HS2

High Speed Rail (London – West Midlands)

Supplementary environmental information report

Supplementary environmental information for the temporary closure of Dalehouse Lane

August 2024

Department for Transport

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High Speed Two (HS2) Limited
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.hs2.org.uk

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Table 1: Acronyms and abbreviations

Acronym	Description
AADT	Annual Average Daily Traffic
AP	Additional Provision
ARN	Affected Road Network
CFA	Community Forum Area
CIEEM	Chartered Institute of Ecology and Environmental Management
CoCP	Code of Construction Practice (Annex 1 of the EMRs)
DCA	Demographic Character Area
DEFRA	Department for Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
EcIA	Ecological Impact Assessment
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
EMR	Environmental Minimum Requirements
EPUK	Environmental Protection UK
ES	Environmental Statement
FPD	Final Preliminary Design
GHG	Greenhouse Gas
HGV	Heavy Goods Vehicle
HIA	Health Impact Assessment
IAQM	Institute of Air Quality Management
JNCC	Joint Nature Conservation Committee
KGC	Kenilworth Golf Club
KSWA	Kenilworth and Stoneleigh Wide Area
LGV	Light Goods Vehicle
LNR	Local Nature Reserve
LNR	Local Nature Reserve
LWS	Local Wildlife Site
LWS	Local Wildlife Site
NVQ4	National Vocational Qualification Level 4
OLE	Overhead Line Equipment
PE	Polyethylene
pLWS	Potential Local Wildlife Site
ProW	Public Right of Way

Acronym	Description
RFS	Replacement Flood Storage
SAC	Special Area Conservation
SEI	Supplementary Environmental Information
SES	Supplementary Environmental Statement
SMR	Scope and Methodology Report
SoS	Secretary of State for Transport
TTRO	Temporary Traffic Regulation Order
U&As	Undertakings and Assurances
WBRC	Warwickshire Biological Record Centre
WBRC	Warwickshire Biological Record Centre
WCC	Warwickshire County Council
WDC	Warwick District Council

Executive Summary

Dalehouse Lane is a single carriageway road located on the outskirts of Kenilworth in Warwickshire. The road runs parallel to the A46 Kenilworth bypass which is a strategic route providing a bypass to Kenilworth town. The primary use of Dalehouse Lane is as an access road to local residents at the eastern end of Kenilworth.

In comparison to the overnight and/or weekend closures on Dalehouse Lane assumed in the main Environmental Statement (ES), the proposed works requires a full temporary diversion of Dalehouse Lane for a period of 14 months. This Supplementary Environmental Information (SEI) arises from the proposed temporary closure of an approximately 0.53km section of Dalehouse Lane commencing 0.23km south-west of the access road to Kingswood Farm. This SEI describes new or different likely significant effects at Dalehouse Lane arising from the proposed temporary closure of the road lasting 14 months commencing from Spring/Summer 2025.

Changes to the engineering design since the publication of the main ES include:

- change to the bridge design in response to stakeholder requirements is to be widened to accommodate a cycle path and raised to allow for overhead line equipment (OLE). This has increased the footprint of the bridge and the safe working area;
- change to the utility diversion route as the bridge footprint has expanded, and this will also provide a safe working area during construction. There is reduced land available for a temporary utility diversion as a result of a multitude of factors including an additional cycle path, increased headroom of the bridge, inability to construct in plots 19 and 21 and increased replacement flood storage requirements.

The main ES assumed that the Dalehouse Lane overbridge would be constructed offline (not connected or currently in use) using a temporary road diversion and limiting road closures to overnight and weekend only. However, changes driven by alterations to highway alignment and design requirements means that the original construction methodology is no longer viable.

For vehicular traffic and cyclists, the northbound and southbound diversion route would follow official and signed routes. The diversion length of the Dalehouse Lane closure, via the signed route, is expected to be 4.32km. The southbound diversion route will be a reverse of the northbound diversion route.

Cyclists may be able to use alternatives such as Crewe Lane or Ashow Road realignment when complete.

Public right of way (PRoW) K29 is in close proximity for walkers and provides a natural alternative similar route to Dalehouse Lane. PRoW K29 travels between Knowle Hill to the south of Dalehouse Lane and Stoneleigh Road to the northeast across open fields. This natural alternative route will add on 0.62km to the current walking route which is 2.2km, equating to a 2.82km total route for pedestrians. The PRoW route is to remain open

throughout the HS2 works through the provision of a temporary diversion route around the construction area, whilst a dedicated overbridge for the footpath is built. Although PRoW K29 is a natural diversion, it is not permitted to be used as a signed diversion.

The following topics were identified as having a potential for new significant effects:

- agriculture, forestry and soils;
- air quality;
- community;
- ecology;
- health;
- socio-economics;
- sound, noise and vibration; and
- traffic and transport.

After assessing the topics above, no permanent effects and operational effects have been identified.

The proposed closure of Dalehouse Lane and associated traffic diversion results in new significant adverse effects for community; significant beneficial effects for sound, noise, and vibration; and significant adverse effects for traffic and transport. No significant effects were identified for the other topics assessed.

The following likely significant effects have been identified:

- the closure of Dalehouse Lane will impact journey times for students at Kenilworth school reliant on the bus. This will result in a new significant effect.
- there may be a new significant severance effect on cyclists due to an increase in journey time via the diversion.
- the following new significant effects have been identified for sound, noise and vibration:
  - a minor beneficial effect at Dalehouse Lane between Common Lane and Knowle Hill (SV-DHL-C01);
  - a minor to moderate beneficial effect at alehouse Lane between Lulworth Park and Best Avenue (SV-DHL-C02);
  - a major beneficial effect at Dalehouse Lane between Dalehouse and roundabout at Dalehouse Lane/Stoneleigh Road (SV-DHL-C03); and
  - a minor beneficial effect Finham Road between Dalehouse Lane and Villiers Road (SV-DHL-C04).
- there will be a major adverse effect on traffic severance on Crewe Lane during the Dalehouse Lane closure.
- there will be a moderate adverse effect on traffic severance on A429 Kenilworth Road during the Dalehouse Lane closure.
- there will be a major adverse effect on traffic delay during the Dalehouse Lane closure.

- there will be new significant effects on vehicle congestion at three junctions during the Dalehouse Lane closure:
  - the A452 Gyratory will experience a minor adverse effect;
  - the A46/A452 interchange will experience a major adverse effect; and
  - the B4115/B4113 Stoneleigh Road junction will experience a minor adverse effect.
- there will be a moderate adverse effect for public transport journey times along the diversion route during the Dalehouse Lane closure.
- there will be a moderate adverse effect for vulnerable road user journey times along the diversion route during the Dalehouse Lane closure.

In regard to mitigation, the contractor will liaise with the local authority and bus company to monitor impacts on bus services and identify any mitigation measures that can be implemented. Temporary mitigation measures that can be implemented if required during the closure period have been suggested for A452 Gyratory and A46/A452 interchange. These mitigation measures are recommendations only and have not been created to address any pre-existing congestion concerns at these locations. These mitigation measures may lessen the overall effect but do not remove any of the new significant effects identified.

1 Introduction

1.1 Background to High Speed Two

1.1.1 The hybrid Bill for High Speed Rail between London and the West Midlands ('the Bill') was submitted to Parliament together with an Environmental Statement (ES) in November 2013 ('the main ES'[1]). The Bill was amended a number of times following its submission resulting in five Additional Provisions (APs) which were each accompanied by Supplementary Environmental Statements (SESs).

1.1.2 Any new or different significant effects that were likely to result from changes to the design which did not require amendments to the Bill; changes to construction assumptions, new environmental baseline information and corrections to the main ES were reported in SESs. These were deposited alongside the APs.

1.1.3 The Bill was enacted in February 2017 to become the High Speed Rail (London-West Midlands) Act 2017 ('the HS2 Act). The HS2 Act confers the necessary powers required to construct, maintain and operate the HS2 railway from London to the West Midlands.

1.1.4 HS2 comprises the construction of a new railway approximately 230km (143 miles) in length between London and the West Midlands. Passenger services will be provided by new high speed trains, which will travel at speeds of up to 360kph (225 mph).

1.2 Introduction to this supplementary environmental information and its purpose

1.2.1 Dalehouse Lane is a single carriageway road located on the outskirts of Kenilworth in Warwickshire. The road runs parallel to the A46 Kenilworth bypass which is a strategic route providing a bypass to Kenilworth town. The primary use of Dalehouse Lane is as an access road to local residents at the eastern end of Kenilworth. The main ES was amended by various Additional Provisions (APs) and SESs which did not affect the Dalehouse Lane overbridge, therefore, in this supplementary environmental information (SEI) the main ES is referred to for the baseline of approved works and relevant assessment for this asset.

1.2.2 This SEI arises from the proposed temporary closure of an approximately 0.53km section of Dalehouse Lane commencing 0.23km south-west of the access road to Kingswood Farm.

1.2.3 This SEI describes new or different likely significant effects at Dalehouse Lane (within Community Forum Area (CFA) 18 Stoneleigh, Kenilworth and Burton Green as shown on map

[1] High Speed Two Ltd (2013), High Speed Rail (London – West Midlands), *Environmental Statement: documents*. Available online at: HS2 Phase One environmental statement: documents - GOV.UK (www.gov.uk).

reference CT-05-095 and CT-06-095 of the main ES) arising from the proposed temporary closure of the road lasting 14 months commencing from Spring/Summer 2025.

1.2.4 The closures exceed the duration of those reported in the main ES and, despite the implementation of the controls set out in the environmental minimum requirements (EMRs) and Code of Construction Practice (CoCP), there are new significant temporary effects during the construction period.

1.3 The Environmental Minimum Requirements

1.3.1 The HS2 Environmental Minimum Requirements (EMRs) set out the high-level environmental and sustainability commitments that the Government has entered into through the hybrid Bill process.

1.3.2 The EMRs consist of a suite of framework documents which: (i) define the mechanisms by which the nominated undertaker will engage with communities and other key stakeholders; and (ii) implement environmental and sustainability management measures designed to protect communities and the environment during detailed design development and construction.

The nominated undertaker is the body, appointed by the Secretary of State for Transport (SoS), responsible for delivering Phase One of HS2.

1.3.3 The nominated undertaker, taking forward the detailed design and implementation of Phase One of HS2, is required by the SoS to comply with the EMRs. The components of the EMRs are described in the EMR General Principles (CS755 02/17, February 2017).

1.3.4 The controls contained in the EMRs, along with powers contained in the HS2 Act and the Undertakings given by the Secretary of State, will ensure that impacts which have been assessed in the main ES will not be exceeded, unless any new impact or impacts in excess of those assessed in the main ES:

- result from a change in circumstances which was not likely at the time of the main ES[2]; or
- would not be likely to be environmentally significant[3]; or
- result from a change or extension to the project, where that change or extension does not itself require Environmental Impact Assessment (EIA) under either (i) Paragraph 24 of Schedule 1 to the Town and Country Planning (EIA) Regulations 2017[4]; or (ii) Section 13 of

[2] In addition, Supplementary Environmental Statements and Additional Provision Environmental Statements were published and tabled by the Promoter in July 2015, September 2015, October 2015 and December 2015.

[3] i.e. a situation that could not reasonably have been anticipated at the time of the Environmental Statement. This covers all effects (both positive and adverse) where those effects are simply of no environmental significance.

[4] Town and Country Planning (2017), *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.* Available online at: The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (legislation.gov.uk).

the table under Paragraph 1 of Schedule 2 to the Town and Country Planning (EIA) Regulations 2017; or

- would be considered as part of a separate consent process (and therefore further EIA if required).

2 Scope

2.1.1 Section 63(3) of the Act Regulations 9 (relating to subsequent applications) of the Environmental Impact Assessment Regulations. In particular Regulation 9, paragraph (1)(b)(ii) of the Environmental Impact Assessment Regulations is amended to specifically reference the Act.

2.1.2 Regulation 9(3) allows the relevant planning authority to request further environmental information (under Regulation 25) where they believe environmental information currently provided is deemed not adequate to assess the significant effects of the development on the environment.

2.1.3 In anticipation of a Schedule 25 Notice under the EIA Regs by Warwickshire County Council (WCC) this SEI has been written to provide such further environmental information to the main ES as is required.

2.1.4 Additionally, Paragraph 1.1.3 of the High Speed Rail (London – West Midlands) EMR General Principles state that:

"The controls contained within the Environmental Minimum Requirements (EMRs) [...] will ensure that impacts which have been assessed in the ES will not be exceeded, unless any new impact in excess of those assessed in the ES results from a change in circumstances which was not likely at the time of the ES..."

2.1.5 Furthermore paragraph 3.1.8 states:

"In the circumstances in the first bullet point of paragraph 1.1.3, if the significant adverse impacts identified in the ES are likely to be exceeded, the nominated undertaker will take all reasonable steps to minimise or eliminate those additional impacts. If despite these reasonable steps, significant impacts remain the nominated undertaker will report them".

2.1.6 Consequently, this document provides a report to meet the requirements of paragraph 3.1.8 of the EMR General Principles.

3 Site description and context

3.1 Overview of asset

3.1.1 Dalehouse Lane overbridge and associated aspects of HS2 are covered within the main ES. in volume 3.1 "Plans". This element of work falls within two separate work numbers:

- Work No. 2/171 (which includes Work No. 2/146); and
- Work No. 2/171A.

