In Parliament – Session 2022 - 2023

HS2

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

Volume 2: Community Area reports

MA03: Pickmere to Agden and Hulseheath

Q13

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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;

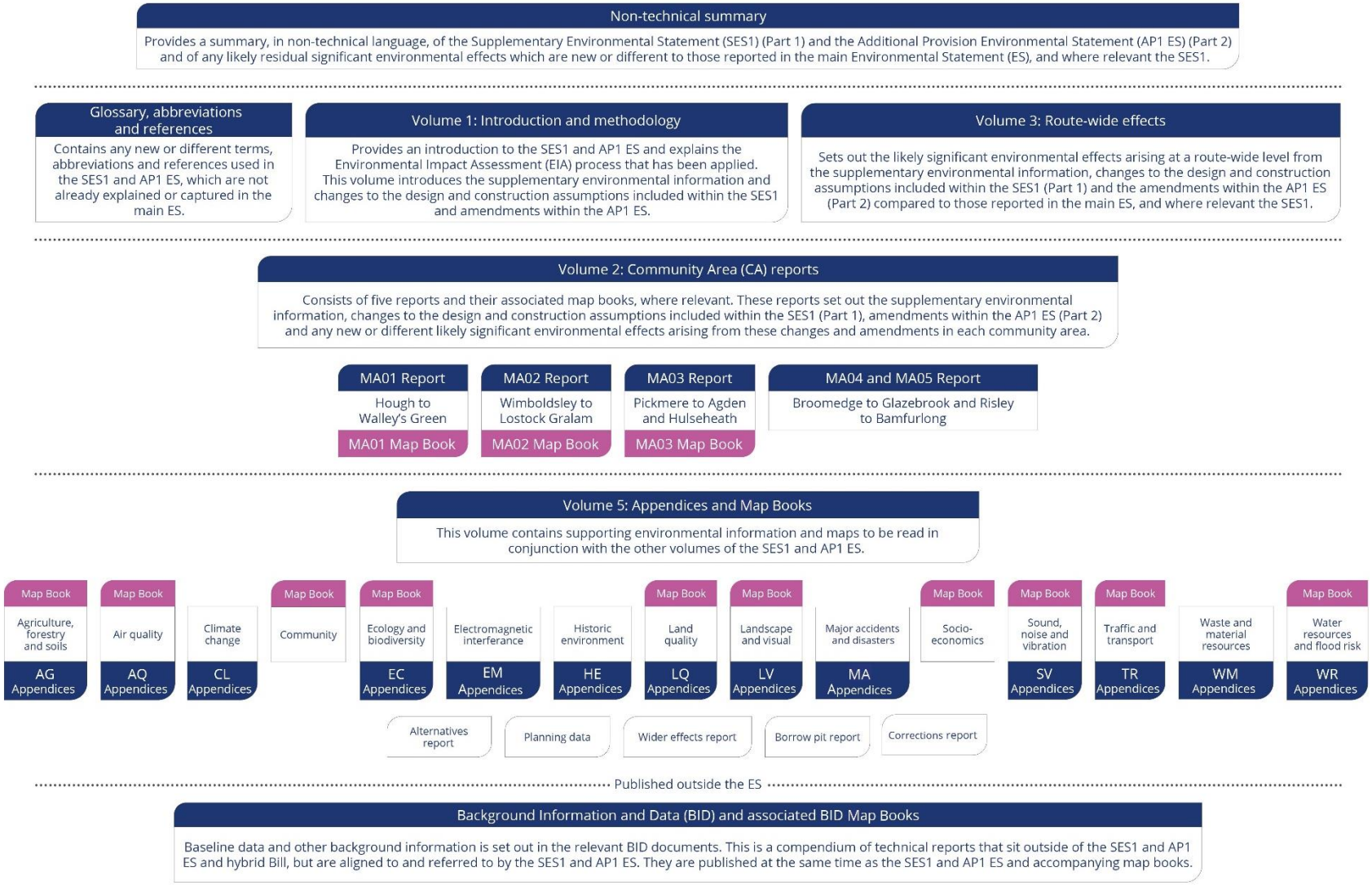
Note that changes to the design and the construction assumptions and environmental baseline information for the remaining community areas (MA06: Hulseheath to Manchester Airport, MA07: Davenport Green to Ardwick, MA08: Manchester Piccadilly Station) will be reported in a separate, future SES2 and AP2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

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 AP1 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 AP1 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 AP1 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 Pickmere to Agden and Hulseheath 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 or to 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.

1.1.13 The SES1 scheme and the AP1 revised scheme in the Pickmere to Agden and Hulseheath area will comprise three main components:

- the HS2 route which will run between Crewe Station and Manchester Piccadilly Station;
- the retained section of the HS2 West Coast Main Line (WCML) connection, which will diverge from the HS2 route west of Hulseheath and terminate at a location immediately north of the Peacock Lane autotransformer station; and
- provision for a connection between HS2 and a future Northern Powerhouse Rail (NPR) route between London and Liverpool, referred to as the NPR London to Liverpool junction.

[1] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, draft Code of Construction Practice*, Volume 5, Appendix: CT-002-00000. Available online at: https://www.gov.uk/government/publications/hs2-phase-2b-crewe-manchester-environmental-impact.

Part 1: Supplementary Environmental Statement 1

2 Summary of changes in the Pickmere to Agden and Hulseheath area

2.1 New environmental baseline information

Air quality

2.1.1 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

2.1.2 Since the main ES, additional Phase 1 habitat, hedgerow, National Vegetation Classification (NVC), pond and canal, bat, breeding bird, great crested newt, otter and water vole surveys have been completed in the Pickmere to Agden and Hulseheath area.

2.1.3 Details of additional ecological surveys completed in the Pickmere to Agden and Hulseheath area are provided in Background Information and Data (BID) documents[2] (BID EC-017-00000, BID EC-004-00000, BID EC-007-00000 and BID EC-011-00000), and BID Ecology Map Book[3], Map Series EC-02, EC-04, EC-05, EC-06, EC-08, EC-10, EC-11 and EC-12 that accompanies the SES1 and AP1 ES.

2.1.4 New ecological baseline data relating to the designation of nature conservation sites have also been published by Cheshire Wildlife Trust, which covers the Pickmere to Agden and Hulseheath area. However, none of the newly designated sites are relevant to the assessment in the Pickmere to Agden and Hulseheath area.

2.1.5 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 used to inform this

[2] 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 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.

assessment is set out in the BID documents EC-017-00000, EC-004-00000, EC-007-00000 and EC-011-00000). The 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.

2.1.6 Detail of supplementary ecological information that is relevant to the SES1 assessment is provided in Section 3.

Land quality

2.1.7 Since the main ES, environmental regulatory data has been updated. This data includes 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.

2.1.8 In the Pickmere to Agden and Hulseheath area, this comprises a new discharge consent to the Rostherne Brook and two new discharges to groundwater.

2.1.9 Further details of these in relation to the SES1 scheme and AP1 revised scheme are presented in the BID[4] report (LQ-002-00000 SES1 and AP1 ES), which accompanies the SES1 and AP1 ES.

2.1.10 For the SES1 scheme, the additional data has resulted in no new or different significant effects compared to the main ES.

Sound, noise and vibration

2.1.11 Road traffic information, such as flows and speeds, is used to determine baseline sound levels. Since the main ES, additional road traffic information has been obtained for the SES1 scheme. Where relevant, this road traffic information has been used to update the existing and future baseline sound modelling. Details of the updated 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.

Traffic and transport

2.1.12 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

[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.

Information and Data report Transport Assessment policy and data (BID TR-004-00000 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.

2.1.13 In addition, the baseline and future baseline models have been updated for the assessment of the 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 consented 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.

2.1.14 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 revised scheme amendments is reported in Section 7 of this report.

Water resources and flood risk

2.1.15 The well at Heyrose Farm, Over Tabley, Knutsford was identified as a potential unlicensed private water abstraction (historic licence number 2568003036) in the main ES and was assessed as a high value groundwater receptor. The well is located approximately 5m from the route of the original scheme as described in the main ES. Since the main ES, engagement with the landowner has confirmed that this well has been sealed and is no longer in use. Therefore, this well is no longer considered a groundwater receptor.

[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.

2.1.16 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 in this area. For the SES1 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 to 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 submission of the Bill. The changes in the Pickmere to Agden and Hulseheath area relate to SES1 engineering design and utility design changes including the construction programme and civil engineering and railway system compounds associated with the removal of the HS2 WCML connection (SES1-004-001).

Changes to construction assumptions

2.2.2 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: Pickmere to Agden and Hulseheath (MA03). 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.

2.2.3 The route-wide 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 for the AP1 revised scheme, which is provided in Section 6 of this report.

2.2.4 There will be changes to the construction workforce at nine 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.

SES1 engineering design changes

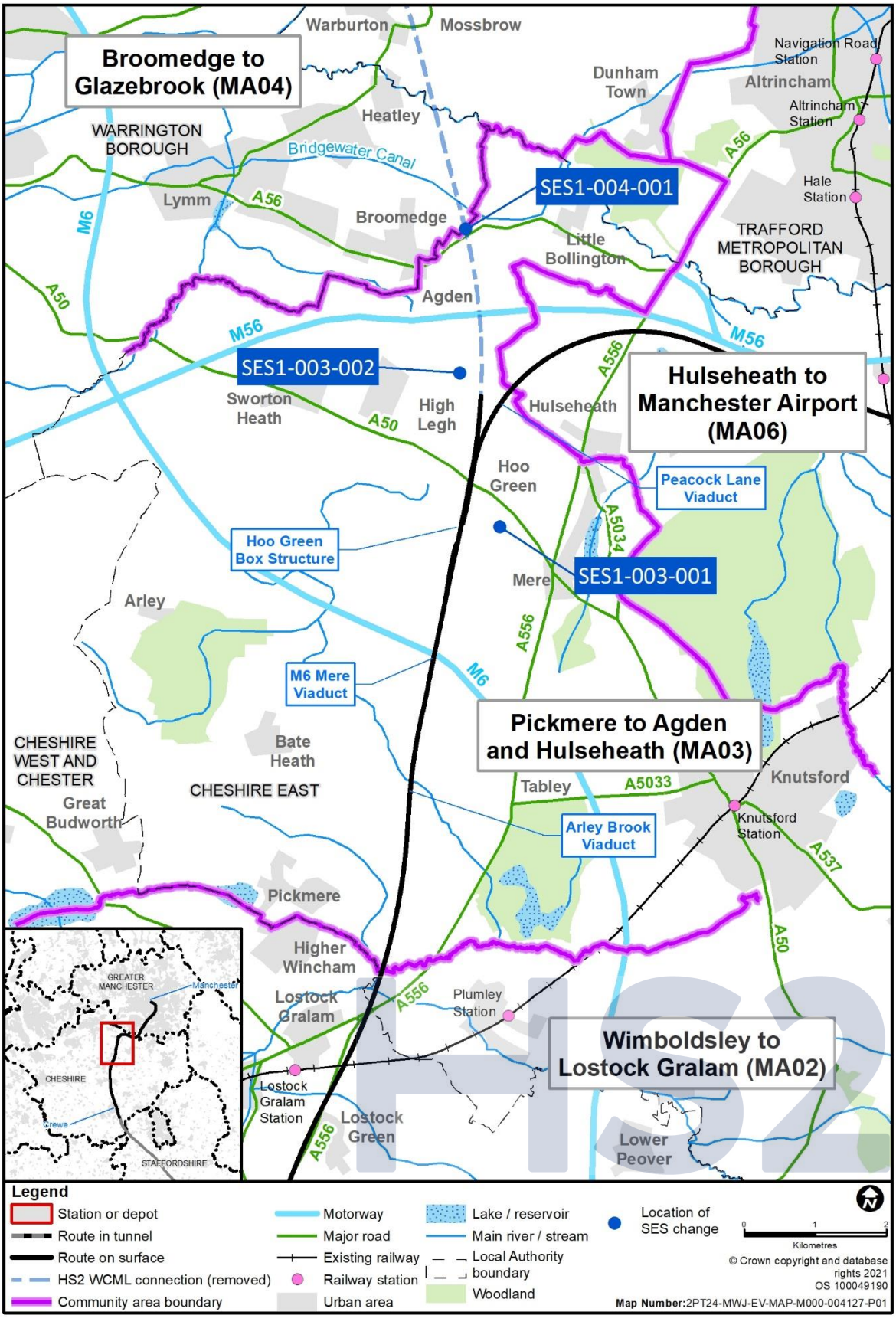
2.2.5 Table 1 provides a summary of the SES1 engineering and utility design changes not requiring a change to the Bill which result in new or different significant effects in the Pickmere to Agden and Hulseheath area. Figure 2 shows the locations of these changes.

2.2.6 Please note that all dimensions in the following sections are approximate.

Table 1: Summary of changes to the design not requiring a change to the Bill in the Pickmere to Agden and Hulseheath area

Name of SES1 design change	Description of the original scheme	Description of the SES1 scheme
Change to the diversion of a Scottish Power 132kV underground route, near Belt Wood SES1-003-001 Map CT-05-319 G8 to CT-05-320, F9 and CT-06-319, G8 to CT-06-320, F9 in the SES1 and AP1 ES Volume 2, MA03 Map Book	Land would be permanently required for the diversion of a Scottish Power 132kV power line, extending from the Bucklow Hill Lane/Hulseheath Lane junction to the southern connection with the existing line within and in the vicinity of Belt Wood, passing through Belt Wood Local Wildlife Site and Ancient Woodland Inventory site covering an area of 10.5ha of lowland mixed deciduous woodland.	The Scottish Power 132kV power line will be rerouted between the Bucklow Hill Lane/Hulseheath Lane junction and the southern connection to the existing line, with the majority of the power line underground. There will be a short section (140m) of overhead line including one steel tower located at the southern end of the diversion. The rerouted power line will avoid 1.1ha of Belt Wood, including 400m^2 of Belt Wood AWI.
Changes to the Peacock Lane realignment SES1-003-002 Map CT-05-321, D7 to CT-05-321-L1, E3, and Map CT-06-321, D7 to E3, in the SES1 and AP1 ES Volume 2, MA03 Map Book	Peacock Lane would be permanently realigned to cross over the HS2 WCML connection on Peacock Lane overbridge, and to cross under the HS2 route beneath Peacock Lane viaduct, decreasing journey length by 21m. Back Lane would also be permanently diverted to tie-in with Peacock Lane realignment.	Peacock Lane overbridge will no longer be required so the Peacock Lane realignment will pass north of the Hoo Green north cutting instead of over it. Landscape mitigation planting on the area identified in the original scheme for Peacock Lane overbridge will be removed but the highway realignment will be bounded by hedgerows to the north and south to replicate the original scheme highway realignment.
Removal of the HS2 West Coast Main Line connection SES1-004-001 Map CT-05-321, D5 to CT05-05-321 L1, J10 and Map CT-06-321, C5 to Map CT-06-321 L1, J10 in the SES1 and AP1 ES Volume 2, MA03 Map Book	The Bill provides for a section of the route in the Pickmere to Agden and Hulseheath area to connect with the WCML at the A58 Lily Lane (near Bamfurlong) in the Risley to Bamfurlong area (MA05). The section of the WCML connection in the Pickmere to Agden and Hulseheath area (MA03) in the original scheme would be 3.2km from a location where it diverges from the HS2 route west of Hulseheath, to the southern boundary of the Broomedge to Glazebrook area (MA04). There would be infrastructure and mitigation associated with the HS2 WCML connection in the Pickmere to Agden and Hulseheath area including line of route elements such as High Legh and Agden cuttings.	Since the submission of the Bill, the Secretary of State has decided to remove the HS2 WCML connection, included in the original scheme, from the High Speed Rail (Crewe – Manchester) Bill and has given this commitment to Parliament. As a result, the HS2 WCML connection from a location immediately north of the Peacock Lane auto-transformer feeder station to Lily Lane junction near Golborne, on the WCML will be removed. As a consequence, the line of route elements and associated infrastructure will be removed.

Figure 2: Locations of SES engineering and utility design changes not requiring a change to the Bill in the Pickmere to Agden and Hulseheath area



Change to the diversion of a Scottish Power 132 kV underground route, near Belt Wood (SES1-003-001)

2.2.7 The Bill provides for the diversion of a Scottish Power 132kV power line, extending from the Bucklow Hill Lane/Hulseheath Lane junction to the southern connection with the existing line within and in the vicinity of Belt Wood. The diversion would result in the permanent loss of 2.9ha (22%) of deciduous woodland from Belt Wood, a Local Wildlife Site (LWS) and a further loss of 400m² (0.7%) of Belt Wood Ancient Woodland Inventory site (AWI) that is not within the LWS. See Volume 2, MA03 Map Book, maps CT-05-319, F10 to CT-05-320, F9 in the main ES.

2.2.8 Since the main ES, a new route has been identified for the Scottish Power 132kV power line diversion which will avoid Belt Wood AWI site. The change reroutes the Scottish Power 132kV power line between the Bucklow Hill Lane/Hulseheath Lane junction until the southern connection to the existing line. Twin underground cables will be laid under the existing Bucklow Hill Lane, Hoo Green Lane and part of the A50 Warrington Road before running below the route of a HS2 access road, located to the east of the HS2 route. A short section (140m) of overhead line including one steel tower will then provide a route to the southern connection. See SES1 and AP1 ES Volume 2, MA03 Map Book: maps CT-06-319, G8 to CT-06-320, F9.

2.2.9 The design change will be constructed from the A50 Warrington Road main compound and within the period set out in the main ES.

2.2.10 As a result of this SES1 design change, 11.6ha of land in the original scheme will no longer be required, including 1.1ha of Belt Wood, which contains 400m² of the Belt Wood AWI (see SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-05-319, F10 to CT-05-320, E10).

Local alternatives

2.2.11 The SES1 and AP1 Alternatives report (see SES1 and AP1 Volume 5, Appendix: CT-003-00000) describes the local alternatives considered as part of the design development of this SES1 design change.

Topics included in the SES1 assessment

2.2.12 The assessments of the following topics are reported for this SES1 design change: agriculture, forestry and soil; ecology and biodiversity; landscape and visual and water resources and flood risk. This is reported in Section 3.

2.2.13 A combined assessment of new or different significant construction traffic and traffic related effects, as a result of changes in construction traffic flows, is reported in Section 7.

Changes to the Peacock Lane realignment (SES1-003-002)

2.2.14 The Bill provides for the permanent realignment of Peacock Lane, 47m south of its existing alignment for 1.4km, crossing the HS2 WCML connection on Peacock Lane overbridge, and

175m north of its existing alignment on an embankment 529m long and up to 8m in height. It would then cross the HS2 route beneath Peacock Lane viaduct and there would be an increase in journey length of 21m. There would also be a diversion of Back Lane to tie-in with Peacock Lane realignment, increasing the journey length by 77m. See Volume 2, MA03 Map Book, map CT-06-321, C8 to E2 in the main ES.

2.2.15 Due to the removal of the HS2 WCML connection (SES1-004-001), it has been identified that the construction of Peacock Lane overbridge is no longer required. A section of Peacock Lane will be realigned 35m south of its existing alignment for a total of 250m, and up to 170m north of its existing alignment, decreasing the journey length by 43m. The realignment of the highway beneath Peacock Lane viaduct will remain as shown in the main ES. The tie in from the diverted Back Lane with the realigned Peacock Lane will be retained with an increase in journey length of 81m. To accommodate this change, the following be required:

- modification to the original scheme alignment of Peacock Lane along a section of highway west of the Peacock Lane crossing of the HS2 route. The highway will then remain close to the existing ground level and maintain a relatively straight alignment between the Peacock Lane viaduct and the tie-in with the existing Peacock Lane, approximately 650m to the west, adjacent to Little Moss Farm. See SES1 and AP1 ES Volume 2, MA03: Map Book map CT-06-321, D7 to E3 ; and
- the highway realignment will be bounded by hedgerows to the north and south of the highway, replicating the landscape design for the original scheme highway realignment. Landscape mitigation planting on the area identified in the original scheme for Peacock Lane overbridge will be removed. An area north of the highway, in between the proposed and existing highway, will continue to provide landscape mitigation planting to screen Peacock Lane auto-transformer feeder station from receptors in the north. See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-321, D5 to E4.

2.2.16 Construction of the works associated with the design change will take one year and three months to complete and will be managed from the Peacock Lane satellite compound.

2.2.17 As a result of this SES1 design change, 0.74ha of land required temporarily and permanently in the original scheme will no longer be required. See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-321, E2 to CT-05-321-L1, E10 E3.

Topics included in the SES1 assessment

2.2.18 The assessments of the following topics are reported for this SES1 design change: community; health; landscape and visual; sound, noise and vibration; and traffic and transport. This is reported in Section 3.

2.2.19 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.

Removal of the HS2 West Coast Main Line connection (SES1-004-001)

2.2.20 The Bill provides for a section of the HS2 route in the Pickmere to Agden and Hulseheath area to connect with the WCML at the A58 Lily Lane (near Bamfurlong) in the Risley to Bamfurlong area (MA05).

2.2.21 The section of the HS2 WCML connection in the original scheme within the Pickmere to Agden and Hulseheath area would be 3.2km in length including Hoo Green North, High Legh and Agden cuttings and Lymm South and Lymm North embankments with associated infrastructure including M56 West overbridge and A56 Lymm viaduct at the northern extent of the area. See Volume 2, MA03 Map Book, maps CT-06-320, H6 to CT-06-322b, G4 in the main ES.

2.2.22 The HS2 WCML connection would extend north of the existing M6 in the parish of Mere, through the parishes of High Legh and Agden to the parish boundary with Lymm, which forms the northern extent of the Pickmere to Agden and Hulseheath area.

2.2.23 The route of the HS2 WCML connection would continue north where it would cross into the Broomedge to Glazebrook area (MA04).

2.2.24 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.

2.2.25 As a result, the construction of a 2.3km section of the HS2 WCML connection, including line of route elements, in the Pickmere to Agden and Hulseheath area will be removed as part of the SES1 scheme. See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-321, C5 to J5.

2.2.26 A 900m section of the HS2 WCML connection will be retained between where it diverges from the HS2 route west of Hulseheath to a point immediately north of the Peacock Lane auto-transformer feeder station. See SES1 and AP1 ES Volume 2, MA03 Map Book: maps CT-06-320, H6 to CT-06-321, C5.

2.2.27 An area of woodland habitat creation will be introduced between the retained section of the HS2 WCML connection and the HS2 route, which will no longer be provided as a result of the removal of the HS2 WCML connection. See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-320, I6 to CT-06-321, B6.

2.2.28 The following utility diversions included in the original scheme will remain:

- diversion of a National Grid 400kV overhead power line for 774m to the north of M6 Mere viaduct;
- diversion of an underground Cadent Gas 300mm high pressure gas pipeline, for 3.5km in length, to allow the pipeline to be relocated away from the HS2 route, 200m east of Bridleway Mere 1/1 accommodation underbridge;
- diversion of a Scottish Power 132kV overhead power line for 2.3km to the north of M6 Mere viaduct;

- diversion of an underground National Grid 900mm high pressure gas pipeline, for 2.8km in length, to pass under the HS2 route. The underground diversion will pass partially through the adjacent Hulseheath to Manchester Airport area (MA06) at Hulseheath and back into the Pickmere to Agden and Hulseheath area;
- diversion of a National Grid 400kV overhead power line for 775m to the north of A50 Warrington Road overbridge and the east of the HS2 route; and
- diversion of an underground National Grid 900mm high pressure gas pipeline, for 4.9km in length, to pass under the HS2 route.

2.2.29 The original scheme included 11 ecological mitigation ponds to the east and west of Hoo Green North cutting, and four ecological mitigation ponds to the west of High Legh cutting on the HS2 WCML connection. The habitat would provide replacement habitat for great crested newt, with surrounding terrestrial habitat. See Volume 2, MA03 Map Book, map CT-06-321, F3 to G4, G5 and I3 to I4 in the main ES.

2.2.30 As part of this SES1 design change, these 15 ecological mitigation ponds will now be provided to the north and south of the realigned Peacock Lane (see SES1-003-002), within three separate areas of surrounding terrestrial habitat to the west of Hulseheath North embankment on the HS2 route. See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-321, D5 to D6, D6 to D7 and C6 to D7.

2.2.31 As part of this SES1 design change, the construction works will be reduced and therefore the following civil engineering compounds in this area will not be provided:

- Agden Lane satellite compound;
- M56 west satellite compound;
- Agden Brow satellite compound; and
- A56 Lymm Road satellite compound.

2.2.32 The construction works that would have been managed from these compounds will not be undertaken as part of this SES1 design change.

Local alternatives

2.2.33 The SES1 and AP1 Alternatives report (see SES1 and AP1 Volume 5, Appendix: CT-003-00000) describes the local alternatives considered as part of the design development of this SES1 design change.

Topics included in the SES1 assessment

2.2.34 The assessments of the following topics are reported for this SES1 design change: agriculture, forestry and soil; community; ecology and biodiversity; health; historic environment, landscape and visual; sound, noise and vibration; traffic and transport and water resources. This is reported in Section 3.

2.2.35 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.

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 for the Pickmere to Agden and Hulseheath area 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.

Table 2: Summary of corrections to the main ES Volume 2 Community Area report for the Pickmere to Agden and Hulseheath area

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Agriculture, Forestry and Soils Table 15, Volume 2, MA03 of the main ES	The scale of effect for MA03/1 has been incorrectly reported in the main ES. The main ES reported the scale of effects as 'negligible'. This should be 'minor'.	Paragraph 4.4.28 - Table 15, first entry: **Scale of effect** - Negligible	Paragraph 4.4.28 - Table 15, first entry: **Scale of effect** - Minor	No change.
Ecology and biodiversity, Paragraph 7.4.11, Volume 2, MA03 of the main ES	Reported the incorrect combined habitat loss at Leonard's and Smoker Wood ancient woodland inventory (AWI) site. MA03 of the main ES reported a loss of woodland in Leonard's and Smoker Wood AWI of 0.4ha. This should have been 0.3ha.	Paragraph 7.4.11 Construction of Pickmere embankment and Smoker Brook viaduct will result in the loss of 600m2 of woodland in Leonard's and Smoker Wood LWS (0.6%) Leonard's and Smoker Wood AWI site (0.7%) within the Pickmere to Agden and Hulseheath area. Within the Wimboldsley to Lostock Gralam area (MA02), there will be a further loss of 0.4ha (4%) of Leonard's and Smoker Wood LWS and 0.4ha (5%) of Leonard's and Smoker Wood AWI site. The loss of the semi-natural woodland and ancient woodland will result in an adverse effect on the structure and function, which will be significant at the county/metropolitan level at Leonard's and Smoker Wood LWS and national level at Leonard's and Smoker Wood AWI site.	Paragraph 7.4.11 Construction of Pickmere embankment and Smoker Brook viaduct will result in the loss of 600m2 of woodland in Leonard's and Smoker Wood LWS (0.6%) Leonard's and Smoker Wood AWI site (0.7%) within the Pickmere to Agden and Hulseheath area. Within the Wimboldsley to Lostock Gralam area (MA02), there will be a further loss of 0.3ha (4%) of Leonard's and Smoker Wood LWS and 0.4ha (5%) of Leonard's and Smoker Wood AWI site. The loss of the semi-natural woodland and ancient woodland will result in an adverse effect on the structure and function, which will be significant at the county/metropolitan level at Leonard's and Smoker Wood LWS and national level at Leonard's and Smoker Wood AWI site.	No change. This correction will not lead to a new or different significant effect.
Sound, Noise and Vibration	The main ES reports approximately 10 dwellings associated with the likely	Paragraph 13.5.20 - Table 38, first entry: **Location Details** - Over Tabley Approximately 10 dwellings in the vicinity of Old Hall Lane and Heyrose Lane. Forecast	Paragraph 13.5.20 - Table 38, first entry: **Location Details** - Over Tabley Approximately 15 dwellings in the vicinity of Old Hall Lane and Heyrose Lane. Forecast	No change. This correction will not lead to a new or different significant effect.

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
Paragraph 13.5.20, Volume 2, MA03 of the main ES	significant effect at Over Tabley. The correct number is approximately 15 dwellings.	increases in sound from the railway are likely to cause a major airborne noise adverse effect on the acoustic character of the area around the properties. The effect on the acoustic character of residential areas that are located further from the railway would be moderate or minor adverse. There are no shared open spaces identified as being affected in this community.	increases in sound from the railway are likely to cause a major airborne noise adverse effect on the acoustic character of the area around the properties. The effect on the acoustic character of residential areas that are located further from the railway would be moderate or minor adverse. There are no shared open spaces identified as being affected in this community.	
Community Paragraph 6.5.2, Volume 2, MA03 of the main ES		Paragraph 6.5.2: A group of approximately 10 residential properties in the vicinity of Old Hall Lane, Over Tabley will be in proximity to the route of the Proposed Scheme. The operation of the Proposed Scheme will result in significant noise and visual effects due to trains running on Heyrose embankment. Together these noise and visual effects will result in a major adverse in-combination effect on amenity for residents at these properties, which is significant.	Paragraph 6.5.2: A group of approximately 15 residential properties in the vicinity of Old Hall Lane, Over Tabley will be in proximity to the route of the Proposed Scheme. The operation of the Proposed Scheme will result in significant noise and visual effects due to trains running on Heyrose embankment. Together these noise and visual effects will result in a major adverse in-combination effect on amenity for residents at these properties, which is significant.	No change. This correction will not lead to a new or different significant effect.
Community Paragraph 6.5.7, Volume 2, MA03 of the main ES		Paragraph 6.5.7, first bullet: • approximately 10 residential properties in Over Tabley due to the combination of noise and visual effects;	Paragraph 6.5.7, first bullet: • approximately 15 residential properties in Over Tabley due to the combination of noise and visual effects;	No change. This correction will not lead to a new or different significant effect.
Sound, noise and vibration Paragraph 13.5.14, Volume 2, MA03 of the main ES	The main ES incorrectly reported that Crackling Farm, Agden Lane, High Legh (assessment location ref.: 612796) qualified	Paragraph 13.5.14, eighteenth bullet: • Crackling Farm, Agden Lane, High Legh (assessment location ref.: 612796).	Paragraph 13.5.14, eighteenth bullet: • Ovenback Cottage, Agden Lane, High Legh (assessment location ref.: 612796);	No change. This correction will not lead to a new or different significant effect.

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects and mitigation
	for noise insulation. This should have reported Ovenback Cottage, Agden Lane, High Legh (assessment location ref.: 612796) as qualifying for noise insulation.			
Traffic and Transport Paragraph 14.4.22, Volume 2, MA03 of the main ES	The need for a temporary closure on Hulseheath Lane during utility works should have been identified in the man ES.	None included.	Paragraph 14.4.22, eighth bullet: Hulseheath Lane – temporary closure of Hulseheath Lane during utility works for a period of four weeks. Traffic will be diverted via the A50, B5569 Chester Road and Chapel Lane, increasing journey length for some users by 2.7km.	Yes. This correction will lead to a new minor adverse significant effect with regard to changes in journey lengths for vehicle occupants on Hulseheath Lane.
Traffic and Transport Paragraph 14.4.36, Volume 2, MA03 of the main ES		None included.	Paragraph 14.4.36, seventh bullet: Hulseheath Lane – moderate adverse effect from an increase in journey length of up to 2.7km.	Yes. This correction will lead to a new moderate adverse significant effect with regard to changes in journey lengths for non-motorised users on Hulseheath Lane.

3 Assessment of changes in the Pickmere to Agden and Hulseheath area

3.1 Introduction

3.1.1 This section describes the effects of the SES1 changes in the Pickmere to Agden and Hulseheath area on:

- agriculture, forestry and soils;
- community;
- ecology and biodiversity;
- health;
- historic environment;
- landscape and visual;
- sound, noise and vibration;
- traffic and transport; 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.

3.1.3 The assessment of the changes to traffic flows and traffic related effects as a result of 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 socio-economics.

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)[7] (Volume 5, Appendix: CT-001-00001) of the main ES.

SES1 changes relevant to the assessment

3.2.3 Both the utility diversion at Belt Wood (SES1-003-001) and the removal of the HS2 WCML connection (SES1-004-001), are considered in this assessment. Both have 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 baseline

3.2.4 The baseline agriculture, forestry and soils information is as described in Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES.

3.2.5 With the removal of the HS2 WCML connection (SES1-004-001), agricultural land to the north of High Legh which is covered by superficial deposits of sand in the Shirdley Hill Sand Formation, and in which soil in the Blackwood Association has developed, will not be required. The soils are described in more detail in Section 4 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES.

3.2.6 The land associated with the change to the utility diversion at Belt Wood (SES1-003-001) has soils of the Salop association. This association comprises slowly permeable and seasonally waterlogged soils (WC III to IV). They are developed in reddish glacial deposits (i.e. till and glaciofluvial sand and gravel deposits). The quality of the agricultural land is limited by soil wetness to a Subgrade 3a or Subgrade 3b.

3.2.7 Ten holdings are affected by the removal of the HS2 WCML connection (SES1-004-001), set out in Table 3.

[7] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Environmental Impact Assessment Scope and Methodology Repo*rt, Volume 5, Appendix: CT-001-00001. Available online at: https://www.gov.uk/government/publications/hs2-phase-2b-environmental-impact-assessment-scope-and-methodology-report.

Table 3: Summary characteristics of holdings affected by the removal of the HS2 WCML connection (SES1-004-001)

Holding reference/name	Holding type	Holding size (ha)	Diversification	Agri-environment scheme	Sensitivity to change
MA03/35 Middle Moss Farm	Grassland	4.6	None	None	Low
MA03/36 Little Moss Farm	Grassland	0.6	None	None	Low
MA03/37 Woolstencroft Farm	Dairy	139	None	None	High
MA03/38 Abbey Leys Farm	Organic arable and grassland	40	Farm shop	Mid-tier Countryside Stewardship Scheme	Medium
MA03/39 Scandia House, Moss Lane	Grassland	3.6	None	None	Low
MA03/40 Agden Brook Farm	Dairy, arable and potatoes	877	Property rentals	None	High
MA03/41 Booth Bank Farm*	Grassland	8.6	Children's activity farm	None	Medium
MA03/42 Thowler Lane Farm*	Equestrian (non-commercial)	1.5	Not known	None	Low
MA03/43 Land at Agden Lane*	Grassland	0.4	Not known	None	Low
MA03/44 Land at Booth Bank Cottage*	Grassland	1.5	Not known	None	Low

** It has not yet been possible to arrange farm impact assessment interviews with these holdings. Publicly available sources have been used to obtain the information presented.*

3.2.8 A further two holdings are affected by the change to the utility diversion in Belt Wood (SES1-003-001), identified in Table 4.

Table 4: Summary characteristics of holdings affected by the change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001)

Holding reference/name	Holding type	Holding size (ha)	Diversification	Agri-environment scheme	Sensitivity to change
MA03/19 Knowlspit Farm with Bentleyhurst Farm	Dairy	130	None	None	High
MA03/25 Hulme Barn Farm	Arable and grassland	81	None	None	Medium

Future baseline

3.2.9 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 Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline and none of the identified committed developments affect the assessment of the SES1 scheme's likely construction impacts on agriculture, forestry and soil.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

3.2.11 The removal of the HS2 WCML connection (SES1-004-001) will reduce the area of agricultural land required, set out in Table 5.

Table 5: Agricultural land required for the construction of the SES1 scheme compared to the original scheme in the Pickmere to Agden and Hulseheath area

ALC grade	Hybrid Bill area (ha)	SES1 area (ha)	Change in area required (ha)
Grade 1	0	0	0
Grade 2	55.4	30.4	-25
Grade 3a	217.3	188	-29.3
BMV Subtotal	272.7	218.4	-54.3
Grade 3b	129.1	125.1	-4
Grade 4	0	0	0
Grade 5	0	0	0
Total agricultural land	**401.8**	**343.5**	**-58.3**

3.2.12 The amount of best and most versatile (BMV) agricultural land required for construction of the SES1 scheme across the Pickmere to Agden and Hulseheath area will be reduced by 54.3ha to approximately 218ha. Although the removal of the HS2 WCML connection (SES1-004-001) will remove all permanent impacts from the agricultural land resource over the land not required, other works in the Pickmere to Agden and Hulseheath area required for the construction of the SES1 scheme will still affect agricultural land. The overall effect on the agricultural land resource in the Pickmere to Agden and Hulseheath area will remain major/moderate adverse, which is significant.

