identified developments affect the assessment of the amendment's likely construction impacts on ecology and biodiversity.

Effects arising during construction

Avoidance and mitigation measures

- 5.12.24 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Designated sites

- 5.12.25 Whilst the amendment is within the IRZ for Plumley Lime Beds SSSI and Tabley Mere SSSI, no adverse effects on the integrity of these SSSI are predicted due to the nature of the amendment and distance of the amendment to the SSSI.
- 5.12.26 The amendment will reduce the area of ancient woodland impacted by the original scheme at Leonard's and Smoker Wood AWI site by 53m², and at Winnington Wood AWI site by 10m². The amendment will also reduce the area affected at Leonard's and Smoker Wood LWS by 53m², and at Winnington Wood LWS by 342m². The main ES reported that habitat lost from both LWS would result in a permanent adverse effect on the structure and function of the sites that will be significant at the county/metropolitan level. The loss of irreplaceable ancient woodland habitat from both AWI sites will result in a permanent adverse effect that will be significant at the national level. The effect reported as a result of this amendment will give rise to a different effect but will not change the level of significance to that reported in the main ES.

Habitats

- 5.12.27 The amendment will result in the loss of an additional 700m² (23%) of semi-improved neutral grassland at Providence Farm. The loss of this grassland will result in a different effect to that reported in the main ES, this will not change the effect reported, significant at the district/borough level.
- 5.12.28 On a precautionary basis, the main ES, reported a loss of 88.9km of hedgerow habitat within the land required for construction of the original scheme within the Wimboldsley to Lostock Gralam area, resulting in a permanent adverse effect significant at the district/borough level. The amendment will result in the loss of an additional 78.6m of species-poor hedgerow and 167.3m of assumed species-rich hedgerow. This will result in a different effect on hedgerow to that reported in the main ES, as amended by the SES1; however this will not change the significance of the effect reported in the main ES.
- 5.12.29 On a precautionary basis, the main ES assumes that all ponds that have not been subject to survey are each up to district/borough value. Five ponds are located in the land required for the amendment, four of which are in the land required for the original scheme and the loss of these ponds are reported in the main ES. An additional pond, which is located in the Pickmere to Agden and Hulseheath area (MA03), will be lost as a result of the amendment. The amendment will, therefore, result in an adverse effect on the conservation status of the pond. This will result in an additional adverse effect to that reported in the main ES, which is significant at district/borough level.
- 5.12.30 The main ES reported that construction of the original scheme would, on a precautionary basis, result in the loss of an unknown number of veteran trees within Leonard's and Smoker Brook LWS. The loss of each of these veteran trees is significant at the national level. Although there will be a reduction in the overall extent of habitat lost from within the LWS,

the amendment will result in the loss of a different area of LWS to that reported in the main ES. This will, on a precautionary basis, result in the loss of different veteran trees to those assumed to be lost as a result of the original scheme, though there will be no change to the level of significance reported in the main ES.

Species

- 5.12.31 The amendment will result in the loss of trees, which on a precautionary basis, are assumed to support roosting bats. This would result in a permanent adverse effect on the species of bats present, which would be significant at up to regional level.

Other mitigation measures

- 5.12.32 The main ES states that a route-wide integrated strategic approach has been developed to compensate for the loss of grassland. The creation of species rich grassland within the Pickmere to Agden and Hulseheath area (MA03), including 2.7ha of grassland creation within two areas to the west of Smoker Hill Farm, will compensate for the loss of 700m² of semi-improved neutral grassland at Providence Farm. This will be sufficient to compensate for the additional loss of grassland. Once this mitigation is established, the adverse effect on semi-improved neutral grassland will be reduced to a level that is not significant.
- 5.12.33 As reported in the main ES, as amended by the SES1 scheme, a total of 32km of new hedgerows will be planted as replacement for those lost as a result of the SES1 scheme, resulting in an overall net loss of 54.6km of hedgerow after mitigation. This will result in a permanent adverse effect that is significant at the county/metropolitan level. The amendment will result in the loss of an additional 245.9m. This will result in a different residual effect on hedgerow to that reported in the main ES, as amended by the SES1 scheme. However, this will not change the level of significance of that effect reported in the main ES on hedgerows within the Wimboldsley to Lostock Gralam area.
- 5.12.34 The main ES states that at least one pond would be created for every pond lost within the original scheme. This principle of mitigation has been applied to all five ponds located within the land required for the amendment. Once new ponds are established, it is anticipated that any adverse effect upon pond habitats will be reduced to a level that is not significant.
- 5.12.35 As stated in the main ES, where reasonably practicable, measures will be taken to protect veteran trees that are assumed to be lost. Where loss is unavoidable, the trees will be soft-felled and sections placed within retained habitats to provide a continued deadwood resource. Veteran trees are irreplaceable and the loss of each of these trees represents a residual adverse effect that is significant at the national level.

Summary of likely residual significant effects

- 5.12.36 The main ES, as amended in the SES1, reports a net loss of 54.6km of hedgerows across the Wimboldsley to Lostock Gralam area, which represents an adverse residual effect that is significant at the county/metropolitan level. The amendment will result in the loss of an additional 245.9m of hedgerow habitat in this location. However, this will not change the

level of significance of the adverse residual effect on hedgerows, as reported within the main ES and as amended in the SES1.

- 5.12.37 As stated in the main ES, the assumed loss of veteran trees will result in a permanent adverse residual effect that is significant at the national level in each case. The amendment will result in the loss of different veteran trees in this location, however, this will not change the level of significance reported in the main ES.

Cumulative effects

- 5.12.38 No new or different significant cumulative effects have been identified further to those reported in the main ES.

5.13 Additional land permanently required for modifications to the A530 Griffiths Road and A559 Manchester Road junction (AP1-002-013)

- 5.13.1 The Bill provides for a temporary construction traffic route along the A559 Manchester Road (between the A530 Griffiths Road and the A556 Chester Road), as an alternate access to Birches Lane satellite compound. The main ES proposed no mitigation works for this location.
- 5.13.2 Since the main ES, further traffic assessment an opportunity has been identified to permanently modify the existing A530 Griffiths Road/A559 Manchester Road junction layout to increase capacity and mitigate the impact of the construction and operation of HS2 on existing road users. Subsequently, an opportunity to modify the existing junction layout to increase capacity and to mitigate the impacts of construction traffic movements on existing road users has been identified. The carriageway of the A559 Manchester Road will be widened from a single carriageway to enable the formation of a right-turn lane, 36m in length, onto the A530 Griffiths Road. This additional lane will enable safer right-turns and will mitigate potential vehicular conflicts for road users caused by construction traffic. Traffic signals and a stop line will also be provided for Tannery Cottage, to allow safe turning into and out of the property's access.
- 5.13.3 To enable widening of the carriageway up to 170m² of grass verge and tree planting will be lost from within the highway boundary.
- 5.13.4 The junction modification and widening of the A559 Manchester Road will be constructed over a period of up to 12 months.
- 5.13.5 The land required for the amendment, whilst within the highway boundary, is outside the limits of the Bill and will result in the requirement for an additional 0.57ha of land (see map CT-05-315-L1, E4 to F6 in the SES1 and AP1 ES Volume 2: MA02 Map Book).

Topics included in the AP1 assessment

- 5.13.6 The amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to any environmental topics.
- 5.13.7 The assessment of the changes to construction traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

5.14 Additional land permanently required for the provision of a combined HS2 maintenance access track from Linnards Lane and accommodation access for Warrens Lake Cottage (AP1-002-014)

- 5.14.1 The Bill provides for an access track from Linnards Lane 70m west of the HS2 route for the creation and maintenance of an area of environmental mitigation planting (see map CT-06-316a in the main ES Volume 2, MA02 Map Book).
- 5.14.2 Since the main ES and following engagement with stakeholders, the access track included within the original scheme will be replaced by an extension to an existing access to Warrens Lake Cottage. The existing access will be used for shared access by HS2 Ltd and residents of Warrens Lake Cottage. The extension to the access will be 75m in length and will enable HS2 Ltd permanent access to the area of environmental mitigation planting, 200m west of the HS2 route, for maintenance purposes. The changes to the access provision for this amendment will reduce disruption to the land east of Warrens Lake Cottage. The 75m new section of access track extending beyond Warrens Lake Cottage will be of a similar width and construction, also with a turning head.
- 5.14.3 The construction of the amendment will be managed from Smoker Brook viaduct south satellite compound and will be constructed within the period set out in the main ES for Smoker Brook viaduct, over a period of two years and six months.
- 5.14.4 The sections of the HS2 access track included in the original scheme will no longer be provided and will result in a reduction of 0.13ha from the land required for construction as proposed in the original scheme. The land required for the revised route of the access is outside the original limits of the Bill. The amendment will result in a permanent requirement for an increase of 150m² of land, which is additional to the requirements of the original scheme. The net decrease in land required will be 0.11ha (see map CT-05-316a E3 to F2, in the SES1 and AP1 ES, Volume 2, MA02 Map Book).

Topics included in the AP1 assessment

- 5.14.5 The assessment of this amendment has identified new, different or removed likely significant effects for the following topic: agriculture, forestry and soils, which is reported in this section.
- 5.14.6 The assessment of the changes to traffic flows and traffic related effects as a result of this amendment in combination with all SES1 changes and AP1 amendments, is reported in Section 7. Topics where a significant effect has been identified due to changes to traffic flows are reported in Section 7 and include air quality.

Agriculture, forestry and soils

Scope, assumptions and limitations

- 5.14.7 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1 and the SMR of the main ES.
- 5.14.8 The amendment has the potential to result in new or different significant temporary and permanent construction effects only. Therefore, there is no operational assessment for agriculture, forestry and soils.

Environmental baseline

Existing environmental baseline

- 5.14.9 The baseline agriculture, forestry and soils information is as described in Volume 2, Community Area report: Wimboldsley to Lostock Gralam area (MA02) of the main ES.
- 5.14.10 The agricultural land associated with this amendment has soil in the Salop association. The land is classified as good quality agricultural land in Subgrade 3a.
- 5.14.11 A single agricultural holding will be affected by this amendment, details of which are provided in Table 15.

Table 15: Summary characteristics of holding affected by the additional land permanently required for the provision of a combined HS2 maintenance access track from Linnards Lane and accommodation access for Warrens Lake Cottage (AP1-002-014)

Holding reference/name	Holding type	Holding size (ha)	Diversification	Agri-environment scheme	Sensitivity to change
MA02/34 Hilltop Holding	Grassland	2.6	Agricultural contracting	None	Low

Future baseline

- 5.14.12 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by

2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant and none of the identified committed developments affect the assessment of the amendment’s likely construction and operation impacts on agriculture, forestry and soil.

Effects arising during construction

Avoidance and mitigation measures

- 5.14.13 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

- 5.14.14 The access from Linnards Lane proposed within the original scheme is no longer required. The amendment will reduce the area of agricultural land required during the construction phase by 0.13ha. The reduction in the area of subgrade 3a agricultural land required (by 0.13ha) will not change the overall effect on agricultural land in this area reported in the main ES, which was assessed as temporary and permanent moderate adverse (significant).
- 5.14.15 For Hilltop Holding (MA02/34) the amendment will reduce the temporary moderate adverse (significant) effect reported in the main ES to minor adverse (not significant); the permanent effect remains as reported in the main ES as minor adverse. This is set out in Table 16 and Table 17.

Table 16: Temporary impacts and effects on holdings arising from additional land permanently required for the provision of a combined HS2 maintenance access track from Linnards Lane and accommodation access for Warrens Lake Cottage (AP1-002-014)

Holding reference/ name	Total area required from holding	Construction severance	Disruption	Scale of construction effect	Change in effect from main ES
MA02/34 Hilltop Holding	0.5ha (19%) Medium	Negligible	Negligible	Minor adverse	Change from moderate adverse

Table 17: Permanent impacts and effects on holdings arising from additional land permanently required for the provision of a combined HS2 maintenance access track from Linnards Lane and accommodation access for Warrens Lake Cottage (AP1-002-014)

Holding reference/ name	Land required from holding	Severance	Infrastructure	Scale of effect	Change in effect from main ES
MA02/34 Hilltop Holding	0.3ha (13%) Medium	Negligible	Negligible	Minor adverse	No change

Other mitigation measures

- 5.14.16 The land required temporarily for construction will be restored to its former agricultural condition once the works are completed, following good practice techniques in handling, storing and reinstating soils on that land, as set out in the draft CoCP. No other mitigation has been identified.

Summary of likely residual significant effects

- 5.14.17 The amendment will not result in any new or different agriculture, forestry and soil significant effects.

Cumulative effects

- 5.14.18 No new or different significant cumulative effects have been identified further to those in the main ES.

6 Construction programme

6.1 Introduction

6.1.1 The AP1 revised scheme has resulted in the need to alter the indicative construction programme as set out in the main ES.

6.1.2 The revised indicative programme is shown in Figure 4.

Changes to construction programme in the Wimboldsley to Lostock Gralam area

6.1.3 The main ES provided indicative details of the construction works to be managed from the construction compounds in the area – see Section 2 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02). The information included the duration of works, number of workers and a summary of the works to be undertaken. A construction programme was also provided, which included indicative periods for each of the core construction activities.

6.1.4 The earthworks and movement of materials have been reviewed since the main ES. The review has resulted in the need to alter the indicative construction programme. The revised programme is shown in Figure 4 and described in Section 6 of this report.

6.1.5 The main SES1 design changes and AP1 amendments which give rise to changes to the construction programme are listed below and identified in Figure 4, which provides a revised indicative construction programme:

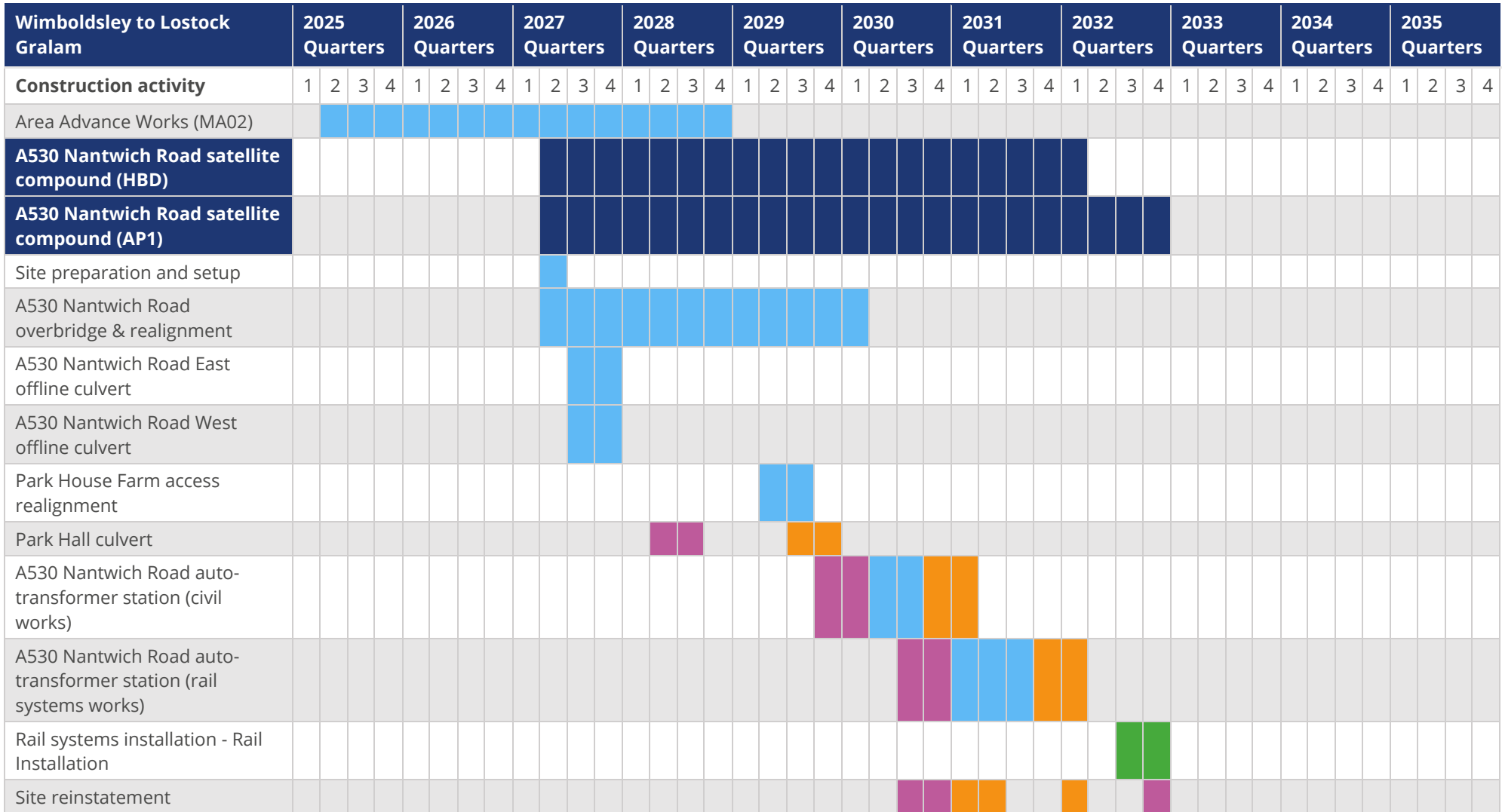
- removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002); and
- additional land permanently required for the provision of a power supply to Crewe tunnel (AP1-001-002), which is described in the SES1 and AP1 ES Volume 2, Hough to Walley's Green area report (MA01).

6.1.6 Assessment of these SES1 changes and AP1 amendments, and any mitigation are reported in Section 3, Section 5 and/or Section 7, where relevant.

