In Parliament – Session 2022 - 2023

HS2

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

Volume 5: Map Book

Sound, noise and vibration (SV-02, SV-03, SV-08, SV-09)

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Department for Transport

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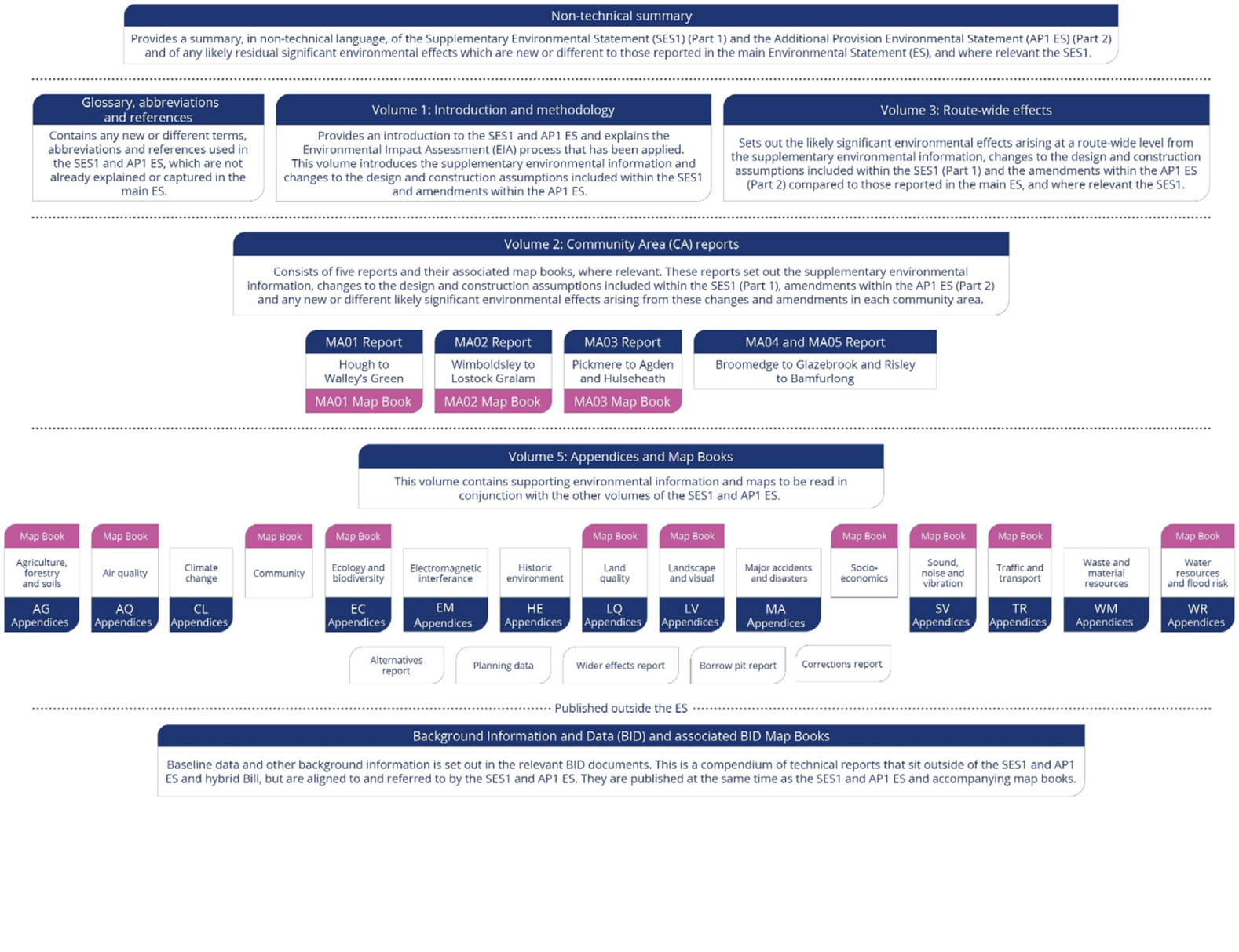
Contents

Map series name	SV-02 - Operational Airborne Noise and Vibration Impacts and Likely Significant Effects	SV-03 - Construction Airborne Noise and Vibration Likely Significant Effects	SV-08 - Daytime Operational Sound Contour Maps	SV-09 - Night-time Operational Sound Contour Maps
Map series description	SV-02 presents the direct operational noise impacts and likely significant effects of the Proposed Scheme. The SV-02 figure series necessarily contains a large amount of information relating to the operational noise and vibration assessment. It is designed to communicate visually the assessment process from the prediction of impacts to the determination of likely residual significant effects. The corresponding text is included in Vol2 and Vol5. A more detailed explanation of each legend item included on the figures can be found in the data dictionary.	The SV-03 figure series accompanies the construction noise & vibration assessments. It shows the locations at which a quantitative assessment of the direct effects of construction noise and/or vibration has been carried out. These are labelled as assessment locations with a reference number to enable cross-reference to the construction noise and vibration reports contained in Volume 5: Appendix SV-002-0XX. A more detailed explanation of each legend item included on the figures can be found in the data dictionary.	SV-08 presents the predicted daytime operational sound from the new railway. The sound levels from the new railway (expressed as $L_{pAeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; this panel contains a key communicating the daytime sound levels represented by the various colours. A corresponding and similar panel is found on SV-02 and SV-09, along with the key sound contours that were used within the environmental assessment. A more detailed explanation of each legend item included on the figures can be found in the data dictionary.	SV-09 presents the predicted night-time operational sound from the new railway. The sound levels from the new railway (expressed as $L_{pAeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; this panel contains a key communicating the night-time sound levels represented by the various colours. A corresponding and similar panel is found on SV-02 and SV-08, along with the key sound contours that were used within the environmental assessment. A more detailed explanation of each legend item included on the figures can be found in the data dictionary.
Community Area name				
MA01 Hough to Walley's Green	✓	✓	✓	✓
MA02 Wimboldsley to Lostock Gralam	✓	✓	✓	✓
MA03 Pickmere to Agden and Hulseheath	✓	✓	✓	✓
MA04 Broomedge to Glazebrook				
MA05 Risley to Bamfurlong				

Mapping explanatory notes

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

This map book is part of the suite of documents that make up the Supplementary Environmental Statement 1 (SES1) and the Additional Provision 1 Environmental Statement (AP1 ES) for the High Speed Rail (Crewe – Manchester) scheme. 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.



Copyright statements

Copyright statements are presented in the data dictionary and definitions section at the front of the map book, due to limited space to include this on the individual maps themselves.

Ordnance Survey data

All maps produced as part of the SES1 and AP1 ES contain Ordnance Survey (OS) data. HS2 Ltd use the most up to date mapping available, where possible, supplied by the OS and as such, we cannot be held responsible for any inaccuracies within this data. As part of our licence conditions, all digital maps carry a watermark.

Chainage

Most of the maps presented as part of the SES1 and AP1 ES have a chainage value shown next to the alignment. Chainage is presented on the maps in black font, in the form of XXX+YYY, e.g. 192+000 or 239+500.

Chainage (known as reference chainage) is referenced from Euston Station, which is 0+000, and the value presented is in metres, e.g. 192+000 refers to the point, 192,000m, or 192km, from Euston Station. Chainage values increase in intervals dependent on the map scale. For maps at 1:50,000 scale chainage is shown at 5km intervals. For maps at 1:25,000 scale chainage is shown at 2km intervals. For maps at 1:20,000, 1:10,000, 1:5,000 and 1:2,500 scales, chainage is shown at 1km intervals.

Chainage has been included on the maps as a useful tool for comparing different map sets showing the different environmental themes or engineering plans, due to map sets having different scales, and therefore, showing differing amounts of alignment on the map.

Map sheet layout

Each map in Volume 2 is presented twice, with the main ES map (In Parliament - Session 2021 - 2022) on the left-hand page and the SES1 and the AP1 ES map on the right. For the CT-05 and CT-06 map series, the SES1 and the AP1 ES is shown with different coloured hatching, annotated with labels, which highlights the areas of change. The coloured text box provides a brief description of the design change and amendment, and gives the SES1 and the AP1 ES reference number. In some instances where the effect covers a large area, a box without hatching but with a label, is shown. Only maps which have been amended as a result of the SES1 and the AP1 ES are included within the map books. Other design changes which are within the existing limits of the Bill and do not result in new or different likely significant effects are also shown on the maps, but are not indicated by hatching.

Each Volume 5 map is annotated to describe the change to a receptor or significant effect, and to give the SES1 and the AP1 ES reference number. For more detailed information about the SES1 and the AP1 ES annotation, refer to the map series legend. Only maps which have been amended as a result of the SES1 and the AP1 ES are included within the map book.

Map orientation

The majority of the maps presented in these map books are presented with the railway alignment running horizontally across the page. The direction of travel to London would be following the alignment to the left hand side of the page, and Manchester to the right.

The exception to this, are map series LV-00, LV-02, LV-07 and LV-08, which present the alignment running from bottom to top of the page. This is to allow more of the modelled outputs to be shown at the appropriate map scale. In this instance, the direction of travel to London would be to the bottom of the page, and Manchester to the top.

Further details on the approach to mapping is set out in Section 6 of Volume 1 of the SES1 and AP1 ES.

Map books

In total, there are 14 map books included in the SES1 and AP1 ES Volume 2 and Volume 5. A list of the map book titles and map series is provided below for reference.

Map book title (map series)	Name
Volume 2: Map book – MA01: Hough to Walley's Green (CT-05, CT-06, CT-10, LV-01, LV-03, LV-04, SV-05)	Volume 5: Map book – Land quality (LQ-01)
Volume 2: Map book – MA02: Wimboldsley to Lostock Gralam (CT-05, CT-06, CT-10, LV-01, LV-03, LV-04, SV-05)	Volume 5: Map book – Landscape and visual (LV-00, LV-02, LV-07, LV-08, LV-17)
Volume 2: Map book – MA03: Pickmere to Agden and Hulseheath (CT-05, CT-06, CT-10, LV-01, LV-03, LV-04, SV-05)	Volume 5: Map book – Planning Data/Committed Development (CT-13)
Volume 5: Map book – Agriculture (AG-01, AG-04)	Volume 5: Map book – Socio-economics (SE-01)
Volume 5: Map book – Air quality (AQ-01)	Volume 5: Map book – Sound, noise and vibration (SV-02, SV-03, SV-08, SV-09)
Volume 5: Map book – Community (CM-01)	Volume 5: Map book – Traffic and transport (TR-03, TR-04, TR-08)
Volume 5: Map book – Ecology and biodiversity (EC-01)	Volume 5: Map book – Water resources and flood risk (WR-02)

High Speed Rail
(Crewe – Manchester)

Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

Data dictionary and definitions

Data dictionary and definitions

Legend features	Definition	Source	Copyright
Airborne noise and vibration assessment location	Locations near surface sections of the route at which a quantitative assessment of airborne sound and ground-borne vibration impacts due to the operation of the Proposed Scheme has been carried out. These are labelled with an assessment location reference code to enable cross-reference to the operational sound and vibration reports in Volume 5, Appendix SV-003-0MA0X.	High Speed Two (HS2) Ltd	
Airborne noise assessment location	Locations at which a quantitative assessment of airborne sound impacts due to the operation of the Proposed Scheme has been carried out. These are labelled with an assessment location reference code to enable cross-reference to the operational sound and vibration reports in Volume 5, Appendix SV-003-0MA0X.	High Speed Two (HS2) Ltd	
Airborne noise study area	This defines the area within which operational airborne sound impacts of the scheme have been quantitatively assessed. This area is defined as within 1km of surface sections of the route in rural areas and within 500m of surface sections of the route in urban areas.	High Speed Two (HS2) Ltd	
Airborne noise, ground-borne sound and vibration assessment location	Locations at which a quantitative assessment of airborne sound, ground-borne sound and vibration impacts due to the operation of the Proposed Scheme has been carried out. These are labelled with an assessment location reference code to enable cross-reference to the operational sound and vibration reports in Volume 5, Appendix SV-003-0MA0X.	High Speed Two (HS2) Ltd	
Baseline measurement locations	These represent locations at which sound measurements were carried out as part of the baseline sound surveys. Measurements of existing baseline sound levels at these locations have been used to derive baseline sound levels at operational and construction sound assessment locations. These baseline measurement locations are labelled with a reference number which enables cross-reference to the baseline sound reports contained in Volume 5: Appendix SV-002-0MA0X, which also describes how these are linked to baseline levels at assessment locations.	High Speed Two (HS2) Ltd	
Committed developments - SV only	This informs the assessment of the future baseline. A development consent or allocation that has full or outline planning permission, or is allocated in an adopted development plan.	High Speed Two (HS2) Ltd	
Community area boundary	The Environmental Statement has been split into sections called Community Areas.	High Speed Two (HS2) Ltd	© Crown copyright. Reproduced by permission of Ordnance Survey Licence Number 100049190. Year of Publication 2019.
Construction airborne sound and vibration assessment location	Locations at which a quantitative assessment of construction noise and vibration impacts of the Proposed Scheme has been carried out. These are labelled with an assessment location reference code to enable cross-reference to the construction sound & vibration reports contained in Volume 5: Appendix SV-002-0MA0X.	High Speed Two (HS2) Ltd	
Construction airborne sound assessment location	Locations at which a quantitative assessment of construction noise impacts of the Proposed Scheme has been carried out. These are labelled with an assessment location reference code to enable cross-reference to the construction sound & vibration reports contained in Volume 5: Appendix SV-002-0MA0X.	High Speed Two (HS2) Ltd	

Legend features	Definition	Source	Copyright
Construction vibration assessment locations	Locations at which a quantitative assessment of construction vibration impacts of the Proposed Scheme has been carried out. These are labelled with an assessment location reference code to enable cross-reference to the construction sound & vibration reports contained in Volume 5: Appendix SV-002-0MA0X.	High Speed Two (HS2) Ltd	
County boundary	County boundaries from Ordnance Survey boundary mapping.	Ordnance Survey	© Crown copyright. Reproduced by
Depot, station, headhouse or portal building	Extends to cover operational footprint of each depot and station and the footprint of each tunnel vent shaft and headhouse at surface level. Excludes any ancillary buildings associated with these structures.	High Speed Two (HS2) Ltd	
District/Borough boundary	Ordnance Survey local authority boundary mapping.	Ordnance Survey	© Crown copyright. Reproduced by permission of Ordnance Survey Licence Number 100049190. Year of Publication 2021.
Engineering earthworks: Cutting	Cuttings created in the construction of the railway and associated works such as highways.	High Speed Two (HS2) Ltd	
Engineering earthworks: Embankment	Embankments created in the construction of the railway and associated works such as highways.	High Speed Two (HS2) Ltd	
Envisaged features further reducing noise effects	Other environmental features e.g. landscaping: These lines represent environmental mitigation features provided for reasons other than noise mitigation which also reduce sound levels from the Proposed Scheme to the surrounding environment. These features are not placed specifically to reduce or remove a likely significant noise effect. Examples include landscaping and visual mitigation earthworks (non-engineering earthworks). Engineering e.g. cuttings: These lines represent engineering features which reduce sound levels from the Proposed Scheme to the surrounding environment but are not placed specifically to reduce or remove a likely significant noise effect. Examples include cuttings and safety barriers on viaducts which are not close to sensitive receptors.	High Speed Two (HS2) Ltd	
Envisaged mitigation to avoid / reduce significant noise effects	Landscaping and/or fence barriers: These lines represent the envisaged mitigation provided specifically to reduce sound levels from the Proposed Scheme at sensitive receptors in order to reduce or remove likely operational significant noise effects. Examples include noise fence barriers or earth bunds (non-engineering earthworks) acting as noise barriers. These features are labelled with the height of the top of the barrier/bund above rail level. Engineering e.g. cuttings: These lines represent engineering features of the route which reduce sound levels from the Proposed Scheme at potentially significant sensitive receptors. These features, therefore, serve a material purpose in reducing or avoiding likely significant noise effects. Examples include engineering cuttings near to sensitive receptors. These features are labelled with the height of the top of the feature above rail level.	High Speed Two (HS2) Ltd	

Legend features	Definition	Source	Copyright
Ground-borne noise & vibration study area (highly sensitive non-residential)	This defines the area within which direct operational ground-borne sound and vibration impacts of the scheme at highly sensitive non-residential receptors have been quantitatively assessed. This area is defined as within 200m of the route.	High Speed Two (HS2) Ltd	
Ground-borne noise & vibration study area (residential and non-residential)	This defines the area within which direct operational ground-borne sound and vibration impacts of the scheme at residential and non-residential receptors have been quantitatively assessed. This area is defined as within 85m of the route.	High Speed Two (HS2) Ltd	
Ground-borne noise and/or vibration assessment location	Locations near tunnelled sections of the route at which a quantitative assessment of ground-borne sound and vibration impacts due to the operation of the Proposed Scheme has been carried out. These are labelled with an assessment location reference code to enable cross-reference to the operational sound & vibration reports contained in Volume 5: Appendix SV-003-0MA0X.	High Speed Two (HS2) Ltd	
Ground-borne noise or vibration impact	Buildings at which an operational ground-borne sound or vibration impact is predicted from the Proposed Scheme.	High Speed Two (HS2) Ltd	
Land potentially required during construction	Boundary defining the maximum possible extent of construction works required to build HS2 as far as the current level of design allows. This only covers surface works and includes all tunnel portals, vent shafts and headhouses, but does not apply to wholly tunnelled sections or to air rights. It also encompasses associated highway, access, drainage and utility works.	High Speed Two (HS2) Ltd	
LpAFmax exceeds 60dB façade	Assessment locations where the predicted value of LpAFmax is 60 dB or greater having applied a façade correction of +2.5 dB to the predicted free field value.	High Speed Two (HS2) Ltd	
Noise Important Areas defined in national noise action plans (Defra 2014)	The Environmental Noise (England) Regulations 2006 (SI 2006/2238) required Defra, as the Competent Authority, to implement the Environmental Noise Directive in England, which requires amongst other things, the adoption of Action Plans, based upon the noise exposure assessment results. The noise action plan(s) “apply in particular to the most important areas as established by the strategic noise maps”. These identified areas are referred to as noise important areas.	High Speed Two (HS2) Ltd	
Non engineering earthworks: Cutting	Cuttings created in the construction of landscape features and mitigation measures.	High Speed Two (HS2) Ltd	
Non engineering earthworks: Embankment	Embankments created in the construction of landscape features and mitigation measures.	High Speed Two (HS2) Ltd	
Operational airborne noise impacts at residential buildings	The buildings shown on SV-02 and SV-05 are colour-coded according to the magnitude of the predicted noise impacts of the Proposed Scheme. Noise impacts are calculated by comparing the sound levels predicted if the Proposed Scheme did not go ahead with those if it did (details of this process can be found in Volume 5: Appendix SV-001-00000). Panel B on SV02/SV-05 contains a key showing the colours used with the corresponding impact categories. The impacts presented are the greatest (i.e. worst-case) of the impacts predicted for daytime and night-time.	High Speed Two (HS2) Ltd	
Potential additional noise insulation (triggered by maximum sound levels at night)	This represents dwellings which would potentially be provided with noise insulation due maximum sound levels from the Proposed Scheme (further information regarding assessment criteria can be found in Volume 5 Appendix SV-001-00000).	High Speed Two (HS2) Ltd	

Legend features	Definition	Source	Copyright
Potential additional noise insulation (triggered by WHO Night Noise Guidelines Interim Target)	This represents dwellings which would potentially be provided with noise insulation due to noise from the Proposed Scheme exceeding the World Health Organization (WHO) night noise guidelines interim target (further information regarding assessment criteria can be found in Volume 5 Appendix SV-001-00000).	High Speed Two (HS2) Ltd	
Potential noise insulation (triggered by Noise Insulation Regulations 1996)	This represents dwellings which would potentially qualify for noise insulation under the Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996 (further information regarding assessment criteria can be found in Volume 5 Appendix SV-001-00000).	High Speed Two (HS2) Ltd	
Route in bored tunnel Route in green tunnel	Represents the proposed route of HS2, split into route in bored tunnel and route in green tunnel sections.	High Speed Two (HS2) Ltd	
Route on surface	Represents the proposed route of HS2, split into route on surface and tunnelled sections.	High Speed Two (HS2) Ltd	
Sound contours	The sound levels from the Proposed Scheme (expressed as LpAeq,T and representing sound from the new railway only) are presented as contours lines, which represent equal sound levels. Further details regarding contour values are provided on the SV-02, SV-05, SV-08 and SV-09 map series.	High Speed Two (HS2) Ltd	

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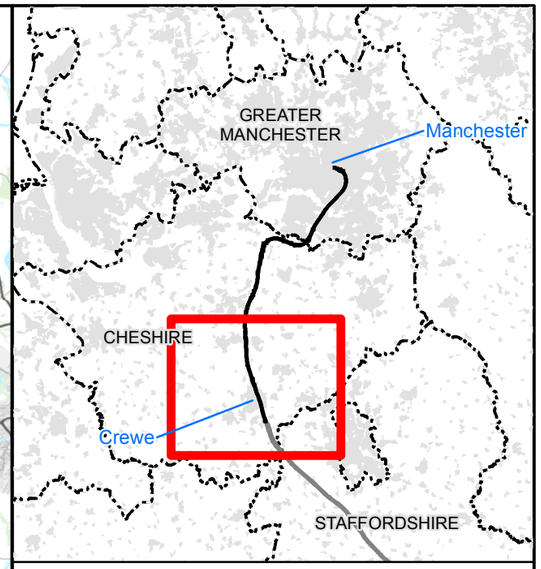
MA01: Hough to Walley's Green
SV-02 – Operational Airborne Noise and Vibration Impacts and Likely Significant Effects
SV-03 – Construction Airborne Noise and Vibration Likely Significant Effects
SV-08 – Day-time Operational Sound Contour Maps
SV-09 – Night-time Operational Sound Contour Maps



Map Series Information:

SV-02 presents the direct operational noise impacts and likely significant effects of the Proposed Scheme.