3.2.13 The SES1 scheme will also alter the temporary and permanent impacts and effects on the agricultural holdings above. For the majority of the holdings there will be the complete removal of permanent effects, but some holdings will still be affected where temporary works are required, mainly in connection with utility diversions. The impacts and effects are set out in Table 6 and Table 7.

Table 6: Temporary impacts and effects on holdings arising from the removal of the HS2 WCML connection (SES1-004-001) and the change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001)

Holding reference/ name	Total area required from holding	Construction severance	Disruption	Scale of construction effect	Change in effect from main ES
MA03/35 Middle Moss Farm	1.2ha (26%) High	Low	Negligible	Moderate adverse due to the proportion of land required	No change
MA03/36 Little Moss Farm	<0.1ha (1%) Negligible	None	Negligible	Negligible	No change
MA03/37 Woolstencroft Farm	2.5ha (2%) Negligible	None	Negligible	Minor adverse	Area of land reduced from 13.7ha – change from moderate adverse
MA03/38 Abbey Leys Farm	1.4ha (4%) Negligible	Negligible	Negligible	Negligible	Area of land reduced from 3.7ha – change from minor adverse
MA03/39 Scandia House, Moss Lane	0.6ha (16%) Medium	None	Negligible	Minor adverse	Area of land reduced from 1.3ha – change from moderate adverse
MA03/40 Agden Brook Farm	20.1ha (2%) Negligible	Low	Low	Moderate adverse due to severance and disruption	Area of land reduced from 137.2ha – change from major/moderate adverse
MA03/41 Booth Bank Farm	5.9ha (68%) High	None	Negligible	Major/moderate adverse due to the proportion of land required	No change
MA03/42 Thowler Lane Farm	1.1ha (76%) High	None	Negligible	Moderate adverse due to the proportion of land required	No change
MA03/43 Land at Agden Lane	<0.1ha (4%) Negligible	None	Negligible	Negligible	Area of land reduced from 1.3ha – change from moderate adverse

Holding reference/ name	Total area required from holding	Construction severance	Disruption	Scale of construction effect	Change in effect from main ES
MA03/44 Land at Booth Bank Cottage	0.9ha (60%) High	None	Negligible	Moderate adverse due to the proportion of land required	No change
MA03/19 Knowlspit Farm with Bentleyhurst Farm	17.7ha (14%) Medium	Low	Negligible	Major/moderate adverse due to the proportion of land required	Area of land required reduced from 26.4ha – change from major adverse
MA03/25 Hulme Barn Farm	47.8ha (59%) High	Low	Negligible	Major/moderate adverse due to the proportion of land required	No change

Table 7: Permanent impacts and effects on holdings arising from the removal of the HS2 WCML connection (SES1-004-001) and the change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001)

Holding reference/ name	Land required from holding	Severance	Infrastructure	Scale of effect	Change in effect from main ES
MA03/35 Middle Moss Farm	0ha Negligible	Negligible	Negligible	Negligible	Area reduced from 3.0ha - change from moderate adverse
MA03/36 Little Moss Farm	<0.1ha (1%) Negligible	Negligible	Negligible	Negligible	No change
MA03/37 Woolstencroft Farm	0ha No impact	Low	Negligible	Negligible	Area reduced from 55.7ha - change from moderate adverse
MA03/38 Abbey Leys Farm	0ha No impact	Negligible	Negligible	Negligible	Change from minor adverse
MA03/39 Scandia House, Moss Lane	0ha No impact	Negligible	Negligible	Negligible	Area reduced from 0.8ha and removal of property demolition - change from moderate adverse
MA03/40 Agden Brook Farm	0ha No impact	Low	Negligible	Negligible	Area reduced from 35.6ha – change from moderate adverse
MA03/41 Booth Bank Farm	<0.1ha (1%) Negligible	Negligible	Negligible	Negligible	No change

Holding reference/ name	Land required from holding	Severance	Infrastructure	Scale of effect	Change in effect from main ES
MA03/42 Thowler Lane Farm	0ha No impact	Negligible	Negligible	Negligible	No change
MA03/43 Land at Agden Lane	<0.1ha (1%) Negligible	Negligible	Negligible	Negligible	Area reduced from 0.3ha – change from moderate
MA03/44 Land at Booth Bank Cottage	0ha No impact	Negligible	Negligible	Negligible	No change
MA03/19 Knowlspit Farm with Bentleyhurst Farm	1.3ha (1%) Negligible	Low	Negligible	Moderate adverse due to severance.	No change
MA03/25 Hulme Barn Farm	14.6ha (18%) Medium	Negligible	Negligible	Moderate adverse due to the proportion of land required	No change

Other mitigation measures

3.2.14 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

3.2.15 The removal of the HS2 WCML connection (SES1-004-001) and the change to the utility diversion in Belt Wood (SES1-003-001) will reduce the overall area of BMV agricultural land required in the Pickmere to Agden and Hulseheath area. However, the overall effect of the SES1 scheme on the agricultural land resource will remain major/moderate adverse, which is significant.

3.2.16 The change to the utility diversion in Belt Wood (SES1-003-001) will reduce a major adverse significant effect at Knowlspit Farm with Bentleyhurst Farm (MA03/19) to a major/moderate adverse effect.

Cumulative effects

3.2.17 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 SES1 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 The SES1 design changes to the Peacock Lane realignment (SES1-003-002) and the removal of the HS2 WCML connection (SES1-004-001) are considered in this assessment. The implications of changes to the sound, noise and vibration assessment resulting from changes to the baseline and new construction traffic data are also considered in this assessment.

3.3.5 The SES1 changes of relevance to this assessment have the potential to result in new or different significant construction and operational effects.

Environmental baseline

Existing baseline

3.3.6 The baseline community information is as described in Section 6 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES. A summary of the baseline information relevant to the assessment of the SES1 changes is provided below.

3.3.7 Pickmere comprises approximately 1,000 residential properties. The nearest residential properties are located 1km west of the HS2 route. Hulseheath comprises approximately 20 residential properties. The nearest residential properties are located 350m east of the HS2 route.

Future baseline

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

3.3.9 The following committed developments of relevance to the community assessment that would materially alter the future baseline during construction of the SES1 scheme in this area, are set out in Table 8.

Table 8: Committed developments in the Pickmere to Agden and Hulseheath area that materially alter the future baseline during construction of the SES1 scheme

Map book reference[8]	Planning reference	Description	How this is considered in the assessment
MA03/094S	19/0334M	Location: Children's Adventure Farm Trust, Booth Bank Farm, Reddy Lane, Millington, Cheshire, WA14 3RG Development of a new residential wing with ancillary office and children's activity space; alterations, extensions and repairs to Booth Bank Farmhouse, access and landscaping at Booth Bank Farm, Millington.	Informing future baseline.
MA03/095A	17/5111M	Location: Villa Farm, Chester Road, Tabley, Cheshire, WA16 0EX Conversion of vacant agricultural barns into six dwelling houses and associated works.	Informing future baseline.
MA03/097A	20/2932M	Location: Villa Farm, Chester Road, Tabley, Cheshire, WA16 0EX Prior approval change of use of agricultural barn to nursery.	Informing future baseline.
MA03/098A	20/2933M	Location: Villa Farm, Chester Road, Tabley, Cheshire, WA16 0EX Prior notification change of use from Agricultural to flexible use.	Informing future baseline.

3.3.10 The following committed developments have been included as part of the future baseline and considered within this assessment:

- the implementation of committed development MA03/094S will result in a new residential wing located immediately east of the land required for the construction of the SES1 scheme;
- the implementation of committed development MA03/095A will result in six new residential properties located 850m to the south of the land required for the construction of the SES1 scheme;
- the implementation of committed development MA03/097A will result in a nursery located 850m to the south of the land required for the construction of the SES1 scheme; and

[8] Volume 5, Committed Development Map Book: maps CT-13-309b to CT-13-312a.

- the implementation of committed development MA03/098A will result in a building intended for flexible use located 850m to the south of the land required for the construction of the SES1 scheme.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

3.3.12 The main ES reported the demolition of Hollybank House on the A56 Lymm Road in Broomedge, due to construction of Lymm South embankment. Hollybank House is located within the land required for the construction of the original scheme. Due to the removal of the HS2 WCML connection (SES1-004-001) the land on which Hollybank House is located will no longer be required. This means that Hollybank House will not be demolished as a result of this SES1 design change.

3.3.13 The main ES reported a moderate adverse significant in-combination effect on approximately five residential properties in the vicinity of Budworth Road, Tabley Superior. Significant noise effects were expected to combine with significant visual effects for eight months.

3.3.14 Updates to the sound, noise and vibration baseline and the construction programme will result in an increase to the duration of noise effects, to one year and one month. Visual effects reported in the main ES will remain significant. The change in duration will change the level of significance to major adverse. This change will result in a different adverse in-combination effect on amenity for residents at approximately five properties in the vicinity of Budworth Road in Tabley Superior, which is significant.

3.3.15 The main ES reported a major adverse in-combination effect on approximately 20 residential properties on Chapel Lane, Thowler Lane and Peacock Lane in Hulseheath. Significant noise effects were expected to combine with significant visual, HGV traffic, and traffic noise effects for three years.

3.3.16 The removal of the HS2 WCML connection (SES1-004-001) and changes to the Peacock Lane realignment (SES1-003-002) will reduce the number of properties affected by significant noise effects by five properties. The duration of noise effects on 15 properties is expected to increase to three years and four months as a result of construction works. HGV traffic effects and visual effects will remain significant. This change will result in a different major adverse in-combination effect on amenity for residents at approximately 15 residential properties in Hulseheath, which is significant.

Other mitigation measures

3.3.17 No mitigation measures, additional to those reported in the main ES and draft CoCP, have been identified.

Summary of likely residual significant effects

3.3.18 The SES1 changes will result in different significant residual effects on:

- approximately five residential properties in the vicinity of Budworth Road, Tabley Superior due to new noise effects combining with visual effects; and
- approximately 15 residential properties on Chapel Lane, Thowler Lane and Peacock Lane in Hulseheath due to noise, traffic noise, visual and HGV traffic effects.

Cumulative effects

3.3.19 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

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

Assessment of impacts and effects

3.3.21 Changes to the sound, noise and vibration baseline combining with significant visual effects as reported in the main ES, will result in a new major adverse in-combination effect on approximately 40 residential properties in the vicinity of Pickmere Lane and School Lane. Significant visual effects due to views of trains and overhead line equipment will combine with new significant noise effects due to passing trains. This change will result in a new major adverse in-combination effect on approximately 40 residential properties in the vicinity of Pickmere Lane and School Lane, which is significant.

3.3.22 The main ES reported a major adverse in-combination effect on approximately five residential properties in the vicinity of Winterbottom Lane, Winterbottom. The operation of the original scheme was expected to result in significant visual effects, due to views of trains and overhead line equipment, and significant noise effects due to operational trains near to residential properties. The removal of the HS2 WCML connection (SES1-004-001) will remove the significant noise effect in Winterbottom. 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 five residential properties in Winterbottom.

3.3.23 The main ES reported a major adverse in-combination effect on approximately 15 residential properties on Back Lane, Thowler Lane and Peacock Lane in Hulseheath. The operation of the original scheme was expected to result in significant noise and visual effects due to trains running on Hulseheath South embankment and Hulseheath North embankment. Updates to the sound, noise and vibration baseline and the removal of the HS2 WCML connection (SES1-004-001) will result in an additional five properties experiencing significant noise effects. Visual effects reported in the main ES will remain the same. Therefore, as a result of this change, approximately 20 residential properties will be affected by noise and visual effects. The change to the noise effect will result in a different adverse in-combination effect on approximately five residential properties in Hulseheath, which is significant.

Other mitigation measures

3.3.24 No mitigation measures, additional to those reported in the main ES have been identified.

Summary of likely residual significant effects

3.3.25 Changes to the sound, noise and vibration baseline will result in a new significant residual effect on approximately 40 residential properties in the vicinity of Pickmere Lane and School Lane due to a new noise effect combining with an existing visual effect.

3.3.26 The removal of the HS2 WCML connection (SES1-004-001) and updates to the sound, noise and vibration baseline will result in a different significant residual effect on an additional five properties on Back Lane, Thowler Lane and Peacock Lane due to noise and visual effects. In total, there will be a residual effect on 20 residential properties in Hulseheath due to noise and visual effects.

Summary of likely residual effects that will be removed

3.3.27 The removal of the HS2 WCML connection (SES1-004-001) will result in the removal of a significant residual in-combination effect on five residential properties in Winterbottom.

Cumulative effects

3.3.28 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 permanent construction effects. 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 environmental baseline information resulting from additional ecological surveys in the Pickmere to Agden and Hulseheath area is relevant to the assessment.

3.4.6 The SES1 design changes to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) and the removal of the HS2 WCML connection (SES1-004-001) are also both 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: Pickmere to Agden and Hulseheath (MA03) of the main ES. A summary of the baseline information relevant to the assessment of SES1 scheme is provided below.

Designated sites

3.4.8 There is one AWI site of relevance to the assessment of the SES1 design change covering the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001), which is of national value. Belt Wood AWI site, covering an area of 5.6ha, is located adjacent to land required for the change to the utilities diversion.

Habitats

3.4.9 The main ES reported a total of 68km of hedgerow within land required for the construction of the original scheme in the Pickmere to Agden and Hulseheath area. This comprised 29.3km of native species-poor hedgerow and 38.7km of native species-rich hedgerow (including 34.6km 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.

3.4.10 Additional surveys have been carried out on hedgerows that were previously not surveyed and were assumed to be species rich. These surveys have confirmed that within the original scheme, as amended by the SES1 scheme, 116m of the newly surveyed hedgerows are species-poor, 424m are species-rich and a proportion that were previously identified on a precautionary basis using aerial imagery and OS mapping do not exist.

3.4.11 The SES1 design change of the diversion of a Scottish Power 132kV route (SES1-003-001) will avoid loss of woodland within Belt Wood AWI site and will result in a reduction in land required compared to that required for the original scheme, which includes 407m of assumed species-rich hedgerow.

3.4.12 The removal of the HS2 WCML connection (SES1-004-001) will also result in the retention of 1.5km of hedgerow, comprising 1.1km of species-poor hedgerow and 369m of species-rich hedgerow (including 230m of unsurveyed hedgerow assumed to be species-rich on a precautionary basis).

3.4.13 As a result of the SES1 design changes and updated baseline data, the total length of hedgerows within the land required for the SES1 scheme is 61.35km, comprising 25.1km of native species-poor hedgerow and 36.3km of native species rich hedgerow (including 31.7km 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.

3.4.14 The main ES reported 109 ponds located within, or partly within, the land required for the construction of the original scheme in the Pickmere to Agden and Hulseheath area. On a precautionary basis it was assumed that all ponds could support habitats of principal importance or local Biodiversity Action Plan (BAP) habitats and are of district/borough value unless surveys have shown that they are of local/parish value only. The SES1 design change of the diversion of a Scottish Power 132kV route (SES1-003-001) will avoid the loss of three ponds. The removal of the HS2 WCML connection (SES1-004-001) will remove the loss of two ponds in this area and impacts to other ponds now more distant from the original scheme, as amended by the SES1 design changes.

Species

Amphibians

3.4.15 The outcomes of additional ecological surveys undertaken for great crested newt have formed the basis of a review of the composition of meta-populations across the Pickmere to Agden and Hulseheath area. This review has considered the quality and connectivity of terrestrial habitat between ponds in order to determine the locations of distinct clusters of ponds that are likely to support meta-populations of great crested newt. This review has resulted in the identification of a new population and changes to the composition of three meta-populations and one 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 has been confirmed by survey, or where on a precautionary basis great crested newt populations are assumed to be present.

3.4.16 The main ES reported a great crested newt meta-population in a network of 97 ponds located north of Lostock Gralam (GCNMP 1.3.3), which included ponds in which the presence of great crested newt was confirmed through field survey data. This meta-population is valued at county/metropolitan level in the main ES. Additional surveys have confirmed absence of great crested newt within one pond where a great crested newt population was previously assumed to be present as part of this meta-population. The revised meta-population, therefore, includes 96 ponds with confirmed or assumed populations of great crested newt, including ponds assumed to contain medium size class populations. The decrease in the number of ponds with confirmed or assumed populations of great crested newt does not change the value of GCNMP 1.3.3 reported in the main ES.

3.4.17 The main ES reported a great crested newt meta-population in a network of 170 ponds located south of High Legh (GCNMP 1.3.4), which included ponds in which the presence of great crested newt was confirmed through field survey data. 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 county/metropolitan level in the main ES. Additional surveys have confirmed absence of great crested newt within 12 ponds where great crested newt populations were previously assumed to be present and that formed part of this meta-population. These ponds no longer form part of GCNMP1.3.4. These surveys have also confirmed presence of great crested newt within two ponds where populations were previously assumed to be present and form part of GCNMP1.3.4. These ponds still form part of the meta-population. The revised meta-population, therefore, includes 158 ponds with confirmed or assumed populations of great crested newt, including ponds assumed to contain large size class populations. The decrease in the number of ponds with confirmed or assumed populations of great crested newt does not change the value of GCNMP 1.3.4 reported in the main ES.

3.4.18 The main ES also reported populations of great crested newt within unsurveyed ponds across the Pickmere to Agden and Hulseheath area. These ponds were assumed, on a precautionary basis, to support breeding great crested newt of medium class size and were of up to county/metropolitan value. This includes GCNP1.3.8, an assumed medium population of great crested newt across four ponds south-east of High Legh, west of Tatton Dale. Additional surveys have confirmed the presence of great crested newt within a single pond where they were previously assumed to be present. On the basis of recording great crested newt in one pond, this population is now confirmed to be of county/metropolitan value.

3.4.19 The main ES reported a great crested newt meta-population in 110 ponds located north of Tatton Dale (GCNMP 1.3.9), which included ponds in which the presence of great crested newt was confirmed through field survey data. This meta-population extends into the Hulseheath to Manchester Airport area (MA06). 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 county/metropolitan level in the main ES. Additional surveys

have confirmed absence of great crested newt within eight ponds where great crested newt populations were previously assumed to be present and formed part of this meta-population. These ponds no longer form part of GCNMP1.3.9. These surveys have also confirmed presence of great crested newt within seven ponds where great crested newt populations were previously assumed to be present and form part of GCNMP1.3.9. These ponds still form part of the meta-population. The revised meta-population, therefore, includes 102 ponds with confirmed or assumed populations of great crested newt, including ponds assumed to contain large size class populations. The decrease in the number of ponds with confirmed or assumed populations of great crested newt does not change the value of GCNMP 1.3.9 reported in the main ES.

3.4.20 The main ES reported a total of 49 water bodies located within the land required for the construction of the original scheme, which were not subject to survey and were assumed to support populations of great crested newt. Additional surveys have reduced this to 38 water bodies within land required for the original scheme that are assumed to support populations of great crested newt. The decrease in the number of ponds with assumed populations of great crested newt does not change the value of each pond reported in the main ES, which is of up to county/metropolitan value in each case.

Bats

3.4.21 The main ES reported a bat assemblage of at least 10 species between Smoker Brook and the M6 within the Pickmere to Agden and Hulseheath area. A possible maternity roost of common pipistrelle was recorded in Tabley, 15m north of the land required for the construction of the original scheme, as amended by the SES1 changes. Occasional roosts of common pipistrelle, soprano pipistrelle, brown long-eared bat and Myotis species were also recorded. The assemblage is considered to be of regional value on the basis of high levels of noctule, serotine, Leisler's bat and Myotis species activity, which are considered to be 'rarer'[9] species in England. Maternity roosts, including those of the most common species, are relatively uncommon and are important in maintaining bat populations. Additional surveys recorded two possible maternity roosts of Myotis species within the land required for the construction of the original scheme, as amended by the SES1 changes at Pickmere and Knutsford. Surveys also recorded further occasional roosts of previously recorded species, within the land required for the construction of the original scheme, as amended by the SES1 design changes. The recording of these additional roosts does not change the value of the bat assemblage, as reported in the main ES.

3.4.22 The main ES reported a bat assemblage of at least nine species bounded by the M6, the M56 and the A556 within the Pickmere to Agden and Hulseheath area and the Hulseheath to Manchester Airport area (MA06). Possible maternity roosts for Myotis species were recorded during field surveys within the land required for the construction of the original scheme. Possible maternity roosts of soprano pipistrelle, brown long-eared and whiskered bat were

[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.

recorded within 10m of the land required for the construction of the original scheme, as amended by the SES1 design changes. Occasional roosts of common pipistrelle, soprano pipistrelle, Pipistrellus species, brown long-eared bat, noctule, whiskered bat and Myotis species were also recorded. The assemblage is considered to be of regional value on the basis of high levels of Nathusius' pipistrelle, noctule, Leisler's bat and Myotis species bat activity, which are considered to be rarer' species in England. Maternity roosts, including those of the most common species, are relatively uncommon and are important in maintaining bat populations. Additional surveys recorded a possible maternity roost of soprano pipistrelle 10m west of the land required for the construction of the original scheme, as amended by the SES1 design changes at Daisy Bank Farm, Winterbottom Lane, High Legh. Surveys also recorded further occasional roosts of previously recorded species within and up to 10m from the land required for the construction of the original scheme, as amended by the SES1 design changes. The recording of these additional roosts does not change the value of the bat assemblage, as reported in the main ES.

Birds

3.4.23 Additional breeding bird surveys were carried out between Betleyhurst Farm and Chapel Lane which had not been surveyed previously. A total of 50 species were recorded, including 19 notable species, within and adjacent to the land required for the construction of the original scheme. Breeding territories of 18 species were recorded of which four are notable, with four Red List species. This assemblage is of local/parish value.

3.4.24 Additional breeding bird surveys were carried out between Chapel Lane and Agden Bridge Farm. A total of 36 bird species were recorded, including 12 notable species, within and adjacent to the land required for the construction of the original scheme. Breeding territories of 14 species were recorded of which one is notable, with one Red List species. This assemblage is of local/parish value.

3.4.25 The main ES reported a wintering bird assemblage between Park Farm and Agden Brow valued at district/borough level. This assemblage is within and in the vicinity of the land previously required for the original scheme for the construction of the HS2 WCML connection.

3.4.26 The main ES reported a breeding bird assemblage between Pownallgreen Farm and Park Farm valued at up to local/parish level. This assemblage is within and in the vicinity of the land previously required for the construction of the HS2 WCML connection.

Future baseline

3.4.27 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 Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a

future baseline where relevant, and their potential to give rise to cumulative effects has been assessed.

3.4.28 None of the identified developments affect the assessment of the likely construction and operational impacts on ecology and biodiversity as a result of the original scheme, as amended by the SES1 changes.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

Designated sites

3.4.30 The main ES reported that the loss of 400m² (0.7%) of ancient woodland habitat resulting from the construction of the original scheme would result in a permanent adverse effect on Belt Wood AWI site that was significant at the national level. However, the re-routing of a Scottish Power 132kV power line diversion (SES1-003-001) means that this AWI site will not be affected by the SES1 scheme. This will remove the permanent adverse significant effect reported in the main ES.

Habitats

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 Pickmere to Agden and Hulseheath 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, the total extent of hedgerows within the Pickmere to Agden and Hulseheath area that are assumed to be permanently lost has decreased from 68km, as reported in the main ES, to 61.35km. This results in a different permanent adverse effect; however this will not change the level of significance of the effect as reported in the main ES.

3.4.32 The removal of the HS2 WCML connection (SES1-004-001) will remove impacts to two ponds within the area subject to the SES1 design change. The rerouting of a Scottish Power 132kV power line diversion at Belt Wood (SES1-003-001) will remove impacts to three ponds which occur within the area subject to the SES1 design change.

3.4.33 Two additional ponds have been identified during surveys, which were not previously reported in the main ES. The loss of two ponds previously not identified in the main ES will lead to a new permanent adverse effect on the conservation status of the water bodies that will be significant, in each case, at up to district/borough level. Overall, within the Pickmere

to Agden and Hulseheath area however, taking into account additional data, the number of ponds impacted by the original scheme, as amended by SES1 changes is reduced.

Species

Amphibians

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 97 ponds to the north of Lostock Gralam (GCNMP 1.3.3). This would result in a permanent adverse effect on this meta-population that is significant at the county/metropolitan level. Additional surveys confirmed that great crested newt are absent from one of these ponds. Consequently, the number of ponds associated within this meta-population is reduced to 96. The change in the composition of this 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 on this meta-population 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 170 ponds south of High Legh (GCNMP 1.3.4). This would result in a permanent adverse effect on this meta-population that is significant at the county/metropolitan level. Additional surveys have confirmed the presence of great crested newt in two ponds where presence was previously assumed on a precautionary basis. Additional surveys confirmed that great crested newt are absent from 12 of these ponds. Consequently, the number of ponds associated within this meta-population has been reduced to 158. The change in the composition of this 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 on this meta-population as reported in the main ES.

3.4.36 The main ES identified a significant adverse effect on the great crested newt meta-population south-east of High Legh, west of Tatton Dale (GCNMP1.3.8) at up to county/metropolitan level. Additional surveys have confirmed the presence of great crested newt within a single pond where they were previously assumed to be present. Construction of the SES1 scheme will result in the loss of habitat associated with this meta-population. This confirms that there will be a permanent adverse effect on this meta-population, which will be significant at the county/metropolitan level.

3.4.37 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 110 ponds located north of Tatton Dale (GCNMP 1.3.9). This would result in a permanent adverse effect on the meta-population that is significant at the county/metropolitan level. Additional surveys have confirmed the presence of great crested newt in seven ponds where presence was previously assumed on a precautionary basis. Additional surveys have also confirmed that great crested newt are absent from eight of the 110 ponds. Consequently, the number of ponds associated within this meta-population has been

reduced to 102. The change in the composition of this 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 on this meta-population as reported in the main ES.

3.4.38 The main ES reported a loss of 49 ponds within the Pickmere to Agden and Hulseheath area, each assumed to support medium sized populations of great crested newt of up to county/metropolitan importance. Additional surveys have reduced the number of assumed great crested newt ponds to be lost across the Pickmere to Agden and Hulseheath area from 49 ponds, as reported in the main ES, to 38. The ponds are assumed to support populations of great crested newt and the loss of the water bodies supporting these populations could result in a permanent adverse effect on amphibian populations that will be, in each case, significant at up to county/metropolitan level. This will result in a different significant effect to that reported in the main ES; however, this will not change the level of significance on this meta-population of the effect reported in the main ES.

3.4.39 The removal of the HS2 WCML connection (SES1-004-001) will remove the significant adverse effects at up to the county/metropolitan level reported in the main ES for a meta-population (GCNMP1.3.11) of great crested newt in a network of 10 ponds located north of High Legh and population (GCNP1.3.12) of great crested newt in a pond located south-west of Hale.

Bats

3.4.40 On a precautionary basis, the main ES reported the loss of a possible maternity roost of common pipistrelle, loss of occasional roosts of common and soprano pipistrelle, brown long-eared bat and *Myotis* species, and loss and fragmentation of foraging and commuting habitat which would result in a permanent adverse effect on the assemblage of bats between Smoker Brook and the M6, significant at the regional level. Additional surveys recorded a possible maternity roost of *Myotis* species and occasional roosts of common pipistrelle, soprano pipistrelle, *Pipistrellus* sp., brown-long eared and *Myotis* species. The loss of these roosts will result in an additional impact on the bat assemblage. This will result in a different significant effect to that reported in the main ES; however, this will not change the level of significance of the effect reported in the main ES.

3.4.41 On a precautionary basis, the main ES reported the loss or disturbance of possible maternity roosts of *Myotis* species, whiskered bat, soprano pipistrelle and brown long-eared bat, and the loss and fragmentation of foraging and commuting habitat used by these species which would result in a permanent adverse effect on the assemblage of bats bounded by the M6, the M56 and the A556 within the Pickmere to Agden and Hulseheath area and the Hulseheath to Manchester Airport area (MA06), significant at the regional level. Additional surveys recorded possible maternity roosts of soprano pipistrelle and occasional roosts of common pipistrelle, soprano pipistrelle, brown long-eared bat and whiskered bat. The loss of these roosts will result in an additional impact on the bat assemblage. This will result in a different significant effect to that reported in the main ES; however, this will not change the level of significance of the effect reported in the main ES.

3.4.42 The removal of the HS2 WCML connection (SES1-004-001) will remove the permanent adverse effects at the regional level for the bat assemblage between the M56, the River Bollin and the Bridgewater Canal within the Pickmere to Agden and Hulseheath area and Broomedge to Glazebrook area (MA04).

Birds

3.4.43 The main ES reported adverse effects on the wintering bird assemblage present between Chapel Lane and Agden Bridge Farm that are significant at the district/borough level. As a result of the removal of the HS2 WCML connection (SES1-004-001) this assemblage will no longer be affected between the M56 and Agden Bridge Farm, but the effects south of Agden Bridge Farm will remain. This will result in a different significant effect to that reported in the main ES; however this will not change the level of significance of the effect reported in the main ES.

3.4.44 The removal of the HS2 WCML connection (SES1-004-001) will remove the permanent adverse effects at the local/parish level for the wintering bird assemblage between Park Farm and Agden Brow and the breeding bird assemblage between Pownallgreen Farm and Park Farm.

Other mitigation measures

Habitats

3.4.45 The main ES reported that a total of 21.2km of new hedgerows would be planted as replacement for those lost as a result of the original scheme in the Pickmere to Agden and Hulseheath area. This represents a net reduction in hedgerow of 46.8km 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 40.2km after mitigation. This will result in a permanent adverse effect that is significant at the county/metropolitan level. The SES1 scheme will result in a different residual effect on hedgerow; however this will not change the significance of the effect on hedgerow within the Pickmere to Agden and Hulseheath area, as reported in the main ES.

Species

Amphibians

3.4.46 The main ES reported that significant adverse effects on the great crested newt populations within the Pickmere to Agden and Hulseheath area would be addressed by creating areas of suitable habitat. For GCNMP1.3.4, GCNP1.3.8 and GCNMP1.3.9, habitat would be created north of Yew Tree Farm, north-east of Winterbottom, east of Goodiersgreen Farm, at Mere Court Hotel and west of Peacock Lane and Back Lane. These measures would comprise provision of ponds and grassland that would be designed to compensate for the loss of breeding sites, foraging habitat and places of shelter used by great crested newt and other amphibian species. Following implementation, the adverse effects on the amphibian

populations in the Pickmere to Agden and Hulseheath area would be reduced to a level that is not significant. The assessment undertaken, following the consideration of additional baseline information, has concluded that the original scheme, as amended by the SES1 design changes will result in a different effect but will not change the level of significance 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

3.4.47 The main ES reported that significant effects to the bat assemblage between Smoker Brook and the M6 would be addressed by mitigation which would be provided in accordance with the Ecological Principles of Mitigation within the SMR. This includes the provision of artificial roosts, as well as woodland planting and creation of hedgerows, grassland, wetland habitat and ponds throughout this area. As described in the main ES, the disturbance and potential loss of a common pipistrelle bat potential maternity roost in a building at Hollowood Lane, Tabley will be addressed through the provision of suitable replacement roosts within habitat creation and enhancement areas south of Hollowood Lane. Measures will address the impact on the assemblage from the loss of roosting, foraging and commuting habitat. 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 possible maternity roosts of *Myotis* species at Pickmere Lane, Pickmere and Pickmere Lane, Knutsford will be addressed through the provision of suitable replacement roosts within habitat creation areas as described in the main ES and adjacent to Waterless Brook/Arley Brook. Following implementation of these measures, the effects on the bat assemblage between Smoker Brook and the M6 will be reduced to a level that is not significant.

3.4.48 The main ES reported that significant effects to the bat assemblage bounded by the M6, the M56 and the A556 within the Pickmere to Agden and Hulseheath area and the Hulseheath to Manchester Airport area (MA06) would be addressed by mitigation which will be provided in accordance with the Ecological Principles of Mitigation within the SMR. This includes the provision of artificial roosts, as well as a range of habitat creation measures that include woodland planting and creation of hedgerows, grassland, wetland habitat and ponds throughout both community areas. The disturbance and potential losses of a soprano pipistrelle, brown long-eared bat, whiskered bat and *Myotis* species possible maternity roost would be addressed through the provision of suitable replacement roosts within habitat creation and enhancement areas west of the NPR London to Liverpool junction. These measures would 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 roosts of soprano pipistrelle at Daisy Bank Farm, Winterbottom Lane, High Legh will be addressed through the provision of suitable replacement roosts within habitat creation and enhancement areas as described in the main ES and south of Daisy

Bank Farm. Following implementation of these measures, the effects on the bat assemblage bounded by the M6, the M56 and the A556 within the Pickmere to Agden and Hulseheath area and the Hulseheath to Manchester Airport area (MA06) will be reduced to a level that is not significant.

Summary of likely residual significant effects

3.4.49 On a precautionary basis, it is assumed that there will be a net loss in hedgerow of 40.2km, which is 6.7km less than the loss 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.

Summary of likely residual significant effects that will be removed

3.4.50 The re-routing of a Scottish Power 132kV power line diversion (SES1-003-001) means that the Belt Wood AWI site will not be affected by the SES1 scheme. This will remove the permanent adverse significant effect reported in the main ES.

3.4.51 The removal of the HS2 WCML connection (SES1-004-001) will remove the significant adverse effects at up to the county/metropolitan level reported in the main ES for a meta-population (GCNMP1.3.11) of great crested newt in a network of 10 ponds located north of High Legh and population (GCNP1.3.12) of great crested newt in a pond located south-west of Hale.

Cumulative effects

3.4.52 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

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

Assessment of impacts and effects

Species

Bats

3.4.54 The removal of the HS2 WCML connection (SES1-004-001) will remove significant effects caused by potential for collisions of trains with bats within the assemblage between the

M56, the River Bollin and the Bridgewater Canal within the Pickmere to Agden and Hulseheath area and Broomedge to Glazebrook area (MA04).

Birds

3.4.55 The removal of the HS2 WCML connection (SES1-004-001) will remove significant effects caused by collisions of trains with barn owl north of the M56.

Other mitigation measures

3.4.56 No new mitigation measures are required as a result of the SES design changes relating to change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) and the removal of the HS2 WCML connection (SES1-004-001).

Summary of likely residual significant effects

3.4.57 There will be no new or different residual significant effects as a result of the SES1 scheme.

Summary of likely residual significant effects that will be removed

3.4.58 The removal of the HS2 WCML connection (SES1-004-001) will remove significant effects caused by potential for collisions of trains with bats within the assemblage between the M56, the River Bollin and the Bridgewater Canal within the Pickmere to Agden and Hulseheath area and Broomedge to Glazebrook area (MA04).

Cumulative effects

3.4.59 No new or different significant cumulative effects have been identified further to those reported 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 SES1changes introduced in Section 2 are then identified, 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 The SES1 design changes to the Peacock Lane realignment (SES1-003-002) and the removal of the HS2 WCML connection (SES1-004-001) are considered in this assessment. The implications of changes to the sound, noise and vibration assessment resulting from changes to the baseline are also considered in this assessment.

3.5.5 The SES1 changes of relevance to this assessment have the potential to result in new or different construction and operational effects.

Environmental baseline

Existing baseline

3.5.6 The baseline health information is as described in Section 8 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES. A summary of the baseline information relevant to the assessment of the SES1 design changes is provided below.

3.5.7 Pickmere comprises approximately 1,000 residential properties. The nearest residential properties are located 1km west of the HS2 route. Hulseheath comprises approximately 20 residential properties. The nearest residential properties are located 350m east of the HS2 route.

Future baseline

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

3.5.9 The following committed developments of relevance to the health assessment that would materially alter the future baseline during construction of the SES1 scheme in this area are set out in Table 9.