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Figure 4: Indicative construction programme



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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Crewe North RSD satellite compound 1 (HBD)											
Crewe North RSD satellite compound 1 (AP1)											
Site preparation and setup											
Crewe North Rolling Stock Depot advance works											
Crewe North Rolling Stock Depot											
Wimboldsley Grange access diversion											
Walley's Green embankment											
Crewe North IMB-R											
Site reinstatement											
Crewe North RSD satellite compound 2 (HBD)											
Crewe North RSD satellite compound 2 (AP1)											
Site preparation and setup											
Utilities											
Crewe North Rolling Stock Depot advance works											
Crewe North Rolling Stock Depot											
Wimboldsley culvert											
Stove culvert											

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Crewe North Rolling Stock Depot traction substation (civil works)											
Crewe North IMB-R											
Crewe North Rolling Stock Depot telecommunications site (civil works)											
Crewe North Rolling Stock Depot telecommunications and Depot traction power works (rail systems works)											
Rail systems - Rolling Stock Depot works and on network works											
Site reinstatement											
Minshull Vernon satellite compound (HBD)											
Minshull Vernon satellite compound (AP1)											
Rail systems - on network works											
Site reinstatement											
Crewe North RSD satellite compound 3 (HBD)											
Crewe North RSD satellite compound 3 (AP1)											
Site preparation and setup											

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Crewe North Rolling Stock Depot advance works		█	█								
Crewe North Rolling Stock Depot			█	█	█	█	█	█	█		
Walley's Green embankment			█	█	█	█	█	█			
Clive Green South embankment No.1					█	█	█				
Clive Green South embankment No.2					█	█	█				
Clive Green South embankment No.3					█	█	█				
Crewe North IMB-R						█	█				
Site reinstatement									█	█	
MA02 Borrow Pit A (HBD)			█	█	█	█	█				
MA02 Borrow Pit A (AP1)			█	█	█	█	█				
Site preparation and setup			█								
Borrow Pit A excavation			█	█	█						
Borrow Pit A backfill					█	█	█				
Site reinstatement							█				
MA02 Borrow Pit B (HBD)			█	█	█	█	█				
MA02 Borrow Pit B (AP1)			█	█	█	█	█				
Site preparation and setup			█								
Borrow Pit B excavation			█	█							
Borrow Pit B backfill						█	█	█			
Site reinstatement						█	█				
MA02 Borrow Pit C (HBD)			█	█	█	█	█				

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
MA02 Borrow Pit C (AP1)											
Site preparation and setup											
Borrow Pit C excavation											
Borrow Pit C backfill											
Site reinstatement											
MA02 Borrow Pit D (HBD)											
MA02 Borrow Pit D (AP1)											
Site preparation and setup											
Borrow Pit D excavation											
Borrow Pit D backfill											
Site reinstatement											
Clive Green Lane satellite compound (HBD)											
Clive Green Lane satellite compound (AP1)											
Site preparation and setup											
Clive Green Lane overbridge and realignment											
Clive Green Lane offline culvert											
Shropshire Union Canal offline overbridge											
Clive Green telecommunications site (civil works)											

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Clive Green telecommunications site (rail systems works)											
Stanthorne culvert											
Site reinstatement											
Shropshire Union Canal South satellite compound (HBD)											
Shropshire Union Canal South satellite compound (AP1)											
Site preparation and setup											
Shropshire Union Canal viaduct No.1											
Shropshire Union Canal viaduct No.2											
Shropshire Union Canal viaduct No.3											
Site reinstatement											
Shropshire Union Canal North satellite compound (HBD)											
Shropshire Union Canal North satellite compound (AP1)											
Site preparation and setup											
Shropshire Union Canal viaduct No.2											

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Shropshire Union Canal viaduct No.3											
Yew-Tree Farm access realignment											
Shropshire Union Canal viaduct No.1											
Clive culvert											
A54 Middlewich Road sectioning auto-transformer station (rail systems works)											
Rail systems - Middlewich box portal building											
Site reinstatement											
A54 Middlewich Road satellite compound (HBD)											
A54 Middlewich Road satellite compound (AP1)											
Site preparation and setup											
A54 Middlewich Road viaduct											
A54 Middlewich Road realignment											
Stanthorne South embankment retaining wall											
Clive Green North embankment retaining wall											
Greenheyes access diversion											
Middlewich box structure											

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
A54 Middlewich Road sectioning auto-transformer station (civil works)											
Site reinstatement											
A533 Bostock Road satellite compound (HBD)											
A533 Bostock Road satellite compound (AP1)											
Site preparation and setup											
Stanthorne North embankment											
Stanthorne South embankment No.1 & 2											
Dane Valley embankment											
Clive Green North embankment No.1, 2 & 3											
Clive Green North cutting											
Whatcroft South embankment											
Site reinstatement											
River Dane Viaduct South satellite compound (HBD)											
River Dane Viaduct South satellite compound (AP1)											
Site preparation and setup											
Bank Farm access realignment											
River Dane viaduct											
Bank culvert											

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Site reinstatement											
River Dane Viaduct North satellite compound (HBD)											
River Dane Viaduct North satellite compound (AP1)											
Site preparation and setup											
River Dane viaduct											
Site reinstatement											
Puddinglake Brook Viaduct satellite compound (HBD)											
Puddinglake Brook Viaduct satellite compound (AP1)											
Site preparation and setup											
Puddinglake Brook viaduct											
Dairy Farm access west diversion											
Whatcroft Hall Lane highway works											
Dairy Farm access diversion											
Trent and Mersey viaduct											
Whatcroft culvert											
Whatcroft Hall Lane telecommunications site (civil works)											
Whatcroft Hall Lane telecommunications site (rail systems works)											

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Manor culvert											
Brook Farm access diversion											
Site reinstatement											
Gad Brook Viaduct South satellite compound (HBD)											
Gad Brook Viaduct South satellite compound (AP1)											
Site preparation and setup											
Whatcroft North embankment											
Trent and Mersey viaduct											
Gad Brook viaduct											
Davenham Road express feeder auto-transformer station (rail systems works)											
Site reinstatement											
Gad Brook Viaduct North satellite compound (HBD)											
Gad Brook Viaduct North satellite compound (AP1)											
Site preparation and setup											
A556 Shurlach Chester Road realignment											
Footpath Lach Denis 3X/1 PRow diversion											
Davenham Road express feeder auto-transformer station (civil works)											

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Wimboldsley to Lostock Gramam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Gad Brook viaduct											
A530 King Street highway works											
B5082 Penny's Lane diversion											
B5082 Penny's Lane telecommunications site (civil works)											
B5082 Penny's Lane telecommunications site (rail systems works)											
Site reinstatement											
Rudheath Embankment satellite compound (HBD)											
Rudheath Embankment satellite compound (AP1)											
Site preparation and setup											
Rudheath embankment											
Site reinstatement											
Penny's Lane satellite compound (HBD)											
Penny's Lane satellite compound (AP1)											
Utilities (major)											
Site preparation and setup											
Rudheath embankment											
Site reinstatement											

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Wimboldsley to Lostock Gramam	2025 Quarters				2026 Quarters				2027 Quarters				2028 Quarters				2029 Quarters				2030 Quarters				2031 Quarters				2032 Quarters				2033 Quarters				2034 Quarters				2035 Quarters																											
Birches Lane satellite compound (HBD)	[Dark Blue]																																																																			
Birches Lane satellite compound (AP1)	[Dark Blue]																																																																			
Site preparation and setup	[Light Blue]				[Grey]																																																															
A556 Shurlach Chester Road realignment	[Grey]				[Light Blue]																[Grey]																																															
A556 Shurlach Chester Road culvert	[Grey]																																																																			
Wade Brook offline overbridge	[Grey]																																																																			
Rudheath embankment	[Grey]																																																																			
Wade Brook viaduct	[Grey]																																																																			
Site reinstatement	[Grey]																																																																			
Lostock Gramam Viaduct satellite compound (HBD)	[Dark Blue]																																																																			
Lostock Gramam Viaduct satellite compound (AP1)	[Dark Blue]																																																																			
Site preparation and setup	[Grey]																																																																			
Lostock Gramam viaduct	[Grey]																																																																			
Fieldhouse Farm accommodation access	[Grey]																																																																			
New PRoW	[Grey]																																																																			
Wade Brook viaduct	[Grey]																																																																			
Birches Lane diversion	[Grey]																																																																			
Site reinstatement	[Grey]																																																																			

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Wimboldsley to Lostock Gralam	2025 Quarters	2026 Quarters	2027 Quarters	2028 Quarters	2029 Quarters	2030 Quarters	2031 Quarters	2032 Quarters	2033 Quarters	2034 Quarters	2035 Quarters
Smoker Brook Viaduct South satellite compound (HBD)											
Smoker Brook Viaduct South satellite compound (AP1)											
Site preparation and setup											
Smoker Brook viaduct											
A559 Manchester Road realignment											
Lostock Gralam viaduct											
Lostock Gralam South embankment											
Lostock Gralam North embankment											
A556 Shurlach Chester Road auto-transformer station (civil works)											
A556 Shurlach Chester Road auto-transformer station (rail systems works)											
Site reinstatement											
Track laying and testing & commissioning											
Area track laying											
Testing and commissioning											

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Key	
	Compound duration showing start and end of mobilisation. Activities below will be managed from the above compound. Second phase site reinstatement can occur post the compound demobilisation.
	Activity duration (indicates where there is no change from the main ES taking into consideration SES1 changes and AP1 amendments).
	Increase in duration or activity moved as a result of a SES1 change or AP1 amendment. (A purple box indicates that works are now taking place in the quarter indicated).
	Decrease in duration or activity moved as a result of a SES1 change or AP1 amendment (An orange box indicates that works are no longer taking place in the quarter indicated).
	Removed as a result of SES1 change or AP1 amendment.
	New elements of the programme (compound or associated) works as a result of a SES1 change or an AP1 amendment.

7 Combined effects of changes and amendments in the Wimboldsley to Lostock Gralam area due to changes in traffic flows

7.1 Introduction

- 7.1.1 This section reports the combined assessment of new or different significant traffic effects, as a result of changes in traffic flows. These relate to changes associated with SES1 changes and AP1 amendments, where the change in traffic flows cannot be directly attributed to an SES1 change or an AP1 amendment.
- 7.1.2 The assessment has also considered any impacts in the Wimboldsley to Lostock Gralam area associated with SES1 changes and AP1 amendments in the adjoining community area.
- 7.1.3 Traffic and transport effects are reported first, since the effects arise from changes in traffic flows. Other topics where a significant effect has been identified, are then reported in the following sequence:
- air quality;
 - community;
 - ecology and biodiversity;
 - health;
 - socio-economics;
 - sound, noise and vibration; and
 - water resources and flood risk.

7.2 SES1 changes and AP1 amendments of relevance to this assessment

- 7.2.1 The assessment includes all changes as a result of the AP1 revised scheme, including traffic. The primary contributors to the changes in traffic are the changes to the movement of excavated material, construction programme and construction assumptions. The assessment takes into account measures to reduce the need to move material by the road network and use of site haul routes to limit construction traffic on the road network.
- 7.2.2 Of the SES1 changes and AP1 amendments, the following make a particular contribution to the changes in traffic flows in the Wimboldsley to Lostock Gralam area:
- removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002);
 - additional land permanently required for the provision of a shared use cycle and pedestrian path at Clive Green Lane (AP1-002-004);

- additional land required for modifications to the A54 Chester Road/ A530 Croxton Lane junction (AP1-002-007);
- additional land required for the provision of temporary traffic signals around the M6 junction 18 (AP1-002-008);
- additional land permanently required for modifications to the A54 Middlewich Road and Chester Road junction (AP1-002-009);
- additional land permanently required for modifications to the A530 Griffiths Road and A559 Manchester Road junction (AP1-002-013);
- additional land permanently required for the realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-012); and
- removal of the HS2 WCML connection (SES1-004-001), which is described in the SES1 and AP1 ES Volume 2, Pickmere to Agden and Hulseheath Area report (MA03).

7.2.3 In addition, updates to the transport model baselines described in Section 2 will lead to changes to the future baseline traffic forecasts reported in the main ES. These baseline changes could give rise to new or different effects compared with the main ES as a result of, for example, either different underlying levels of traffic severance or congestion against which the impacts of HS2 are assessed. The combined assessment of changes to traffic flows presented in this section of the report takes into account the revised future baseline traffic forecasts alongside the changes in traffic flows associated with the AP1 revised scheme.

7.3 Traffic and transport

Scope, assumptions and limitations

- 7.3.1 The assessment scope, key assumptions and limitations for the traffic and transport assessment are as set out in Volume 1 (Section 8) and the EIA Scope and Methodology Report (SMR)⁸ of the main ES.
- 7.3.2 The peak level of construction traffic activity is expected to be 2030 and the opening year to be 2038. The forecasts used in the assessment have been produced prior to the development of a full understanding of the likely impact of COVID-19 on economic growth and travel behaviour. The full impact of COVID-19 is not yet known but is considered likely to result in lower travel demand than the forecasts used in the assessment for background traffic and rail, including HS2.
- 7.3.3 Consequently, the assessment is considered to overstate travel demand for both construction and operation scenarios and therefore to present a robust case for traffic and transport.
- 7.3.4 Information on traffic and transport impacts within the Wimboldsley to Lostock Gralam area is contained in Volume 5, Appendix: TR-003-00002 Transport Assessment of the main ES. Changes to traffic and transport impacts within the Wimboldsley to Lostock Gralam area as a

result of the AP1 revised scheme are contained in SES1 and AP1 ES Volume 5, Appendix: TR-003-00002 Transport Assessment.

Environmental baseline

Existing environmental baseline

- 7.3.5 The baseline traffic and transport information is described in Section 14 of Volume 2, Community Area report Wimboldsley to Lostock Gralam (MA02) of the main ES, as amended in Section 2 of this report and below.
- 7.3.6 Since the main ES, additional traffic information has been used in the development of updated baseline and future baseline models for the SES1 scheme and AP1 revised scheme. This includes new traffic data from National Highways, as set out in BID TR-004-00001 SES1 and AP1 ES. These data have been combined with information collected for local junction modelling, as set out in BID TR-004-00001 which accompanied the main ES.

Future baseline

Construction (2030) and operation (2038 and 2051)

- 7.3.7 The future baseline traffic and transport information is described in Section 14 of Volume 2, Community Area report Wimboldsley to Lostock Gralam (MA02) of the main ES, as amended below.
- 7.3.8 In the main ES, future baseline traffic volumes were calculated for 2030, 2038 and 2046. However, the 2046 future baseline in the main ES has been updated to 2051 in order to give the assessment greater resilience to long term growth in travel demand. Consequently, the operational assessment of the AP1 revised scheme has been undertaken for 2038 and 2051.
- 7.3.9 The assumptions regarding underlying committed developments and transport schemes for each assessment year have been reviewed and updated taking into account feedback from Cheshire West and Chester Council (CWCC) and Cheshire East Council (CEC) and are considered to be appropriately reflected in the traffic forecasts.
- 7.3.10 Since the main ES there has been one recently completed substantial highway scheme in the study area that has been taken into account in the future baseline scenario for the AP1 revised scheme. This is the M6 junction 16 to 19 (Crewe to Knutsford) Smart Motorway, which comprised the provision of a fourth lane in both directions, plus associated infrastructure. This scheme has now been incorporated into the Winsford (and Middlewich) to M6 model for the AP1 revised scheme in the 2030, 2038 and 2051 future baseline scenarios.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

Temporary effects

Key construction transport issues

7.3.12 Table 47 in Volume 2, Community Area report: Wimboldsley to Lostock Gramam (MA02) of the main ES provides details of construction compounds in the Wimboldsley to Lostock Gramam area. This information has been updated to reflect changes resulting from the AP1 revised scheme and is provided in Table 18. As a result of SES1 design change SES1-002-002, MA02 Borrow Pit D is no longer required in the AP1 revised scheme.

Table 18: Typical vehicle trip generation for construction compounds in the Wimboldsley to Lostock Gramam area

Compound type	Compound name	Indicative start/set up date (years/quarter)	Estimated duration of active use (years/months)	Average daily combined two-way car/LGV trips during busy period and within peak month of activity	Average daily combined two-way HGV trips during busy period and within peak month of activity	Estimated duration of busy period (months)
Satellite	A530 Nantwich Road satellite compound	2027 Q2	5 years	160-254	148-166	7
Satellite	Crewe North RSD satellite compound 1	2025 Q3	8 years	224-316	512-512	1
Satellite	Crewe North RSD satellite compound 2	2025 Q3	9 years	370-722	86-128	54
Satellite	Crewe North RSD satellite compound 3	2025 Q3	8 years	260-352	552-624	18
Satellite	Minshull Vernon satellite compound	2027 Q4	1 year and 6 months	148-148	4-4	7
Borrow pit	MA02 Borrow Pit A	2027 Q2	2 years	92-110	36-44	5

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Compound type	Compound name	Indicative start/set up date (years/quarter)	Estimated duration of active use (years/months)	Average daily combined two-way car/LGV trips during busy period and within peak month of activity	Average daily combined two-way HGV trips during busy period and within peak month of activity	Estimated duration of busy period (months)
Borrow pit	MA02 Borrow Pit B	2027 Q2	1 year and 3 months	80-160	34-42	5
Borrow pit	MA02 Borrow Pit C	2027 Q2	1 year and 9 months	80-160	36-42	4
Satellite	Clive Green Lane satellite compound	2027 Q2	3 years and 9 months	146-212	88-116	7
Satellite	Shropshire Union Canal South satellite compound	2027 Q2	2 years and 3 months	114-336	68-90	6
Satellite	Shropshire Union Canal North satellite compound	2027 Q2	4 years	162-370	88-122	8
Satellite	A54 Middlewich Road satellite compound	2027 Q2	4 years and 9 months	264-396	66-106	11
Satellite	A533 Bostock Road satellite compound	2027 Q2	4 years and 6 months	206-278	388-510	16
Satellite	River Dane viaduct South satellite compound	2027 Q2	2 years and 9 months	140-278	124-160	7
Satellite	River Dane viaduct North satellite compound	2027 Q2	2 years and 9 months	136-244	92-114	7
Satellite	Puddinglake Brook viaduct satellite compound	2027 Q2	3 years and 9 months	162-380	78-100	7
Satellite	Gad Brook viaduct south satellite compound	2027 Q2	4 years and 9 months	194-296	346-466	3
Satellite	Gad Brook viaduct north satellite compound	2025 Q2	6 years and 6 months	180-348	210-218	3

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Compound type	Compound name	Indicative start/set up date (years/quarter)	Estimated duration of active use (years/months)	Average daily combined two-way car/LGV trips during busy period and within peak month of activity	Average daily combined two-way HGV trips during busy period and within peak month of activity	Estimated duration of busy period (months)
Satellite	Rudheath embankment satellite compound	2028 Q3	3 years and 6 months	204-206	310-410	4
Satellite	B5082 Pennys Lane satellite compound	2028 Q3	3 years and 6 months	178-208	328-444	3
Satellite	Birches Lane satellite compound	2025 Q2	6 years and 9 months	178-254	292-388	4
Satellite	Lostock Gralam viaduct satellite compound	2028 Q4	1 year and 6 months	132-362	74-92	8
Satellite	Smoker Brook viaduct south satellite compound	2027 Q4	4 years and 3 months	264-366	322-472	5

7.3.13 Details of the construction routes for construction compounds in the Wimboldsley to Lostock Gralam area are reported in Table 48 in Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. This information has been updated to reflect changes resulting from the AP1 revised scheme and is provided in Table 19.