3.1.2 In section 2 of the CFA18[5], of the main ES, the construction works associated with the overbridge are described in paragraph 2.2.12 and in Section 12 paragraph 12.4.14.

[5] High Speed Two Ltd (2013) High Speed Rail (London West Midlands), *Environmental Statement, Volume 2, Community Forum Area report CFA18, Stoneleigh, Kenilworth and Burton Green. London: HS2 Ltd. ES 3.2.1.18.* Available online at: Vol_2_CFA18_Stoneleigh_Kenilworth_and_Burton_Green.pdf (publishing.service.gov.uk).

Figure 1: Area context map showing Dalehouse Lane overbridge (Source: SES and AP2 ES, CFA 18 Map Book, CT-05-095)

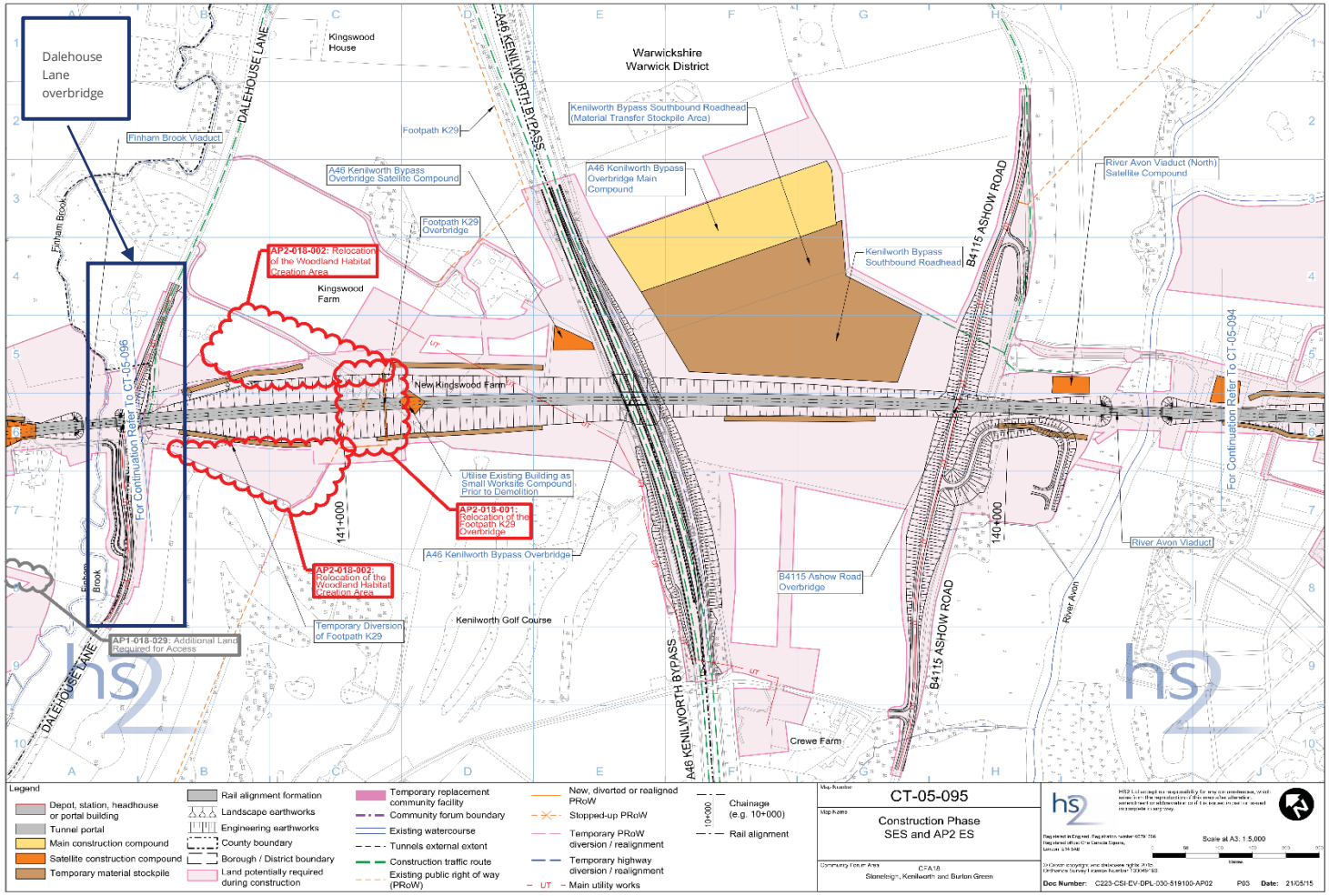
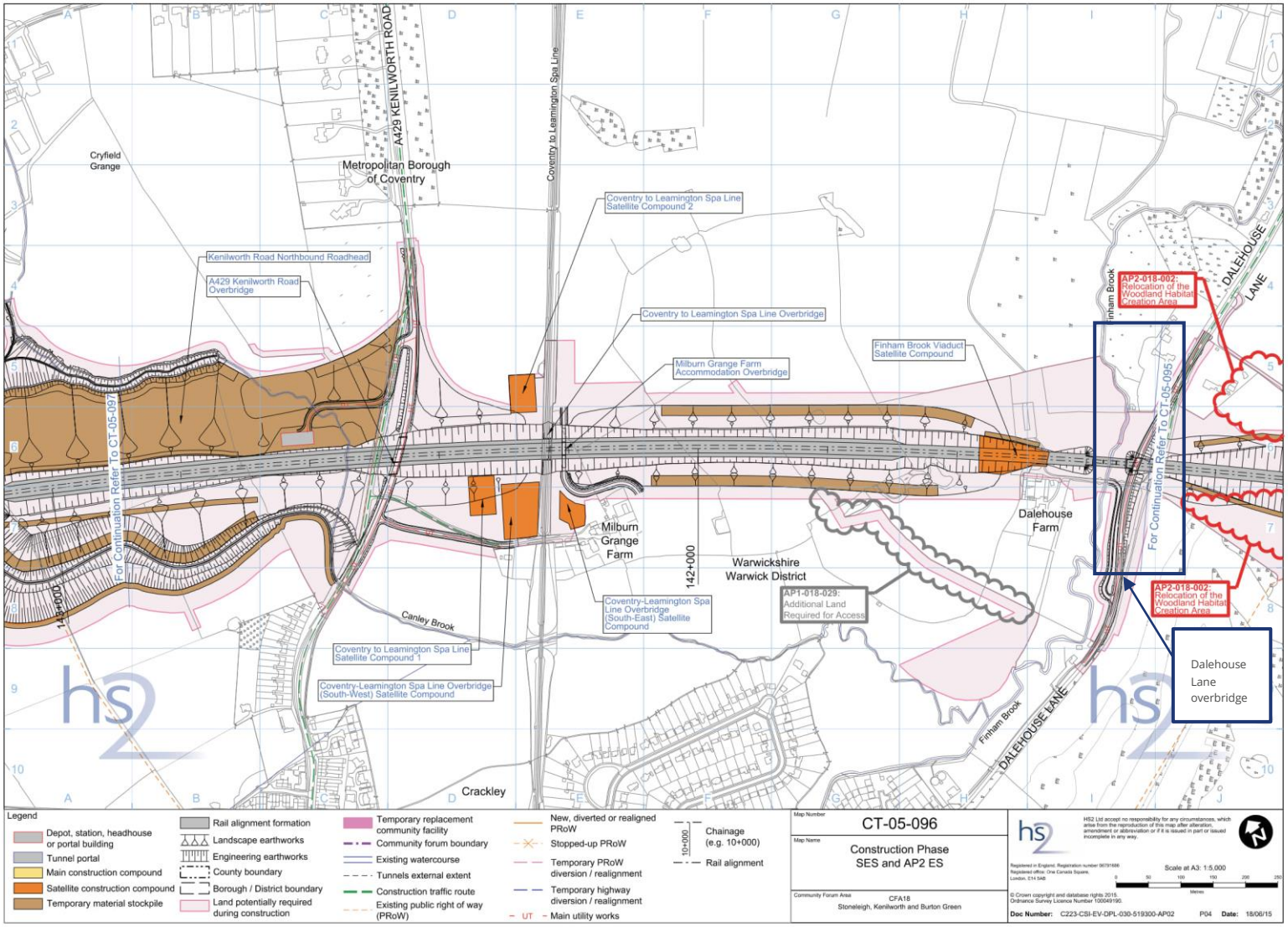


Figure 2: Area context map showing Dalehouse Lane overbridge (Source: SES and AP2 ES, CFA 18 Map Book, CT-05-096)



3.1.3 The existing single carriageway Dalehouse Lane connects the Stoneleigh Road/Dalehouse Lane roundabout and Dalehouse Lane/Common Lane junction. The road has one lane travelling in each direction and is subject to a 50mph speed limit. The nearest interchange onto the A46 Kenilworth bypass from Dalehouse Lane is Stoneleigh junction located approximately 0.97km to the north providing both northbound and southbound trips. Figure 3 shows the key junctions.

3.1.4 Dalehouse Lane is situated in a rural area to the northeast of Kenilworth. Dalehouse Lane is not suitable for pedestrian movement, with no verges or refuges available along the course of its route. However, footpath K29 runs adjacent to the road and is used for recreational purposes.

3.1.5 The four key junctions assessed in this document are:

- Stoneleigh Road/Dalehouse Lane;
- Dalehouse Lane/Common Lane;
- A429 Kenilworth Road/Common Lane; and
- A429 Kenilworth Road/Stoneleigh Road.

3.1.6 Kenilworth town centre is located approximately 2.5km southwest from the road closure. The area to the southwest and west of the road closure is characterised by residential and light industrial land uses, with the nearest residential settlement located approximately 700m southwest. Kenilworth Industrial Estate is located approximately 1km west and has various businesses. Meadow Farm is located along Dalehouse Lane and Feel Good Catering and Hygiene Supplies is accessed from Dalehouse Lane. Kenilworth Golf Club (KGC) is located immediately south of the closure. Agricultural land lies north of the proposed works and Finham Brook runs parallel to Dalehouse Lane.

3.1.7 The main ES identified 5 residential properties that would be affected by the proposed works at Dalehouse Lane. These properties are: Four Winds, the Dalehouse; and the three residential units at Dalehouse Farm.

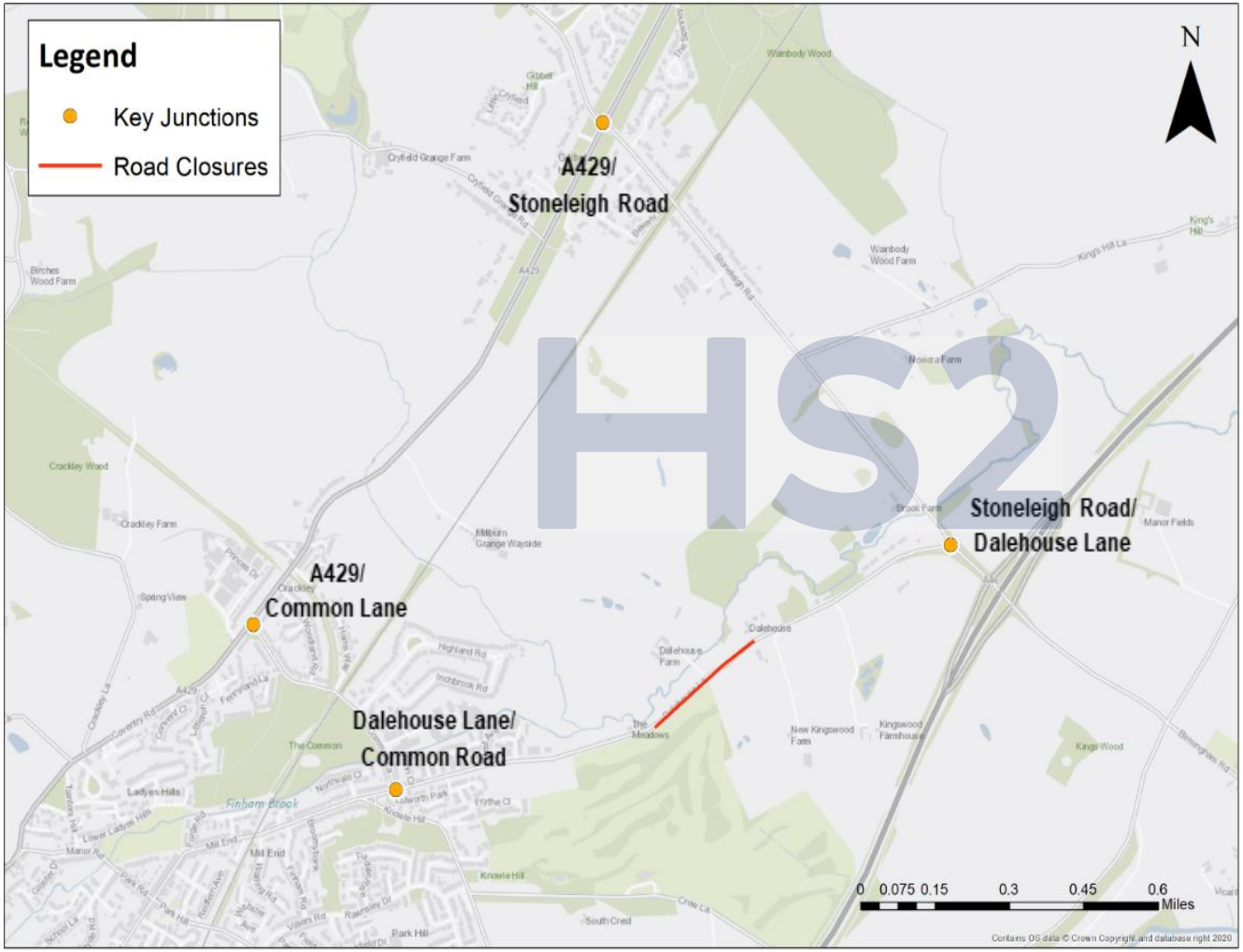
3.1.8 In comparison to the overnight and/or weekend closures on Dalehouse Lane assumed in the main ES, the proposed works requires a full temporary diversion of Dalehouse Lane for a period of 14 months.