Table 9: Committed developments of relevance to health in the Pickmere to Agden and Hulseheath area

Map book reference[10]	Planning reference	Description	How this is considered in the assessment
MA03/094S	19/0334M	Location: Children's Adventure Farm Trust, Booth Bank Farm, Reddy Lane, Millington, Cheshire, WA14 3RG Development of a new residential wing with ancillary office and children's activity space; alterations, extensions and repairs to Booth Bank Farmhouse, access and landscaping at Booth Bank Farm, Millington.	Informing future baseline.
MA03/095A	17/5111M	Location: Villa Farm, Chester Road, Tabley, Cheshire, WA16 0EX Conversion of vacant agricultural barns into six dwelling houses and associated works.	Informing future baseline.
MA03/097A	20/2932M	Location: Villa Farm, Chester Road, Tabley, Cheshire, WA16 0EX Prior approval change of use of agricultural barn to nursery.	Informing future baseline.
MA03/098A	20/2933M	Location: Villa Farm, Chester Road, Tabley, Cheshire, WA16 0EX Prior notification change of use from Agricultural to flexible use.	Informing future baseline.

3.5.10 The following committed developments have been included as part of the future baseline and considered within this assessment:

- the implementation of committed development MA03/094S will result in a new residential wing located immediately east of the land required for the construction of the SES1 scheme;
- the implementation of committed development MA03/095A will result in six new residential properties located 850m to the south of the land required for the construction of the SES1 scheme;
- the implementation of committed development MA03/097A will result in a nursery located 850m to the south of the land required for the construction of the SES1 scheme; and
- the implementation of committed development MA03/098A will result in a building intended for flexible use located 850m to the south of the land required for the construction of the SES1 scheme.

[10] Volume 5, Committed Development Map Book: maps CT-13-309b to CT-13-312a.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

3.5.12 The main ES reported an adverse neighbourhood quality effect for residents in the vicinity of Budworth Road, Tabley Superior. Construction of the original scheme was expected to be visible from street level in the vicinity of Budworth Road. Significant noise effects were expected to last for a period of approximately eight months.

3.5.13 Updates to the sound, noise and vibration baseline and new construction traffic data as a result of additional modelling, will result in an increase to the duration of noise effects, to one year and one month. Visual effects reported in the main ES will remain significant. The SES1 scheme will result in a different adverse neighbourhood quality effect in the vicinity of Budworth Road.

3.5.14 The main ES reported an adverse neighbourhood quality effect for residents in the vicinity of Chapel Lane, Thowler Lane and Peacock Lane in Hulseheath. Significant noise effects were expected to combine with significant visual, HGV traffic, and traffic noise effects for three years.

3.5.15 The removal of the HS2 WCML connection (SES1-004-001) and changes to the Peacock Lane realignment (SES1-003-002) will reduce the number of properties affected by significant noise effects. The duration of noise effects is expected to increase to three years and four months as a result of construction works. HGV traffic effects and visual effects will remain significant. This change will result in a different adverse neighbourhood quality effect for residents in Hulseheath.

Other mitigation measures

3.5.16 No mitigation measures, additional to those reported in the main ES and draft CoCP, have been identified.

Cumulative effects

3.5.17 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

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

Assessment of impacts and effects

3.5.19 Changes to the sound, noise and vibration baseline will result in a new adverse neighbourhood quality effect for residents in the vicinity of Pickmere Lane and School Lane. The operation of the SES1 scheme will result in significant visual effects, due to views of trains and overhead line equipment, and significant noise effects due to passing trains. Residents living in this area are likely to experience these features of the Proposed Scheme as changing the quality of their neighbourhood. Residents are likely to regard that change as adverse, both in diminishing the amenity of the area and in reducing its rural character and tranquillity.

3.5.20 The main ES reported an adverse neighbourhood quality effect for residents in Winterbottom. Overhead line equipment was expected to be visible from street level in Winterbottom. Noise from passing trains was expected to be noticeable in this area. The removal of the HS2 WCML connection (SES1-004-001) will remove the significant noise effect in Winterbottom. Visual effects will remain the same. This change will result in the removal of the adverse neighbourhood quality effect in Winterbottom.

3.5.21 The main ES reported an adverse neighbourhood quality effect for residents on Back Lane, Thowler Lane and Peacock Lane in Hulseheath. Overhead line equipment and passing trains on Hulseheath South embankment and Hulseheath North embankment would be visible from street level in Hulseheath. Noise from passing trains was expected to be noticeable in this area. Updates to the sound, noise and vibration baseline, and the removal of the HS2 WCML connection (SES1-004-001) will result in additional properties experiencing significant noise effects. Visual effects will remain the same. The additional properties affected will result in a different adverse neighbourhood quality effect in Hulseheath.

Other mitigation measures

3.5.22 No mitigation measures, additional to those reported in the main ES have been identified.

Cumulative effects

3.5.23 No new or different significant cumulative effects have been identified further to those reported 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 changes of relevance to this assessment have the potential to result in new or different construction and operational effects.

SES1 changes relevant to the assessment

3.6.4 The SES1 design change for removal of the HS2 WCML connection (SES1-004-001) 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: Pickmere to Agden and Hulseheath (MA03) of the main ES. A summary of the baseline information relevant to the assessment is provided below.

3.6.6 Ovenback Cottage (MA03_0058) is a Grade II listed building of moderate heritage value. The asset is a former bakery, set within a small rural hamlet and surrounding farmland. The setting of the cottage is formed by its gardens, Agden Lane and fields immediately north of Agden Lane. These fields positively contribute to understanding the historic interest of the asset as a cottage and former bakery serving a community in a rural hamlet. The asset is located approximately 13m west of the land required for construction of the SES1 design change.

3.6.7 The group of levelled rectilinear banks and ditches representing the former gardens of Agden Hall (MA03_0144) is a non-designated asset of low heritage value. The heritage asset is located partially within the land required for the original scheme, now not required due to the SES1 design change.

Future baseline

3.6.8 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.

3.6.9 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

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

3.6.11 The following design measures identified in the main ES will no longer be provided due to the SES1 design change:

- a retaining wall on the west side of High Legh cutting taking the land required for the construction of the original scheme further away from Ovenback Cottage (MA03_0058); and
- planting to reduce the effect on Ovenback Cottage (MA03_0058) from the original scheme.

Assessment of impacts and effects

3.6.12 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

3.6.13 The main ES reported a temporary moderate adverse significant effect on Ovenback Cottage (MA03_0058), a Grade II listed building of moderate heritage value. The asset is located adjacent to the land required for the construction of the original scheme. The use of construction machinery, associated with the construction of High Legh cutting and High Legh cutting retaining wall within the two fields on the north side of Agden Lane, would have increased noise and activity within the setting of the asset. This would have reduced the contribution made by setting to the heritage value of the asset. The removal of the HS2 WCML connection (SES1-004-001) means machinery related to these scheme elements will now not be present. The SES1 scheme will remove the moderate adverse significant effect

reported in the main ES. However, the SES1 scheme will still include utility diversions along Moss Lane and Agden Lane and in adjacent fields, as reported in the main ES. Despite existing noise from the M56, additional noise and construction activity associated with these utility diversions will alter the experience of the asset. This will disrupt the legibility of the association between the former bakery and the rural hamlet it once served. This will result in a minimal adverse impact to the heritage value of the asset and result in a neutral effect, which is not significant.

Permanent effects

3.6.14 The main ES reported a permanent moderate adverse significant effect on Ovenback Cottage (MA03_0058), a Grade II listed building of moderate heritage value. The asset is located adjacent to land required for the construction of the original scheme. High Legh cutting and High Legh cutting retaining wall would have been constructed within the fields on the north side of Agden Lane, removing these fields from the setting of the asset. This would have reduced the contribution made by setting to the heritage value of the asset. The SES1 scheme will remove this moderate adverse significant effect and as a result there will be no permanent change to the heritage value of the asset.

3.6.15 The main ES reported a permanent moderate adverse significant effect on a Group of levelled rectilinear banks and ditches representing the former gardens of Agden Hall (MA03_0144), a non-designated asset of low heritage value. The asset is located within the land required for the construction of the original scheme. Potential archaeological remains of the banks and ditches would have been removed as a result of the construction of Agden cutting. The SES1 scheme will remove this moderate adverse significant effect and as a result there will be no permanent change to the heritage value of the asset.

Other mitigation measures

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

Summary of likely residual significant effects

3.6.17 There will be no new or different residual significant effects as a result of the SES1 scheme.

Summary of likely residual significant effects that will be removed

3.6.18 The SES1 scheme will remove the likely residual significant effects on:

- Ovenback Cottage (MA03_0058); and
- the Group of levelled rectilinear banks and ditches representing the former gardens of Agden Hall (MA03_0144).

Cumulative effects

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

3.7 Landscape and visual

Introduction

3.7.1 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

3.7.2 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.

3.7.3 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.

3.7.4 All landscape and visual effects arising from the SES1 design changes are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

SES1 changes relevant to the assessment

3.7.5 The SES1 design changes considered in this assessment are:

- change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001);
- changes to the Peacock Lane realignment (SES1-003-002); and
- removal of the HS2 WCML connection (SES1-004-001).

3.7.6 The SES1 design change, a change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001), has the potential to significantly affect one landscape character area (LCA) and two viewpoints during construction and operation.

3.7.7 The SES1 design change, a change to the Peacock Lane realignment (SES1-003-002), removing the Peacock Lane overbridge, has the potential to significantly affect one LCA and three viewpoints during construction and operation.

3.7.8 The SES1 design change, the removal of the HS2 WCML connection (SES1-004-001), removing all design elements, mitigation, some utility works, construction compounds and construction activities from the SES1 scheme, has the potential to significantly affect one LCA and nine viewpoints during construction and one LCA and 8 viewpoints during operation.

Environmental baseline

Existing baseline

3.7.9 The baseline landscape and visual information is as described in Volume 5, Appendix: LV-001-0MA03 of the main ES. A summary of the baseline information relevant to the assessment of the SES1 design changes is provided below.

Landscape baseline

Arley Lower Wooded Farmland LCA

3.7.10 The Arley Lower Wooded Farmland LCA lies between Northwich to the south, and Lymm and Altrincham to the north. It is a low-lying, rolling, rural landscape of fields, hedgerows, trees, woodland and ponds, which are characteristic of the Cheshire Plain. Trees and woodland filter and contain long-distance views, giving much of the LCA a feeling of enclosure. In the north where the River Bollin flows into the Mersey Valley, through farmland partly within the Dunham Massey estate, the landscape is more open with larger fields and longer views. Views from the LCA towards Dunham Massey house (in an adjoining LCA) are screened by the estate woodland. Settlement is dispersed, with isolated cottages and brick-built farmsteads and hamlets including Hoo Green, Hulseheath and Little Bollington. A network of public rights of way (PRoW) and long-distance trails contributes to the recreational value of the LCA. Motorways and overhead power lines, along with noise generated by road traffic on the M6 and M56, detract from the rural character of the area. Apart from settlements and major roads, most of the area is unlit. The pattern of the landscape and the abundance of mature trees, woodland, ponds and watercourses give the area a unified character and a strong sense of place. The landscape has a **medium-high** value.

Visual baseline

View west from Bentleyhurst Farm and Bridleway Mere 1/1 (high sensitivity receptors) (315-03-004)

3.7.11 This viewpoint represents views experienced by users of Bridleways Mere 1/1 and 1/2 and residents of Bentleyhurst Farm. There are views over fields bordered by boundary hedgerows, farm ditches and trees. Mere Heyes Farm and Winterbottom Farm are visible in the far distance, partially screened by intervening vegetation. Overhead power lines cross the view in the far distance to the west and north. Views from the bridleways are open to the east of the viewpoint, with more tree cover towards Winterbottom Farm in the west. Intervening trees and farm buildings partly screen views from Bentleyhurst Farm.

View south-west from the A50 Cliff Lane/Warrington Road/Knutsford Road (high sensitivity receptors) (316-02-004)

3.7.12 This viewpoint is representative of views experienced by residents on the A50 Cliff Lane/Warrington Road/Knutsford Road (Barley Fields, The Kilton Inn and Hulme Barns Farm)

and road users. There are expansive views over open farmland, which slopes gently down to the south. Long views south are framed by Belt Wood and by vegetation in the gardens of Barley Fields and mature trees in hedgerows form the backdrop to the view. Intervening vegetation partly filters views south and west from the residential properties at Barley Fields. Two overhead power lines cross the view east of the residential properties in Oak Wood Road.

View south from Thowler Lane (high sensitivity receptors) (317-02-008)

3.7.13 This viewpoint is representative of residents of Five Acres and properties on Back Lane and Thowler Lane (partly in the adjoining Hulseheath to Manchester Airport area (MA06)) and road users. Views along the narrow, rural road of Thowler Lane are contained by dense hedgerows on both sides of the road but overhead power lines are visible beyond. Woodland around Broom Manor to the south of the viewpoint and tree-lined hedgerows give views a wooded character, with glimpses possible of open fields on higher land through gaps in the vegetation. Views from Five Acres and residential properties on Thowler Lane are largely filtered through existing boundary vegetation and hedgerow trees, but there are more open views from Moss House Farm looking south and from Runnymede looking south and west over intervening boundary hedgerows.

View east from Moss Lane (high sensitivity receptors) (317-02-009)

3.7.14 This viewpoint is representative of views experienced by residents and road users of Moss Lane and Peacock Lane and users of Footpath High Legh 4/1. There are views over open, flat farmland, bordered with hedgerows. Moss Farm and Little Moss Farm are visible beyond the trees and hedgerows that line Peacock Lane. Two overhead power lines cross the landscape in the far distance. Views from Moss Farm and Whyte Cottage are open to the east but views are filtered by boundary vegetation from Little Moss Farm. Views from Footpath High Legh 4/1 are relatively open.

View south-west from Agden Lane (high sensitivity receptors) (318-02-001)

3.7.15 This viewpoint is representative of views experienced by residents and road users on Agden Lane, Thowler Lane and Boothbank Lane (in the adjoining Hulseheath to Manchester Airport area (MA06)). Views from the roads, framed by trees and hedgerows, are over open farmland which slopes gently down to the south-west. Two overhead power lines are prominent in the middle distance and Moss Farm and Little Moss Farm can be seen amongst trees. Woodland forms the background to the view in the far distance. Vegetation around property boundaries along Thowler Lane filters views west and south. Middlemoss Farm on Agden Lane has a more open boundary to the south.

View east from Agden Lane (high sensitivity receptors) (318-02-005)

3.7.16 This viewpoint is representative of views experienced by residents and road users at or near the junction of Agden Lane and Moss Lane. There are middle-distance views over open farmland separated by well-maintained hedgerows. Mature oak trees and woodland in the hedgerow on the southern side of Agden Lane filter and frame views of Skandia House, with

vegetation on field boundaries and in gardens along Thowler Lane and Boothbank Lane forming the backdrop to the view. Overhead power lines cross the skyline.

3.7.17 Local roads are unlit at night, but night skies are affected by sky glow from High Legh and the urban area of Greater Manchester.

View east from Footpath Agden 2/3 (high sensitivity receptors) (318-02-006)

3.7.18 This viewpoint is representative of views experienced by residents of Agden Hall and 'Four Winds' and users of Footpaths Agden 2/3, 2/4 and 3/3. There are expansive views over farmland, with fields bounded by post and wire fencing sloping down towards Agden Brook and the Mersey Valley. In the middle distance the land falls more steeply and the tops of trees lining Agden Brook are visible above the intervening fields. Two overhead power lines cross the view. In the far distance, cottages and farm buildings can be seen in the rural landscape to the east. The wooded Dunham Massey park (part of the Dunham Massey estate), the Pennine Hills and the tall buildings of Manchester are visible in the background of the view and on the skyline.

3.7.19 Local roads are unlit at night, but night skies are affected by sky glow from the urban area of Greater Manchester.

View west from Footpath Agden 1/4 (high sensitivity receptors) (318-03-007)

3.7.20 This viewpoint is representative of views experienced by users of Footpaths Agden 1/2, 1/4 and 5/1. There are wide views over open farmland, with large fields separated by low, neat mixed species hedgerows. The land slopes down towards Agden Brook and the Mersey Valley in the north. Agden Bridge Farm and Agden Brook Farm are just visible in long views across the Mersey Valley. The roof of Agden Hall can be seen to the south-west. Trees along Agden Brow and Agden Brook and the Pennine Hills are apparent on the distant skyline.

Viewpoint view east from Agden Park Lane (high sensitivity receptors) (318-02-008)

3.7.21 This viewpoint is representative of views experienced by residents on the A56 Lymm Road and Agden Park Lane. There are expansive views over farmland towards Altrincham and Dunham Massey. Views north and south are limited by intervening buildings and vegetation. The landform slopes down towards the north-east, into the Bollin Valley, with the Dunham Massey deer park and the wooded outskirts of Altrincham forming the backdrop to the view on the opposite side of the valley. The Pennine Hills are visible in the far distance to the east. An overhead power line crosses the view.

View south-west from Footpath Agden 9/2 (high sensitivity receptors) (318-03-010)

3.7.22 This viewpoint is representative of views experienced by users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal. There are expansive views of the Bridgewater Canal and the open farmland which rises towards the south-west. The towpath (the Cheshire Ring Canal Walk and Footpath Agden 9/2) passes under the listed Agden Bridge in the near distance to the west of the view and residential

properties on Warrington Lane and Agden Lane and Agden Lane Farm and Agden Brook Farm are apparent in the middle and far distance.

View west from Footpath Agden 6/2 and Spring Lane (high sensitivity receptors) (319-02-001)

3.7.23 This viewpoint is representative of views experienced by residents of Woolstencroft Cottage and Woolstencroft Farm and by users of Footpath Agden 6/2. There are open views of the flat farmland of the Mersey Valley stretching into the distance towards the west. Overhead power lines and pylons are prominent in the near view and low hedgerows partially screen Spring House in the middle-distance. In the far distance the land rises towards Agden in the west.

3.7.24 Local roads are unlit at night, but night skies are affected by sky glow from Lymm and the urban area of Greater Manchester.

Future baseline

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

3.7.26 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

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

Assessment of impacts and effects

Landscape effects

Arley Lower Wooded Farmland LCA

3.7.28 The main ES reported a **major adverse** (significant) effect for the Arley Lower Wooded Farmland LCA of **medium-high** susceptibility and **medium-high** value, due to the introduction of large-scale construction activity associated with: Pickmere, Heyrose, Hoo Green and Hulseheath embankments; Hoo Green box structure; Peacock Lane and A56 Lymm Road viaducts; Hoo Green north, High Legh and Agden cuttings; and Peacock Lane

auto-transformer feeder station and grid supply point, which would substantially alter the character of the predominantly rural area.

3.7.29 As a result of the SES1 design changes, the area affected by construction around Hoo Green, Hulseheath and Agden in the northern part of the LCA will be reduced but overall a large proportion of the area will remain adversely affected by the SES1 scheme. The SES1 design changes 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.

Visual effects

View west from Bentleyhurst Farm and Bridleways Mere 1/1 and 1/2 (high sensitivity receptors) (315-03-004)

3.7.30 The main ES reported a **major** adverse (significant) effect during construction for users of Bridleways Mere 1/1 and 1/2 and residents of Bentleyhurst Farm, of high susceptibility and with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be as a result of the construction of the Hoo Green south embankments (No.1-3), Bridleway Mere 1/1 accommodation underbridge and the diversion of an existing overhead power line and high pressure gas pipeline.

3.7.31 During construction, the SES1 design change, a change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001), will slightly decrease the visual effect at this viewpoint because the work to divert the power line will take place on an existing overhead power line rather than requiring the construction of a wholly new power line. The large-scale construction works on the SES1 scheme will remain prominent in the view from Bridleways Mere 1/1 and 1/2 and visible in the background from Bentleyhurst Farm. 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.

View south-west from the A50 Cliff Lane/Warrington Road/Knutsford Road (high sensitivity receptors) (316-02-004)

3.7.32 The main ES reported a **major** adverse (significant) effect for residents on or near the A50 Cliff Lane/Warrington Road/Knutsford Road (Barley Fields, The Kilton Inn and Hulme Barns Farm), of **high** susceptibility and road users of lower susceptibility, all with **medium** value views, experiencing a substantial change to the composition of near and far-distance views. This would be due to the diversion of a gas pipeline and overhead power line, in the near distance, and the construction of Hoo Green box structure and north embankment, HS2 route and A50 Warrington Road realignment and overbridge, visible in far-distant views.

3.7.33 During construction, the SES1 design change, a change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) will slightly decrease the visual effect at this viewpoint because the utility diversion will take place further from the viewpoint and will be partially screened by intervening vegetation and buildings. The SES1 design change will enable the retention of an area of deciduous woodland in Belt Wood. However, the diversion of the gas pipeline will remain visible in close views and construction

activity on the box structure, embankment and other structures of the SES1 scheme will remain visible in the far distance. 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.

View south from Thowler Lane (high sensitivity receptors) (317-02-008)

3.7.34 The main ES reported a **major** adverse (significant) effect for residents of Five Acres and properties on Back Lane and Thowler Lane (partly in the adjoining Hulseheath to Manchester Airport area (MA06)), of **high** susceptibility and road users of lower susceptibility, all with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the construction of Peacock Lane realignment, overbridge, viaduct and auto-transformer feeder station, Hulseheath embankments and Hoo Green north cutting. The removal of hedgerow, trees and woodland within the area required for construction would open up views of construction activity from most locations.

3.7.35 The SES1 design changes, change to the Peacock Lane realignment (SES1-003-002) and removal of the HS2 WCML connection (SES1-004-001), will decrease the effect at this viewpoint because Hoo Green north cutting and Peacock Lane overbridge will no longer be constructed. The change will mostly affect near views from Five Acres (on Back Lane) reducing the scale of construction activity in the view, but the construction of Peacock Lane realignment, viaduct and auto-transformer feeder station and Hulseheath embankments will remain visible in existing near and middle-distance views over the rural landscape. The SES1 design changes 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 east from Moss Lane (high sensitivity receptors) (317-02-009)

3.7.36 The main ES reported a **major** adverse (significant) effect for residents of Moss Lane and Peacock Lane and users of Footpath High Legh 4/1, of **high** susceptibility and road users of lower susceptibility, all with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the construction of Peacock Lane realignment and the construction of Peacock Lane overbridge, Hoo Green north cutting and Peacock Lane auto-transformer feeder station.

3.7.37 The SES1 design changes, changes to highway realignment (SES1-003-002) at Peacock Lane and removal of the HS2 WCML connection (SES1-004-001) will decrease the effect at this viewpoint because Hoo Green north cutting and Peacock Lane overbridge will no longer be constructed, reducing the scale of construction in the view. However, the construction of Peacock Lane realignment will remain clearly visible and the construction of Peacock Lane auto-transformer station will be apparent in partially filtered views. The SES1 design changes 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 south-west from Agden Lane (high sensitivity receptors) (318-02-001)

3.7.38 The main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for residents of **high** susceptibility and road users on Agden Lane, Thowler Lane and Boothbank Lane (in the adjoining Hulseheath to Manchester Airport area (MA06)) of lower susceptibility, all with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the construction of High Legh cutting and NPR Manchester to Liverpool junction overbridge and the removal of an existing overhead power line. The land required for the construction of the original scheme would extend into the garden of Middle Moss Farm, with trees and vegetation removed, opening up clear views of construction, including of Peacock Lane viaduct in the middle distance.

3.7.39 The SES1 design changes, changes to highway realignment (SES1-003-002) at Peacock Lane and the removal of the HS2 WCML connection (SES1-004-001), will decrease the effect at this viewpoint. There will be near views of the removal of an overhead power line and Thowler Lane and Boothbank Lane will be used as a construction traffic route, necessitating a widening of the junction. However, High Legh cutting and NPR Manchester to Liverpool junction overbridge will no longer be constructed, reducing the scale and duration of construction in the view. The SES1 design changes will therefore give rise to a different significant effect. The magnitude of change will be **medium** and the level of significance of the effect reported in the main ES will decrease to **moderate** adverse (significant).

View east from Agden Lane (high sensitivity receptors) (318-02-005)

3.7.40 The main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for residents on Agden Lane and Moss Lane of **high** susceptibility and road users of lower susceptibility, all with **medium** value views, experiencing a substantial change to the composition of near views. This would be due to the construction of High Legh cutting which would be visible across the majority of the existing view over farmland.

3.7.41 As a result of the SES1 design change, removal of the HS2 WCML connection (SES1-004-001), High Legh cutting will not be constructed and there will be no requirement for the Agden Lane satellite compound. The construction of the SES1 scheme will be screened from the viewpoint by intervening existing vegetation. The design change will therefore remove a significant effect.

3.7.42 The main ES reported a **medium** magnitude of change and a **moderate** adverse (significant) effect on night-time views due to lighting at Agden Lane satellite compound. In the SES1 scheme, the compound will no longer be required. The SES1 design change will therefore remove a significant effect.

View east from Footpath Agden 2/3 (high sensitivity receptors) (318-02-006)

3.7.43 The main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for residents of Agden Hall and 'Four Winds' and users of Footpaths Agden 2/3, 2/4 and 3/3 of **high** susceptibility and with **medium** value views, experiencing a substantial change to

the composition of near and middle-distance views. This would be due to the construction of Agden cutting, Agden Brook Farm accommodation underbridge and Lymm south embankment, which would be prominent in existing views over farmland.

3.7.44 As a result of the SES1design change, removal of the HS2 WCML connection (SES1-004-001), Agden cutting, Agden Brook Farm accommodation underbridge and Lymm south embankment will not be constructed and the construction of the SES1 scheme will be screened from the viewpoint by the intervening sloping landform and existing vegetation. The design change will therefore remove a significant effect.

3.7.45 The main ES reported a **medium** magnitude of change and a **moderate** adverse (significant) effect on night-time views due to lighting on Agden Lane satellite compound increasing the extent of lighting at night in a predominantly rural and unlit area. As a result of the design change, the compound will no longer be required. The SES1 design change will therefore remove a significant effect.

View west from Footpath Agden 1/4 (high sensitivity receptors) (318-03-007)

3.7.46 The main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for users of Footpaths Agden 1/2, 1/4 and 5/1 of **high** susceptibility and **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the construction of Agden cutting, Agden Brook Farm accommodation underbridge and access diversion and Lymm south embankment, which would be prominent in existing views over farmland.

3.7.47 As a result of the SES1 design change, removal of the HS2 WCML connection (SES1-004-001), Agden cutting, Agden Brook Farm accommodation underbridge and Lymm south embankment will not be constructed and the construction of the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove a significant effect.

View east from Agden Park Lane (high sensitivity receptors) (318-02-008)

3.7.48 The main ES reported a **medium** magnitude of change and a **moderate** adverse (significant) effect for residents on Lymm Road and Agden Park Lane of **high** susceptibility and with **medium** value views, experiencing a substantial change to the composition of middle-distance views. This was due to the construction of Agden cutting, Agden Brook Farm accommodation underbridge and Lymm south embankment, which would be visible in existing, open views over farmland.

3.7.49 As a result of the SES1 design change, removal of the HS2 WCML connection (SES1-004-001), Agden cutting, Agden Brook Farm accommodation underbridge and Lymm south embankment will not be constructed and the construction of the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove a significant effect.

View south-west from Footpath Agden 9/2 (high sensitivity receptors) (318-03-010)

3.7.50 The main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal of **high** susceptibility and with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the construction of Lymm south, Lymm north and Heatley south embankments and A56 Lymm Road viaduct and Bridgewater Canal viaduct (in the Broomedge to Glazebrook area (MA04)), which would be visible in existing, open views over farmland.

3.7.51 As a result of the SES1 design change, removal of the HS2 WCML connection (SES1-004-001), the Lymm south, Lymm north and Heatley south embankments and A56 Lymm Road viaduct and Bridgewater Canal viaduct (in the Broomedge to Glazebrook area (MA04)), will not be constructed. The construction of the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove a significant effect.

View west from Footpath Agden 6/2 and Spring Lane (high sensitivity receptors) (319-02-001)

3.7.52 The main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for residents of Woolstencroft Cottage and Woolstencroft Farm and PRoW users on Footpath Agden 6/2, of **high** susceptibility and with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the construction of Lymm north embankment and Heatley south embankment and Bridgewater Canal viaduct (in the Broomedge to Glazebrook area (MA04)), which would be visible in existing, open views over farmland.

3.7.53 As a result of the SES1 design change, removal of the HS2 WCML connection (SES1-004-001), Lymm north embankment, Heatley south embankment and Bridgewater Canal viaduct will not be constructed and the construction of the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove a significant effect.

3.7.54 The main ES reported a **medium** magnitude of change and a **moderate** adverse (significant) effect on night-time views. This would be due to lighting for Bridgewater Canal satellite compound (in the Broomedge to Glazebrook area (MA04)) and A56 Lymm Road satellite compound increasing the extent of lighting at night in a predominantly rural and unlit area. Neither satellite compound will be required in the SES1 scheme. The SES1 design change will therefore remove a significant effect.

3.7.55 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Other mitigation measures

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

Summary of likely residual significant effects

3.7.57 The SES1 design changes will give rise to a different likely residual significant construction effect after implementation of construction phase mitigation for the Arley Lower Wooded Farmland LCA, but the level of effect will be unchanged to that reported in the main ES. The level of significance of the effect will remain, **major** adverse (significant).

3.7.58 The SES1 design change, a change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001), will give rise to a different likely residual significant construction effect after implementation of construction phase mitigation without changing the level of effect reported in the main ES at the following viewpoints:

- view west from Bentleyhurst Farm and Bridleways Mere 1/1 and 1/2 (viewpoint 315-03-004) - the effect will slightly reduce but will remain **major** adverse (significant); and
- view south-west from the A50 Cliff Lane/Warrington Road/Knutsford Road (viewpoint 316-02-004) - the effect will reduce but will remain **major** adverse (significant).

3.7.59 The SES1 design changes, to the Peacock Lane realignment (SES1-003-002) and removal of the HS2 WCML connection (SES1-004-001), will give rise to a different likely residual significant construction effect after implementation of construction phase mitigation but where the level of effect will be unchanged to that reported in the main ES at the following viewpoints:

- view south from Thowler Lane (viewpoint 317-02-008) - the effect will reduce but will remain **major** adverse (significant); and
- view east from Moss Lane (viewpoint 317-02-009) - the effect will reduce but will remain **major** adverse (significant).

3.7.60 The SES1 design changes, changes to the Peacock Lane realignment (SES1-003-002) and removal of the HS2 WCML connection (SES1-004-001), will give rise to a different likely residual significant construction effect after implementation of construction phase mitigation at view south-west from Agden Lane (viewpoint 318-02-001) and the level of significance reported in the main ES will reduce from **major** adverse (significant) to **moderate** adverse (significant).

Summary of likely residual significant effects that will be removed

3.7.61 The SES1 changes will result in the removal of the following likely residual significant effects reported in the main ES:

- residents of Agden Lane and Moss Lane;
- residents of Agden Hall and 'Four Winds';
- users of Footpaths Agden 1/2, 1/4 and 5/1;
- residents on Lymm Road and Agden Park Lane;

- users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal; and
- residents of Woolstencroft Cottage and Woolstencroft Farm and PRoW users on Footpath Agden 6/2.

Cumulative effects

3.7.62 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

3.7.63 No further avoidance or mitigation measures additional to those reported in the main ES are proposed.

Assessment of impacts and effects

Landscape effects

Arley Lower Wooded Farmland LCA

3.7.64 At year 1, the main ES reported a **major** adverse (significant) effect for the Arley Lower Wooded Farmland LCA due to the removal of woodland, trees, hedgerows and farm buildings during construction and the introduction of embankments, viaducts, cuttings, overbridges and electricity supply infrastructure, which would substantially alter the character of the farmed landscape and reduce overall tranquillity.

3.7.65 At year 1, the SES1 design changes will reduce the extent of vegetation lost during construction and the area affected adversely by the original scheme around Hoo Green, Hulseheath and Agden. However, a large proportion of the LCA will remain adversely affected by the loss of landscape features and the introduction of large-scale infrastructure into the rural landscape. The SES1 design changes 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.

3.7.66 At year 15, the main ES reported a **major** adverse (significant) effect on the Arley Lower Wooded Farmland LCA due to the substantial changes to the area including severance and disruption of the landscape pattern, and the presence of transport infrastructure in the rural landscape. Despite partial screening of embankments, viaducts, overbridges and electricity supply infrastructure by landscape mitigation planting, the new structures would remain prominent in the landscape due to their large scale.

3.7.67 At year 15, maturing landscape mitigation planting will partially integrate the SES1 scheme into the landscape but many of the new structures will remain prominent in the LCA due to

their large scale. A large proportion of the LCA will remain adversely affected by the SES1 scheme. The SES1 design changes 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.

3.7.68 At year 30, the main ES reported a **moderate** adverse (significant) effect on the Arley Lower Wooded Farmland LCA as landscape mitigation planting would screen much of the original scheme and restore the character of tree-lined country lanes. However, overhead line equipment and train movements would remain visible above the planting through much of the LCA.

3.7.69 At year 30, the SES1 scheme will be further screened by the maturing of landscape mitigation planting, but the taller elements of the SES1 scheme, including overhead line equipment and moving trains, will continue to affect a large proportion of the LCA. The SES1 design changes 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.

Visual effects

View west from Bentleyhurst Farm and Bridleway Mere 1/1 (high sensitivity receptors) (315-03-004)

3.7.70 At year 1, the main ES reported a **major** adverse (significant) effect for users of Bridleways Mere 1/1 and 1/2 and residents of Bentleyhurst Farm, of **high** susceptibility and with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This was due to the presence of Hoo Green south embankments (No.1-3), forming a high linear structure against the skyline in views from the PRoW and the diversion of an overhead power line close to Bentleyhurst Farm.

3.7.71 At year 1, the change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) will alter the arrangement of the existing overhead power line north-west of Bentleyhurst Farm and a new overhead power line north of Bentleyhurst Farm will no longer form part of the SES1 scheme. Hoo Green south embankments (No.1-3) will remain prominent in the view from the PRoW. 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.

3.7.72 At year 15, the main ES reported a **moderate** adverse (significant) effect. This would be a result of the growth of landscape mitigation planting and hedgerow planting providing visual integration and partial screening of the new structures in the landscape.

3.7.73 At year 15 and year 30, the level of significance of the effect will remain as reported in the main ES.

View south-west from the A50 Cliff Lane/Warrington Road/Knutsford Road (high sensitivity receptors) (316-02-004)

3.7.74 At year 1, the main ES reported a **moderate** adverse (significant) effect for residents of the A50 Cliff Lane/Warrington Road/Knutsford Road (Barley Fields, The Kilton Inn and Hulme

Barns Farm) of **high** susceptibility and road users of lower susceptibility all with **medium** value views. This would be due to the loss of vegetation from Belt Wood and along the A50 Cliff Lane/Warrington Road/Knutsford Road, during construction and the presence of Hoo Green box structure, Hoo Green north embankment and moving trains in far-distant views.

3.7.75 At year 1, the change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) will divert the utility west, away from the viewpoint, enabling the retention of part of Belt Wood. The moving trains and large-scale structures of the SES1 scheme will remain uncharacteristic additions to views over the rural landscape, visible in the far distance. 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.

3.7.76 A photomontage illustrating this scenario from viewpoint 316-02-004 is included in the SES1 and AP1 ES, Volume 5, Appendix: LV-001-0MA03, Part 3.

3.7.77 At year 15, the main ES reported a **moderate** adverse (significant) effect. This would be due to the growth of landscape mitigation planting and hedgerow planting screening Hoo Green north embankment and the lower levels of Hoo Green box structure.

3.7.78 At year 15 and year 30, the level of significance of the effect will remain as reported in the main ES.

View south from Thowler Lane (high sensitivity receptors) (317-02-008)

3.7.79 At year 1, the main ES reported a **major** adverse (significant) effect for residents of Five Acres and properties on Back Lane and Thowler Lane (partly in the adjoining Hulseheath to Manchester Airport area (MA06)), of **high** susceptibility and road users of lower susceptibility all with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the presence of Hoo Green north cutting and Peacock Lane overbridge in near views from Five Acres (on Back Lane) and near views, partially screened by intervening vegetation and buildings, of Peacock Lane auto-transformer feeder station, Peacock Lane viaduct and Hulseheath north embankment from other residential properties on Back Lane and Thowler Lane.