Table 19: Construction HGV routes for construction compounds in the Wimboldsley to Lostock Gralam area

Compound name(s)	Access routes to/from compound(s) to main road network
A530 Nantwich Road satellite compound Crewe North RSD satellite compound 1	A530 Nantwich Road
Crewe North RSD satellite compound 2	Route to/from south: Site haul route, Clive Green Lane and A530 Nantwich Road Route to/from north (to be used after opening of the Clive Green Lane realignment): Site haul route, Clive Green Lane and A54 Middlewich Road Site haul route, Clive Green Lane, Road One and A533 Davenham Bypass
Crewe North RSD satellite compound 3	Site haul route, Clive Green Lane and A530 Nantwich Road Site haul route and A530 Nantwich Road
Minshull Vernon RS satellite compound	A530 Nantwich Road

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Compound name(s)	Access routes to/from compound(s) to main road network
MA02 Borrow Pit A MA02 Borrow Pit B	Route to/from south: A530 Nantwich Road Route to/from north (to be used after opening of the Clive Green Lane realignment): A530 Nantwich Road, Clive Green Lane and A54 Middlewich Road A530 Nantwich Road, Clive Green Lane, Road One and A533 Davenham Bypass
MA02 Borrow Pit C	Site haul route and A54 Middlewich Road
Clive Green Lane satellite compound	Route to/from south: Clive Green Lane and A530 Nantwich Road Route to/from north (to be used after opening of the Clive Green Lane realignment): Clive Green Lane and A54 Middlewich Road Clive Green Lane, Road One and A533 Davenham Bypass
Shropshire Union Canal South satellite compound	Route to/from south: Site haul route, Clive Green Lane and A530 Nantwich Road Route to/from north (to be used after opening of the Clive Green Lane realignment): Site haul route, Clive Green Lane and A54 Middlewich Road
Shropshire Union Canal North satellite compound	Site haul route and A54 Middlewich Road
A54 Middlewich Road satellite compound	A533 Northwich Road (to be used before opening of A54 Middlewich Road realignment) A54 Middlewich Road realignment (to be used after opening of A54 Middlewich Road realignment)
A533 Bostock Road satellite compound	A533 Northwich Road (to be used before opening of A54 Middlewich Road realignment) A54 Middlewich Road (to be used after opening of A54 Middlewich Road realignment)
River Dane viaduct South satellite compound	Site haul route and A533 Northwich Road
River Dane viaduct North satellite compound	Site haul route, Whatcroft Hall Lane and A530 King Street
Puddinglake Brook viaduct satellite compound	Whatcroft Hall Lane and A530 King Street
Gad Brook viaduct south satellite compound Gad Brook viaduct north satellite compound	A530 King Street
Rudheath embankment satellite compound	Site haul route and A530 King Street
B5082 Pennys Lane satellite compound	Route to/from the north: B5082 Pennys Lane and A556 Shurlach Road (to be used before opening of the Pennys Lane diversion) B5082 Pennys Lane diversion to A530 King Street (to be used after opening of the Pennys Lane diversion)

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Compound name(s)	Access routes to/from compound(s) to main road network
	Route to/from the south: B5082 Pennys Lane, Crowders Lane and A530 King Street (to be used before opening of the Penny's Lane diversion) B5082 Pennys Lane diversion to A530 King Street (to be used after opening of Pennys Lane diversion)
Birches Lane satellite compound	Birches Lane and A556 Shurlach Road Birches Lane and A559 Manchester Road
Lostock Gralam viaduct satellite compound	Site haul route, Birches Lane and A556 Shurlach Road
Smoker Brook viaduct south satellite compound	A556 Shurlach Road

- 7.3.14 Information on the indicative construction programme is provided in Section 6 of this report, and the construction methodology is summarised in Volume 1 (Section 6) of the main ES. These illustrate how the phasing of activities at different compounds will generally be staggered and that construction activities at individual compounds may not occur over the whole duration presented in Table 18.
- 7.3.15 Utility works have been included in the assessment where they are major and where the traffic or transport impacts from the works separately, or in combination with other works, will be greater than other construction activities arising within the area. Most utility works are expected to result in only localised traffic and pedestrian diversions, which will be of short-term duration and are not expected to result in significant effects.
- 7.3.16 The effects of construction of the AP1 revised scheme on the highway network in the Wimboldsley to Lostock Gralam area have been assessed by undertaking strategic model runs for a number of 'with AP1 revised scheme' construction scenarios and comparing the flows and delays against the 2030 future baseline scenario. The assessment is based on the highest volume of construction traffic on each construction route in each construction scenario. Where construction routes will serve more than one construction compound, the assessment is based on the highest combined volume of construction traffic on each section of each route in each construction scenario.
- 7.3.17 In using the strategic model, the impacts and effects have been considered in a utilities scenario and in three scenarios covering the main construction phases. These scenarios ensure that the assessment addresses the different combinations and interactions of advance works, utility works, temporary highway closures and diversions and construction HGV movements through the construction period. It should be noted that, due to changes in the construction programme of the AP1 revised scheme, these scenarios differ slightly from those reported in the main ES:
- utilities scenario, peak between 2025 Q1 and 2027 Q1. This scenario corresponds with utility and advance works, site preparation and setup of compounds associated with Crewe North rolling stock depot (RSD). To enable the utility works, traffic management will be required, comprising shuttle working on the A530 Nantwich Road and on the A54 Middlewich Road/Chester Road/St Michael's Way/Kinderton Street/Holmes Chapel Road,

and the temporary closure of Coalpit Lane and Birch Lane. There are negligible construction traffic movements in this scenario;

- scenario 1, peak between 2027 Q2 and 2028 Q4. This scenario corresponds with site preparation and setup of the remaining compounds and early main construction works. The main construction activities taking place during this scenario include construction of Crewe North RSD and extraction of material from MA02 Borrow Pits A, B, and C. Works will also take place on the construction of several highway modifications, including the A530 Nantwich Road realignment, the Clive Green Lane realignment, the A54 Middlewich Road realignment, the A533 Nantwich Road diversion and the A556 Shurlach Road realignment. A number of viaducts will also be under construction during this scenario, including Shropshire Union Canal viaducts, River Dane viaduct, Puddinglake Brook viaduct, Trent and Mersey Canal viaduct, Gad Brook viaduct, Lostock Gralam viaduct and Smoker Brook viaduct. This scenario equates to the overall peak in construction traffic across the whole construction period;
- scenario 2, peak between 2029 Q1 and 2030 Q1. This scenario corresponds with the construction peak following the opening of the A54 Middlewich Road realignment and the A533 Northwich Road diversion. The main construction activities taking place during this scenario include the construction of Crewe North RSD, River Dane viaduct, Trent and Mersey Canal viaduct, Gad Brook viaduct, Wade Brook viaduct, Lostock Gralam viaduct, Smoker Brook viaduct, Walley's Green embankment, Clive Green South and North embankments, Stanthorne South and North embankments, Dane Valley embankment, Whatcroft South and North embankments, Rudheath embankment, Lostock Gralam South and North embankments, the A530 Nantwich Road realignment, the B5082 Pennys Lane diversion and Middlewich box structure. This scenario equates to 91% of the overall peak in construction traffic across the whole construction period; and
- scenario 3, peak between 2030 Q2 and 2033 Q2. This scenario corresponds with the construction peak following the opening of the Clive Green Lane realignment and the B5082 Pennys Lane realignment. The Clive Green Lane realignment will enable construction traffic associated with the AP1 revised scheme to use routes between Crewe North RSD and the A54 Middlewich Road. The majority of construction activities taking place during scenario 2 will continue into scenario 3. This scenario equates to 89% of the overall peak in construction traffic across the whole construction period.

7.3.18 The HS2 construction works and the associated construction traffic movements differ for each of these scenarios. The assessment considers the impacts in all temporal phases and reports the highest magnitude of significant effects, regardless of which scenario they arise in.

7.3.19 Table 49 in Volume 2, Community Area report: Wimboldsley to Lostock Gralam of the main ES gives details of the most relevant highway interventions and works for each scenario in the Wimboldsley to Lostock Gralam area. This information has been updated to reflect changes resulting from the AP1 revised scheme and is provided in Table 20.

Table 20: Construction highway interventions by scenario

Type	Intervention	Utilities scenario	Scenario 1	Scenario 2	Scenario 3
Utilities	A54 Middlewich Road/Chester Road/St Michael's Way/Kinderton Street/Holmes Chapel Road shuttle working	Included	Not included	Not included	Not included
Utilities	A530 Nantwich Road shuttle working	Included	Not included	Not included	Not included
Utilities	Temporary closure of Coalpit Lane	Included	Not included	Not included	Not included
Main works	A54 Middlewich Road realignment	Not included	Not included	Included	Included
Main works	A533 Northwich Road diversion	Not included	Not included	Included	Included
Main works	Clive Green Lane available to construction traffic	Not included	Not included	Not included	Included
Main works	B5082 Pennys Lane realignment	Not included	Not included	Not included	Included
Key construction activities	Crewe North RSD	Not included	Included	Included	Included
Key construction activities	Clive Green Lane overbridge and realignment	Not included	Not included	Not included	Included
	Construction HGV traffic assessed as a percentage of peak construction HGV traffic (Winsford and Northwich models combined)	Negligible	97%	100%	73%

7.3.20 The strategic models have been used to assess these construction scenarios taking account of the HS2 construction traffic movements and any road closures, diversions and realignments, traffic management or changes to junction operations in each scenario. The strategic model outputs for each of these scenarios are only relevant to the assessment of the effects on traffic delays to vehicle occupants and traffic related severance.

Highway network

7.3.21 The AP1 revised scheme includes a number of changes to the highway network compared to the original scheme. This includes an amendment to permanently modify the A530 Griffiths Road/A559 Manchester Road junction (AP1-002-013) to mitigate impacts at this location as reported in the main ES. This amendment will be in place during construction and operation of the AP1 revised scheme.

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- 7.3.22 The AP1 revised scheme includes further changes to the highway network to mitigate impacts identified at the following locations during the construction phase. These amendments are temporary and will be in place during construction of the AP1 revised scheme only:
- A54 Chester Road/A530 Croxton Lane (AP1-002-007);
 - A54 Middlewich Road/A54 Chester Road/B5308 Middlewich Road (AP1-002-009); and
 - M6 junction 18/A54 Middlewich Road (AP1-002-008).
- 7.3.23 The indicative construction programme in Section 6 of this report illustrates how the phasing of activities will generally be staggered and that construction activities associated with the AP1 revised scheme may not occur at the same time.
- 7.3.24 The combined impact of all SES1 changes and AP1 amendments will lead to flow changes on the highway network in all construction scenarios. This will result in changes to the traffic congestion and delay effects for vehicle occupants, as reported in the main ES. The significant effects with the highest magnitude at each junction are set out in Table 21. The significance of the effect reported in the main ES is indicated in brackets.

Table 21: Junctions resulting in significant effects on delays to vehicle occupants and congestion, 2030

Junction name	Significant effect	AP1 construction scenario
A530 Nantwich Road/Chapel Lane	No effect (Previously major adverse)	-
A533 Booth Lane/Cledford Lane/Cross Lane	No effect (Previously minor adverse)	-
A530 Nantwich Road/Clive Green Lane	Major adverse (decreased) (Previously major adverse)	Scenarios 1 and 2
Clive Green Lane/Coal Pit Lane	No effect (Previously major adverse)	-
B5074 Swanlow Lane/Townfields Road/Townfields Drive	Minor adverse (Previously major adverse)	Utilities scenario and scenario 3
A530 Nantwich Road/Brynlow Drive	Major adverse (decreased) (Previously major adverse)	Scenario 3
Clive Lane/Clive Green Lane	No effect (Previously major adverse)	-
Clive Lane/Rilshaw Lane	Major adverse (decreased) (Previously major adverse)	Scenario 2
A54 Middlewich Road/Clive Lane/Road One	No change from main ES (Previously major adverse)	Utilities scenario
A530 Nantwich Road/St Ann's Road	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 3
A54 Kinderton Street/A54 St Michael's Way/A533 Leadsmithy Street	Minor adverse (Previously major adverse)	Scenario 3
A54 Chester Road/A54 St Michael's Way/A530 Nantwich Road	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 3

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Junction name	Significant effect	AP1 construction scenario
A54 Chester Road/A530 Newton Bank	Major adverse (decreased) (Previously major adverse)	Scenarios 1 and 2
A54 Chester Road/A530 Croxton Lane*	No change from main ES (Previously major adverse)	Scenarios 1 and 2
A54 Holmes Chapel Road/B5309 Centurion Way/Pochin Way	No change from main ES (Previously moderate adverse)**	Scenarios 1 and 2
A54 Chester Road/A54 Middlewich Road/A533 Northwich Road	Major adverse (Previously no effect)	Scenario 1
A54 Middlewich Road realignment/Birch Lane/Bell Lane	Major adverse (Previously no effect)	Scenarios 2 and 3
A54 Holmes Chapel Road/Brereton Lane	Major adverse (Previously no effect)	Scenarios 1, 2 and 3
A5018 Wharton Road/A5018 Wharton Park Road/B5355 Wharton Road/Collingtree Avenue	No effect (Previously major adverse)	-
A5018 Wharton Road/Morrisons Manufacturing Winsford Access	Major adverse (Previously no effect)	Scenario 1
A533 Bostock Road/A533 Davenham Road/A5018 Bostock Road/Road One	No effect (Previously moderate adverse)	-
A530 King Street/A530 Croxton Lane/B5309 King Street	Major adverse (decreased) (Previously major adverse)	Scenarios 1, 2 and 3
A533 Davenham Bypass/Jack Lane	Minor adverse (Previously major adverse)	Scenario 1
London Road/Jack Lane	No effect (Previously major adverse)	-
London Road/Church Street	Major adverse (decreased) (Previously major adverse)	Scenarios 1, 2 and 3
A556 Chester Road/Hartford Road/Hill Top Grange	Minor adverse (Previously no effect)	Scenario 1
Shurlach Lane/Davenham Road/Shipbrook Road/Manor Lane	Moderate adverse (Previously major adverse)	Scenario 1
A556 Shurlach Road/A533 Davenham Bypass	Major adverse (Previously minor adverse)	Scenarios 1, 2 and 3
A556 Shurlach Road/A556 Chester Road/A533 London Road/London Road	Major adverse (Previously minor adverse)	Scenarios 1 and 3
A530 King Street/Davenham Road/Crowders Lane	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 3
A533 Kingsmead/Moor Park Way/Regency Way	No effect (Previously minor beneficial)	-
A556 Shurlach Road/Shurlach Lane	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 3
A556 Shurlach Road/Gadbrook Road	Moderate adverse (Previously no effect)	Scenario 3
A556 Shurlach Road/A530 King Street	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 3

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Junction name	Significant effect	AP1 construction scenario
Gadbrook Road/East Avenue	No effect (Previously major adverse)	-
A556 Shurlach Road/B5082 Pennys Lane	Minor adverse (Previously no effect)	Scenario 1
A533 London Road/A533 Kingsmead	No effect (Previously minor adverse)	-
A530 Griffiths Road/A530 King Street/B5082 Middlewich Road	Minor adverse (Previously moderate adverse)	Scenarios 1, 2 and 3
A533 Town Bridge/A533 Dane Street/Weaver Way	Moderate adverse (Previously no effect)	Scenarios 1, 2 and 3
Apple Market Street/Carpark Egress	Major adverse (Previously no effect)	Scenarios 1, 2 and 3
A559 Watling Street/Apple Market Street	No effect (Previously moderate adverse)	-
B5082 Station Road/B5062 Middlewich Road/Manchester Road/Victoria Road	No change from main ES (Previously minor adverse)	Scenarios 1, 2 and 3
A559 Chester Way/B5082 Station Road/B5075 New Warrington Road	No effect (Previously moderate adverse)	-
A556 Shurlach Road (southbound) realignment/Birches Lane diversion	No effect (Previously major adverse)	-
A530 Griffiths Road/A559 Manchester Road*	Moderate adverse (Previously major adverse)	Utilities scenario
A559 Manchester Road/A559 Hall Lane/Station Road	No effect (Previously major adverse)	-
A559 Manchester Road/Stubbs Lane	No effect (Previously moderate adverse)	-
B5075 Ollershaw Lane/B5075 New Warrington Road/Chapel Street	Minor adverse (Previously moderate adverse)	Scenarios 1, 2 and 3
A556 Chester Road/A559 Manchester Road	Major adverse (Previously no effect)	Scenarios 1, 2 and 3
A559 Marston Lane/A559 Hall Lane/B5391 Church Street/Wincham Lane	Minor adverse (Previously moderate adverse)	Scenario 2
A556 Chester Road/B5569 Plumley Moor Road	Major adverse (Previously minor adverse)	Scenarios 1, 2 and 3
B5391 Church Street/B5391 Pickmere Lane/Linnards Lane/Earles Lane	Minor adverse (Previously major adverse)	Utilities scenario
A559 Marston Lane/B5075 Ollershaw Lane/Dark Lane	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 3
A50 Toft Road/Goughs Lane	No change from main ES (Previously moderate adverse)**	Scenario 4

*Existing layout in utilities scenario and proposed layout from scenario 1 onwards

** As corrected in Section 2 of this report

7.3.25 Construction of the AP1 revised scheme will result in substantial changes in traffic flows (i.e. more than 30% for HGVs or for all vehicles) in some locations, which can lead to changes in

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traffic-related severance for non-motorised users, which are significant. The significant effects with the highest magnitude in each location are set out in Table 22 and Table 23. The significance of the effect reported in the main ES is indicated in brackets.