3.1.9 The current proposed works require the temporary closure of a section of Dalehouse Lane. The location of the proposed temporary closure is shown in Figure 3 and is approximately 0.53km in length commencing 0.23km south-west of the access road to Kingswood Farm.

3.1.10 The following utilities require a diversion in advance of the construction of the Dalehouse Lane asset:

- CNO-141-005 & CNO-141-006 Severn Trent Water (STW) Polyethylene (PE) water;
- CNO-141-007 Cadent Gas PE Medium Pressure; and
- CNO-141-008 BT Openreach.

Figure 3: Location plan and junction arrangements



4 Summary of changes at Dalehouse Lane

4.1 Changes to the engineering design since the publication of the main ES

4.1.1 The main ES assumed Dalehouse Lane would be realigned approximately 20m to the north-west with a raised alignment and bridge approximately 10m above existing ground level. Strengthened earthworks and retaining walls would be used along Dalehouse Lane to minimise the footprint of the embankment where reasonably practicable within the floodplain and avoid removal of mature woodland screening along the golf course. Provision of replacement access of Dalehouse Lane for Dalehouse Farm was assumed in the main ES and planting along the new road embankments and both sides of the cutting to provide landscape integration, visual screening and habitat connectivity.

4.1.2 The works set out in the main ES assumed that only short sections of grade tie ins would be required such that closures could be completed during weekend and overnight. However, the Dalehouse Lane overbridge road alignment is online[6] for a large section of the approach embankments (east and west). It was not possible to realign Dalehouse Lane further north to achieve offline[7] construction due to the number and combination of design requirements and constraints in the land available.

4.1.3 The design changes are summarised as:

- changes to the bridge design in response to stakeholder requirements (the bridge needs to be widened in comparison to the final preliminary design (FPD) to accommodate a cycle path and raised to allow for overhead line equipment (OLE). This has increased the footprint of the bridge and the safe working area; and
- a change to the utility diversion route is required as the bridge footprint has expanded, this will also provide a safe working area during construction. There is reduced land available for a temporary utility diversion as a result of a multitude of factors including an additional cycle path, increased headroom of the bridge, inability to construct in plots 19 and 21 and increased replacement flood storage requirements.

[6] Online means connected or currently in use. The term is used in engineering in relation to railways, roads, pipelines etc.

[7] Offline means not connected or not currently in use. The term is used in engineering in relation to railways, roads, pipelines etc.

4.2 Changes to the construction methodology since the publication of the main ES

4.2.1 The main ES assumed that the Dalehouse Lane overbridge would be constructed offline using a temporary road diversion and limiting road closures to overnight and weekend only.

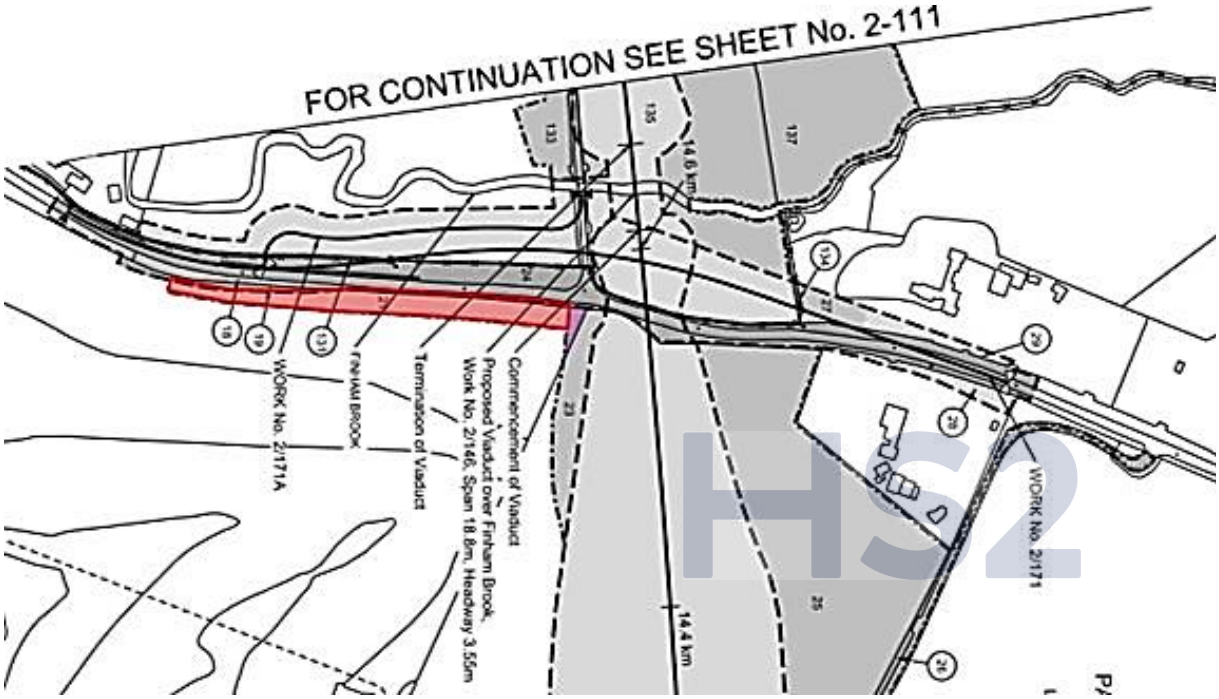
4.2.2 Changes driven by alterations to highway alignment and design requirements described in 4.1.3 mean the original construction methodology is no longer viable.

4.2.3 The key drivers for longer duration road closures compared to the main ES are shown in Table 2.

Table 2: Key Dalehouse Lane delivery drivers

Key driver	Consequence
Requirement of 3m cycle lane at request of Warwickshire County Council (WCC).	The introduction of a 3m cycle lane increased the overbridge and embankment width, therefore reducing the remaining construction footprint to facilitate a temporary diversion. This bridge has increased from 9m at FPD to 12.5m at Detailed Design.
Increased bridge clearance of 314mm at Dalehouse Lane overbridge to accommodate overhead line equipment (OLE).	The increase in height of 314mm increases the width of the construction footprint further still when combined with other factors.
Extent of replacement flood storage (RFS) required detailed analysis of the flood zone and how the design footprint would be impacted.	The requirement for a RFS southwest of Finham Brook Viaduct is referenced in the main ES, however the RFS requirements within the Dalehouse Lane asset footprint were not envisaged at the time the main ES was developed. This further reduces the viable construction working footprint.
Reduced land available for temporary utility diversions (unable to divert south).	Multiple utilities (medium pressure gas, BT and 2 no. STW mains) have to be temporarily diverted away from the existing Dalehouse Lane alignment to facilitate the construction of the new overbridge and highway realignment. The inability to temporarily divert utilities south of Dalehouse Lane has forced utilities to be diverted north of the asset which contributes to a reduction in construction working footprint (due to asset working easements).
The undertakings and assurances (U&As) in place, in particular the restrictions on the use of Plots 19 and 21 at Kenilworth Golf Club (KGC).	The objection from KGC over the use of land parcel 19 and 21 for the construction footprint meant that the overall construction footprint was significantly reduced therefore resulting in reduced footprint to facilitate a diversion that would align with the main ES construction parameters.

Figure 4: Plan highlighting (red and purple) plot no's 19 and 21 combined



4.2.4 The five drivers highlighted in Table 2, require a change to the construction methodology as it is no longer viable in the room available to construct offline as set out in the main ES.

4.2.5 The proposed works as described in Section 1.2 are the temporary closure of approximately 0.53km section of Dalehouse Lane commencing 0.23km south-west of the access road to Kingswood Farm.

4.3 Proposed closure details

4.3.1 The northbound and southbound diversion route would follow official and signed routes. The diversion length of the Dalehouse Lane closure, via the signed route, is expected to be 4.32km.

4.3.2 The southbound diversion route will be a reverse of the northbound diversion route. The route is shown in Figure 5 below.

4.3.3 The northbound route is described as follows:

- traffic travelling along Dalehouse Lane will be informed of the road closure and be routed west onto Common Lane;
- traffic will turn right onto the A429 Kenilworth Road at the A429 Kenilworth Road/Common Lane junction;
- traffic will turn right onto Stoneleigh Road at the A429 Kenilworth Road/Stoneleigh Road junction; and

- the diversion ends at the Stoneleigh Road/Dalehouse Lane junction.

4.3.4 The proposed closure of Dalehouse Lane will impact a public transport service. The route affected by this diversion is bus number 24, which travels both northbound and southbound on Dalehouse Lane between Kenilworth and Stoneleigh.

4.3.5 Pedestrian traffic will be diverted via the public right of way (PRoW) K29 (see Figure 6), which travels between Knowle Hill to the south of Dalehouse Lane and Stoneleigh Road to the northeast across open fields. This natural alternative route will add on 0.62km to the current walking route which is 2.2km. The PRoW route is to remain open throughout the HS2 works through the provision of a temporary diversion route around the construction area, whilst a dedicated overbridge for the footpath is built. Although PRoW K29 is a natural diversion, it is not permitted to be used as a signed diversion.

4.3.6 Cyclists will be diverted via the same route as vehicular traffic along Common Lane, the A429 Kenilworth Road and Stoneleigh Road as PRoW K29 is not suitable for cycle traffic. The current journey distance is 1.1km, however the journey distance for the diversion for both northbound and southbound cycle movements is expected to be 4.32km. Cyclists may also use alternatives such as Crewe Lane or Ashow Road realignment when complete.