3.7.80 At year 1, due to the change to Peacock Lane realignment (SES1-003-002) and the removal of the HS2 WCML connection (SES1-004-001), Hoo Green north cutting and Peacock Lane overbridge will not form part of the SES1 scheme and near views east from Five Acres will no longer be affected by views of these structures. However, Peacock Lane realignment, viaduct and auto-transformer feeder station and Hulseheath embankments will be visible in existing near and middle-distance views over the rural landscape from Five Acres and other nearby residential properties on Back Lane and Thowler Lane. The auto-transformer feeder station will be partly screened from the north by a landscape earthwork. The SES1 design changes 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.

3.7.81 At year 15, the main ES reported a **moderate** adverse (significant) effect. This would be due to maturing landscape mitigation planting filtering and partly screening the structures of the original scheme.

3.7.82 At year 15, the maturing landscape mitigation planting of the SES1 scheme will screen Peacock Lane realignment and the lower parts of Peacock Lane viaduct and Hulseheath embankments. Train movements and overhead line equipment on the raised structures will remain visible and planting on the landscape earthwork will largely screen the auto-transformer station from Back Lane. The SES1 design changes 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.

3.7.83 At year 30, the main ES reported a **moderate** adverse (significant) effect. This would be due to the growth of landscape mitigation planting which will further screen train movements, Peacock Lane viaduct and Hulseheath embankments.

3.7.84 At year 30, further growth of landscape mitigation planting will screen Peacock Lane viaduct, Hulseheath embankments and Peacock Lane auto-transformer feeder station, although train movements and overhead line equipment on the raised structures will remain visible above the vegetation. The SES1 design changes 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 east from Moss Lane (high sensitivity receptors) (317-02-009)

3.7.85 At year 1, the main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for residents of Moss Lane and Peacock Lane and users of Footpath High Legh 4/1, of **high** susceptibility and road users of lower susceptibility all with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the presence of Hoo Green north cutting and Peacock Lane overbridge, Peacock Lane auto-transformer feeder station and Hoo Green north cutting in views over the rural landscape.

3.7.86 At year 1, due to the change to Peacock Lane realignment (SES1-003-002) and the removal of the HS2 WCML connection (SES1-004-001), Hoo Green north cutting and Peacock Lane overbridge will not form part of the SES1 scheme. This will reduce the proportion of the view affected by the SES1 scheme. Peacock Lane realignment will bring Peacock Lane closer to Little Moss Farm and will be visible in filtered views from Moss Farm and Footpath High Legh 4/1. Peacock Lane auto-transformer station will be apparent in filtered views over intervening farmland. The SES1 design changes will therefore give rise to a different significant effect. The magnitude of change will be medium and the level of significance of the effect reported in the main ES will decrease to moderate adverse (significant).

3.7.87 At year 15, the main ES reported a **moderate** adverse (significant) effect. This would be due to maturing landscape mitigation planting largely screening Peacock Lane auto-transformer feeder station and Hoo Green north cutting, partially screening Peacock Lane overbridge and restoring the tree-lined character of Peacock Lane.

3.7.88 At year 15, the proportion of the view affected by the SES1 scheme will be further reduced as a result of maturing landscape mitigation planting, which will largely screen Peacock Lane auto-transformer feeder station from Little Moss Farm and Moss Farm and will restore the tree-lined character of Peacock Lane. The SES1 design changes will therefore reduce the level of effect to non-significant and remove a significant effect.

3.7.89 At year 30, the level of significance of the effect will remain non-significant due to the growth of mitigation planting and increase in effective screening.

View south-west from Agden Lane (high sensitivity receptors) (318-02-001)

3.7.90 At year 1, the main ES reported a **major** adverse (significant) effect for residents of **high** susceptibility and road users on Agden Lane, Thowler Lane and Boothbank Lane (in the adjoining Hulseheath to Manchester Airport area (MA06)), of lower susceptibility all with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the loss of vegetation during construction opening up close views of High Legh cutting and of Peacock Lane overbridge in the background of the view.

3.7.91 At year 1, due to the changes to the Peacock Lane realignment (SES1-003-002) and the removal of the HS2 WCML connection (SES1-004-001), High Legh cutting and Peacock Lane overbridge will no longer form part of the SES1 scheme. The SES1 scheme will be screened by intervening existing vegetation. The SES1 design changes will therefore remove a significant effect.

3.7.92 At year 15, the main ES reported a **moderate** adverse (significant) effect due to landscape mitigation planting largely screening High Legh cutting from Middle Moss Farm, Agden Lane and Thowler Lane, but foreshortening open views over the landscape.

3.7.93 At year 15, the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove a significant effect.

3.7.94 At year 30, the level of significance of the effect will remain non-significant, as reported in the main ES.

View east from Agden Lane (high sensitivity receptors) (318-02-005)

3.7.95 At year 1, the main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for residents of Agden Lane and Moss Lane, of **high** susceptibility and road users of lower susceptibility, all with **medium** value views, experiencing a substantial change to the composition of near views. This would be due to the presence of High Legh cutting altering the appearance of the landscape in near views.

3.7.96 At year 1, due to the removal of the HS2 WCML connection (SES1-004-001), High Legh cutting will not form part of the SES1 scheme. The SES1 scheme will be screened by intervening existing vegetation from this viewpoint. The SES1 design change will therefore remove a significant effect.

3.7.97 At years 15 and 30, the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove significant effects in years 15 and 30.

View east from Footpath Agden 2/3 (high sensitivity receptors) (318-02-006)

3.7.98 At year 1, the main ES reported a **high** magnitude of change and a **major** adverse (significant) effect, for residents of Agden Hall and 'Four Winds' and users of Footpaths Agden 2/3, 2/4 and 3/3, of **high** susceptibility and with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the presence of Agden cutting and Lymm south embankment crossing expansive views over open fields.

3.7.99 At year 1, due to the removal of the HS2 WCML connection (SES1-004-001), Agden cutting and Lymm south embankment will not form part of the SES1 scheme. The SES1 scheme will be screened from the viewpoint by the intervening sloping landform and existing vegetation. The SES1 design change will therefore remove a significant effect.

3.7.100 At year 15, the main ES reported a **medium** magnitude of change and a **moderate** adverse (significant) effect. This was due to maturing landscape mitigation planting largely screening Agden cutting and Lymm south embankment from views, although they would remain visible from properties at Agden Hall.

3.7.101 At years 15 and 30, the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove significant effects in years 15 and 30.

View west from Footpath Agden 1/4 (high sensitivity receptors) (318-02-007)

3.7.102 At year 1, the main ES reported a **major** adverse (significant) effect for users of Footpaths Agden 1/2, 1/4 and 5/1, of **high** susceptibility and **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This was due to the presence of Lymm south embankment and Agden Brook Farm accommodation underbridge in views over open countryside. The embankment would be seen against the skyline.

3.7.103 At year 1, due to the removal of the HS2 WCML connection (SES1-004-001), Agden cutting, Agden Brook Farm accommodation underbridge and access diversion and Lymm south embankment will not form part of the SES1 scheme. The SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The design change will therefore remove a significant effect.

3.7.104 At year 15, the main ES reported a **moderate** adverse (significant) effect. This would be due to maturing landscape mitigation planting largely screening Lymm south embankment from views, although the upper parts of trains and the overhead line equipment would remain clearly visible above the vegetation.

3.7.105 At years 15 and 30, the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove significant effects in years 15 and 30.

View south-west from Footpath Agden 9/2 (high sensitivity receptors) (318-03-010)

3.7.106 At year 1, the main ES reported a **major** adverse (significant) effect for users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal, of **high** susceptibility and with **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the presence of Lymm south embankment, A56 Lymm Road viaduct, A56 Lymm Road telecommunications site, Lymm north embankment, Bridgewater Canal viaduct (in the Broomedge to Glazebrook area (MA04)), noise fence barriers, overhead line equipment and moving trains across a large proportion of the view over a rural landscape.

3.7.107 At year 1, due to the removal of the HS2 WCML connection (SES1-004-001), Lymm south embankment, A56 Lymm Road viaduct, A56 Lymm Road telecommunications site, Lymm north embankment and Bridgewater Canal viaduct will not form part of the SES1 scheme. The SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove a significant effect.

3.7.108 At years 15 and 30, the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove significant effects in years 15 and 30.

View west from Footpath Agden 6/2 and Spring Lane (high sensitivity receptors) (319-02-001)

3.7.109 At year 1, the main ES reported a **high** magnitude of change and a **major** adverse (significant) effect for residents of Woolstencroft Cottage and Woolstencroft Farm and by PRoW users on Footpath Agden 6/2, of **high** susceptibility and **medium** value views, experiencing a substantial change to the composition of near and middle-distance views. This would be due to the presence of Lymm north embankment, Heatley south embankment and Bridgewater Canal viaduct across a large proportion of the view. Train movements on the embankments and viaduct would introduce uncharacteristic movement into views.

3.7.110 At year 1, due to the removal of the HS2 WCML connection (SES1-004-001), Lymm north embankment, Heatley south embankment and Bridgewater Canal Viaduct will not form part of the SES1 scheme. The SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The design change will therefore remove a significant effect.

3.7.111 At years 15 and 30, the SES1 scheme will be screened from the viewpoint by the intervening landform and existing vegetation. The SES1 design change will therefore remove significant effects in years 15 and 30.

3.7.112 For further information see the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Other mitigation measures

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

Summary of likely residual significant effects

3.7.114 In many cases, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention. However, the SES1 design changes, a change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001), removal of the HS2 WCML connection (SES1-004-001) and changes to the Peacock Lane realignment (SES1-003-002), will give rise to a different likely residual significant operational effect for the Arley Lower Wooded Farmland LCA at year 15, but where the level of effect will be unchanged to that reported in the main ES. The level of significance of the effect will remain, **major** adverse (significant).

3.7.115 The SES1 design changes, removal of the HS2 WCML connection (SES1-004-001) and changes to the Peacock Lane realignment (SES1-003-002), will give rise to a different likely residual significant operational effect but where the level of effect will be unchanged to that reported in the main ES at view south from Thowler Lane (viewpoint 317-02-008). The effect will reduce but will remain **moderate** adverse (significant).

Summary of likely residual significant effects that will be removed

3.7.116 The SES1 changes will remove the following likely residual significant effects reported in the main ES:

- residents of Moss Lane and Peacock Lane and users of Footpath High Legh 4/1;
- road users on Agden Lane, Thowler Lane and Boothbank Lane (in the adjoining Hulseheath to Manchester Airport area (MA06));
- residents of Agden Lane and Moss Lane;
- for residents of Agden Hall and 'Four Winds' and users of Footpaths Agden 2/3, 2/4 and 3/3;
- for users of Footpaths Agden 1/2, 1/4 and 5/1;
- for users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal; and
- for residents of Woolstencroft Cottage and Woolstencroft Farm and by PRoW users on Footpath Agden 6/2.

Cumulative effects

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

3.8 Sound, noise and vibration

Introduction

3.8.1 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.

3.8.2 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.

Scope, assumptions and limitations

3.8.3 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.

3.8.4 The SES1 changes of relevance to this assessment have the potential to result in new or different likely significant construction and operational sound, noise and/or vibration effects.

SES1 changes relevant to the assessment

3.8.5 The following SES1 changes are considered in the construction and operational phase assessments:

- additional environmental baseline information;
- changes to the construction design programme (construction assessment only);
- removal of the HS2 WCML connection (SES1-004-001); and
- changes to the Peacock Lane realignment (SES1-003-002).

Environmental baseline

Existing baseline

3.8.6 In the Pickmere to Agden and Hulseheath area, the updated sound modelling described in Section 2 has resulted in updates to the existing baseline sound levels in the following locations:

- at receptors adjacent to the B5391 Pickmere Lane and in the community of Pickmere;
- at receptors adjacent to Budworth Road and in the community of Tabley; and
- at receptors in the community of Hulseheath.

3.8.7 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: Pickmere to Agden and Hulseheath (MA03) of the main ES.

Future baseline

3.8.8 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 and 2038. 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 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 from the SES1 scheme.

3.8.9 Updates have also been made to future baseline sound levels at the locations 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

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

Assessment of impacts and effects

3.8.11 The SES1 scheme has the potential to give rise to new and different temporary 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 10. In the 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 properties in the community identified are presented in the 'cause' column of this table.

3.8.12 The main ES identified a significant adverse construction noise effect in the vicinity of approximately five dwellings at Tabley Superior for a duration of up to eight months. This was denoted as MA03-C-C1 in Table 36 of the Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), in Volume 5, Appendix: SV-002-0MA03 and Volume 5, Sound, noise and vibration Map Book, Map Series SV-03 of the main ES. The SES1 changes to existing baseline sound levels and the construction programme will increase the duration of impact at this community to one year and one month, which will give rise to a different likely significant effect on the residential community.

3.8.13 The main ES identified a significant adverse construction noise effect in the vicinity of approximately 20 dwellings at Hulseheath for a duration of up to three years. This was denoted as MA03-C-C2 in Table 36 of the Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), in Volume 5, Appendix: SV-002-0MA03 and Volume 5, Sound, noise and vibration Map Book, Map Series SV-03 of the main ES. The removal of the HS2 WCML connection (SES1-004-001) will decrease the number of properties affected at this community to approximately 15 dwellings, which will give rise to a different likely significant effect on the residential community for a similar duration.

3.8.14 The SES1 changes to existing baseline sound levels in the vicinity of the B5391 Pickmere Lane will give rise to new adverse construction noise effects in the vicinity of approximately 10 dwellings in Pickmere for a duration of up to one year and eight months denoted as MA03-C-C4. 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 is considered to be a likely significant effect when assessed on a community basis.

Table 10: 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)[11]	Type of significant effect	Time of day	Location	Cause (construction activities)[12]	Assumed approximate duration of impact
MA03-C-C1 (SV-03-310)	Construction noise (Different)	Daytime	Tabley Superior: approximately five dwellings on Budworth Road near the HS2 route.	Site compound operation. The typical and highest monthly noise levels are approximately 65dB and 70dB[13].	Up to one year and one month.
MA03-C-C2[14] (SV-03-312a)	Combined construction site and traffic noise (Different)	Daytime	Hulseheath: approximately 15 dwellings in the vicinity of Chapel Lane, Peacock Lane and Thowler Lane.	Site compound operation, earthworks, overbridge and viaduct construction and road works; and vehicles on Chapel Lane and Peacock Lane. The typical and highest monthly noise levels are approximately 60dB to 70dB and 75dB.	Up to three years and four months.
MA03-C-C4 (SV-03-310)	Construction noise (New)	Daytime	Pickmere Lane: approximately 10 dwellings on Pickmere Lane and Hall Lane.	Site compound operation. The typical and highest monthly noise levels are approximately 60 to 70dB and 70 to 75dB.	Up to one year and eight months.

[11] 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.

[12] 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.

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

[14] This community extends across the boundary between the Pickmere to Agden and Hulseheath area and the Hulseheath to Manchester Airport area (MA06), with the majority being in the Pickmere to Agden and Hulseheath area. For further information, see Volume 2, Community Area report: Hulseheath to Manchester Airport (MA06), Section 13 and Volume 5, Appendix: SV-002-0MA06 of the main ES.

3.8.15 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

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

Summary of likely residual significant effects

3.8.17 The SES1 changes to the existing baseline sound levels will give rise to a different likely temporary residual adverse significant construction noise effect on residential communities in Tabley Superior due to an increased impact duration.

3.8.18 The SES1 changes to the existing baseline sound levels will give rise to a different likely temporary residual adverse significant construction noise effect on residential communities in Hulseheath due to the removal of the HS2 WCML connection (SES1-004-001).

3.8.19 The SES1 changes to the existing baseline sound levels will give rise to a different likely temporary residual adverse significant construction noise effect on residential communities in Pickmere due to construction activities.

Cumulative effects

3.8.20 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

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

Assessment of impacts and effects

Residential receptors: direct effects – individual dwellings

3.8.22 The main ES identified the dwelling at Ovenback Cottage, Agden Lane, High Legh (assessment location ref.: 612796) as a location which is forecast to experience noise above the eligibility criteria for noise insulation. Removal of the HS2 WCML connection (SES1-004-001) will reduce the airborne noise level predicted at this property under the original scheme to below the eligibility criteria for noise insulation. It is anticipated, therefore, that this building will no longer qualify or need to be offered noise insulation as described in the main ES due to the removal of the HS2 WCML connection (SES1-004-001).

Residential receptors: direct effects – communities

3.8.23 The SES1 scheme may give rise to new and different adverse noise effects which are 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 11.

3.8.24 The main ES identified a likely significant adverse operational airborne noise effect on a community basis at approximately five dwellings in the vicinity of Winterbottom Lane. This was denoted as MA03-O-C3 in the Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), in Volume 5, Appendix: SV-003-0MA03 and in the Volume 2, MA03 Map Book, Map Series SV-05 of the main ES. Removal of the HS2 WCML connection (SES1-004-001) will reduce operational airborne noise level from trains at dwellings in the vicinity of Winterbottom Lane. The noise level change at the majority of these dwellings will reduce from moderate adverse to minor which is not considered to be significant on a community basis. As a result, the likely significant adverse effect identified in the vicinity of Winterbottom Lane in the main ES is removed.

3.8.25 The main ES identified a likely significant adverse operational airborne noise effect on a community basis at approximately 15 dwellings at Hulseheath. This was denoted as MA03-O-C4 in Table 3 of the Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), in Volume 5, Appendix: SV-003-0MA03 and in the Volume 2, MA03 Map Book, Map Series SV-05 of the main ES. The SES1 changes to existing baseline noise levels and the removal of the HS2 WCML connection (SES1-004-001) will result in different noise level changes at dwellings at Hulseheath. As a result, the number of dwellings subject to the significant adverse operational noise effect at Hulseheath will increase to approximately 20. This will result in a different likely significant adverse operational noise effect on a community basis at Hulseheath in the vicinity of Chapel Lane, Peacock Lane and Thowler Lane.

3.8.26 In the main ES, the noise level changes at dwellings in the vicinity of the B5391 Pickmere Lane were negligible and minor adverse, and a likely significant effect was not identified on a community basis. The SES1 changes to existing baseline noise levels in this area results in minor to major noise level increases at approximately 45 dwellings. The direct adverse effect on the acoustic character of this residential community is considered to be significant on a community basis. Therefore, a new likely significant adverse operational noise effect is identified on a community basis at dwellings in the vicinity of the B5391 Pickmere Lane (MA03-O-C5).

Table 11: Direct adverse operational effects on residential communities and shared open areas that are considered significant on a community basis and are new, different or removed compared to those reported in the main ES

Significant effect number and map reference[15]	Source of significant effect (type)	Time of day	Location and details
MA03-O-C3 (SV-05-310)	Airborne noise increase from new train services (Removed)	Daytime and night-time	Winterbottom Lane Approximately five 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 at the majority of properties affecting the acoustic character of the area around the properties which is not considered to be significant on a community basis. There are no shared open spaces identified as being affected in this community.
MA03-O-C4[16] (SV-05-311)	Airborne noise increase from new train services (Different)	Daytime and night-time	Hulseheath Approximately 20 dwellings in the vicinity of Thowler Lane, Back Lane and Peacock Lane. Forecast increases in sound from the railway are likely to cause a moderate noise increase affecting the acoustic character of the area around the properties. The effect on the acoustic character of residential areas that are located further from the railway will be minor adverse. There are no shared open spaces identified as being affected in this community.
MA03-O-C5 (SV-05-310)	Airborne noise increase from new train services (New)	Daytime and night-time	Pickmere Approximately 45 dwellings in the vicinity of the B5391 Pickmere Lane, School Lane and Hall Lane. Forecast increases in sound from the railway are likely to cause a major noise increase affecting the acoustic character of the area around the properties. The effect on the acoustic character of residential areas that are located further from the railway will be moderate or minor adverse. There are no shared open spaces identified as being affected in this community.

3.8.27 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

3.8.28 No other mitigation measures are required in addition to those reported in the main ES.

Summary of likely residual significant effects

3.8.29 SES1 changes to existing baseline noise levels and the removal of the HS2 WCML connection (SES1-004-001) will give rise to different residual likely significant adverse noise effects from operation of the SES1 scheme on residential communities in Hulseheath, due to an increase in the number of properties affected.

[15] See SES1 and AP1 ES Volume 2, MA03 Map Book, Map Series SV-05.

[16] This community extends across the boundary between the Pickmere to Agden and Hulseheath area and the Hulseheath to Manchester Airport area (MA06), with the majority of dwellings being in the Pickmere to Agden and Hulseheath area.

3.8.30 SES1 changes to existing baseline noise levels will give rise to a new residual likely significant adverse noise effect from operation of the SES1 scheme on residential communities in Pickmere.

Summary of likely residual significant effects that will be removed

3.8.31 The SES1 changes will remove a significant adverse operational airborne noise effect on a community basis at approximately five dwellings in the vicinity of Winterbottom Lane.

Cumulative effects

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

3.9 Traffic and transport

Introduction

3.9.1 The environmental baseline relevant to the traffic and transport 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 traffic and transport are as set out in Volume 1 and the SMR of the main ES.

3.9.3 The SES1 design changes of relevance to this assessment have the potential to result in new or different significant construction and operation effects for traffic and transport.

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

3.9.5 The assessment in this section considers the potential effects on PRoW and roadside footway 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 SES1 changes.

SES1 changes relevant to the assessment

3.9.6 The following SES1 design changes are considered in this assessment:

- removal of the HS2 West Coast Main Line (WCML) connection (SES1-004-001); and
- changes to the Peacock Lane realignment (SES1-003-002).

Environmental baseline

Existing baseline

3.9.7 The baseline traffic and transport information is described in Section 14 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES, as amended in Section 2 of this report. A summary of the baseline information relevant to the assessment of the SES1 design changes is provided below.

3.9.8 Peacock Lane, Agden Lane and Back Lane are unclassified local roads in the Pickmere to Agden and Hulseheath area. The local road network in this area generally operates well although some localised delays can be experienced, particularly at peak times.

3.9.9 There are a number of PRoW in the Pickmere to Agden and Hulseheath area. The PRoW of relevance to the assessment of the SES1 design changes are:

- Footpath Agden 4/1;
- Footpath Agden 2/4; and
- Footpath Agden 1/2.

3.9.10 Surveys undertaken to inform the assessment of the original scheme showed that these PRoW each recorded two users on the day of the survey. Peacock Lane was used by 14 non-motorised users on the day of the survey. No survey information is available on Agden Lane and Back Lane, however in the absence of information the assessment is based on conservative assumptions regarding usage.

Future baseline

3.9.11 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. These committed developments have been considered as part of the future baseline where relevant.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

3.9.13 The main ES reported that the original scheme would require the temporary closures of Peacock Lane and Back Lane during construction of Peacock Lane overbridge, Peacock Lane viaduct and the Peacock Lane realignment. As a result, vehicle occupants on Peacock Lane and Back Lane would be subject to a moderate adverse effect, which is significant, due to an

increase in journey length of up to 8.6km. Non-motorised users of Back Lane would be subject to a moderate adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 3.9km. Non-motorised users of Peacock Lane would be subject to a moderate adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 2.7km.

3.9.14 The SES1 design change to amend the Peacock Lane realignment (SES1-003-002) will remove construction of Peacock Lane overbridge from the SES1 scheme. Temporary closures will however still be required during the construction of Peacock Lane viaduct and Peacock Lane realignment. As a result, the SES1 design change will result in no change to the Peacock Lane temporary diversion route or duration reported in the main ES. This will therefore not change the level of significance of the effect for non-traffic related severance or journey length for vehicle occupants on Peacock Lane and Back Lane as reported in the main ES, which remain moderate adverse effects.

3.9.15 The main ES reported that the original scheme would require the temporary realignment of the A56 Lymm Road. As a result, vehicle occupants on the A56 Lymm Road would be subject to an increase in journey length of 14m, which would not result in a significant effect. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the temporary realignment of the A56 Lymm Road. However, this will not give rise to a new or different significant effect.

3.9.16 The main ES reported that the original scheme would require the temporary realignment of the M56 between junctions 8 and 9, resulting in overnight closures during construction of the temporary realignment and in an increase in journey length of 20m for vehicle occupants on the M56 during its operation. These impacts, in isolation, were not expected to result in a significant. However, the cumulative impact of these impacts, in addition to weekend and overnight closures on the M56 associated with works in the adjacent Hulseheath to Manchester Airport area (MA06), would result in a moderate cumulative adverse effect, which is significant. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the temporary realignment of the M56 between junctions 8 and 9. This will remove the need for overnight closures and the increase in journey length for vehicle occupants on the M56. As a result, this will remove the moderate cumulative adverse effect reported in the main ES.

3.9.17 The main ES reported that the original scheme would require the temporary diversion of Footpath Agden 4/1. As a result, users of Footpath Agden 4/1 would be subject to a moderate adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 701m. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the temporary diversion of Footpath Agden 4/1 and will remove the moderate adverse effect on non-traffic related severance reported in the main ES.

3.9.18 The main ES reported that the original scheme would require the temporary diversion of Footpath Agden 2/4. As a result, users of Footpath Agden 2/4 would be subject to a moderate adverse effect on non-traffic related severance, which is significant, due to an

increase in journey length of up to 500m. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the temporary diversion of Footpath Agden 2/4 and will remove the moderate adverse effect on non-traffic related severance reported in the main ES.

3.9.19 The main ES reported that the original scheme would require the temporary diversion of Footpath Agden 1/2. As a result, users of Footpath Agden 1/2 would be subject to a minor adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 500m. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the temporary diversion of Footpath Agden 1/2 and will remove the minor adverse effect on non-traffic related severance reported in the main ES.

3.9.20 The main ES reported that the original scheme would require the temporary diversion of Agden Lane. As a result, non-motorised users of Agden Lane would be subject to a moderate adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 2.1km. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the temporary diversion of Agden Lane and will remove the moderate adverse effect on non-traffic related severance reported in the main ES.

Other mitigation measures

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

Summary of likely residual significant effects that will be removed

3.9.22 The SES1 changes will remove the following likely residual temporary significant effects reported in the main ES:

- moderate adverse effect on non-traffic related severance for non-motorised users of Agden Lane;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 2/4;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 4/1;
- minor adverse effect on non-traffic related severance for users of Footpath Agden 1/2; and
- moderate cumulative adverse effect due to changes in journey lengths for vehicle users on the M56 due to weekend and overnight closures.

Cumulative effects

3.9.23 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.

3.9.24 The assessment of combined effects associated with changes in traffic flows as a result of the SES1 design changes acting in combination with the AP1 revised scheme is reported in Section 7.

Effects arising during operation

Avoidance and mitigation measures

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

Assessment of impacts and effects

3.9.26 The main ES reported that the original scheme would require the permanent realignment of Peacock Lane and the permanent diversion of Back Lane. As a result, vehicle occupants on Peacock Lane and Back Lane would be subject to a negligible change in journey length, which would not result in a significant effect. The SES1 design changes to the Peacock Lane realignment (SES1-003-002) will result in a change to the permanent realignment of Peacock Lane. Peacock Lane will now be aligned 35m south of its existing alignment for a total of 250m, and up to 170m north of its existing alignment. The alignment of Back Lane will be amended to tie-in to the amended Peacock Lane realignment. This will result in a negligible change in journey length for vehicle occupants and non-motorised users, which will not give rise to new or different significant effects to those reported in the main ES.

3.9.27 The main ES reported that the original scheme would require the permanent closure of Agden Lane. As a result, vehicle occupants on Agden Lane would be subject to an increase in journey length of 2.2km, resulting in a minor adverse effect, which is significant. Additionally, non-motorised users on Agden Lane would be subject to an increase in journey length of 2.2km, resulting in a moderate adverse effect on non-traffic related severance, which is significant. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the requirement for the permanent closure of Agden Lane. This will remove the minor adverse significant effect on journey length for vehicle occupants and the moderate adverse significant effect on non-traffic related severance reported in the main ES.

3.9.28 The main ES reported that the original scheme would require the permanent diversion of Footpath Agden 2/4. As a result, users of Footpath Agden 2/4 would be subject to a moderate adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 736m. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the permanent diversion of Footpath Agden 2/4 and

will remove the moderate adverse effect on non-traffic related severance reported in the main ES.

3.9.29 The main ES reported that the original scheme would require the permanent closure of Footpath Agden 4/1. As a result, users of Footpath Agden 4/1 would be subject to a moderate adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 1.4km. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the permanent closure of Footpath Agden 4/1 and will remove the moderate adverse effect on non-traffic related severance reported in the main ES.

3.9.30 The main ES reported that the original scheme would require the permanent closure of Footpath Agden 1/2. As a result, users of Footpath Agden 1/2 would be subject to a minor adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 309m. The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will remove the permanent closure of Footpath Agden 1/2 and will remove the minor adverse effect on non-traffic related severance reported in the main ES.

Other mitigation measures

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

Summary of likely residual significant effects that will be removed

3.9.32 The SES1 changes will remove the following likely residual permanent significant effects reported in the main ES:

- minor adverse effect due to changes in journey lengths for vehicle users on Agden Lane;
- moderate adverse effect on non-traffic related severance for non-motorised users of Agden Lane;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 2/4;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 4/1; and
- minor adverse effect on non-traffic related severance for users of Footpath Agden 1/2.

Cumulative effects

3.9.33 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.

3.9.34 The assessment of combined effects associated with changes in traffic flows as a result of the SES1 design changes acting in combination with the AP1 revised scheme is reported in Section 7.

3.10 Water resources and flood risk

Introduction

3.10.1 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.

Scope, assumptions and limitations

3.10.2 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.

3.10.3 The SES1 design changes of relevance to this assessment have the potential to result in new or different significant construction effects on water resources. There is no operational assessment for water resources, and no operational or construction assessment for flood risk.

3.10.4 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

3.10.5 The SES1 design change of relevance to this assessment is the change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001). This SES1 change has the potential to affect water resources only and there will be no change to the flood risk assessment presented in the main ES.

Environmental baseline

Existing baseline

3.10.6 The baseline water resources and flood risk information is as described in Section 15 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES. New baseline information is in Section 2.1 of this report. A summary of the baseline information relevant to the assessment of the SES1 changes is provided below.

3.10.7 As set out in the main ES, the potential spring at Belt Wood east is a high value receptor located approximately 480m east of the route of the original scheme at Belt Wood.

Future baseline

3.10.8 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 Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant and none of the identified developments affect the assessment of the AP1 revised scheme's likely impact on water resources and flood risk.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

3.10.10 The well at Heyrose Farm was considered a groundwater receptor on a precautionary basis in the main ES and led to major adverse temporary and permanent effects, which were significant. Since the main ES, it has been confirmed that the well has been sealed and is no longer considered a receptor. The removal of this receptor will result in the removal of these significant effects.

3.10.11 In the main ES, the route of the Scottish Power 132kV diversion included the construction of a new pylon within 60m of the potential spring at Belt Wood east. The presence of the below ground foundations for this pylon had the potential to adversely affect groundwater flow paths, and therefore, flow in the potential spring. On a precautionary basis, this was assessed to be a permanent moderate adverse effect on the potential spring at Belt Wood east, which would be significant.

3.10.12 The change to a utility diversion (SES1-003-001) SES1 design change reroutes the power line below ground to the west of Belt Wood, under the existing Bucklow Hill Lane and Hoo Green Lane, before running along the route of a proposed HS2 access road. Therefore, the new pylon near potential spring at Belt Wood east will no longer be required. This SES1 design change will remove the significant effect on this potential spring.

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 that will be removed

3.10.14 The change to a utility diversion (SES1-003-001) SES1 design change will lead to the removal of the permanent moderate adverse effect reported in the main ES on the potential spring at Belt Wood east.

Cumulative effects

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

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

3.11.1 The SES1 changes will result in the following new or different likely residual significant effects.

Construction

Agriculture, forestry and soils

3.11.2 The removal of the HS2 WCML connection (SES1-004-001) and the change to a utility diversion in Belt Wood (SES1-003-001) will reduce the overall area of BMV agricultural land required in the Pickmere to Agden and Hulseheath area. However, the overall effect of the SES1 scheme on the agricultural land resource will remain major/moderate adverse, which is significant.

3.11.3 The change to a utility diversion in Belt Wood (SES1-003-001) will reduce a major adverse significant effect at Knowlspit Farm with Bentleyhurst Farm (MA03/19) to a major/moderate adverse effect.

Community

3.11.4 The SES1 design changes will result in different significant residual effects on:

- approximately five residential properties in the vicinity of Budworth Road, Tabley Superior due to new noise and HGV traffic effects combining with visual effects; and
- approximately 15 residential properties on Chapel Lane, Thowler Lane and Peacock Lane in Hulseheath due to noise, visual and HGV traffic effects

Ecology and biodiversity

3.11.5 On a precautionary basis, it is assumed that the SES1 design change to a utility diversion (SES1-003-001) and the removal of the HS2 WCML connection (SES1-004-001) will result in a net loss in hedgerow of 40.2km, which is 6.7km less than the loss 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.

Landscape and visual

3.11.6 The SES1 design changes to a utility diversion (SES1-003-001), to a highway realignment (SES1-003-002) and the removal of the HS2 WCML connection (SES1-004-001) will give rise to a different likely residual significant construction effect for the Arley Lower Wooded Farmland LCA, but where the level of effect is unchanged to that reported in the main ES. The level of significance of the effect will remain, major adverse (significant).

3.11.7 The SES1 design change to a utility diversion (SES1-003-001) will give rise to a different likely residual significant construction effect but where the level of effect is unchanged to that reported in the main ES at the following viewpoints:

- view west from Bentleyhurst Farm and Bridleway Mere 1/1 (viewpoint 315-03-004) the effect will slightly reduce but will remain **major** adverse (significant); and
- view south-west from the A50 Cliff Lane/Warrington Road/Knutsford Road (viewpoint 316-02-004) - the effect will reduce but will remain **major** adverse (significant).

3.11.8 The SES1 design change to a highway realignment (SES1-003-002) and the removal of the HS2 WCML connection (SES1-004-001) will give rise to a different likely residual significant construction effect but where the level of effect is unchanged to that reported in the main ES at the following viewpoints:

- view south from Thowler Lane (viewpoint 317-02-008) - the effect will reduce but will remain **major** adverse (significant); and
- view east from Moss Lane (viewpoint 317-02-009) - the effect will reduce but will remain **major** adverse (significant).

3.11.9 The SES1 design changes (SES1-003-002) and (SES1-004-001) will give rise to a different likely residual significant construction effect at view south-west from Agden Lane (viewpoint 318-02-001) and the level of significance reported in the main ES will reduce from **major** adverse (significant) to **moderate** adverse (significant).

Sound, noise and vibration

3.11.10 Different significant residual adverse noise effects from construction activities on residential communities in Tabley Superior are likely as a result of the SES1 changes (SES1-003-002 and SES1-004-001) and changes to existing baseline noise levels.

3.11.11 Different significant residual adverse noise effects from construction activities on residential communities in Hulseheath are likely as a result of the removal of the HS2 WCML connection (SES1-004-001).

3.11.12 A new significant residual adverse noise effect from construction activities on residential communities in Pickmere is likely as a result of the SES1 changes to existing baseline noise levels.

Operation

Community

3.11.13 Changes to the sound, noise and vibration baseline will result in a new significant residual effect on approximately 40 residential properties in the vicinity of Pickmere Lane and School Lane due to a new noise effect combining with an existing visual effect.

3.11.14 The removal of the HS2 WCML connection (SES1-004-001) and updates to the sound, noise and vibration baseline will result in a different significant residual effect on an additional five properties on Back Lane, Thowler Lane and Peacock Lane due to noise and visual effects. In total, there will be a residual effect on 20 residential properties in Hulseheath due to noise and visual effects.

Landscape and visual

3.11.15 The SES1 design changes (SES1-003-001, SES1-003-002 and SES1-004-001) will give rise to a different likely residual significant operational effect for the Arley Lower Wooded Farmland LCA, but where the level of effect is unchanged to that reported in the main ES. The level of significance of the effect will remain, **major** adverse (significant).