Table 22: Roads with changes in daily all vehicle movements (more than 30%) resulting in significant effects on traffic-related severance for non-motorised users, 2030

Road name	Significant effect	AP1 construction scenario
A530 Nantwich Road (between Moss Lane and Brookhouse Lane)	Major adverse (Previously no effect)	Scenarios 1, 2 and 3
Swanlow Drive (between B5074 Swanlow Lane and Darnhall School Lane)	No effect (Previously minor adverse)	-
B5074 Swanlow Lane (between Moors Lane and Swanlow Drive)	No effect (Previously moderate adverse)	-
Middlewich Eastern Bypass (between A533 Booth Lane and Cledford Lane)	Moderate adverse (Previously no effect)	Scenario 2
Darnhall School Lane (between Glebe Green Drive and B5074 Swanlow Lane)	Major adverse (decreased) (Previously major adverse)	Scenarios 1 and 2
Durham Drive/Glebe Green Drive (between Darnhall School Lane and Townsfields Drive)	Major adverse (decreased) (Previously major adverse)	Scenarios 1 and 2
Durham Drive/Dover Drive/Mount Pleasant Drive (between Townsfields Drive and Denbigh Drive)	Moderate adverse (Previously major adverse)	Utilities scenario and scenarios 1, 2 and 3
Mount Pleasant Drive (between Denbigh Drive and Woodford Lane West)	Moderate adverse (Previously major adverse)	Utilities scenario and scenarios 1 and 2
Cledford Lane (between Bradwall Road and Jones Lane)	No effect (Previously minor adverse)	-
Woodford Lane West (between Mount Pleasant Drive and A54 Oakmere Road)	Moderate adverse (Previously major adverse)	Utilities scenario and scenarios 1 and 2
Coalpit Lane (between Clive Green Lane and Birch Lane)	Moderate adverse (Previously no effect)	Scenario 3
St Ann's Road (between Sutton Lane and Manor Lane)	No effect (Previously minor beneficial)	-
Clive Green Lane realignment/Clive Lane (between A530 Nantwich Road and A54 Middlewich Road)	No change from main ES (Previously moderate adverse)	Scenario 3
St Ann's Road (between Manor Lane and King Edward Street)	No effect (Previously minor beneficial)	-
A54 Middlewich Road realignment (between Clive Lane and A533 Northwich Road diversion)	Moderate adverse (Previously moderate beneficial)	Scenario 1
Road One (between A54 Middlewich Road and A533 Bostock Road)	No effect (Previously moderate adverse)	-
St Ann's Road (between King Edward Street and A530 Nantwich Road)	No effect (Previously moderate beneficial)	-

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Road name	Significant effect	AP1 construction scenario
Brereton Lane (between Cledford Lane and A54 Holmes Chapel Road)	Minor adverse (Previously no effect)	Scenarios 2 and 3
A54 Chester Road (between A530 Croxton Lane and A530 Newton Bank)	No effect (Previously moderate beneficial)	-
King Street (between New King Street and Hadrian Way)	No effect (Previously moderate adverse)	-
Coalpit Lane (between Birch Lane and A54 Chester Road)	Moderate adverse (Previously no effect)	Scenario 1
A54 Middlewich Road (between Clive Lane and Birch Lane)	Moderate adverse (Previously no effect)	Scenario 1
A54 Middlewich Road realignment (between A533 Northwich Road diversion and Birch Lane)	Major adverse (Previously no effect)	Scenarios 2 and 3
A533 Bostock Road (between A533 Northwich Road diversion and London Road)	No effect (Previously moderate beneficial)	-
London Road (between A533 Bostock Road and Brick Kiln Lane)	No effect (Previously moderate adverse)	-
A530 King Street (between B5082 Pennys Lane diversion and A556 Shurlach Road)	Major adverse (Previously no effect)	Scenario 3
B5082 Pennys Lane diversion (between Pennys Lane and A556 Shurlach Road)	No change from main ES (Previously moderate adverse)	Scenario 3
Birches Lane diversion (between A556 Shurlach Road and B5082 Holmes Chapel Road)	No effect (Previously major adverse)	-
Grange Road (between West Avenue and East Avenue)	No effect (Previously moderate adverse)	-
West Avenue (between Gadbrook Road and Grange Road)	No effect (Previously moderate adverse)	-
Central Road (between West Avenue and East Avenue)	Minor adverse (Previously moderate adverse)	Scenario 1
East Avenue (between Central Road and North Drive)	Minor beneficial (Previously no effect)	Scenarios 1 and 2
Greenway Drive (between Agecroft Road and Belmont Road)	No effect (Previously minor adverse)	-
North Drive (between West Avenue and East Avenue)	Minor adverse (Previously no effect)	Scenarios 1 and 2
A556 Shurlach Road (between Birches Lane and A559 Manchester Road)	No change from main ES (Previously major adverse)	Utilities scenario and scenarios 1 and 2
School Lane (between Station Road and Stubbs Lane)	No change from main ES (Previously minor adverse)	Scenarios 1, 2 and 3

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Table 23: Roads with changes in daily HGV movements (more than 30%) resulting in significant effects on traffic-related severance for non-motorised users, 2030

Road name	Significant effect	AP1 construction scenario
A530 Nantwich Road (between Moss Lane and Brookhouse Lane)	Major adverse (Previously no effect)	Scenarios 1, 2 and 3
A530 Nantwich Road (between Brookhouse Lane and Clive Green Lane)	Major adverse (Previously no effect)	Scenarios 1, 2 and 3
Middlewich Eastern Bypass (between A533 Booth Lane and Cledford Lane)	No effect (Previously moderate adverse)	-
Clive Green Lane (between A54 Middlewich Road and Coalpit Lane)	Major adverse (Previously no effect)	Scenarios 1 and 2
Clive Green Lane realignment/Clive Lane (between A530 Nantwich Road and A54 Middlewich Road)	Major adverse (Previously moderate adverse)	Scenario 3
A54 Middlewich Road (between Clive Lane and A54 Winsford Bypass)	No effect (Previously moderate beneficial)	-
A54 Kinderton Street (between A533 Leadsmithy Street and King Street)	No effect (Previously moderate adverse)	-
A54 St Michael's Way (between The Bull Ring and A533 Leadsmithy Street)	No effect (Previously moderate adverse)	-
A54 St Michael's Way (between A54 Chester Road and The Bull Ring)	No effect (Previously moderate adverse)	-
A54 Chester Road (between A530 Newton Bank and A54 St Michael's Way)	No effect (Previously moderate adverse)	-
A54 Holmes Chapel Road (between King Street and B5309 Centurion Way)	No effect (Previously moderate adverse)	-
A54 Chester Road (between A530 Croxton Lane and A530 Newton Bank)	No effect (Previously moderate adverse)	-
Middlewich Eastern Bypass (between Cledford Lane and A54 Holmes Chapel Road)	No effect (Previously moderate adverse)	-
A54 Chester Road (between Coal Pit Lane and A530 Croxton Lane)	No effect (Previously moderate adverse)	-
B5309 Centurion Way (between A54 Holmes Chapel Road and B5081 Byley Road)	No effect (Previously moderate adverse)	-
A54 Holmes Chapel Road (between B5309 Centurion Way and Brereton Lane)	Moderate adverse (Previously no effect)	Scenario 1
B5309 Centurion Way (between White Park Close and B5081 Byley Road)	No effect (Previously major adverse)	-
A54 Middlewich Road realignment (between A533 Northwich Road diversion and Birch Lane)	Moderate adverse (Previously no effect)	Scenarios 2 and 3
A54 Holmes Chapel Road (between Brereton Lane and Poolford Lane)	Moderate adverse (Previously no effect)	Scenario 1
B5309 Centurion Way (between B5309 King Street and White Park Close)	Moderate adverse (Previously major adverse)	Scenario 1
B5308 Middlewich Road (between A54 Chester Road and A50 Knutsford Road)	Moderate adverse (Previously no effect)	Scenarios 1 and 2

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Road name	Significant effect	AP1 construction scenario
A50 Knutsford Road (between A535 Macclesfield Road and B5308 Middlewich Road)	Moderate adverse (Previously no effect)	Scenarios 1 and 2
B5081 Byley Road (between B5309 Centurion Way and Moss Lane)	No effect (Previously major adverse)	-
B5309 King Street (between B5309 Centurion Way and A530 Croxton Lane)	No effect (Previously major adverse)	-
B5081 Byley Road (between Moss Lane and B5082 Holmes Chapel Road)	Major adverse (Previously no effect)	Scenario 2
A530 King Street (between Whatcroft Hall Lane and Davenham Road)	Major adverse (decreased) (Previously major adverse)	Scenario 1
A533 Davenham Bypass (between London Road and A556 Shurlach Road)	No effect (Previously moderate adverse)	-
Davenham Road (between Shurlach Lane and A530 King Street)	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 3
A556 Shurlach Road off-slip (between A556 Shurlach Road and A533 Davenham Bypass)	No effect (Previously moderate adverse)	-
Crowders Lane (between A530 King Street and B5082 Pennys Lane)	No effect (Previously major adverse)	-
A530 King Street (between Davenham Road and Gadbrook Distribution Centre)	No effect (Previously moderate adverse)	-
A530 King Street (between B5082 Pennys Lane diversion and A556 Shurlach Road)	No change from main ES (Previously major adverse)	Scenario 2
B5082 Pennys Lane diversion (between Pennys Lane and A556 Shurlach Road)	Moderate adverse (Previously no effect)	Scenario 3
Birches Lane diversion (between A556 Shurlach Road and B5082 Holmes Chapel Road)	No effect (Previously major adverse)	-
Gadbrook Road (between East Avenue and A556 Shurlach Road)	No effect (Previously moderate adverse)	-
East Avenue (between Gadbrook Road and Grange Road)	No effect (Previously minor adverse)	-
A556 Shurlach Road (between A530 King Street and B5082 Pennys Lane)	No change from main ES (Previously moderate adverse)	Scenarios 1 and 2
East Avenue (between Grange Road and South Drive)	No effect (Previously minor adverse)	-
East Avenue (between South Drive and Central Road)	No effect (Previously minor adverse)	-
A556 Shurlach Road (between B5082 Pennys Lane and Birches Lane)	Major adverse (Previously no effect)	Scenario 2
A50 Holmes Chapel Road (between Booth Bed Lane and B5081 Middlewich Road)	Moderate adverse (Previously no effect)	Scenario 2
Birches Lane/Station Road (between A556 Shurlach Road and School Lane)	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 3
A556 Shurlach Road (between Birches Lane and A559 Manchester Road)	Major adverse (decreased) (Previously major adverse)	Scenarios 1 and 2

Road name	Significant effect	AP1 construction scenario
A530 Griffiths Road (between A559 Manchester Road and B5082 Middlewich Road)	No effect (Previously major adverse)	-
A559 Manchester Road (between A530 Griffiths Road and A559 Hall Lane)	No effect (Previously moderate adverse)	-
Station Road (between School Lane and A559 Manchester Road)	No effect (Previously moderate adverse)	-
A559 Manchester Road (between A559 Hall Lane and Stubbs Lane)	No effect (Previously moderate adverse)	-
A559 Manchester Road (between Stubbs Lane and Fryer Road)	No effect (Previously moderate adverse)	-
A559 Manchester Road (between Fryer Road and A556 Shurlach Road)	No effect (Previously moderate adverse)	-
A556 Chester Road (between A559 Manchester Road and Linnards Lane)	No change from main ES (Previously moderate adverse)	Scenarios 1, 2 and 3
A556 Chester Road (between A559 Manchester Road and Plumley Moor Road)	No effect (Previously moderate adverse)	-
A50 Holmes Chapel Road (between B5081 Middlewich Road and Goughs Lane)	Moderate adverse (Previously no effect)	Scenario 2

Other mitigation measures

7.3.26 No further appropriate traffic and transport mitigation measures have been identified. HS2 Ltd will, however, continue to work with the relevant highway authorities to consider whether any further mitigation measures would be required.

Summary of likely residual significant effects

7.3.27 The temporary residual significant effects during construction remain as described above. These effects will be temporary and reversible in nature lasting only for the duration of the construction works.

7.3.28 The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants, as reported in the main ES:

- new major adverse effect on six junctions;
- new moderate adverse effect on two junctions;
- new minor adverse effect on two junctions;
- significant beneficial effect removed on one junction (one minor);
- change (increase) from minor adverse effect to major adverse effect on three junctions;
- change (decrease) from moderate adverse effect to minor adverse effect on three junctions;
- change (decrease) from major adverse effect to moderate adverse effect on two junctions;

- change (decrease) from major adverse effect to minor adverse effect on four junctions;
- different (decreased) major adverse significant effects on six junctions; and
- significant adverse effects removed on 14 junctions (eight major, four moderate and two minor).

7.3.29 The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users, as reported in the main ES:

- new major adverse effect on eight roads;
- new moderate adverse effect on 12 roads;
- new minor adverse effect on two roads;
- significant beneficial effects removed on six roads (two minor and four moderate);
- change (increase) from moderate beneficial effect to moderate adverse effect on one road;
- change (increase) from moderate adverse effect to major adverse effect on one road;
- different (decreased) major adverse significant effects on four roads;
- change (decrease) from moderate adverse effect to minor adverse effect on one road;
- change (decrease) from major adverse effect to moderate adverse effect on four roads;
- significant adverse effects removed on 39 roads (seven major, 26 moderate and six minor); and
- new minor beneficial effect on one road.

Cumulative effects

7.3.30 This combined assessment has taken into account cumulative effects from background traffic growth, committed developments and traffic and transport impacts of the construction works arising from the SES1 changes and AP1 amendments in this area and other community areas.

Effects arising during operation

Avoidance and mitigation measures

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

Assessment of impacts and effects

7.3.32 The assessment of impacts and effects is described in Section 14 of Volume 2, Community Area report Wimboldsley to Lostock Gralam (MA02) of the main ES.

7.3.33 The AP1 revised scheme includes an amendment to permanently modify the A530 Griffiths Road/A559 Manchester Road junction (AP1-002-013) to mitigate the impacts at this location

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as reported in the main ES. The AP1 revised scheme also includes an amendment to modify the alignment of the A556 Shurlach Road (AP1-002-012).

- 7.3.34 The combined impact of all SES1 changes and AP1 amendments will lead to flow changes on the highway network. This will result in changes to the traffic congestion and delay effects for vehicle occupants in 2038, as reported in the main ES, and 2051, as reported in the main ES for 2046. The significant effects with the highest magnitude at each junction in 2038 and 2051 are set out in Table 24 and Table 25 respectively. The significance of the effect reported in the main ES is indicated in brackets.

Table 24: Junctions resulting in significant effects on delays to vehicle occupants and congestion, 2038

Junction name	Significant effect
A530 Nantwich Road/Brynlow Drive	Moderate adverse (Previously no effect)
A54 Middlewich Road/Clive Lane/Road One	Major adverse (Previously moderate adverse)
A530 Nantwich Road/St Ann's Road	No effect (Previously minor adverse)
A54 Chester Road/A54 St Michael's Way/A530 Nantwich Road	Minor beneficial (Previously no effect)
A54 Chester Road/A530 Newton Bank	Major adverse (Previously no effect)
A54 Chester Road/A530 Croxton Lane	Minor beneficial (Previously no effect)
A530 King Street/A530 Croxton Lane/B5309 King Street	Moderate adverse (Previously no effect)
A556 Shurlach Road/Shurlach Lane	No effect (Previously moderate adverse)
A556 Shurlach Road/Gadbrook Road	Moderate adverse (Previously no effect)
A556 Shurlach Road/A530 King Street	Major adverse (Previously no effect)
A530 Griffiths Road/A530 King Street/B5082 Middlewich Road	Major adverse (Previously moderate adverse)
B5082 Station Road/B5062 Middlewich Road/Manchester Road/Victoria Road	Minor adverse (Previously no effect)
A556 Shurlach Road (southbound) realignment/Birches Lane diversion	No effect (Previously major adverse)
A530 Griffiths Road/A559 Manchester Road (proposed layout)	No effect (Previously major adverse)
A559 Manchester Road/A559 Hall Lane/Station Road	No effect (Previously major adverse)
B5391 Church Street/B5391 Pickmere Lane/Linnards Lane/Earles Lane	Minor adverse (Previously no effect)

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Table 25: Junctions resulting in significant effects on delays to vehicle occupants and congestion, 2051

Junction name	Significant effect
A530 Nantwich Road/Clive Green Lane realignment/Coalpit Lane	No effect (Previously major adverse)
A530 Nantwich Road/Brynlow Drive	Major adverse (Previously no effect)
A54 Middlewich Road/Clive Lane/Road One	No change from main ES (Previously moderate adverse)
Dene Drive/The Drummer	Minor adverse (Previously no effect)
A54 Middlewich Road/B5355 Station Road	Major adverse (Previously no effect)
A54 New High Street/A54 Winsford Bypass/A5018 Wharton Road/Weaver Street	Minor adverse (Previously no effect)
A54 Kinderton Street/A54 St Michael's Way/A533 Leadsmithy Street	No change from main ES (Previously minor adverse)
A54 Chester Road/A54 St Michael's Way/A530 Nantwich Road	Minor beneficial (Previously minor adverse)
A54 Chester Road/A530 Croxton Lane	Moderate beneficial (Previously no effect)
A533 Bostock Road/A533 Davenham Road/A5018 Bostock Road/Road One	Minor adverse (Previously moderate adverse)
A533 Bostock Road/London Road	Major adverse (Previously no effect)
A530 King Street/A530 Croxton Lane/B5309 King Street	Major adverse (Previously no effect)
A556 Chester Road/Hartford Road/Hill Top Grange	No effect (Previously minor adverse)
A530 King Street/Davenham Road/Crowders Lane	Minor beneficial (Previously moderate adverse)
A556 Shurlach Road/Shurlach Lane	No change from main ES (Previously moderate adverse)
A556 Shurlach Road/Gadbrook Road	Minor adverse (Previously no effect)
A556 Shurlach Road/A530 King Street	Major adverse (Previously no effect)
A530 Griffiths Road/A530 King Street/B5082 Middlewich Road	Major adverse (Previously moderate adverse)
B5082 Station Road/B5062 Middlewich Road/Manchester Road/Victoria Road	Moderate adverse (Previously no effect)
A559 Chester Way/B5075 New Warrington Road/B5082 Station Road/Leicester Street	Moderate adverse (Previously no effect)
A556 Shurlach Road (southbound) realignment/Birches Lane diversion	No effect (Previously major adverse)
A530 Griffiths Road/A559 Manchester Road (proposed layout)	No effect (Previously moderate adverse)

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Junction name	Significant effect
A559 Manchester Road/A559 Hall Lane/Station Road	No effect (Previously major adverse)
A559 Manchester Road/Fryer Road	Minor adverse (Previously no effect)

7.3.35 A change in traffic levels can result in changes to traffic-related severance for non-motorised road users, particularly pedestrians using or seeking to cross a road. Roads with changes in peak hour traffic flow (more than 10% for all vehicles or HGV) that will result in changes to traffic-related severance for non-motorised users, which are significant, are set out in Table 26. The significance of the effect reported in the main ES is indicated in brackets.