Figure 5: Dalehouse Lane diversion route

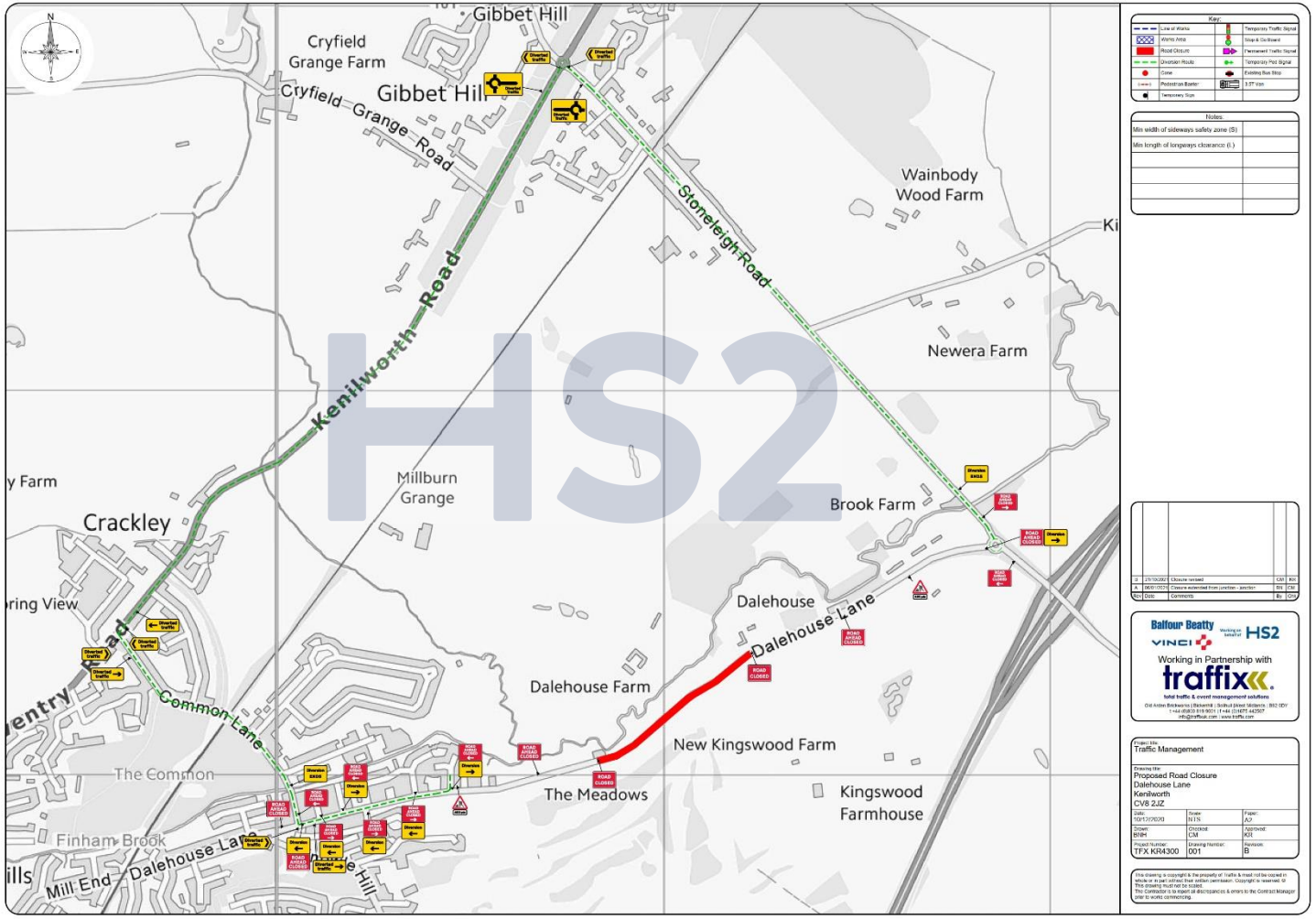
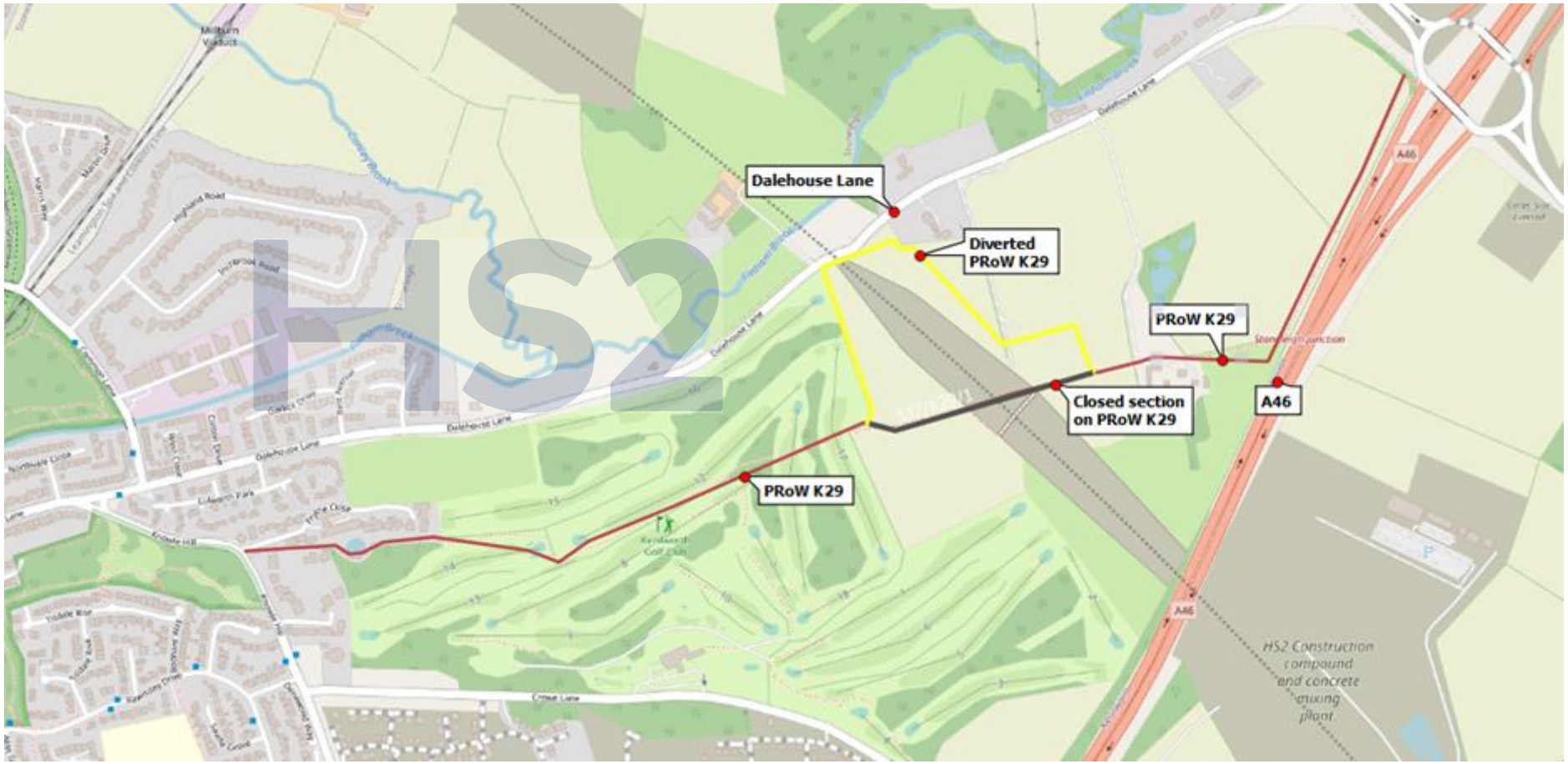


Figure 6: PRoW K29 diverted route



4.4 Alternatives considered

4.4.1 During the current process of detailed design and construction planning, the following options were considered as ways to shorten the length of time for the closure. No viable alternatives were identified. The reasons for rejection are provided below.

- changes to Dalehouse Lane highway alignment;
  - the limited land available and construction boundary, means that it is not possible to realign the highway such that a temporary diversion is possible for the full extent of the closure; and
  - access provisions to Dalehouse Farm are stated in Work No. 2/171A
    - the requirement to design a highway that maintains a 50mph road meaning that the alignment needs to maintain a defined curvature as dictated by the tie-in points. Horizontal and vertical alignment are a function of the 50mph road meaning that the design is unable to deviate significantly within the land available; and
    - minimum headroom clearance is dictated by the OLE required for operation of the railway meaning no provision to reduce vertical clearance.
- provision for a full temporary diversion;
  - a full temporary diversion was considered for the duration of the construction of Dalehouse Lane overbridge and road realignment to enable offline construction and tie ins as per the main ES (overnight and weekend closures). However, this was discounted for the following reasons:
    - HS2 unable to purchase more land (bound by U&A 633_1). It was considered that pursual of this scenario would come at significant cost and with legal challenges and no guarantee of a positive outcome;
    - limited land available to accommodate this in practical construction terms; and
    - significant construction design and management (CDM) health & safety risk – unable to build safely – risk to workforce and the public.
- temporary diversion (east);
  - a short section of temporary diversion on the east approach to follow a similar alignment to the new HS2 access track was considered. The realignment of the east approach road would however create the following difficulties:
    - construction methodology driven by construction of the vertical retaining wall which largely clashes with the existing road alignment. The vertical retaining wall will be constructed first and then the earth retained slope tied into this and brought up in progressive layers;
    - construction logistics – access to Dalehouse Lane satellite compound is from the east via Stoneleigh Road and the A46 Kenilworth bypass. Earthworks plant movements need to come in from the east to supply construction (largely due to the narrow construction footprint, topography of land and utility corridor north of

the east realignment). Keeping the road open to release this portion of works will create CDM hazards to public that do not outweigh the benefit (noting this this is not driving the closure length); and

  - difficult to produce a temporary works design that complies with the 30mph temporary traffic regulation order (TTRO) due to curvature/alignment.

- changes to embankment design; and
  - consideration was given to changing the embankment design but this was discounted because:
    - the current Earth retained embankment is already at its maximum (70 degrees) for a green slope. Vertical retaining walls are required at pinch points where close to the construction boundary, this is a last resort as its not desired from an architectural perspective; and
    - extension of vertical retaining walls would not omit the requirement for a long-term road closure. This would also put the permanent works design at risk of non-compliance with EMR and U&A's.
- departures:
  - other departures were considered as an alternative to the departure being requested for the road closure or to reduce the duration of the road closure:
    - flood risk departures;
    - highway alignment departures (over and above current departures); and
    - 120-year permanent design departure.

4.4.2 The above departures were discounted on the basis that they had a low probability of a positive outcome, would take considerable time to pursue and would have environmentally worse outcomes than the proposed road closure.

4.5 Topics potentially impacted

4.5.1 Following a review of the combined changes in circumstances detailed in the preceding paragraphs; the potential for new significant effects has been identified with the following topics and these are discussed in detail in Section 5:

- agriculture, forestry and soils;
- air quality;
- community;
- ecology;
- health;
- socio-economics;
- sound, noise and vibration; and
- traffic and transport.

4.6 Construction programme

4.6.1 The scope of this assessment is limited to the impacts arising from the Dalehouse Lane road closure and traffic diversion which were not assessed as part of the main ES, however the overall construction programme is not significantly impacted.

5 Assessment of changes at Dalehouse Lane

5.1 Temporary effects

5.1.1 The proposed changes to the assumptions in the main ES relate to the construction phase only and therefore effects will be temporary.

5.1.2 No operational effects are predicted to occur arising from the proposed changes and therefore operational effects are not considered further.

5.1.3 Construction phase impacts arising from construction of the overbridge itself (given that the construction of the overbridge itself follows relatively standard methods assessed appropriately in the main ES) are considered to be as reported in the main ES and are not assessed in further detail in this SEI.

5.1.4 The proposed changes arising from the closure of Dalehouse Lane for 14 months commencing from Spring/Summer 2025 are anticipated to give rise to the following temporary effects.

5.2 Agriculture, forestry and soils

Introduction

5.2.1 The environmental baseline relevant to the agriculture, forestry and soils assessment is described below. There are no new significant effects due to the long-term temporary closure of Dalehouse Lane.

Scope, assumptions and limitations

5.2.2 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1, of the Scope and Methodology Report[8] (SMR) and the SMR Addendum[9] of the main ES.

5.2.3 The change of relevance to this assessment is the proposed temporary closure of Dalehouse Lane, adjacent to the main ES assessed holding CFA18/10 (Dalehouse Farm) and in close proximity to land at CFA18/9 (New Kingswood Farm). The closure inhibits the use of the existing driveway to the residential property, outbuildings and land at CFA18/10, but does not prevent access to CFA18/9. The proposed local diversion route (see Figure 5), will include

[8] High Speed Two Ltd (2013), High Speed Rail (London - West Midlands) *Environmental Statement, Volume 5 Technical Appendices, Scope and Methodology Report,* CT-001-000/1. Available online at: HS2_LondonWest_Midlands_EIA_Scope_Methodology_Report_revised_0.pdf (publishing.service.gov.uk).

[9] High Speed Two Ltd (2013), High Speed Rail (London – West Midlands) *Environmental Statement, Volume 5 Technical Appendices, Scope and Methodology Report Addendum,* CT-001-000/2. Available online at: Vol5_Scope_and_methodology_report_addendum_CT-001-000.2.pdf (publishing.service.gov.uk).

re-routing traffic along Coventry Road, passing access points to land at CFA18/11 (Milburn Grange) and CFA18/12 (Cryfield Grange). Holdings CFA18/9, CFA18/11 and CFA18/12 have been included in this assessment given their proximity and direct accesses to the roads affected, and to account for potential disruptive effects on holdings in the wider area. These are the only changes of relevance to the scope of the agriculture, forestry and soils topic assessment.

Methodology

5.2.4 Please refer to Volume 1, of the SMR and the SMR Addendum for the methodology used in this assessment.

Assumptions and limitations

5.2.5 Please refer to Volume 1, of the SMR and the SMR Addendum for the assumptions and limitations for this assessment.

Environmental baseline

5.2.6 The environmental baseline for holdings in CFA18 has previously been documented in full in the main ES. As such this chapter focuses only on those elements relevant to the changes described in paragraph 5.2.3, namely the potential impacts on farm business activities, and in respect of any mitigation measures that have been put in place subsequent to the main ES.

5.2.7 The temporary and permanent effects to the affected holdings during construction are stated in full in the main ES.

5.2.8 A summary of the holding sizes and business types are shown below in Table 3.

Table 3: Summary of initial baseline of holdings

Holding reference/name	CFA18/9 New Kingswood Farm	CFA 18/10 Dalehouse Farm	CFA18/11 Milburn Grange	CFA 18/12 Cryfield Grange
Holding size and type.	36.5ha, mainly arable and some livestock.	12.5ha, commercial equestrian enterprise.	90.0ha, mixed arable and livestock enterprise (cereal and potatoes, sheep and pedigree shorthorn cattle).	105.2ha, mainly arable and some woodland.

5.2.9 Aside from what was stated for construction avoidance and mitigation measures in the main ES, there are no further specific measures required in relation to the proposed long-term temporary closure of Dalehouse Lane.

Effects arising during construction

Avoidance and mitigation measures

5.2.10 There are no further specific measures required in relation to the proposed long-term temporary closure of Dalehouse Lane.

Quantitative identification of impacts and effects

5.2.11 The effects on holdings have been assessed according to the methodology set out in SMR Addendum. The nature of impacts considered comprises the temporary and permanent land required from the holding, the temporary and permanent severance of land, the permanent loss of key farm infrastructure and the imposition of disruptive effects (particularly noise and dust) on land uses and the holding's operations.

Assessment of significant effects

5.2.12 The closure of Dalehouse Lane and associated diversion requires no additional agricultural land-take or the disturbance of soil as a resource.

5.2.13 The temporary effects are:

- there are no new significant effects to CFA18/10, and the nearby CFA18/9, CFA18/11 and CFA18/12 due to the long-term temporary closure of Dalehouse Lane. The temporary effects on holdings during construction as stated in the main ES, as amended, remains valid.