The SV-02 figure series necessarily contains a large amount of information relating to the operational noise and vibration assessment. It is designed to communicate visually the assessment process from the prediction of impacts to the determination of likely residual significant effects. The corresponding text is included in Vol2 and Vol5.

Key items on the map include the following:

- The Proposed Scheme (the proposed railway alignments and surrounding associated earthworks/roads);
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the study areas, which indicate the areas within which direct sound and vibration impacts of the scheme have been quantitatively assessed;
- the calculated direct operational impacts of the scheme, displayed as colour-coded buildings and symbols representing buildings that would potentially qualify for noise insulation;
- sound contours representing sound produced by the new railway (displayed in a simpler manner than on SV-08 and SV-09 in order not to obscure the features on the map series);
- the assessment locations at which a quantitative prediction of sound and impacts have been carried out (representing a number of nearby buildings). These are labelled with a unique reference number to enable cross-reference to further detail regarding the assessments in Volume 5: Appendix SV-003-00000; and
- labels indicating where the likely residual direct noise or vibration significant effects have been identified. These are labelled with a unique reference number to enable cross-reference to further detail regarding the assessments in Volume 5: Appendix SV-003-00000.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

A more detailed explanation of each legend item included on the figures and on the separate legend page can be found in the data dictionary.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-02-INDEX-MA01

Map Name: Index Map of: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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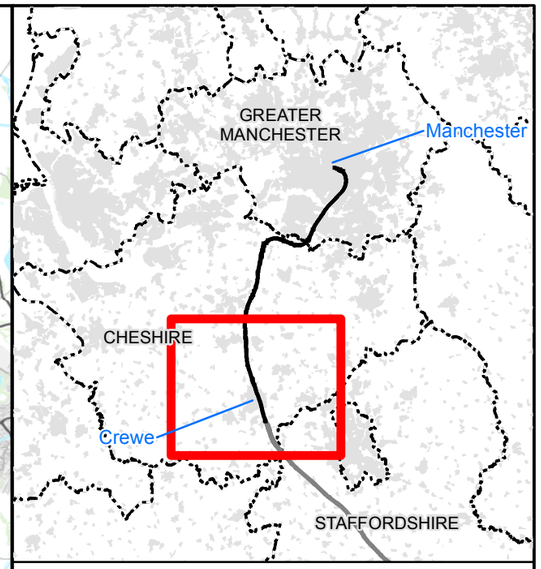
Doc Number: 2PT24-MWJ-EV-MAP-M000-002037-P01

Date: 19/04/22



Map Series Information:

The SV-03 figure series accompanies the construction noise & vibration assessments. It shows the locations at which a quantitative assessment of the direct effects of construction noise and/or vibration has been carried out. These are labelled as assessment locations with a reference number to enable cross-reference to the construction noise and vibration reports contained in Volume 5: Appendix SV-002-00000.

The figure series also shows locations at which baseline sound measurements were carried out.
These baseline measurement locations are labelled with a reference number to enable cross-reference to the baseline sound reports contained in Volume 5: Appendix SV-002-00000.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-03-INDEX-MA01

Map Name: Index Map of: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Scale at A3: 1:100,000

0 1,000 2,000 3,000 4,000 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-002083-P01

Date: 19/04/22

HS2 (rail only) noise level $L_{p,Aeq,T}$		Potential noise effect[1, 2]	
Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)	Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)	**Residential**	**Non-residential & quiet areas**
> 55 dB	> 65 dB	Likely significant effect on dwellings indicated by ◯, ✳ or ✕ avoided by noise insulation	Effect dependent on receptor and baseline. For further details see Volume 5, Appendix SV-003-00000. Likely significant effect indicated by MA0X-O-N#[2]
40 to 55 dB	50 to 65 dB	Effect dependent on noise level change and significance criteria. Likely significant effects on groups of dwellings and any shared community open areas indicated by MA0X-O-C#[2]	
< 40 dB	< 50 dB	Generally no adverse effect expected[1]	

Operational airborne noise impacts at residential buildings[1]

- Major adverse
- Moderate adverse
- Minor adverse
- Negligible
- Beneficial

- ◯ Potential additional noise insulation (triggered by maximum noise levels at night)[1]
- ✳ Potential additional noise insulation (triggered by WHO Night Noise Guidelines Interim Target)[1]
- ✕ Potential noise insulation (triggered by Noise Insulation Regulations 1996)[1]
- ◯ L_{pAFmax} exceeds 60dB façade HS2 train only L_{pAFmax} +2.5dB façade correction

Ground-borne noise or vibration impact at residential buildings

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

- SES/AP change ref.
- Significant effect descriptor

Removed effect | Added effect | Different effect

[1] For further information see Volume 5 Appendix SV-001-00000
[2] For further details of the SES/AP1 ES assessment see Volume 5 Appendix SV-003-00000

Map Number: SV-02 - Legend

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

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Doc Number: -

Date:

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For SNV effects symbology please refer to SV-02 - Legend page

For continuation refer to map number SV-02-301

For continuation refer to map number SV-02-303

CREWE

CHESHIRE EAST

Barrows Green

Bridge Farm

Holly Tree Farm

Maw Green

Foden Farm

Groby Farm

Sydney

Crewe Tunnel

Middlewich Street Vent Shaft

MA01-O-N1

MA01-O-N2

MA01-O-N3

MA01-O-N4

MA01-O-N5

MA01-O-N6

MA01-O-C1

MA01-O-C1

MA01-O-C1

MA01/207

MA01/143

MA01/411

MA01/383

MA01/210

ML710055

ML710056

ML710007

ML710054

ML710053

ML710047

ML710006

ML710008

ML710009

249+000

250+000

251+000

252+000

Different likely significant effect at Chuff-Chuff (as a result of amendment: **AP1-001-001**).

Different likely significant effect at Crewe including a reduction in the number of residential properties with ground-borne noise levels above SOAEL (as a result of amendment: **AP1-001-001**).

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Noise related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Noise Important Areas defined in national noise action plans (Defra 2014)
- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise & vibration study area (residential and non-residential)
- Ground-borne noise & vibration study area (highly sensitive non-residential)
- Airborne noise assessment location
- Airborne noise and vibration assessment location
- Ground-borne noise and/or vibration assessment location
- Airborne noise, ground-borne sound and vibration assessment location
- Baseline measurement locations

Map Number: SV-02-302

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Doc Number: 2PT24-MWJ-EV-MAP-M000-002002-P01

Date: 19/04/22

Likely significant effect removed at Crewe North (as a result of amendment: **AP1-001-001**).

Different likely significant effect at Cemetery Lodge (Offices) (as a result of amendment: **AP1-001-001**).

Different likely significant effect at Orbitas Bereavement Services (Offices) (as a result of amendment: **AP1-001-001**).

Different likely significant effect at Crewe Cemetery and Crematorium (as a result of amendment: **AP1-001-001**).

Likely significant effect removed at Lansdowne Road (as a result of new construction traffic data).

Likely significant effect removed at Limetree Avenue (as a result of new construction traffic data).

SES: Different significant effect at Coppenhall (as a result of new baseline information).

AP1: Likely significant effect removed at Coppenhall (as a result of amendment: **AP1-001-001**).

Likely significant effect removed at Broughton Road (as a result of new construction traffic data).

Likely significant effect removed at Sydney Road (as a result of new construction traffic data).

Likely significant effect added at Waldron's Lane and Stoneley Road (as a result of new construction traffic data).

For continuation refer to map number SV-03-301

For continuation refer to map number SV-03-303

CREWE

Coppenhall

Barrows Green

Bridge Farm

Holly Tree Farm

Groby Farm

Maw Green

Sydney

CHESHIRE EAST

MA01-C-N1

MA01-C-N4

MA01-C-N5

MA01-C-N6

MA01-C-N7

MA01-C-N8

MA01-C-C1

MA01-C-C2

MA01-C-C12

Crewe Tunnel

Middlewich Street Vent Shaft

MA01/207

MA01/383

MA01/411

MA01/143

MA01/210

ML710055

ML710056

ML710054

ML710053

ML710047

ML710007

ML710006

ML710008

ML710009

249+000

250+000

251+000

252+000

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA01-C-C# and MA01-C-N#, respectively.

Map Number: SV-03-302

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Doc Number: 2PT24-MWJ-EV-MAP-M000-002049-P01

Date: 19/04/22

For SNV effects symbology please refer to SV-02 - Legend page

For continuation refer to map number SV-02-303-L1

For continuation refer to map number SV-02-302

For continuation refer to map number SV-02-304a

CHESHIRE EAST

CREWE

Barrows Green

Newstead Farm

Moss Farm

Spring Farm

Moat House Farm

Parkfield Farm

Winton Equestrian Centre

Bridge Farm

Holly Tree Farm

Coppenhall Moss

Moss Fields Farm

Moss Farm

Ridding Farm

Moss Lane Farm

Groby Farm

Lane Ends Farm

Coppenhall House Farm

Crewe Tunnel North Portal

Warmingham Moss Southbound Viaduct

MA01-O-C2

MA01/143 MA01/411 MA01/405 MA01/456S MA01/170 MA01/168 MA01/360 MA01/210 MA01/448S

ML710000 ML710001 ML710003 ML710004 ML710005 ML710006 ML710007 ML710008 ML710009 ML710010 ML710012 ML710013 ML710014 ML710015 ML710016 ML710017 ML710019

Up to 3m

Up to 3m

252+000 253+000 254+000 255+000

A530 MOSS LANE WARMINGHAM ROAD GROBY ROAD DURY LANE PARKERS ROAD BEACONSALL DRIVE BROADFIELD ROAD ROLLS AVENUE FRANK BOTT AVENUE SELWORTHY DRIVE MOSSFORD AVENUE UNDERWOOD LANE MERLIN WAY KESTREL DRIVE THORN TREE DRIVE BELTONY DRIVE STONELEY ROAD WALDRONS LANE

Different likely significant effect at Leighton (as a result of amendment: **AP1-001-001**).

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Noise related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Noise Important Areas defined in national noise action plans (Defra 2014)
- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise & vibration study area (residential and non-residential)
- Ground-borne noise & vibration study area (highly sensitive non-residential)
- Airborne noise assessment location
- Airborne noise and vibration assessment location
- Ground-borne noise and/or vibration assessment location
- Airborne noise, ground-borne sound and vibration assessment location
- Baseline measurement locations

Map Number: SV-02-303

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Date: 19/04/22

For continuation refer to map number SV-03-303-L1

For continuation refer to map number SV-03-302

For continuation refer to map number SV-03-304a

CHESHIRE EAST

CREWE

Barrows Green

Newstead Farm

Moss Farm

Spring Farm

Moat House Farm

Parkfield Farm

Bridge Farm

Holly Tree Farm

Coppenhall Moss

Hollyhurst Farm

Moss Fields Farm

Moss Lane Farm

Ridding Farm

Lane Ends Farm

Crewe Tunnel North Portal

Warmingham Moss Southbound Viaduct

MA01-C-N10

MA01-C-C4

MA01-C-C2

MA01-C-C10

MA01-C-C12

MA01-C-N9

MA01-C-C11

MA01/170

MA01/456S

MA01/168

MA01/411

MA01/405

MA01/143

MA01/210

MA01/448S

MA01/360

ML710019

ML710013

ML710003

ML710004

ML710005

ML710007

ML710010

ML710012

ML710000

ML710001

ML710006

ML710008

ML710009

ML710014

ML710015

ML710017

252+000

253+000

254+000

255+000

A530

MOSS LANE

WARMINGHAM ROAD

BELTONY DRIVE

THORNFIELDS

WAREHAM DRIVE

KESTREL DRIVE

SELWORTHY DRIVE

FRANK BOTT AVENUE

JAMES ATKINSON WAY

ROLLS AVENUE

BEACONSALL DRIVE

STONELEY ROAD

WALDRON LANE

Likely significant effect removed at Crewe North (as a result of amendment: **AP1-001-001**).

SES: Different significant effect at Coppenhall (as a result of new baseline information).

AP1: Likely significant effect removed at Coppenhall (as a result of amendment: **AP1-001-001**).

Likely significant effect removed at Broughton Road (as a result of new construction traffic data).

Likely significant effect added at Coppenhall Moss (as a result of amendment: **AP1-001-001**).

Likely significant effect added at Waldron's Lane and Stoneley Road (as a result of new construction traffic data).

Different likely significant effect at Oakfield Lodge School (as a result of amendment: **AP1-001-004**).

Likely significant effect added at Coppenhall Moss (as a result of amendment: **AP1-001-004**).

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA01-C-C# and MA01-C-N#, respectively.

Map Number: SV-03-303

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Doc Number: 2PT24-MWJ-EV-MAP-M000-002050-P01

Date: 19/04/22

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Leighton Grange

Leighton Hall Farm

PYMS LANE

A530 MIDDLEWICH ROAD

CHESHIRE EAST

Hoolgrave Manor

B5074

High Farm

Bradfield Green

EARDSWICK LANE

B5076 FLOWERS LANE

SMITHY LANE

A530 MIDDLEWICH ROAD

Likely significant effect removed at A530 Middlewich Road (as a result of new construction traffic data).

ML710011

For continuation refer to map number SV-03-303

MA01/170

MA01/456S

HS2

HS2

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA01-C-C# and MA01-C-N#, respectively.

Map Number: SV-03-303-L1

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Doc Number: 2DE01-MWJ-EV-MAP-M000-002890-P01

Date: 19/04/22

For SNV effects symbology please refer to SV-02 - Legend page

Brook House Farm
BROOKHOUSE LANE
Weaver Bank
ML710021
CHESHIRE EAST
CHESHIRE WEST AND CHESTER
610156
610158
610166
610168
Walley's Green
610147
MA01/360
610149
ML710019
610151
610155
610157
A530 MIDDLEWICH ROAD
Newfield Farm
610163
610873
610872
Moat House Farm
610407
610164
610160
Wimboldsley Grange Farm
610182
Lea Hall Farm
610165
610169
Newfield Hall Farm
Wimboldsley Hall Farm
For continuation refer to map number SV-02-303
256+000
257+000
258+000
Crewe North Rolling Stock Depot
Parkfield Farm
610148
ML710001
610171
Up-to 4m
Up-to 4m
MA01/145
610162
A530 Nantwich Road Overbridge
Park Hall Farm
610153
Park House Farm
610173
610746
610180
MA02/328
610186
610185
ML710046
610178
610183
610877
Wimboldsley
CHAPEL LANE
610181
610174
610388
610184
ML710023
610188
610176
610177
SCHOOL LANE
Newfield Farm
Occlestone Green
HOUGH TO WALLEY'S GREEN
HS2
For continuation refer to map number SV-02-304a-R1
ML710024
For continuation refer to map number SV-02-305
WIMBOLDSLEY TO LOSTOCK GRALAM
FORGE MILL LANE
Manor Farm
Field's Farm

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Noise related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Noise Important Areas defined in national noise action plans (Defra 2014)
- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise & vibration study area (residential and non-residential)
- Ground-borne noise & vibration study area (highly sensitive non-residential)
- Airborne noise assessment location
- Airborne noise and vibration assessment location
- Ground-borne noise and/or vibration assessment location
- Airborne noise, ground-borne sound and vibration assessment location
- Baseline measurement locations

Map Number: SV-02-304a

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Date: 19/04/22

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WIMBOLDSLEY TO LOSTOCK GRALAM

HOUGH TO WALLEY'S GREEN

SV-08-304a

SV-08-303

SV-08-302

Crewe North Rolling Stock Depot

Crewe Tunnel North Portal

Crewe Tunnel

Warmingham Moss Southbound Viaduct

Middlewich Street Vent Shaft

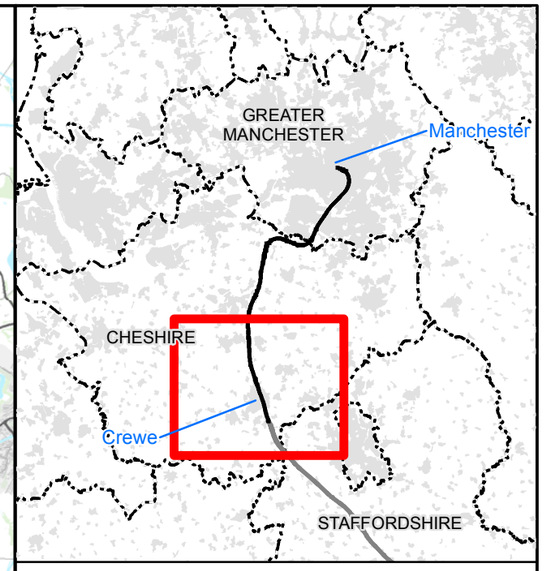
Cowley Way Vent Shaft

Crewe Tunnel South Portal

Connection To HS2 Phase 2a

Moulton
Byley
Goostrey
Lower Withington
Delamere
Whitegate
Holmes Chapel
Swettenham
WINSFORD
Winsford
Over
MIDDLEWICH
Utkinton
Little Budworth
Hebden Green
Brereton Green
CHESHIRE WEST AND CHESTER
Eaton
Congleton
Tarporley
Arclid
SANDBACH
Sandbach
Wettenhall
Warmingham
Walley's Green
Spen Green
Alpraham
Church Minshull
Tiverton
CHESHIRE
Wheelock
CHESHIRE EAST
Bunbury
Wardle
Scholar Green
ALSAGER
Worleston
Haslington
CREWE
Crewe
Alsager
KIDSGROVE
Kidsgrove
Wistaston
Brindley
NANTWICH
Willaston
NEWCASTLE-UNDER-LYME BOROUGH
Weston
Barthomley
Nantwich
Shavington
Chorley
Ravensmoor
Hough
Audley
High Carr
STAFFORDSHIRE
Longport
Wybunbury
Betley
Hack Green
Hatherton
Wrenbury cum Frith
Aston
Wrenbury
Madeley Heath
NEWCASTLE-UNDER-LYME
Marbury

HS2



Map Series Information:

SV-08 presents the predicted daytime operational sound from the new railway.