Table 26: Roads with changes in traffic flow resulting in significant effects on traffic-related severance for non-motorised users, 2038 and 2051

Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
Darnhall School Lane (between Glebe Green Drive and B5074 Swanlow Lane)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously minor adverse)	No effect (No change)
Durham Drive/Glebe Green Drive (between Darnhall School Lane and Townsfields Drive)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)	No effect (No change)
Townfields Drive (between B5074 Swanlow Lane and Durham Drive)	No effect (No change)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)
A530 Nantwich Road (between Clive Green Lane and Brynlow Drive)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
Long Lane South (between Sutton Lane and Elm Road)	No effect (No change)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)
Durham Drive/Dover Drive/Mount Pleasant Drive (between Townsfields Drive and Denbigh Drive)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)
Sutton Lane (between Long Lane South and Hayhurst Avenue)	No effect (No change)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)
Elm Road (between Long Lane South and A533 Booth Lane)	No effect (No change)	No effect (No change)	No effect (Previously minor adverse)	No effect (No change)
Woodford Lane West (between Mount Pleasant Drive and A54 Oakmere Road)	No effect (No change)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)

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Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
Denbigh Drive (between Mount Pleasant Drive and Swanlow Lane)	No effect (No change)	Minor adverse (Previously no effect)	No effect (No change)	No effect (No change)
Sutton Lane (between Rutland Drive and St Annes Avenue)	No effect (No change)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)
Beeston Drive (between Denbigh Drive and Handley Hill)	No effect (No change)	No change (Previously minor adverse)	No effect (Previously minor adverse)	No effect (Previously minor adverse)
Brynlow Drive (between Long Lane and A530 Nantwich Road)	Moderate adverse (Previously no effect)	No effect (No change)	Major adverse (Previously moderate adverse)	Moderate adverse (Previously no effect)
Hayhurst Avenue (between Eaton Drive and Long Lane)	No effect (No change)	No effect (No change)	Major adverse (Previously no effect)	No effect (No change)
Hayhurst Avenue (between Long Lane and Sutton Lane)	No effect (No change)	No effect (No change)	Major adverse (Previously moderate adverse)	Moderate adverse (Previously no effect)
St Annes Avenue (between Sutton Lane and A533 Booth Lane)	Moderate adverse (Previously no effect)	No effect (No change)	Moderate adverse (Previously major adverse)	No effect (No change)
Sutton Lane (between St Annes Avenue and St Ann's Road)	No effect (No change)	No effect (No change)	No effect (No change)	Major adverse (Previously no effect)
Beeston Drive (between Handley Hill and B5074 Swanlow Lane)	No effect (No change)	No change (Previously minor adverse)	No effect (Previously minor adverse)	No effect (Previously minor adverse)
Coalpit Lane (between Clive Green Lane and Birch Lane)	Moderate adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)
Sutton Lane (between St Ann's Road and A533 Lewin Street)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No change (Previously moderate adverse)
St Ann's Road (between Sutton Lane and Manor Lane)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)
Clive Green Lane realignment/Clive Lane (between A530 Nantwich Road and A54 Middlewich Road)	No change (Previously major adverse)	Moderate adverse (Previously major adverse)	No change (Previously major adverse)	No change (Previously major adverse)
St Ann's Road (between Manor Lane and King Edward Street)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)
Station Road (between B5355 Crook Lane and Rilshaw Lane)	No effect (Previously moderate adverse)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)

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Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
Station Road (between Kingsway and B5355 Crook Lane)	No effect (No change)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)	No effect (No change)
Dingle Lane/Weaver Street (between The Drumber and A54 Winsford Bypass)	Moderate beneficial (Previously no effect)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)
Station Road (between A54 Winsford Bypass and Kingsway)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)	No effect (No change)
Road One (between A54 Middlewich Road and A533 Bostock Road)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)	No effect (No change)
Dene Drive (between A54 High Street and The Drumber)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)
Station Road (between Rilshaw Lane and B5355 Crook Lane)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
B5355 Station Road (between A54 Middlewich Road and B5355 Crook Lane)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)	No effect (No change)
A530 Nantwich Road (between Brynlow Drive and Glastonbury Drive)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
Dingle Lane (between A54 High Street and The Drumber)	No effect (No change)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)
B5355 Crook Lane (between B5355 Station Road and Birch Avenue)	Major adverse (Previously no effect)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
A530 Nantwich Road (between Glastonbury Drive and St Ann's Road)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
B5355 Crook Lane (between B5355 Station Road and Bradbury Road)	Moderate adverse (Previously no effect)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
A54 St Michael's Way (between A54 Chester Road and The Bull Ring)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
A54 Chester Road (between A530 Newton Bank and A54 St Michael's Way)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)

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Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
Nixon Drive (between Basford Way and Saxon Crossway)	No effect (No change)	No effect (No change)	Major adverse (Previously no effect)	No effect (No change)
A54 Chester Road (between A530 Croxton Lane and A530 Newton Bank)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
Nixon Drive (between Abbotts Way and Basford Way)	No effect (No change)	No effect (No change)	Moderate adverse (Previously minor adverse)	No effect (No change)
A530 Croxton Lane (between A54 Chester Road and B5309 King Street)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
Birch Lane (between Coalpit Lane and A54 Middlewich Road)	No effect (No change)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)
Nixon Drive (between B5074 Delamere Street and Abbotts Way)	No effect (No change)	No effect (No change)	No change (Previously moderate adverse)	No effect (No change)
Nixon Drive (between Saxon Crossway and Grange Lane)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	Minor adverse (Previously no effect)
B5355 Crook Lane (between Bradbury Road and B5355 Wharton Road)	Minor adverse (Previously no effect)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
Coalpit Lane (between Birch Lane and A54 Chester Road)	Moderate beneficial (Previously no effect)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)
A54 Middlewich Road realignment (between Birch Lane and Coalpit Lane)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
A54 Middlewich Road realignment (between A533 Northwich Road diversion and Birch Lane)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)
B5355 Wharton Road (between Nat Lane and Bradbury Road)	Moderate adverse (Previously no effect)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (Previously moderate adverse)
B5309 Centurion Way (between B5309 King Street and White Park Close)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
A533 Northwich Road diversion (between A54 Middlewich Road)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)

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Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
realignment and A533 Northwich Road)				
B5355 Wharton Road (between A5018 Wharton Park Road and Bradbury Road)	Moderate adverse (Previously no effect)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (Previously moderate adverse)
B5309 King Street (between B5309 Centurion Way and A530 Croxton Lane)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
A533 Bostock Road (between A533 Northwich Road diversion and London Road)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (Previously moderate adverse)
A533 Bostock Road (between A5018 Bostock Road and London Road)	No effect (Previously moderate adverse)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)	No effect (Previously moderate adverse)
London Road (between A533 Bostock Road and Brick Kiln Lane)	No change (Previously moderate adverse)	No effect (No change)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)
B5081 Byley Road (between B5309 Centurion Way and Moss Lane)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
A533 Davenham Bypass (between Jack Lane and London Road)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)
A530 King Street (between A530 Croxton Lane and Whatcroft Hall Lane)	No effect (No change)	No effect (No change)	No change (Previously moderate adverse)	No effect (No change)
A533 Davenham Bypass (between London Road and A556 Shurlach Road)	Major beneficial (Previously no effect)	No effect (No change)	No effect (No change)	No effect (No change)
London Road (between Hartford Road and Church Street)	No effect (Previously moderate beneficial)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)
Church Street/Shipbrook Road (between London Road and Shurlach Lane)	Moderate beneficial (Previously major beneficial)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)
A50 London Road (between B5082 Northwich Road and Booth Bed Lane)	No effect (No change)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)
Booth Bed Lane (between Main Road and A50 London Road)	No effect (No change)	No effect (Previously minor adverse)	No effect (No change)	No effect (No change)

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Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
London Road (between Green Lane and A556 Chester Road)	No effect (Previously moderate beneficial)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)
Davenham Road (between Shurlach Lane and A530 King Street)	Major beneficial (Previously moderate beneficial)	Moderate adverse (Previously no effect)	No change (Previously moderate beneficial)	No effect (No change)
B5082 Holmes Chapel Road (between B5081 Byley Lane and Birches Lane)	Moderate adverse (Previously no effect)	No effect (Previously moderate adverse)	No change (Previously moderate adverse)	No effect (Previously moderate adverse)
Crowders Lane (between B5082 Penny's Lane and A530 King Street)	Moderate beneficial (Previously major beneficial)	No effect (Previously moderate adverse)	Moderate beneficial (Previously major beneficial)	Moderate beneficial (Previously moderate adverse)
A530 King Street (between Crowder's Lane and B5082 Penny's Lane diversion)	Moderate beneficial (Previously no effect)	No effect (No change)	Moderate beneficial (Previously no effect)	No effect (No change)
Shurlach Lane (between Shipbrook Road and A556 Shurlach Road)	Moderate beneficial (Previously no effect)	No effect (No change)	Moderate beneficial (Previously no effect)	No effect (No change)
London Road (between Dunham Road and Old Hall Road)	No effect (No change)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)
Old Hall Road (between Clifton Drive and Fairfield Road)	No effect (No change)	No effect (No change)	No effect (Previously major beneficial)	No effect (No change)
Old Hall Road (between Granville Road and Clifton Drive)	No effect (No change)	No effect (No change)	No effect (Previously major beneficial)	No effect (No change)
Old Hall Road (between London Road and Granville Road)	No effect (No change)	No effect (No change)	No effect (Previously major beneficial)	No effect (No change)
London Road (between Old Hall Road and Lime Avenue)	No effect (No change)	No effect (No change)	No effect (Previously major beneficial)	No effect (No change)
A530 King Street (between B5082 Pennys Lane diversion and A556 Shurlach Road)	No change (Previously major adverse)	No change (Previously major adverse)	No change (Previously major adverse)	No change (Previously major adverse)
B5082 Pennys Lane diversion (between Pennys Lane and A556 Shurlach Road)	No change (Previously major adverse)	No change (Previously major adverse)	No change (Previously major adverse)	No change (Previously major adverse)

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Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
Kingsley Drive (between Old Hall Road and Langley Road)	No effect (No change)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)
Shipbrook Road (between Gadbrook Road and A556 Shurlach Road)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)
A556 southbound on-slip (between Gadbrook Road and A556 Shurlach Road)	Major adverse (Previously no effect)	No effect (No change)	No effect (No change)	No effect (No change)
Birches Lane diversion (between A556 Shurlach Road and B5082 Holmes Chapel Road)	No effect (Previously major adverse)	Major beneficial (Previously major adverse)	Major beneficial (Previously major adverse)	Moderate beneficial (Previously major adverse)
East Avenue (between Gadbrook Road and Grange Road)	Minor adverse (Previously no effect)	No effect (No change)	Moderate adverse (Previously no effect)	Minor adverse (Previously no effect)
A556 Shurlach Road (between A530 King Street and B5082 Pennys Lane)	No change (Previously moderate beneficial)	No change (Previously moderate beneficial)	No change (Previously moderate beneficial)	No change (Previously moderate beneficial)
East Avenue (between Grange Road and South Drive)	Minor adverse (Previously no effect)	No effect (No change)	Moderate adverse (Previously no effect)	Minor adverse (Previously no effect)
Porter Drive (between Shipbrook Road and Marlowe Road)	No effect (No change)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)
Shipbrook Road (between Porter Drive and Gadbrook Road)	No effect (No change)	Major adverse (Previously no effect)	No effect (No change)	No effect (No change)
East Avenue (between South Drive and Central Road)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)	Minor adverse (Previously no effect)
West Avenue (between Grange Road and South Drive)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
Central Road (between West Avenue and East Avenue)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
West Avenue (between South Drive and Central Road)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
A530 King Street (between A556 Shurlach Road and B5082 Middlewich Road)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)

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Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
East Avenue (between Central Road and North Drive)	No effect (No change)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)
West Avenue (between Central Road and North Drive)	No effect (No change)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)
North Drive (between West Avenue and East Avenue)	No effect (No change)	Minor adverse (Previously no effect)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)
East Avenue (between North Drive and B5082 Middlewich Road)	No effect (No change)	Moderate beneficial (Previously no effect)	Moderate adverse (Previously no effect)	No effect (No change)
Central Road (between West Avenue and Shipbrook Road)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
West Avenue (between North Drive and B5082 Middlewich Road)	No effect (No change)	Minor adverse (Previously no effect)	Moderate beneficial (Previously no effect)	No effect (No change)
Shipbrook Road (between Central Road and B5082 Middlewich Road)	No effect (No change)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)
Brockhurst Street (between Percy Street and A559 Chester Way)	No effect (No change)	No effect (No change)	No effect (Previously minor beneficial)	No effect (No change)
Percy Street (between Whalley Road and A559 Chester Way)	No effect (No change)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)
Applmarket Street (between Weaver Way and A559 Watling Street)	No effect (No change)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)
Whitton Street (between Station Road and A559 Chester Way)	No effect (No change)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)
Whitton Street (between Old Warrington Road and Station Road)	No effect (No change)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)
A50 Holmes Chapel Road (between Booth Bed Lane and B5081 Middlewich Road)	No effect (No change)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)
Birches Lane/Station Road (between A556 Shurlach Road and School Lane)	No effect (Previously moderate adverse)	No effect (Previously major adverse)	No effect (Previously major adverse)	Moderate beneficial (Previously major adverse)

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Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
A530 Griffiths Road (between A559 Manchester Road and B5082 Middlewich Road)	Moderate beneficial (Previously no effect)	Moderate beneficial (Previously moderate adverse)	Moderate beneficial (Previously no effect)	No effect (No change)
Station Road (between School Lane and A559 Manchester Road)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously major adverse)	No effect (Previously major adverse)
School Lane (between Station Road and Stubbs Lane)	No change (Previously minor adverse)	No effect (Previously moderate adverse)	No change (Previously moderate adverse)	Moderate beneficial (Previously moderate adverse)
Fryer Road/Townshend Road (between A559 Hall Lane and A559 Manchester Road)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)
A569 Hall Lane (between Townshend Road and Green Lane)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)
A559 Manchester Road (between Fryer Road and A556 Shurlach Road)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)
A559 Hall Lane (between Green Lane and B5391 Church Street)	No effect (No change)	No effect (No change)	No effect (No change)	No effect (Previously moderate adverse)
A569 Marston Lane (between B5391 Church Street and Earles Lane)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)
B5391 Church Street (between Earles Lane and A559 Marston Lane)	No effect (No change)	No effect (No change)	No effect (No change)	No effect (Previously moderate beneficial)
Linnards Lane (between Green Lane and B5391 Church Street)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)	No effect (Previously moderate beneficial)
Earles Lane (between A559 Marston Lane and B5391 Pickmere Lane)	Moderate adverse (Previously no effect)	No effect (No change)	No effect (No change)	No effect (No change)

Other mitigation measures

7.3.36 No further appropriate traffic and transport mitigation measures have been identified. HS2 Ltd will, however, continue to work with the relevant highway authorities to consider whether further mitigation measures would be required.

Summary of likely residual significant effects

- 7.3.37 The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants in 2038, as reported in the main ES:
- new major adverse effect on two junctions;
 - new moderate adverse effect on three junctions;
 - new minor adverse effect on two junctions;
 - change (increase) from moderate adverse effect to major adverse effect on two junctions;
 - significant adverse effects removed on five junctions (three major, one moderate and one minor); and
 - new minor beneficial effect on two junctions.
- 7.3.38 The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants in 2051, as reported in the main ES for 2046:
- new major adverse effect on five junctions;
 - new moderate adverse effect on two junctions;
 - new minor adverse effect on four junctions;
 - change (increase) from moderate adverse effect to major adverse effect on one junction;
 - change (decrease) from moderate adverse effect to minor adverse effect on one junction;
 - change (decrease) from minor adverse effect to minor beneficial effect on one junction;
 - change (decrease) from moderate adverse effect to minor beneficial effect on one junction;
 - significant adverse effects removed on five junctions (three major, one moderate and one minor); and
 - new moderate beneficial effect on one junction.
- 7.3.39 The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users in 2038, as reported in the main ES:
- new major adverse effect on six roads;
 - new moderate adverse effect on 12 roads;
 - new minor adverse effect on six roads;
 - significant beneficial effects removed on three roads (three moderate);
 - change (decrease) from major beneficial effect to moderate beneficial effect on one road;
 - significant adverse effects removed on 19 roads (two major, 16 moderate and one minor);
 - new moderate beneficial effect on five roads; and
 - new major beneficial effect on one road.