5.2.14 The permanent effects are:

- there are no new significant effects to CFA18/10, and the nearby CFA18/9, CFA18/11 and CFA18/12 due to the long-term temporary closure of Dalehouse Lane. The permanent effects on holdings from construction as stated in the main ES, as amended, remains valid.

Mitigation measures

5.2.15 Due to the high requirement for land take at Dalehouse Farm (CFA18/10), both on a temporary (61%) and permanent (58%) basis, it was stated in the main ES, that this farm business would become unviable as a commercial enterprise. As a result, the property was subsequently purchased by HS2 Limited and is to remain unoccupied for the duration of the construction project. Therefore, the impacts as stated in the main ES remain valid and that there are no new significant effects due to the extended road closure.

5.2.16 The sole impact of relevance to the remaining three holdings is the disruptive effect of potential delays in reaching field access points for holdings CFA18/11 and CFA18/12, due to the expected increase in traffic along the diversion route and to the main access of holding CFA18/9, situated outside but in close proximity (eastern side, see Figure 5), to the section of

Dalehouse Lane earmarked for temporary closure. All delays if realised, are expected to be minor and thus the impact magnitude is assessed as negligible. Based on this, other holdings in the wider area are to experience a temporary disruptive effect, however this is considered to be a negligible impact.

5.3 Air Quality

Introduction

5.3.1 The assessment scope, key assumptions and limitations for the air quality assessment are as set out in Volume 1, the SMR and SMR Addendum of the main ES. This chapter will review baseline conditions relative to the main ES.

5.3.2 This assessment scope is limited to the potential air quality impacts associated with changes to road traffic during construction as a result of the proposed temporary road closure and traffic diversion, using the Design Manual for Roads and Bridges (DMRB) screening tool in conjunction with the most up to date emission factors produced by the Department for Food and Rural Affairs (DEFRA). No assessment of dust from proposed construction activities has been considered within this assessment, as emissions to the atmosphere would be controlled and managed through implementation of the CoCP.

5.3.3 Operationally, the proposed development will remain unchanged from the main ES. As a result, the effect on local air quality from the operation of the proposed development has not changed from the main ES where it was determined as not significant and therefore has not been considered further.

Scope, assumptions and limitations

Methodology

5.3.4 Applicable numerical limit values and objectives for the proposed development are summarised in Table 4, hereafter referred to as air quality objectives.

5.3.5 It should be noted that the UK air quality objectives only apply at locations where members of the public might reasonably be exposed to pollutants for the respective averaging periods. Table 5 provides details of where the respective objectives should and should not apply and therefore the types of receptors that are relevant to the assessment.

Table 4: Relevant air quality standards

Pollutants	Averaging period	Air quality objectives and limit values		Attainment date
		Concentration	Allowance	
Nitrogen Dioxide (NO_2)	1-hour	200 µg/m^3	18 per calendar year[c]	31 December 2005[a] 1 January 2010[b]
	Annual	40 µg/m^3	-	31 December 2005[a] 1 January 2010[b]

Pollutants	Averaging period	Air quality objectives and limit values		Attainment date
		Concentration	Allowance	
Particulates (PM_{10})	24-hour	50 µg/m^3	35 per calendar year[(d)]	31 December 2004[(a)] 1 January 2005[(b)]
	Annual	40 µg/m^3	-	31 December 2004[(a)] 1 January 2005[(b)]
Particulates ($PM_{2.5}$)	Annual	25 µg/m^3	-	1st January 2015[(b)]
		20 µg/m^3	-	1st January 2020[(b)]
		10 µg/m^3	-	2040[(e)]

Notes:

(a) Air Quality (England) Regulations 2000 as amended.
(b) EU Directive 2008/50/EC on ambient air quality and cleaner air for Europe and The Air Quality Standards Regulations 2010. Derogations (time extensions) have been agreed by the EU for meeting the NO_2 limit values in some zones/agglomerations.
(c) Can be expressed as the 99.79th percentile of 1-hour means.
(d) Can be expressed as the 90.41st percentile of 24-hour means.
(e) Final Environmental Targets under the Environmental Act 2021.

Table 5: Locations where the air quality objectives apply

Averaging period	Objectives should apply at:	Objectives should not apply at:
Annual	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.
24-hour	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.
1-hour	All locations where the annual mean and 24 mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

5.3.6 The assessment has been undertaken using DMRB[10] and Environmental Protection UK (EPUK) guidance in accordance with the SMRs. The latest guidance[11] from EPUK and Institute of Air Quality Management (IAQM) released in 2017 is noted. However, for the purpose of this assessment the EPUK Guidance 2010[12] has been adopted to present comparable results with the main ES.

Assumptions and limitations

5.3.7 The air quality modelling predictions are associated with an inherent level of uncertainty, primarily a result of:

- uncertainties with traffic data;
- uncertainties with vehicle emission predictions; and
- uncertainties with background air quality maps.

5.3.8 Model uncertainty can be addressed through the process of model verification. Model verification is a two-step process. Firstly, modelled concentrations are compared with monitored concentrations to identify any disparity. Where disparity occurs, the model inputs are revisited to identify any potential errors or opportunity for improvement of the model. Where disparity remains following the first step, model results can be adjusted to account for systematic bias.

5.3.9 A requirement of model verification is air quality monitoring data in a location that is similar, in terms of road traffic and layout, to the dispersion site and where traffic data for a proposed development is available. In this instance, traffic data, for an appropriate year, was not available for this assessment. On this basis, it has not been possible to carry out a quantitative model verification with the process described above. Following review of the main ES, analysis concluded that verification of the modelling was not required and therefore not applied. For the purposes of this assessment however, NO_2 model outputs, presented below, have been increased by a factor of 1.5. Applying an adjustment of 1.5 for the proposed development is considered highly conservative based on professional judgment and experience from previous similar assessments. It is likely to result in an overprediction of pollutant concentrations. This approach is considered a robust way for this assessment to determine the likely air quality risks and serves to address uncertainties outlined above.

[10] Sustainability & Environment (2019), *Design Manual for Roads and Bridges LA 105 Revision 0.* Available online at: LA 105 – Air quality (standardsforhighways.co.uk).

[11] Environmental Protection UK and Institute of Air Quality Management (2017), *Land-Use Planning & Development Control: Planning for Air Quality*. Available online at: air-quality-planning-guidance.pdf (iaqm.co.uk).

[12] Environmental Protection UK (2010), *Development Control: Planning for Air Quality*. Available online at: http://www.iaqm.co.uk/text/guidance/epuk/aq_guidance.pdf.

Environmental baseline

Overview

5.3.10 Information on air quality has been obtained from DEFRA[13] and Warwick District Council (WDC)[14]. The most recent year of monitoring data available from WDC is for 2021. However, data from 2020 and 2021 have the potential to be impacted by effects associated with the coronavirus pandemic, such as a reduction in traffic movements resulting in reduced monitored pollutant concentrations. 2020 and 2021 data may not be representative of normal conditions and therefore data from 2019 has been used to inform this assessment.

Main ES Baseline

5.3.11 The main ES utilised one continuous monitoring site (Coventry Memorial Park) as well as four diffusion tube sites in Kenilworth (three on New Street, and one on Field Gate Lane junction).

5.3.12 Measurements of annual mean NO_2 and $PM_{2.5}$ concentrations were within the relevant air quality standard at the Coventry Memorial Park urban background continuous monitor until its decommissioning in 2014. No exceedances of the short-term standard were measured at this site for NO_2.

5.3.13 Measurements of annual mean NO_2 concentrations were above the air quality standard at the Fieldgate Lane roadside diffusion tube monitor in the 2016 and 2017. There was no exceedance of annual mean NO_2 between 2013 and 2015, and between 2018 and 2021.

5.3.14 Measurement of annual mean NO_2 concentrations were within the air quality standard at three New Street roadside/kerbside diffusion tube monitors between 2013 and 2021. However, data from 2020 and 2021 may be impacted by effects associated with the coronavirus pandemic (i.e. reduction in traffic movements resulting in reduced monitored pollutant concentrations).

Current baseline - Local authority monitoring review

5.3.15 WDC undertakes three automatic monitoring stations and 56 non-automatic monitoring sites, inclusive of two triplicate locations, within its district. There are one automatic (AURN1) and two non-automatic monitoring sites representative of the proposed works. These include W51 and the AURN 1 triplicate site of W6/W7/W8. AURN1 and W6/W7/W8 are located at Hamilton Terrace near Jephson Gardens, Royal Leamington Spa, approximately 7.4km

[13] Department for Environment Food and Rural Affairs, *Air Quality Information Resource (Air) Website.* Available online at: http://uk-air.defra.gov.uk/.

[14] Warwick District Council (2021), *Annual Status Report 2021*. Available online at: https://www.warwickdc.gov.uk/downloads/download/1066/air_quality_annual_status_report.

from the proposed works. W51 is located at St Mary's church near Jury Street, Warwick, approximately 8.5km from the proposed works.

5.3.16 Table 6 presents the locations of these monitoring sites and NO_2, PM_{10} and $PM_{2.5}$ annual mean concentrations recorded at the sites between 2017 and 2021. Monitoring data for 2020 and 2021 are presented for information only as data from 2020 and 2021 may be impacted by effects associated with the coronavirus pandemic as previously noted. The results show that annual mean NO_2, PM_{10} and $PM_{2.5}$ and 1-hour mean NO_2 concentrations at the monitoring sites were below the corresponding objectives between 2017 and 2019. However, some exceedances of 24-hour mean PM_{10} at AURN1 occurred between 2017 and 2019. Since AURN1 is located at Hamilton Terrace (an urban area) it is likely to experience higher concentrations than at the proposed worksite.

Table 6: Representative WDC monitoring results

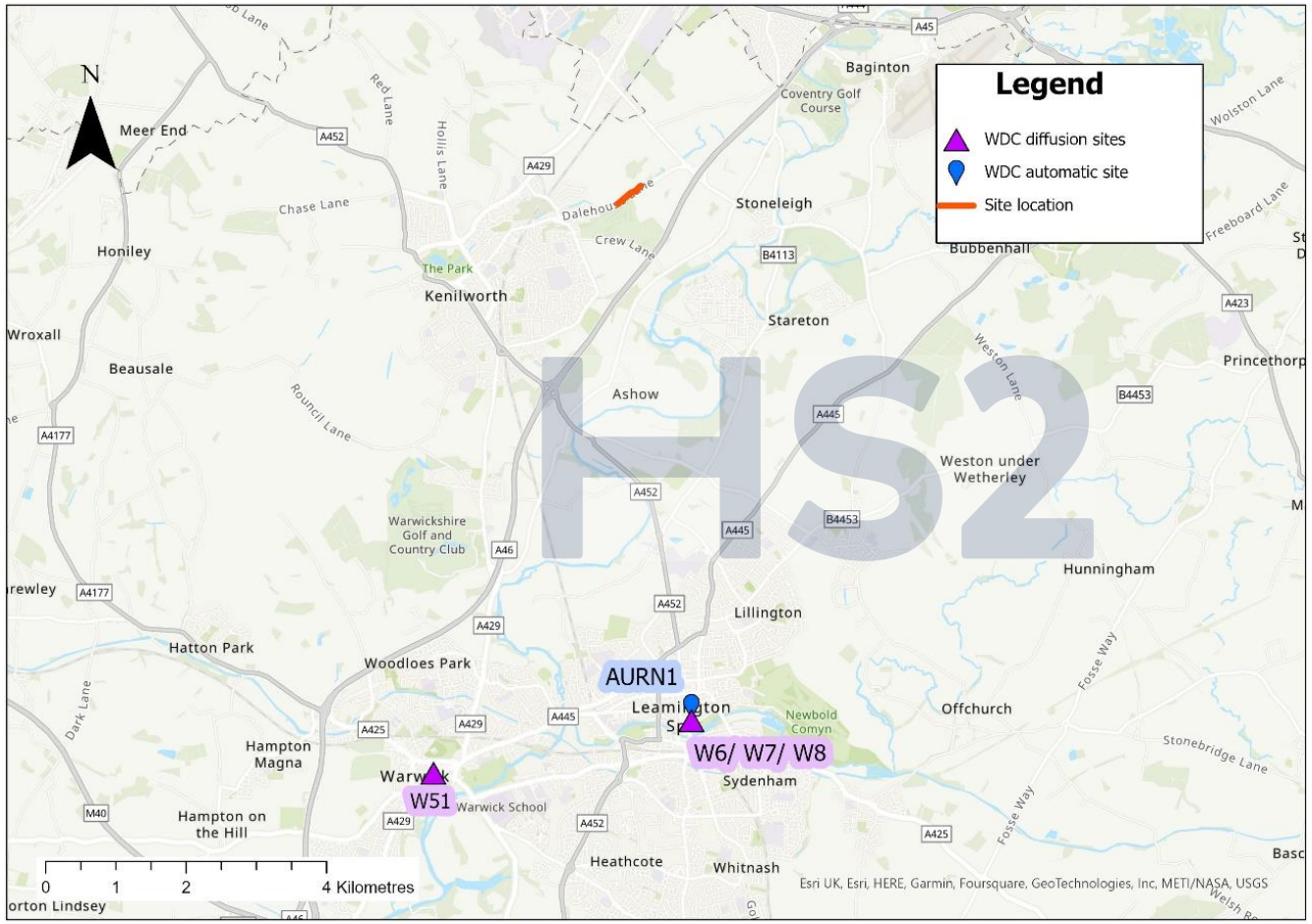
Site ID	Ordnance survey coordinates (X,Y)	Site type	Approximately distance from the proposed development	Averaging time	Pollutant	Concentration (µg/m³) (Data capture in bracket in %) [No. of exceedances of AQO]				
						2017	2018	2019	2020*	2021*
AURN1	431943, 265730	UB	7.4km south	Annual	NO_2	23.5 (98.5)	17.5 (98.5)	17.8 (96.4)	12.8 (84.2)	15 (94.2)
				1-hour	NO_2	[0]	[0]	[0]	[0]	[0]
				Annual	PM_{10}	13.9 (96.7)	14 (94.9)	13.4 (94.2)	11.0 (85)	11.2 (97.7)
				24-hour	PM_{10}	[2]	[1]	[3]	[0]	[0]
				Annual	$PM_{2.5}$	10.7 (95.5)	9.8 (95.5)	9.2 (92.2)	6.5 (85)	7.4 (97.7)
W6/W7/ W8	431943, 265730	UB	7.4km south	Annual	NO_2	22.9 (100)	17.6 (100)	17.0 (100)	14.1 (100)	13.1 (100)
W51	428270, 264982	UB	8.5km southwest	Annual	NO_2	21.4 (91.7)	16.2 (100)	15.6 (100)	11.7 (100)	11.4 (100)

Source: Warwick District Council Air Quality Annual Status Report 2022.

