EKFB Working in partnership with HS2

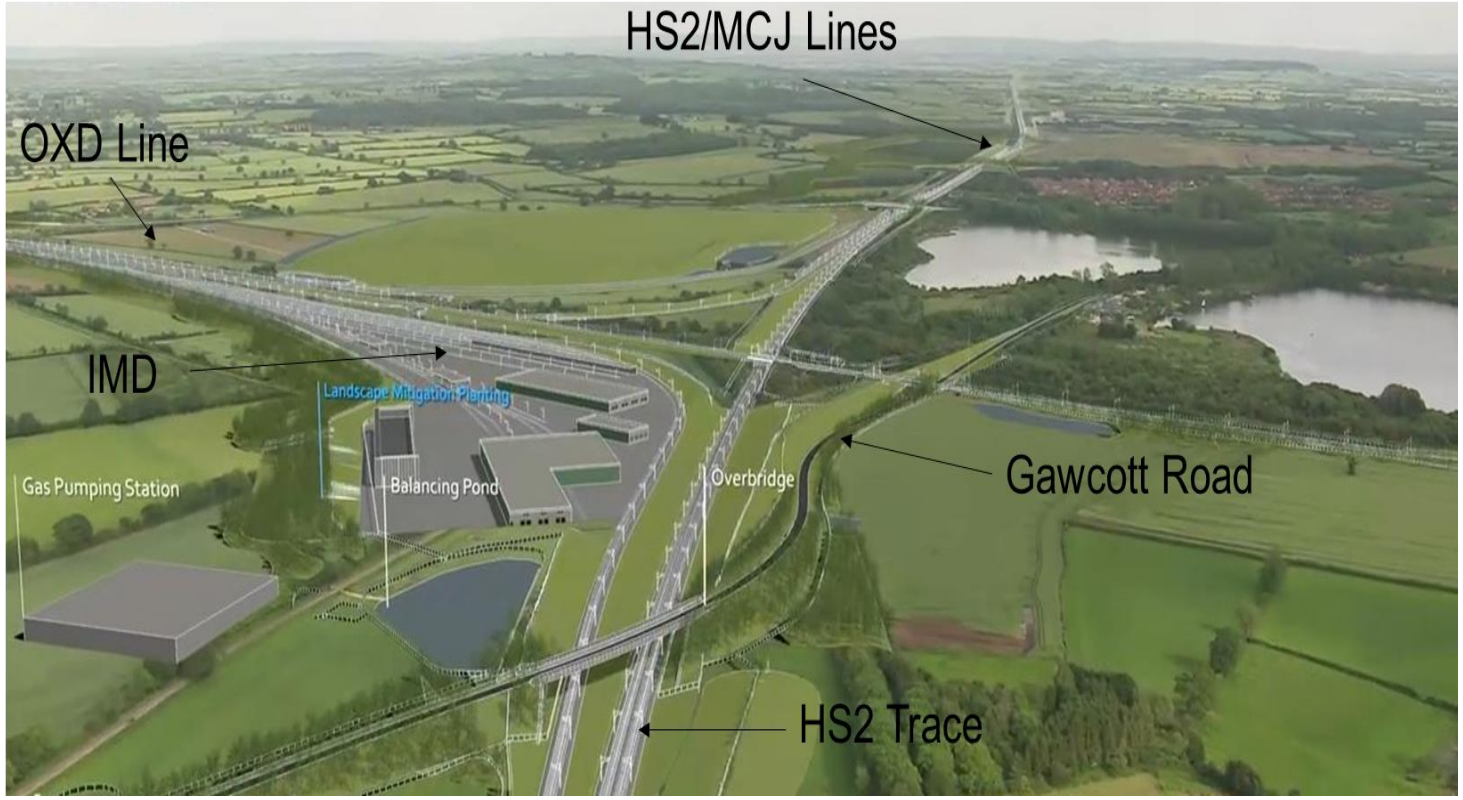
Calvert Area Liaison Meeting

29th January 2021

Chris James EKFB

Simon Griffiths Fusion

Thaina Sa'id EWR



Agenda

1. Operational noise overview and briefing – 45 minutes by Chris James
2. Traffic update – 10 minutes – Dan Bunce
3. Main works Update – 15 minutes – Chris James
4. Enabling Works Update – 15 minutes – Simon Griffiths
5. EWR Update – 15 minutes – Thaina Sa'id
6. Next meeting & AOB - All

Operational Noise

Operational Noise

Engagement Toolkit

Information to be shared on:

- **Noise Source** – where the noise will be generated from
- **Noise Modelling** – how we have modelled it
- **Obligations** – our obligations under the Environmental Minimum Requirements and Information Paper E20
- **Mitigation**– how we will design and build the noise barrier, bunds
- **Local Area** – share a specific response to compare to the Environmental Statement noise maps

Noise Source

Noise Source

Ambient baseline

Existing baseline from selected receptors identified in the ES **projected** to Opening Year

Rail noise

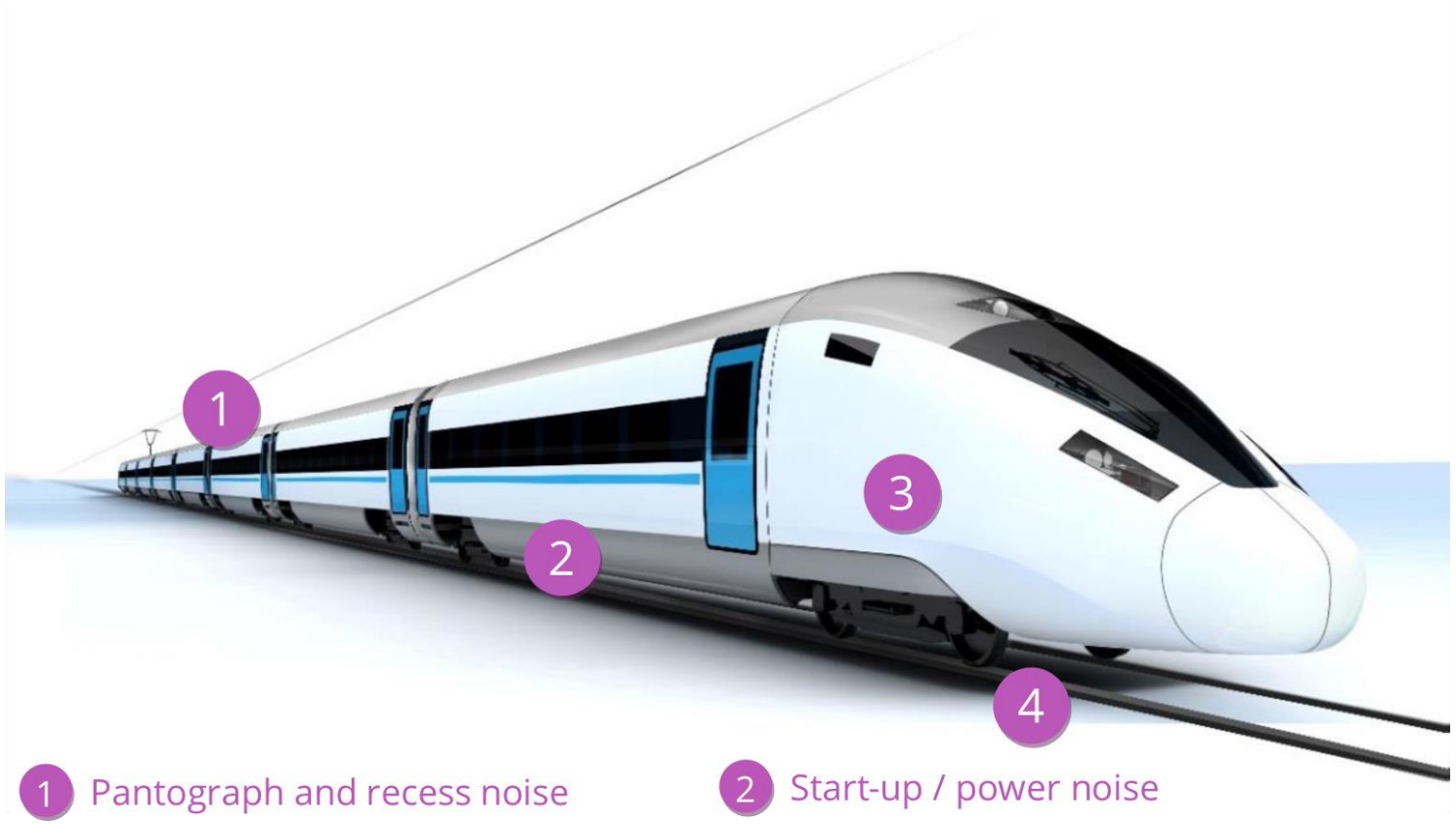
Assumed **reasonable worst case** from train and track

Altered Roads

Assumed **reasonable worst case** for changes to roads

Noise Source

Multi height/source method



1 Pantograph and recess noise

2 Start-up / power noise

3 Body aerodynamic noise

4 Rolling noise

Conventional Compatible

Captive

Noise Source

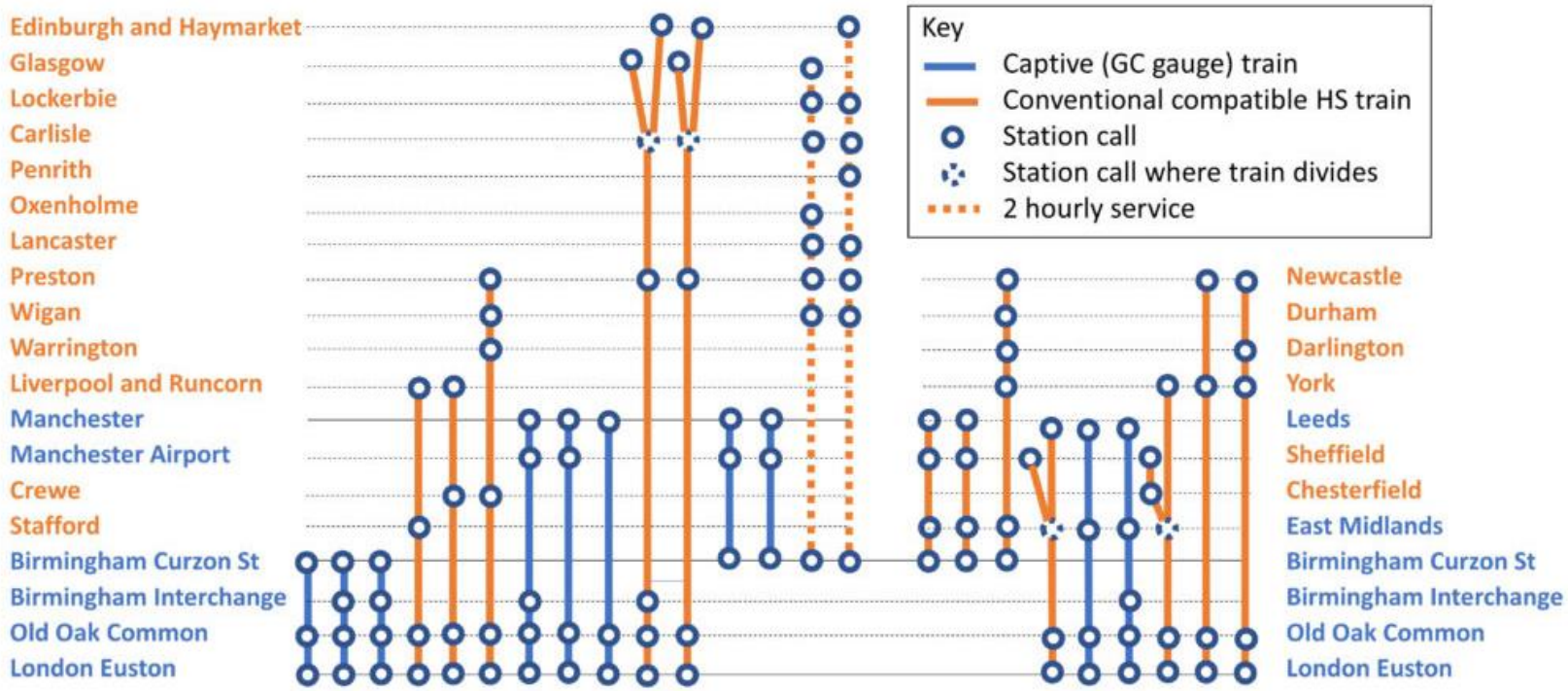
Train Types & Service Pattern

Classic Compatible

- Runs on conventional lines (ECML / WCML) and HS2
- Standard rail gauge
- Less aerodynamic shielding
- Louder