- 7.3.40 The changes to the traffic-related severance effects for non-motorised users in 2051, as reported in the main ES for 2046, will be:
- new major adverse effect on eight roads;
 - new moderate adverse effect on 28 roads;
 - new minor adverse effect on eight roads;
 - significant beneficial effects removed on 16 roads (one minor, 11 moderate and four major);
 - change (increase) from minor adverse effect to moderate adverse effect on one road;
 - change (decrease) from major adverse effect to moderate adverse effect on one road;
 - change (decrease) from moderate adverse effect to moderate beneficial effect on one road;
 - change (decrease) from major adverse effect to major beneficial effect on one road;
 - significant adverse effects removed on 17 roads (two major, 11 moderate and four minor); and
 - new moderate beneficial effect on 15 roads.

Cumulative effects

- 7.3.41 This combined assessment has taken into account cumulative effects from background traffic growth, committed developments and traffic and transport impacts arising from the SES1 changes and AP1 amendments in this area and other community areas.

7.4 Air quality

Scope, assumptions and limitations

- 7.4.1 The assessment scope, key assumptions and limitations for air quality are as set out in Volume 1 and the SMR of the main ES.

Environmental baseline

Existing environmental baseline

- 7.4.2 The baseline air quality information is as described in Section 4 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam area (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the AP1 revised scheme is provided below. An update of the model verification has been undertaken and is presented within the SES1 and AP1 ES Volume 5, Appendix: AQ-001-0MA02.

Future environmental baseline

- 7.4.3 Volume 5, Appendix: CT-004-00000 of the main ES provides details of developments assumed to have been implemented by 2025. This information has been supplemented by the developments listed in the equivalent volume of the SES1 and AP1 ES. These developments have been considered as additional receptors, where relevant, as part of the construction dust assessment.

Effects arising during construction

Avoidance and mitigation measures

- 7.4.4 No avoidance or mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)¹ are required.

Assessment of impacts and effects

- 7.4.5 Construction activity could affect local air quality through the additional traffic generated on the highway network and site haul routes as a result of construction vehicles and through changes to traffic patterns arising from temporary road diversions and realignments.
- 7.4.6 The assessment of construction traffic emissions has been undertaken for a 'without the AP1 revised scheme' scenario and a 'with the AP1 revised scheme' scenarios. The traffic data for each scenario includes the additional traffic from future committed developments.
- 7.4.7 Construction traffic data in the study area has been screened to identify roads that required further assessment and to confirm the likely effect of the change in emissions from vehicles using those roads during construction of the AP1 revised scheme. There were three construction traffic scenarios assessed for air quality in the Wimboldsley to Lostock Gralam area.
- 7.4.8 Receptors expected to experience the greatest change in concentrations have been included in the air quality model. One modelled residential receptor is predicted to experience significant adverse effects for NO₂ concentrations in the Wimboldsley to Lostock Gralam area. This is located on the A530 Nantwich Road, Middlewich and NO₂ concentrations in this area are within the air quality standard. No significant effects are predicted in relation to PM₁₀ or PM_{2.5} concentrations.
- 7.4.9 Potentially significant effects are predicted at Wettenhall and Darnhall Woods SSSI as changes in NO_x concentrations are predicted to be greater than 1% of the air quality standard. In addition, acid deposition is predicted to increase by more than 1% of the maximum critical load and the total acid deposition is greater than the maximum critical load, with the AP1 revised scheme. This is addressed further in the ecology and biodiversity assessment within Section 7 of this report.

- 7.4.10 Compared to the main ES, significant adverse effects on annual mean NO₂ concentrations at one additional modelled receptor will occur due to the AP1 revised scheme. However, NO₂ concentrations at this receptor are still below the relevant air quality standard.

Other mitigation measures

- 7.4.11 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 7.4.12 The methods outlined within the draft CoCP are considered effective at reducing traffic emissions, and therefore, no significant residual adverse effects are anticipated.

Cumulative effects

- 7.4.13 This combined assessment has taken into account cumulative effects from background traffic growth, committed developments and impacts related to traffic emissions arising from the AP1 revised scheme in this area and other community areas.

Effects arising during operation

Avoidance and mitigation measures

- 7.4.14 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

- 7.4.15 Impacts from the operation of the AP1 revised scheme will arise from changes in the volume, composition and/or speed of road traffic, changes in road alignment.
- 7.4.16 Traffic data in the study area have been screened to identify roads that require further assessment and to confirm the likely effect of the change in emissions from vehicles using those roads during operation of the AP1 revised scheme. There were 42 roads screened in for further assessment in the Wimboldsley to Lostock Gralam area, including:
- the A54 Winsford by-pass/Middlewich Road/St Michaels Way/Kinderton Street/Holmes Chapel Road/Chester Road;
 - the A530 Nantwich Road/Chester Road/King Street/Griffiths Road;
 - the A533 Bostock Road/Dane Street/London Road/Kingsmead;
 - the A556 Shurlach Road;
 - the B5082 Penny's Lane;
 - Birches Lane;
 - Crowder's Lane;

- Coalpit Lane;
- Birch Lane;
- Clive Lane; and
- Clive Green Lane.

- 7.4.17 No designated ecological receptors of relevance to the operational phase air quality have been identified within 200m of the screened in roads in the area. No further assessment of ecological receptors was therefore required for this area.
- 7.4.18 Receptors expected to experience the greatest change in concentrations have been included in the air quality model. Negligible impacts are predicted at the majority of receptors for annual mean NO₂ concentrations. One modelled residential receptor will experience significant beneficial effects for NO₂ concentrations in the Wimboldsley to Lostock Gramam area. This is located on the A530 Nantwich Road, Occleston, due to the realignment of this road. Negligible impacts are predicted at all human receptors for annual mean PM₁₀ and PM_{2.5} concentrations.
- 7.4.19 There are no new or different significant effects from operation of the AP1 revised scheme compared to those reported in the main ES.

Other mitigation measures

- 7.4.20 No mitigation measures additional to those reported in the main ES are required.

Summary of likely residual significant effects

- 7.4.21 No new, removed or different significant residual effects have been identified compared to the main ES.

Cumulative effects

- 7.4.22 This combined assessment has taken into account cumulative effects from background traffic growth, committed developments and impacts related to traffic emissions arising from the AP1 revised scheme in this area and other community areas.

7.5 Community

Scope, assumptions and limitations

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

Environmental baseline

Existing baseline

- 7.5.2 The baseline community information is as described in Section 6 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the SES1 changes and AP1 amendments is provided below.
- 7.5.3 Changes to the sound, noise and vibration assessment as a result of new construction traffic data has occurred in Middlewich and Lostock Gralam.
- 7.5.4 Middlewich is a settlement comprising approximately 5,600 residential properties. The nearest properties are located 1.2km to the east of the original scheme. Middlewich has a number of community facilities including schools, care homes, and churches. There are several recreational routes and PRoW in the area. Between Clive Green and Middlewich lies 2km of the Shropshire Union Canal (Middlewich Branch), running west to east across the original scheme. The National Cycle Network Route 5 also follows the route of the canal.
- 7.5.5 Lostock Gralam is a settlement comprising approximately 1,000 residential properties. The nearest properties are located 100m west of the original scheme. Lostock Gralam has several community facilities, including Lostock Tiny Tots Pre-School, Lostock Belgrave Day Nursery, Lostock Gralam Church of England Primary School, St John the Evangelist Church, including its church hall and churchyard, four care homes, and Lostock Gralam Community Centre and outdoor play area. Public open spaces and recreational facilities in Lostock Gralam include Lostock Gralam football ground and play areas on Salary Row and Townshend Road.

Future baseline

- 7.5.6 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.
- 7.5.7 The following committed development of relevance to the community assessment that would materially alter the future baseline during construction of the AP1 revised scheme in this area, are set out in Table 27.

Table 27: Committed developments that materially alter the future baseline during construction of the AP1 revised scheme for community

Map book reference ²¹	Planning reference	Description	How this is considered in the assessment
MA02/417A	Site MID 3 (Cheshire East Site Allocations and Development Policies Document)	<p>Location: Lane at Centurion Way, Middlewich</p> <p>Land at Centurion Way is allocated for residential development of around 75 new homes. Development proposals must:</p> <ol style="list-style-type: none"> 1. seek to retain as much of the existing boundary hedges as possible as part of a comprehensive landscaping scheme, which should be designed to mitigate any impact of the development upon the wider landscape; 2. include a strategy for the provision and long term management of off-site habitat for ground nesting farmland birds; 3. make a contribution towards the delivery of the Middlewich Eastern Bypass; and 4. undertake a Mineral Resource Assessment for sand and gravel. 	Informing future baseline

7.5.8 Committed development MA02/417A has been included as part of the future baseline and considered in this assessment. The implementation of this committed development will result in a new residential development immediately adjacent to land required for the construction of the AP1 revised scheme.

Effects arising during construction

Avoidance and mitigation measures

7.5.9 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Assessment of impacts and effects

7.5.10 The A530 Nantwich Road is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. The significant HGV traffic effects²² will combine with significant visual effects on approximately five residential properties on the A530 Nantwich Road in Wimboldsley. Together these visual and HGV traffic effects will result in a new moderate adverse in-combination effect on amenity for residents at these properties, which is significant.

²¹ Volume 5, Committed Development Map Book: maps CT-13-304b to CT-13-309a.

²² HGV traffic effects are where there is a 30% or more increase in HGV traffic movements which have been identified as significant by traffic and transport. The increase in HGV traffic results in a traffic-related severance effect for non-motorised users. They contribute to in-combination effects on community resources that are located adjacent to the routes that experience the increase in HGV movements.

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- 7.5.11 Wimboldsley Community Primary School is located in Wimboldsley, at the junction of the A530 Nantwich Road and School Lane. The A530 Nantwich Road is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. The significant HGV traffic effects will combine with significant visual effects at Wimboldsley Community Primary School. Together these visual and HGV traffic effects will result in a new moderate adverse in-combination effect on staff and pupils and Wimboldsley Community Primary School, which is significant.
- 7.5.12 The main ES reported a moderate adverse in-combination effect on approximately 40 residential properties on the B5309 Centurion Way as a result of significant HGV traffic effects and significant traffic noise effects during the peak months of construction. Changes to the sound, noise and vibration assessment as a result of new construction traffic data have led to the removal of the significant traffic noise effect. HGV traffic effects remain the same as reported in the main ES. This change will result in the removal of the significant in-combination effect on amenity for residents of 40 residential properties on the B5309 Centurion Way in Middlewich.
- 7.5.13 The main ES reported a moderate adverse in-combination effect on approximately 30 residential properties on the B5081 Byley Road in Byley as a result of significant heavy goods vehicles (HGV) traffic effects and significant traffic noise effects during the peak months of construction. The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) will remove the significant HGV traffic and traffic noise effects on these properties. This change will result in the removal of the significant in-combination effect on amenity for residents of 30 residential properties on the B5081 Byley Road in Byley.
- 7.5.14 The B5308 Middlewich Road is a designated route for construction traffic. The significant in-combination effect on amenity as a result of significant noise and visual effects, as reported in Section 5 will combine with a new HGV traffic effect. This change will result in a different major adverse in-combination effect on amenity for residents at approximately 35 properties in Holmes Chapel, which is significant.
- 7.5.15 Changes to the sound, noise and vibration assessment as a result of new construction traffic data have resulted in a new significant traffic noise effect on approximately 40 residential properties in the vicinity of the A556 in Lostock Gralam for approximately one year and three months. This noise effect will combine with the significant visual effects that remain the same as reported in the main ES. Together these noise and visual effects will result in a moderate adverse in-combination effect on amenity for residents at these properties, which is significant.
- 7.5.16 Changes to the sound, noise and vibration assessment as a result of new construction traffic data have resulted in a new moderate adverse in-combination effect on Lostock Lodge Care Home in Lostock Gralam. Lostock Lodge Care Home provides specialist dementia care for up to 66 residents. The new significant construction traffic noise effect will combine with significant visual effects for approximately one year and three months. Together these noise and visual effects will result in a new moderate adverse in-combination effect on the amenity of some residents of Lostock Lodge Care Home, which is significant.

- 7.5.17 Station Road in Lostock Gralam is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. These significant HGV traffic effects will combine with significant traffic noise effects at Lostock Tiny Tots Pre-School in Lostock Gralam. Together these noise and HGV traffic effects will result in a moderate adverse in-combination effect on operators, carers and children attending the nursery, which is significant.
- 7.5.18 Station Road in Lostock Gralam is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. These significant HGV traffic effects will combine with significant traffic noise effects at St John the Evangelist Church Hall in Lostock Gralam. The church hall provides parent and toddler groups and community café events. Together these noise and HGV traffic effects will result in a moderate adverse in-combination effect on people attending events at the church hall, which is significant.

Other mitigation measures

- 7.5.19 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Summary of likely residual significant effects

- 7.5.20 Changes to the sound, noise and vibration assessment and new construction traffic data will remove significant residual effects on:
- approximately 40 residential properties on the B5309 Centurion Way, Middlewich; and
 - approximately 30 residential properties on the B5081 Byley Road, Byley.
- 7.5.21 New construction traffic data will result in a different significant residual effect on approximately 35 residential properties in the vicinity of the A54 Middlewich Road and A54 Chester Road, Holmes Chapel as a result of a new HGV traffic effects combining with noise and visual effects.
- 7.5.22 Changes to the sound, noise and vibration assessment as a result of new construction traffic data will result in new significant residual effects on:
- approximately five residential properties on the A530 Nantwich Road in Wimboldsley as a result of new HGV traffic effects combining with visual effects that were reported in the main ES;
 - Wimboldsley Community Primary School in Wimboldsley as a result of new HGV traffic effects combining with visual effects that were reported in the main ES;
 - approximately 40 properties in the vicinity of the A556 in Lostock Gralam as a result of a new traffic noise effect combining with visual and HGV traffic effects that were reported in the main ES;
 - Lostock Lodge Care Home in Lostock Gralam as a result of a new traffic noise effects and visual effects that were reported in the main ES;

- Lostock Tiny Tots Pre-School in Lostock Gralam as a result of new traffic noise and HGV traffic effects; and
- Lostock Gralam Church Hall in Lostock Gralam as a result of new traffic noise and HGV traffic effects.

Cumulative effects

- 7.5.23 No new or different significant cumulative effects have been identified further to those identified in the main ES.

7.6 Ecology and biodiversity

Scope, assumptions and limitations

- 7.6.1 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1 and the SMR of the main ES.

Environmental baseline

Existing baseline

- 7.6.2 The baseline ecology and biodiversity information is as described in Section 7 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam area of the main ES. A summary of the baseline information relevant to the assessment of the updated baseline is provided below.

Designated sites

- 7.6.3 There are two statutory sites of international importance of relevance to the assessment of the AP1 revised scheme as follows:
- Midland Meres and Mosses Phase 2 Ramsar site, of which the closest component unit of the Ramsar site of relevance to the assessment is Oak Mere SSSI. Two further components of this Ramsar site, Black Firs and Cranberry Bog SSSI and Oakhanger Moss SSSI, are relevant to the Hough to Walley's Green area (MA01); and
 - Oak Mere SAC, comprising one constituent SSSI, Oak Mere SSSI, which is also part of the Midland Meres and Mosses Phase 2 Ramsar site. The location of this SSSI, in relation to the land required for the construction of the AP1 revised scheme and nearby roads on which traffic will be redistributed as a result of the AP1 revised scheme, is as described below.

- 7.6.4 There are two statutory sites of national importance of relevance to the assessment of the AP1 revised scheme, as follows:
- Wettenhall and Darnhall Woods SSSI (which also includes Brookside Woods Ancient Woodland Inventory (AWI) Site), is located 2.4km west of land that has been identified for the purpose of habitat creation or enhancement as part of the AP1 revised scheme and 95m from the B5074 Swanlowe Lane on which traffic will be redistributed as a result of the AP1 revised scheme. Wettenhall and Darnhall Woods SSSI is of relevance to the assessment in terms of possible impacts associated with redistribution of traffic as a result of the construction of the AP1 revised scheme. However, the AP1 revised scheme within the Wimboldsley to Lostock Gralam area is not within the IRZ for this SSSI; and
 - Oak Mere SSSI, is located 9.7km west of the land required for the construction of the AP1 revised scheme and adjacent to the A54 Middlewich Road and A49 Tarporley Road on which traffic will be redistributed as a result of the AP1 revised scheme. Oak Mere SSSI is of relevance to the assessment in terms of possible impacts associated with traffic redistribution as a result of the construction of the AP1 revised scheme. However, the AP1 revised scheme within the Wimboldsley to Lostock Gralam area is not within the IRZ for this SSSI.