The sound levels from the new railway (expressed as $L_{p,Aeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; this panel contains a key communicating the daytime sound levels represented by the various colours. A corresponding and similar panel is found on SV-02 and SV-09, along with the key sound contours that were used within the environmental assessment.

Also presented on SV-08 are the following (which are also included on SV-02):

- A representation of the Proposed Scheme, including the railway alignment (indicating whether it is on the surface or in tunnel), any new and altered roads and all associated engineering and environmental mitigation earthworks;
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the extent of the study area within which the direct impacts and effects of the scheme have been quantitatively assessed.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-08-INDEX-MA01

Map Name: Index Map of: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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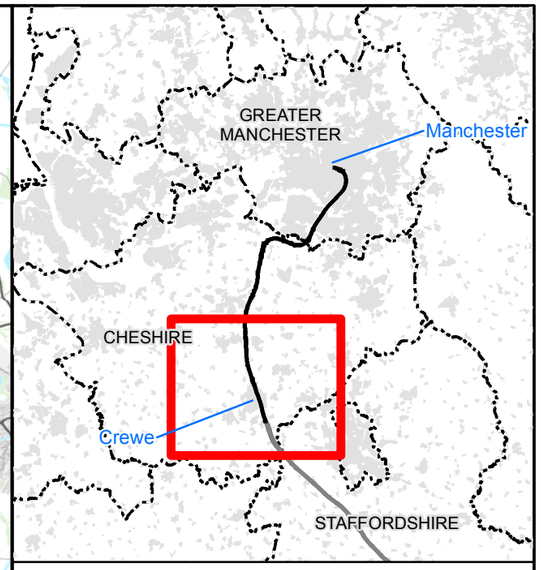
Date: 19/04/22



Map Series Information:

SV-09 presents the predicted night-time operational sound from the new railway.

The sound levels from the new railway (expressed as $L_{p,Aeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; this panel contains a key communicating the night-time sound levels represented by the various colours. A corresponding and similar panel is found on SV-02 and SV-08, along with the key sound contours that were used within the environmental assessment.

Also presented on SV-09 are the following (which are also included on SV-02):

- A representation of the Proposed Scheme, including the railway alignment (indicating whether it is on the surface or in tunnel), any new and altered roads and all associated engineering and environmental mitigation earthworks;
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the extent of the study area within which the direct impacts and effects of the scheme have been quantitatively assessed.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-09-INDEX-MA01

Map Name: Index Map of: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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0 1,000 2,000 3,000 4,000 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-003113-P01

Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$

Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)

- > 70 dB
- 65 to 70 dB
- 60 to 65 dB
- 55 to 60 dB
- 50 to 55 dB
- < 50 dB

CREWE

CHESHIRE EAST

Coppenhall

Sydney

Maw Green

Crewe Tunnel

Middlewich Street Vent Shaft

249+000

250+000

251+000

252+000

Bridge Farm

Holly Tree Farm

Foden Farm

Groby Farm

For continuation refer to map number SV-08-303

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-08-302

Map Name: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Scale at A3: 1:10,000

0 100 200 300 400 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-003081-P01

Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$
Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)
> 60 dB
55 to 60 dB
50 to 55 dB
45 to 50 dB
40 to 45 dB
< 40 dB

CREWE

CHESHIRE EAST

Coppenhall

Sydney

Maw Green

Holly Tree Farm

Bridge Farm

Foden Farm

Groby Farm

249+000

250+000

251+000

252+000

Crewe Tunnel

Middlewich Street Vent Shaft

For continuation refer to map number SV-09-303

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-09-302

Map Name: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Scale at A3: 1:10,000

0 100 200 300 400 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-003122-P01

Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$
Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)
> 70 dB
65 to 70 dB
60 to 65 dB
55 to 60 dB
50 to 55 dB
< 50 dB

CHESHIRE EAST

CREWE

Barrows Green

Newstead Farm

Moss Farm

Warmingham Moss Southbound Viaduct

Crewe Tunnel North Portal

Spring Farm

Moat House Farm

Parkfield Farm

252+000

253+000

254+000

255+000

Up to 3m

Up to 3m

Winton Equestrian Centre

Bridge Farm

Holly Tree Farm

Hollyhurst Farm

Moss Farm

Moss Fields Farm

Coppenhall Moss

Moss Lane Farm

Ridding Farm

Groby Farm

Lane Ends Farm

Coppenhall House Farm

A530

ROLLS AVENUE

BEACONSALL DRIVE

SELWORTHY DRIVE

MOSSFORD AVENUE

MERLIN WAY

PARKERS ROAD

THORN TREE DRIVE

KESTREL DRIVE

BELTONY DRIVE

UNDERWOOD LANE

MABLINS LANE

LAMBOURN DRIVE

THORNFIELDS

MILLS WAY

WAREHAM DRIVE

HYTHE AVENUE

BLEASDALE ROAD

CONWAY CLOSE

BROUGHTON ROAD

MOSS LANE

STONELEY ROAD

WALDRONS LANE

WARMINGHAM ROAD

GROBY ROAD

DURY LANE

For continuation refer to map number SV-08-302

For continuation refer to map number SV-08-304a

HS2

HS2

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-08-303

Map Name: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Scale at A3: 1:10,000

0 100 200 300 400 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-003082-P01

Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$
Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)
> 60 dB
55 to 60 dB
50 to 55 dB
45 to 50 dB
40 to 45 dB
< 40 dB

CHESHIRE EAST

CREWE

Barrows Green

Newstead Farm

Moss Farm

Spring Farm

Moat House Farm

Parkfield Farm

Crewe Tunnel North Portal

Warmingham Moss Southbound Viaduct

252+000

253+000

254+000

255+000

Up to 3m

Up to 3m

Winton Equestrian Centre

Bridge Farm

Holly Tree Farm

Hollyhurst Farm

Moss Farm

Moss Fields Farm

Coppenhall Moss

Moss Lane Farm

Ridding Farm

Groby Farm

Coppenhall House Farm

Lane Ends Farm

ROLLS AVENUE

BEACONSALL DRIVE

SELWORTHY DRIVE

MOSSFORD AVENUE

MERLIN WAY

PARKERS ROAD

THORN TREE DRIVE

KESTREL DRIVE

BELTONY DRIVE

UNDERWOOD LANE

MABLINS LANE

WAREHAM DRIVE

LAMBOURN DRIVE

THORNFIELDS

MILLS WAY

BLEASDALE ROAD

HYTHE AVENUE

CONWAY CLOSE

BROUGHTON ROAD

PARKERS ROAD

STONELEY ROAD

WALDRONS LANE

WARMINGHAM ROAD

MOSS LANE

GROBY ROAD

WARMINGHAM ROAD

DURY LANE

A530

For continuation refer to map number SV-09-302

For continuation refer to map number SV-09-304a

HS2

HS2

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-09-303

Map Name: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Scale at A3: 1:10,000

0 100 200 300 400 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-003123-P01

Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$
Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)
> 70 dB
65 to 70 dB
60 to 65 dB
55 to 60 dB
50 to 55 dB
< 50 dB

Brook House Farm
BROOKHOUSE LANE
Weaver Bank
CHESHIRE EAST
CHESHIRE WEST AND CHESTER
Walley's Green
Newfield Farm
A530 MIDDLEWICH ROAD
Moat House Farm
For continuation refer to map number SV-08-303
Wimboldsley Grange Farm
Lea Hall Farm
Newfield Hall Farm
Wimboldsley Hall Farm
256+000
257+000
258+000
Crewe North Rolling Stock Depot
Parkfield Farm
Up to 4m
Up to 4m
A530 Nantwich Road Overbridge
A530 NANTWICH ROAD
Park Hall Farm
Park House Farm
For continuation refer to map number SV-08-305
Wimboldsley
CHAPEL LANE
HOUGH TO WALLEY'S GREEN
SCHOOL LANE
Newfield Farm
Occlestone Green
HS2
HS2
WIMBOLDSLEY TO LOSTOCK GRALAM
FORGE MILL LANE
Field's Farm
Manor Farm

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-08-304a

Map Name: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Doc Number: 2PT24-MWJ-EV-MAP-M000-003083-P01

Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$
Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)
> 60 dB
55 to 60 dB
50 to 55 dB
45 to 50 dB
40 to 45 dB
< 40 dB

Brook House Farm
BROOKHOUSE LANE
Weaver Bank
CHESHIRE EAST
CHESHIRE WEST AND CHESTER
Walley's Green
Newfield Farm
A530 MIDDLEWICH ROAD
Moat House Farm
Wimboldsley Grange Farm
Lea Hall Farm
Newfield Hall Farm
Wimboldsley Hall Farm
256+000
257+000
258+000
Crewe North Rolling Stock Depot
Parkfield Farm
Up to 4m
Up to 4m
A530 Nantwich Road Overbridge
A530 NANTWICH ROAD
Park Hall Farm
Park House Farm
CHAPEL LANE
Wimboldsley
SCHOOL LANE
Newfield Farm
Occlestone Green
FORGE MILL LANE
Manor Farm
Field's Farm
HOUGH TO WALLEY'S GREEN
WIMBOLDSLEY TO LOSTOCK GRALAM
HS2
HS2
For continuation refer to map number SV-09-303
For continuation refer to map number SV-09-305

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment; Cutting

Non engineering earthworks: Embankment; Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:

- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:

- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-09-304a

Map Name: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA01: Hough to Walley's Green

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Doc Number: 2PT24-MWJ-EV-MAP-M000-003124-P01

Date: 19/04/22

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HS2

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

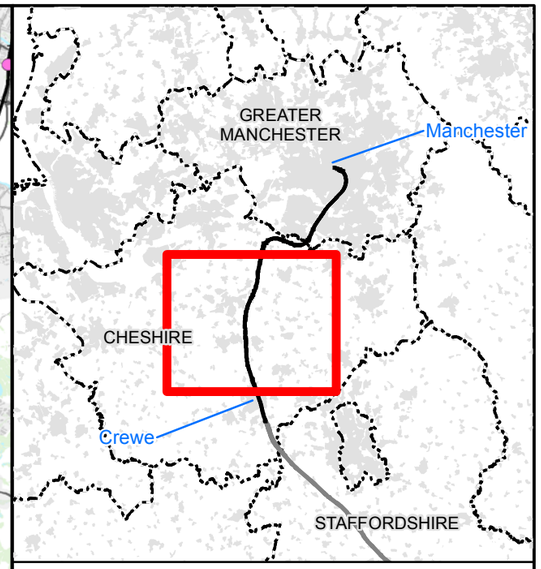
MA02: Wimboldsley to Lostock Gralam
SV-02 – Operational Airborne Noise and Vibration Impacts and Likely Significant Effects
SV-03 – Construction Airborne Noise and Vibration Likely Significant Effects
SV-08 – Day-time Operational Sound Contour Maps
SV-09 – Night-time Operational Sound Contour Maps

PICKMERE TO AGDEN AND HULSEHEATH

WIMBOLDSLEY TO LOSTOCK GRALAM

HOUGH TO WALLEY'S GREEN

Runcorn East
RUNCORN
Lower Stretton
Mere
Over Tabley
Mobberley
WILMSLOW
Wilmslow
Mobberley
Alderley Edge
Knutsford
KNUTSFORD
Pickmere
Comberbach
Acton Bridge
Ollerton
Chelford
Lostock Gralam
Plumley
Smoker Brook Viaduct
Lower Peover
Over Peover
Chelford
Kingsley
Acton Bridge
Weaverham
NORTHWICH
Northwich
Lostock Gralam
Lostock Gralam Viaduct
Wade Brook Viaduct
Greenbank
Norley
Gad Brook Viaduct
Cuddington
Hartford
Hartford
Cuddington
Lach Dennis
Trent And Mersey Canal Viaduct
Puddinglake Brook Viaduct
Delamere
Moulton
Goostrey
Goostrey
Byley
Lower Withington
Delamere
CHESHIRE WEST AND CHESTER
Whitegate
River Dane Viaduct
A54 Middlewich Road Viaduct
Holmes Chapel
Swettenham
MIDDLEWICH
WINSFORD
Winsford
SV-02-305
Over
CHESHIRE EAST
Holmes Chapel
Utkinton
Little Budworth
Shropshire Union Canal Viaduct
Brereton Green
Hebden Green
CHESHIRE
Crewe North Rolling Stock Depot
Eaton
Congleton
Tarporley
Arclid
SANDBACH
Sandbach
Wettenhall
Warmingham
Church Minshull
Walley's Green
Spen Green
Alpraham
Tiverton
Wheelock Heath
Bunbury
CREWE
Rode Heath



Map Series Information:

SV-02 presents the direct operational noise impacts and likely significant effects of the Proposed Scheme.

The SV-02 figure series necessarily contains a large amount of information relating to the operational noise and vibration assessment. It is designed to communicate visually the assessment process from the prediction of impacts to the determination of likely residual significant effects. The corresponding text is included in Vol2 and Vol5.

Key items on the map include the following:
- The Proposed Scheme (the proposed railway alignments and surrounding associated earthworks/roads);
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the study areas, which indicate the areas within which direct sound and vibration impacts of the scheme have been quantitatively assessed;
- the calculated direct operational impacts of the scheme, displayed as colour-coded buildings and symbols representing buildings that would potentially qualify for noise insulation;
- sound contours representing sound produced by the new railway (displayed in a simpler manner than on SV-08 and SV-09 in order not to obscure the features on the map series);
- the assessment locations at which a quantitative prediction of sound and impacts have been carried out (representing a number of nearby buildings). These are labelled with a unique reference number to enable cross-reference to further detail regarding the assessments in Volume 5: Appendix SV-003-00000; and
- labels indicating where the likely residual direct noise or vibration significant effects have been identified. These are labelled with a unique reference number to enable cross-reference to further detail regarding the assessments in Volume 5: Appendix SV-003-00000.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

A more detailed explanation of each legend item included on the figures and on the separate legend page can be found in the data dictionary.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-02-INDEX-MA02

Map Name: Index Map of: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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0 1,000 2,000 3,000 4,000 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-002038-P01

Date: 19/04/22

PICKMERE TO AGDEN AND HULSEHEATH

WIMBOLDSLEY TO LOSTOCK GRALAM

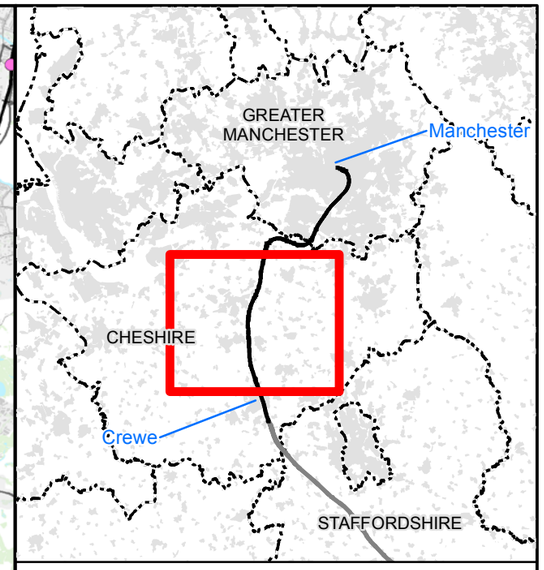
HOUGH TO WALLEY'S GREEN

SV-03-309a
SV-03-308
SV-03-307
SV-03-306
SV-03-306-R1
SV-03-306-R2
SV-03-305
SV-03-305-L1

Smoker Brook Viaduct
Lostock Gralam Viaduct
Wade Brook Viaduct
Gad Brook Viaduct
Puddinglake Brook Viaduct
Trent And Mersey Canal Viaduct
River Dane Viaduct
A54 Middlewich Road Viaduct
Shropshire Union Canal Viaduct
Crewe North Rolling Stock Depot

Runcorn East
RUNCORN
Lower Stretton
Mere
Mobberley
WILMSLOW
Wilmslow
Over Tabley
Mobberley
Knutsford
KNUTSFORD
Alderley Edge
Pickmere
Comberbach
Acton Bridge
Ollerton
Lostock Gralam
Plumley
Chelford
Chelford
Kingsley
Acton Bridge
Weaverham
NORTHWICH
Northwich
Lostock Gralam
Lower Peover
Over Peover
Greenbank
Norley
Cuddington
Cuddington
Hartford
Hartford
Lach Dennis
Delamere
Moulton
Goostrey
Goostrey
Byley
Lower Withington
Delamere
CHESHIRE WEST AND CHESTER
Whitegate
Holmes Chapel
Holmes Chapel
MIDDLEWICH
CHESHIRE EAST
Swettenham
Over
WINSFORD
Winsford
Utkinton
Little Budworth
Hebden Green
CHESHIRE
Brereton Green
Congleton
Eaton
Tarporley
Arclid
SANDBACH
Sandbach
Wettenhall
Warmingham
Church Minshull
Walley's Green
Spen Green
Alpraham
Tiverton
Bunbury
CREWE
Wheelock Heath
Rode Heath

HS2



Map Series Information:

The SV-03 figure series accompanies the construction noise & vibration assessments. It shows the locations at which a quantitative assessment of the direct effects of construction noise and/or vibration has been carried out. These are labelled as assessment locations with a reference number to enable cross-reference to the construction noise and vibration reports contained in Volume 5: Appendix SV-002-00000.