Captive

- Runs of HS2 line only
- Greater gauge clearance
- More aerodynamic shielding
- Quieter

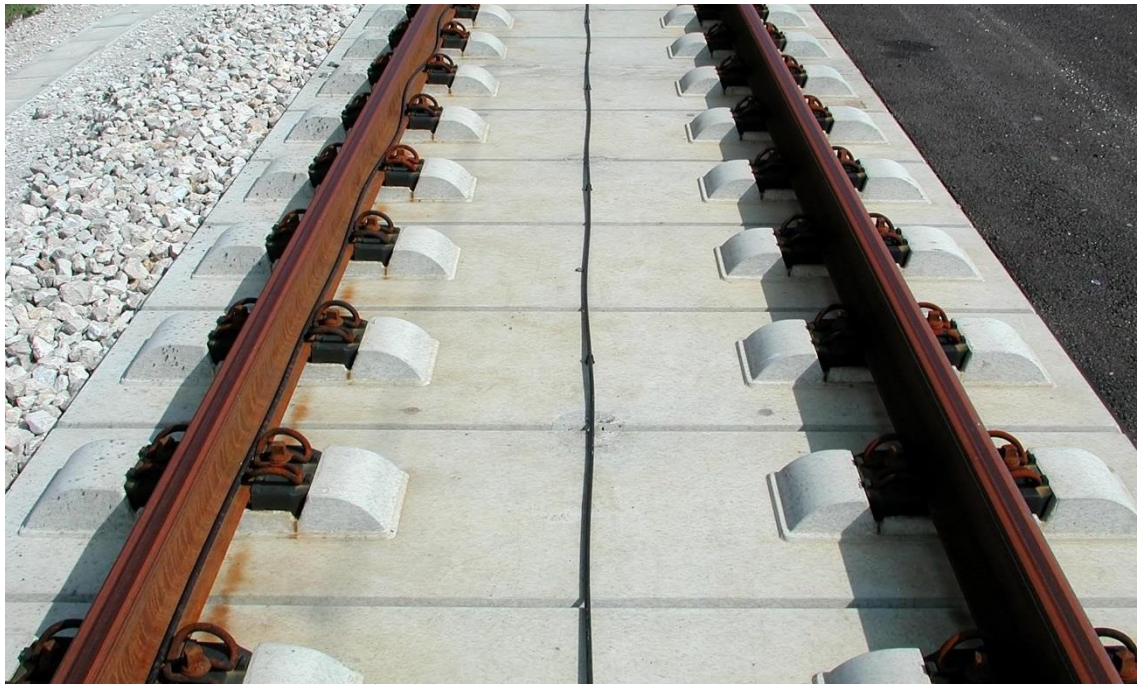


Indicative Hourly Phase 2 HS2 Service Pattern

Noise Source

Track Types

ES noise model based on ballasted track



Current proposals based on slab track

Noise Modelling

Noise Modelling

Terms Used

Term	Explanation
Residential receptor	Permanent residential building
Non-residential receptor	e.g. schools, hospitals, places of worship, and also commercial properties such as offices and hotels
External Amenity Space	relatively quiet outdoor areas: for sole use by residents as part of the amenity of their dwelling; protected for sole use by a limited group of residents as part of the amenity of their dwelling; or protected as publicly accessible for residents as part of the amenity of their dwelling that are nearby.
L_{pAFmax}	Maximum sound pressure at a point in time; 'peak noise'
$L_{pAeq,T}$	Weighted equivalent continuous sound level measured over a defined period, T; it allows fluctuating noise levels to be described in terms of a single figure level
LOAEL	Lowest Observed Adverse Effect Level; established from WHO guidelines as the level at which adverse effects on health and quality of life can be detected
SOAEL	Significant Observed Adverse Effect Level; … the level at which significant adverse effects on health and quality of life occur

Noise Modelling

Environmental Statement Stage

- Noise modelling undertaken by Arup based on HS1 model and further tested and validated across the a number of HSR projects
- Based on **reasonably foreseeable worst case**, based on:
  - Assessment of train noise using 'just TSI-compliant train'
  - Train paths based on Phase 1, then Phase 2 operations including operating speed 330 kph in 90% cases
  - Terrain model based on existing surfaces
  - Uses alignment based on HS2 Act to profile viaducts, cuttings and embankments to derive noise impacts
  - Determined initial requirements for mitigation
    - Wayside barriers
    - Earthworks
    - Viaduct barriers

Noise Modelling

MWCC Design Stage

- Noise model **recreated by MWCC** teams environment and **validated** by HS2 supported by Arup
- Includes:
  - **Updated** assessment of train noise and track for noise source
  - Train paths based on Phase 1 and Phase 2 operations including operating speed 330 kph in 90% cases
  - Terrain model based on existing surfaces
  - Uses alignment based on **MWCC Scheme Design** to provide updated impacts
  - Determines **updated** requirements for mitigation
- Mitigation proposals to be submitted to local planning authority through Schedule 17
- Including preparation of a **Noise Demonstration Report** to satisfy LPA

Noise Mitigation – our obligations

Noise Mitigation Obligations

Environmental Minimum Requirements (EMR)

Overriding obligation to mitigate any **additional** significant adverse effect

HS2 Information Paper E20 – Control of Airborne Noise…

To reduce airborne noise from the operational railway **as far as is reasonably practicable**

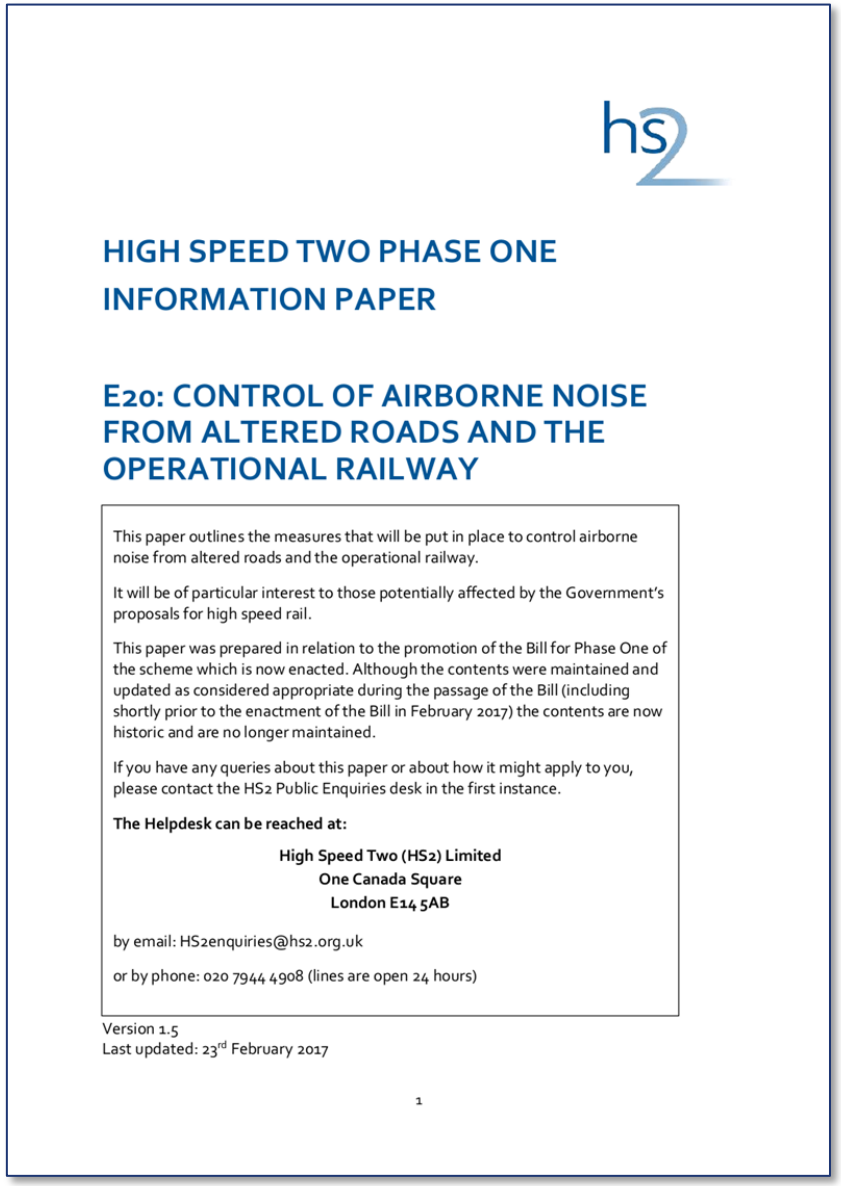
Specific Undertakings and Assurances

May be required subject to circumstances
… e.g. specific height barriers

Information Paper E20

Control of Airborne Noise

- The nominated undertaker will take **all reasonable steps** to design and construct altered roads, and to design, construct, operate and maintain the operational railway so that the combined airborne noise from these sources, predicted in all reasonably foreseeable circumstances, **does not exceed the lowest observed adverse effect levels** (LOAEL)
- Where it is not reasonably practicable to achieve this objective, the nominated undertaker will **reduce** airborne noise from the altered roads and the operational railway as **far as is reasonably practicable**
- **Noise insulation** will be offered with the aim that airborne noise from altered roads and the operational railway does not give rise to significant adverse effects on health and quality of life that would otherwise be expected when airborne noise **exceeds the significant observed adverse effect levels** (SOAEL)



HIGH SPEED TWO PHASE ONE
INFORMATION PAPER

E20: CONTROL OF AIRBORNE NOISE FROM ALTERED ROADS AND THE OPERATIONAL RAILWAY

This paper outlines the measures that will be put in place to control airborne noise from altered roads and the operational railway.

It will be of particular interest to those potentially affected by the Government's proposals for high speed rail.

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Version 1.5
Last updated: 23rd February 2017