Effects arising during construction

Avoidance and mitigation measures

- 7.6.5 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Designated sites

- 7.6.6 The main ES reported that there would be no adverse effects on Midland Meres and Mosses Phase 2 Ramsar site at any of the constituent SSSI of relevance to the original scheme. Increased deposition of pollution associated with construction traffic is the only impact of relevance to the AP1 revised scheme which includes impacts from oxides of nitrogen (NO_x) and acidification, as well as nitrogen deposition which was previously considered. The AP1 revised scheme does not result in changes to the assessment at Oak Mere or at Black Firs and Cranberry Bog (the latter located in the Hough to Walley's Green area (MA01), where the changes in traffic flows on nearby roads do not result in adverse effects from deposition of airborne pollution on the qualifying features of the Ramsar site. Oakhanger Moss, is a further component of the Midland Meres and Mosses Phase 2 Ramsar site, also in the Hough to Walley's Green area. As described in SES1 and AP1 Volume 2, Community Area report: Hough to Walley's Green (MA01), thresholds at which these pollutants could potentially result in harm to habitats for which the Ramsar site is designated are exceeded, either alone or in combination with other plans and projects. However, further assessment

carried out to inform the Habitats Regulations Assessment (HRA) for this site has concluded that these exceedances will not compromise the site's conservation objectives. Therefore, although the traffic model has been revised and the scope of the air quality assessment has changed to include additional forms of pollution, there remains no adverse effects on the integrity of the Midland Meres and Mosses Phase 2 Ramsar site, alone or in combination with other plans and projects.

- 7.6.7 The main ES reported that there would be no adverse effects on the integrity of Oak Mere SAC, for which Oak Mere is the only constituent SSSI. As for the Midland Meres and Mosses Phase 2 Ramsar site, the changes in traffic flows in the vicinity of Oak Mere caused by the AP1 revised scheme do not result in adverse effects from deposition of airborne pollution on the qualifying features of Oak Mere SAC. The revised HRA for the SAC concludes that there is no credible risk that changes in NO_x, nitrogen deposition or acid deposition, during construction or operation of the AP1 revised scheme, either alone or in-combination with other plans or projects could undermine the conservation objectives of Oak Mere and likely significant effects (alone and in-combination) could be ruled out. An appropriate assessment is not required. Therefore, although the scope of the air quality assessment has changed to include additional forms of pollution, there is no change to the significance of the effects described in the main ES.
- 7.6.8 The main ES reported that the small exceedances in nitrogen deposition caused by redistribution of traffic on the B5074 Swanlowe Lane would not result in an adverse effect on the structure and function of Wettenhall and Darnhall Woods SSSI and Brookside Woods AWI site. The revised air quality modelling for the AP1 revised scheme demonstrates that with or without the AP1 revised scheme, airborne concentration of NO_x remain below the critical level. Although the background rates of nitrogen deposition exceed the lower critical load, the increase in the rate of deposition as a consequence of the AP1 revised scheme remains below 1% of the critical load. Background rates of acid deposition also exceed the relevant critical load, but in this case, increases brought about by the AP1 revised scheme are greater than 1% of the critical load. However, the values remain small and at most 1.3%. Given that significant effects can be dismissed for all values less than 1%, the degree of exceedance is modest. Furthermore, although prolonged any impacts will be temporary and can be considered reversible and will affect the western-most part of the woodland only. As such the AP1 revised scheme is not expected to result in an adverse effect on the structure and function of Wettenhall and Darnhall Woods SSSI and Brookside Woods AWI site. Therefore, although the scope of the air quality assessment has changed to include additional forms of pollution, there is no change to the effects described in the main ES.
- 7.6.9 The main ES reported that there would be no adverse effects on structure and function of Oak Mere SSSI due to changes in air quality associated with the original scheme. As described for the Midland Meres and Mosses Phase 2 Ramsar site and Oak Mere SAC, there will be no adverse effects from airborne pollution caused by the AP1 revised scheme on the qualifying features of these sites that are present within the SSSI and form the principal reasons for its designation. Therefore, although the scope of the air quality assessment has

changed to include additional forms of pollution, there is no change to the effects described in the main ES.

Summary of likely residual significant effects

- 7.6.10 No new, removed or different significant cumulative effects have been identified compared to the main ES.

Other mitigation measures

- 7.6.11 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Cumulative effects

- 7.6.12 No new or different significant cumulative effects have been identified further to those identified in the main ES.

7.7 Health

Scope, assumptions and limitations

- 7.7.1 The assessment scope, key assumptions and limitations for health are as set out in Volume 1 and the SMR of the main ES.

Environmental baseline

Existing baseline

- 7.7.2 The baseline health information is as described in Section 8 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES. A summary of the baseline information relevant to the assessment of the AP1 revised scheme is provided below.
- 7.7.3 Changes to the sound, noise and vibration assessment as a result of new construction traffic data have occurred in Lostock Gralam and Middlewich.
- 7.7.4 Lostock Gralam is a settlement comprising approximately 1,000 residential properties. The nearest properties are located 100m west of the original scheme. Lostock Gralam has several community facilities, including Lostock Tiny Tots Pre-School, Lostock Belgrave Day Nursery, Lostock Gralam Church of England Primary School, St John the Evangelist Church, including its church hall and churchyard, four care homes, and Lostock Gralam Community Centre and outdoor play area. Public open spaces and recreational facilities in Lostock Gralam include Lostock Gralam football ground and play areas on Salary Row and Townshend Road.

7.7.5 Middlewich is a settlement comprising approximately 5,600 residential properties. The nearest properties are located 1.2km to the east of the original scheme. Middlewich has a number of community facilities including schools, care homes, and churches. There are several recreational routes and PRoW in the area. Between Clive Green and Middlewich lies 2km of the Shropshire Union Canal (Middlewich Branch), running west to east across the original scheme. The National Cycle Network Route 5 also follows the route of the canal.

Future baseline

7.7.6 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant.

7.7.7 The following committed development of relevance to the health assessment that would materially alter the future baseline during construction of the AP1 revised scheme in this area, are set out in Table 28.

Table 28: Committed developments that materially alter the future baseline during construction of the AP1 revised scheme for health

Map book reference ²³	Planning reference	Description	How this is considered in the assessment
MA02/417A	Site MID 3 (Cheshire East Site Allocations and Development Policies Document)	Location: Lane at Centurion Way, Middlewich Land at Centurion Way is allocated for residential development of around 75 new homes. Development proposals must: 1. seek to retain as much of the existing boundary hedges as possible as part of a comprehensive landscaping scheme, which should be designed to mitigate any impact of the development upon the wider landscape; 2. include a strategy for the provision and long term management of off-site habitat for ground nesting farmland birds; 3. make a contribution towards the delivery of the Middlewich Eastern Bypass; and 4. undertake a Mineral Resource Assessment for sand and gravel.	Informing future baseline

7.7.8 Committed development MA02/417A has been included as part of the future baseline and considered in this assessment. The implementation of this committed development will result in a new residential development immediately adjacent to land required for construction of the AP1 revised scheme.

²³ Volume 5, Committed Development Map Book: maps CT-13-304b to CT-13-309a.

Effects arising during construction

Avoidance and mitigation measures

- 7.7.9 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Assessment of impacts and effects

- 7.7.10 The A530 Nantwich Road in Wimboldsley is a designated construction traffic route, and new construction traffic data has resulted in a significant HGV traffic effect due to an increase in HGV traffic movements along this road²⁴. Construction of the AP1 revised scheme will be visible for the community of Wimboldsley. People in this community are likely to experience these effects as changing the quality of their neighbourhood and to regard that change as adverse, diminishing the amenity of the settlement. Therefore, the combination of HGV traffic and visual effects will result in a new adverse neighbourhood quality effect for residents of this part of Wimboldsley.
- 7.7.11 Wimboldsley Community Primary School is located at the junction of the A530 Nantwich Road, and School Lane in Wimboldsley. New construction traffic data has resulted in a significant HGV traffic effect along the A530 Nantwich Road, one of the access routes to the school, due to an increase in HGV traffic movements. Significant visual effects are also predicted due to the construction of the AP1 revised scheme. These effects are not predicted to result in changes to the school's indoor learning environment, and outdoor learning will not be impacted by the HGV severance effect. Therefore, these effects are not expected to impact the beneficial wellbeing effects associated with primary education.
- 7.7.12 The main ES reported an adverse neighbourhood quality effect for residents along the B5309 Centurion Way, Middlewich. The B5309 Centurion Way is a designated route for construction traffic and would experience a significant increase in HGV traffic movements. Significant HGV traffic effects would combine with significant traffic noise effects on residential properties on the B5309 Centurion Way during the peak months of construction. Changes to the sound, noise and vibration assessment as a result of new construction traffic data will remove the significant traffic noise effect. This change will result in the removal of the neighbourhood quality effect along the B5309 Centurion Way, Middlewich.
- 7.7.13 The main ES reported an adverse neighbourhood quality effect for residents along the B5081 Byley Road in Byley. The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) will remove the significant HGV traffic and traffic noise effects. This change will

²⁴ HGV traffic effects are where there is a 30% or more increase in HGV traffic movements which have been identified as significant by traffic and transport. The increase in HGV traffic results in a traffic-related severance effect for non-motorised users. They contribute to in-combination effects on community resources that are located adjacent to the routes that experience the increase in HGV movements.

result in the removal of the adverse neighbourhood quality effect along the B5081 Byley Road in Byley.

- 7.7.14 The B5308 Middlewich Road is a designated route for construction traffic. This significant HGV traffic effect will combine with the noise and visual effects, as reported in Section 5, at properties in the vicinity of the A54 Chester Road, A54 Middlewich Road and the B5308 Middlewich Road in Holmes Chapel. People in this community are likely to experience these effects as changing the quality of their neighbourhood and to regard that change as adverse, diminishing the amenity of the settlement. This will result in a different adverse neighbourhood quality effect for residents of these properties.
- 7.7.15 Changes to the sound, noise and vibration assessment as a result of new construction traffic data have resulted in a new adverse neighbourhood quality effect for residents in the vicinity of the A556 in Lostock Gralam. Changes to the sound, noise and vibration assessment as a result of new construction traffic data have resulted in a new significant traffic noise effect on these properties for approximately one year and three months. This noise effect will combine with significant visual effects that remain the same as reported in the main ES. People in this community are likely to experience these effects as changing the quality of their neighbourhood and to regard that change as adverse, diminishing the amenity of the settlement.
- 7.7.16 Lostock Lodge Care Home provides specialist dementia care for up to 66 residents. Changes to the sound, noise and vibration assessment as a result of new construction traffic data have resulted in a new traffic noise effect that will be noticeable for residents of Lostock Lodge Care Home. This new noise effect will combine with significant visual effects for residents for approximately one year and three months. The new significant construction traffic noise effect will combine with significant visual effects for approximately one year and three months. Therefore, temporary changes to the care home's environment may be noticeable for some residents. For those affected, this will lead to a reduction in the wellbeing benefits associated with the care home environment.
- 7.7.17 Station Road in Lostock Gralam is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. These significant HGV traffic effects will combine with significant traffic noise effects at Lostock Tiny Tots Pre-School in Lostock Gralam. Changes to the pre-school's environment will have an adverse effect on the beneficial wellbeing effects associated with early years education. Therefore, this is considered to result in an adverse health effect.
- 7.7.18 Station Road in Lostock Gralam is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. These significant HGV traffic effects will combine with significant traffic noise effects at St John the Evangelist Church Hall in Lostock Gralam for approximately four months. The church hall provides parent and toddler groups and community café events. These temporary effects will affect quality of life by limiting opportunities for accessing a community facility, limiting participation in community events and disrupting existing social networks. Therefore, this is considered to result in an adverse health effect.

Other mitigation measures

- 7.7.19 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

Cumulative effects

- 7.7.20 No new, removed or different significant cumulative effects have been identified compared to the main ES.

7.8 Socio-economics

Scope, assumptions and limitations

- 7.8.1 The assessment scope, key assumptions and limitations for socio-economics are as set out in Volume 1 and the SMR of the main ES. The changes in traffic flows have the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for socio-economics.

Environmental baseline

Existing environmental baseline

- 7.8.2 The baseline socio-economics information is as described in Section 12 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

Future environmental baseline

- 7.8.3 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant. No committed developments of relevance for the socio-economic assessment have been identified that would materially alter the future baseline in this area.

Effects arising during construction

Avoidance and mitigation measures

- 7.8.4 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

- 7.8.5 As a result of changes in traffic flows, The Verdin Arms public house, located north of Walley's Green, will experience new significant effects from HGV construction traffic (traffic-related severance for non-motorised users), as well as significant visual effects that were identified as part of the original scheme. The sensitivity of this establishment is assessed to be high as customers are considered to be sensitive to impacts on the local environment and setting. The construction works may discourage them from using this facility. Given the duration of effects and the high level of sensitivity, the changes in construction traffic flows are assessed to result in a new significant adverse in-combination effect on this business.
- 7.8.6 As a result of changes in traffic flows, a group of 12 businesses at Hopley House Shopping Village, located south of Wimboldsley, including a farm shop, bed and breakfast, café and several specialist retail outlets, will experience new significant effects from HGV construction traffic (traffic-related severance for non-motorised users), as well as significant visual effects that were identified as part of the original scheme. The sensitivity of this group of establishments is assessed to be medium as customers are considered to be sensitive to impacts on the local environment and setting. The construction works may discourage them from using these facilities. Given the duration of effects and the medium level of sensitivity, the changes in construction traffic flows are assessed to result in a new significant adverse in-combination effect on this business.
- 7.8.7 As a result of changes in traffic flows, Lostock Tiny Tots Pre-School, located in Lostock Gralam, will experience new significant effects from indirect noise, as well as HGV construction traffic (traffic-related severance for non-motorised users) that were identified as part of the original scheme. The sensitivity of this establishment is assessed to be medium due to the low availability of local alternative facilities. The construction works may discourage parents and carers from choosing to send their children to the nursery. Given the duration of effects and the medium level of sensitivity, the changes in construction traffic flows are assessed to result in a new significant adverse in-combination effect on this business.
- 7.8.8 As a result of changes in traffic flows, Lostock Lodge Care Home, located in Lostock Gralam, will experience new significant effects from indirect noise, as well as significant visual effects that were identified as part of the original scheme. The sensitivity of this establishment is assessed to be high as users are considered to be sensitive to changes in the local environment and setting and the good availability of local alternative facilities. The construction works may discourage prospective residents from choosing Lostock Lodge Care Home. Given the duration of effects and the high level of sensitivity, the changes in construction traffic flows are assessed to result in a new significant adverse in-combination effect on this business.

Other mitigation measures

- 7.8.9 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 7.8.10 The changes in traffic flows will result in new adverse residual significant in-combination effects on The Verdin Arms public house; a group of 12 businesses at Hopley House; Lostock Tiny Tots Pre-school; and Lostock Lodge Care Home.

Cumulative effects

- 7.8.11 No new or different significant cumulative effects have been identified further to those reported in the main ES.

7.9 Sound, noise and vibration

Scope, assumptions and limitations

- 7.9.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1 and the SMR of the main ES.

Environmental baseline

Existing baseline

- 7.9.2 In the Wimboldsley to Lostock Gralam area, the updated sound modelling described in Section 2 has resulted in updates to the existing baseline sound levels at receptors adjacent to roads. Further information on the updated baseline sound levels relevant to the assessment is provided in the SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. Where no updates to the baseline sound levels are required, the baseline sound, noise and vibration information is as described in Section 13 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

Future baseline

- 7.9.3 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant. None of the identified developments affect the assessment of sound, noise and vibration for the AP1 revised scheme.
- 7.9.4 Updates have also been made to future baseline sound levels at the locations identified in Section 3 where updates to the existing baseline sound levels have been made for the SES1 and AP1 ES.

Effects arising during construction

Avoidance and mitigation measures

- 7.9.5 No avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP, are required.

Assessment of impacts and effects

Residential receptors: indirect effects

- 7.9.6 The main ES identified a likely significant indirect construction effect on a community basis along Darnhall School Lane, Glebe Green Drive/Durham Drive and Dover Drive/Mount Pleasant Drive, Winsford between the B5074 Swanlow Lane and Woodford Lane West. Approximately 240 dwellings located immediately adjacent to these roads were forecast to experience an increase in road traffic noise levels during the typical and peak months of around 4dB and 6dB $L_{pAeq,0700-2300}$ respectively, due to traffic diverting away from construction routes on nearby roads. This was denoted as MA02-C-C4 in Table 8 in Volume 5, Appendix: SV-002-0MA02 of the main ES.
- 7.9.7 The AP1 revised scheme will reduce both the average and peak monthly construction road traffic movements on these roads, and thus the associated construction traffic noise levels will be lower than those reported in the main ES. Whilst this does not remove the effect, it does result in fewer properties experiencing a likely significant effect and with a smaller change in noise levels compared with those reported in the main ES. For further information see SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. Therefore, approximately 50 properties along Darnhall School Lane, Winsford between the B5074 Swanlow Lane and Glebe Green Drive are forecast to experience an increase in road traffic noise levels during the typical and peak months of around 3dB and 4dB $L_{pAeq,0700-2300}$ respectively, due to traffic diverting away from construction routes on nearby roads. This will give rise to a likely different significant indirect construction effect on this residential community.
- 7.9.8 The main ES identified a likely significant indirect construction effect on a community basis at approximately 35 residential dwellings along the B5309 Centurion Way, Middlewich between the B5081 Byley Lane and the B5309 King Street. This was denoted as MA02-C-C5 in Table 8 in Volume 5, Appendix: SV-002-0MA02 of the main ES. The AP1 revised scheme will reduce both the average and peak monthly construction road traffic movements on these roads, and thus reduce the associated construction traffic noise levels. For further information see SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. The reduction in construction traffic noise levels will remove the likely indirect residual significant effect reported in the main ES on dwellings along the B5309 Centurion Way, Middlewich between the B5081 Byley Lane and the B5309 King Street.
- 7.9.9 The main ES identified a likely significant indirect construction effect on a community basis at approximately 30 residential dwellings along the B5081 Byley Road between Lily Lane and

the B5082 Northwich Road. This was denoted as MA02-C-C6 in Table 8 in Volume 5, Appendix: SV-002-0MA02 of the main ES. The AP1 revised scheme will reduce both the average and peak monthly construction road traffic movements on these roads due to the removal of Borrow Pit D, and thus reduce the associated construction traffic noise levels. For further information see SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. The reduction in construction traffic noise levels will remove the likely indirect residual significant effect reported in the main ES on dwellings along the B5081 Byley Road between Lily Lane and the B5082 Northwich Road.