3.11.16 The SES1 design change (SES1-003-001) will give rise to a different likely residual significant construction effect but where the level of effect is unchanged to that reported in the main ES at the following viewpoints:

- view west from Bentleyhurst Farm and Bridleway Mere 1/1 (viewpoint 315-03-004) - effect will reduce but will remain **moderate** adverse (significant); and
- view south-west from the A50 Cliff Lane/Warrington Road/Knutsford Road (viewpoint 316-02-004) - the effect will reduce but will remain **moderate** adverse (significant).

3.11.17 The SES1 design changes (SES1-003-002) and (SES1-004-001) will give rise to a different likely residual significant operational effect but where the level of effect is unchanged to that reported in the main ES at the following viewpoint. For the view south from Thowler Lane (viewpoint 317-02-008), the effect will reduce but will remain **moderate** adverse (significant).

Sound, noise and vibration

3.11.18 SES1 changes to existing baseline noise levels and the removal of the HS2 WCML connection (SES1-004-001) will give rise to different residual likely significant adverse noise effects from

operation of the SES1 scheme on residential communities in Hulseheath, due to an increase in the number of properties affected.

3.11.19 SES1 changes to existing baseline noise levels will give rise to a new residual likely significant adverse noise effect from operation of the SES1 scheme on residential communities in Pickmere.

3.12 Summary of likely residual significant effects that will be removed

3.12.1 The SES1 changes will remove the following likely residual significant effects reported in the main ES.

Construction

Ecology and biodiversity

3.12.2 The re-routing of a Scottish Power 132kV power line diversion (SES1-003-001) means that the Belt Wood AWI site will not be affected by the SES1 scheme. This will remove the permanent adverse significant effect reported in the main ES.

3.12.3 The removal of the HS2 WCML connection (SES1-004-001) will remove the significant adverse effects at up to the county/metropolitan level reported in the main ES for a meta-population (GCNMP1.3.11) of great crested newt in a network of 10 ponds located north of High Legh and population (GCNP1.3.12) of great crested newt in a pond located south-west of Hale.

Historic environment

3.12.4 The SES1 scheme will remove the likely residual significant effects on:

- Ovenback Cottage (MA03_0058); and
- the Group of levelled rectilinear banks and ditches representing the former gardens of Agden Hall (MA03_0144).

Landscape and visual

3.12.5 The SES1 changes will result in the removal of the following likely residual significant effects reported in the main ES:

- residents of Agden Lane and Moss Lane;
- residents of Agden Hall and 'Four Winds';
- users of Footpaths Agden 1/2, 1/4 and 5/1;
- residents on Lymm Road and Agden Park Lane;
- users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal; and

- residents of Woolstencroft Cottage and Woolstencroft Farm and PRoW users on Footpath Agden 6/2.

Traffic and transport

3.12.6 The SES1 changes will remove the following likely residual temporary significant effects reported in the main ES:

- moderate adverse effect on non-traffic related severance for non-motorised users of Agden Lane;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 2/4;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 4/1;
- minor adverse effect on non-traffic related severance for users of Footpath Agden 1/2; and
- moderate cumulative adverse effect due to changes in journey lengths for vehicle users on the M56 due to weekend and overnight closures.

Operation

Community

3.12.7 The removal of the HS2 WCML connection (SES1-004-001) will result in the removal of a significant residual in-combination effect on five residential properties in Winterbottom.

Ecology and biodiversity

3.12.8 The removal of the HS2 WCML connection (SES1-004-001) will remove significant effects caused by collisions of trains with bats within the assemblage between the M56, the River Bollin and the Bridgewater Canal within the Pickmere to Agden and Hulseheath area and Broomedge to Glazebrook area (MA04).

Landscape and visual

3.12.9 The SES1 changes will remove the following likely residual significant effects reported in the main ES:

- residents of Moss Lane and Peacock Lane and users of Footpath High Legh 4/1;
- road users on Agden Lane, Thowler Lane and Boothbank Lane (in the adjoining Hulseheath to Manchester Airport area (MA06));
- residents of Agden Lane and Moss Lane;
- for residents of Agden Hall and 'Four Winds' and users of Footpaths Agden 2/3, 2/4 and 3/3;

- for users of Footpaths Agden 1/2, 1/4 and 5/1;
- for users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal; and
- for residents of Woolstencroft Cottage and Woolstencroft Farm and by PRoW users on Footpath Agden 6/2.

Sound, noise and vibration

3.12.10 The SES1 changes will remove a significant adverse operational airborne noise effect on a community basis at approximately five dwellings in the vicinity of Winterbottom Lane.

Traffic and transport

3.12.11 The SES1 changes will remove the following likely residual permanent significant effects reported in the main ES:

- minor adverse effect due to changes in journey lengths for vehicle users on Agden Lane;
- moderate adverse effect on non-traffic related severance for non-motorised users of Agden Lane;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 2/4;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 4/1; and
- minor adverse effect on non-traffic related severance for users of Footpath Agden 1/2.

Water resources

3.12.12 The change to a utility diversion (SES1-003-001) SES1 design change will lead to the removal of the permanent moderate adverse effect reported in the main ES on the potential spring at Belt Wood east.

Part 2: Additional Provision 1 Environmental Statement

4 Summary of AP1 amendments in the Pickmere to Agden and Hulseheath 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 Pickmere to Agden and Hulseheath area relate to engineering amendments and are described below.

4.1.2 Please note that all dimensions in the following sections are approximate.

4.2 Engineering amendments

4.2.1 Engineering amendments will be required in the Pickmere to Agden and Hulseheath area that will result in changes to the land required or Bill powers required for the original scheme. Table 12 provides a summary of the engineering amendments. Figure 3 shows the locations of the engineering amendments. Both Table 12 and Figure 3 exclude the AP1 amendment additional land required for the realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-12), as this is located in the Wimboldsley to Lostock Gralam area (MA02) on the boundary of the Pickmere to Agden and Hulseheath area (MA03). As this amendment will impact the Pickmere to Agden and Hulseheath area (MA03) an assessment of this amendment is provided in Section 5.

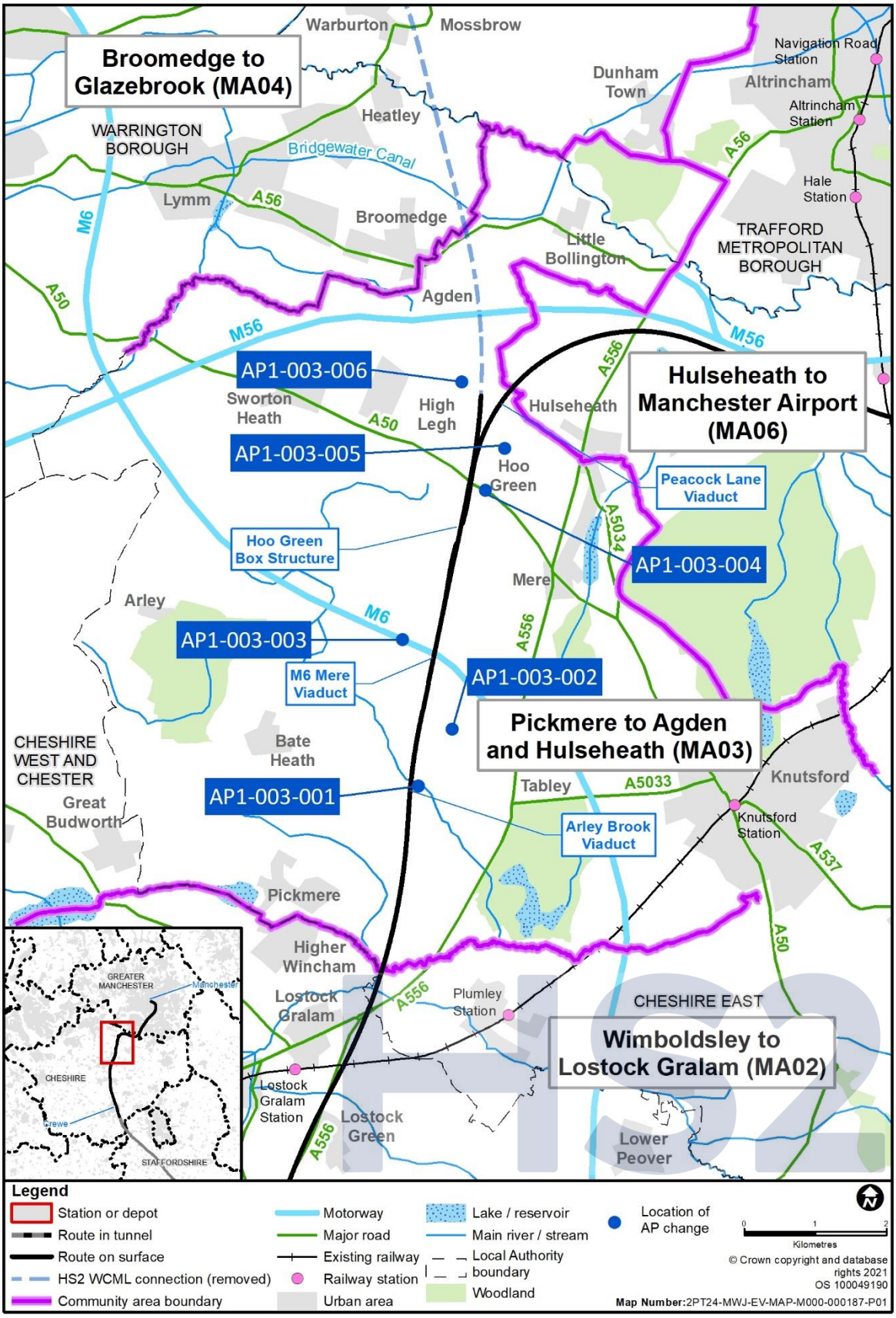
Table 12: Summary of engineering amendments in the Pickmere to Agden and Hulseheath area

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
Additional land permanently required to improve visibility on the approach to Flittogate Lane junction AP1-003-001 Map CT-05-318, B7 and CT-06-318, B7 in the SES1 and AP1 ES Volume 2, MA03 Map Book	The B5391 Pickmere Lane would be realigned 62m north of its existing alignment for 422m, crossing under the HS2 route beneath Arley Brook viaduct. Flittogate Lane would also be diverted, 260m north of its existing alignment for 491m. A new three-arm priority controlled (give way) T- junction would be formed at the connection with the B5391 Pickmere Lane realignment. There would be a 60m stopping sight distance (SSD) for traffic travelling southbound on Pickmere Lane. Due to the existing road alignment the view would be	There will be an increase in the width of the highway verge to increase the SSD to 120m for southbound traffic using the Pickmere Lane/Flittogate Lane junction. This will reduce the amount of wetland habitat creation and hedgerow planting provided at this location.

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
	obstructed by vegetation to the west of the bridge over Waterless Brook. The increased proximity of the junction of the diverted Flittogate Lane to Waterless Brook has the potential to increase vehicle collisions between southbound traffic and vehicles turning into Flittogate Lane.	
Additional land permanently required to modify HS2 access near Heyrose Farm AP1-003-002 Map CT-05-318, F8 to F10, and Map CT-06-318, F7 to F10, in the SES1 and AP1 ES Volume 2, MA03 Map Book	The Heyrose Farm access would be closed to the south of Heyrose Farm where it crosses the HS2 route, with access to properties retained on the eastern side through improvements, including the creation of a vehicle turning head and a passing bay. The access road would also be used by HS2 maintenance teams.	The HS2 access road will be extended to Old Hall Lane removing the need for the turning head as there will be sufficient room for vehicles to turn around at the junction with Old Hall Lane.
Additional land permanently required to lengthen the realignment of the M6 between junction 19 and junction 20 AP1-003-003 Map CT-05-319, A10 to C1, and Map CT-06-319, B9 to C3, in the SES1 and AP1 ES Volume 2, MA03 Map Book	The M6 would be widened by 2m along its existing alignment over a length of 425m, 1.6km north-west of junction 19, to accommodate a pier for the proposed M6 Mere viaduct within the central reservation.	The M6 central reservation will be widened by up to 7m along its existing alignment over a length of 830m to enable a 70mph speed limit during the majority of the construction period.
Airspace rights required for the diversion of a National Grid 400kV overhead power line near A50 Warrington Road AP1-003-004 Map CT-05-320, F7 and F8, in the SES1 and AP1 ES Volume 2, MA03 Map Book	The diversion of a National Grid 400kV overhead power line for 775m to the north of A50 Warrington Road overbridge and to the east of the HS2 route.	A section of existing 400kV overhead line that passes over the A50 Warrington Road will be re-strung. This change requires additional land in the form of airspace rights to enable the restringing of power lines.
Additional land temporarily required for the provision of surface water drainage at Bowden View satellite compound AP1-003-005 Map CT-05-320, I9 in the SES1 and AP1 ES Volume 2, MA03 Map Book	The temporary use of land for construction of the original scheme on the eastern side of the HS2 route, which includes the establishment of the Bowden View satellite compound and site haul routes.	Additional land will be required temporarily to allow for a gravity surface water drainage outfall to the Tributary of Millington Clough 1 watercourse during construction.
Additional land temporarily required for the provision of surface water	The temporary use of land for construction of the original scheme	Additional land will be required temporarily to allow for a gravity

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
drainage at Peacock Lane satellite compound AP1-003-006 Map CT-05-321, D2 in the SES1 and AP1 ES Volume 2, MA03 Map Book	on the eastern and western sides of the HS2 route, which includes the establishment of the Peacock Lane satellite compound.	surface water drainage outfall to the Tributary of Millington Clough 3 watercourse during construction.

Figure 3: Locations of engineering amendments in the Pickmere to Agden and Hulseheath area



5 Assessment of engineering amendments in the Pickmere to Agden and Hulseheath area

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

5.1.1 Smoker Brook viaduct is located in the Wimboldsley to Lostock Gralam area (MA02) on the boundary of the Pickmere to Agden and Hulseheath area (MA03) and therefore this amendment will impact the Pickmere to Agden and Hulseheath area (MA03) area. A description of this amendment is provided in the SES1 and AP1 Volume 2, Wimboldsley to Lostock Gralam Community Area report (MA02).

Topics included in the AP1 assessment

5.1.2 Assessment of the following topics are reported for this AP1 amendment in the Pickmere to Agden and Hulseheath area (MA03): landscape and visual; and traffic and transport.

5.1.3 The assessment of the changes to traffic flows and traffic related effects as a result of 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 socio-economics, sound, noise and vibration, and water resources and flood risk.

Landscape and visual

Scope, assumptions and limitations

5.1.4 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1 and the EIA SMR[7] (see Volume 5, Appendix: CT-001-00001) of the main ES.

5.1.5 This amendment has the potential to result in new or different significant construction and operational effects for visual amenity only. Therefore, there is no construction or operational assessment for landscape.

5.1.6 All visual effects arising from this amendment are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Environmental baseline

Existing environmental baseline

5.1.7 The baseline landscape and visual information is as described in Volume 5, Appendix: LV-001-0MA03 of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.

Visual baseline

5.1.8 The amendment has the potential to affect two viewpoints, which are described in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03. The amendment has the potential to significantly affect one viewpoint which is summarised below.

View east from Footpath Pickmere 5/1 and Providence Farm (high sensitivity receptors) (313-02-006)

5.1.9 This viewpoint is representative of views experienced by residents of Providence Farm, Roses Farm and Dunholme Farm and users of Footpath Pickmere 5/1. The view is of open farmland, with fields divided by hedgerows and post and wire fencing. Footpath Pickmere 5/1, on a farm track, passes the Pickmere Telescope which is a key feature on the skyline of the view. In the middle-distance, the land slopes gently down to the tree-lined Smoker Brook in the south. Mature trees in the fields and hedgerows cross the view in a series of receding layers, filtering longer views. A power line and mobile phone mast can be seen in the middle distance. Views east from Roses Farm and Dunholme Farm are partially screened by intervening tree belts and hedgerows.

Future environmental baseline

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

5.1.11 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

5.1.12 No further avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP are proposed.

Assessment of impacts and effects

Visual assessment

View east from Footpath Pickmere 5/1 and Providence Farm (high sensitivity receptors) (313-02-006)

5.1.13 The main ES reported a **major** adverse (significant) effect during construction for residents of Providence Farm, Roses Farm and Dunholme Farm and users of Footpath Pickmere 5/1, of high susceptibility and road users of lower susceptibility, all with medium-high value views, experiencing a substantial change to near and middle-distance views. This would be due to the introduction of the large-scale construction works on Smoker Brook viaduct, Pickmere embankment and Footpath Tabley Inferior 1/1 accommodation underbridge into views over the rural landscape.

5.1.14 The amendment will slightly increase the visibility of the construction of Pickmere embankment and Footpath Tabley Inferior 1/1 accommodation underbridge because construction activity will be brought closer to the viewpoint as a result of the expansion to the west of the area affected by construction. A hedgerow with mature trees will be removed, increasing the visibility of construction from Footpath Pickmere 5/1. 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.

5.1.15 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Other mitigation measures

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

Summary of likely residual significant effects

5.1.17 The amendment will give rise to a different likely residual significant construction effect, after implementation of construction phase mitigation, for view east from Footpath Pickmere 5/1 and Providence Farm (viewpoint 313-02-006) - the effect will slightly increase but will remain **major** adverse (significant).

Cumulative effects

5.1.18 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

5.1.19 Minor changes have been made to the environmental mitigation to reflect the movement of the Pickmere embankment westwards. The landscape mitigation planting proposed for the western side of the HS2 route has moved with the new alignment and is of the same depth and arrangement as in the original scheme.

5.1.20 For further information, see Part 3 of SES1 and AP1 ES, Volume 5, Appendix: LV-001-0MA03.

Assessment of impacts and effects

Visual assessment

View east from Footpath Pickmere 5/1 and Providence Farm (high sensitivity receptors) (313-02-006)

5.1.21 At year 1, the main ES reported a major adverse (significant) effect during operation for residents of Providence Farm, Roses Farm and Dunholme Farm and users of Footpath Pickmere 5/1, of high susceptibility and road users of lower susceptibility, all with medium-high value views, experiencing a substantial change to near and middle-distance views. This would be a result of the loss of mature trees in construction and the introduction of Pickmere embankment, overhead line equipment and trains changing the character of rural views and closing long views over the landscape.

5.1.22 At year 1, the amendment will slightly increase the visibility of Pickmere embankment and Footpath Tabley Inferior 1/1 accommodation underbridge because they will be closer to receptors than in the original scheme. In addition, the loss of a hedgerow with mature trees immediately west of the Pickmere Telescope during construction will open up views of the AP1 revised scheme from a short section of the PRoW (but not Providence Farm due to screening provided by the telescope). 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.

5.1.23 At year 15, the main ES reported a moderate adverse (significant) effect due to the growth of landscape mitigation planting and hedgerow planting west of the original scheme providing integration of the new structures into the landscape and partial screening of the Pickmere embankment, overhead line equipment and train movements.

5.1.24 At year 15, the level of significance of the effect will remain as reported in the main ES due to the growth of mitigation planting and increase in effective screening.

5.1.25 At year 30, the level of significance of the effect will remain non-significant as reported in the main ES.

5.1.26 For further information see SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Other mitigation measures

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

Summary of likely residual significant effects

5.1.28 No residual significant effects are anticipated as a result of the amendment.

Cumulative effects

5.1.29 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

5.1.30 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.

5.1.31 This amendment is located in the Wimboldsley to Lostock Gralam area (MA02). However, the amendment has the potential to result in new or different construction and operational significant effects for traffic and transport in the Pickmere to Agden and Hulseheath area (MA03).

5.1.32 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.

5.1.33 The assessment in this section considers the potential effects on PRoW and roadside footway users and parking and loading. 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

5.1.34 The baseline traffic and transport information is described in Section 14 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) 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.

5.1.35 There are a number of PRoW in the Pickmere to Agden and Hulseheath area. The PRoW of relevance to the assessment of this amendment are:

- Footpath Tabley Inferior 1/1;
- Footpath Tabley Inferior 3/1; and
- Footpath Pickmere 9/1.

5.1.36 Surveys undertaken to inform the assessment of the original scheme showed that no users were recorded on the day of the survey using Footpath Tabley Inferior 3/1 or Footpath Pickmere 9/1. No survey data is available on Footpath Tabley Inferior 1/1; however in the absence of information the assessment is based on conservative assumptions regarding usage.

Future environmental baseline

5.1.37 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 construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

5.1.39 The main ES reported that the original scheme would require the permanent realignment of Footpath Tabley Inferior 3/1. As a result, users of Footpath Tabley Inferior 3/1 would be subject to a moderate adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 866m. The amendment will result in a change to the Footpath Tabley Inferior 3/1 alignment. This will result in a negligible change in journey length for non-motorised users compared to the main ES and will not change the level of significance of the effect reported in the main ES, which remains a moderate adverse effect.

5.1.40 The main ES reported that the original scheme would require the permanent realignment of Footpath Pickmere 9/1. As a result, users of Footpath Pickmere 9/1 would be subject to a minor adverse effect on non-traffic related severance, which is significant, due to an increase in journey length of up to 248m. The amendment will result in a change to the Footpath Pickmere 9/1 realignment. This will result in a negligible change in journey length for non-motorised users compared to the main ES and will not change the level of significance of the effect reported in the main ES, which remains a minor adverse effect.

5.1.41 The main ES reported no permanent significant effects on users of Footpath Tabley Inferior 1/1 as a result of the original scheme. The amendment will give rise to a change to the Footpath Tabley Inferior 1/1 realignment. This will result in a negligible change in journey length for non-motorised users compared to the main ES, which will not give rise to a new or different significant effect.

5.1.42 The amendment will therefore not give rise to any new or different significant effects compared with those reported in the main ES.

Other mitigation measures

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

Summary of likely residual significant effects

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

Cumulative effects

5.1.45 There are no new, removed or different significant cumulative effects on PRoW and roadside footway users and parking and loading compared to the main ES.

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

Construction

Landscape and visual

5.1.46 The amendment will give rise to a different likely residual significant construction effect for view east from Footpath Pickmere 5/1 and Providence Farm (viewpoint 313-02-006) - the effect will slightly increase but will remain **major** adverse (significant).

5.2 Additional land permanently required to improve visibility at the approach to Flittogate Lane junction (AP1-003-001)

5.2.1 The Bill provides for the realignment of the B5391 Pickmere Lane, 62m north of its existing alignment for 422m, crossing under the HS2 route beneath Arley Brook viaduct, with a negligible change in journey length. See Volume 2, MA03 Map Book, map CT-06-317, I5 to J7 and map CT-06-318, A5 to B7 in the main ES.

5.2.2 The Bill also provides for the diversion of Flittogate Lane, 260m to the north of its existing alignment for 491m. A new three-arm priority controlled (give way) T- junction would be formed at the connection with the B5391 Pickmere Lane realignment. Flittogate Lane would cross under the HS2 route beneath Arley Brook viaduct, increasing journey length by 372m. The existing Flittogate Lane would be closed where it crosses the HS2 route.

5.2.3 Since the main ES, an enhancement has been identified to improve the visibility along Pickmere Lane southbound. An area of widened verge and vegetation clearance is therefore proposed to improve forward visibility from 60m to 120m for southbound traffic navigating the bend on the approach to the relocated Flittogate Lane junction. An area of wetland

habitat creation provided in the original scheme will be reduced in size by 200m² and an area of hedgerow planting will be reduced by 10m to accommodate the amendment.

5.2.4 The amendment will result in the shortening of an overhead telecommunication line diversion which will reduce the amount of land that is required to the north of Waterless Brook.

5.2.5 The amendment will be constructed from the Pickmere Lane satellite compound within the period set out in the main ES.

5.2.6 The land required for the improvement of visibility at the approach to Flittogate Lane junction is outside the limits of the Bill, and results in a requirement for an additional 400m² of land. The shortening of the overhead telecommunication line diversion will reduce the amount of land that is required by 328m². The net increase in additional land will be 72m². See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-318, B7.

Topics included in the AP1 assessment

5.2.7 Assessment of the following topics are reported for this AP1 amendment: ecology and biodiversity and landscape and visual.

5.2.8 The assessment of the changes to traffic flows and traffic related effects as a result of 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 socio-economics, sound, noise and vibration, and water resources and flood risk. Ecology and biodiversity

Scope, assumptions and limitations

5.2.9 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.

5.2.10 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.

5.2.11 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.

5.2.12 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

5.2.13 The baseline ecology and biodiversity information is as described in Section 7 of Volume 2, Community Area report: 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

5.2.14 The land required for construction of the amendment is located within the Natural England Impact Risk Zone (IRZ) for Tabley Mere Site of Special Scientific Interest (SSSI), which is a site of national value. The SSSI is located between Smoker Brook and Budworth Road, approximately 1.3km north-east of the land required for construction of the amendment.

5.2.15 There is one Local Wildlife Site (LWS) of relevance to the assessment of the amendment, which is of county/metropolitan value. Arley and Waterless Brook Corridor LWS, is located partially within land required for construction of Arley Brook viaduct. The LWS is of county/metropolitan value.

Habitats

5.2.16 Habitats within the land required for the amendment include lowland mixed deciduous woodland and veteran trees. The habitats of relevance to the assessment of the amendment are described further below.

5.2.17 An unnamed woodland is located within and adjacent to Arley and Waterless Brook Corridor LWS, covering an area of 1.7ha. The woodland is located partially within the land required for the construction of the amendment, south of Yew Tree Farm. The woodland is of county/metropolitan value.

5.2.18 The main ES reported that Arley and Waterless Brook Corridor LWS is designated, at least in part, for the presence of veteran trees which are an irreplaceable habitat. This LWS is located partially within the land required for the construction of the amendment. The veteran trees within Arley and Waterless Brook Corridor LWS are therefore of national value.

Species

5.2.19 The land required for the amendment contains trees which, on a precautionary basis, are assumed to support roosting bats that are part of a bat assemblage between Smoker Brook and the M6. Several species of bat in this assemblage are Species of Principal Importance and a conservation priority of the Cheshire BAP. The assemblage is of regional value.

Future environmental baseline

5.2.20 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. 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 Volume 5, Appendix: CT-004-00000). These committed developments have been considered as a future baseline where relevant, and their potential to give rise to cumulative effects has been assessed. 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

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

Assessment of impacts and effects

Designated sites

5.2.22 Whilst the amendment is within the IRZ for Tabley Mere SSSI, no adverse effects on the integrity of the SSSI are considered likely due to the nature of the amendment and the distance of the land required for the construction of the amendment to the SSSI. There are no surface water pathways or connections discharging into Tabley Mere that cross the land required for the construction of the amendment and there will be no changes in nitrogen deposition or changes in air quality. There will be no adverse effects on the structure and function of Tabley Mere SSSI as a result of the amendment.

5.2.23 The main ES reported a permanent loss of 0.5ha (14%) of Arley and Waterless Brook Corridor LWS. The loss of woodland would have an adverse effect on the structure and function of the site, which would be significant at the county/metropolitan level. The amendment will result in the loss of a further 0.03ha habitat within the Arley and Waterless Brook Corridor LWS. This will result in a different significant effect on the LWS, however it will not change the level of significance reported within the main ES.

Habitats

5.2.24 The main ES reported a permanent loss of 0.7ha (8%) of lowland mixed deciduous and wet woodland within and adjacent to Arley and Waterless Brook Corridor LWS. The amendment will result in the loss of approximately 0.04ha of additional habitat within the woodland including approximately 0.03ha of additional woodland habitat within Arley and Waterless Brook Corridor LWS. The amendment will result in a different significant effect on the woodland. However, this will not change the level of significance of the effect on the woodland reported within the main ES.

5.2.25 The main ES reported that construction of the original scheme would, on a precautionary basis, result in the loss of at least two veteran trees within Arley and Waterless Brook Corridor LWS. The loss of these veteran trees is significant at the national level. The

amendment will result in the loss of additional woodland habitat within the LWS to that reported in the main ES and which could include veteran trees. This will, on a precautionary basis, result in the loss of additional veteran trees to those reported in the main ES, each of which is significant at the national level.

Species

5.2.26 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 roosting bats in the bat assemblage between Smoker Brook and the M6. The amendment will result in a different significant effect on the bat assemblage between Smoker Brook and the M6. However, this will not change the level of significance of the effect on the assemblage reported within the main ES.

Other mitigation measures

5.2.27 As reported in the main ES and in accordance with the Ecological Principles of Mitigation in the SMR, a route-wide, integrated strategic approach has been developed to compensate for the loss of woodland including that at Arley and Waterless Brook Corridor LWS. The woodland habitat creation in this area is to compensate for the loss of woodland habitat in the local area as well as to ensure that the populations of protected and notable species including bats are maintained. With these objectives in mind, where reasonably practicable, the locations of woodland habitat creation have been selected to increase the size of existing higher quality habitat and to increase connectivity. An area of 1.7ha of woodland will be created in two locations along the B5391 Pickmere Lane as part of the original scheme. The planting will enhance connectivity of habitats in the location of Arley and Waterless Brook Corridor LWS as well as also mitigate the effects on bat habitat.

5.2.28 Where reasonably practicable, measures will be taken to protect the 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.

5.2.29 To replace bat 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

5.2.30 On a precautionary basis, the amendment will result in a new permanent adverse residual effect for veteran trees located at Arley and Waterless Brook Corridor LWS, which is significant at the national level in each case.

Cumulative effects

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

Landscape and visual

Scope, assumptions and limitations

5.2.32 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.

5.2.33 This amendment has the potential to result in new or different significant construction and operational effects for visual amenity only. Therefore, there is no construction or operational assessment for landscape.

5.2.34 All visual effects arising from this amendment are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Environmental baseline

Existing environmental baseline

5.2.35 The baseline landscape and visual information is as described in Volume 5, Appendix: LV-001-0MA03 of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.

Visual baseline

5.2.36 The amendment has the potential to affect one viewpoint, which is described in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03 and summarised below.

View west from Budworth Road (high sensitivity receptors) (314-02-006)

5.2.37 This viewpoint is representative of views experienced by residents of Budworth Road, Waterless Brook Cottages on Pickmere Lane and road users. The rural Budworth Road is lined by trees and hedgerows, which partially screen views from the road over open farmland to the south and Windmill House and the Windmill Nurseries glasshouses to the north. Views west from residential properties are filtered by trees lining Tabley Brook and growing on field boundaries. Vegetation on the Heyrose Golf Club course forms the skyline.

Future environmental baseline

5.2.38 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 Volume

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

5.2.39 None of the identified committed developments affect the assessment of the amendment's likely impact on landscape and visual.

Effects arising during construction

Avoidance and mitigation measures

5.2.40 No further avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are proposed.

Assessment of impacts and effects

Visual assessment

View west from Budworth Road (high sensitivity receptors) (314-02-006)

5.2.41 The main ES reported a major adverse (significant) effect during construction for residents of Budworth Road and Waterless Brook Cottages on Pickmere Lane of high susceptibility and road users of lower susceptibility, all with medium value views, experiencing a substantial change to near and middle-distance views. This would be due to the introduction of large-scale construction works for Heyrose embankment and Arley Brook viaduct, which would be uncharacteristic in views across the rural landscape.

5.2.42 During construction of the amendment there will be a slight increase in the visibility of the construction of Arley Brook viaduct from Waterless Cottages, on Pickmere Lane compared to that reported in the main ES, due to the removal of additional trees lining Tabley Brook. A hedgerow along Pickmere Lane will be retained, but it is not large enough to provide any screening to the properties but will partially screen views from the lane. 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.

5.2.43 For further information see the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Other mitigation measures

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

Summary of likely residual significant effects

5.2.45 The amendment will give rise to a different likely residual significant construction effect following implementation of construction phase mitigation for views west from Budworth Road (viewpoint 314-02-006). The effect will slightly increase but will remain major adverse (significant).

Cumulative effects

5.2.46 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

5.2.47 No further avoidance or mitigation measures additional to those reported in the main ES.

Assessment of impacts and effects

Visual assessment

View west from Budworth Road (high sensitivity receptors) (314-02-006)

5.2.48 At year 1 the main ES reported major adverse (significant) effect for residents of Budworth Road and Waterless Brook Cottages on Pickmere Lane of high susceptibility and road users of lower susceptibility, all with medium value views, experiencing a substantial change to near and middle-distance views. This would be due to the presence of Heyrose embankment and Arley Brook viaduct, which would foreshorten existing views over the rural landscape and would be visible across the majority of the views.

5.2.49 At year 1, the amendment will slightly change the visual effect at this viewpoint. The loss of vegetation between Tabley Brook and Pickmere Lane during construction will slightly increase the visibility of Arley Brook viaduct from Waterless Brook Cottages, but a hedgerow along Pickmere Lane, retained under the amendment, will partially screen views of the structures from the lane. 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.

5.2.50 At year 15, the main ES reported a moderate adverse (significant) effect. This would be due to maturing landscape mitigation planting providing integration of the new structures into the landscape and partial screening of Heyrose embankment, overhead line equipment and train movements. However, Arley Brook viaduct would remain visible from Waterless Cottages as no landscape mitigation planting would be proposed between Arley Brook viaduct and the viewpoint.

5.2.51 At year 15, as no landscape mitigation planting is proposed between Arley Brook viaduct and the viewpoint, the viaduct will remain slightly more visible from Waterless Brook Cottages and Pickmere Lane than in the original scheme. 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.

5.2.52 At year 30, the main ES reported a moderate adverse (significant) effect. This would be due to the further maturing of landscape mitigation planting, which would largely screen

Heyrose embankment, overhead line equipment and train movements, but views west would continue to be foreshortened by the structures of the original scheme.

5.2.53 At year 30, due to the amendment, Arley Brook viaduct will remain slightly more visible from Waterless Brook Cottages and Pickmere Lane than in the original scheme. 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.

5.2.54 For further information see the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Other mitigation measures

5.2.55 No mitigation measures, additional to those reported in the main ES are proposed.

Summary of likely residual significant effects

5.2.56 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 different likely residual significant effect at year 15 of operation at the following viewpoint, but where the level of effect will be unchanged to that reported in the main ES, View west from Budworth Road (viewpoint 314-02-006). The effect will slightly increase but will remain **moderate** adverse (significant).

Cumulative effects

5.2.57 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

Ecology and biodiversity

5.2.58 On a precautionary basis, the amendment will result in a new permanent adverse residual effect for veteran trees located at Arley and Waterless Brook Corridor LWS, which is significant at the national level in each case.

Landscape and visual

5.2.59 The amendment will give rise to a different likely residual significant construction effect for views west from Budworth Road (viewpoint 314-02-006) - the effect will slightly increase but will remain **major** adverse (significant).

Operation

Landscape and visual

5.2.60 The amendment will give rise to a different likely residual significant effect on views west from Budworth Road (viewpoint 314-02-006) but where the level of effect is unchanged to that reported in the main ES - the effect will slightly increase but will remain **moderate** adverse (significant).

5.3 Additional land permanently required to modify HS2 access near Heyrose Farm (AP1-003-002)

5.3.1 The Bill provides for the closure of Heyrose Farm access where it crosses the HS2 route with access to properties retained on the eastern side through improvements, including the introduction of a locked gate with a vehicle turning head and a passing bay. The access road would also be used by HS2 maintenance teams. See Volume 2, MA03 Map Book, map CT-06-318, F7 to F10 in the main ES.

5.3.2 Since the main ES, the landowner and HS2 Ltd have identified the need to remove the turning head as the access road will be extended to the junction with Old Hall Lane where there is sufficient space for vehicles to turn around. The locked gate will be relocated to the east closer to the HS2 route and used by the HS2 maintenance teams.

5.3.3 The amendment will be constructed from the Budworth Road satellite compound within the period set out in the main ES.

5.3.4 The land required for the extension of the HS2 access road is outside the original limits of the Bill. The amendment will result in the permanent requirement for an additional 460m2 of land. The removal of the turning head will reduce the amount of land that is required by 102m². The net increase in additional land required will be 358m². See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-318, F8 to F10.

Topics included in the AP1 assessment

5.3.5 The amendment is considered to only require reassessment of the environmental effects and mitigation reported in the main ES for landscape and visual.

5.3.6 The assessment of the changes to traffic flows and traffic related effects as a result of 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 socio-economics, sound, noise and vibration, and water resources and flood risk.