Note:

UB indicates that the site is classified as urban background.
Annual Air Quality Objective (AQO) of NO_2, PM_{10} and $PM_{2.5}$ are 40µg/m³, 40µg/m³ and 20µg/m³ respectively. 24-hour AQO of PM_{10} is 50µg/m³. 1-hour AQO of NO_2 is 200µg/m³.
** 2020 and 2021 data presented for information only as the data have the potential to be impacted by effects associated with national lockdowns, such as a reduction in traffic movements resulting in reduced monitored pollutant concentrations.*
Data capture of NO_2, PM_{10}, and $PM_{2.5}$ at these monitoring sites are above 84% between 2017 and 2020.
1-hour mean of NO_2 at AURN1 are below relevant AQO between 2017 and 2021.
Some exceedances of 24-hour mean of PM_{10} at AURN1 to relevant AQO are between 2017 and 2019. No exceedance of 24-hour mean of PM_{10} is in 2020 and 2021.

Figure 7: WDC Local authority monitoring sites



DEFRA projected background concentration

5.3.17 DEFRA provides estimates of background pollution concentrations for NO_X, NO_2, PM_{10} and $PM_{2.5}$ across the UK for each one-kilometre grid square for every year from 2018 to 2030. The maps include a breakdown of future background concentrations by emission source, including road and industrial sources, which have been calibrated against 2018 UK monitoring data.

5.3.18 The background concentrations for the one-kilometre grid square containing the proposed development in the current year 2023 are presented in Table 7. The data shows that the maximum background concentrations are all within the relevant objectives.

Table 7: Projected background concentrations (µg/m³) of pollutants (maximum concentrations across proposed development)

Ordnance survey coordinates (X,Y)	Year 2023			
	NOx	NO_2	PM_{10}	$PM_{2.5}$
431500, 273500	15.0	11.4	14.2	8.8

Summary

5.3.19 Monitoring demonstrates that annual mean NO_2, PM_{10} and $PM_{2.5}$ as well as one-hour mean NO_2 concentrations were below the corresponding air quality objectives between 2017 and 2019. However, some exceedances of 24-hour mean PM_{10} occurred at AURN1 between 2017 and 2019 (this monitoring location is within an urban area which is likely to experience higher background concentrations compared with the proposed Dalehouse Lane Overbridge location).

5.3.20 DEFRA's TG22[15] indicates that the hourly NO_2 air quality objective of 200µg/m³ (not to be exceeded more than 18 times per year) is unlikely to be exceeded at roadside locations where the annual mean concentration is less than 60µg/m³. The EPUK/IAQM guidance (2017) states that daily mean PM_{10} is unlikely to be exceeded where the annual mean PM_{10} concentrations are below 32µg/m³.

5.3.21 Predictions completed in accordance with DEFRA guidance indicate that background concentrations at the proposed development site do not exceed the relevant air quality objectives.

5.3.22 Overall, at receptors affected by the proposed works, air quality is considered to meet the relevant air quality objectives.

[15] Department for Environment Food & Rural Affairs (2022), *Local Air Quality Management Technical Guidance (TG22).* Available online at: UK Regions (exc. London) Technical Guidance | LAQM (defra.gov.uk).

Effects arising during construction

Quantitative identification of impacts and effects

5.3.23 The proposed development would close Dalehouse Lane, northeast of Kenilworth, to through traffic for a period of 14 months. The closure would redistribute local traffic around Kenilworth areas. Sensitive human health receptors adjacent to the A429 Kenilworth Road, Crewe Lane, and A452 Leamington Road are likely to see the largest increase in annual average daily traffic (AADT) movement during the 14-month closure. AADT movements along Dalehouse Lane would be expected to substantially reduce and only be subject to minor local traffic movements for access.

5.3.24 The DMRB Screening Tool has been used to assess the impacts associated with the predicted changes in traffic movements associated with the proposed development during construction in accordance with DMRB LA 105 screening criteria, Local Air Quality Management – Technical Guidance 2016, with assessment of significance carried out in accordance with the EPUK guidance, 2010.

5.3.25 The main ES assessed eight sensitive human health receptors within 200m of road links which met the DMRB criteria for assessment, with all eight receptors reported not to be significant. There were no nationally or European significant designated ecological receptors within the Stoneleigh, Kenilworth and Burton Green area.

5.3.26 A total of ten sensitive human health receptors, including one receptor from the main ES, were assessed as they are adjacent to affected road networks within the Kenilworth areas. There are no nationally or European designated sites for ecological reasons within 200m of the affected road network (ARN) of the proposed development. The predicted NO_2, PM_{10} and $PM_{2.5}$ concentrations are presented in Table 8 to Table 10.

Table 8: Projected impacts on NO_2 concentrations at the nearby human health receptors during construction

Receptor Location and ID	Ordnance survey coordinates (X, Y)	Annual mean NO_2 concentration (µg/m^3) with background concentration			Impact descriptor	Significance
		Without proposed development	With proposed development	Change in concentration		
R1	431575, 273503	14.9	11.5	-3.4	Negligible	Not significant
R2	431632, 273045	16.3	16.3	<0.1	Negligible	Not significant
R3	429610, 273364	17.8	18.5	0.7	Negligible	Not significant
R4	429989, 272868	17.1	14.5	-2.6	Negligible	Not significant
R5	431518, 272149	16.6	19.4	2.8	Negligible	Not significant

Receptor Location and ID	Ordnance survey coordinates (X, Y)	Annual mean NO_2 concentration (µg/m³) with background concentration			Impact descriptor	Significance
		Without proposed development	With proposed development	Change in concentration		
R6	429343, 270960	20.0	20.9	0.9	Negligible	Not significant
R7	429773, 270492	21.5	22.2	0.7	Negligible	Not significant
R8	429292, 268842	17.7	17.8	0.1	Negligible	Not significant
R9	431672, 268625	31.1	31.8	0.7	Negligible	Not significant
R10	428201, 266837	27.6	27.7	0.1	Negligible	Not significant

Note: Adjustment factor (1.5) has been applied to the predicted model road traffic outputs. Details refer to Section 5.3.7 to 5.3.9.

Table 9: Projected impacts on PM_{10} concentrations at the nearby human health receptors during construction

Receptor Location and ID	Ordnance survey coordinates (X, Y)	Annual mean PM_{10} concentration (µg/m³) with background concentration			Impact descriptor	Significance
		Without proposed development	With proposed development	Change in concentration		
R1	431575, 273503	14.9	14.3	-0.6	Negligible	Not significant
R2	431632, 273045	15.3	15.3	<0.1	Negligible	Not significant
R3	429610, 273364	13.7	13.9	0.2	Negligible	Not significant
R4	429989, 272868	13.5	13.2	-0.3	Negligible	Not significant
R5	431518, 272149	15.2	15.7	0.5	Negligible	Not significant
R6	429343, 270960	14.8	14.9	0.1	Negligible	Not significant
R7	429773, 270492	15.2	15.3	0.1	Negligible	Not significant
R8	429292, 268842	14.5	14.6	0.1	Negligible	Not significant
R9	431672, 268625	16.5	16.6	0.1	Negligible	Not significant
R10	428201, 266837	16.5	16.6	0.1	Negligible	Not significant

Note: Adjustment factor (1.5) has been applied to the predicted model road traffic outputs. Details refer to Section 5.3.7 to 5.3.9.

Table 10: Projected impacts on $PM_{2.5}$ concentrations at the nearby human health receptors during construction

Receptor Location and ID	Ordnance survey coordinates (X, Y)	Annual mean $PM_{2.5}$ concentration (µg/m³) with background concentration			Impact descriptor	Significance
		Without proposed development	With proposed development	Change in concentration		
R1	431575, 273503	9.2	8.8	-0.4	Negligible	Not significant
R2	431632, 273045	9.5	9.5	<0.1	Negligible	Not significant
R3	429610, 273364	8.9	9.0	0.1	Negligible	Not significant
R4	429989, 272868	9.0	8.8	-0.2	Negligible	Not significant
R5	431518, 272149	9.5	9.8	0.3	Negligible	Not significant
R6	429343, 270960	9.5	9.6	0.1	Negligible	Not significant
R7	429773, 270492	9.7	9.8	0.1	Negligible	Not significant
R8	429292, 268842	9.3	9.3	<0.1	Negligible	Not significant
R9	431672, 268625	10.3	10.3	<0.1	Negligible	Not significant
R10	428201, 266837	10.6	10.7	0.1	Negligible	Not significant

Note: Adjustment factor (1.5) has been applied to the predicted model road traffic outputs. Details refer to Section 5.3.7 to 5.3.9.

5.3.27 NO_2, PM_{10} and $PM_{2.5}$ annual mean concentrations are predicted to be within the air quality standards (40µg/m³). As the annual mean NO_2 concentrations are predicted to be below 60µg/m³, the hourly mean standard is also expected to be met. Similarly, since the annual mean PM_{10} concentrations are predicted to be below 32µg/m³, the daily mean standard is also expected to be met as indicated by EPUK/IAQM guidance (2017).

5.3.28 Negligible impacts are predicted at all remaining human receptors for annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations.

Assessment of significant effects

5.3.29 No significant air quality effects are anticipated at any receptor in relation to NO_2, PM_{10} and $PM_{2.5}$ concentrations as a result of the proposed development.

Summary of likely impacts and significant effects

5.3.30 Impacts for annual mean NO_2, PM_{10} and $PM_{2.5}$ are considered to be negligible for the proposed development. Impacts for PM_{10} and $PM_{2.5}$ concentrations are considered to be negligible for the proposed development.

5.3.31 In line with the findings of the main ES, no new significant air quality effects are anticipated at any receptor in relation to NO_2, PM_{10} and $PM_{2.5}$ concentrations as a result of the proposed development.

5.4 Community

Introduction

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

Scope, assumptions and limitations

5.4.2 The assessment scope and methodology for this section of the report is consistent with the method set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

Methodology

5.4.3 The relevant CFA report (CFA 18, Stoneleigh, Kenilworth and Burton Green) for this area was reviewed to determine where significant effects were previously identified. The proposed temporary closure of a section of Dalehouse Lane was compared against the relevant aspects of the Phase One scheme to determine whether there would be new or different significant adverse effects on local communities.

5.4.4 Potential impacts relevant to the community assessment fall broadly within the following categories:

- demolition/construction, direct loss of land and impacts on property;
- intrusion/disturbance to communities and community resources caused by other environmental impacts; and
- physical and perceived isolation of community resources and communities as a result of construction activities and the route of the proposed works.

5.4.5 The study area for this assessment is based on professional judgement and guidance from Section 7.5 of the SMR and takes into account community receptors in proximity to the road closure and along the diversion route.

5.4.6 The study area includes receptors or resources that could be affected by a combination of significant residual effects, such as noise, vibration, construction dust, poor air quality and visual intrusion. In addition, the study area considers the proposed diversion of traffic and takes account of catchment areas for community facilities which could be affected. Overall, the study area is taken as the area of land which encompasses the likely significant effects of the proposed works.

Assumptions and limitations

5.4.7 The assessment scope, key assumptions and limitations for the community assessment are set out in Volume 1, the SMR (see Volume 5: Appendix CT-001-000/1) and the SMR Addendum (see Volume 5: Appendix CT-001-000/2). This report follows the standard assessment methodology.

5.4.8 The assessment scope and methodology for this section of the report is consistent with the method set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES .

Environmental baseline

5.4.9 The study area is a mix of residential and light industrial land uses with the nearest settlement in Kenilworth located less than 500m west of the site.

5.4.10 Some of the residential properties and businesses on the edge of Kenilworth lie within 500m of the proposed road closure and are within or close to the land required for the construction and operation of the proposed works. Residential properties are located within the study area adjacent to Feel Good Catering and Hygiene Supplies Ltd at The Dalehouse on Dalehouse Lane. Residential properties are also located to the southwest of the proposed road closure on the edge of Kenilworth.