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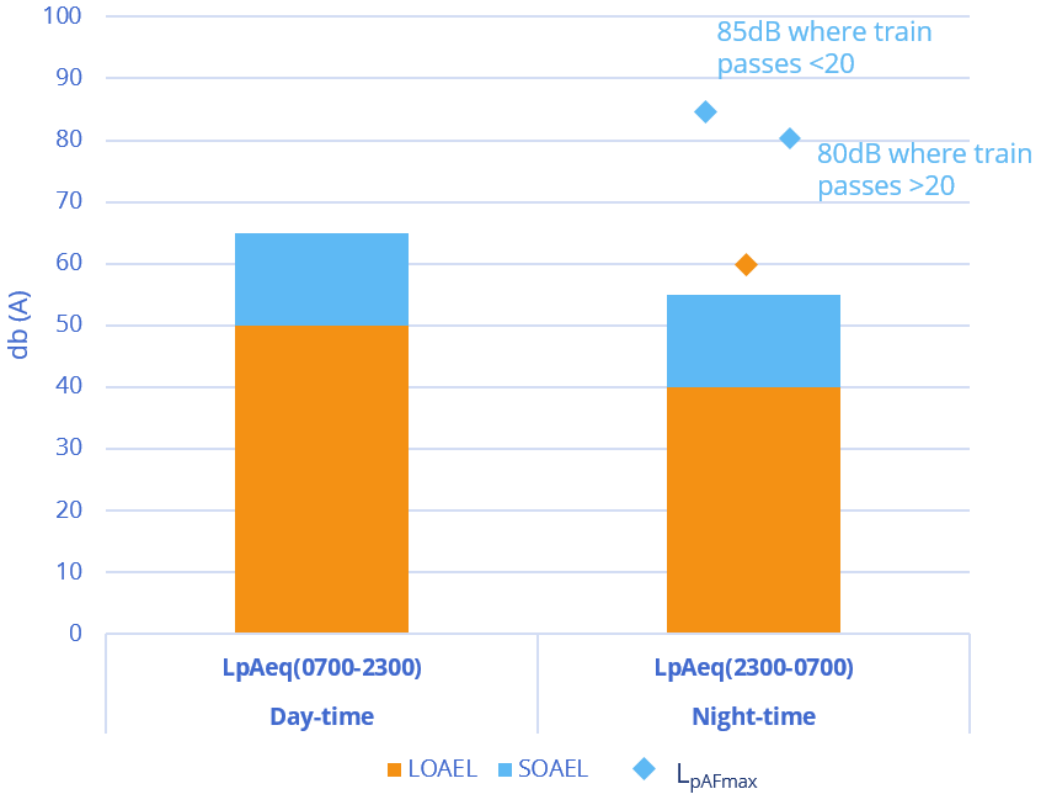
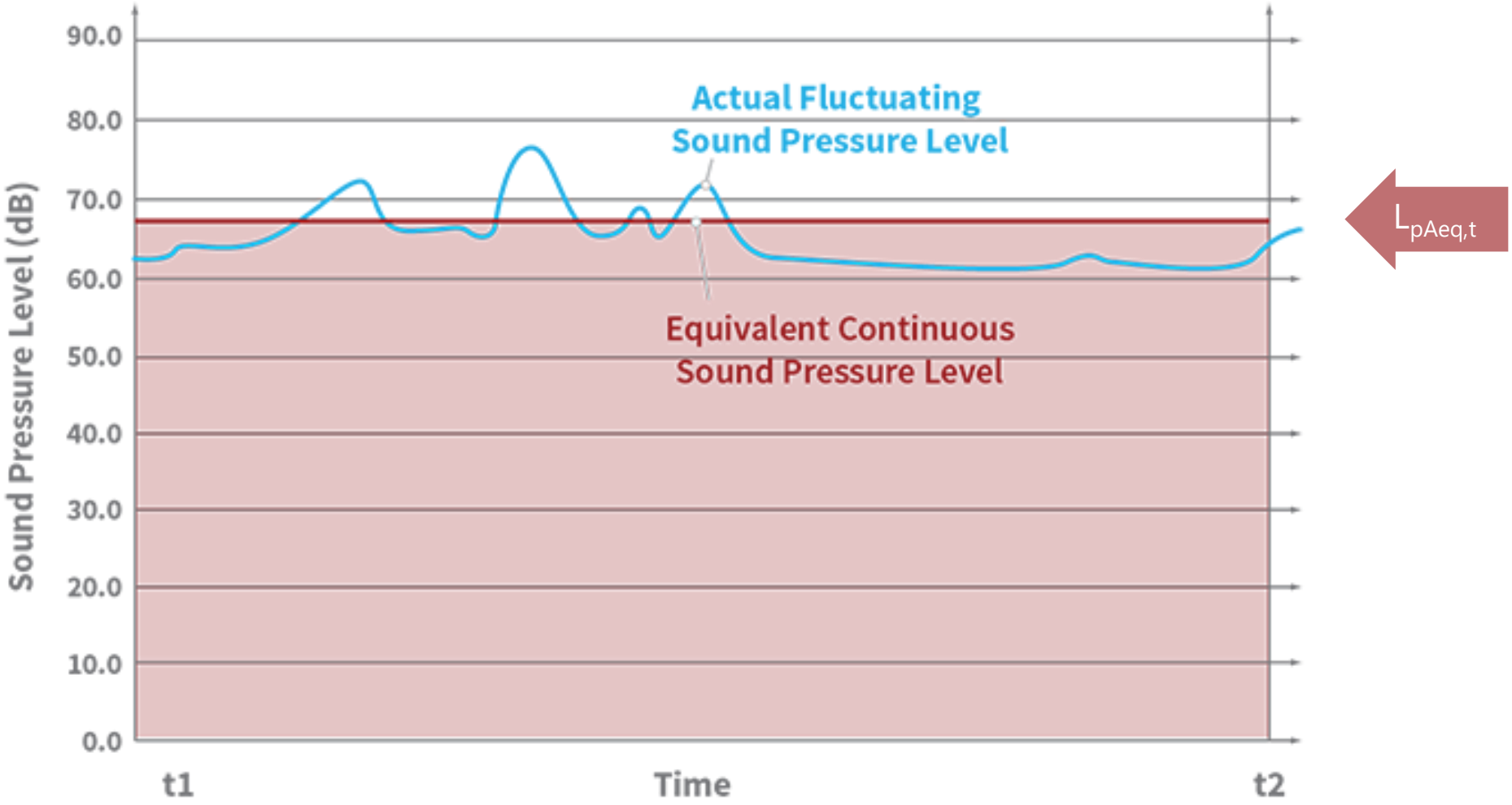
Environmental Statement

Scope & Methodology Report (SMR)

- Establishes the LOAEL and SOAEL
- Further consideration for Community Effects e.g. number and grouping of dwellings, level and character of existing sound environment
- Impact definition based on **change** to sound level: negligible 0dB to 3dB, minor 3dB to 5db, moderate 5dB to 10dB, major >10dB
- Non-residential **receptors** also considered e.g. schools, hospitals, places of religious worship, museums, halls etc., but not external space

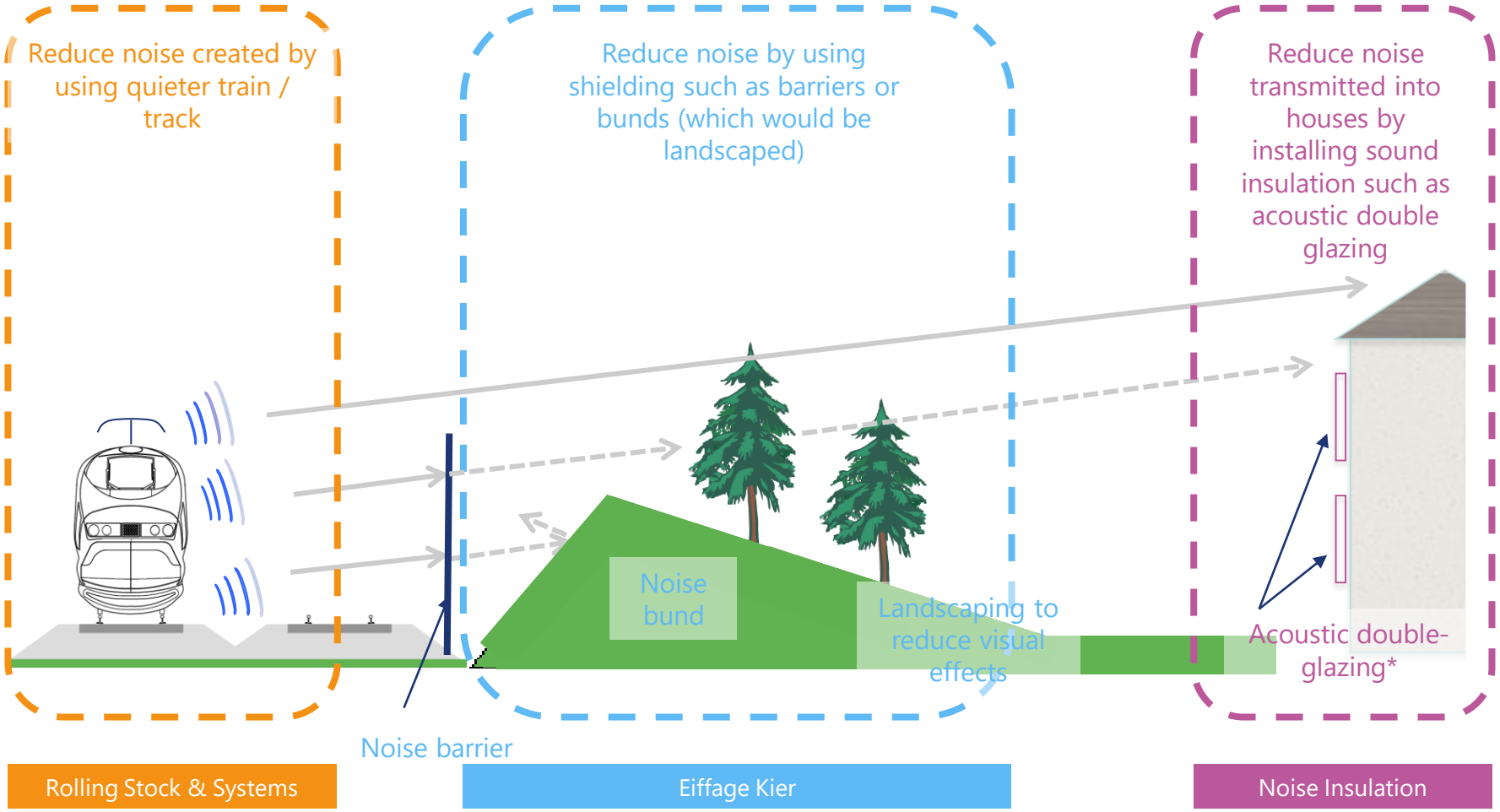


Equivalent Sound Level



Noise Mitigation Design

Noise Mitigation



Noise Barriers

Performance Requirements

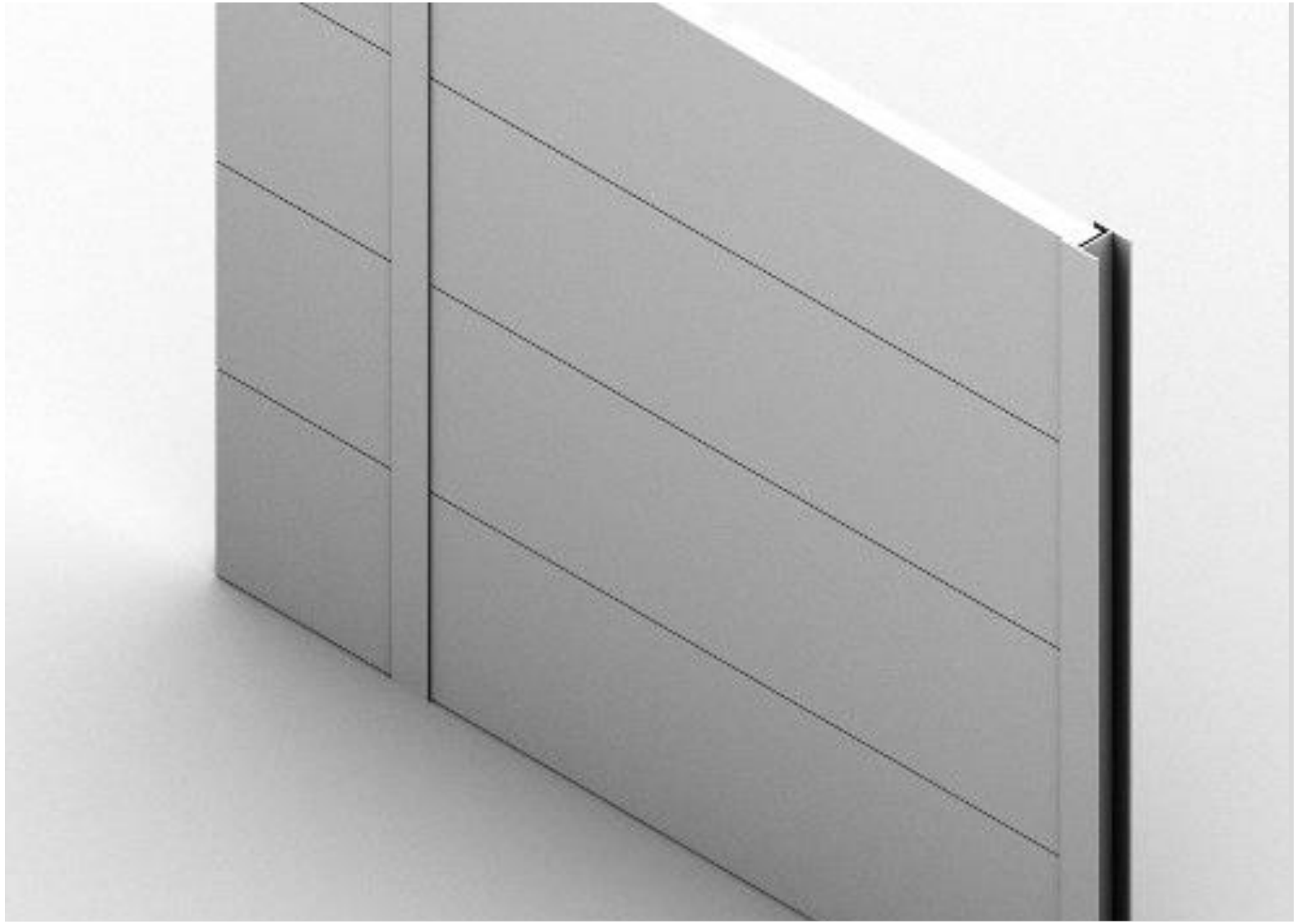
- 120 yr design life
- Includes absorptive layer on inside face
- Designed to suit modular construction
- Allow for response to local settings
- Two styles; visible and non-visible