Landscape and visual

Scope, assumptions and limitations

5.3.7 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.

5.3.8 This amendment has the potential to result in new or different significant construction and operational effects for visual amenity only. Therefore, there is no construction or operational assessment for landscape included in this report.

5.3.9 All visual effects arising from this amendment are reported in SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Environmental baseline

Existing environmental baseline

5.3.10 The baseline landscape and visual information is as described in Volume 5, Appendix: LV-001-0MA03 of the main ES. A summary of the baseline information relevant to the assessment of the amendment is provided below.

Visual baseline

5.3.11 The amendment has the potential to significantly affect one viewpoint, which is described in the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03 and summarised below.

View west from Old Hall Lane (high sensitivity receptors) (315-02-001)

5.3.12 This viewpoint is representative of views experienced by residents on Old Hall Lane, residents on the access road to Heyrose Farm (Heyrose Cottages, Heyrose House and Field Cottage) and road users. Views west from Old Hall Lane are partially screened by trees and hedgerows on farmland, mature trees along the access road to Heyrose Farm and vegetation growing in gardens. Field Cottage, Heyrose House and 1-3 Holehouses (on Old Hall Lane) have partially open boundaries to the north and west, with views over the gently rising arable fields. Woodland lining the North Cheshire Way long-distance footpath forms the backdrop to views north and pylons are visible in the far distance in the north and west.

Future environmental baseline

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

5.3.14 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

5.3.15 No further avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are proposed.

Assessment of impacts and effects

Visual assessment

View west from Old Hall Lane (high sensitivity receptors) (315-02-001)

5.3.16 The main ES reported a major adverse (significant) effect due to the presence of large-scale construction works for the Heyrose embankment, which would be out of character with existing views over the rural landscape and loss of mature trees opening up views of construction.

5.3.17 The amendment will slightly change as the area required for construction along the Heyrose Farm access road which will be widened at the junction with Old Hall Lane but narrowed west of the junction. The amendment will slightly reduce the extent of construction in the view from the residential properties along the access road to Heyrose Farm as the majority of mature trees along the road will be retained however views towards the large-scale construction activities associated with the Heyrose embankment will remain. 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.

5.3.18 For further information see the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Other mitigation measures

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

Summary of likely residual significant effects

5.3.20 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 residual significant construction effect after implementation of construction phase mitigation for views west from Old Hall Lane (315-02-001) but the level of effect will be unchanged from that reported in the main ES. The effect will slightly decrease but will remain **major** adverse (significant).

Cumulative effects

5.3.21 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

5.3.22 No mitigation measures additional to those reported in the main ES are proposed.

Assessment of impacts and effects

Visual assessment

View west from Old Hall Lane (high sensitivity receptors) (315-02-001)

5.3.23 At year 1, the main ES reported a major adverse (significant) effect for residents of Old Hall Lane and residents on the road off Old Hall Lane including Heyrose Cottages, Heyrose House and Field Cottage, of high susceptibility and with medium value views, experiencing a substantial change to near and middle-distance views. The view from properties along the access road to Heyrose Farm would, due to loss of trees in construction, change from one of a shady tree-lined lane to a wider, more open view and Heyrose embankment, overhead line equipment and train movements would be seen against the skyline in the middle distance.

5.3.24 At year 1 the amendment will not result in the removal of mature trees along the access road to Heyrose Farm and the tree-lined character of the view. However, Heyrose embankment, overhead line equipment and train movements will remain clearly visible in the middle-distance beyond. 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.

5.3.25 At year 15, the main ES reported a moderate adverse (significant) effect. This was a result of the maturing of the landscape mitigation planting partially screening the Heyrose embankment, overhead line equipment and train movements.

5.3.26 At year 15 and 30, the level of significance of the effect will remain as reported in the main ES due to the growth of mitigation planting and increase in effective screening.

5.3.27 For further information see the SES1 and AP1 ES Volume 5, Appendix: LV-001-0MA03.

Other mitigation measures

5.3.28 No mitigation measures, additional to those reported in the main ES are proposed.

Summary of likely residual significant effects

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

Cumulative effects

5.3.30 No new or different significant cumulative effects for 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

Landscape and visual

5.3.31 The amendment will give rise to a different likely residual significant construction effect for views west from Old Hall Lane (315-02-001) but where the level of effect is unchanged to that reported in the main ES. The effect will slightly decrease but will remain **major** adverse (significant).

5.4 Additional land permanently required to lengthen the realignment of the M6 between junction 19 and junction 20 (AP1-003-003)

5.4.1 The Bill provides for the permanent realignment of the M6 to accommodate a pier for the proposed M6 Mere viaduct. This would involve widening the M6 central reservation from 4.5m to 6.2m over a length of 425m. See Volume 2, MA03 Map Book, map CT-06-319, B8 to C4 in the main ES.

5.4.2 Areas of landscape mitigation planting, approximately 0.19ha in area would be located to the north and south of the M6 realignment to help integrate the M6 Mere viaduct into the surrounding landscape and to provide visual screening for the Shooting Box and users of the Restricted Byway Tabley Superior 4/1 and Restricted Byway Mere 2/1.

5.4.3 Since the main ES, an opportunity to reduce the duration of temporary traffic management and associated disruption to road users has been identified. The M6 will be realigned over an increased length to enable 70mph carriageway running speeds to be maintained during the majority of the construction period. To accommodate this amendment the following will be required:

- increase in the length of the M6 realignment by 405m to a total length of 830m (see SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-319, B9 to C3);
- increase in the width of the existing M6 central reservation by up to 6.8m to a total width of 13m (see SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-319, B7 to C4);
- an increased area of landscape mitigation planting along both sides of the realigned M6 (see SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-319, B9 to C3); and

- Footpath Tabley Superior 10/1 will be realigned approximately 10m south of its current alignment over a length of approximately 208m due to changes in the earthwork slopes (see SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-06-319, B5 to C3).

5.4.4 The increased width of the central reservation will permit 70mph running during construction, except for a five-month period of 50mph running to allow for construction traffic access to the central reservation worksite. Temporary traffic management with 50mph restriction will be reduced by up to one year and three months.

5.4.5 The amendment will be constructed from the M6 viaduct south and M6 viaduct north satellite compounds and will increase the construction period by nine months compared to the original scheme.

5.4.6 The land required for the lengthened realignment is outside the limits of the Bill. The amendment will result in the permanent requirement for 2.79ha of additional land. See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-05-319, A10 to B7, B5 to C4, C3, and C4 to C1.

Topics included in the AP1 assessment

5.4.7 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.

5.5 Airspace rights required for the diversion of a National Grid 400kV overhead power line near Warrington Road (AP1-003-004)

5.5.1 The Bill provides for the re-stringing of the section of existing National Grid 400kV overhead line that passes over the A50 Warrington Road, 180m east of the A50 Warrington Road overbridge. See Volume 2, MA03 Map Book, map CT-05-320, F7, in the main ES.

5.5.2 Since the main ES, National Grid has re-designed the temporary scaffolding that is required for the re-stringing to avoid permanent encroachment within the neighbouring property. This change requires additional land temporarily in the form of airspace rights to enable the restringing of power lines.

5.5.3 The amendment will be constructed from the M6 viaduct south satellite compound within the period set out in the main ES.

5.5.4 The area of land over which airspace rights are required is outside the limits of the Bill. This amendment will result in a requirement for an additional 465m2 of land. See map SES1 and AP1 ES Volume 2, MA03 Map Book: CT-05-320, F7 and F8.

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 Additional land temporarily required for provision of surface water drainage at Bowden View satellite compound (AP1-003-005)

5.6.1 The Bill provides for the temporary use of land to enable construction of the original scheme on the eastern side of the HS2 route, which includes the establishment of the Bowden View satellite compound and site haul routes. The Bowden View satellite compound is proposed for the construction of Hoo Green North cutting retaining wall, cutting, embankments and would be a transfer node. See Volume 2, MA03 Map Book, map CT-05-320, F7 to G7 in the main ES.

5.6.2 Since the main ES, a need has been identified for the temporary use of land to allow for a gravity surface water drainage outfall to the Tributary of Millington Clough 1 during construction.

5.6.3 The amendment will be constructed from the Bowden View satellite compound within the period set out in the main ES.

5.6.4 The area of additional land is outside the limits of the Bill. This amendment will result in a requirement for the temporary use of an additional 246m² of land. See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-05-320, I9.

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 temporarily required for the provision of surface water drainage at Peacock Lane satellite compound (AP1-003-006)

5.7.1 The Bill provides for the temporary use of land for construction of the original scheme on the western side of the HS2 route, which includes the establishment of the Peacock Lane satellite compound. Land would be required permanently for the construction of Millington Clough culvert to divert the Tributary of Millington Clough 3 and realignment of the Tributary of Millington Clough 2 under the HS2 route. See Volume 2, MA03 Map Book, map CT-05-321, D2 to E1, in the main ES.

5.7.2 Since the main ES, it has been identified that additional land will be required temporarily during construction to allow for a gravity surface water drainage outfall from the Peacock Lane satellite compound to the Tributary of Millington Clough 3.

5.7.3 The amendment will be constructed from the Peacock Lane satellite compound and take six months to complete. This is outside of the indicative programme in the main ES.

5.7.4 The area of additional land is outside the limits of the Bill. This amendment will result in a temporary requirement for an additional 65m2 of land. See SES1 and AP1 ES Volume 2, MA03 Map Book: map CT-05-321, D2.

Topics included in the AP1 assessment

5.7.5 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.

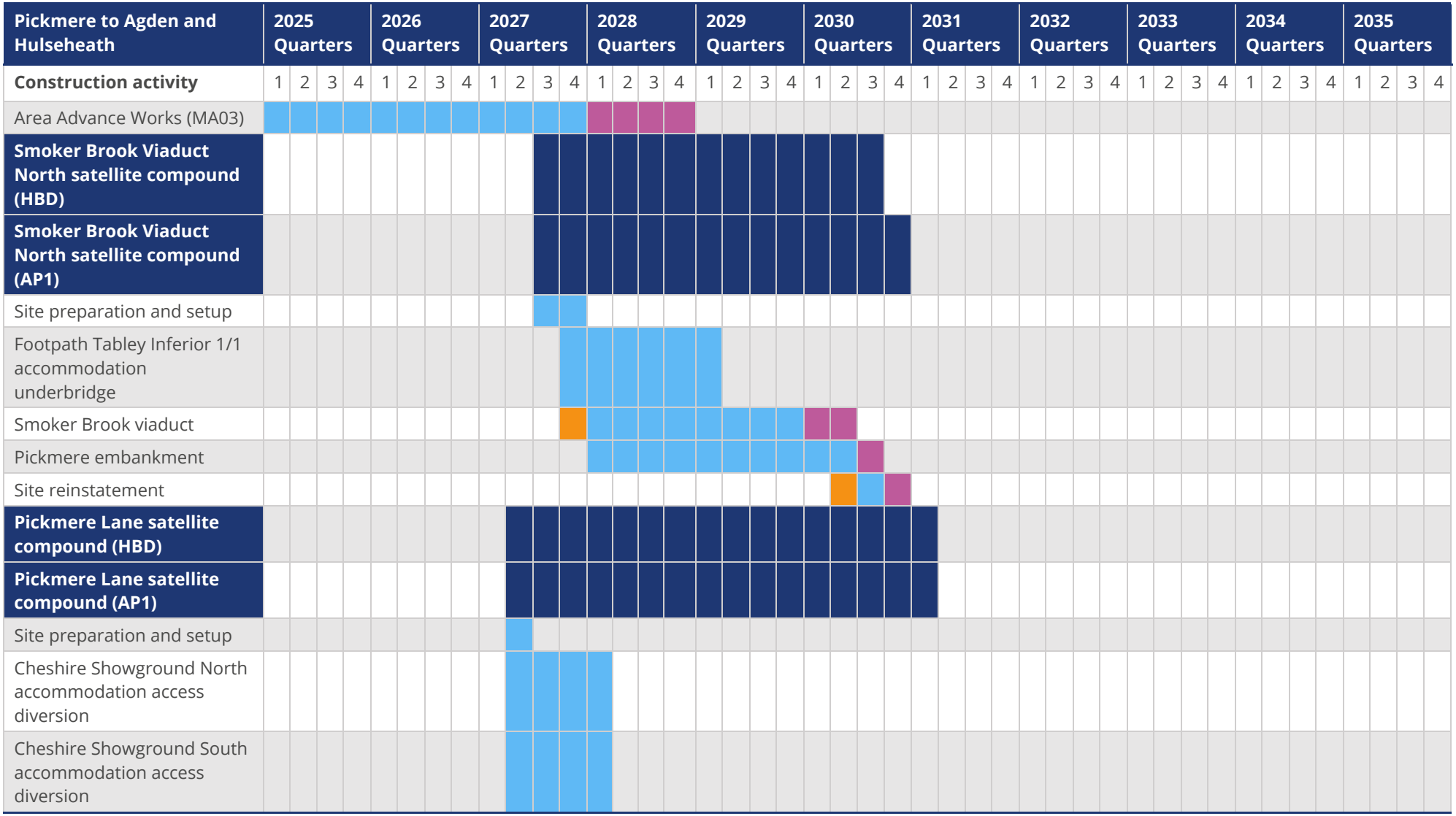
6 Construction programme

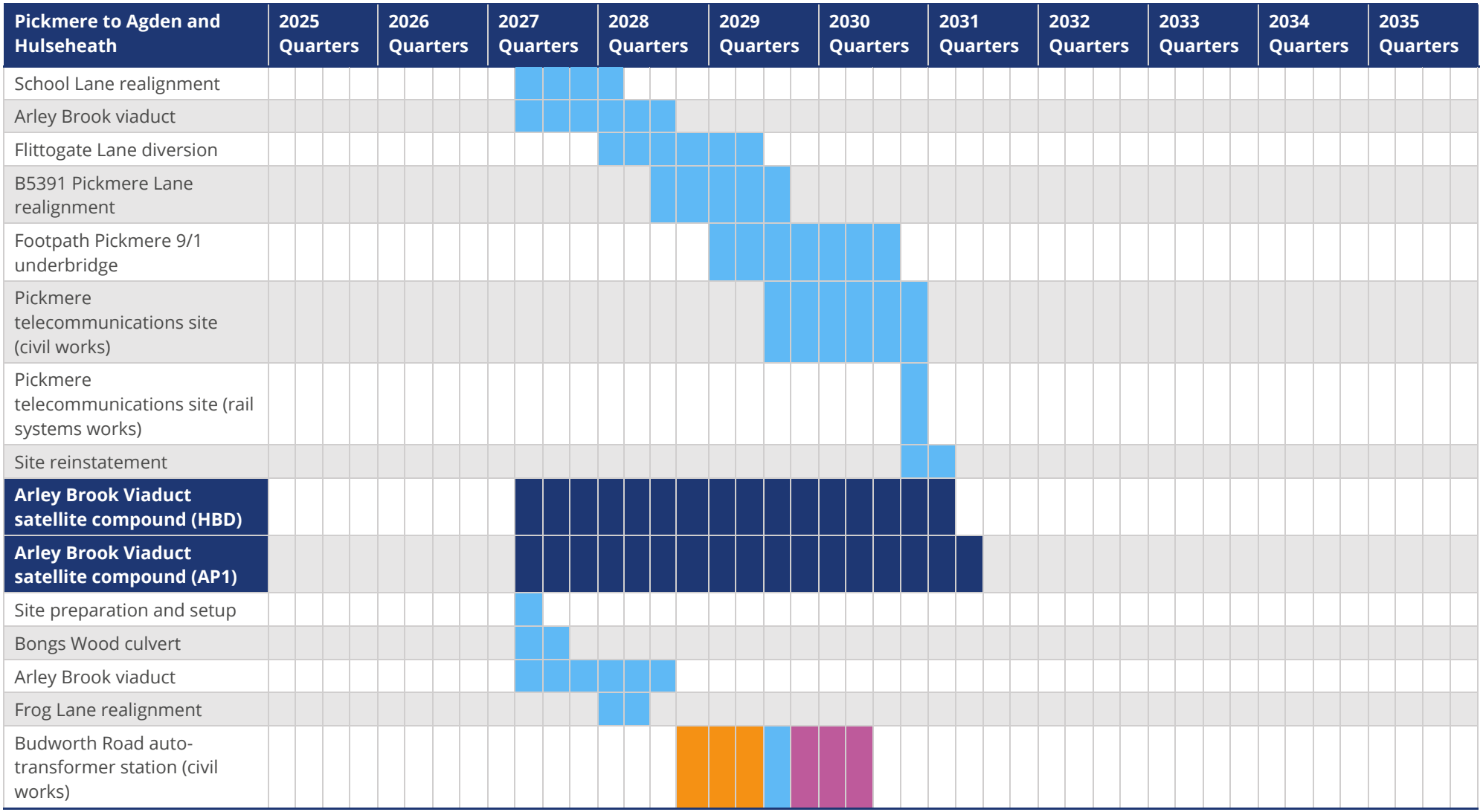
6.1 Introduction

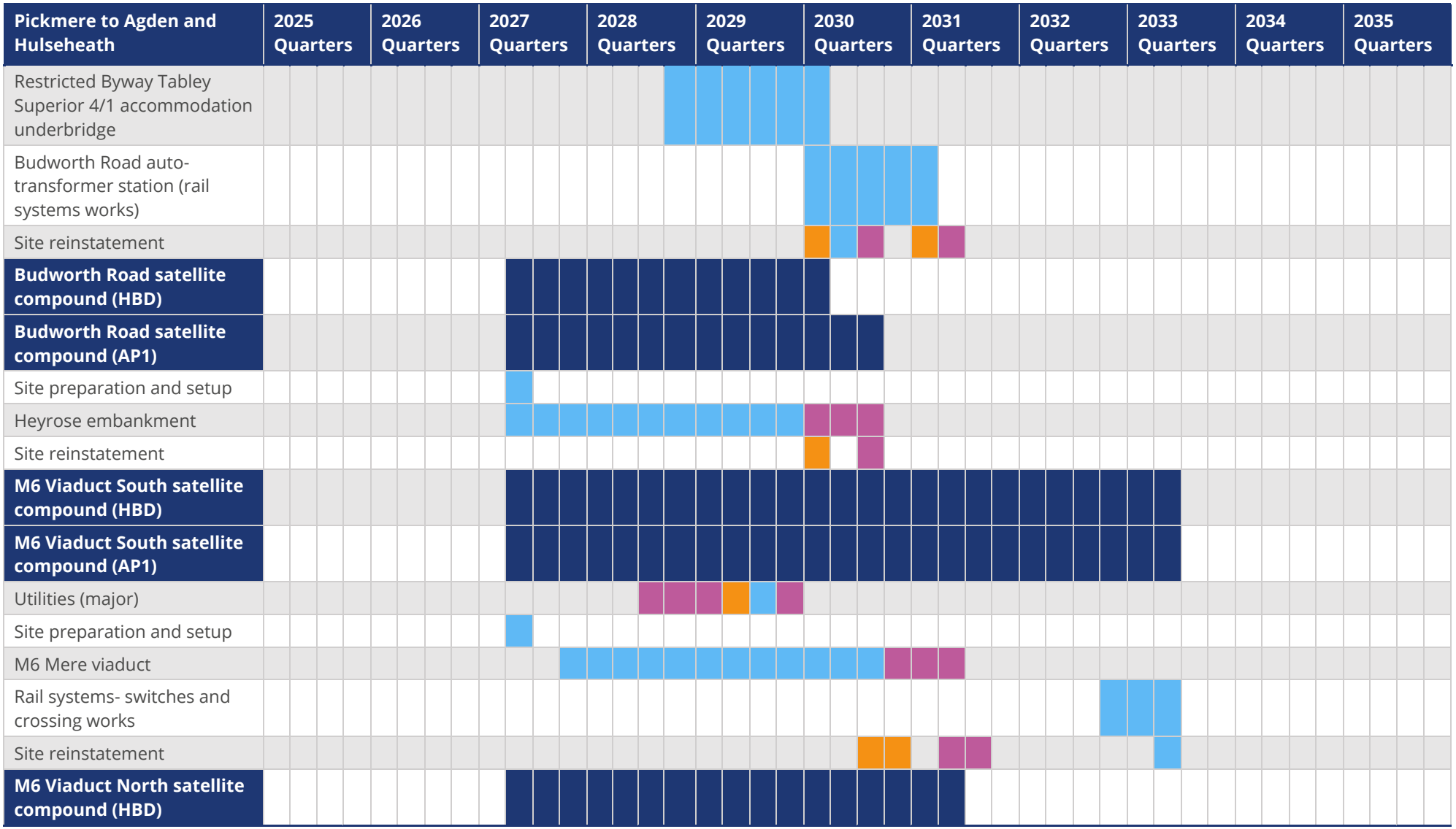
6.1.1 The AP1 revised scheme has resulted in the need to alter the indicative construction programme, as set out in the main ES.

6.1.2 The revised indicative programme is shown in Figure 4.

Figure 4: Indicative construction programme between 2025 and 2038




Pickmere to Agden and Hulseheath
2025 Quarters
2026 Quarters
2027 Quarters
2028 Quarters
2029 Quarters
2030 Quarters
2031 Quarters
2032 Quarters
2033 Quarters
2034 Quarters
2035 Quarters
School Lane realignment
Arley Brook viaduct
Flittogate Lane diversion
B5391 Pickmere Lane realignment
Footpath Pickmere 9/1 underbridge
Pickmere telecommunications site (civil works)
Pickmere telecommunications site (rail systems works)
Site reinstatement
Arley Brook Viaduct satellite compound (HBD)
Arley Brook Viaduct satellite compound (AP1)
Site preparation and setup
Bongs Wood culvert
Arley Brook viaduct
Frog Lane realignment
Budworth Road auto-transformer station (civil works)


Pickmere to Agden and Hulseheath
2025 Quarters
2026 Quarters
2027 Quarters
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2029 Quarters
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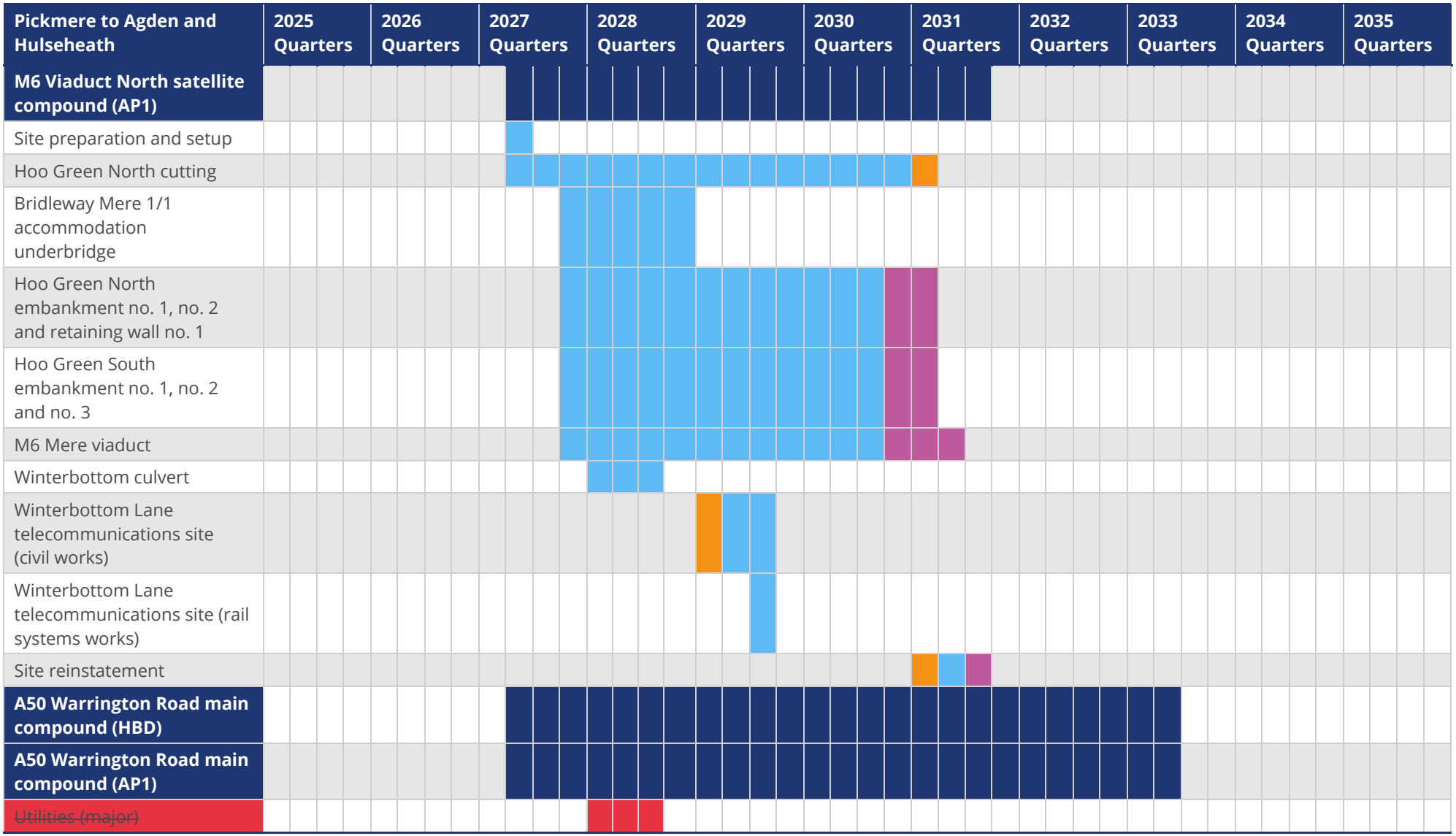
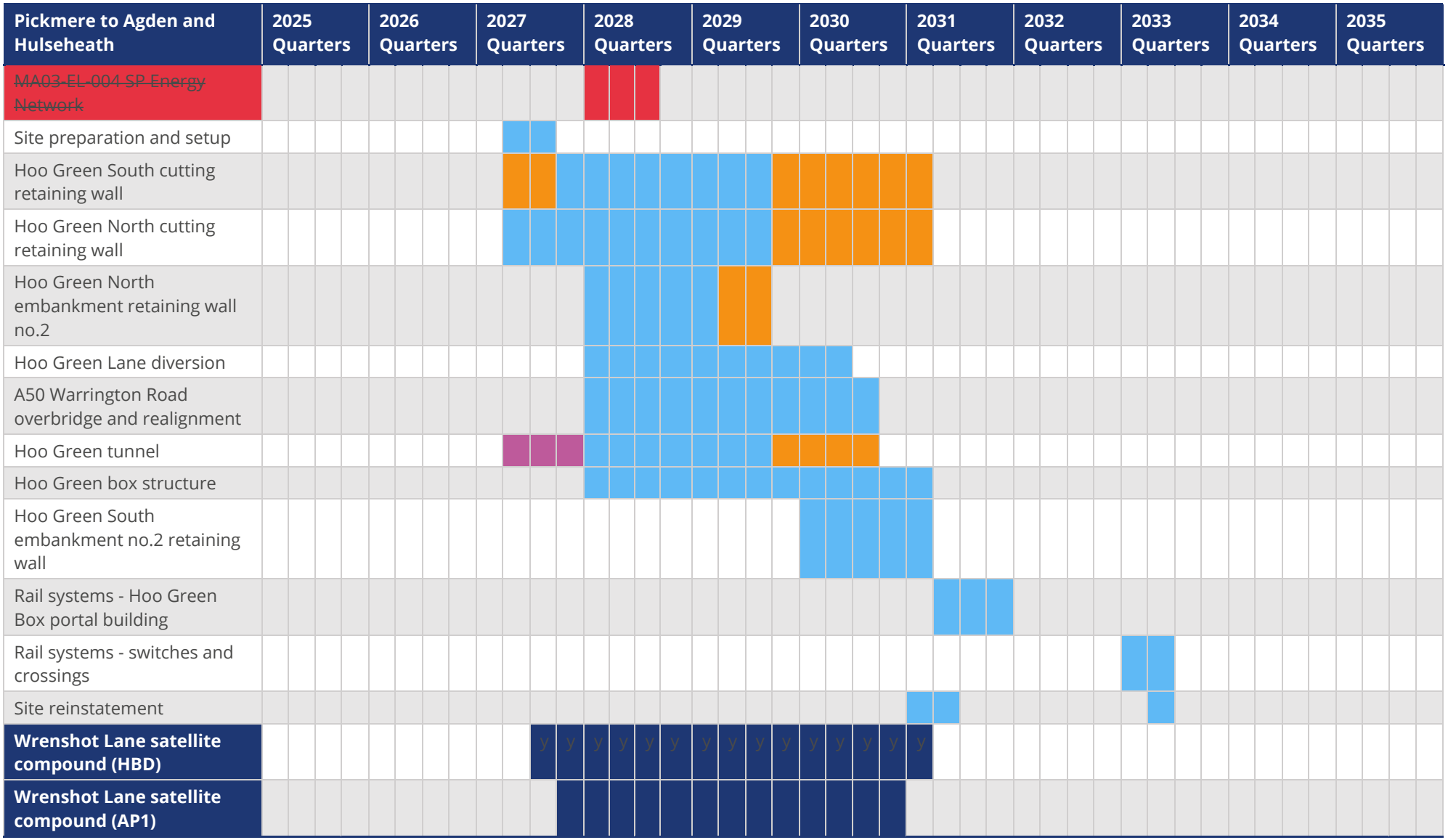
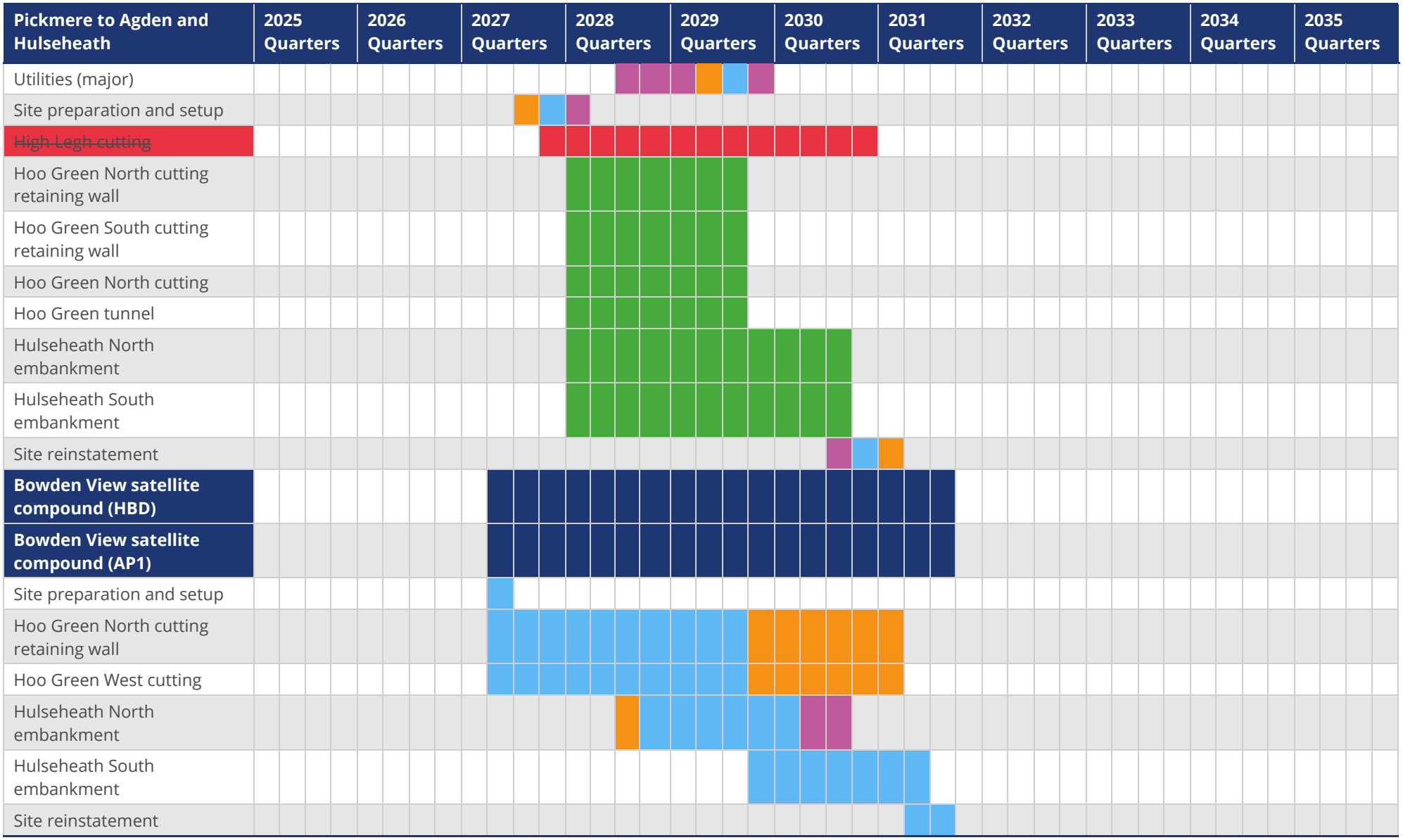
2031 Quarters
2032 Quarters
2033 Quarters
2034 Quarters
2035 Quarters
Restricted Byway Tabley Superior 4/1 accommodation underbridge
Budworth Road auto-transformer station (rail systems works)
Site reinstatement
Budworth Road satellite compound (HBD)
Budworth Road satellite compound (AP1)
Site preparation and setup
Heyrose embankment
Site reinstatement
M6 Viaduct South satellite compound (HBD)
M6 Viaduct South satellite compound (AP1)
Utilities (major)
Site preparation and setup
M6 Mere viaduct
Rail systems- switches and crossing works
Site reinstatement
M6 Viaduct North satellite compound (HBD)


Pickmere to Agden and Hulseheath
2025 Quarters
2026 Quarters
2027 Quarters
2028 Quarters
2029 Quarters
2030 Quarters
2031 Quarters
2032 Quarters
2033 Quarters
2034 Quarters
2035 Quarters
M6 Viaduct North satellite compound (AP1)
Site preparation and setup
Hoo Green North cutting
Bridleway Mere 1/1 accommodation underbridge
Hoo Green North embankment no. 1, no. 2 and retaining wall no. 1
Hoo Green South embankment no. 1, no. 2 and no. 3
M6 Mere viaduct
Winterbottom culvert
Winterbottom Lane telecommunications site (civil works)
Winterbottom Lane telecommunications site (rail systems works)
Site reinstatement
A50 Warrington Road main compound (HBD)
A50 Warrington Road main compound (AP1)
~~Utilities (major)~~


Pickmere to Agden and Hulseheath
2025 Quarters
2026 Quarters
2027 Quarters
2028 Quarters
2029 Quarters
2030 Quarters
2031 Quarters
2032 Quarters
2033 Quarters
2034 Quarters
2035 Quarters
~~MA03-EL-004 SP Energy Network~~
Site preparation and setup
Hoo Green South cutting retaining wall
Hoo Green North cutting retaining wall
Hoo Green North embankment retaining wall no.2
Hoo Green Lane diversion
A50 Warrington Road overbridge and realignment
Hoo Green tunnel
Hoo Green box structure
Hoo Green South embankment no.2 retaining wall
Rail systems - Hoo Green Box portal building
Rail systems - switches and crossings
Site reinstatement
Wrenshot Lane satellite compound (HBD)
Wrenshot Lane satellite compound (AP1)