The figure series also shows locations at which baseline sound measurements were carried out.
These baseline measurement locations are labelled with a reference number to enable cross-reference to the baseline sound reports contained in Volume 5: Appendix SV-002-00000.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary

- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-03-INDEX-MA02

Map Name: Index Map of: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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Scale at A3: 1:100,000

0 1,000 2,000 3,000 4,000 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-002084-P01

Date: 19/04/22

HS2 (rail only) noise level $L_{p,Aeq,T}$		Potential noise effect[1, 2]	
Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)	Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)	**Residential**	**Non-residential & quiet areas**
> 55 dB	> 65 dB	Likely significant effect on dwellings indicated by ◯, ✳ or ✕ avoided by noise insulation	Effect dependent on receptor and baseline. For further details see Volume 5, Appendix SV-003-00000. Likely significant effect indicated by MA0X-O-N#[2]
40 to 55 dB	50 to 65 dB	Effect dependent on noise level change and significance criteria. Likely significant effects on groups of dwellings and any shared community open areas indicated by MA0X-O-C#[2]	
< 40 dB	< 50 dB	Generally no adverse effect expected[1]	

Operational airborne noise impacts at residential buildings[1]

- Major adverse
- Moderate adverse
- Minor adverse
- Negligible
- Beneficial

- ◯ Potential additional noise insulation (triggered by maximum noise levels at night)[1]
- ✳ Potential additional noise insulation (triggered by WHO Night Noise Guidelines Interim Target)[1]
- ✕ Potential noise insulation (triggered by Noise Insulation Regulations 1996)[1]
- ◯ L_{pAFmax} exceeds 60dB façade HS2 train only L_{pAFmax} +2.5dB façade correction

Ground-borne noise or vibration impact at residential buildings

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

- SES/AP change ref.
- Significant effect descriptor

Removed effect | Added effect | Different effect

[1] For further information see Volume 5 Appendix SV-001-00000
[2] For further details of the SES/AP1 ES assessment see Volume 5 Appendix SV-003-00000

Map Number: SV-02 - Legend

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

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Doc Number: -

Date:

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For SNV effects symbology please refer to SV-02 - Legend page

MA02/247

Mole House Farm

CLIVE BACK LANE

ML710027

CHESHIRE WEST AND CHESTER

Pear Tree Farm

610196

610201

Clive Farm

610198

Clive Green

610204

CLIVEGREEN LANE

610200

ML710026

610199

Lea Hall Farm

610189

Clive Green Lane Overbridge

Stanthorne Park Mews

610202

610194

259+000

260+000

MA02-O-C1

ML710029

610206

Park Farm

Crewe North Rolling Stock Depot

Up to 4m

Shropshire Union Canal Viaduct

610191

610193

610192

COAL PIT LANE

Lea House Farm

ML710046

610186

610185

610877

610183

Wimboldsley

MA02/328

For continuation refer to map number SV-02-304b

610188

Newfield Farm

610184

ML710023

610209

610205

610207

A530 NANTWICH ROAD

ML710025

610197

Norcroft Farm

ML712716

CHESHIRE EAST

Field's Farm

ML710045

Manor Park

Yew Tree Farm

ML710028

Clive Hall Farm

ION PATH

ROAD THREE

ROAD FIVE

ML710030

610216

MA02/217

610725

MA02/335

610875

610387

610724

610402

610876

610727

610217

Clive

610726

610219

610723

610493

MA02-O-C2

610722

610222

261+000

A54 Middlewich Road Viaduct

Stanthorne Hall Farm

610228

262+000

ML710032

610239

Bank Farm

610238

Up to 2m

Up to 3m

Up to 2m

Up to 4m

Up to 2m

610231

Greenheyes Farm

Stanthorne

610233

610230

610408

610226

BIRCH LANE

610409

A533 NORTHWICH ROAD

BOSTOCK ROAD

610220

COAL PIT LANE

610224

ML710031

610225

Mill Farm

610232

Bostock House Farm

ML710044

610234

Likely significant effect removed at Stanthorne (as a result of new baseline information).

610221

610732

610229

A54 CHESTER ROAD

Newtonia

For continuation refer to map number SV-02-306

HS2

HS2

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Noise related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Noise Important Areas defined in national noise action plans (Defra 2014)
- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise & vibration study area (residential and non-residential)
- Ground-borne noise & vibration study area (highly sensitive non-residential)
- Airborne noise assessment location
- Airborne noise and vibration assessment location
- Ground-borne noise and/or vibration assessment location
- Airborne noise, ground-borne sound and vibration assessment location
- Baseline measurement locations

Map Number: SV-02-305

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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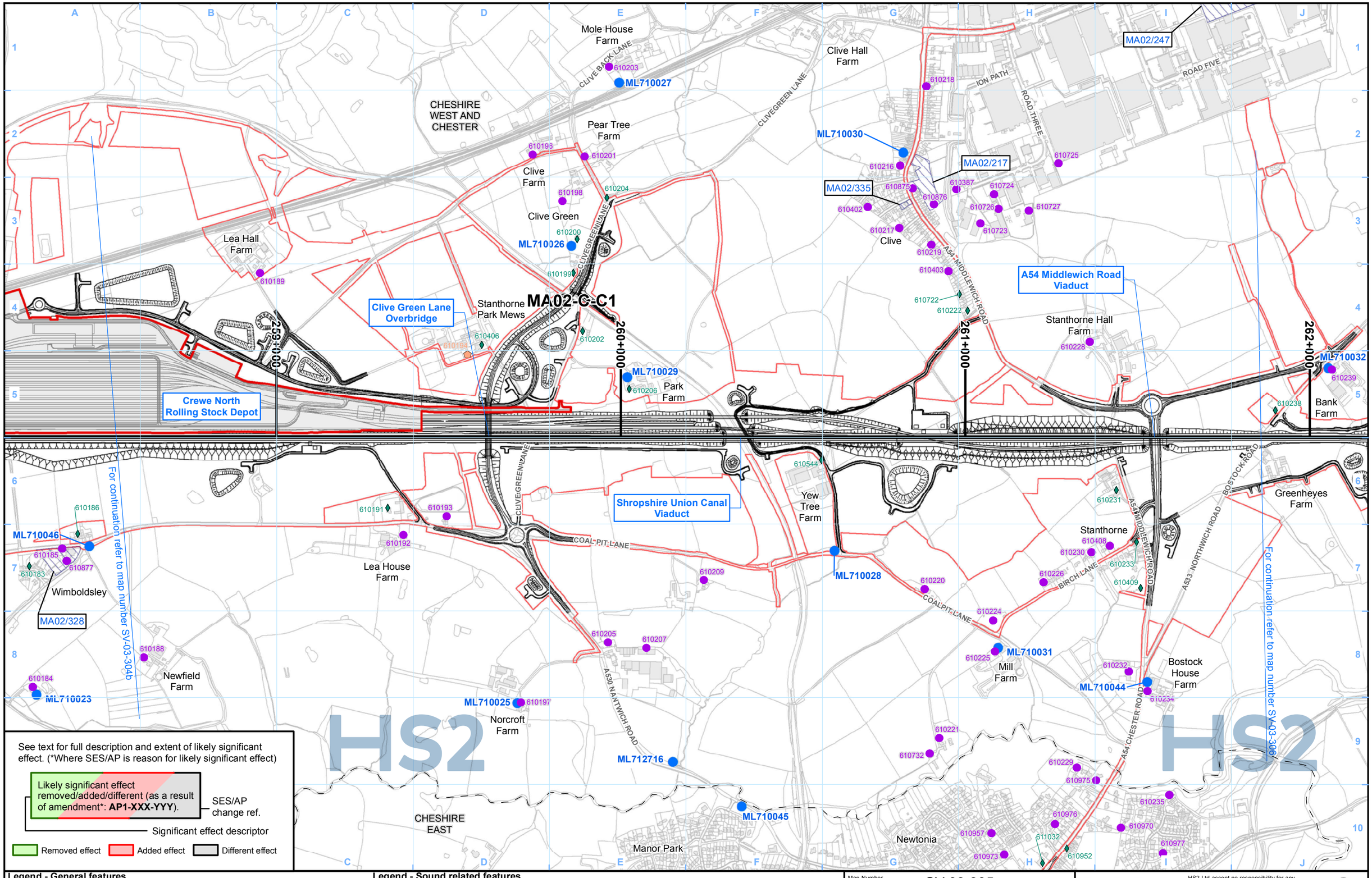
Doc Number: 2PT24-MWJ-EV-MAP-M000-002006-P01

Date: 19/04/22



See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment; Cutting

Non engineering earthworks: Embankment; Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA02-C-C# and MA02-C-N#, respectively.

Map Number: SV-03-305

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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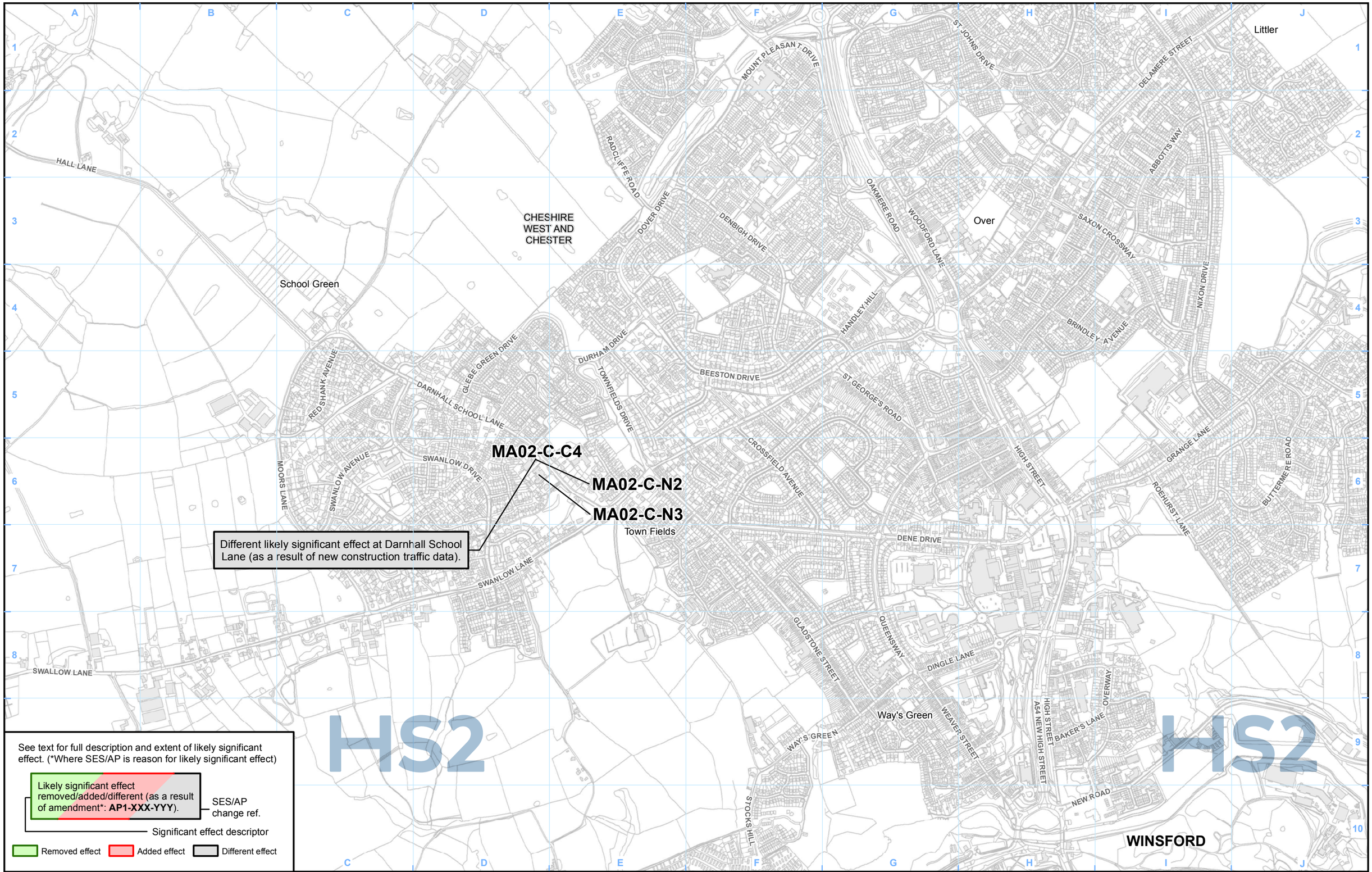

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA02-C-C# and MA02-C-N#, respectively.

Map Number: SV-03-305-L1

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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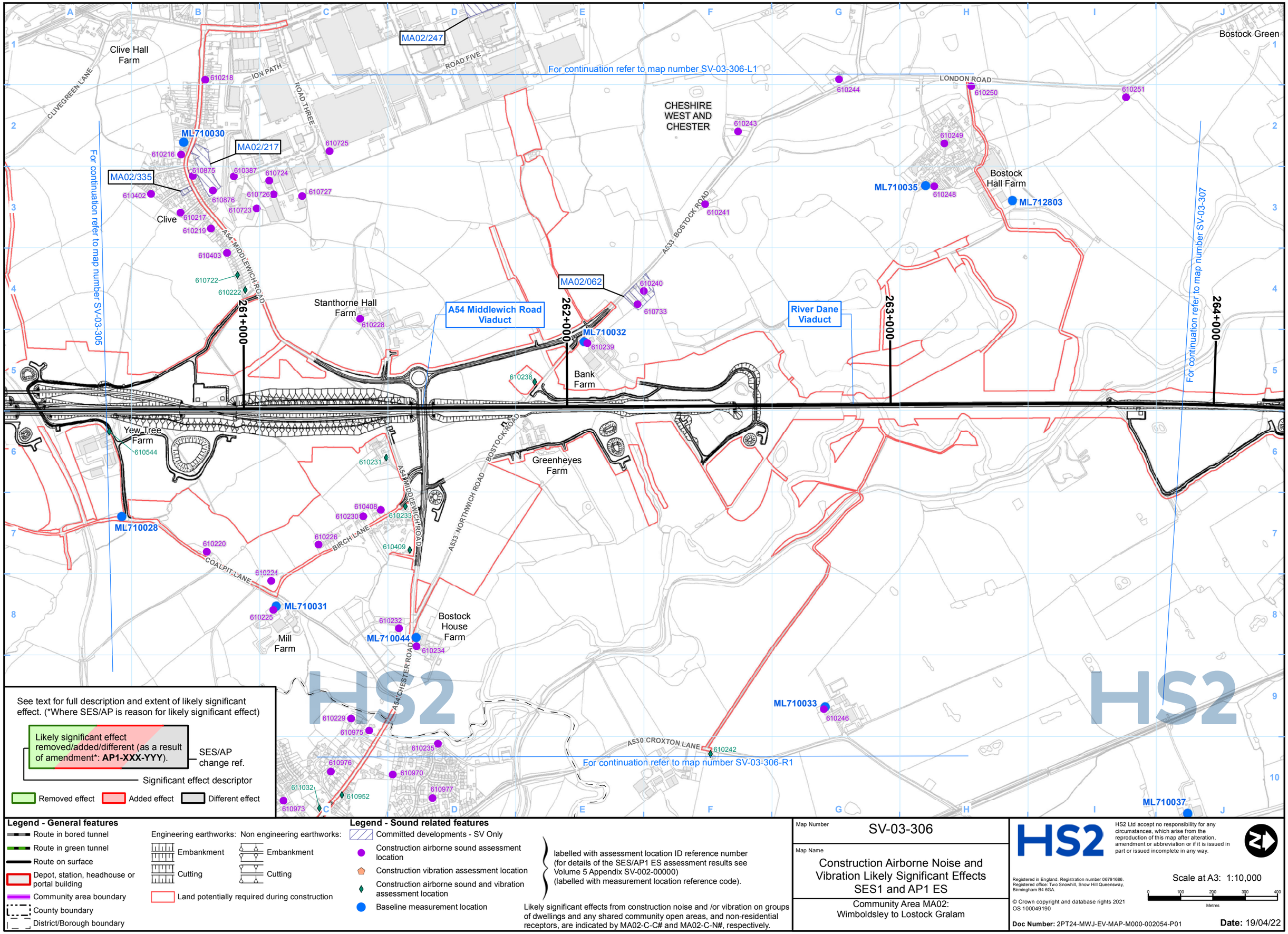

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**). — SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment; Cutting

Non engineering earthworks: Embankment; Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA02-C-C# and MA02-C-N#, respectively.

Map Number: SV-03-306

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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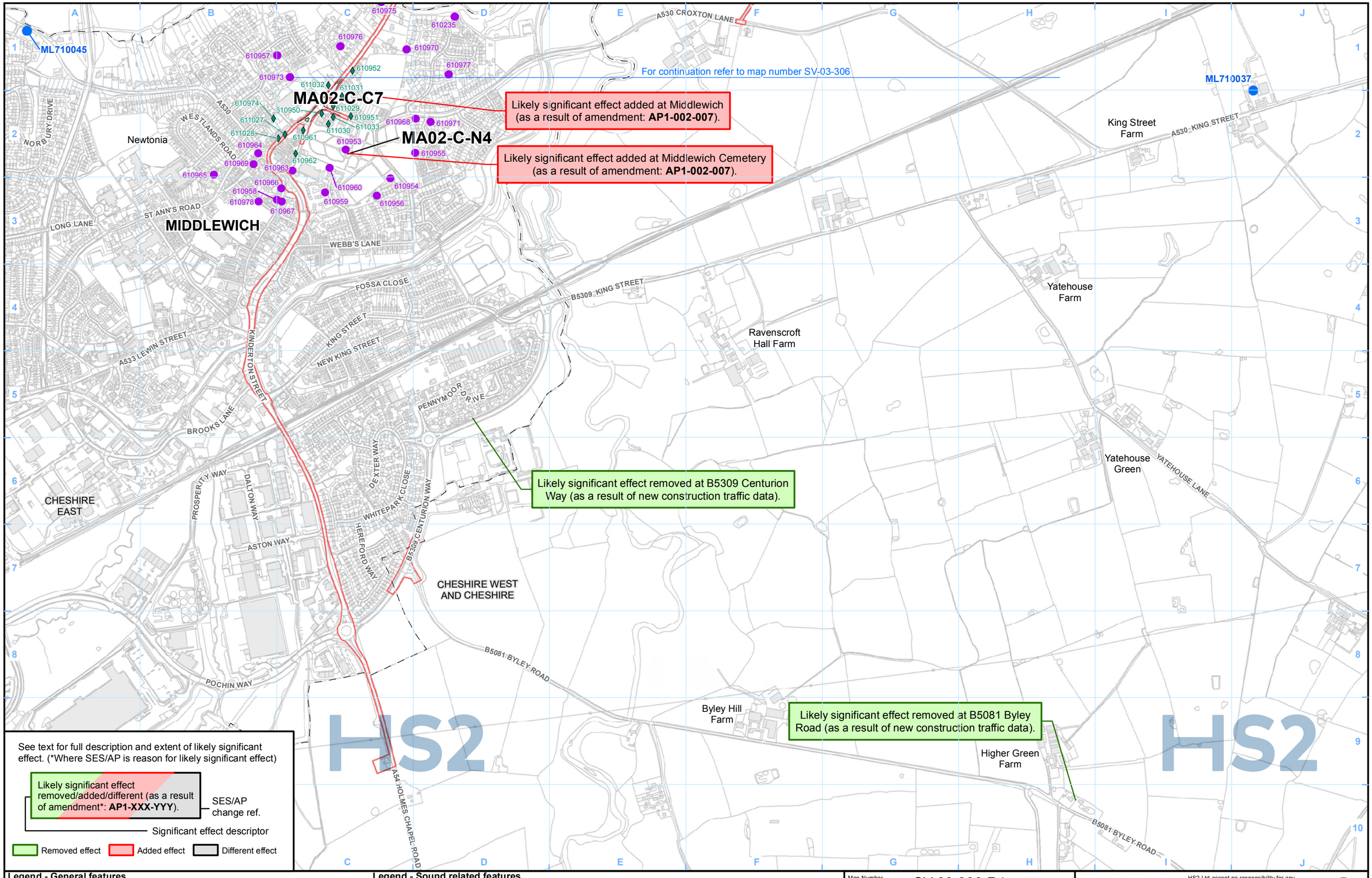

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment; Cutting

Non engineering earthworks: Embankment; Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA02-C-C# and MA02-C-N#, respectively.