Noise Barriers

Families

Non-visible noise barriers

- Straight panels
- Exposed posts
- Modular panels
- Plain finish



Noise Barriers

Families

Visible noise barriers

- Straight panels / cranked
- Concealed posts
- Modular panels
- Plain or textured finish

Noise impacts in the local area

Design Changes Considered in Modelling

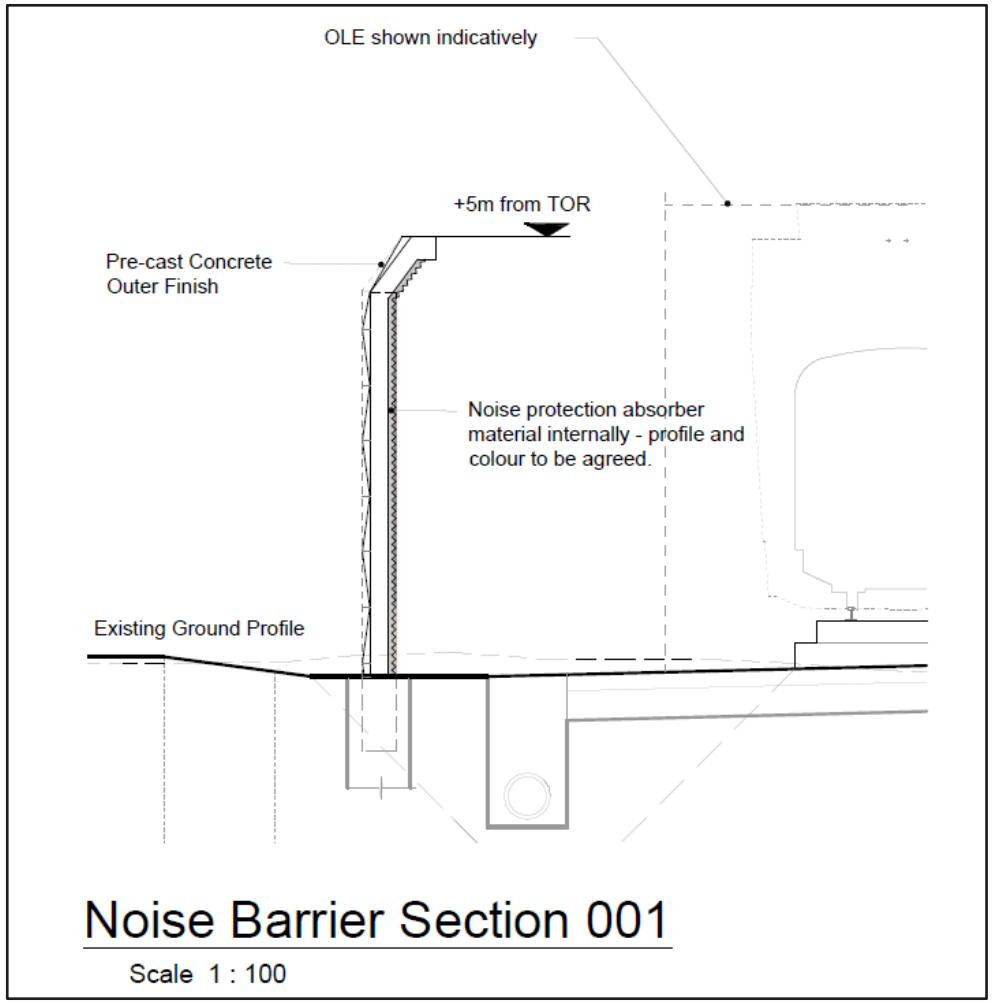
- Reduction of track centres from 5000mm in ES to 4700mm c/c.
- The HS2 mainline alignment through Calvert Cutting (CH 77+600 – 82+800) has been raised by up to 3m compared to that shown in the Act. Similarly, the southern access into the Infrastructure Maintenance Depot (IMD) has been realigned and raised to run parallel to the mainline and tie in with the IMD northern access north of the EWR Intersection bridge. The Network Rail MCJ line has also been raised to follow the vertical alignment of the HS2 mainline.
- The track lifts have resulted in School Hill road being raised by approximately 1.5m as it crosses HS2 however the tie-ins with the existing highway have been maintained in the same locations as per the Act.
- The Network Rail OXD line has been raised by 3.0m where it crosses over HS2 and it ties in with the ES alignment approximately 200m west of the previous location.
- The track support system has been revised to track slab for the HS2 main lines compared to a ballaste.

Purpose of Noise Modelling

- Take all reasonable steps for the combined airborne sound from altered roads and operational railways, predicted in all reasonably foreseeable circumstances, not to exceed the lowest observed adverse effect levels.
- The mitigation has been assessed as far as is reasonably practicable at this stage in the design process and has been shown to result in effects within the scope of those reported in the HS2 ES.
- Several mitigation options have been evaluated against a range of criteria including the acoustic effects; landscape and visual effects; engineering practicability and value for money.
- The preferred option has been selected on the basis that it reduces noise as far as reasonably practicable and represents the optimum balance between maximising the acoustic benefits, whilst minimising visual impacts.

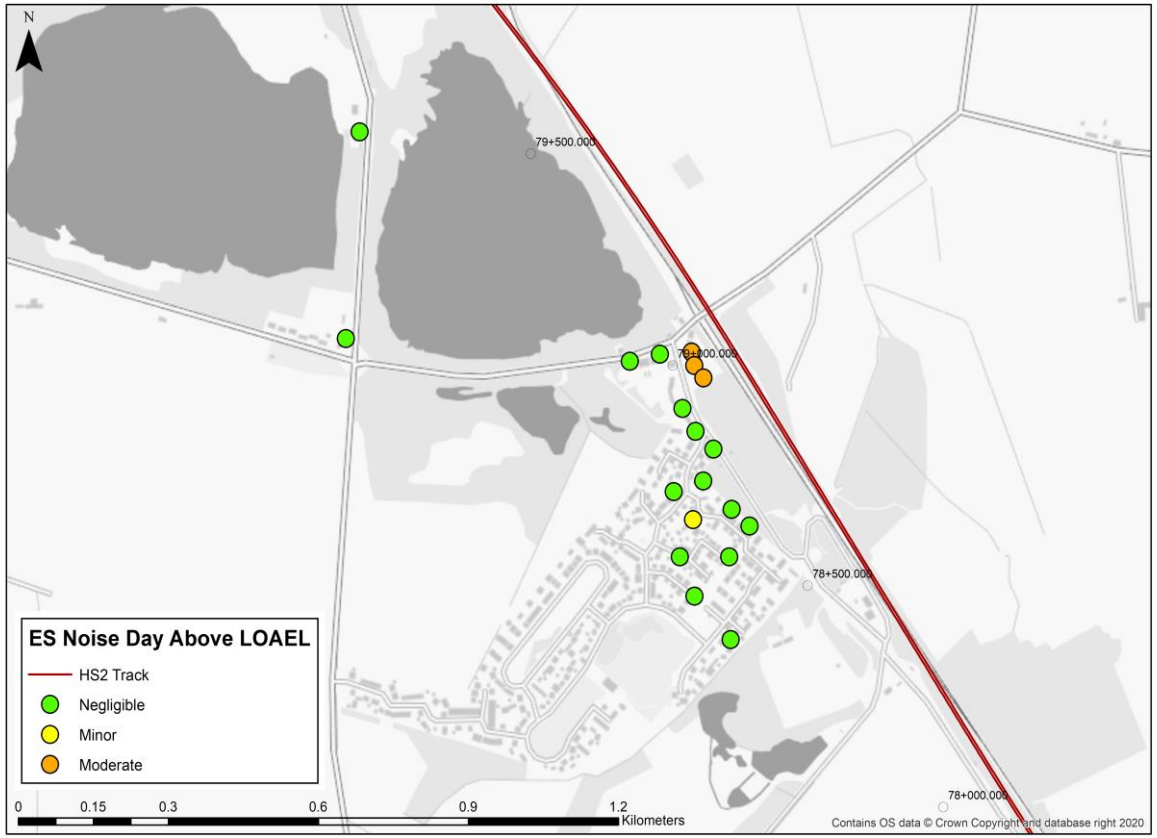
Proposed Mitigation Option

- ES proposed 5m high barrier above top of rail (ToR).
- 5m barrier proposed which is in line with ES.
- Barrier is however continued north to account for track lift, with barrier stepped to 4m high for 100m and to 3m for 150m.
- Barrier offset reduced to 4.4m to maximise screening. Drainage design adapted to accommodate reduced offset
- Barrier design includes a cantilever to move the diffracting edge of the barrier to 4.1m from the track alignment.
- Barriers tie in with overbridge wingwalls at 5m height to afford continuous noise screening at required height.