5.4.11 KGC is located immediately to the southwest of the proposed road closure and falls partly within the land required for the construction of the proposed works. The shared route of the Coventry Way and Centenary Way (Footpath K29) long distance path passes through KGC and will be crossed by the proposed works.

5.4.12 The centre of Kenilworth is about 1.7km away at its closest point. There are numerous public open spaces on the edge of the town including Kenilworth Common and Knowle Hill Nature Reserve. There are also several schools on the edge of Kenilworth including Crackley Hall School and Park Hill Junior School.

Effects arising during construction

Avoidance and mitigation measures

5.4.13 The CoCP includes a range of provisions that will help mitigate community effects associated with construction within this area (see Volume 5: Appendix CT-003-000).

5.4.14 The re-routing of road traffic due to the proposed temporary closure of a section of Dalehouse Lane has considered alternative options and determined that the proposed route is the best option.

Assessment of significant effects

5.4.15 There is not expected to be any additional land take as a result of the temporary road closure. There are also not expected to be any significant in-combination effects arising from a combination of air quality, sound, noise and vibration, traffic and transport and visual effects.

5.4.16 The main ES identified 5 residential properties that would be affected by the proposed works at Dalehouse Lane. These properties are: Four Winds, the Dalehouse; and the three residential units at Dalehouse Farm. In comparison to the overnight and/or weekend closures on Dalehouse Lane stated in the main ES, the proposed works requires a full temporary diversion of Dalehouse Lane for the period of 14 months. Access will be maintained to these properties for the duration of the 14-month closure.

5.4.17 Due to the 0.53km closure of Dalehouse Lane, the total diversion route is 4.32km taking 7 minutes for motorised users. There are community resources located on the edge of Kenilworth to the southwest of the road closure, however since motor vehicles can use the diversion, no significant motorised user severance effects are expected.

5.4.18 Dalehouse Lane is a school bus route for the Kenilworth School population. The closure of Dalehouse Lane will impact journey times for students at the school reliant on the bus. This will result in a significant effect for some students at Kenilworth School. The contractor will liaise with the local authority and bus company to identify any mitigation measures that can be implemented.

5.4.19 PRoW K29 is in close proximity for walkers and provides a natural alternative similar route to Dalehouse Lane. PRoW K29 travels between Knowle Hill to the south of Dalehouse Lane and Stoneleigh Road to the northeast across open fields. This natural alternative route will add on 0.62km to the current walking route which is 2.2km, equating to a 2.82km total route for pedestrians. The journey time along Dalehouse Lane for pedestrians is currently 28 minutes and will increase to 35 minutes as part of the diversion, thus equating to a 7 minute journey time increase. Nearby community facilities are anticipated to be predominantly accessed by those living in Kenilworth and access will remain in place for affected residential properties adjacent to The Dalehouse. For the reasons stated above, the pedestrian diversion route is not anticipated to result in a significant effect.

5.4.20 Cyclists will be diverted via the same route as vehicular traffic or use alternatives such as Crewe Lane as PRoW K29 is not suitable for cycle traffic. The existing journey distance between Common Lane and the road closure is approximately 1.1km, therefore, an increase of journey distances (by approximately 3.21km) is expected for both northbound and southbound cycle movements. Based on a cyclist's average speed of 10kmph, this would result in a journey time of 20 minutes. The existing journey time is approximately 5 minutes,

therefore, an increase of journey times (by approximately 15 minutes) is expected for both northbound and southbound cycle movements. The diversion will quadruple the journey time for cyclists, this may result in a significant severance effect for cyclists who currently use Dalehouse Lane to access community resources.

5.4.21 It should be noted that Ashow Road realignment which includes cycle facilities may be complete when Dalehouse Lane is closed and may provide an additional alternative cycle route.

5.4.22 There are currently approximately five cyclists per day and three or less pedestrians per day travelling through the current road closure.

5.4.23 The proposed closure of Dalehouse Lane will impact one bus service. The route affected by this diversion is bus number 24, which travels both northbound and southbound on Dalehouse Lane between Kenilworth and Stoneleigh. All bus stops will still be served by this bus route. Community facilities within Kenilworth will still be accessible from Stoneleigh via the bus service when the diversion is in place. Although there will be some delay experienced by passengers (including school children and employees of/visitors to the showground), this is not anticipated to result in a significant effect for severance.

Mitigation measures

5.4.24 Mitigation measures set out in the main ES will be applied. No additional mitigation measures have been identified.

5.5 Ecology

Introduction

5.5.1 Ecology has been scoped into this assessment due to the potential for significant effects on ecological receptors arising from diverted traffic following the temporary closure of Dalehouse Lane. As described in Section 4, this is expected to take place for a period of approximately 14 months, starting in Spring/Summer 2025.

5.5.2 The potential effects identified were from air quality impacts on habitats, and mortality and disturbance impacts on bats. Effects on designated sites for nature conservation that support habitats and bats as citation features were also assessed.

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

Scope, assumptions and limitations

5.5.4 The assessment scope, key assumptions and limitations for ecology are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES (as amended).

5.5.5 The scope of this assessment is to identify whether significant effects are likely on habitats, due to air quality changes, and bats due to mortality and disturbance. These are both due to increase traffic on the diversion route. Also assessed is whether significant effects on designated sites is likely that support habitat and bats.

5.5.6 To fulfil the scope, the assessment involved compiling data on designated sites and bats within an appropriate zone of influence for impacts to identify sensitive receptors. This was then compared against data from other relevant disciplines (e.g. air quality).

5.5.7 No other ecological receptors or pathways to significant effects have been identified and none are discussed further.

Methodology

5.5.8 The assessment is to be guided by the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for Ecological Impact Assessment (EcIA)[16].

5.5.9 The first stage of the assessment was to identify the sensitive receptors. These comprised habitats within designated sites that could be affected by air quality impacts, and bat roosts that could be affected by mortality and disturbance impacts. The diversion results in additional traffic on an existing road, the zone of influence of these impacts was considered to be up to a maximum of 500m from source.

5.5.10 The criteria for an ecological receptor to be classed as sensitive and scoped into this assessment used the CIEEM EcIA approach to determining important ecological features. For bats, this was expanded to considered species rarity and roost importance in the context of local populations.

5.5.11 For air quality effects, the 500m search radius is considered appropriate as it is in exceedance of a commonly applied 200m maximum described by Natural England with respect to European sites[17]. The 500m search area is considered appropriate as a maximum distance at which impact on bats from the road diversion would be measurable. This is based on professional judgement.

5.5.12 Data was obtained from:

- Warwickshire Biological Record Centre (WBRC);

[16] Chartered Institute of Ecology and Environmental Management (2018), *Guidelines for Ecological Impact Assessment.* Available online at: Guidelines for Ecological Impact Assessment (EcIA) | CIEEM

[17] Natural England, (2018), Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations, Version 2018.

- baseline survey data from the Phase One HS2 surveys for 2012 to 2021 have also been considered;
- DEFRA's MAGIC website; and
- information available from the Joint Nature Conservation Committee (JNCC) website.

5.5.13 Only records less than ten years old were considered valid and relevant.

5.5.14 The impact pathways were assessed using data from the Air Quality Section 5.3, Sound, Noise and Vibration Section 5.8, and the Traffic and Transport Section 5.9.

Assumptions and limitations

5.5.15 No surveys have been undertaken as part of this assessment. The results of this assessment are based on biological records and the HS2 Phase One baseline survey data only.

5.5.16 The biological records presented in the desk study do not represent a full and complete species list for the area. All records are a snap-shot in time only and only from areas surveyed. The absence of records is therefore not evidence that a species is necessarily absent.

5.5.17 The volume of data on bats available at the time of the assessment is considered sufficient for the outcome to be robust. In this regard, the limitations of not having survey data is not considered to be significant.

Environmental baseline

Designated sites

5.5.18 There are three statutory designated sites within 500m of the diversion route. These comprise:

- Kenilworth Common Local Nature Reserve (LNR);
- Wainbody Wood and Stivichall Common, Kenilworth Road Spinney LNR; and
- Knowle Hill LNR.

5.5.19 There are no Species Areas of Conservation (SAC) designated for bats within 500m of the diversion route.

5.5.20 There is one non-statutory designated site within the diversion route, Kenilworth Greenway Local Wildlife Site (LWS). The boundary of the LWS falls within a section of Kenilworth Road and a section of Common Lane which are part of the diversion route. An additional three non-statutory designated sites fall immediately adjacent to the diversion route.

5.5.21 Details of the designated sites identified are provided in Appendix A. These sites are predominantly designated for the woodland habitats they support. None specifically include bats as a reason for designation.

Bat Records

5.5.22 Details of all bat records are provided in Appendix A.

HS2 Phase One baseline records

5.5.23 There have been seven roosts recorded within 500m of the diversion route as part of the HS2 Phase One baseline surveys from 2012 to 2021:

- the closest record is of an unknown roost located 0.03km from the diversion route;
- the closest confirmed maternity roost is a common pipistrelle *Pipistrellus pipistrellus* maternity roost located 0.38km southeast from the diversion route; and
- the closest confirmed hibernation roost is of an unconfirmed species located 0.35km southeast of the diversion route.

Biological record search

5.5.24 There have been seven roosts recorded within 500m of the diversion route as part of the biological record search. No maternity or hibernation roosts were returned. The closest roost was a Leisler's bat *Nyctalus leisleri* of an unknown roost type located 0.09km from the diversion route.

Effects arising during construction

Avoidance and mitigation measures

5.5.25 The re-routing of road traffic due to the proposed temporary closure has considered alternative options and determined that the proposed route is the best option.

Assessment of significant effects

Statutory and non-statutory designated sites

5.5.26 The woodland habitats within the designated sites are considered to have the potential to be sensitive to air quality changes associated with the increased traffic movements on the diversion route. However, as described in paragraph 5.3.30 the changes to annual mean and concentrations of NO_2, PM_{10} and $PM_{2.5}$ have been calculated to be negligible. As a result, no significant air quality effects are anticipated on any habitats within any designated site in relation to the proposed development.

5.5.27 Bats are not mentioned as being citation features for any designated sites scoped into the assessment and no significant effects on bats have been identified.

Bats

5.5.28 The background data search did not identify any roosts of rarer species or important roosts sufficiently close to the traffic diversion route to be within the zone of influence of the noise and vibration impacts identified in Section 5.8. This Is described as being 50m from affected roads, see paragraph 5.8.7.

5.5.29 There is also no evidence that there are rarer species or important assemblages of bats commuting and foraging in the area over and adjacent to the diversion route. If present, these could be affected by mortality impacts from the increased traffic movements identified in Section 5.9.

5.5.30 Based on the data available, there is no evidence that bats should be considered to represent an important receptor in the context of this assessment.

5.5.31 With regard to noise and vibration, paragraph 5.8.20 also concludes that no beneficial or adverse effects for non-residential receptors are predicted. Whilst there are increases in traffic predicted (see Table 13 in Section 5.9), these will affect existing roads where the assemblage of bats present would already be habituated to vehicle movements.

5.5.32 In combination, bats do not form an important ecological receptor with the potential to be affected by the road diversion and are not likely to be affected by the impacts predicted. In this regard, no significant effects on bats are likely.

Summary

5.5.33 The effect arising from increased traffic on the road diversion presented in other chapters are not considered likely to result in any significant effects on any ecological receptors.

Mitigation measures

5.5.34 No additional mitigation measures have been identified.

5.6 Health

Introduction

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

Methodology

5.6.2 The health assessment is based on a review of evidence linking changes in health determinants to potential health outcomes. The strength of evidence varies; for example, the evidence linking physical activity to health outcomes is strong, whereas the evidence linking social capital with health outcomes is moderate. The strength of evidence does not

necessarily determine the importance of a health effect but is an indication of the level of certainty in the assessment. Additionally, there is greater certainty in the prediction of an impact on a health determinant than the consequent effect on health.

5.6.3 In the absence of a specific EIA SMR on health accompanying the main ES, the scope, methodology, assumptions, and limitations for this health assessment were drawn from the SMR for HS2 Phase 2b ("the Phase 2b SMR")[18].

5.6.4 The Phase 2b SMR sets out a methodology for describing the impacts on health determinants in terms of the magnitude and duration of the change and the extent of the population exposed to this change. It also draws attention to the strength of evidence that links a change in health determinant with health effects. This framework permits the assessment to describe the impacts on determinants in a largely qualitative manner, with some structure to the relative scale of these impacts to give a sense of the importance of the potential health effects. This does not, however, provide a clear basis for drawing conclusions as to whether a health effect is likely to be 'significant'.

5.6.5 The study area for this assessment is based on professional judgement and guidance from the SMR and takes into account community receptors in proximity to the road closure and along the diversion route.

Assumptions and limitations

5.6.6 The health effects of the Phase One scheme were reported in a route-wide Health Impact Assessment (HIA)[19] as there was no requirement for health impacts to be included within the main ES at the time. Therefore, the HIA does not provide a directly comparable baseline for this SEI to be assessed against. Since then, the Town and Country Planning (EIA) Regulations 2017 set out a requirement for consideration of health impacts within EIA as a specific topic chapter.

5.6.7 This assessment considers the impacts of the proposed road closure and diversion on a range of environmental and socio-economic 'health determinants', which could result in adverse or beneficial effects on health and wellbeing. Based on this, a professional judgement was made to identify those effects on population health and wellbeing that were sufficiently important to report within the health assessment sections found in this report.