- 7.9.10 As a result of the AP1 revised scheme, construction traffic is likely to cause adverse noise effects on residential receptors adjacent to the A556 Shurlach Road between Birches Lane and the A559 Manchester Road. Approximately 40 dwellings located along Salary Row, Broseley Way and Harris Road are forecast to experience a change in road traffic noise levels of around 1dB $L_{pAeq, 0700-2300}$ during the peak months, due to additional construction vehicles using the A556 Shurlach Road in an area currently exposed to high levels of sound. As no indirect noise effect arose due to the original scheme, this is considered to be a new likely significant effect on a community basis at the dwellings on this road, denoted as MA02-C-C9 in Volume 5, Appendix: SV-002-00000. This temporary adverse effect represents a change in the acoustic character of the area, which may be perceived as a change in the quality of life for that community.

Non-residential receptors: indirect effects

- 7.9.11 As a result of the AP1 revised scheme, construction traffic is likely to cause an adverse noise effect on the Parish Church of St John the Evangelist, Church Hall, Lostock Gramam which is located adjacent to Station Road. Road traffic noise levels due to additional construction vehicles using this route are predicted to be above the daytime screening criteria defined in the SMR for community hall use²⁵ during the peak months for one or more months, with an increase of around 4dB $L_{pAeq, 0700 - 2300}$. The main ES did not identify an indirect noise effect at this location; therefore, a new likely significant effect has been identified at the Parish Church of St John the Evangelist, Church Hall, Lostock Gramam, denoted as MA02-C-N5 in SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. This temporary adverse effect may take the form of activity disturbance to users of the hall.
- 7.9.12 As a result of the AP1 revised scheme, construction traffic is likely to cause an adverse noise effect on Lostock Tiny Tots Pre-School, Lostock Gramam which is located adjacent to Station Road. Road traffic noise levels due to additional construction vehicles using this route are predicted to be above the daytime screening criteria defined in the SMR for educational use²⁶ during the peak months for one or more months, with an increase of around 4dB $L_{pAeq, 0700 - 2300}$. As no indirect noise effect arose due to the original scheme, a new likely significant effect has been identified at Lostock Tiny Tots Pre-School, denoted as MA02-C-N6 in SES1

²⁵ 50dB $L_{pAeq, 0700 - 2300}$ (free field) during the day, which is equivalent to 53dB $L_{pAeq, 0700 - 2300}$ (facade).

²⁶ 50dB $L_{pAeq, 0700 - 2300}$ (free field) during the day, which is equivalent to 53dB $L_{pAeq, 0700 - 2300}$ (facade).

and AP1 ES Volume 5, Appendix: SV-002-00000. This temporary adverse effect may take the form of activity disturbance to users of the pre-school.

- 7.9.13 As a result of the AP1 revised scheme, construction traffic is likely to cause an adverse noise effect on Lostock Lodge Care Home, Cheshire Avenue which is located adjacent to the A556 Shurlach Road. Road traffic noise levels due to additional construction vehicles using the A556 Shurlach Road are predicted to be above the daytime screening criteria defined in the SMR for residential use²⁷ during the peak months for one or more months, with an increase of around 1dB LpAeq, 0700 - 2300. As no indirect noise effect arose due to the original scheme, a new likely significant effect has been identified at Lostock Lodge Care Home, Cheshire Avenue, denoted as MA02-C-N7 in SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. This temporary adverse effect may take the form of activity disturbance to residents and staff of the care home.

Other mitigation measures

- 7.9.14 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Summary of likely residual significant effects

- 7.9.15 As a result of the AP1 revised scheme, construction traffic in this area will give rise to a different likely temporary residual adverse significant noise effect on residential dwellings along Darnhall School Lane, Winsford between the B5074 Swanlow Lane and Glebe Green Drive.
- 7.9.16 As a result of the AP1 revised scheme, construction traffic in this area will give rise to a new likely temporary residual adverse significant noise effect on residential dwellings on Salary Row, Broseley Way and Harris Road, which are adjacent to the A556 Shurlach Road between Birches Lane and the A559 Manchester Road.
- 7.9.17 As a result of the AP1 revised scheme, construction traffic in this area will give rise to a new likely temporary residual adverse significant noise effect on the following non-residential dwellings:
- Parish Church of St John the Evangelist, Church Hall, Lostock Gralam;
 - Lostock Tiny Tots Pre-School, Lostock Gralam; and
 - Lostock Lodge Care Home, Cheshire Avenue.

²⁷ 50dB LpAeq, 0700 - 2300 (free field) during the day, which is equivalent to 53dB LpAeq, 0700 - 2300 (facade).

Cumulative effects

- 7.9.18 This combined assessment has taken into account cumulative effects from background traffic growth, committed developments and traffic related to construction works arising from the AP1 revised scheme in this area and other community areas.

7.10 Water resources and flood risk

Scope, assumptions and limitations

- 7.10.1 This assessment considers any new or different significant effects on water quality in local waterbodies from:
- accidental spillages and routine discharge of surface runoff from new road diversions/realignment resulting from the AP1 revised scheme;
 - changes to spillage risk on the existing road network due to increases in HGV movements resulting from construction traffic; and
 - changes to the quantity and quality of routine runoff discharged from the existing road network due to changes in daily traffic movements resulting from the construction of the AP1 revised scheme.
- 7.10.2 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1 and the SMR of the main ES.

Environmental baseline

Existing environmental baseline

- 7.10.3 The baseline water resources and flood risk information is as described in Section 15 of Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) of the main ES.

Future baseline

- 7.10.4 The Planning data report of the main ES (see Volume 5, Appendix: CT-004-00000 of the main ES) provides details of committed developments assumed to have been implemented by 2025. This information has been supplemented by the committed developments listed in the equivalent Volume 5 Planning data report of the SES1 and AP1 ES (see SES1 and AP1 ES Volume 5, Appendix: CT-004-00000). The developments have been considered to determine whether they would result in a material change to the future baseline or have the potential to give rise to cumulative effects. None of the identified developments affect the assessment of the SES scheme's likely construction and operation impacts on water resources and flood risk.

Effects arising during construction

Avoidance and mitigation measures

- 7.10.5 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

Assessment of impacts and effects

Temporary effects

- 7.10.6 At locations where highway drainage is discharged to local watercourses and there is a significant change in traffic due to construction (such that set thresholds are exceeded), assessments are required to determine whether routine runoff and spillage risk are likely to have detrimental impacts on water quality. These assessments are carried out using the Highways England Water Risk Assessment Tool (HEWRAT)²⁸. The assessments have been repeated following the main ES using the combined changes to traffic flows and have identified the following permanent new or different significant effects.
- 7.10.7 The main ES reported precautionary temporary significant moderate effects on Puddinglake Brook, Gad Brook and Tributary of Gad Brook 3 due to routine runoff from construction traffic on the A530 King Street. The changes to traffic flows mean that there is no longer a need for routine runoff assessments for pollution risk for the A530 King Street. Therefore, the temporary moderate significant effects on Puddinglake Brook, Gad Brook and Tributary of Gad Brook 3 have been removed.
- 7.10.8 There are no other new or different temporary significant effects additional to those reported in the main ES.

Permanent effects

- 7.10.9 Where highway drainage for road diversions and realignments are discharged to local watercourses, assessments for determining whether routine runoff and spillage risk are likely to have detrimental impacts on water quality are carried out using the HEWRAT. These assessments have been repeated following the main ES using the combined changes to traffic flows and have identified the following permanent new or different significant effects.
- 7.10.10 The drainage from the realigned A54 Middlewich Road will be discharged, via an attenuation pond, to Birch Lane Drain. Birch Lane Drain is a small watercourse and may be dry under some conditions. In these conditions, the highways could potentially be discharging to the underlying glacial till Secondary (Undifferentiated) aquifer. Therefore, in accordance with DMRB guidance, a HEWRAT groundwater assessment has been undertaken. The highways

²⁸ Standards for Highways (2020), Design Manual for Roads and Bridges (DMRB), LA 113 Road Drainage and the Water Environment Revision 1 (formally HD 45/09). Available online at: <https://www.standardsforhighways.co.uk/dmr/b/search/d6388f5f-2694-4986-ac46-b17b62c21727>.

discharges from the realigned A54 Middlewich Road have the potential to result in a moderate impact on the moderate value aquifer, leading to a new moderate adverse effect, which is significant.

- 7.10.11 The main ES reported a precautionary moderate adverse effect, which was significant, on the Tributary of River Weaver 2 due to routine runoff from the A530 Nantwich Road realignment. The main ES also reported a precautionary moderate adverse effect, which was significant, on the Tributary of Gad Brook 3 due to routine runoff from the B5082 Penny's Lane realignment. The changes to traffic flows mean that there is no longer a need for routine runoff assessments of pollution risk for the A530 Nantwich Road or the B5082 Penny's Lane. Therefore, the significant moderate adverse effects on Tributary of River Weaver 2 and Tributary of Gad Brook 3 have been removed.
- 7.10.12 There are no other new, different or removed significant effects additional to those reported in the main ES.

Other mitigation measures

- 7.10.13 Other mitigation measures, in addition to those set out in the main ES, have been developed to further reduce the temporary and permanent impacts of construction stage activities, where there is potential for the original scheme to result in significant effects.
- 7.10.14 Additional mitigation measures are required to address the potential impacts from changes of highways drainage on water quality in the underlying glacial till Secondary (Undifferentiated) aquifer around Birch Lane Drain. Mitigation measures may include change of existing balancing ponds to wet ponds for retention and settlement before discharge, or the use of swales. Further investigations will be undertaken in consultation with the Environment Agency and other stakeholders to identify appropriate measures to mitigate any significant effects on groundwater quality. On a precautionary basis, until such time as these investigations are carried out, a residual significant effect will remain.

Summary of likely residual significant effects

- 7.10.15 The highways discharges from the realigned A54 Middlewich Road have the potential to result in a new significant moderate adverse effect on the glacial till Secondary (Undifferentiated) aquifer around Birch Lane Drain.
- 7.10.16 There will be no other new or different residual significant effects resulting from the combined effects of SES1 changes and AP1 amendments in the Wimboldsley to Lostock Gralam area due to changes in traffic flows.

Cumulative effects

- 7.10.17 No new, removed or different significant cumulative effects have been identified compared to the main ES.

7.11 Summary of new or different likely residual significant effects as a result of combined effects due to changes in traffic flows

Construction

Traffic and transport

- 7.11.1 The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants, as reported in the main ES:
- new major adverse effect on six junctions;
 - new moderate adverse effect on two junctions;
 - new minor adverse effect on two junctions;
 - change (increase) from minor adverse effect to major adverse effect on three junctions;
 - change (decrease) from moderate adverse effect to minor adverse effect on three junctions;
 - change (decrease) from major adverse effect to moderate adverse effect on two junctions;
 - change (decrease) from major adverse effect to minor adverse effect on four junctions; and
 - different (decreased) major adverse significant effects on six junctions.
- 7.11.2 The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users, as reported in the main ES:
- new major adverse effect on six roads;
 - new moderate adverse effect on nine roads;
 - new minor adverse effect on two roads;
 - change (increase) from moderate beneficial effect to moderate adverse effect on one road;
 - change (increase) from moderate adverse effect to major adverse effect on one road;
 - different (decreased) major adverse significant effects on four roads;
 - change (decrease) from moderate adverse effect to minor adverse effect on one road;
 - change (decrease) from major adverse effect to moderate adverse effect on four roads; and
 - new minor beneficial effect on one road.

Community

- 7.11.3 New construction traffic data will result in a different significant residual effect on approximately 35 residential properties in the vicinity of the A54 Middlewich Road and A54 Chester Road, Holmes Chapel as a result of a new HGV traffic effects combining with noise and visual effects.
- 7.11.4 Changes to the sound, noise and vibration assessment as a result of new construction traffic data will result in new significant residual community effects on:
- approximately five residential properties on the A530 Nantwich Road in Wimboldsley as a result of new HGV traffic effects combining with visual effects that were reported in the main ES;
 - Wimboldsley Community Primary School in Wimboldsley as a result of new HGV traffic effects combining with visual effects that were reported in the main ES;
 - approximately 40 properties in the vicinity of the A556 in Lostock Gralam as a result of a new traffic noise effect combining with visual and HGV traffic effects that were reported in the main ES;
 - Lostock Lodge Care Home in Lostock Gralam as a result of a new traffic noise effects and visual effects that were reported in the main ES;
 - Lostock Tiny Tots Pre-School in Lostock Gralam as a result of new traffic noise and HGV traffic effects; and
 - Lostock Gralam Church Hall in Lostock Gralam as a result of new traffic noise and HGV traffic effects.

Socio-economics

- 7.11.5 The changes in traffic flows will result in new adverse residual significant in-combination effects during construction on The Verdin Arms public house; a group of businesses at Hopley House; Lostock Tiny Tots Pre-school; and Lostock Lodge Care Home.

Sound, noise and vibration

- 7.11.6 As a result of the AP1 revised scheme, construction traffic in this area will give rise to a different likely temporary residual adverse significant noise effect on residential dwellings along Darnhall School Lane, Winsford between the B5074 Swanlow Lane and Glebe Green Drive.
- 7.11.7 As a result of the AP1 revised scheme, construction traffic in this area will give rise to a new likely temporary residual adverse significant noise effect on residential dwellings on Salary Row, Broseley Way and Harris Road, which are adjacent to the A556 Shurlach Road between Birches Lane and the A559 Manchester Road.

7.11.8 As a result of the AP1 revised scheme, construction traffic in this area will give rise to a new likely temporary residual adverse significant noise effect on the following non-residential dwellings:

- Parish Church of St John the Evangelist, Church Hall, Lostock Gralam;
- Lostock Tiny Tots Pre-School, Lostock Gralam; and
- Lostock Lodge Care Home, Cheshire Avenue.

Water resources and flood risk

7.11.9 The highways discharges from the realigned A54 Middlewich Road have the potential to result in a new significant moderate effect on the glacial till Secondary (Undifferentiated) aquifer around Birch Lane Drain.

Operation

Traffic and transport

7.11.10 The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants in 2038, as reported in the main ES:

- new major adverse effect on two junctions;
- new moderate adverse effect on three junctions;
- new minor adverse effect on two junctions;
- change (increase) from moderate adverse effect to major adverse effect on two junctions; and
- new minor beneficial effect on two junctions.

7.11.11 The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants in 2051, as reported in the main ES for 2046:

- new major adverse effect on five junctions;
- new moderate adverse effect on two junctions;
- new minor adverse effect on four junctions;
- change (increase) from moderate adverse effect to major adverse effect on one junction;
- change (decrease) from moderate adverse effect to minor adverse effect on one junction;
- change (decrease) from minor adverse effect to minor beneficial effect on one junction;
- change (decrease) from moderate adverse effect to minor beneficial effect on one junction; and
- new moderate beneficial effect on one junction.

- 7.11.12 The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users in 2038, as reported in the main ES:
- new major adverse effect on six roads;
 - new moderate adverse effect on 12 roads;
 - new minor adverse effect on six roads;
 - significant beneficial effects removed on three roads (three moderate);
 - change (decrease) from major beneficial effect to moderate beneficial effect on one road;
 - new moderate beneficial effect on five roads; and
 - new major beneficial effect on one road.
- 7.11.13 The changes to the traffic-related severance effects for non-motorised users in 2051, as reported in the main ES for 2046, will be:
- new major adverse effect on eight roads;
 - new moderate adverse effect on 28 roads;
 - new minor adverse effect on eight roads;
 - change (increase) from minor adverse effect to moderate adverse effect on one road;
 - change (decrease) from major adverse effect to moderate adverse effect on one road;
 - change (decrease) from moderate adverse effect to moderate beneficial effect on one road;
 - change (decrease) from major adverse effect to major beneficial effect on one road; and
 - new moderate beneficial effect on 15 roads.

7.12 Summary of likely residual significant effects that will be removed as a result of combined effects due to changes in traffic flows

Construction

Traffic and transport

- 7.12.1 The AP1 revised scheme will remove the following changes to the congestion and delay effects for vehicle occupants, as reported in the main ES:
- significant beneficial effect removed on one junction (one minor); and
 - significant adverse effects removed on 14 junctions (eight major, four moderate and two minor).

- 7.12.3 The AP1 revised scheme will remove the following changes to the traffic-related severance effects for non-motorised users, as reported in the main ES:
- significant beneficial effects removed on five roads (two minor and three moderate); and
 - significant adverse effects removed on 38 roads (six major, 26 moderate and six minor).

Water resources and flood risk

- 7.12.4 The combined effects of the AP1 revised scheme in the Wimboldsley to Lostock Gralam area due to changes in construction traffic flows will lead to the removal of the permanent moderate adverse effects reported in the main ES on the water quality in Tributary of River Weaver 2 and Tributary of Gad Brook 3 and the temporary moderate significant effects on Puddinglake Brook, Gad Brook and Tributary of Gad Brook 3.

Community

- 7.12.5 Changes to the sound, noise and vibration assessment as a result of new construction traffic data for the AP1 revised scheme will remove significant residual effects on approximately 40 residential properties on the B5309 Centurion Way, Middlewich and approximately 30 residential properties on the B5081 Byley Road, Byley.

Operation

Traffic and transport

- 7.12.6 The AP1 revised scheme will remove significant adverse congestion and delay effects on five junctions (three major, one moderate and one minor) for vehicle occupants in 2038, as reported in the main ES.
- 7.12.7 The AP1 revised scheme will remove significant adverse congestion and delay effects on five junctions (three major, one moderate and one minor) for vehicle occupants in 2051, as reported in the main ES for 2046. The AP1 revised scheme will remove significant adverse traffic-related severance effects on 19 roads (two major, 16 moderate and one minor) for non-motorised users in 2038, as reported in the main ES.
- 7.12.8 The AP1 revised scheme will remove the following traffic-related severance effects for non-motorised users in 2051, as reported in the main ES for 2046:
- significant beneficial effects removed on 16 roads (one minor, 11 moderate and four major); and
 - significant adverse effects removed on 17 roads (two major, 11 moderate and four minor).

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