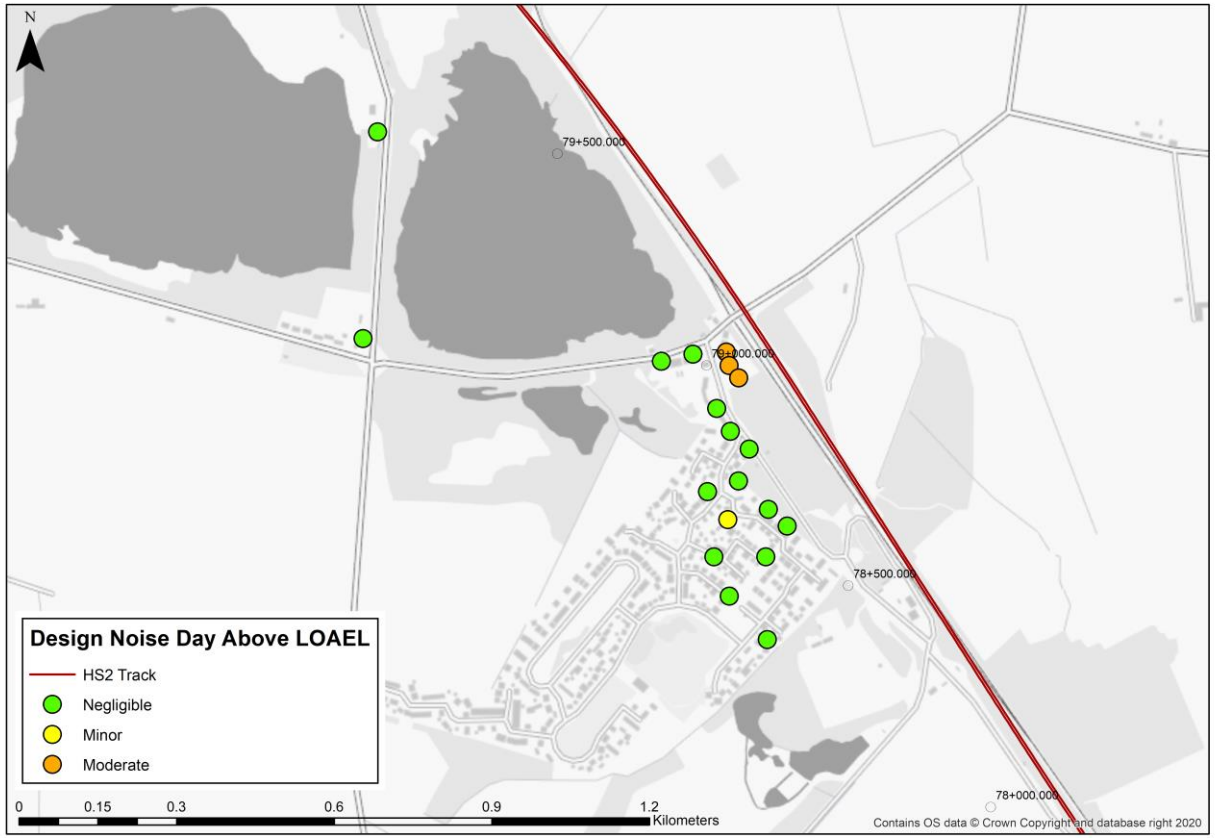


Comparison of ES and Design Noise Effects - Daytime

ES Daytime



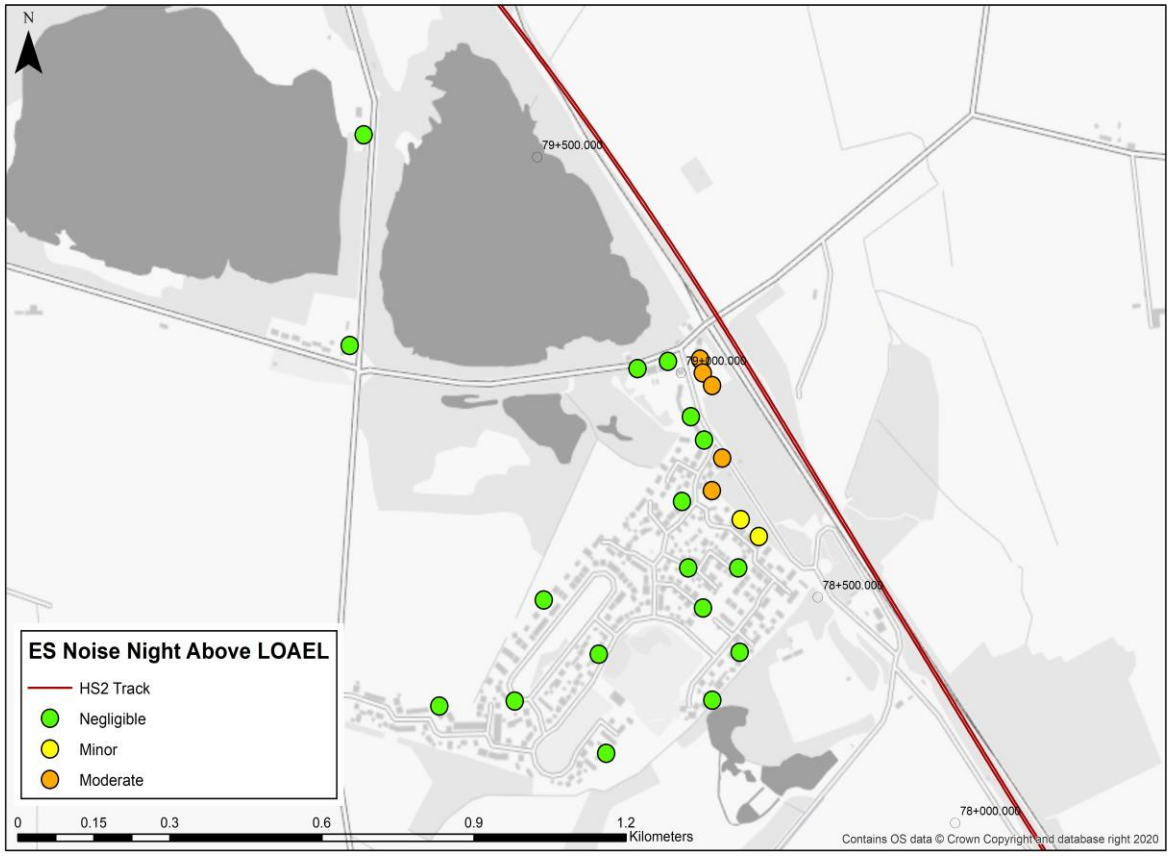
Design Daytime



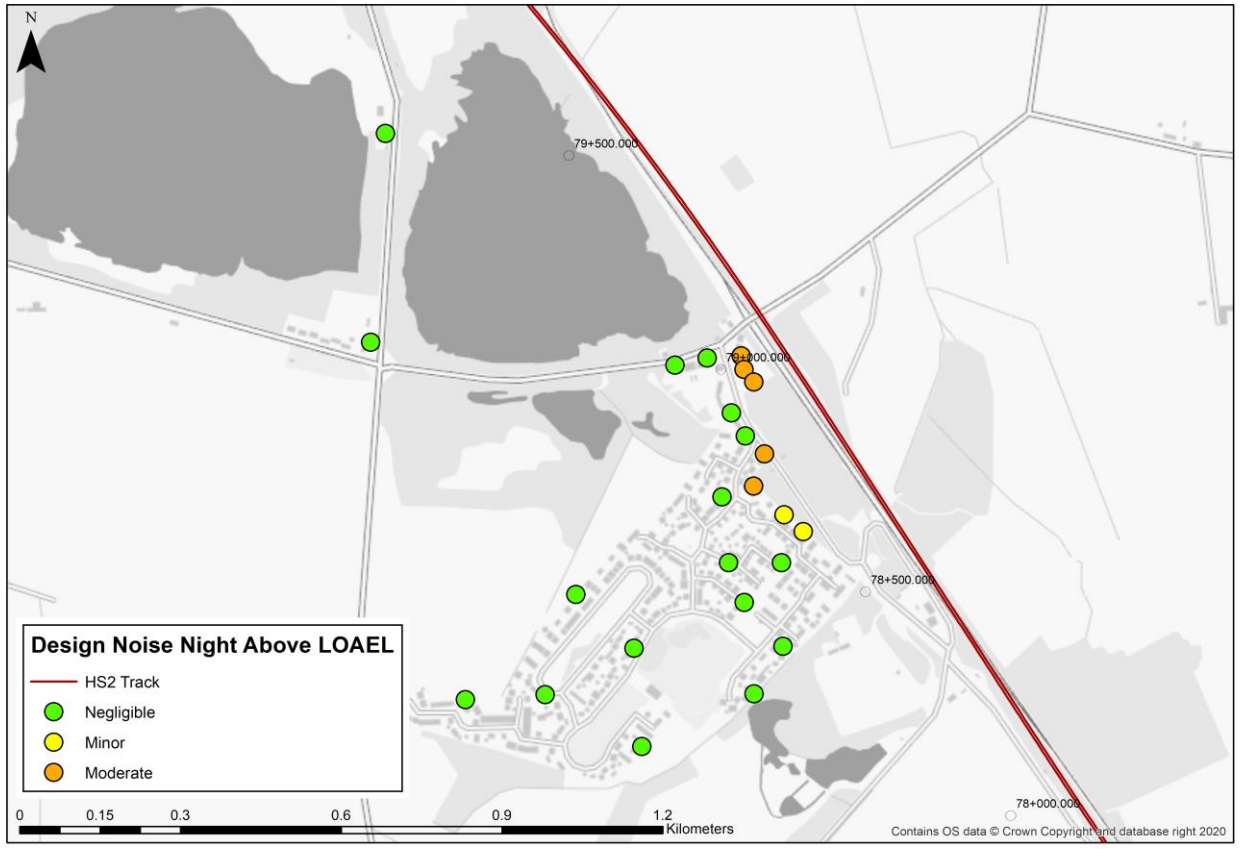
Negligible 0dB to 3dB, Minor 3dB to 5db, Moderate 5dB to 10dB

Comparison of ES and Design Noise Effects – Night-time

ES Night-time



Design Night-time



Negligible 0dB to 3dB, Minor 3dB to 5db, Moderate 5dB to 10dB

Outcome of Modelling and Mitigation Design

- All reasonable steps have been taken for the combined airborne sound from altered roads and operational railways, predicted in all reasonably foreseeable circumstances, not to exceed the lowest observed adverse effect levels (LOAEL).
- Where LOAEL is exceeded, all reasonably practicable steps have been taken to minimise the effects of noise, with due consideration of design and engineering constraints, visual impacts, consultation with the Council and value for money
- The mitigation has been assessed as far as is reasonably practicable at this stage in the design process and has been shown to result in effects within the scope of those reported in the HS2 ES.

Next Steps

Update outputs of noise model

Identify other mitigation measures; i.e. landscape and visual

Agree application of CDE noise barriers with LPA

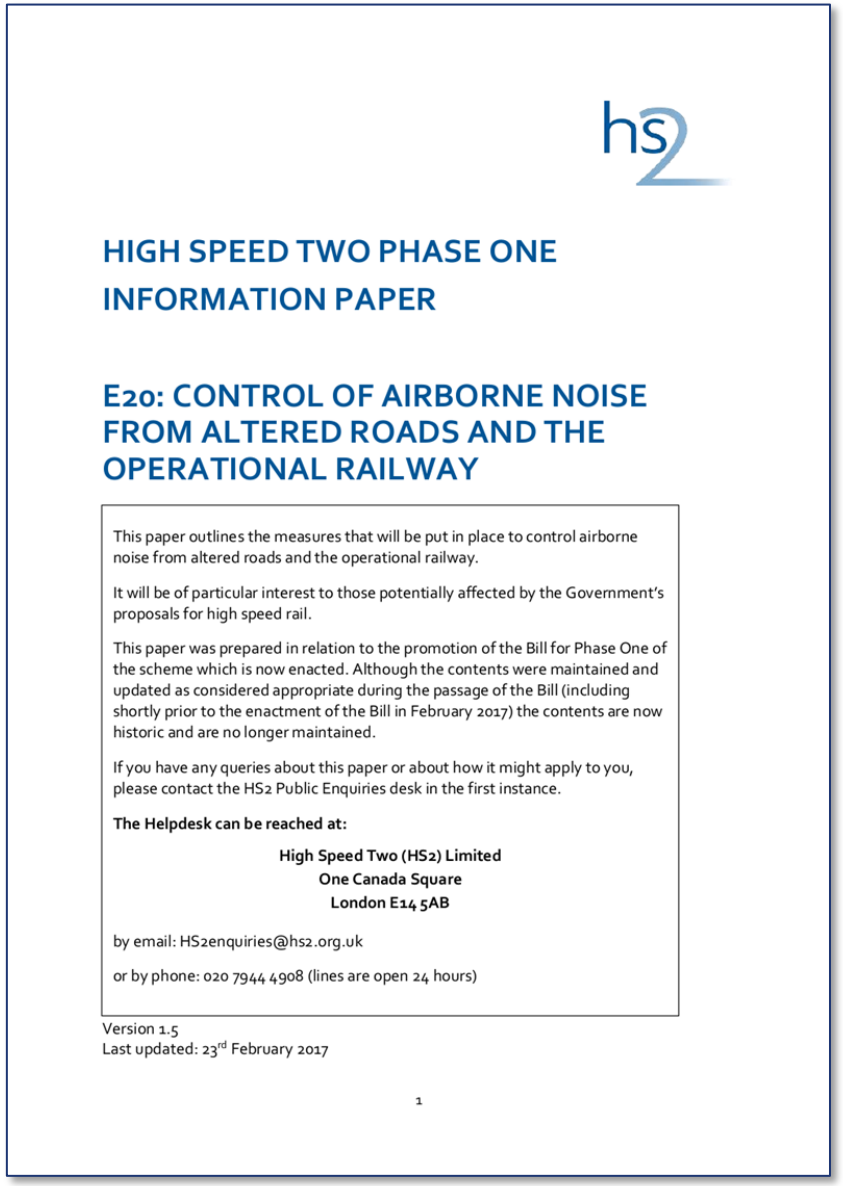
Develop location specific response and prepare NDR

Review outputs with local communities

Operational Noise

Further reading

- **Information Paper E20**
- **Environmental Statement**: Volume 5 CFA 13
- **You Tube:** Improvements to West Coast Main Line Services
- **Specific Questions**: Can be referred to HS2 enquiries or directly to Chris.James@EKFB.com