Pickmere to Agden and Hulseheath
2025 Quarters
2026 Quarters
2027 Quarters
2028 Quarters
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2030 Quarters
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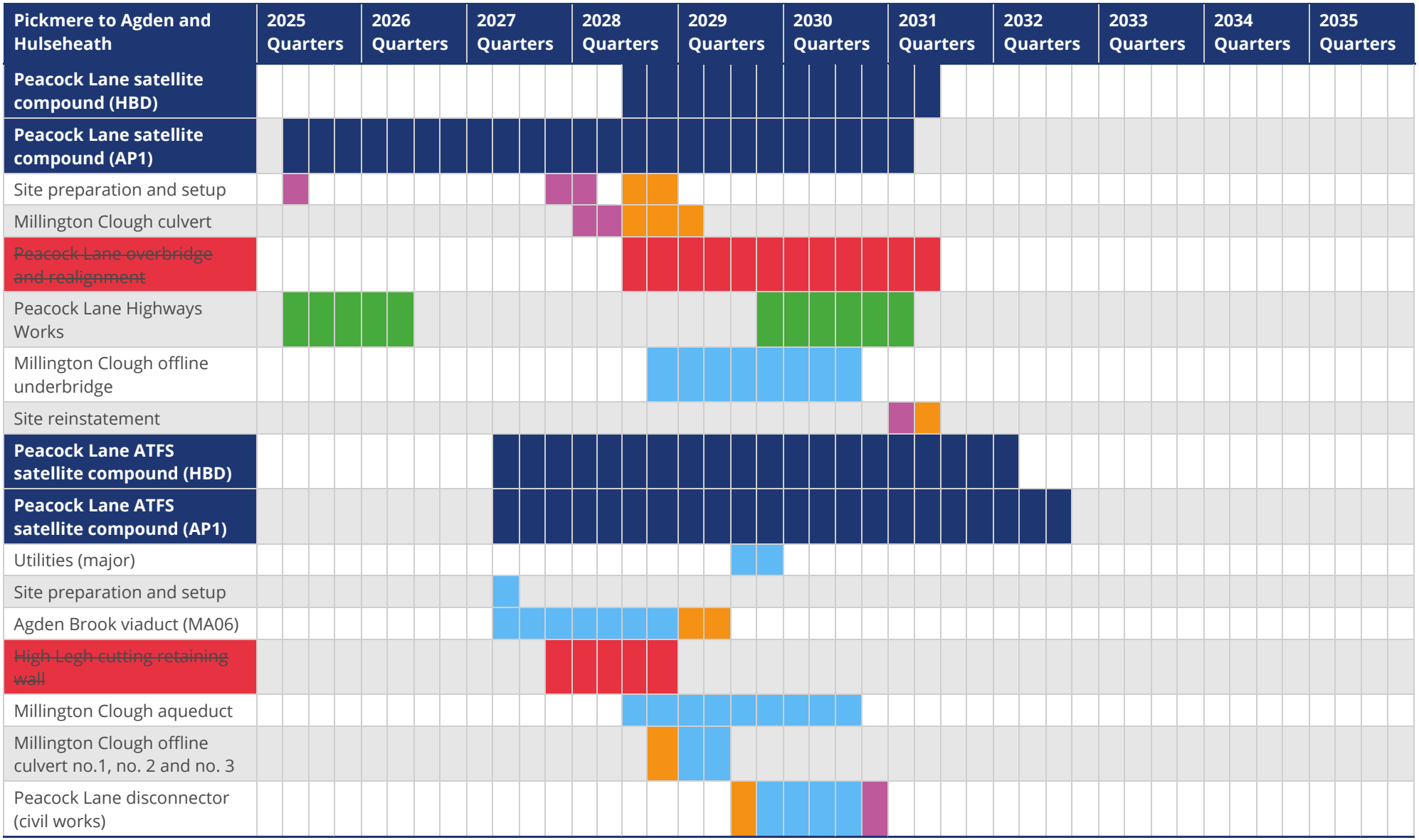
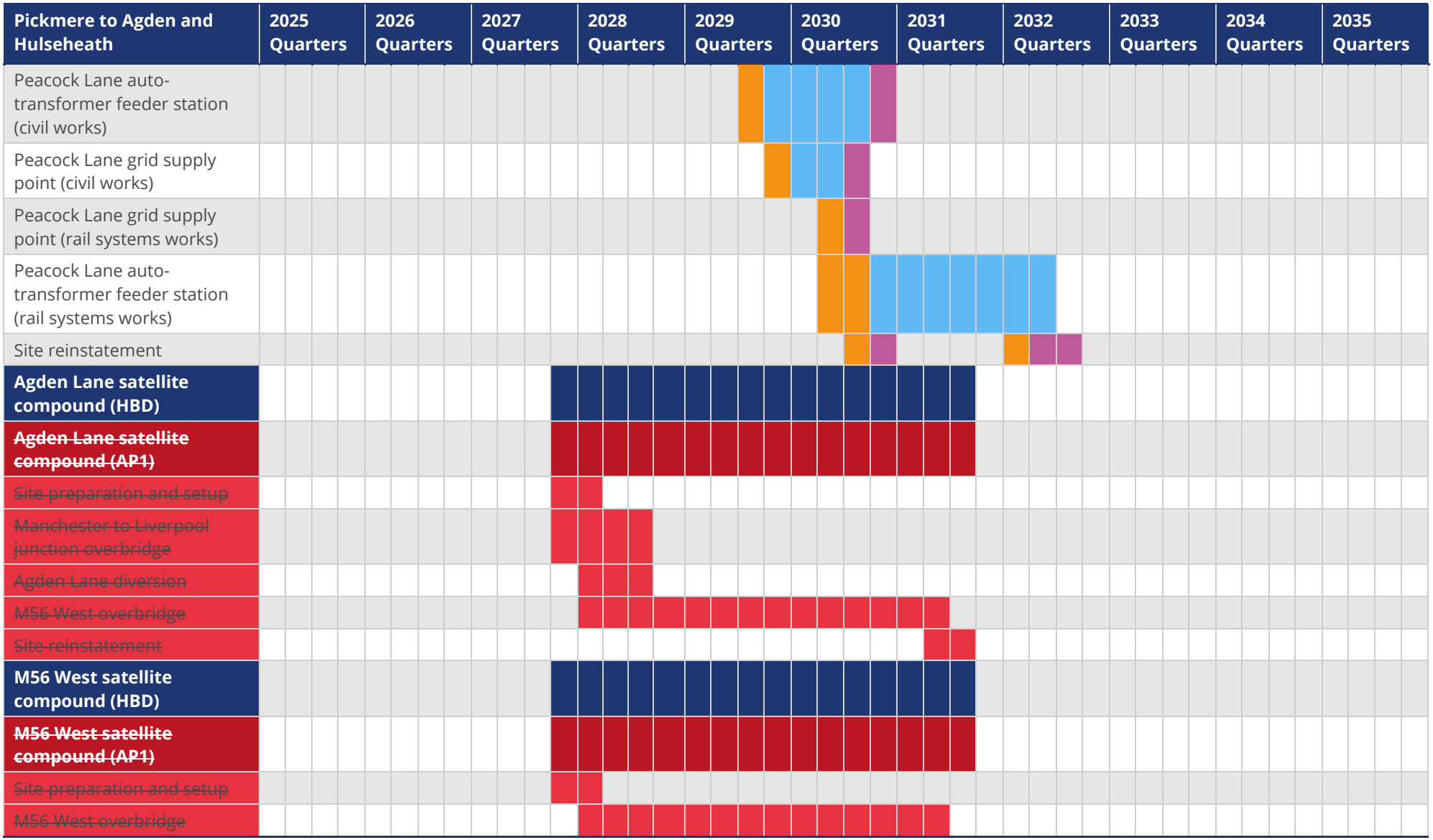
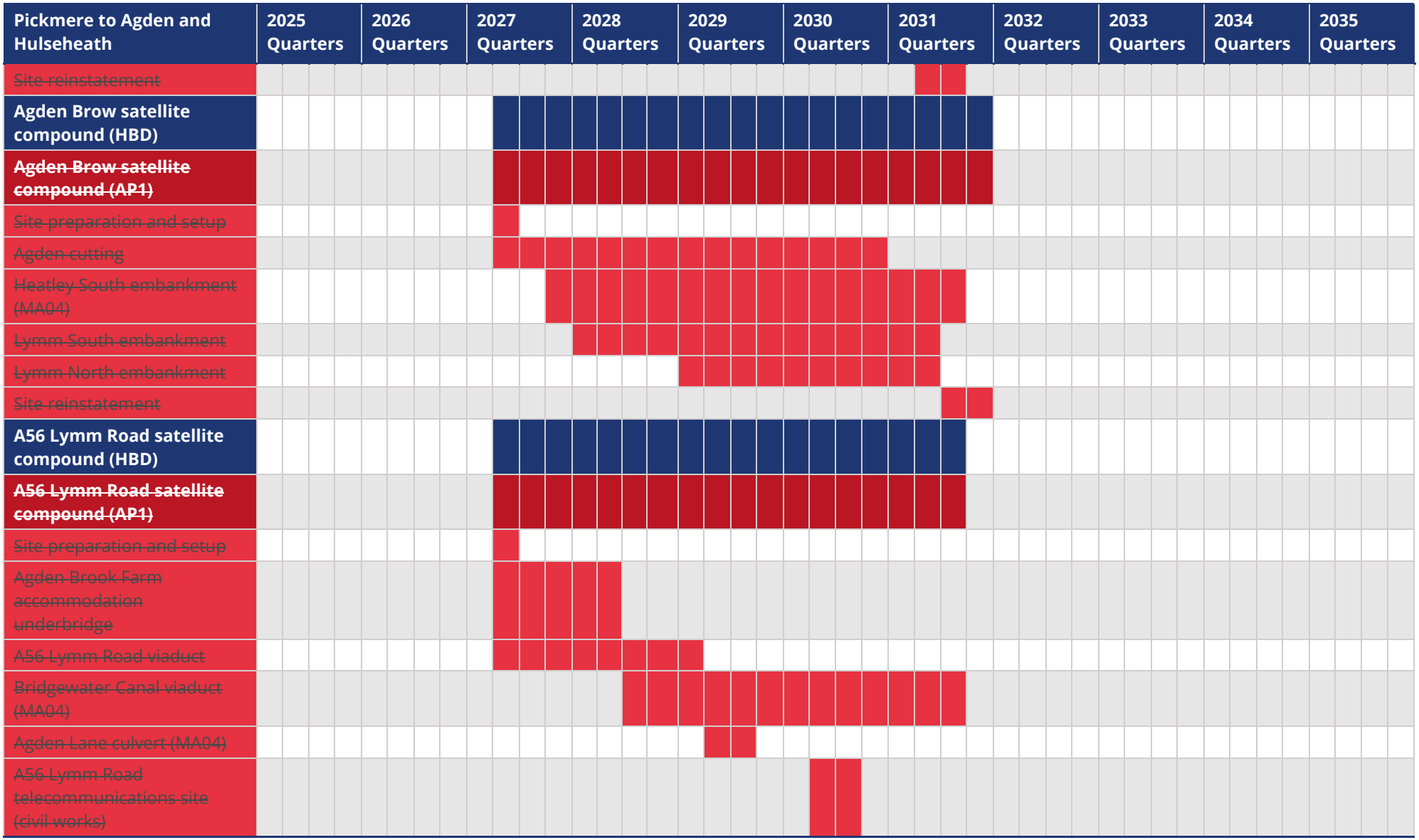
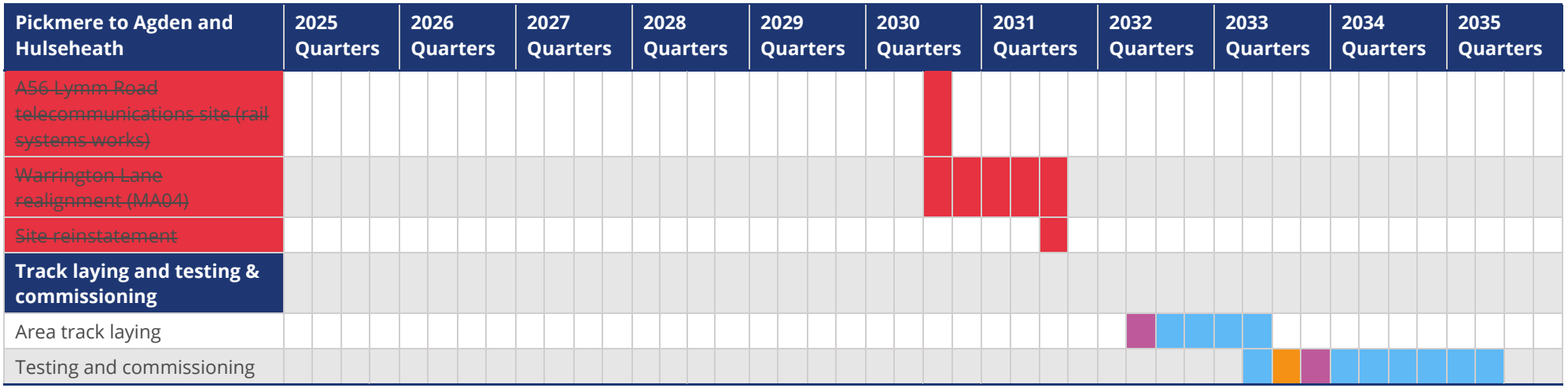
2032 Quarters
2033 Quarters
2034 Quarters
2035 Quarters
Utilities (major)
Site preparation and setup
~~High Legh cutting~~
Hoo Green North cutting retaining wall
Hoo Green South cutting retaining wall
Hoo Green North cutting
Hoo Green tunnel
Hulseheath North embankment
Hulseheath South embankment
Site reinstatement
Bowden View satellite compound (HBD)
Bowden View satellite compound (AP1)
Site preparation and setup
Hoo Green North cutting retaining wall
Hoo Green West cutting
Hulseheath North embankment
Hulseheath South embankment
Site reinstatement


Pickmere to Agden and Hulseheath
2025 Quarters
2026 Quarters
2027 Quarters
2028 Quarters
2029 Quarters
2030 Quarters
2031 Quarters
2032 Quarters
2033 Quarters
2034 Quarters
2035 Quarters
Peacock Lane satellite compound (HBD)
Peacock Lane satellite compound (AP1)
Site preparation and setup
Millington Clough culvert
~~Peacock Lane overbridge and realignment~~
Peacock Lane Highways Works
Millington Clough offline underbridge
Site reinstatement
Peacock Lane ATFS satellite compound (HBD)
Peacock Lane ATFS satellite compound (AP1)
Utilities (major)
Site preparation and setup
Agden Brook viaduct (MA06)
~~High Legh cutting retaining wall~~
Millington Clough aqueduct
Millington Clough offline culvert no.1, no. 2 and no. 3
Peacock Lane disconnector (civil works)


Pickmere to Agden and Hulseheath
2025 Quarters
2026 Quarters
2027 Quarters
2028 Quarters
2029 Quarters
2030 Quarters
2031 Quarters
2032 Quarters
2033 Quarters
2034 Quarters
2035 Quarters
Peacock Lane auto-transformer feeder station (civil works)
Peacock Lane grid supply point (civil works)
Peacock Lane grid supply point (rail systems works)
Peacock Lane auto-transformer feeder station (rail systems works)
Site reinstatement
Agden Lane satellite compound (HBD)
~~Agden Lane satellite compound (AP1)~~
~~Site preparation and setup~~
~~Manchester to Liverpool junction overbridge~~
~~Agden Lane diversion~~
~~M56 West overbridge~~
~~Site reinstatement~~
M56 West satellite compound (HBD)
~~M56 West satellite compound (AP1)~~
~~Site preparation and setup~~
~~M56 West overbridge~~


Pickmere to Agden and Hulseheath
2025 Quarters
2026 Quarters
2027 Quarters
2028 Quarters
2029 Quarters
2030 Quarters
2031 Quarters
2032 Quarters
2033 Quarters
2034 Quarters
2035 Quarters
~~Site reinstatement~~
Agden Brow satellite compound (HBD)
~~Agden Brow satellite compound (AP1)~~
~~Site preparation and setup~~
~~Agden cutting~~
~~Heatley South embankment (MA04)~~
~~Lymm South embankment~~
~~Lymm North embankment~~
~~Site reinstatement~~
A56 Lymm Road satellite compound (HBD)
~~A56 Lymm Road satellite compound (AP1)~~
~~Site preparation and setup~~
~~Agden Brook Farm accommodation underbridge~~
~~A56 Lymm Road viaduct~~
~~Bridgewater Canal viaduct (MA04)~~
~~Agden Lane culvert (MA04)~~
~~A56 Lymm Road telecommunications site (civil works)~~



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).
	Removal 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 Pickmere to Agden and Hulseheath 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 and traffic related 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 a specific SES1 change or an AP1 amendment.

7.1.2 The assessment has also considered any impacts in the Pickmere to Agden and Hulseheath area associated with SES1 changes and AP1 amendments in other community areas.

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:

- community;
- ecology and biodiversity;
- health;
- socio-economics;
- sound, noise and vibration; and
- water resources.

7.2 SES1 changes and AP1 amendments of relevance to this assessment

7.2.1 The assessment includes all changes to 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 Pickmere to Agden and Hulseheath area:

- removal of the HS2 WCML connection (SES1-004-001);
- changes to the Peacock Lane realignment (SES1-003-002);

- additional land permanently required to lengthen the realignment of the M6 between Junction 19 and Junction 20 (AP1-003-003); and
- additional land permanently required for the realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-012), which is described in SES1 and AP1 ES Volume 2, Hough to Walley's Green Community Area report (MA01), Section 5.

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 SMR[7] (see Volume 5, Appendix: CT-001-00001) 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 Pickmere to Agden and Hulseheath area is contained in Volume 5, Appendix: TR-003-00003 Transport Assessment of the main ES. Changes to traffic and transport impacts within the Pickmere to Agden and Hulseheath area as a result of the AP1 revised scheme are contained in SES1 and AP1 ES Volume 5, Appendix: TR-003-00003 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: Pickmere to Agden and Hulseheath (MA03) 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 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 has 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: Pickmere to Agden and Hulseheath (MA03) 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. 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. These growth factors take into account feedback from National Highways, Cheshire East Council, Cheshire West and Chester Council, Trafford Metropolitan Borough Council and Transport for Greater Manchester and are considered to be appropriately reflected in the traffic forecasts.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

Temporary effects

Key construction transport issues

7.3.11 Table 40 in Volume 2, Community Area report Pickmere to Agden and Hulseheath (MA03) of the main ES provides details of construction compounds in the Pickmere to Agden and Hulseheath area. This information has been updated to reflect changes resulting from the AP1 revised scheme and is provided in Table 13.

Table 13: Typical vehicle trip generation for construction compounds in the Pickmere to Agden and Hulseheath 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	Smoker Brook viaduct north satellite compound	2027 Q3	3 years and 6 months	194-238	356-512	5
Satellite	Pickmere Lane satellite compound	2027 Q2	4 years	160-280	90-114	7
Satellite	Arley Brook viaduct satellite compound	2027 Q2	4 years and 3 months	214-274	92-108	7
Satellite	Budworth Road satellite compound	2027 Q2	3 years and 6 months	178-178	368-462	9
Satellite	M6 viaduct south satellite compound	2027 Q2	5 years	122-220	66-86	9
Satellite	M6 viaduct north satellite compound	2027 Q2	4 years and 6 months	160-302	362-476	3
Main	A50 Warrington Road main compound	2027 Q2	5 years and 3 months	452-494	174-272	12
Satellite	Wrenshot Lane satellite compound	2027 Q4	2 years and 3 months	160-164	274-390	7

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	Bowden View satellite compound	2027 Q2	4 years and 6 months	168-244	196-254	7
Satellite	Peacock Lane satellite compound	2025 Q2	4 years and 6 months	132-178	36-44	7
Satellite	Peacock Lane ATFS satellite compound	2027 Q2	5 years and 6 months	126-268	190-192	2

7.3.12 Details of the construction routes for construction compounds in the Pickmere to Agden and Hulseheath area are reported in Table 41 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES. This information has been updated to reflect changes resulting from the AP1 revised scheme and is provided in Table 14.

Table 14: Construction HGV routes for construction compounds in the Pickmere to Agden and Hulseheath area

Compound name(s)	Access routes to/from compound(s) to main road network
Smoker Brook viaduct north satellite compound	A556 Chester Road
Pickmere Lane satellite compound	B5391 Pickmere Lane and A556 Chester Road
Arley Brook viaduct satellite compound	Budworth Road, B5391 Pickmere Lane and A556 Chester Road (to be used before closure of Budworth Road) Budworth Road, Frog Lane, School Lane, B5391 Pickmere Lane and A556 Chester Road (to be used after closure of Budworth Road)
Budworth Road satellite compound	B5391 Pickmere Lane and A556 Chester Road
M6 viaduct south satellite compound	Site haul route, Budworth Road, B5391 Pickmere Lane and A556 Chester Road (to be used before closure of Budworth Road) Site haul route, Budworth Road, Frog Lane, School Lane, B5391 Pickmere Lane and A556 Chester Road (to be used after closure of Budworth Road)
M6 viaduct north satellite compound	Site haul route, Old Hall Lane, B5569 Chester Road and A556 Chester Road
A50 Warrington Road main compound	A50 Warrington Road
Wrenshot Lane satellite compound Bowden View satellite compound	Site haul route, A50 Warrington Road (to be used before and after closure of the A556 temporary construction slip roads)

Compound name(s)	Access routes to/from compound(s) to main road network
	Site haul route, Peacock Lane, Chapel Lane, A556 temporary construction slip roads and A556 Chester Road (to be used while the A556 temporary construction slip roads are open)
Peacock Lane satellite compound	Route to/from the west: Peacock Lane, B5159 West Lane and A50 Warrington Road Incoming route from the north: A556 Chester Road, A5034 Chester Road, Chapel Lane and Peacock Lane Outgoing route to the south: Peacock Lane, Chapel Lane, B5569 Chester Road, A556 (to be used before opening and after closure of the A556 temporary construction slip roads) Peacock Lane, Chapel Lane, A556 temporary construction slip roads and A556 Chester Road (to be used while the A556 temporary construction slip roads are open)
Peacock Lane ATFS satellite compound	Incoming route from the north: A556 Chester Road, A5034 Chester Road, Chapel Lane and Peacock Lane Outgoing route to the south: Peacock Lane, Chapel Lane, A5034 Chester Road, B5569 Chester Road, A556 Chester Road (to be used before opening and after closure of the A556 temporary construction slip roads) Peacock Lane, Chapel Lane, A556 temporary construction slip roads and A556 Chester Road (to be used while the A556 temporary construction slip roads are open)

7.3.13 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 Figure 4.

7.3.14 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.

7.3.15 The effects of construction of the AP1 revised scheme on the highway network in the Pickmere to Agden and Hulseheath 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.

7.3.16 In using the strategic model, the impacts and effects have been considered in five 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:

- scenario 1, 2027 Q1 – 2027 Q2. This corresponds with utility works, the setting-up of a number of compounds and the commencement of works in the areas around Pickmere and Hoo Green. This scenario equates to 63% of the overall peak in construction traffic across the whole construction period;
- scenario 2, 2027 Q3 – 2028 Q2. This corresponds with the peak in construction traffic movements prior to the installation of M56 temporary overbridge at Yarwoodheath Lane in the Hulseheath to Manchester Airport area (MA06). This scenario includes construction of Arley Brook viaduct and Agden Brook viaduct. This scenario equates to 79% of the overall peak in construction traffic across the whole construction period;
- scenario 3, 2028 Q3 – 2029 Q1. This corresponds with the construction peak following the opening of M56 temporary overbridge at Yarwoodheath Lane in the Hulseheath to Manchester Airport area (MA06). This scenario equates to 78% of the overall peak in construction traffic across the whole construction period;
- scenario 4, 2029 Q2 – 2031 Q2. This corresponds with the construction peak following the opening of the Mobberley Road and Ashley Road realignment in the Hulseheath to Manchester Airport area (MA06) and the opening of the School Lane realignment and Peacock Lane realignment. This scenario includes the construction of M6 Mere viaduct, Hoo Green North cutting retaining wall and Hoo Green South cutting retaining wall. This scenario equates to the overall peak in construction traffic across the whole construction period; and
- scenario 5, 2031 Q3 onwards. This corresponds with the peak in construction traffic movements following the removal of M56 temporary overbridge at Yarwoodheath Lane in the Hulseheath to Manchester Airport area (MA06). All permanent realignments, diversions and closures are also included in this scenario. This scenario equates to 51% of the overall peak in construction traffic across the whole construction period.

7.3.17 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.

7.3.18 Table 42 in Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES gives details of the most relevant highway interventions and works for each scenario in the Pickmere to Agden and Hulseheath area. This information has been updated to reflect changes resulting from the AP1 revised scheme and is provided in Table 15.

Table 15: Construction highway interventions by scenario

Type	Intervention	Scenario 1 – 2027 Q1 – 2027 Q2	Scenario 2 – 2027 Q3 – 2028 Q2	Scenario 3 – 2028 Q3 – 2029 Q1	Scenario 4 – 2029 Q2 – 2031 Q2	Scenario 5 – 2031 Q3 onwards
Main works	Speed restriction on M56 west of junction 6 (50mph) in the Hulseheath to Manchester Airport area (MA06) and temporary slip-roads at Chapel Lane	Included	Included	Included	Included	Included
Main works	Old Hall Lane access, direct accesses from the A556 in the Hulseheath to Manchester Airport area (MA06) and temporary slip-roads at Chapel Lane	Not included	Included	Included	Included	Included
Main works	School Lane and Frog Lane realignments	Not included	Included	Included	Included	Included
Main works	Millington Lane closures in the Hulseheath to Manchester Airport area (MA06)	Not included	Included	Included	Not included	Not included
Main works	M56 temporary overbridge at Yarwoodheath Lane in the Hulseheath to Manchester Airport area (MA06)	Not included	Not included	Included	Included	Not included
Main works	B5391 Pickmere Lane realignment and Peacock Lane Highways Works	Not included	Not included	Not included	Included	Included
Main works	Speed restriction on M6 between junctions 19 and 20 (50mph)	Not included	Not included	Not included	Included	Not included
Main works	Flittogate Lane and Hoo Green Lane diversions and the A50 Warrington Road realignment	Not included	Not included	Not included	Included	Included
Main works	Budworth Road and Bowden View Lane closures	Not included	Included	Included	Included	Included
	Construction HGV traffic assessed as a percentage of peak construction HGV traffic	63%	79%	78%	100%	51%

7.3.19 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

7.3.20 The AP1 revised scheme includes a number of changes to the highway network compared to the original scheme. This includes an SES1 change to modify the alignment of Peacock Lane and Back Lane (SES1-003-002). The AP1 revised scheme also includes an SES1 change that will retain the existing Agden Lane, associated with the removal of the HS2 WCML connection (SES1-004-001). This will remove the closure and diversion of traffic on Agden Lane during the construction phase, as reported in the main ES.

7.3.21 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.

7.3.22 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 16. The significance of the effect reported in the main ES is indicated in brackets.

Table 16: Junctions resulting in significant effects on delays to vehicle occupants and congestion, 2030

Junction name	Significant effect	AP1 construction scenario
A50 Toft Road/A537 Adams Hill/B5083 Stanley Road	No change from main ES (Previously minor adverse)	Scenarios 1, 2, 3 and 4
A537 Brook Street/B5085 Hollow Lane/Lilybrook Drive	Major adverse (Previously moderate adverse)	Scenarios 2 and 5
A537 Brook Street/A537 Adams Hill/B5083 King Street	Minor adverse (Previously moderate adverse)	Scenarios 2, 4 and 5
A556 Chester Road/A5033 Northwich Road	Moderate adverse (Previously major adverse)	Scenarios 1, 2 and 3
A5033 Northwich Road/Ladies Mile	No change from main ES (Previously minor adverse)	Scenario 4
A50 Holmes Chapel Road/B5081 Middlewich Road	Major adverse (Previously no effect)	Scenarios 1, 2, 3, 4 and 5
Tabley Road/Ladies Mile	Minor beneficial (Previously minor adverse)	Scenarios 1 and 5
A556 Chester Road/B5391 Pickmere Lane/Tabley Hill Lane	Minor adverse (Previously major adverse)	Scenario 2
M6 junction 19/A556 Chester Road/A556	Major adverse (Previously no effect)	Scenarios 2 and 3
A50 Warrington Road/A50 Chester Road/B5569 Chester Road (south)	Major adverse (increased) (Previously major adverse)	Scenarios 2 and 3
A50 Knutsford Road/Bucklow Hill Lane/Hoo Green Lane	Major adverse (Previously no effect)	Scenarios 1 and 2

Junction name	Significant effect	AP1 construction scenario
M56 junction 10	Moderate adverse (Previously no effect)	Scenarios 2, 3, 4 and 5
A50 Warrington Road/B5159 West Lane (east)	Major adverse (increased) (Previously major adverse)	Scenarios 1, 2 and 3
A50 Warrington Road/B5159 West Lane (west)	Major adverse (Previously no effect)	Scenarios 1, 2 and 3
M6 junction 20/A50 Cliff Lane/B5158 Cherry Lane	Minor adverse (Previously major adverse)	Scenario 1
A56 Higher Lane/Agden Park Lane	Major adverse (Previously no effect)	Scenario 4
A56 Higher Lane/B5159 Burford Lane/B5159 High Legh Road	Major adverse (Previously no effect)	Scenarios 1, 2, and 3

7.3.23 Construction of the AP1 revised scheme will result in substantial changes in traffic flows (i.e. more than 30% for HGV or for all vehicles) in some locations, which can lead to changes in 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 17 for all-traffic effects and Table 18 for HGV effects. The significance of the effect reported in the main ES is indicated in brackets.

Table 17: 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
B5391 Pickmere Lane (between Park Lane and School Lane)	Major adverse (Previously moderate adverse)	Scenarios 2, 3 and 4
B5391 Pickmere Lane realignment (between School Lane and Budworth Road)	Major adverse (Previously moderate adverse)	Scenarios 2, 3 and 4
B5083 Garden Road (between Tatton Street and A50 Manchester Road)	No effect (Previously minor adverse)	-
Budworth Road (between Old Hall Lane and B5391 Pickmere Lane)	No change from main ES (Previously moderate adverse)	Scenarios 2 and 3
B5391 Pickmere Lane (between Budworth Road and A556 Chester Road)	Major adverse (Previously no effect)	Scenario 2
Budworth Road (between Cann Lane and Old Hall Lane)	Moderate adverse (Previously no effect)	Scenario 2
Tabley Road (between Sugar Pit Lane and Green Lane)	No change from main ES (Previously minor adverse)	Scenarios 2 and 3
Old Hall Lane (between Budworth Road and A556 northbound off-slip)	No change from main ES (Previously moderate adverse)	Scenarios 1, 2, 3, 4 and 5
Tabley Hill Lane (between A556 Chester Road and Green Lane)	No change from main ES (Previously minor adverse)	Scenarios 2 and 3
Old Hall Lane (between A556 southbound on-slip and B5569 Chester Road)	Moderate adverse (Previously no effect)	Scenarios 2, 3 and 5

Road name	Significant effect	AP1 construction scenario
Old Hall Lane (between A556 northbound off-slip and A556 southbound on-slip)	Moderate adverse (Previously no effect)	Scenario 4
B5569 Chester Road (between Old Hall Lane and A50 Warrington Road)	Moderate adverse (Previously no effect)	Scenarios 2, 3 and 5
Clamhunger Lane (between A50 Warrington Road and A5034 Mereside Road)	Moderate adverse (Previously no effect)	Scenario 5
Cann Lane/Whitley Lane/Rowley Bank Lane/Halliwell's Brow (between Budworth Road and A50 Warrington Road)	Moderate adverse (Previously no effect)	Scenario 4
B5569 Chester Road (between A50 Knutsford Road and A5034 Mereside Road)	Minor adverse (Previously no effect)	Scenarios 2 and 3
Ashley Road (between A5034 Mereside Road and Rostherne Lane)	Moderate adverse (Previously no effect)	Scenario 2
Wrenshot Lane (between A50 Warrington Road and Broadoak Lane)	No effect (Previously moderate adverse)	-
Chapel Lane (between Hulse Heath Lane and B5569 Chester Road)	Major adverse (Previously no effect)	Scenarios 2, 3 and 4
Chapel Lane/Peacock Lane (between Back Lane and Hulse Heath Lane)	Major adverse (Previously moderate adverse)	Scenario 4
B5159 West Lane west (between A50 Warrington Road and B5159 West Lane east)	Minor adverse (Previously no effect)	Scenario 4
Swineyard Lane (between Heath Lane and A50 Warrington Road)	No change from main ES (Previously moderate adverse)	Scenario 4
Heath Lane (between Swineyard Lane and A50 Warrington Road)	Moderate adverse (Previously minor adverse)	Scenarios 2 and 3
Broadoak Lane (between Wrenshot Lane and Peacock Lane)	No effect (Previously moderate adverse)	-
Back Lane/Thowler Lane (between Peacock Lane and Agden Lane)	Major adverse (Previously no effect)	Scenarios 2, 3 and 4
Peacock Lane (between Moss Lane and Back Lane)	Moderate adverse (Previously no effect)	Scenarios 1, 2, 3 and 4
Peacock Lane (between Broadoak Lane and B5159 West Lane)	No change from main ES (Previously moderate adverse)	Scenarios 1, 2, 3 and 4
Millington Lane (between Booth Bank Lane and Chester Road)	Moderate adverse (Previously no effect)	Scenario 4
Mag Lane (between A50 Warrington Road and Crouchley Lane)	No effect (Previously minor adverse)	-
Boothbank Lane (between Agden Lane and Millington Lane)	Major adverse (Previously no effect)	Scenario 4
Agden Lane/Agden Park Lane (between Thowler Lane and A56 Higher Lane)	Major adverse (Previously moderate adverse)	Scenarios 4 and 5

Road name	Significant effect	AP1 construction scenario
Crouchley Lane/Beechtree Lane (between Mag Lane and B5159 West Lane)	No effect (Previously minor adverse)	-
Reddy Lane (between Millington Lane and A56 Lymm Road)	Moderate adverse (Previously major adverse)	Scenarios 1, 2, 3 and 4

Table 18: 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
A556 Chester Road (between Plumley Moor Road and A5033 Northwich Road)	No effect (Previously moderate adverse)	-
B5391 Pickmere Lane (between Park Lane and School Lane)	Major adverse (Previously moderate adverse)	Scenarios 1, 2, 3 and 4
B5391 Pickmere Lane realignment (between School Lane and Budworth Road)	Major adverse (Previously moderate adverse)	Scenarios 1, 2, 3 and 4
A556 Chester Road (between A5033 Northwich Road and B5391 Pickmere Lane)	No effect (Previously major adverse)	-
Budworth Road (between Old Hall Lane and B5391 Pickmere Lane)	Major adverse (Previously moderate adverse)	Scenarios 2 and 3
B5391 Pickmere Lane (between Budworth Road and A556 Chester Road)	Major adverse (increased) (Previously major adverse)	Scenarios 1, 2, 3 and 4
Budworth Road (between Cann Lane and Old Hall Lane)	Moderate adverse (Previously no effect)	Scenarios 1, 2 and 3
Old Hall Lane (between Budworth Road and A556 northbound off-slip)	No change from main ES (Previously moderate adverse)	Scenarios 1, 2, 4 and 5
Old Hall Lane (between A556 southbound on-slip and B5569 Chester Road)	Major adverse (Previously no effect)	Scenarios 1, 2 and 5
Old Hall Lane (between A556 northbound off-slip and A556 southbound on-slip)	Major adverse (Previously no effect)	Scenarios 1, 2, 4 and 5
B5569 Chester Road (between Old Hall Lane and A50 Warrington Road)	No change from main ES (Previously major adverse)	Scenarios 1, 2 and 5
A50 Warrington Road (between A5034 Mereside Road and Clamhunger Lane)	No change from main ES (Previously major adverse)	Scenario 5
A5034 Mereside Road (between Mereheath Lane and A50 Warrington Road)	Major adverse (increased) (Previously major adverse)	Scenarios 1, 2 and 5
A5034 Mereside Road (between Ashley Road and Mereheath Lane)	Major adverse (increased) (Previously major adverse)	Scenarios 1, 2 and 5
A50 Warrington Road (between Clamhunger Lane and B5569 Chester Road)	No change from main ES (Previously major adverse)	Scenario 5

Road name	Significant effect	AP1 construction scenario
Cann Lane/Whitley Lane/Rowley Bank Lane/Halliwell's Brow (between Budworth Road and A50 Warrington Road)	Moderate adverse (Previously no effect)	Scenarios 3, 4 and 5
A5034 Mereside Road (between Clamhunger Lane and Ciceley Mill Lane)	Major adverse (Previously no effect)	Scenario 4
A50 Chester Road (between B5569 Chester Road (south) and B5569 Chester Road (north))	No effect (Previously moderate adverse)	-
A50 Knutsford Road (between B5569 Chester Road (north) and A556 northbound on-slip)	No effect (Previously major adverse)	-
Ashley Road (between A5034 Mereside Road and Rostherne Lane)	Major adverse (Previously no effect)	Scenarios 1, 2 and 5
A50 Knutsford Road (between A556 northbound on-slip and Hoo Green Lane)	No effect (Previously major adverse)	-
A50 Warrington Road realignment (between Wrenshot Lane and Hoo Green Lane)	No effect (Previously major adverse)	-
B5569 Chester Road (between A50 Knutsford Road and A5034 Mereside Road)	Major adverse (Previously moderate adverse)	Scenarios 1 and 4
A50 Warrington Road (between Halliwell's Brow and Wrenshot Lane)	No effect (Previously major adverse)	-
B5569 Chester Road (between Chapel Lane and A556 southbound off-slip)	Major adverse (Previously no effect)	Scenarios 1 and 4
A50 Warrington Road (between B5159 West Lane and Halliwell's Brow)	No effect (Previously major adverse)	-
Chapel Lane (between Hulse Heath Lane and B5569 Chester Road)	Major adverse (Previously moderate adverse)	Scenarios 2, 3, 4 and 5
Chapel Lane/Peacock Lane (between Back Lane and Hulse Heath Lane)	Major adverse (Previously moderate adverse)	Scenarios 4 and 5
A50 Warrington Road (between Swineyard Lane and B5159 West Lane)	No effect (Previously major adverse)	-
Wrenshot Lane (between B5159 West Lane and Broadoak Lane)	No effect (Previously moderate adverse)	-
A50 Warrington Road (between Swineyard Lane and Mag Lane)	No effect (Previously major adverse)	-
A50 Warrington Road (between Heath Lane and Mag Lane)	No effect (Previously major adverse)	-
Peacock Lane (between Moss Lane and Back Lane)	No change from main ES (Previously moderate adverse)	Scenarios 2, 4 and 5
Back Lane/Thowler Lane (between Peacock Lane and Agden Lane)	Moderate adverse (Previously no effect)	Scenarios 2 and 3

Road name	Significant effect	AP1 construction scenario
A50 Cliff Lane/A50 Warrington Road (between M6 junction 20 and Heath Lane)	No effect (Previously major adverse)	-
Millington Lane (between Booth Bank Lane and Chester Road)	Moderate adverse (Previously no effect)	Scenarios 1, 2, 3, 4 and 5
Boothbank Lane (between Agden Lane and Millington Lane)	Major adverse (Previously no effect)	Scenario 4
A56 Lymm Road (between Bowdon Roundabout and Reddy Lane)	No effect (Previously major adverse)	-
A56 Lymm Road (between Reddy Lane and Agden Park Lane)	No effect (Previously major adverse)	-
B5160 Charcoal Road (between A56 Dunham Road and Charcoal Road)	No effect (Previously moderate adverse)	-
B5160 Smithy Lane (between Charcoal Road and School Lane)	No effect (Previously moderate adverse)	-
B5160 Woodhouse Lane (between School Lane and Barns Lane)	No effect (Previously major adverse)	-

Other mitigation measures

7.3.24 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

7.3.25 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.