Map Number: SV-03-306-R1

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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JONES LANE
BROAD LANE
POOLFORD LANE
M6
BROAD LANE
BRERETON LANE
A54 MIDDLEWICH ROAD
CONISTON DRIVE
RAVENSCROFT
GRASMERE DRIVE
SELKIRK DRIVE
BROOKFIELD DRIVE
WEST WAY
B5309 MIDDLEWICH ROAD
WESTMORLAND TERRACE
BESSANCOURT
BYLEY LANE
MIDDLEWICH ROAD
OAK TREE LANE
Holly House Farm
Cranage
CHESHIRE EAST
Holmes Chapel
610716
610718
610717
610719
611015
611017
611004
611003
611016
611002
610996
611014
610992
610990
611005
610991
610988
611007
611001
610989
610995
610997
MA02-C-C8
611000
611009
611019
610993
611006
611013
610994
611008
611010
610998
610999
611012
611011
611018
Likely significant effect added at Holmes Chapel (as a result of amendment: **AP1-002-009**).
HS2
HS2
HS2

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**). — SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment; Cutting

Non engineering earthworks: Embankment; Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA02-C-C# and MA02-C-N#, respectively.

Map Number: SV-03-306-R2

Map Name

Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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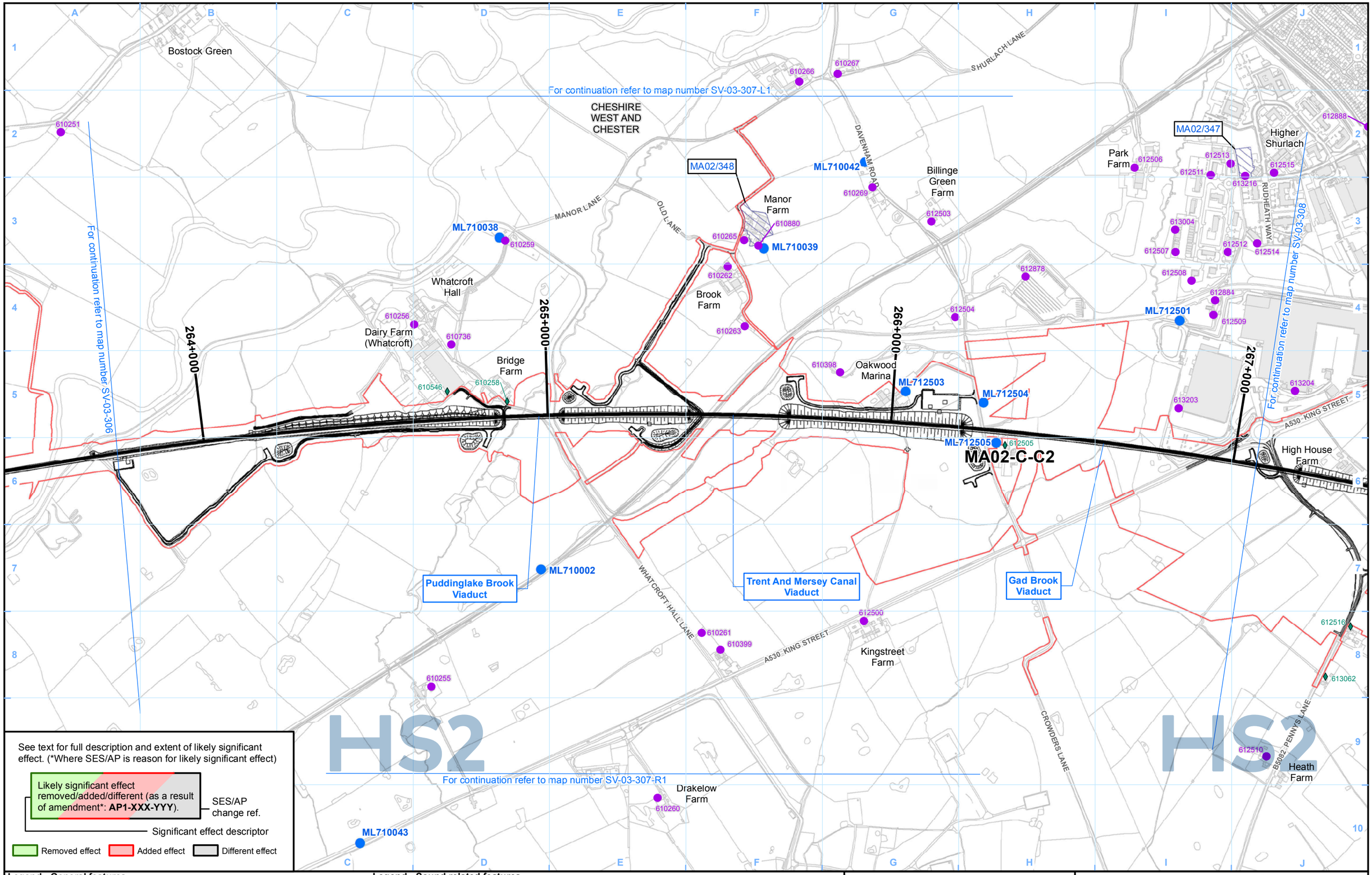

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment; Cutting

Non engineering earthworks: Embankment; Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA02-C-C# and MA02-C-N#, respectively.

Map Number: SV-03-307

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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Doc Number: 2PT24-MWJ-EV-MAP-M000-002055-P01

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Likely significant effect added at Lostock Lodge Care Home (as a result of new construction traffic data).

Likely significant effect added at Lostock Tiny Tots Pre-School (as a result of new construction traffic data).

Likely significant effect added at Parish Church of St John the Evangelist Church Hall (as a result of new construction traffic data).

Likely significant effect added at A556 Shurlach Road (as a result of new construction traffic data).

MA02-C-N6

MA02-C-N5

MA02-C-C9

MA02-C-N7

MA02-C-C3

Lostock Green

Rudheath

Higher Shurlach

Broken Cross

CHESHIRE WEST AND CHESTER

Springbank Farm

High House Farm

Melvin Holme Farm

Heath Farm

Birches Farm

Park Farm

Fieldhouse Farm

Langford Farm

Ridge Farm

Mosslane Farm

Lostock Gralam

Wade Brook Viaduct

Lostock Gralam Viaduct

ML712500 ML712501 ML712502 ML712506 ML712507 ML712508 ML712509 ML712511 ML712512 ML712513 ML712515

MA02/347 MA02/342 MA02/262 MA02/277 MA02/269

267+000 268+000 269+000 270+000

For continuation refer to map number SV-03-307

For continuation refer to map number SV-03-309a

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA02-C-C# and MA02-C-N#, respectively.

Map Number: SV-03-308

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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PICKMERE TO AGDEN AND HULSEHEATH

WIMBOLDSLEY TO LOSTOCK GRALAM

Likely significant effect added at Pickmere (as a result of new baseline information).

Likely significant effect added at Lostock Lodge Care Home (as a result of new construction traffic data).

Likely significant effect added at A556 Shurlach Road (as a result of new construction traffic data).

Different likely significant effect at Holford Hall (Wedding Venue) (as a result of changes to the construction programme).

MA02-C-C9

MA02-C-N7

MA02-C-N1

MA03-C-C4

Smoker Brook Viaduct

MA02/277

MA02/269

ML712506

ML712509

ML712510

ML712513

ML712514

ML712516

ML712601

ML712603

ML712604

ML712605

ML712611

Higher Wincham

Pickmere

Frog Lane Farm

Home Farm

Lostock Gralam

CHESHIRE WEST AND CHESTER

Providence Farm

Roses Farm

School Farm

Cheshire Showground

Flittogate Farm

Holford Farm

Smoker Hill Farm

CHESHIRE EAST

Nether Tabley

TOWNSHEND ROAD

KEATS LANE

B5391 PICKMERE LANE

HALL LANE

FROG LANE

SCHOOL LANE

STUBBS LANE

LINNARDS LANE

MILLEY LANE

A556 SHURLACH ROAD

A556 CHESTER ROAD

ASCOL DRIVE

MILL LANE

271+000

272+000

273+000

For continuation refer to map number SV-03-308

For continuation refer to map number SV-03-310

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA02-C-C# and MA02-C-N#, respectively.

Map Number: SV-03-309a

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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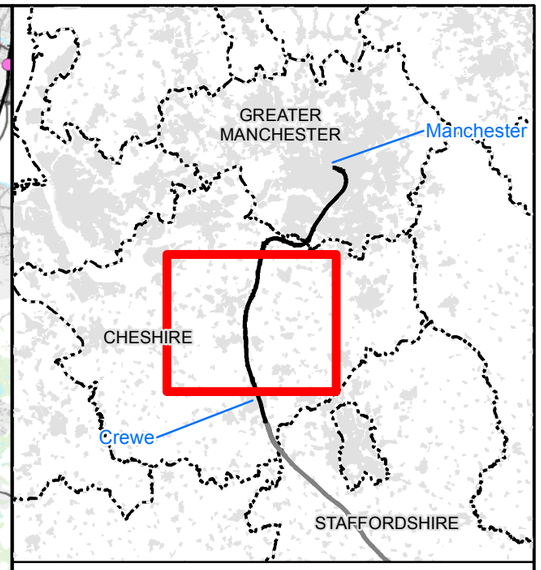

Map Series Information:

SV-08 presents the predicted daytime operational sound from the new railway.

The sound levels from the new railway (expressed as $L_{p,Aeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; this panel contains a key communicating the daytime sound levels represented by the various colours. A corresponding and similar panel is found on SV-02 and SV-09, along with the key sound contours that were used within the environmental assessment.

Also presented on SV-08 are the following (which are also included on SV-02):

- A representation of the Proposed Scheme, including the railway alignment (indicating whether it is on the surface or in tunnel), any new and altered roads and all associated engineering and environmental mitigation earthworks;
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the extent of the study area within which the direct impacts and effects of the scheme have been quantitatively assessed.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-08-INDEX-MA02

Map Name: Index Map of: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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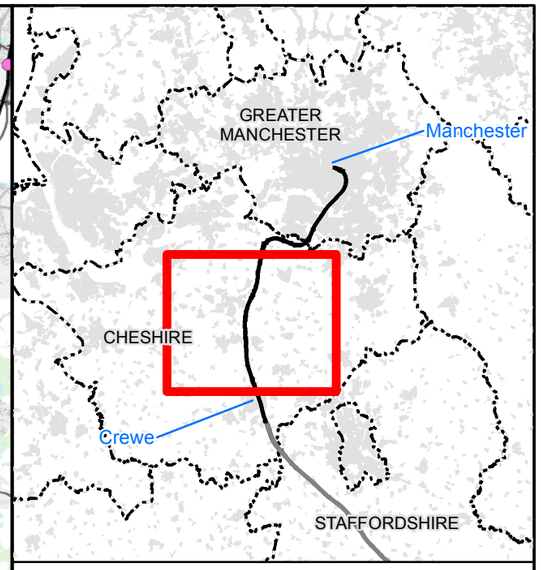
PICKMERE TO AGDEN AND HULSEHEATH

WIMBOLDSLEY TO LOSTOCK GRALAM

HOUGH TO WALLEY'S GREEN

Runcorn East
RUNCORN
Lower Stretton
Mere
Over Tabley
Mobberley
WILMSLOW
Wilmslow
Alderley Edge
Knutsford
KNUTSFORD
Pickmere
Comberbach
Acton Bridge
Ollerton
Lostock Gralam
Plumley
Chelford
Kingsley
Weaverham
NORTHWICH
Northwich
Lostock Gralam
Lower Peover
Over Peover
Smoker Brook Viaduct
Lostock Gralam Viaduct
Wade Brook Viaduct
Greenbank
Norley
Cuddington
Hartford
Gad Brook Viaduct
Lach Dennis
Puddinglake Brook Viaduct
Trent And Mersey Canal Viaduct
Delamere
Moulton
Goostrey
Byley
Lower Withington
Whitegate
CHESHIRE WEST AND CHESTER
River Dane Viaduct
A54 Middlewich Road Viaduct
Holmes Chapel
Swettenham
MIDDLEWICH
WINSFORD
Winsford
Over
CHESHIRE EAST
Utkinton
Little Budworth
Hebden Green
SV-09-305
Shropshire Union Canal Viaduct
Brereton Green
CHESHIRE
Crewe North Rolling Stock Depot
Eaton
Congleton
Tarporley
Arclid
SANDBACH
Sandbach
Wettenhall
Warmingham
Church Minshull
Walley's Green
Spen Green
Alpraham
Tiverton
Bunbury
Wheelock Heath
CREWE
Rode Heath

HS2



Map Series Information:

SV-09 presents the predicted night-time operational sound from the new railway.

The sound levels from the new railway (expressed as $L_{p,Aeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; this panel contains a key communicating the night-time sound levels represented by the various colours. A corresponding and similar panel is found on SV-02 and SV-08, along with the key sound contours that were used within the environmental assessment.

Also presented on SV-09 are the following (which are also included on SV-02):

- A representation of the Proposed Scheme, including the railway alignment (indicating whether it is on the surface or in tunnel), any new and altered roads and all associated engineering and environmental mitigation earthworks;
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the extent of the study area within which the direct impacts and effects of the scheme have been quantitatively assessed.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-09-INDEX-MA02

Map Name: Index Map of: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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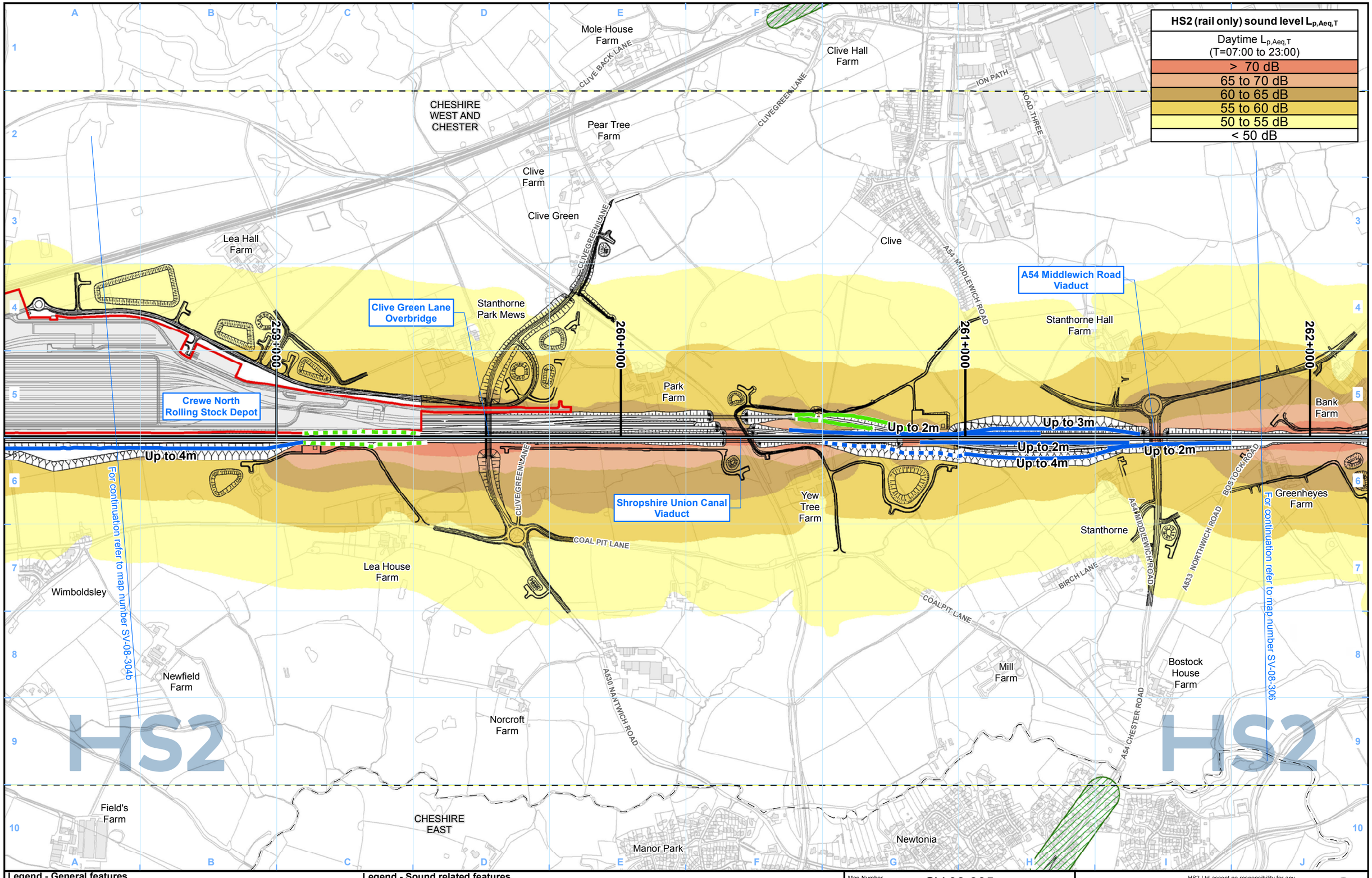

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-08-305

Map Name: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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0 100 200 300 400 Metres

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Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$
Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)
> 60 dB
55 to 60 dB
50 to 55 dB
45 to 50 dB
40 to 45 dB
< 40 dB

Mole House Farm
CLIVE BACK LANE
CHESHIRE WEST AND CHESTER
Pear Tree Farm
CLIVEGREEN LANE
Clive Hall Farm
ION PATH
ROAD THREE
Clive Farm
Clive Green
Lea Hall Farm
Clive
A54 MIDDLEWICH ROAD
A54 Middlewich Road Viaduct
Clive Green Lane Overbridge
Stanthorne Park Mews
259+000
260+000
261+000
262+000
Stanthorne Hall Farm
Crewe North Rolling Stock Depot
Park Farm
Bank Farm
Up to 2m
Up to 3m
Up to 4m
Up to 2m
Up to 2m
Up to 4m
For continuation refer to map number SV-09-304b
Shropshire Union Canal Viaduct
Yew Tree Farm
BOSTOCK ROAD
Greenheyes Farm
For continuation refer to map number SV-09-306
Stanthorne
A533 NORTHWICH ROAD
COAL PIT LANE
Lea House Farm
BIRCH LANE
Wimboldsley
COALPIT LANE
Mill Farm
Bostock House Farm
Newfield Farm
A530 NANTWICH ROAD
A54 CHESTER ROAD
Norcroft Farm
HS2
HS2
Field's Farm
CHESHIRE EAST
Manor Park
Newtonia

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-09-305

Map Name: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA02: Wimboldsley to Lostock Gralam

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0 100 200 300 400 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-003126-P01

Date: 19/04/22

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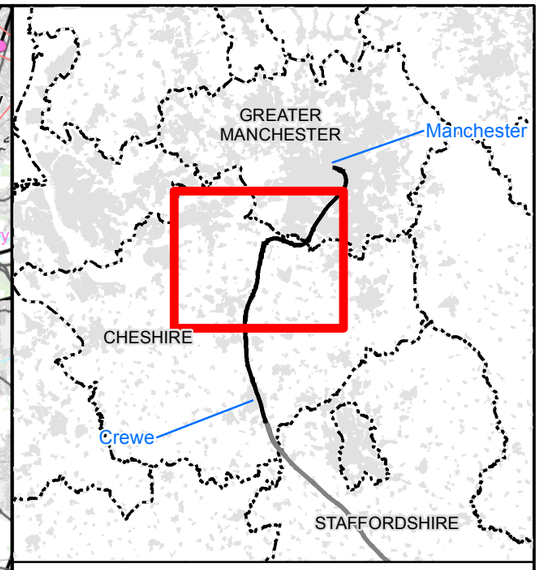
HS2

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

MA03: Pickmere to Agden and Hulseheath
SV-02 – Operational Airborne Noise and Vibration Impacts and Likely Significant Effects
SV-03 – Construction Airborne Noise and Vibration Likely Significant Effects
SV-08 – Day-time Operational Sound Contour Maps
SV-09 – Night-time Operational Sound Contour Maps



PICKMERE TO AGDEN AND HULSEHEATH

BROOMEDGE TO GLAZEBROOK

DAVENPORT GREEN TO ARDWICK

HULSEHEATH TO MANCHESTER AIRPORT

WIMBOLDSLEY TO LOSTOCK GRALAM

SV-02-312a

SV-02-311

SV-02-310

SV-02-309b

Peacock Lane Viaduct

Hoo Green Box Structure

M6 Mere Viaduct

Arley Brook Viaduct

Burtonwood
Glazebrook
Ham
Birchwood
Partington
TRAFFORD METROPOLITAN BOROUGH
SALE
Maudlands Road
Didsbury
Burnage
East Didsbury
Timperley
MANCHESTER CITY
Navigation Road
Gatley
Warrington West
Sankey for Penketh
Great Sankey
Padgate
WARRINGTON
WARRINGTON BOROUGH
Warrington Central
Warrington Bank Quay
ALTRINCHAM
Altrincham
GREATER MANCHESTER
Hale
GATLEY
LYMM
Little Bollington
Bowdon
Heald Green
Manchester Airport
Heald Green
Ashley
Appleton Thorn
High Legh
Handforth
Styal
Handforth
Morley Green
CHESHIRE
Rostherne
RUNCORN
Runcorn East
Lower Stretton
Mere
Mobberley
Wilmslow
Over Tabley
WILMSLOW
Mobberley
CHESHIRE EAST
CHESHIRE WEST AND CHESTER
Lower Whitley
Knutsford
KNUTSFORD
ALDERLEY EDGE
Alderley Edge
Comberbach
Pickmere
Ollerton
Acton Bridge
Nether Alderley
Chelford
Lostock Gralam
Plumley
Chelford
Kingsley
Weaverham
Acton Bridge
Lower Peover
Over Peover
NORTHWICH
Northwich
Lostock Gralam
Norley
Greenbank
Cuddington
Hartford
Hartford
Cuddington
Lach Dennis
Delamere
Delamere
Moulton
Byley
Goostrey
Goostrey
Whitegate
Lower Withington

Map Series Information:

SV-02 presents the direct operational noise impacts and likely significant effects of the Proposed Scheme.