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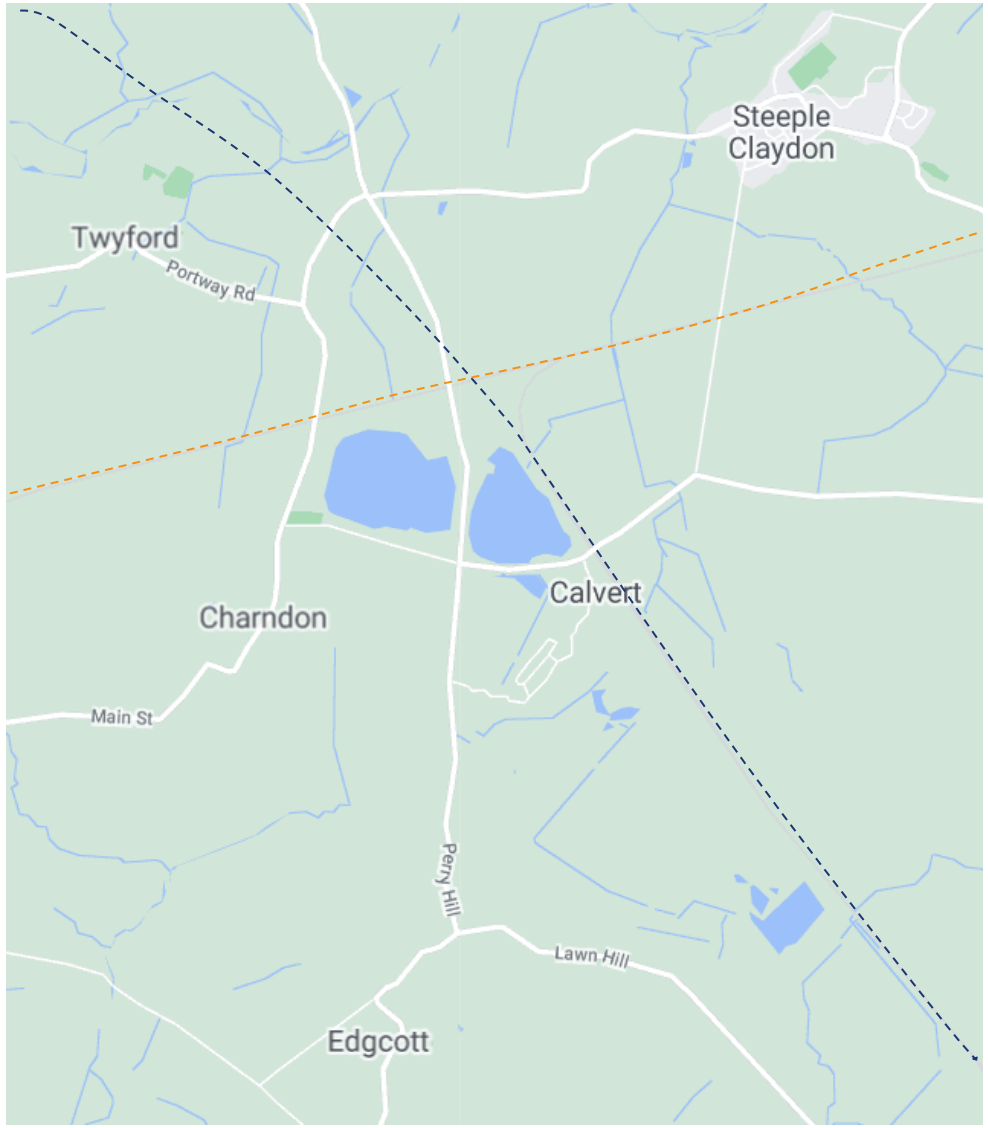
Traffic Update

Dan Bunce – EKFB
Traffic Safety Control Officer (TSCO)

Traffic – HGV's January

	Permitted	Actual (Approx Average)				Utilisation
		10/1	17/01	24/01	31/01	
Gawcott	55	18	19	19		30%
Steeple Claydon	5	0	0	0		0 %
Twyford	0	0	0	0		
Calvert	32	22	25	25		75%
Edgcott	55	41	44	44		75%



EKFB Main Works Update

Operational Overview

EKFB

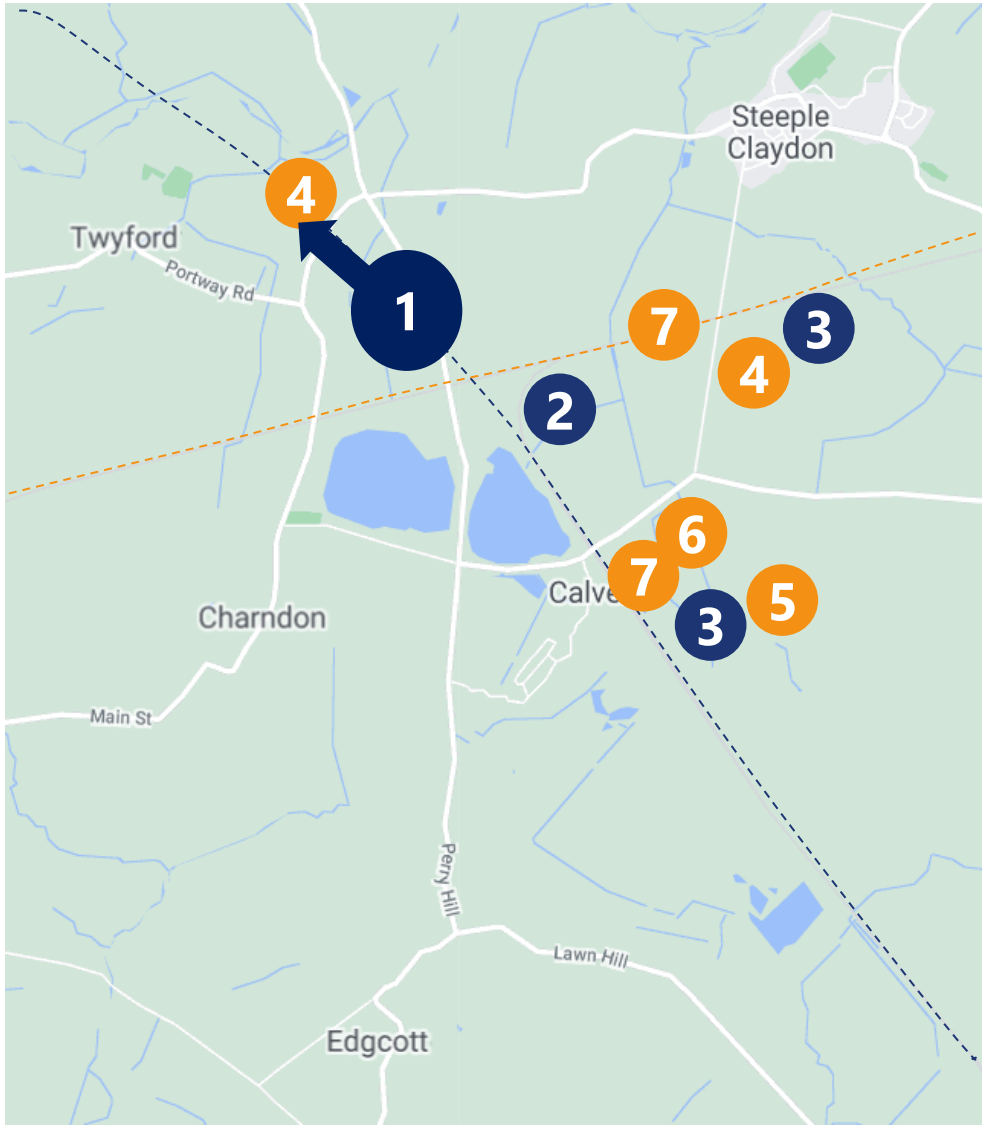
1. Compound & Infrastructure
2. Aggregate delivery by Rail
3. Ground investigation & underground services