7.3.26 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 one junction;
- different (increased) major adverse significant effects on two junctions;
- change (increase) from moderate adverse effect to major adverse effect on one junction;
- change (decrease) from major adverse effect to moderate adverse effect on one junction;
- change (decrease) from major adverse effect to minor adverse effect on two junctions;
- change (decrease) from moderate adverse effect to minor adverse effect on one junction; and
- change (decrease) from minor adverse effect to minor beneficial effect on one junction.

7.3.27 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 seven roads;
- new moderate adverse effect on four roads;
- new minor adverse effect on one road;
- different (increased) major adverse significant effects on three roads;
- change (increase) from moderate adverse effect to major adverse effect on seven roads;
- change (increase) from minor adverse effect to moderate adverse effect on one road; and
- change (decrease) from major adverse effect to moderate adverse effect on one road.

Summary of likely residual significant effects that will be removed

7.3.28 The AP1 revised scheme will remove significant adverse effects on 23 roads (13 major, seven moderate and three minor).

Cumulative effects

7.3.29 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

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

Assessment of impacts and effects

7.3.31 The assessment of impacts and effects is described in Section 14 of the main ES Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES.

7.3.32 The AP1 revised scheme includes an SES1 change to permanently modify the alignment of Peacock Lane and Back Lane (SES1-003-002) compared to the main ES. The AP1 revised scheme also includes an SES1 change that will remove the permanent closure of Agden Lane, associated with the removal of the HS2 WCML connection (SES1-004-001). This will remove the closure and diversion of traffic on Agden Lane during the operational phase, as reported in the main ES.

7.3.33 The combined impact of all SES1 changes and the 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 19 and Table 20 respectively. The significance of the effect reported in the main ES is indicated in brackets.

Table 19: Junctions resulting in significant effects on delays to vehicle occupants and congestion, 2038

Junction name	Significant effect
A50 Toft Road/A537 Adams Hill/B5083 Stanley Road	No change from main ES (Previously minor adverse)
A537 Brook Street/B5085 Hollow Lane/Lilybrook Drive	Minor beneficial (Previously no effect)
A537 Brook Street/A537 Adams Hill/B5083 King Street	No effect (Previously moderate adverse)
A556 Chester Road/A5033 Northwich Road	No effect (Previously minor adverse)
B5085 Mobberley Road/B5085 Hollow Lane	No effect (Previously moderate adverse)
A5033 Northwich Road/Ladies Mile	No effect (Previously minor adverse)
A50 Manchester Road/A50 King Edward Road/A5033 Northwich Road/Canute Place	No effect (Previously minor adverse)
A556 Chester Road/B5391 Pickmere Lane/Tabley Hill Lane	No effect (Previously major adverse)
A50 Warrington Road/A50 Chester Road/B5569 Chester Road (south)	Major adverse (Previously no effect)

Table 20: Junctions resulting in significant effects on delays to vehicle occupants and congestion, 2051

Junction name	Significant effect
A50 Toft Road/A537 Adams Hill/B5083 Stanley Road	No effect (Previously minor adverse)
A537 Brook Street/B5085 Hollow Lane/Lilybrook Drive	No effect (Previously major adverse)
A537 Brook Street/A537 Adams Hill/B5083 King Street	No effect (Previously moderate adverse)
A556 Chester Road/A5033 Northwich Road	Moderate adverse (Previously minor adverse)
A50 Manchester Road/A50 King Edward Road/A5033 Northwich Road/Canute Place	No effect (Previously minor adverse)
A556 Chester Road/B5391 Pickmere Lane/Tabley Hill Lane	No effect (Previously major adverse)

7.3.34 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 21. The significance of the effect reported in the main ES is indicated in brackets.

Table 21: 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
B5391 Pickmere Lane realignment (between School Lane and Budworth Road)	No effect (Previously moderate adverse)	No effect (Previously moderate adverse)	No effect (Previously moderate adverse)	No effect (Previously moderate adverse)
B5391 Pickmere Lane (between Park Lane and School Lane)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)
A537 Brook Street (between B5085 Mobberley Road and B5085 Hollow Lane)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously major adverse)
B5085 Mobberley Road (between A537 Chelford Road and B5085 Hollow Lane)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)	No effect (Previously major beneficial)
A5033 Northwich Road (between A50 Manchester Road and B5083 Stanley Road)	No effect (No change)	No effect (No change)	No effect (Previously moderate adverse)	No effect (Previously moderate adverse)
Tatton Street (between A50 King Edward Road and B5083 Garden Road)	No effect (No change)	No effect (Previously major adverse)	No effect (No change)	No effect (No change)
B5083 Garden Road (between Tatton Street and A50 Manchester Road)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously minor adverse)
Tabley Road (between Ladies Mille and A50 Manchester Road)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)	No effect (No change)
B5569 Chester Road (between Old Hall Lane and A50 Warrington Road)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)	Moderate beneficial (Previously major beneficial)
A50 Warrington Road (between A5034 Mereside Road and Clamhunger Lane)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)

Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
A5034 Mereside Road (between Mereheath Lane and A50 Warrington Road)	No change (Previously moderate beneficial)	No effect (Previously moderate beneficial)	No change (Previously moderate beneficial)	Moderate beneficial (Previously no effect)
Clamhunger Lane (between A50 Warrington Road and A5034 Mereside Road)	No effect (No change)	No effect (Previously moderate beneficial)	No effect (No change)	Moderate beneficial (Previously no effect)
A5034 Mereside Road (between Ashley Road and Mereheath Lane)	No effect (Previously major beneficial)	No effect (Previously major beneficial)	No effect (Previously moderate beneficial)	No effect (Previously major beneficial)
A50 Warrington Road (between Clamhunger Lane and B5569 Chester Road)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)
Cann Lane/Whitley Lane/Rowley Bank Lane/Halliwell's Brow (between Budworth Road and A50 Warrington Road)	No effect (No change)	Major adverse (Previously no effect)	No effect (No change)	No effect (No change)
A50 Chester Road (between B5569 Chester Road (south) and B5569 Chester Road (north))	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)	No effect (Previously moderate adverse)
A50 Knutsford Road (between B5569 Chester Road (north) and A556 northbound on-slip)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)	No effect (Previously moderate adverse)
B5569 Chester Road (between A50 Knutsford Road and A5034 Mereside Road)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)
A5034 Mereside Road (between Clamhunger Lane and Ciceley Mill Lane)	No effect (No change)	Major adverse (Previously major beneficial)	No effect (No change)	No effect (Previously major beneficial)
Hulse Heath Lane (between A50 Knutsford Road and Bowden View Lane)	No effect (No change)	No effect (No change)	Minor adverse (Previously no effect)	No effect (No change)

Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
A50 Warrington Road realignment (between Wrenshot Lane and Hoo Green Lane)	No effect (No change)	Moderate beneficial (Previously moderate adverse)	No effect (No change)	Moderate beneficial (Previously moderate adverse)
Hulse Heath Lane (between Bowden View Lane and Chapel Lane)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)	Moderate adverse (Previously no effect)
A50 Warrington Road (between Halliwell's Brow and Wrenshot Lane)	No effect (No change)	Moderate beneficial (Previously no effect)	No effect (No change)	Moderate beneficial (Previously moderate adverse)
Chapel Lane (between Hulse Heath Lane and B5569 Chester Road)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)
B5159 West Lane east (between A50 Warrington Road and B5159 West Lane west)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (Previously moderate adverse)
B5159 West Lane west (between A50 Warrington Road and B5159 West Lane east)	No effect (No change)	Minor adverse (Previously no effect)	No effect (No change)	No effect (No change)
A50 Warrington Road (between Swineyard Lane and B5159 West Lane)	No effect (No change)	Moderate adverse (Previously no effect)	No effect (No change)	No effect (No change)
Heath Lane (between Swineyard Lane and A50 Warrington Road)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	Moderate adverse (Previously minor adverse)
A50 Warrington Road (between Swineyard Lane and Mag Lane)	No effect (No change)	No effect (No change)	No effect (No change)	No effect (Previously moderate adverse)
Back Lane/Thowler Lane (between Peacock Lane and Agden Lane)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)
Peacock Lane (between Moss Lane and Back Lane)	No effect (No change)	No effect (No change)	Moderate beneficial (Previously no effect)	Moderate beneficial (Previously no effect)
A50 Cliff Lane/A50 Warrington Road (between M6	No effect (No change)	Major adverse (Previously no effect)	No effect (No change)	No effect (No change)

Road name	2038 AM peak hour	2038 PM peak hour	2051 AM peak hour	2051 PM peak hour
junction 20 and Heath Lane)				
B5159 West Lane (between Wrenshot Lane and Peacock Lane)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)
Mag Lane (between A50 Warrington Road and Crouchley Lane)	No effect (No change)	Moderate beneficial (Previously no effect)	No effect (No change)	No effect (No change)
B5159 West Lane (between Peacock Lane and Beechtree Lane)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)
Agden Lane/Agden Park Lane (between Thowler Lane and A56 Higher Lane)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)	Major adverse (Previously no effect)
Reddy Lane (between Millington Lane and A56 Lymm Road)	No change (Previously moderate adverse)	No change (Previously moderate adverse)	Moderate adverse (Previously major adverse)	Moderate adverse (Previously major adverse)
A56 Lymm Road (between Reddy Lane and Agden Park Lane)	No effect (No change)	No effect (Previously moderate adverse)	No effect (No change)	No effect (No change)

Other mitigation measures

7.3.35 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

7.3.36 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 one junction; and
- new minor beneficial effect on one junction.

7.3.37 The AP1 revised scheme will result in an increase from minor adverse effect to moderate adverse effect on one junction for vehicle occupants in 2051, as reported in the main ES for 2046.

7.3.38 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 five roads;

- new moderate adverse effect on three roads;
- new minor adverse effect on one road;
- change (increase) from major beneficial effect to major adverse effect on one road;
- change (decrease) from moderate adverse effect to moderate beneficial effect on one road; and
- new moderate beneficial effect on two roads.

7.3.39 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 three roads;
- new moderate adverse effect on two roads;
- new minor adverse effect on one road;
- 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 major beneficial effect to moderate beneficial effect on one road;
- change (decrease) from moderate adverse effect to moderate beneficial effect on two roads;
- significant adverse effects removed on 11 roads (one major, nine moderate, one minor); and
- new moderate beneficial effect on three roads.

Summary of likely residual significant effects that will be removed

7.3.40 The AP1 revised scheme will remove the following likely residual significant effects reported in the main ES:

- adverse effects for vehicle occupants in 2038 at six junctions (one major, two moderate and three minor);
- adverse effects for vehicle occupants in 2051 at five junctions (two major, one moderate and two minor);
- beneficial effects for non-motorised users in 2038 on six roads (five moderate, one major);
- adverse effects for non-motorised users in 2038 on 14 roads (one major, 13 moderate);
- beneficial effects for non-motorised users in 2051 on three roads (three major); and
- adverse effects for non-motorised users in 2051 on 11 roads (one major, nine moderate, one minor).

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 Community

Scope, assumptions and limitations

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

Environmental baseline

Existing baseline

7.4.2 The baseline community information is as described in Section 6 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES.

7.4.3 Pickmere comprises approximately 1,000 residential properties. The nearest residential properties are located 1km west of the HS2 route. Hulseheath comprises approximately 20 residential properties. The nearest residential properties are located 350m east of the HS2 route.

Future baseline

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

7.4.5 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

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

Assessment of impacts and effects

7.4.7 Changes to the sound, noise and vibration baseline and new construction traffic data will result in a new major adverse in-combination effect on approximately 10 residential properties in the vicinity of Pickmere Lane and School Lane, Pickmere. Pickmere Lane is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. Significant visual effects as reported in the main ES will combine with this new HGV traffic effect and new noise effect for approximately one year and eight months. The AP1 revised scheme will result in a new major adverse in-combination effect on amenity for residents at approximately 10 residential properties in the vicinity of Pickmere Lane and School Lane, which is significant.

7.4.8 The main ES reported a significant moderate adverse in-combination effect on approximately 50 residential properties along the B5569 Chester Road in Mere. The B5569 Chester Road in Mere is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. These significant HGV traffic effects were combined with 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 resulted in the removal of the significant traffic noise effect. Therefore, the AP1 revised scheme will remove the significant in-combination effect on approximately 50 residential properties along the B5569 Chester Road in Mere.

7.4.9 The main ES reported a moderate adverse significant in-combination effect on approximately five residential properties in the vicinity of Budworth Road, Tabley Superior. Significant noise effects were expected to combine with significant visual effects for eight months.

7.4.10 Budworth Road is a designated route for construction traffic. The significant in-combination effect on amenity reported in the main ES, as amended by the SES, as a result of significant noise and visual effects will combine with a new HGV traffic effect and a new traffic noise effect. The AP1 revised scheme will result in a different major adverse in-combination effect on amenity for residents at approximately five properties in the vicinity of Budworth Road in Tabley Superior, which is significant.

7.4.11 The main ES reported a major adverse in-combination effect on approximately 20 residential properties on Chapel Lane, Thowler Lane and Peacock Lane in Hulseheath. Significant noise effects were expected to combine with significant visual, HGV traffic, and traffic noise effects for three years.

7.4.12 Chapel Lane and Peacock Lane are designated routes for construction traffic. The significant in-combination effect on amenity reported in the main ES, as amended by the SES, as a result of noise and visual effects will combine with HGV traffic effects as reported in the main ES. The traffic noise effect reported in the main ES will be removed as a result of new construction traffic data. The AP1 revised scheme will result in a different major adverse in-combination effect on amenity for residents at approximately 15 residential properties in Hulseheath, which is significant.

Other mitigation measures

7.4.13 No mitigation measures, additional to those reported in the main ES and draft CoCP, have been identified.

Summary of likely residual significant effects

7.4.14 Changes to the sound, noise and vibration baseline and new construction traffic data will result in a new significant residual effect on approximately 10 residential properties in the vicinity of Pickmere Lane and School Lane, Pickmere due to new noise and HGV traffic effects combining with visual effects.

7.4.15 New construction traffic data will result in different significant residual effects on:

- approximately five residential properties in the vicinity of Budworth Road due to new HGV traffic and traffic noise effects; and
- approximately 15 residential properties in Hulseheath due to the removal of traffic noise effects.

Summary of likely residual significant effects that will be removed

7.4.16 The AP1 revised scheme will remove the significant adverse residual effects on approximately 50 residential properties along the B5569 Chester Road in Mere due to the removal of noise effects.

Cumulative effects

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

7.5 Ecology and biodiversity

Introduction

7.5.1 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

7.5.2 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.

7.5.3 The changes of relevance to this assessment have the potential to result in new or different significant permanent construction and operational effects.

Environmental baseline

Existing baseline

7.5.4 The baseline ecology and biodiversity information is as described in Section 7 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES. A summary of the baseline information relevant to the assessment of the AP1 revised scheme is provided below.

Designated sites

7.5.5 There is one statutory site of international importance of relevance to the assessment of the AP1 revised scheme. This is the Midland Meres and Mosses Phase 1 Ramsar site of which three constituent SSSI, each of national importance, were considered in the main ES: The Mere, Mere SSSI and Tatton Meres SSSI both in the Pickmere to Agden and Hulseheath area; and Wybunbury Moss SSSI in the Hough to Walley's Green area (MA01).

7.5.6 Of the three constituent SSSI, one is relevant to the assessment of the AP1 revised scheme in the Pickmere to Agden and Hulseheath area. This is The Mere, Mere SSSI which is a component of the Midland Meres and Mosses Phase 1 Ramsar site. It is located east of Mere, 260m east of the land required for the construction of the AP1 revised scheme. It is also 180m east of a construction traffic route along the A556.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

Designated sites

7.5.8 The main ES reported that there would be no adverse effects on the Midland Meres and Mosses Phase 1 Ramsar site at any of the constituent SSSI of relevance to the original scheme. The AP1 revised scheme includes updated information on construction traffic (HDV and workforce vehicle) movements and diversionary effects to existing traffic during construction and operation of the AP1 revised scheme. This has prompted an updated assessment of the associated changes in air quality on the Midland Meres and Mosses Phase 1 Ramsar site at The Mere, Mere SSSI and Wybunbury Moss SSSI, which is reported in revised documents to inform a Habitats Regulations Assessment (HRA) for these sites (respectively SES1 and AP1 ES Volume 5, Appendix: EC-016-00003 and EC-016-00009). These HRA reports assess the impacts from oxides of nitrogen (NOx) and acidification in addition to nitrogen deposition which was previously considered. They conclude there is no credible risk

that NOx, nitrogen deposition or acid deposition during either the construction or operation phases could undermine the conservation objectives of either The Mere, Mere SSSI or Wybunbury Moss SSSI (alone or in-combination). There are no changes in hydrological effects at The Mere, Mere SSSI to those described in the previous iteration of the HRA report and main ES, and which are fully mitigated. There are no new effects at Wybunbury Moss SSSI or at Tatton Meres SSSI due to the AP1 revised scheme. Therefore, although the scope of the air quality assessment has changed to include additional forms of pollution, there is no change to the effects as described in the main ES, and there remains no adverse effects on the integrity of the Midland Meres and Mosses Phase 1 Ramsar site.

7.5.9 The main ES reported that there would be no additional effects at The Mere, Mere SSSI to those described in relation to the Midland Meres and Mosses Phase 1 Ramsar site. There are no new effects from the AP1 revised scheme and no changes to the conclusion that there will be no adverse effects on the integrity of the SSSI.

7.6 Health

Scope, assumptions and limitations

7.6.1 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

7.6.2 The baseline health information is as described in Section 8 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES.

7.6.3 Pickmere comprises approximately 1,000 residential properties. The nearest residential properties are located 1km west of the HS2 route. Hulseheath comprises approximately 20 residential properties. The nearest residential properties are located 350m east of the HS2 route.

Future baseline

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

7.6.5 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

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

Assessment of impacts and effects

7.6.7 Changes to the sound, noise and vibration baseline and new construction traffic data will result in a new adverse neighbourhood quality effect for residents in the vicinity of Pickmere Lane and School Lane. Pickmere Lane is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. Significant visual effects that were reported in the main ES will combine with this new HGV traffic effect and new noise effect for approximately one year and eight 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, both in diminishing the amenity of the village and in reducing the sense of its rural character.

7.6.8 The main ES reported an adverse neighbourhood quality effect for residents along the B5569 Chester Road in Mere. The B5569 Chester Road in Mere is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. These significant HGV traffic effects were combined with 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 resulted in the removal of the significant traffic noise effect. Therefore, this change will remove the neighbourhood quality effect for residents along the B5569 Chester Road in Mere.

7.6.9 The main ES reported an adverse neighbourhood quality effect for residents in the vicinity of Budworth Road, Tabley Superior. Construction of the original scheme was expected to be visible from street level in the vicinity of Budworth Road. Significant noise effects were expected to last for a period of approximately eight months.

7.6.10 Budworth Road is a designated route for construction traffic. This new significant HGV traffic effect will combine with a new traffic noise effect and the noise and visual effects reported in Section 3. This will result in a different adverse neighbourhood quality effect in the vicinity of Budworth Road.

7.6.11 The main ES reported an adverse neighbourhood quality effect in the vicinity of Chapel Lane, Thowler Lane and Peacock Lane in Hulseheath. Significant noise effects were expected to combine with significant visual, HGV traffic, and traffic noise effects for three years.

7.6.12 Chapel Lane and Peacock Lane are designated routes for construction traffic. The significant neighbourhood quality effect on amenity reported in the main ES, as amended by the SES, as a result of noise and visual effects will combine with HGV traffic effects as reported in the main ES. The traffic noise effect reported in the main ES will be removed as a result of new

construction traffic data. The AP1 revised scheme will result in a different adverse neighbourhood quality effect on amenity for residents in Hulseheath.

Other mitigation measures

7.6.13 No mitigation measures, additional to those reported in the main ES and draft CoCP, have been identified.

Cumulative effects

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

7.7 Socio-economics

Scope, assumptions and limitations

7.7.1 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

7.7.2 The baseline socio-economics information is as described in Section 12 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES.

Future environmental baseline

7.7.3 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

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

Assessment of impacts and effects

7.7.5 The main ES reported that the construction of the original scheme would result in a temporary adverse significant in-combination effect on Heyrose Golf Club, located west of Tabley, as a result of significant visual effects and noise effects. Due to changes in traffic flows, in addition to the significant visual and noise effects reported in the main ES, Heyrose Golf Club will experience new significant effects from HGV construction traffic (traffic-related severance for non-motorised users). Therefore, there is a different significant in-combination effect on this business to that reported in the main ES.

7.7.6 As a result of changes in traffic flows, Tabley Brook Kennels and Cattery, located west of Tabley, 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 medium as customers are likely 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 changes in construction traffic flows are assessed to result in a new significant adverse in-combination effect on this business.

7.7.7 As a result of changes in traffic flows, Millington Livery Yard, located east of High Legh, 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 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 changes in construction traffic flows are assessed to result in a new significant adverse in-combination effect on this business.

Other mitigation measures

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

Summary of likely residual significant effects

7.7.9 The changes in traffic flows will result in a different adverse residual significant in-combination effect on Heyrose Golf Club. There will also be new adverse residual significant in-combination effects on Tabley Brook Kennels and Cattery and on Millington Livery Yard.

Cumulative effects

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

7.8 Sound, noise and vibration

Scope, assumptions and limitations

7.8.1 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

7.8.2 In the Pickmere to Agden and Hulseheath 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 baseline sound levels are required, the baseline sound, noise and vibration information is as described in Section 13 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES.

Future 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 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.

7.8.4 Updates have also been made to future baseline sound levels at the locations 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

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

Assessment of impacts and effects

7.8.6 The main ES identified a likely significant indirect construction traffic noise effect on a community basis at approximately 10 residential properties along Chapel Lane and Peacock Lane between Hulseheath Lane and Back Lane including properties in the Hulseheath to Manchester Airport area (MA06). This was denoted as MA03-C-C2, in combination with a direct construction site noise effect, in Table 8 in Volume 5, Appendix: SV-002-0MA03 of the main ES. The AP1 revised scheme reduces both the average and peak monthly construction road traffic movements on these roads, and thus reduces 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 properties on Chapel Lane and Peacock Lane between Hulseheath Lane and Back Lane. The residual effect at Hulseheath will therefore be caused by direct construction site noise only.

7.8.7 The main ES identified a likely significant indirect construction traffic noise effect on a community basis at approximately 50 residential properties along the B5569 Chester Road between the A50 Chester Road and the A5034 Mereside Road. This was denoted as MA03-C-C3 in Table 8 in Volume 5, Appendix: SV-002-0MA03 of the main ES. The AP1 revised scheme reduces both the average and peak monthly construction road traffic movements on these roads, and thus reduces 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 properties on the B5569 Chester Road between the A50 Chester Road and the A5034 Mereside Road.

7.8.8 As a result of AP1 revised scheme, construction traffic is likely to cause adverse noise effects on residential receptors along Budworth Road between Frog Lane and Old Hall Lane. Approximately 10 dwellings located along the road are forecast to experience a change in road traffic noise levels of around 6dB $L_{pAeq,\ 0700\text{-}2300}$ during the peak months, due to additional construction vehicles using this route. As no indirect noise effect arose due to the original scheme, this is considered to be a new likely significant indirect effect on a community basis at the dwellings on this road which will combine with the significant direct effect identified in the main ES and amended by the SES1 scheme, denoted as MA03-C-C1 in SES1 and AP1 ES Volume 5, Appendix: SV-002-00000. This temporary adverse effect from combined construction site and traffic noise 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.

7.8.9 The main ES identified a significant noise effect at Hulseheath, which extends across the boundary between the Pickmere to Agden and Hulseheath area (MA03) and Hulseheath to Manchester Airport area (MA06), with the minority of properties significantly affected in the Pickmere to Agden and Hulseheath area. This was a likely significant indirect construction traffic noise effect on a community basis at approximately 20 residential properties along Chapel Lane between the B5569 Chester Road and Hulseheath Lane including properties in the Hulseheath to Manchester Airport area (MA06). This was denoted as MA06-C-C4 in Table 8 in Volume 5, Appendix: SV-002-0MA06 of the main ES. The AP1 revised scheme reduces both the average and peak monthly construction road traffic movements on these roads, and thus reduces 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 properties on Chapel Lane between the B5569 Chester Road and Hulseheath Lane.

Other mitigation measures

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

Summary of likely residual significant effects

7.8.11 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 adjacent residential properties on Budworth Road between Frog Lane and Old Hall Lane.

Summary of likely residual significant effects that will be removed

7.8.12 The AP1 revised scheme will remove the following likely residual significant effects reported in the main ES:

- indirect effect on properties on Chapel Lane and Peacock Lane between Hulseheath Lane and Back Lane;
- indirect effect on properties on the B5569 Chester Road between the A50 Chester Road and the A5034 Mereside Road; and
- indirect effect on properties on Chapel Lane between the B5569 Chester Road and Hulseheath Lane.

Cumulative effects

7.8.13 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.

7.9 Water resources and flood risk

Scope, assumptions and limitations

7.9.1 This assessment considers any new or different significant effects on water quality in local water bodies 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.

7.9.2 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

7.9.3 The baseline water resources and flood risk information is as described in Section 15 of Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03) of the main ES.

Future baseline

7.9.4 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-m of the SES1 and AP1 ES (see SES1 and AP1 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 SES1 scheme's likely construction and operation impacts on water resources and flood risk.

Effects arising during construction

Avoidance and mitigation measures

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

Assessment of impacts and effects

Temporary effects

7.9.6 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)[17]. The assessments have been repeated following the main ES using the combined changes to traffic flows and have identified the following temporary new or different significant effects.

7.9.7 The combined changes in construction traffic have led to the requirement to assess the A556 drainage discharges into Chapel Lane Drain. Chapel Lane Drain is a small drainage ditch which may be dry under some conditions, and therefore, the highway could potentially discharge to the underlying till Secondary (Undifferentiated) aquifer. As a result, the HEWRAT groundwater assessment has been undertaken. The increased contaminant loading in highway discharges from the combined changes in construction traffic have been assessed to potentially result in a moderate impact on the moderate value aquifer, leading to a new moderate adverse effect, which is significant.

7.9.8 There are no other new, different or removed temporary significant effects additional to those reported in the main ES.

Permanent effects

7.9.9 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.

7.9.10 The drainage from the lengthened realignment of the M6 between junction 19 and junction 20 (AP1-003-003) will be discharged to Tributary of Tabley Brook 4. Tributary of Tabley Brook 4 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, the HEWRAT groundwater assessment has been undertaken. The highway discharges from the realigned M6 have the potential to result in a moderate impact on the moderate value aquifer, leading to a new moderate adverse effect, which is significant.

[17] 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/dmrb/search/d6388f5f-2694-4986-ac46-b17b62c21727.

7.9.11 The main ES reported a precautionary moderate effect, which was significant on the Tributary of River Weaver 2 due to the A530 Nantwich Road realignment. The main ES also reported a precautionary moderate effect, which was significant on the Tributary of Gad Brook 3 due to the Penny's Lane realignment. The screening results no longer identify the need for routine runoff assessments for the A530 Nantwich Road or Penny's Lane. Therefore, the moderate effects on Tributary of River Weaver 2 and Tributary of Gad Brook 3 have been removed.

7.9.12 There are no other new, different or removed permanent significant effects additional to those reported in the main ES.

Other mitigation measures

7.9.13 Additional mitigation measures are required to address the permanent impacts of changes to highways drainage along the realigned M6 on water quality in the glacial till Secondary (Undifferentiated) aquifer around Tributary of Tabley Brook 4. In addition, the temporary impacts of changes to highways drainage along the A556, on water quality in the glacial till Secondary (Undifferentiated) aquifer around Chapel Lane Drain. Mitigation measures may include requirement for wet ponds for retention and settlement before discharge or use of swales. Further investigations will be undertaken in consultation with the Environment Agency and other stakeholders during design progression, to identify appropriate measures to mitigate any significant effects on water quality. On a precautionary basis, until such time as these investigations are carried out, two residual adverse significant effects will remain on the glacial till Secondary (Undifferentiated) aquifer.

Summary of likely residual significant effects

7.9.14 Implementation of the other mitigation measures referred to above will reduce a number of the identified effects to a level that is not significant. However, on a precautionary basis, it is anticipated that significant residual effects will remain on the water quality in the glacial till Secondary (Undifferentiated) aquifer relating to:

- highway discharges from the M6 realignment (permanent moderate adverse effect); and
- temporary construction traffic the A556 close to Chapel Lane (temporary moderate adverse effect).

7.9.15 There will be no other new residual significant effects resulting from the combined effects of SES1 changes and AP1 amendments in the Pickmere to Agden and Hulseheath area due to changes in traffic flows.

Summary of likely residual significant effects that will be removed

7.9.16 The AP1 revised scheme will remove the moderate effects on Tributary of River Weaver 2 and Tributary of Gad Brook 3.

Cumulative effects

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

7.10 Summary of new or different likely residual significant effects as a result of combined effects due to changes in traffic flows

Traffic and transport

7.10.1 The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants in 2038:

- new major adverse effect on one junction; and
- new minor beneficial effect on one junction.

7.10.2 For delay effects for vehicle occupants in 2051 the AP1 revised scheme will result in a change (increase) from a minor adverse effect to a moderate adverse effect on one junction.

7.10.3 The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users in 2038:

- change (decrease) from moderate adverse effect to moderate beneficial effect on one road;
- change (increase) from major beneficial effect to major adverse effect on one road;
- new major adverse effect on five roads;
- new moderate adverse effect on three roads;
- new minor adverse effect on one road; and
- new moderate beneficial effect on two roads.

7.10.4 The changes to the traffic-related severance effects for non-motorised users in 2051 will be:

- change (decrease) from major adverse effect to moderate adverse effect on one road;
- change (increase) from minor adverse effect to moderate adverse effect on one road;
- change (decrease) from moderate adverse effect to moderate beneficial effect on two roads;
- change (decrease) from major beneficial effect to moderate beneficial effect on one road;
- new major adverse effect on three roads;
- new moderate adverse effect on two roads;
- new minor adverse effect on one road; and
- new moderate beneficial effect on three roads.

Community

7.10.5 Changes to the sound, noise and vibration baseline and new construction traffic data will result in a new significant residual effect on approximately 10 residential properties in the vicinity of Pickmere Lane and School Lane, Pickmere due to new noise and HGV traffic effects combining with visual effects.

7.10.6 New construction traffic data will result in different significant residual effects on:

- approximately five residential properties in the vicinity of Budworth Road due to new HGV traffic and traffic noise effects; and
- approximately 15 residential properties in Hulseheath due to the removal of traffic noise effects.

Socio-economics

7.10.7 The changes in construction traffic flows will result in a different adverse residual significant in-combination effect on Heyrose Golf Club. There will also be new adverse residual significant in-combination effects on Tabley Brook Kennels and Cattery, and on Millington Livery Yard.

Sound, noise and vibration

7.10.8 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 adjacent residential properties on Budworth Road between Frog Lane and Old Hall Lane.

Water resources and flood risk

7.10.9 On a precautionary basis, it is anticipated that significant residual effects will remain on the water quality in the glacial till Secondary (Undifferentiated) aquifer relating to highway discharges from the M6 realignment (permanent moderate adverse effect).

7.11 Summary of likely residual significant effects that will be removed

Traffic and transport

Construction

7.11.1 The AP1 revised scheme will remove significant adverse effects removed on 23 roads (13 major, seven moderate and three minor).

Operation

7.11.2 The AP1 revised scheme will remove the following likely residual significant effects reported in the main ES:

- adverse effects for vehicle occupants in 2038 at six junctions (one major, two moderate and three minor);
- adverse effects for vehicle occupants in 2051 at five junctions (two major, one moderate and two minor);
- beneficial effects for non-motorised users in 2038 on six roads (five moderate, one major);
- adverse effects for non-motorised users in 2038 on 14 roads (one major, 13 moderate);
- beneficial effects for non-motorised users in 2051 on three roads (three major); and
- adverse effects for non-motorised users in 2051 on 11 roads (one major, nine moderate, one minor).

Community

Construction

7.11.3 The AP1 revised scheme will remove the significant adverse residual effects on approximately 50 residential properties along the B5569 Chester Road in Mere due to the removal of noise effects.

Sound, noise and vibration

Construction

7.11.4 The AP1 revised scheme will remove the following likely residual significant effects reported in the main ES:

- indirect effect on properties on Chapel Lane and Peacock Lane between Hulseheath Lane and Back Lane;
- indirect effect on properties on the B5569 Chester Road between the A50 Chester Road and the A5034 Mereside Road; and
- indirect effect on properties on Chapel Lane between the B5569 Chester Road and Hulseheath Lane.

Water resources

7.11.5 The AP1 revised scheme will remove the moderate effects on Tributary of River Weaver 2 and Tributary of Gad Brook 3.

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