The SV-02 figure series necessarily contains a large amount of information relating to the operational noise and vibration assessment. It is designed to communicate visually the assessment process from the prediction of impacts to the determination of likely residual significant effects. The corresponding text is included in Vol2 and Vol5.

Key items on the map include the following:

- The Proposed Scheme (the proposed railway alignments and surrounding associated earthworks/roads);
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the study areas, which indicate the areas within which direct sound and vibration impacts of the scheme have been quantitatively assessed;
- the calculated direct operational impacts of the scheme, displayed as colour-coded buildings and symbols representing buildings that would potentially qualify for noise insulation;
- sound contours representing sound produced by the new railway (displayed in a simpler manner than on SV-08 and SV-09 in order not to obscure the features on the map series);
- the assessment locations at which a quantitative prediction of sound and impacts have been carried out (representing a number of nearby buildings). These are labelled with a unique reference number to enable cross-reference to further detail regarding the assessments in Volume 5: Appendix SV-003-00000; and
- labels indicating where the likely residual direct noise or vibration significant effects have been identified. These are labelled with a unique reference number to enable cross-reference to further detail regarding the assessments in Volume 5: Appendix SV-003-00000.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

A more detailed explanation of each legend item included on the figures and on the separate legend page can be found in the data dictionary.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary

- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-02-INDEX-MA03

Map Name: Index Map of: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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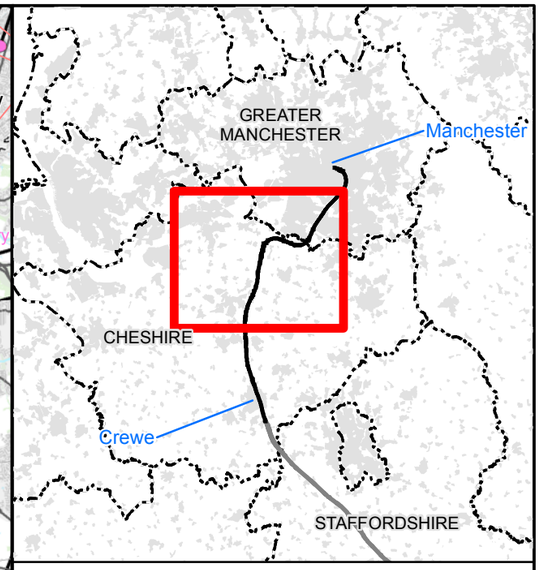
0 1,000 2,000 3,000 4,000 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-002039-P01

Date: 19/04/22



Map Series Information:

The SV-03 figure series accompanies the construction noise & vibration assessments. It shows the locations at which a quantitative assessment of the direct effects of construction noise and/or vibration has been carried out. These are labelled as assessment locations with a reference number to enable cross-reference to the construction noise and vibration reports contained in Volume 5: Appendix SV-002-00000.

The figure series also shows locations at which baseline sound measurements were carried out.
These baseline measurement locations are labelled with a reference number to enable cross-reference to the baseline sound reports contained in Volume 5: Appendix SV-002-00000.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-03-INDEX-MA03

Map Name: Index Map of: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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0 1,000 2,000 3,000 4,000 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-002085-P01

Date: 19/04/22

HS2 (rail only) noise level $L_{p,Aeq,T}$		Potential noise effect[1, 2]	
Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)	Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)	**Residential**	**Non-residential & quiet areas**
> 55 dB	> 65 dB	Likely significant effect on dwellings indicated by ◯, ✳ or ✕ avoided by noise insulation	Effect dependent on receptor and baseline. For further details see Volume 5, Appendix SV-003-00000. Likely significant effect indicated by MA0X-O-N#[2]
40 to 55 dB	50 to 65 dB	Effect dependent on noise level change and significance criteria. Likely significant effects on groups of dwellings and any shared community open areas indicated by MA0X-O-C#[2]	
< 40 dB	< 50 dB	Generally no adverse effect expected[1]	

Operational airborne noise impacts at residential buildings[1]

- Major adverse
- Moderate adverse
- Minor adverse
- Negligible
- Beneficial

- ◯ Potential additional noise insulation (triggered by maximum noise levels at night)[1]
- ✳ Potential additional noise insulation (triggered by WHO Night Noise Guidelines Interim Target)[1]
- ✕ Potential noise insulation (triggered by Noise Insulation Regulations 1996)[1]
- ◯ L_{pAFmax} exceeds 60dB façade HS2 train only L_{pAFmax} +2.5dB façade correction

Ground-borne noise or vibration impact at residential buildings

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

- SES/AP change ref.
- Significant effect descriptor

Removed effect | Added effect | Different effect

[1] For further information see Volume 5 Appendix SV-001-00000
[2] For further details of the SES/AP1 ES assessment see Volume 5 Appendix SV-003-00000

Map Number: SV-02 - Legend

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

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Doc Number: -

Date:

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For SNV effects symbology please refer to SV-02 - Legend page

Likely significant effect added at Pickmere (as a result of new baseline information).

PICKMERE TO AGDEN AND HULSEHEATH

WIMBOLDSLEY TO LOSTOCK GRALAM

MA02/277 ML712506 MA02/269 ML712509 ML712510 ML712601 ML712603 ML712604 ML712605 ML712811 ML712513 ML712514 ML712516

MA03-O-C5

Higher Wincham, Keats Lane, Pickmere, B5391 Pickmere Lane, Hall Lane, Frog Lane Farm, Townshend Road, Lostock Gralam, Home Farm, Cheshire West and Chester, Smoker Brook Viaduct, Lunnards Lane, Milley Lane, Roses Farm, Providence Farm, School Lane, School Farm, A559 Manchester Road, A556 Shurlach Road, Up to 4m, Up to 5m, Up to 3m, 270+000, 271+000, 272+000, 273+000, Cheshire Showground, Flittogate Farm, Ascol Drive, Holford Farm, A556 Chester Road, Mill Lane, Plumley Moor Road, Smoker Hill Farm, Cheshire East, Flittogate Lane, Nether Tabley

For continuation refer to map number SV-02-308

For continuation refer to map number SV-02-310

HS2

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Noise related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Noise Important Areas defined in national noise action plans (Defra 2014)
- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise & vibration study area (residential and non-residential)
- Ground-borne noise & vibration study area (highly sensitive non-residential)
- Airborne noise assessment location
- Airborne noise and vibration assessment location
- Ground-borne noise and/or vibration assessment location
- Airborne noise, ground-borne sound and vibration assessment location
- Baseline measurement locations

Map Number: SV-02-309b

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Doc Number: 2PT24-MWJ-EV-MAP-M000-002011-P01

Date: 19/04/22

PICKMERE TO AGDEN AND HULSEHEATH

WIMBOLDSLEY TO LOSTOCK GRALAM

Likely significant effect added at Pickmere (as a result of new baseline information).

Likely significant effect added at Lostock Lodge Care Home (as a result of new construction traffic data).

Likely significant effect added at A556 Shurlach Road (as a result of new construction traffic data).

Different likely significant effect at Holford Hall (Wedding Venue) (as a result of changes to the construction programme).

MA02-C-C9

MA02-C-N7

MA02-C-N1

MA03-C-C4

MA02/277

MA02/269

ML712506

ML712509

ML712510

ML712513

ML712514

ML712516

ML712601

ML712603

ML712604

ML712605

ML712611

Smoker Brook Viaduct

270+000

271+000

272+000

273+000

Higher Wincham

Pickmere

Frog Lane Farm

Home Farm

Lostock Gralam

Roses Farm

Providence Farm

School Farm

Holford Farm

Smoker Hill Farm

Cheshire Showground

Flittogate Farm

Nether Tabley

CHESHIRE WEST AND CHESTER

CHESHIRE EAST

KEATS LANE

TOWNSHEND ROAD

SCHOOL LANE

STUBBS LANE

LINNARDS LANE

MILLEY LANE

HALL LANE

FROG LANE

B5391 PICKMERE LANE

A556 SHURLACH ROAD

A556 CHESTER ROAD

ASCOL DRIVE

MILL LANE

For continuation refer to map number SV-03-308

For continuation refer to map number SV-03-310

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA03-C-C# and MA03-C-N#, respectively.

Map Number: SV-03-309b

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Doc Number: 2PT24-MWJ-EV-MAP-M000-002058-P01

Date: 19/04/22

For SNV effects symbology please refer to SV-02 - Legend page

Likely significant effect added at Pickmere (as a result of new baseline information).

Likely significant effect removed at Winterbottom Lane (as a result of amendment: **SES1-004-001**).

Frog Lane Farm
HALL LANE
ML712601
612625
612624
612626
MA03-O-C5
612632
BUDWORTH ROAD
SCHOOL LANE
612629
ML712605
612628
School Farm
ML712811
274+000
612643
MA03-O-N2
275+000
M6 Mere Viaduct
ML712602
612661
M6
612658
WINTERBOTTOM LANE
Winterbottom Farm
612657
613005
276+000
Hollowood Farm
612654
612656
WINTERBOTTOM LANE
Heyrose Farm
612645
Windmill Nurseries
612633
612681
612638
MA03-O-C5
MA03-O-C2
Flittogate Farm
MA03-O-N1
612861
612639
612647
612653
HOLLOWOOD LANE
Arley Brook Viaduct
MA03-O-C1
612646
613075
612635
FLITTOGATE LANE
B5391-PICKMERE LANE
OLD HALL LANE
612640
CHESHIRE EAST
612649
M6
Bentleyhurst Farm
612655
ML712610
A556
BENTLEYHURST LANE
612659
612652
612660
Hollybush Farm
A556
For continuation refer to map number SV-02-309b
For continuation refer to map number SV-02-311

HS2

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Noise related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Noise Important Areas defined in national noise action plans (Defra 2014)
- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise & vibration study area (residential and non-residential)
- Ground-borne noise & vibration study area (highly sensitive non-residential)
- Airborne noise assessment location
- Airborne noise and vibration assessment location
- Ground-borne noise and/or vibration assessment location
- Airborne noise, ground-borne sound and vibration assessment location
- Baseline measurement locations

Map Number: SV-02-310

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Doc Number: 2PT24-MWJ-EV-MAP-M000-002012-P01

Date: 19/04/22

Likely significant effect added at Pickmere (as a result of new baseline information).

Different likely significant effect at Budworth Road (as a result of new baseline information and changes to the construction programme).

Likely significant effect added at Budworth Road (as a result of new construction traffic data).

MA03-C-C4

MA03-C-N1

MA03-C-N2

MA03-C-C1

274+000

275+000

276+000

M6 Mere Viaduct

Arley Brook Viaduct

Frog Lane Farm

School Farm

Flittogate Farm

Windmill Nurseries

Heyrose Farm

Hollowood Farm

Winterbottom Farm

Bentleyhurst Farm

Hollybush Farm

CHESHIRE EAST

ML712601

ML712602

ML712605

ML712610

ML712811

612625 612632 612624 612626 612629 612628 612633 612681 612638 612645 612892 612654 612657 613005 612656 612893 612661 612658 612647 612653 612861 612639 612646 613075 612635 612640 612649 612655 612659

HALL LANE

FROG LANE

BUDWORTH ROAD

B5391 PICKMERE LANE

WINTERBOTTOM LANE

OLD HALL LANE

M6

A556

For continuation refer to map number SV-03-309b

For continuation refer to map number SV-03-311

HS2

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

(labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA03-C-C# and MA03-C-N#, respectively.

Map Number: SV-03-310

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Doc Number: 2PT24-MWJ-EV-MAP-M000-002059-P01

Date: 19/04/22

For SNV effects symbology please refer to SV-02 - Legend page

PICKMERE TO AGDEN AND HULSEHEATH

CHESHIRE EAST

Likely significant effect removed at Winterbottom Lane (as a result of amendment: **SES1-004-001**).

Different likely significant effect at Hulseheath (as a result of amendment: **SES1-004-001**).

For continuation refer to map number SV-02-310

For continuation refer to map number SV-02-312a

For continuation refer to map number SV-02-311-R1

ML712602 · ML712606 · ML712607 · ML712608 · ML712609 · ML712610 · ML712611 · ML712613 · ML712700 · ML712701 · ML712805 · ML712806

MA03-O-N3 · MA03-O-C4 · MA03-O-C4

Hoo Green Box Structure · A50 Overbridge · Peacock Lane Viaduct · Millington Clough Underbridge

276+000 · 277+000 · 278+000 · 279+000

612655 · 612656 · 612657 · 612658 · 612659 · 612660 · 612661 · 612662 · 612663 · 612664 · 612665 · 612669 · 612670 · 612671 · 612674 · 612677 · 612682 · 612687 · 612692 · 612694 · 612698 · 612700 · 612704 · 612706 · 612720 · 612730 · 612732 · 612736 · 612742 · 612745 · 612747 · 612751 · 612754 · 612757 · 613005 · 613050 · 613052 · 613074

Rowleybank Farm · Park Farm · Winterbottom Farm · Daisybank Farm · Yew Tree Farm · Bentleyhurst Farm · Hoo Green · Hulme Barns Farm · High Legh · Broad Oak Farm · Woodside Farm · Wrenshot House · Moss Farm · Little Moss Farm · Bowden View Farm · Gorse Cottage Farm · Moss House Farm

MERE HEYES LANE · LITTLE ROWLEY LANE · DITCHFIELD LANE · WINTERBOTTOM LANE · HOO GREEN LANE · A50 WARRINGTON ROAD · CANDELA N WAY · BROADOAK LANE · WREINSHOT LANE · PEACOCK LANE · BOWDEN VIEW LANE · BUCKLOW HILL LANE · BENTLEYHURST LANE · A556 · M6

HS2 HULSEHEATH TO MANCHESTER AIRPORT

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Noise related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Noise Important Areas defined in national noise action plans (Defra 2014)
- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise & vibration study area (residential and non-residential)
- Ground-borne noise & vibration study area (highly sensitive non-residential)
- Airborne noise assessment location
- Airborne noise and vibration assessment location
- Ground-borne noise and/or vibration assessment location
- Airborne noise, ground-borne sound and vibration assessment location
- Baseline measurement locations

Map Number: SV-02-311

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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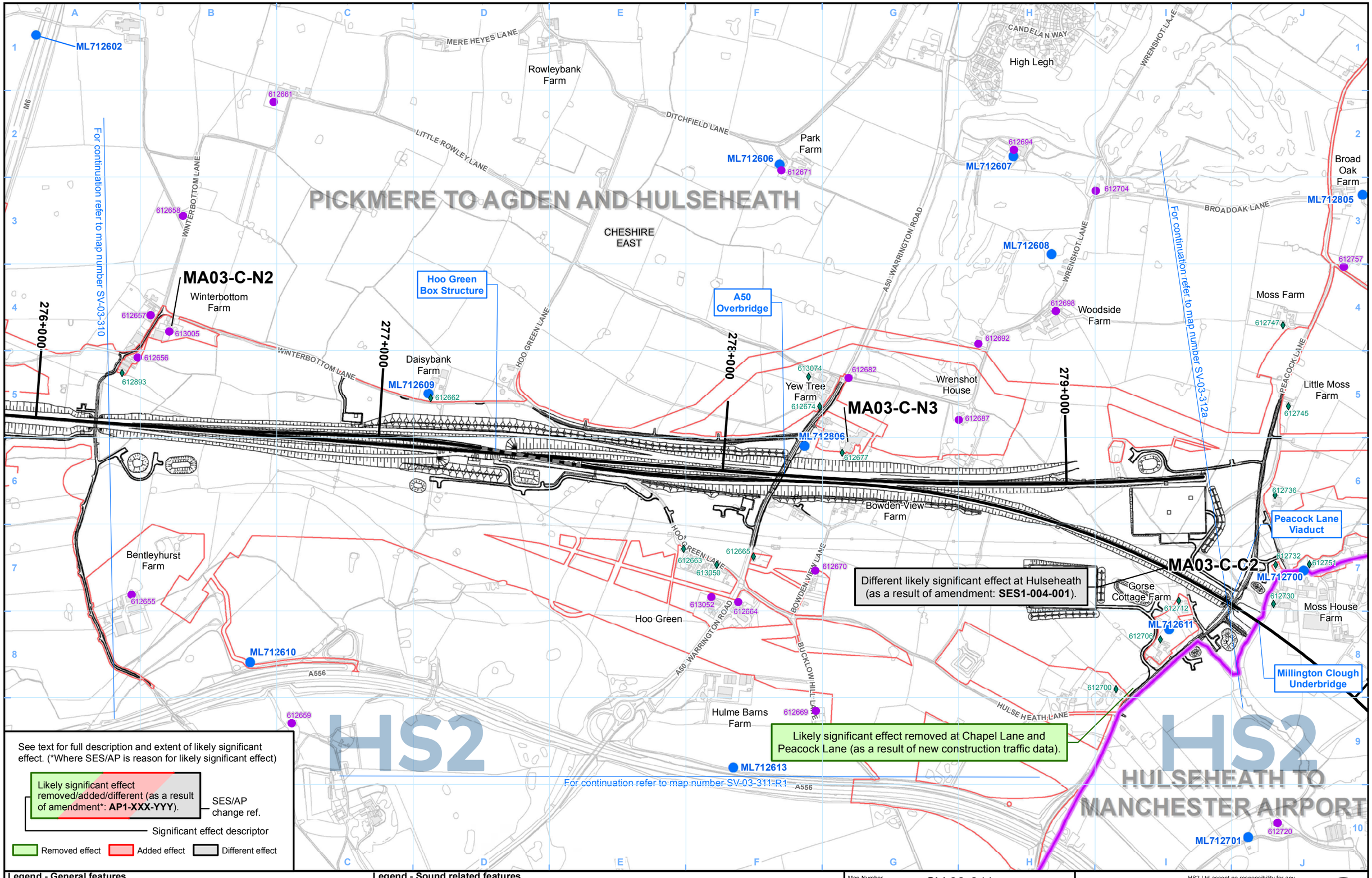
0 100 200 300 400 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-002013-P01

Date: 19/04/22

PICKMERE TO AGDEN AND HULSEHEATH



Different likely significant effect at Hulseheath (as a result of amendment: **SES1-004-001**).