Fusion

4. Archaeology
5. Woodland translocation & planting
6. Works Compound
7. Underground Services

EWR

8. Road Closures



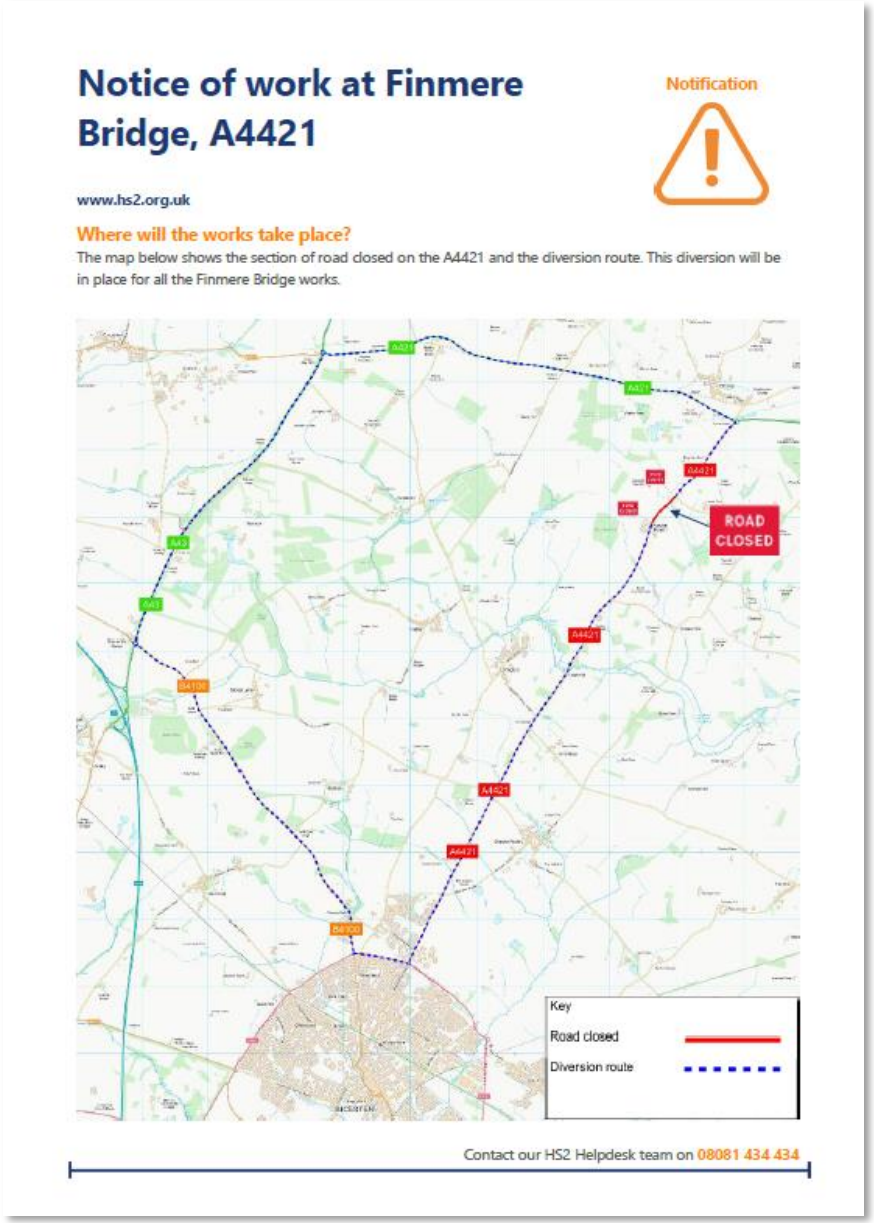
Advanced Works Notices

EKFB & Fusion - Issued

1. Calvert area early works
2. Finmere Bridge – Newton Purcell
3. Addison Rd

Fusion & Fusion – In preparation

4. Calvert – Directional drilling
5. Calvert – School Hill batching plant
6. A43 – early works



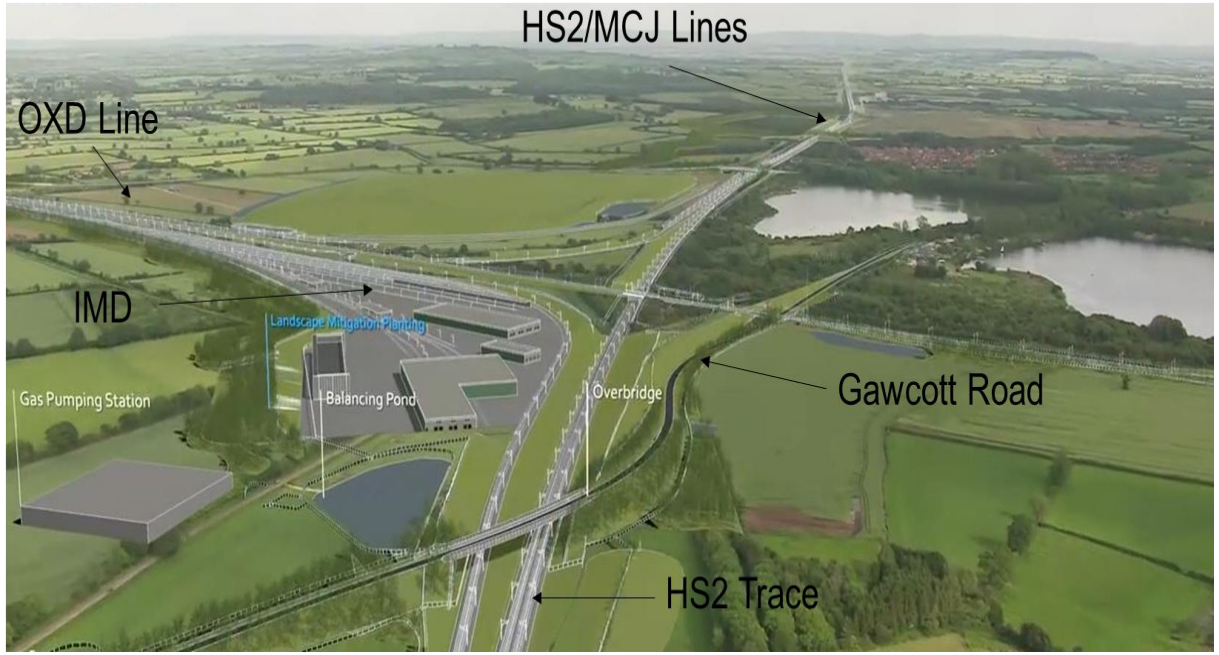
Key Design Elements

Bat Structure - EKFB

1. Approx. 900m long
2. 10m heigh, bridge four tracks.

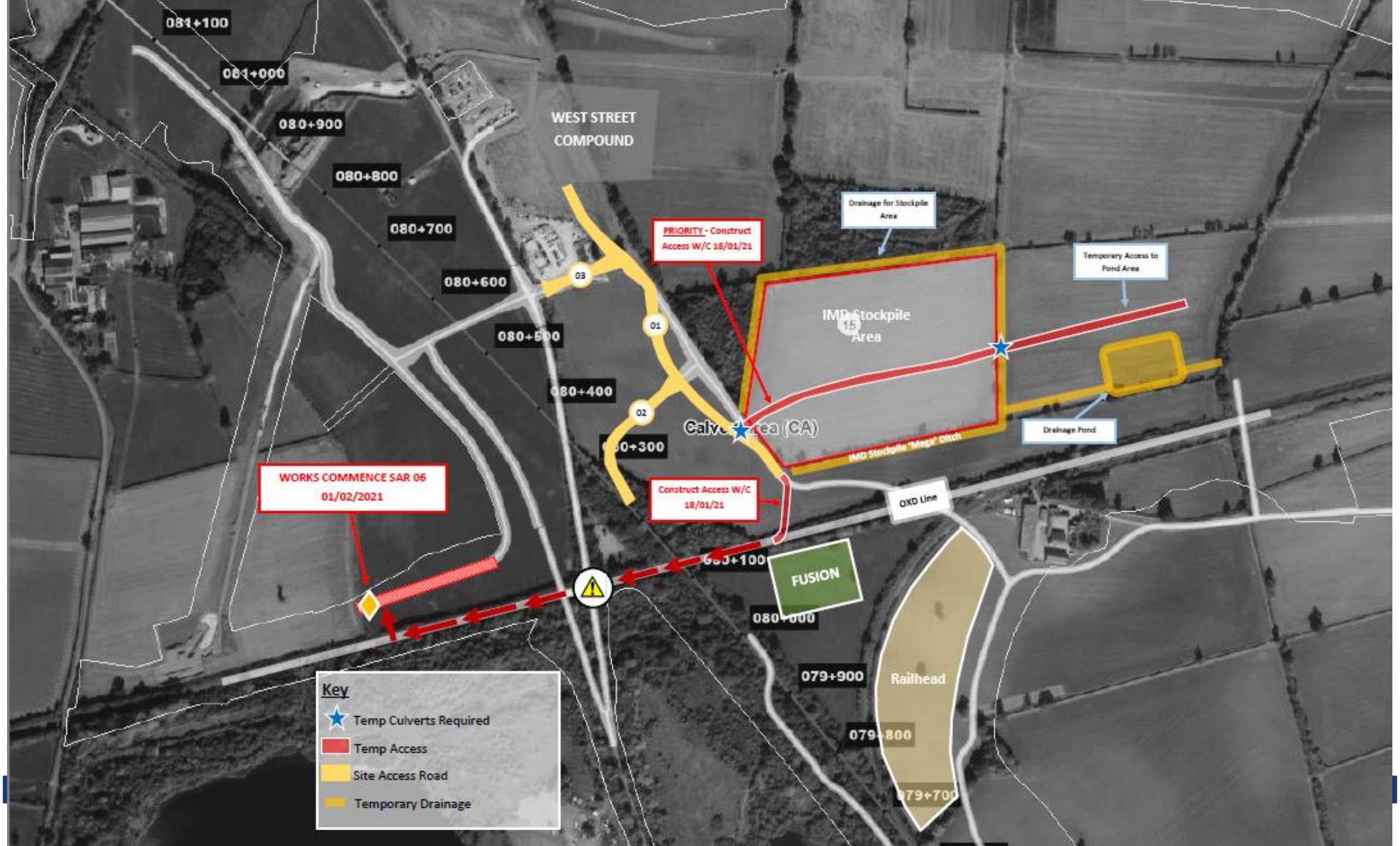
Infrastructure Maintenance Depot – WSP, Grimshaw, Grant Thornton

1. Calvert – Directional drilling
2. Calvert – School Hill batching plant
3. A43 – early works




Cake Expectations
Google

EKFB Main Works Update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079+800
079+700
WEST STREET
COMPOUND
PRIORITY - Construct
Access W/C 18/01/21
Drainage for Stockpile
Area
Temporary Access to
Pond Area
IMD Stockpile
Area
15
03
01
02
Calve ea (CA)
IMD Stockpile 'Mega' Ditch
Drainage Pond
WORKS COMMENCE SAR 06
01/02/2021
Construct Access W/C
18/01/21
OXD Line
FUSION
Railhead
Key
Temp Culverts Required
Temp Access
Site Access Road
Temporary Drainage


CAT


VOLVO

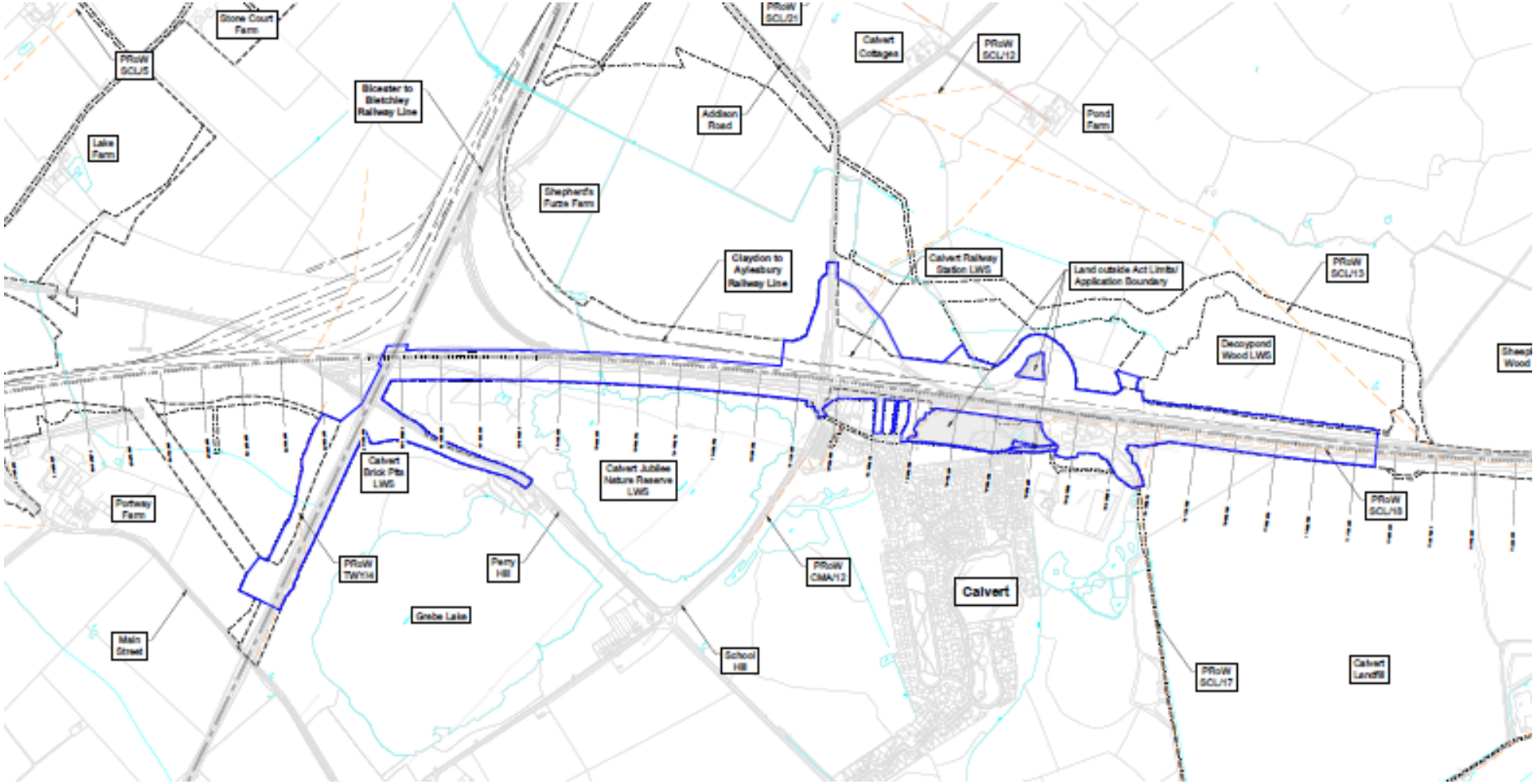

VOLVO


CROSS
CROSS

EKFB Main Works Update

Information Update

Calvert South – Schedule 17 Submission



Calvert South – Schedule 17 Submission

Fusion Early Works Update

Calvert area update

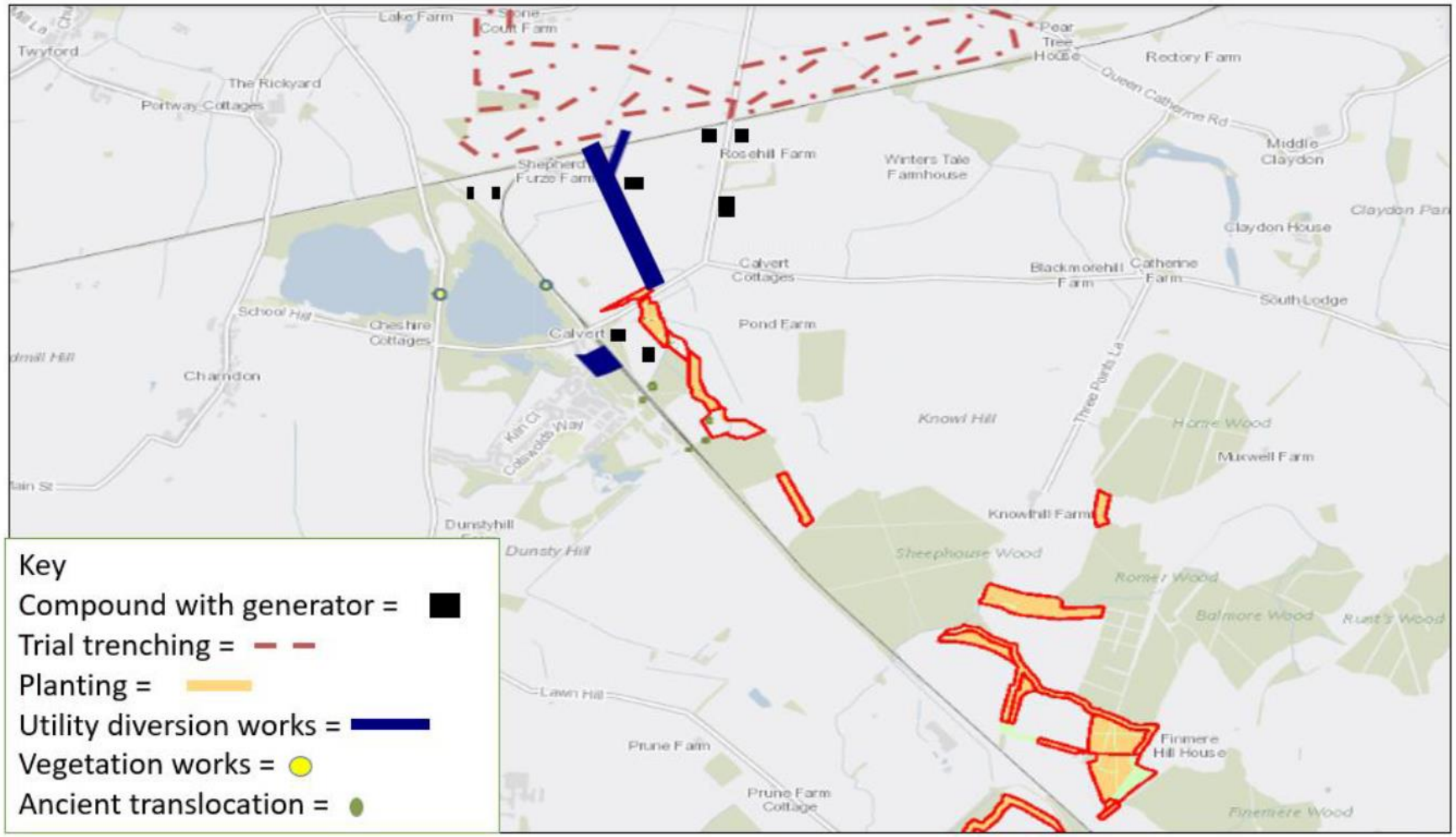
fusion Working on behalf of HS2

Calvert area

- Archaeological works are continuing off Addison Road completion by the end January 2021(subject to weather conditions)
- Brackley Lane utility diversion works due to start Q2 2021 (subject to consents)
- Calvert Road & Gawcott Road compounds works handover to EKFB achieved in December 2020
- Ancient woodland translocation works started in October 2020 and will continue until March 2021
- Tree planting works started November 2020 and will continue until March 2021
- Utility diversion works at Addison Road by Shepherds Furze Farm November 2020 until Spring 2021
- Vegetation removal completion end of March 2021

Calvert area update

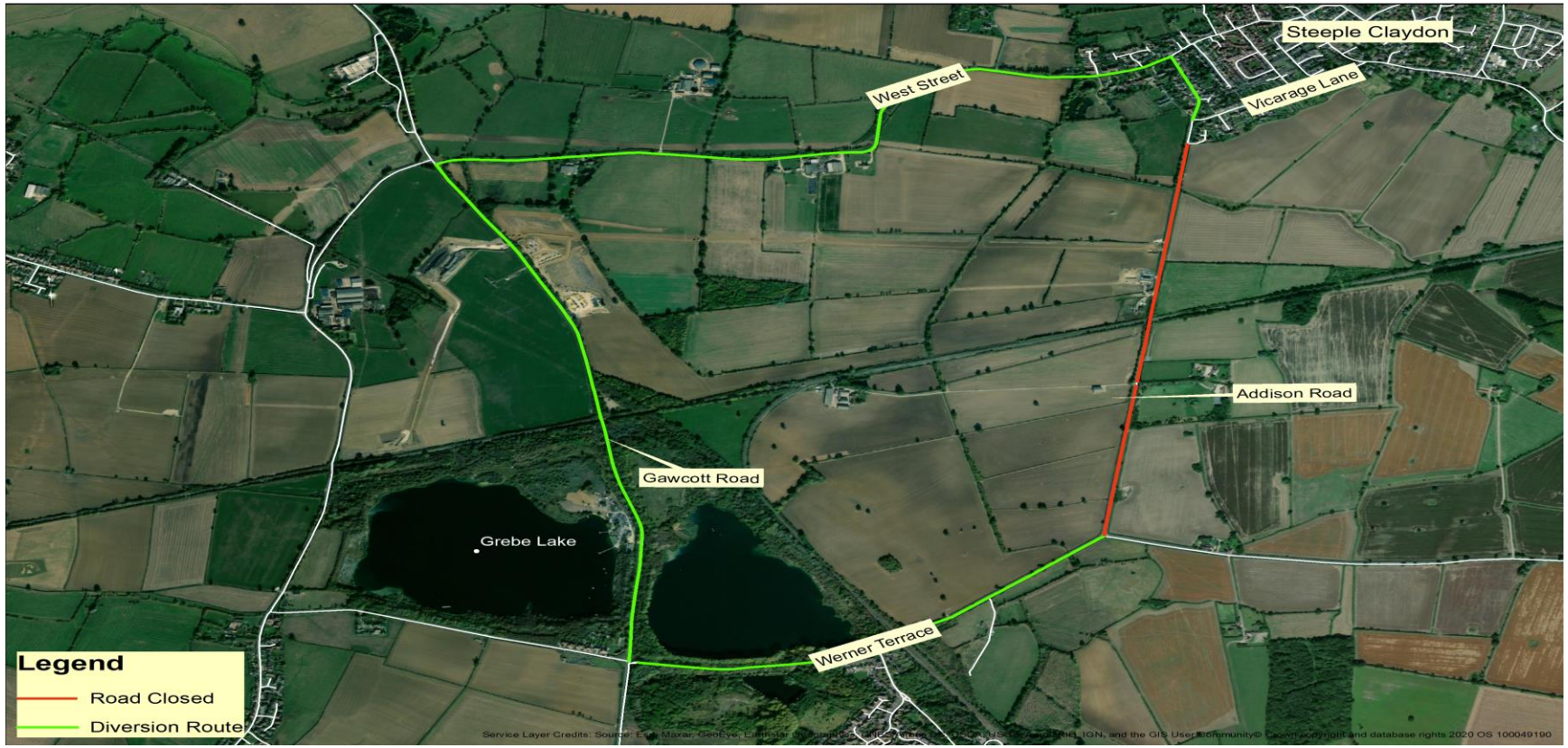
fusion Working on behalf of HS2



Addison Road closure

Working on behalf of HS2

Fusion, EKFB and Western Power Distribution need to undertake a number of construction activities along Addison Road. To minimise disruption, the works have been coordinated so that they can be undertaken under one road closure.
From the **8 February to 12 February 2021** Addison Road will be closed from **8am till 6pm** where the local diversion route will be in place. **Outside of these times** Addison Road will be open as normal. **(Community notice issued)**



Translocation works in progress

fusion Working on behalf of HS2

Calvert area update

fusion Working on behalf of HS2

School Hill satellite compound

Progressing main water pipe installation

Construction of compound hard standing area

Calvert area update

fusion Working on behalf of HS2

Addison Road utility diversion works

End of directional drill reaming bit appearing from the bore

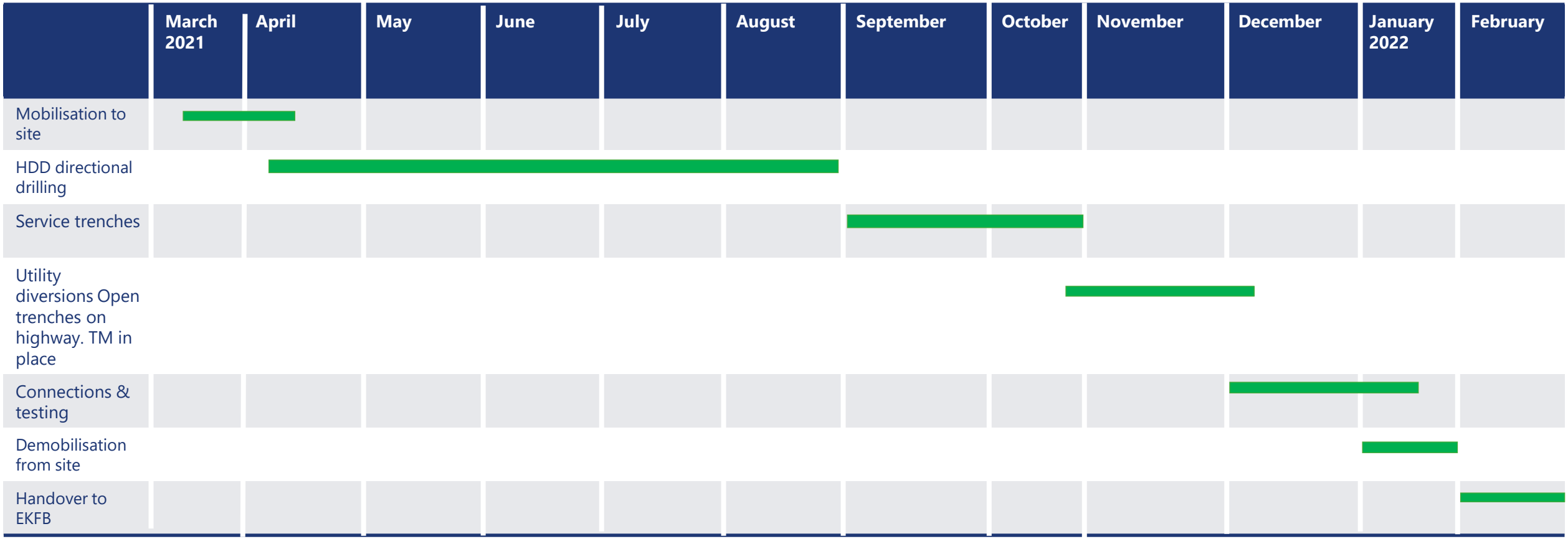
The Addison Road site

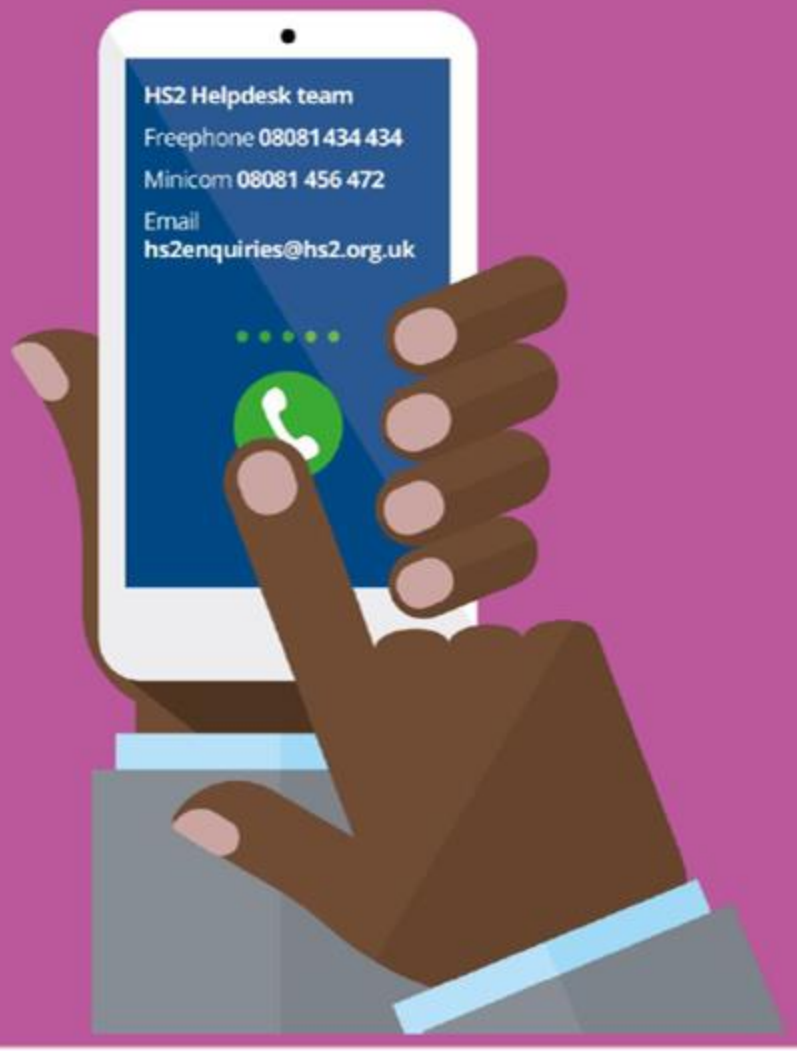
The 320 metre sewer pipe being pulled through the directional drill sleeve

fusion Working on behalf of HS2

Utility diversion works Brackley Lane/ Werner Terrace and Calvert Road
Currently in detailed design & pre-construction

Delivery timeline (subject to consents approval)





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EKFB Working in partnership with HS2

Calvert Area Liaison Meeting

29th January 2021

Chris James EKFB

Simon Griffiths Fusion

Thaina Sa'id EWR