Likely significant effect removed at Chapel Lane and Peacock Lane (as a result of new construction traffic data).

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment; Cutting

Non engineering earthworks: Embankment; Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA03-C-C# and MA03-C-N#, respectively.

Map Number: SV-03-311

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Date: 19/04/22

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PICKMERE TO AGDEN AND HULSEHEATH

HULSEHEATH TO MANCHESTER AIRPORT

ML712613

ML712701

612720

612707

612727

612722

613094

613045

MA06-C-N4

MA06-C-N5

MA06-C-N6

MA06-C-C5

For continuation refer to map number SV-03-311

Likely significant effect removed at Chester Road (as a result of new construction traffic data).

Likely significant effect removed at Chapel Lane (as a result of new construction traffic data).

B5569 CHESTER ROAD

A556

BUCKLOW HILL LANE

Bucklow Hill

Mere

Little Mere

Denfield Hall Farm

A50 WARRINGTON ROAD

MOSS LANE

CLAMHUNGER LANE

A5034 MERESIDE ROAD

CHESHIRE EAST

ASHLEY ROAD

A50 MANCHESTER ROAD

Tatton Dale

NEW ROAD

ROSTHERNE LANE

Rostherne

Marsh Farm

HS2

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA03-C-C# and MA03-C-N#, respectively.

Map Number: SV-03-311-R1

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Date: 19/04/22

For SNV effects symbology please refer to SV-02 - Legend page

PICKMERE TO AGDEN AND HULSEHEATH

BROOMEDGE TO GLAZEBROOK

HULSEHEATH TO MANCHESTER AIRPORT

Different likely significant effect at Hulseheath (as a result of amendment: **SES1-004-001**).

Likely significant effect removed (as a result of amendment: **SES1-004-001**).

MA03-O-C4

Agden Brook Viaduct

Millington Lane Overbridge

MA03/050

MA03/094S

ML712607 ML712608 ML712611 ML712612 ML712700 ML712701 ML712727 ML712752 ML712805 ML712807

612694 612704 612698 612706 612732 612736 612712 612730 612751 612766 612783 612757 612747 612745 612780 612887 612829 612805 612820 612211 612834 613076 613037 613077 612796 612779 612808 612801 612794 612807 612827 612851 612843 612720 612707 612754 617502 617503 617507 617500 617501 617505 617504 617506 617508 618240 618241 618242 617509 617510 617511 618213 617516 617523 618019 617521 617520 618117 617524 617515 617517 617518 617512 612891 617519 617513

BROADOAK LANE, WRENSHOT LANE, FROGHALL LANE, PEACOCK LANE, MOSS LANE, AGDEN LANE, BOOTHBANK LANE, AGDEN PARK LANE, A56 LYMM ROAD, B5159 BURFORD LANE, STAGE LANE, BRADSHAW LANE, WARRINGTON LANE, SPRING LANE, REDDY LANE, M56

CHESHIRE EAST

WARRINGTON BOROUGH

Abbey Leys Farm, Broad Oak Farm, Woodside Farm, Moss Farm, Little Moss Farm, Scandia House, Middle Moss Farm, Moss House Farm, Gorse Cottage Farm, Ivy House Farm, Booth Bank Farm, Agden Hall, Broomedge, Spring Farm, Agden Lane Farm, Agden Bridge Farm, Agden Brook Farm, Woolstencroft Farm

For continuation refer to map number SV-02-311

For continuation refer to map number SV-02-313

For continuation refer to map number SV-02-319

276+000

280+000

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Noise related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers (labelled with total noise barrier height above rail)
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

- Noise Important Areas defined in national noise action plans (Defra 2014)
- Committed developments - SV Only
- Airborne noise study area
- Ground-borne noise & vibration study area (residential and non-residential)
- Ground-borne noise & vibration study area (highly sensitive non-residential)
- Airborne noise assessment location
- Airborne noise and vibration assessment location
- Ground-borne noise and/or vibration assessment location
- Airborne noise, ground-borne sound and vibration assessment location
- Baseline measurement locations

Map Number: SV-02-312a

Map Name: Operational Airborne Noise and Vibration Impacts and Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Date: 19/04/22

PICKMERE TO AGDEN AND HULSEHEATH

BROOMEDGE TO GLAZEBROOK

HULSEHEATH TO MANCHESTER AIRPORT

Likely significant effect removed at Agden (as a result of amendment: **SES1-004-001**).

Different likely significant effect at Hulseheath (as a result of amendment: **SES1-004-001**).

Likely significant effect removed at Chapel Lane and Peacock Lane (as a result of new construction traffic data).

MA03-C-C2

MA03/050

MA03/094S

ML712607 ML712608 ML712611 ML712612 ML712700 ML712701 ML712727 ML712752 ML712805 ML712807

Agden Bridge Viaduct

Millington Lane Overbridge

Abbey Leys Farm, Broad Oak Farm, Woodside Farm, Moss Farm, Little Moss Farm, Scandia House, Agden Hall, Middle Moss Farm, Moss House Farm, Gorse Cottage Farm, Ivy House Farm, Booth Bank Farm, Broomedge, Agden Lane Farm, Agden Bridge Farm, Agden Brook Farm, Woolstencroft Farm, Spring Farm

CHESHIRE EAST

WARRINGTON BOROUGH

BROADOAK LANE, WRENSHOT LANE, FROGHALL LANE, PEACOCK LANE, MOSS LANE, AGDEN LANE, BOOTHBANK LANE, AGDEN PARK LANE, A56 LYMM ROAD, B5159 BURFORD LANE, BRADSHAW LANE, STAGE LANE, WARRINGTON LANE, SPRING LANE, REDDY LANE, M56

For continuation refer to map number SV-03-311

For continuation refer to map number SV-03-313

For continuation refer to map number SV-03-319

279+000

280+000

See text for full description and extent of likely significant effect. (*Where SES/AP is reason for likely significant effect)

Likely significant effect removed/added/different (as a result of amendment*: **AP1-XXX-YYY**).

SES/AP change ref.

Significant effect descriptor

Removed effect | Added effect | Different effect

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks: Embankment, Cutting

Non engineering earthworks: Embankment, Cutting

Land potentially required during construction

Legend - Sound related features

- Committed developments - SV Only
- Construction airborne sound assessment location
- Construction vibration assessment location
- Construction airborne sound and vibration assessment location
- Baseline measurement location

labelled with assessment location ID reference number (for details of the SES/AP1 ES assessment results see Volume 5 Appendix SV-002-00000) (labelled with measurement location reference code).

Likely significant effects from construction noise and /or vibration on groups of dwellings and any shared community open areas, and non-residential receptors, are indicated by MA03-C-C# and MA03-C-N#, respectively.

Map Number: SV-03-312a

Map Name: Construction Airborne Noise and Vibration Likely Significant Effects SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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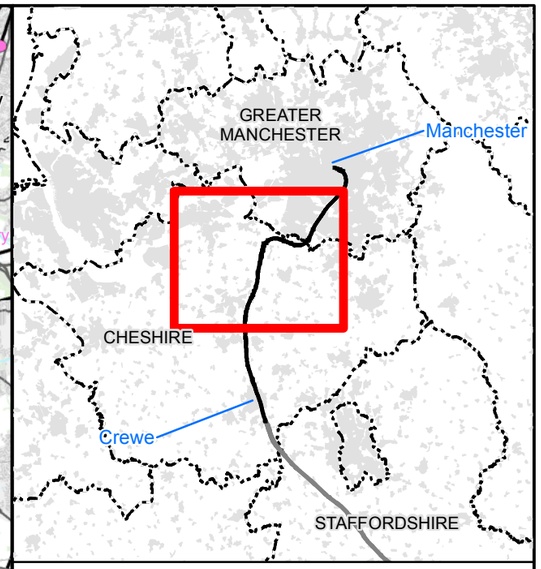

Map Series Information:

SV-08 presents the predicted daytime operational sound from the new railway.

The sound levels from the new railway (expressed as $L_{p,Aeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; this panel contains a key communicating the daytime sound levels represented by the various colours. A corresponding and similar panel is found on SV-02 and SV-09, along with the key sound contours that were used within the environmental assessment.

Also presented on SV-08 are the following (which are also included on SV-02):

- A representation of the Proposed Scheme, including the railway alignment (indicating whether it is on the surface or in tunnel), any new and altered roads and all associated engineering and environmental mitigation earthworks;
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the extent of the study area within which the direct impacts and effects of the scheme have been quantitatively assessed.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-08-INDEX-MA03

Map Name: Index Map of: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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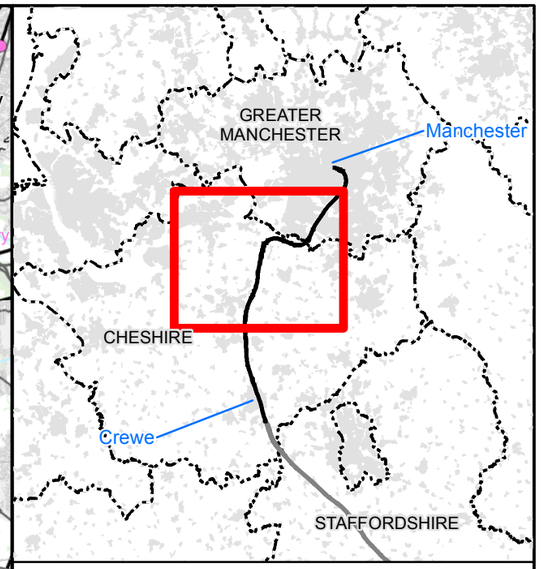
Doc Number: 2PT24-MWJ-EV-MAP-M000-003074-P01

Date: 19/04/22



Map Series Information:

SV-09 presents the predicted night-time operational sound from the new railway.

The sound levels from the new railway (expressed as $L_{p,Aeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; this panel contains a key communicating the night-time sound levels represented by the various colours. A corresponding and similar panel is found on SV-02 and SV-08, along with the key sound contours that were used within the environmental assessment.

Also presented on SV-09 are the following (which are also included on SV-02):

- A representation of the Proposed Scheme, including the railway alignment (indicating whether it is on the surface or in tunnel), any new and altered roads and all associated engineering and environmental mitigation earthworks;
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- the extent of the study area within which the direct impacts and effects of the scheme have been quantitatively assessed.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets included in this community area with no amendment
- Map sheets not included in this community area

Map Number: SV-09-INDEX-MA03

Map Name: Index Map of: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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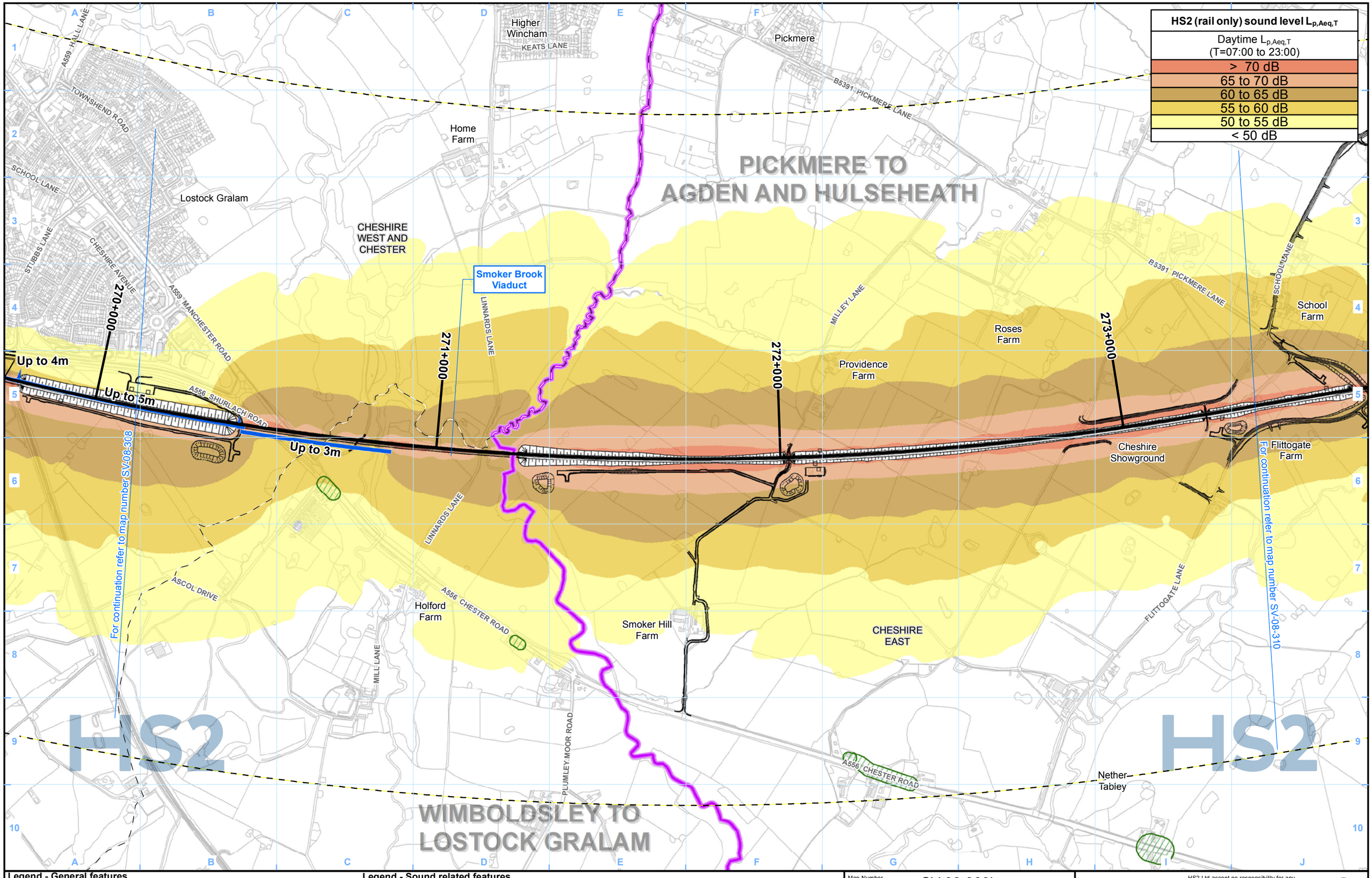
Doc Number: 2PT24-MWJ-EV-MAP-M000-003115-P01

Date: 19/04/22



Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-08-309b

Map Name: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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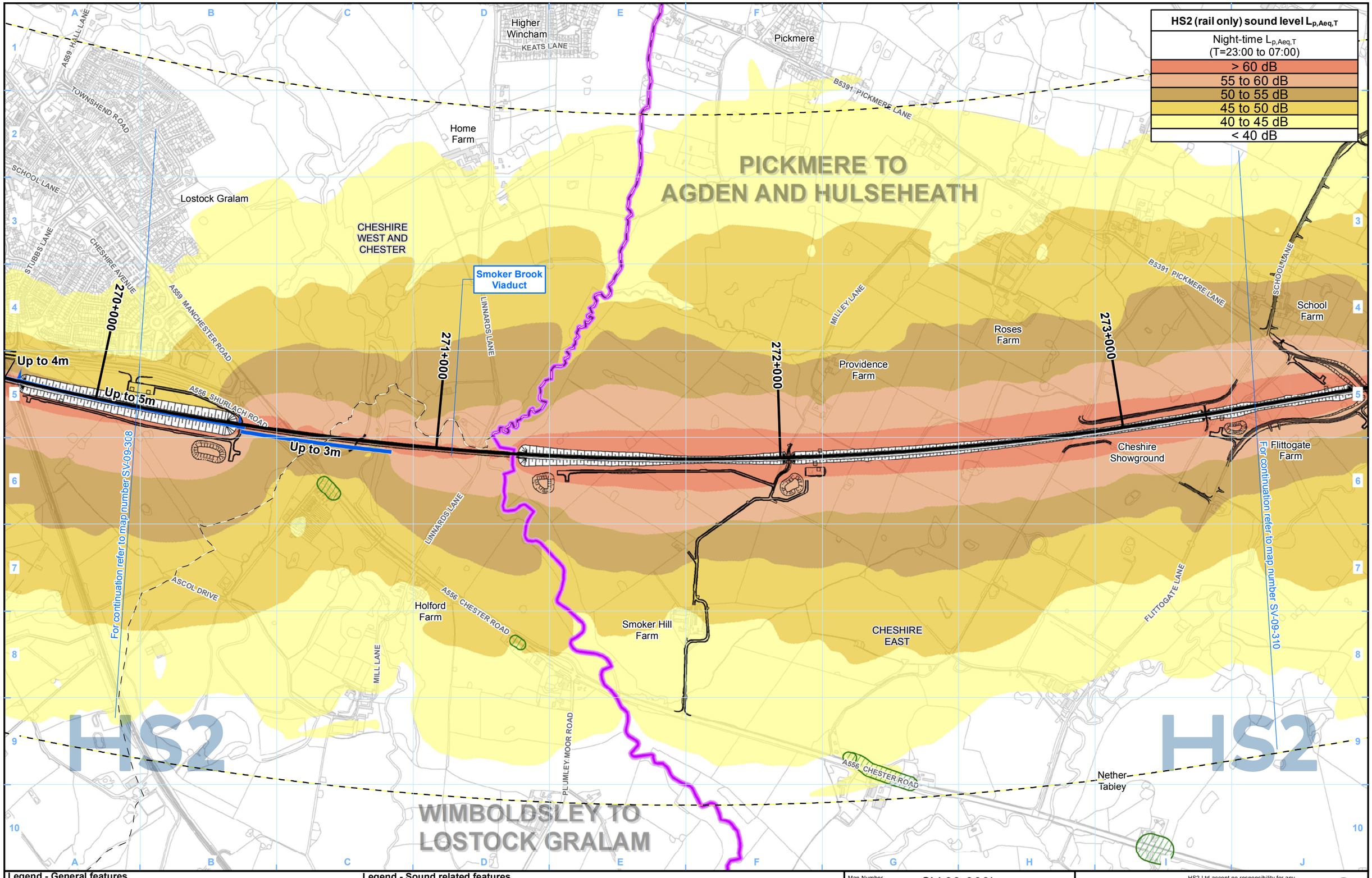
Doc Number: 2PT24-MWJ-EV-MAP-M000-003090-P01

Date: 19/04/22



Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-09-309b

Map Name: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Doc Number: 2PT24-MWJ-EV-MAP-M000-003131-P01

Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$

Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)
> 70 dB
65 to 70 dB
60 to 65 dB
55 to 60 dB
50 to 55 dB
< 50 dB

Frog Lane Farm
HALL LANE
FROG LANE
BUDWORTH ROAD
M6
WINTERBOTTOM LANE
B5391 PICKMERE LANE
SCHOOL LANE
School Farm
274+000
275+000
276+000
M6 Mere Viaduct
Heyrose Farm
Hollowood Farm
Winterbottom Farm
WINTERBOTTOM LANE
Windmill Nurseries
Flittogate Farm
BUDWORTH ROAD
Arley Brook Viaduct
HOLLOWOOD LANE
For continuation refer to map number SV-08-309b
For continuation refer to map number SV-08-311
FLITTOGATE LANE
B5391 PICKMERE LANE
OLD HALL LANE
CHESHIRE EAST
M6
Bentleyhurst Farm
A556
BENTLEYHURST LANE
Hollybush Farm
A556

HS2

HS2

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-08-310

Map Name: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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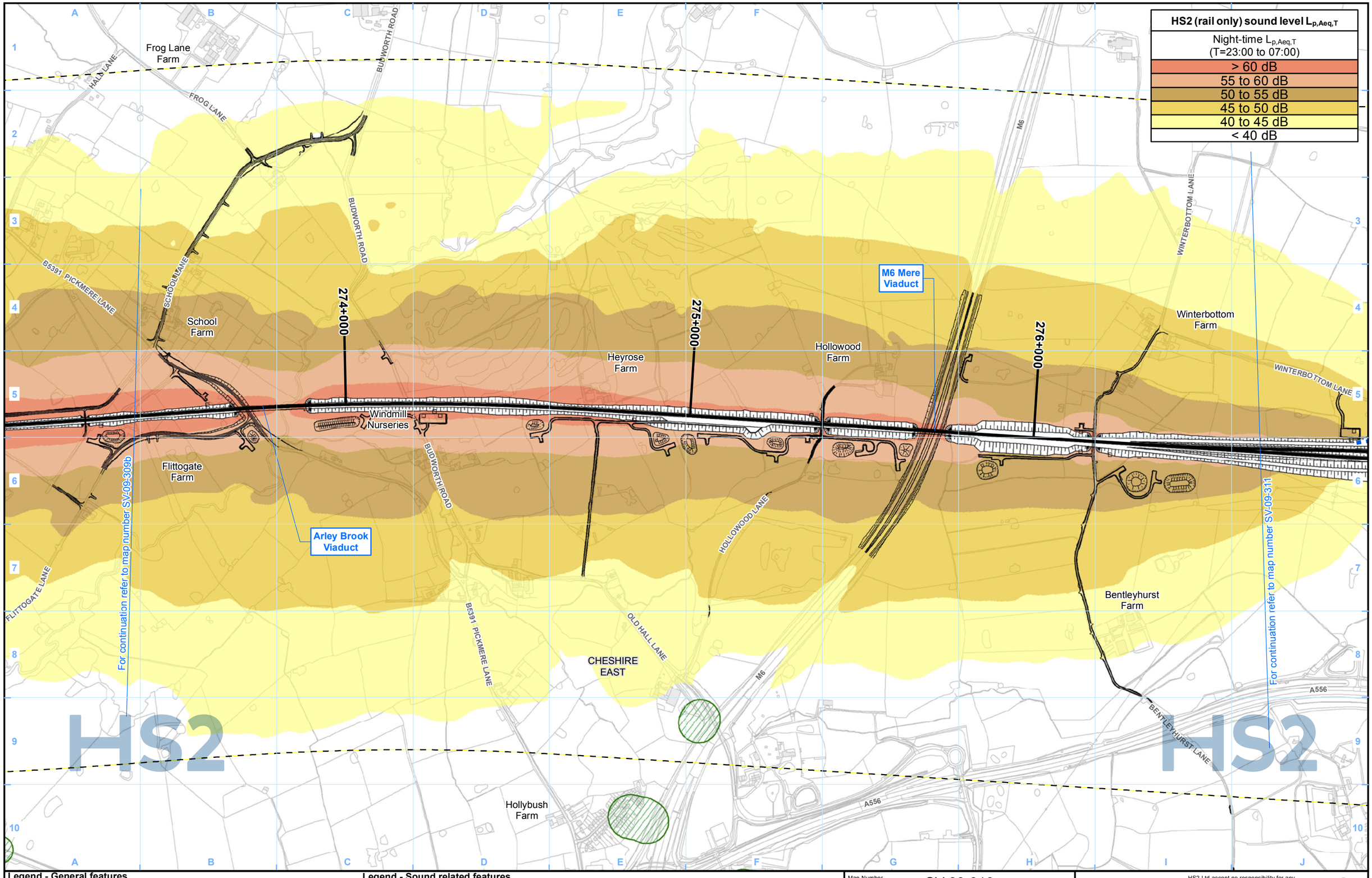
Doc Number: 2PT24-MWJ-EV-MAP-M000-003091-P01

Date: 19/04/22



Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-09-310

Map Name: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Scale at A3: 1:10,000

0 100 200 300 400 Metres

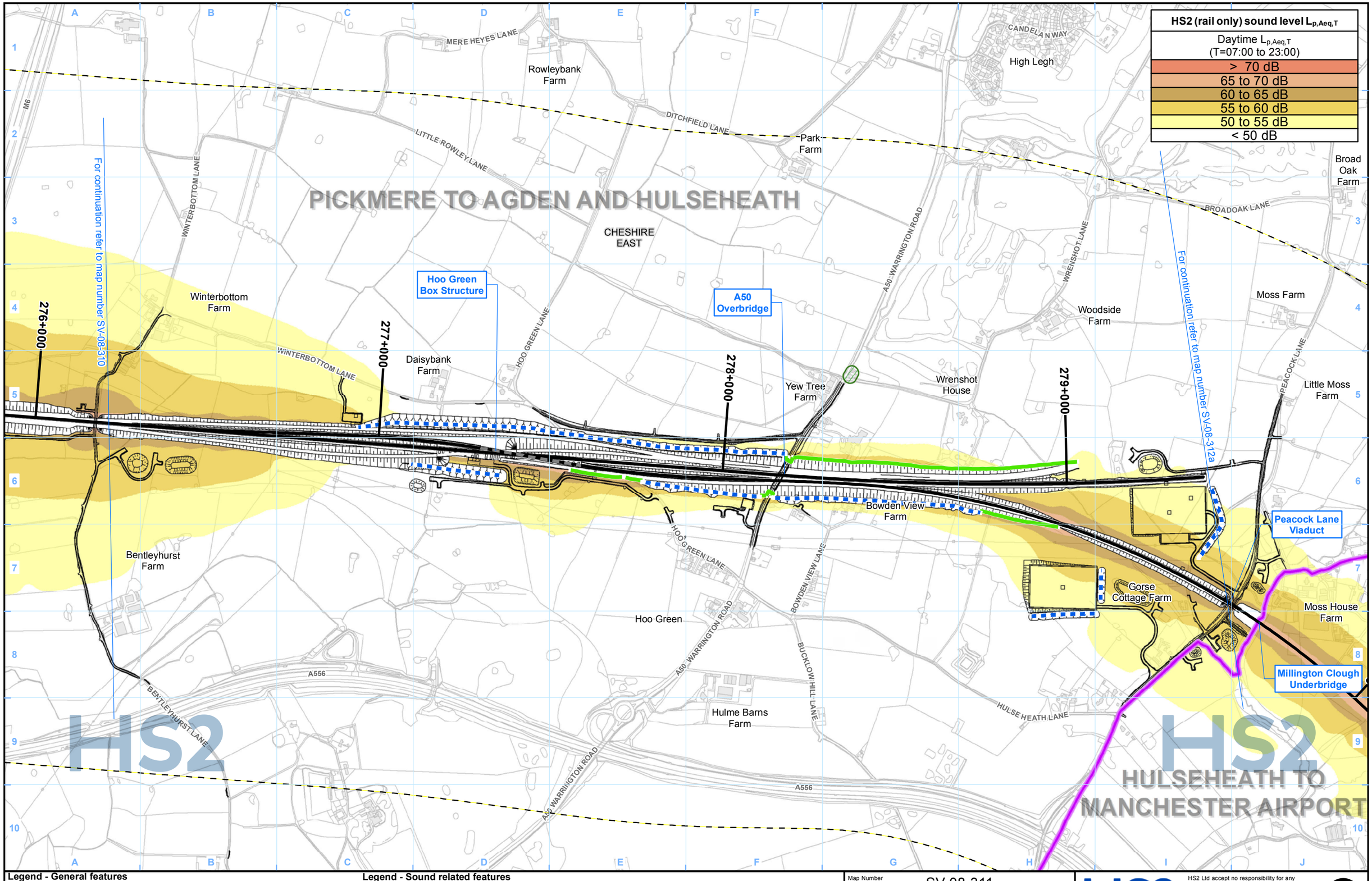
Doc Number: 2PT24-MWJ-EV-MAP-M000-003132-P01

Date: 19/04/22

PICKMERE TO AGDEN AND HULSEHEATH

HS2 (rail only) sound level $L_{p,Aeq,T}$

Daytime $L_{p,Aeq,T}$ (T=07:00 to 23:00)
> 70 dB
65 to 70 dB
60 to 65 dB
55 to 60 dB
50 to 55 dB
< 50 dB



HS2

HULSEHEATH TO MANCHESTER AIRPORT

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-08-311

Map Name: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Scale at A3: 1:10,000

0 100 200 300 400 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-003092-P01

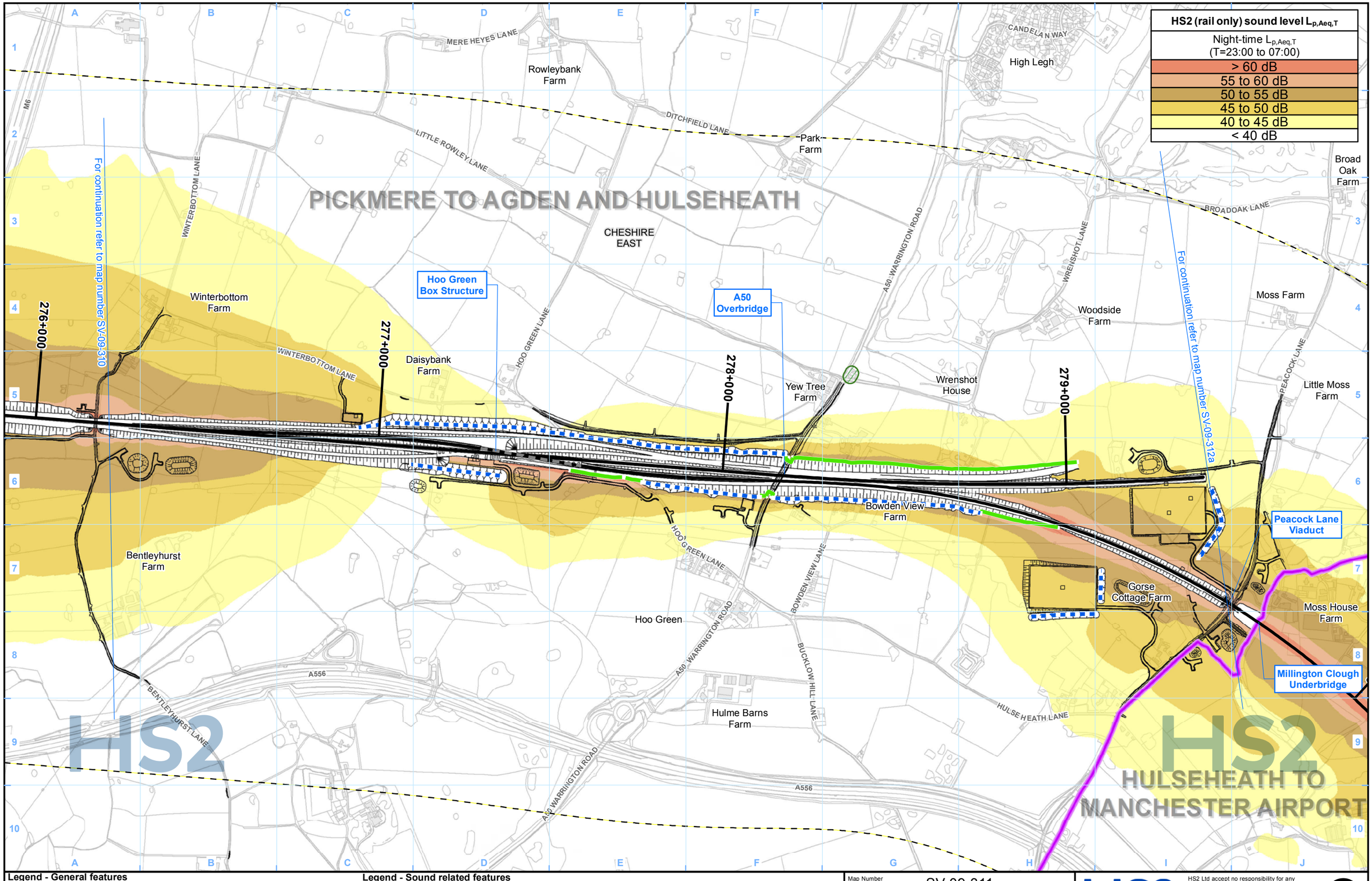
Date: 19/04/22

PICKMERE TO AGDEN AND HULSEHEATH

HS2 (rail only) sound level $L_{p,Aeq,T}$

Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)

- > 60 dB
- 55 to 60 dB
- 50 to 55 dB
- 45 to 50 dB
- 40 to 45 dB
- < 40 dB



Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-09-311

Map Name: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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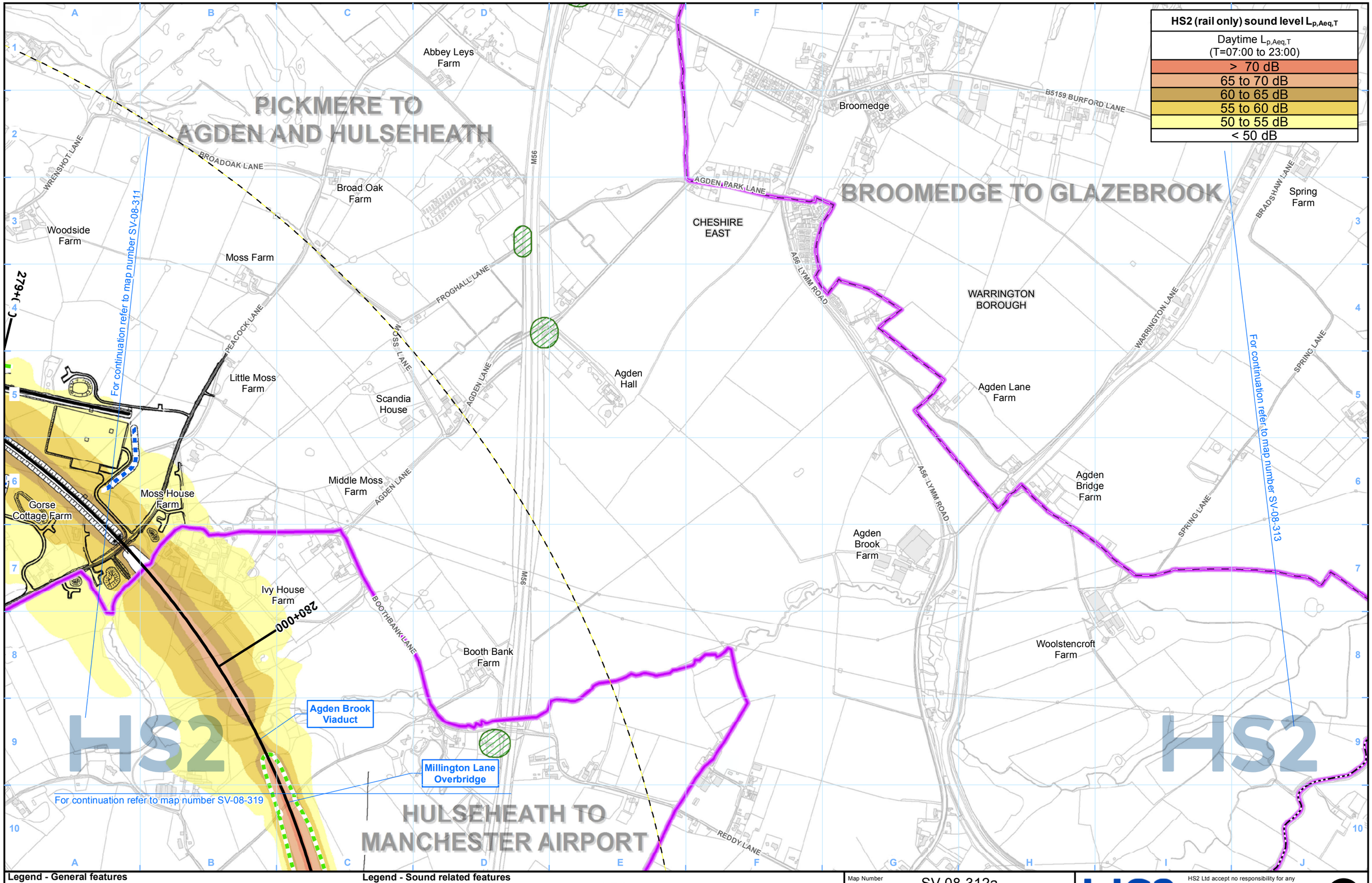
0 100 200 300 400 Metres

Doc Number: 2PT24-MWJ-EV-MAP-M000-003133-P01

Date: 19/04/22



Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-08-312a

Map Name: Daytime Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Scale at A3: 1:10,000

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Doc Number: 2PT24-MWJ-EV-MAP-M000-003093-P01

Date: 19/04/22

HS2 (rail only) sound level $L_{p,Aeq,T}$

Night-time $L_{p,Aeq,T}$ (T=23:00 to 07:00)

- > 60 dB
- 55 to 60 dB
- 50 to 55 dB
- 45 to 50 dB
- 40 to 45 dB
- < 40 dB

PICKMERE TO AGDEN AND HULSEHEATH

BROOMEDGE TO GLAZEBROOK

HULSEHEATH TO MANCHESTER AIRPORT

Abbey Leys Farm
Broad Oak Farm
Woodside Farm
Moss Farm
Little Moss Farm
Scandia House
Middle Moss Farm
Moss House Farm
Gorse Cottage Farm
Ivy House Farm
Booth Bank Farm
Agden Hall
Broomedge
Spring Farm
Agden Lane Farm
Agden Bridge Farm
Agden Brook Farm
Woolstencroft Farm

CHESHIRE EAST
WARRINGTON BOROUGH

BROADOAK LANE
WRENSHOT LANE
FROGHALL LANE
PEACOCK LANE
MOSS LANE
AGDEN LANE
BOOTHBANK LANE
REDDY LANE
AGDEN PARK LANE
A56 LYMM ROAD
B5159 BURFORD LANE
BRADSHAW LANE
WARRINGTON LANE
SPRING LANE
M56

279+000
280+000

Agden Brook Viaduct
Millington Lane Overbridge

For continuation refer to map number SV-09-311
For continuation refer to map number SV-09-313
For continuation refer to map number SV-09-319

HS2

Legend - General features

- Route in bored tunnel
- Route in green tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary

Engineering earthworks:
- Embankment
- Cutting

Non engineering earthworks:
- Embankment
- Cutting

Legend - Sound related features

Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
- Engineering e.g. cuttings (green tunnels separately marked)

Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
- Engineering e.g. cuttings

* Labelled with total barrier height above rail level

- Airborne noise study area
- Noise Important Areas defined in national noise action plans (Defra 2019)

Map Number: SV-09-312a

Map Name: Night-time Operational Sound Contour Maps SES1 and AP1 ES

Community Area MA03: Pickmere to Agden and Hulseheath

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Date: 19/04/22

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