5.6.8 The health determinants of relevance within the study area are neighbourhood quality; access to services, health, and social care; education; access to green space, recreation and physical activity and social capital.

[18] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Equality Impact Assessment, Scope and Methodology Report.* Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1049562/M351.pdf.

[19] High Speed Two (2013), High Speed Rail (London – West Midlands), *Health impact assessment for Phase One (London – West Midlands).* Available online at: Health_impact_assessment.pdf (publishing.service.gov.uk).

Environmental baseline

5.6.9 The study area is a mix of residential and light industrial land uses with the nearest settlement in Kenilworth located less than 500m west of the road closure.

5.6.10 Some of the residential properties and businesses on the edge of Kenilworth lie within 500m of the proposed road closure and within or close to the land required for the construction and operation of the proposed works. Residential properties are located to the southwest of the proposed road closure on the edge of Kenilworth. Residential properties are also located adjacent to Feel Good Catering and Hygiene Supplies Ltd at The Dalehouse, Dalehouse Lane, Kenilworth CV8 2JZ.

5.6.11 The KGC is immediately to the southwest of the proposed road closure and falls partly within the land required for the construction of the proposed works. The shared route of the Coventry Way and Centenary Way (Footpath K29) long distance path passes through KGC and will be crossed by the proposed works.

5.6.12 The centre of Kenilworth is about 1.7km away at its closest point. Kenilworth is a moderate sized town with a wide range of services and healthcare facilities serving the local areas to the south of Coventry. Nearby Stoneleigh and Burton Green have no shops or post offices. Most villages in this area rely primarily on Kenilworth for accessing services.

5.6.13 There are numerous public open spaces on the edge of the town including Kenilworth Common and Knowle Hill Nature Reserve. There are also several schools on the edge of Kenilworth nearest to the proposed works and proposed road closure including Crackley Hall School and Park Hill Junior School.

5.6.14 The 2013 HIA reported that changes to employment status and income associated with the revised scheme have the potential to influence the health of the local communities. This was assessed at a route wide level.

5.6.15 In relation to the local environment (encompassing changes to landscape character, access to open space and fear of crime) no specific health effects were expected to arise in the vicinity of the proposed road closure.

5.6.16 The 2013 HIA also reported no likely health effects in relation to air quality.

Effects arising during construction

Avoidance and mitigation measures

5.6.17 The CoCP includes a range of provisions that will help mitigate health effects associated with construction within this area (see Volume 5: Appendix CT-003-000).

5.6.18 The re-routing of road traffic due to the proposed temporary closure of northbound slip road and southbound slip road has considered alternative options and determined that the proposed route is the best option. There are no options to provide mitigation at source from the alternative routes used.

Assessment of significant effects

5.6.19 There is not expected to be any additional land take required as a result of the temporary road closure. There are also not expected to be any significant adverse air quality, traffic and transport or visual effects which would typically combine to result in an effect for health receptors. There are also not expected to be any significant in-combination effects arising from a combination of air quality, sound, noise and vibration, traffic and transport and visual effects.

5.6.20 Due to the 0.53km closure of Dalehouse Lane, the total diversion route is 4.32km taking 7 minutes for motorised users. There are no health receptors located within the study area and since motor vehicles can use the diversion, no significant motorised user severance effects are expected.

5.6.21 Pedestrian traffic will be diverted via PRoW K29, which travels between Knowle Hill to the south of Dalehouse Lane and Stoneleigh Road to the northeast across open fields. This route will add on 0.62km to the current walking route which is 2.2km, equating to a 2.82km total route for pedestrians. The journey time along Dalehouse Lane for pedestrians is currently 28 minutes and will increase to 35 minutes as part of the diversion, thus equating to a 7 minute journey time increase. Since this is a minor increase in journey time and since this route does not connect to any health facilities, no significant pedestrian severance effect is expected.

5.6.22 The proposed closure of Dalehouse Lane will impact one bus route. The route affected by this diversion is bus number 24, which travels both northbound and southbound on Dalehouse Lane between Kenilworth and Stoneleigh. However, since healthcare facilities within Kenilworth will still be accessible from Stoneleigh via the bus service when the diversion is in place, the diversion is not anticipated to result in a significant effect.

5.6.23 Based on the above information, no new significant health effects are anticipated as a result of the temporary road closure compared to the main ES.

Mitigation measures

Mitigation measures set out in the 2013 HIA will be applied. No additional mitigation measures have been identified.

5.7 Socio-economics

Introduction

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

Scope, assumptions and limitations

Methodology

5.7.2 The relevant CFA report (CFA 18, Stoneleigh, Kenilworth and Burton Green) for this area was reviewed to determine where significant effects were previously identified. The proposed closure and diversion was compared against the relevant aspects of the Phase One scheme to determine whether there would be new or different significant adverse effects on socio-economic receptors. The baseline information has also been reviewed to include up to date available data (data sources are provided).

5.7.3 The need for socio-economic assessment results from the potential for the proposed works to affect:

- existing businesses and community organisation and thus the amount of local employment;
- local economies, including employment; and
- planned growth and development.

5.7.4 The study area for this assessment is based on professional judgement and guidance from Section 13.5 of the SMR and takes into account socio-economic receptors in proximity to the road closure and along the diversion route.

Assumptions and limitations

5.7.5 In the main ES, the socio-economic effects of the Phase One scheme were reported at two different levels: a route-wide level reported in Volume 3 of the main ES, and a localised level, which reported on businesses and observations on potential local economic effects within each CFA report. The CFA report from the main ES relevant to this section is CFA 18 (Stoneleigh, Kenilworth and Burton Green).

5.7.6 The assessment scope, key assumptions and limitations for the screening of potential significant effects on socio-economic reports as a result of the proposed road closure and diversion is consistent with the method set out in Volume 1, the SMR (Volume 5, Appendix: CT-001-000/1) and the SMR Addendum (Volume 5, Appendix: CT-001-000/2) of the main ES.

Environmental baseline

5.7.7 Kenilworth town centre is located approximately 2.5km southwest from the road closure. The area to the southwest and west of the road closure is characterised by residential and light industrial land uses, with the nearest residential settlement located approximately 700m southwest. Kenilworth Industrial Estate is located approximately 1km west and has various businesses.

5.7.8 Meadow Farm campsite and Brookside Bees honey farm are located along Dalehouse Lane and Kenilworth Golf Club (KGC) is located immediately south of the closure. Along the route

there are a number of other businesses, including a number of car mechanics and repair shops, and businesses near to the A429 and Gibber Hill gyratory, including the Firewood Trading Centre, The Pamper Camper Grooming Services, and a mobile children's disco service.

5.7.9 Where possible, baseline data has been gathered on demographic character areas (DCA)[20] to provide a profile of local communities. The study area contains Kenilworth East DCA which covers the east of Kenilworth and the area of Kenilworth closest to the proposed route.

5.7.10 Approximately 1,300 people work in the Kenilworth East DCA[21].

5.7.11 For Kenilworth DCA, key sectors include production (13%) and professional, scientific and technical (12%).

5.7.12 In 2011, the unemployment rate in Kenilworth East DCA was 4% which was lower than the West Midlands (9%) and England (7%).

5.7.13 According to the 2021 census, in Kenilworth East DCA 46% had National Vocational Qualification Level 4 (NVQ4) and above, compared to 23% in the West Midlands and 27% in England. In Kenilworth East DCA, 12% of residents had no qualifications, compared to 27% in the West Midlands and 23% in England.

Effects arising during construction

Avoidance and mitigation measures

5.7.14 The CoCP includes a range of provisions that will help mitigate socio-economic effects associated with construction within this area (see Volume 5: Appendix CT-003-000).

5.7.15 The re-routing of road traffic due to the proposed temporary closure has considered alternative options and determined that the proposed route is the best option. There are no options to provide mitigation at source from the alternative routes used.

Assessment of significant effects

5.7.16 There is not expected to be any additional land required as a result of the road closure. There are also not expected to be any significant in-combination effects arising from a combination of air quality, sound, noise and vibration, traffic and transport and visual effects.

5.7.17 The total diversion route due to the closure of 0.53km of Dalehouse Lane is 4.32km, taking seven minutes. Access to businesses will be maintained throughout the duration of the road

[20] DCAs have been determined through an understanding of local context and aim to be aligned as closely as possible to groups of lower super output areas (LSOAs).

[21] Office for National Statistics (2012), *Business Register and Employment Survey 2011.* Available online at: Business Register and Employment Survey (BRES) provisional results - Office for National Statistics (ons.gov.uk).

closure. There may be some journey delays for people accessing businesses in proximity to, or along, the route of the diversion. However, the seven-minute additional journey time that has been assessed is not expected to significantly impact the ability for employers or customers to access these businesses. Therefore no significant isolation or severance effects are expected for businesses along the diversion route or in the vicinity of the road closure.

Mitigation measures

5.7.18 Mitigation measures set out in the main ES will be applied. No additional mitigation measures have been identified.

5.8 Sound, noise and vibration

Introduction

5.8.1 The environmental baseline relevant to the sound, noise and vibration assessment is described below. New or different likely significant environmental effects as a result of the changes introduced in Section 2 are identified and compared to those reported in the main ES.

Scope, assumptions and limitations

The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

Methodology

5.8.2 The relevant CFA report (CFA 18, Stoneleigh, Kenilworth and Burton Green) for this area was reviewed to determine where significant effects were previously identified. The proposed temporary closure of Dalehouse Lane was compared against the relevant aspects of the main ES scheme to determine whether there would be new or different significant adverse effects on local communities.

5.8.3 The SMR (Volume 5: Appendix CT-001-000/1) specifies temporary effects as those arising from the construction of, and permanent effects as those from the operation of HS2. These effects may be direct, resulting from the construction or operation of HS2, and/or indirect resulting from, for example, changes in traffic patterns on existing roads or railways that result from the construction or operation of HS2.

5.8.4 The assessment set out in this section has been undertaken in accordance with the relevant methodologies (relating to construction) set out in the SMR.

5.8.5 This section reports on the likely significant effects on people, primarily where they live ('residential receptors') in terms of a) individual dwellings and b) on a wider community

basis, including any shared community open areas as a result of the noise impacts caused by the closure of Dalehouse Lane and rerouting of road traffic.

5.8.6 In this section 'sound' is used to describe the acoustic conditions which people experience as a part of their everyday lives. The assessment considers how those conditions may change through time and how sound levels and the acoustic character of community areas is likely to be modified through the changes outlined in Section 2. Noise is taken as unwanted sound.

Assumptions and limitations

5.8.7 The calculation of predicted noise levels associated with changes in traffic has included the following assumptions and limitations:

- road traffic noise changes have been calculated using a traffic model;
- construction traffic noise predictions have been presented for receptors within a radius of 50m from affected road links;
- road links within 500m from affected road links have been included in the prediction;
- receptor locations have been based on OS AddressBase Core and in each case where applicable the results presented represent the levels at the façade with the highest noise impact;
- building height information has been derived from OS MasterMap;
- the existing ground height profile has been taken from the DEFRA digital terrain model survey data; and
- a fully reflective (G=0.0) ground assumption has been made given the urban environment.

Environmental baseline

5.8.8 The study area of the traffic noise assessment includes the area bounded at the north by A45 Kenpas highway/Charter Avenue/A46 Coventry Eastern Bypass, bounded at the east by A46 Coventry Eastern Bypass/Rowley Road/Stoneleigh Road/A445 Leicester Lane, bounded at the south by A425 Kenilworth Road/Blacklow roundabout and A445 Lillington Avenue between A425 Kenilworth Road and roundabout at Heemstede Lane/Lillington Road and bound at the west by Crowell Lane/Red Lane/B4103 Clinton Lane/B4103 Castle Road/Brookside Avenue/Warwick Road. The study area includes major settlements of residential areas mainly at Willenhall, Baginton, Finham, Cannon Park, Gibbet Hill, Stoneleigh, Kenilworth, Crackley, Mill End, Ladyes Hills, Castle Green, Whitemoor, Park Hill, Windy Arbour, Borrowell and Leek Wootton. The rest of the study area is predominantly rural and characterised by small villages and individual properties.

5.8.9 In most cases for the noise sensitive receptors within the study area, the main sources of noise are from the traffic on A46 Coventry Eastern Bypass, A45 Kenpas highway, A429 Kenilworth Road, A429 Coventry Road, Stoneleigh Road, Dalehouse Lane, Common Lane,

A452 Leamington Road, A452 Warwick Road, B4103 Clinton Lane and B4103 Castle Road. In some cases, the main source of noise is from traffic on the local roads.

5.8.10 There is no change to the future baseline for construction as reported in the main ES.

Effects arising during construction

Avoidance and mitigation measures

5.8.11 Road traffic will be re-routed due to the temporary closure of the Dalehouse Lane between Dalehouse and The Meadow Farm. Alternative options have been considered, however it was determined that the proposed route is the best option. There are no options to provide mitigation at source from the alternative routes used.

5.8.12 Paragraphs 11.3.4 to 11.3.7 in Volume 2 CFA 18 of the main ES provides a detailed account of the extant commitments to avoidance and mitigation measures.

Quantitative identification of impacts and effects

5.8.13 The main ES reports the presence of significant temporary noise effects from construction traffic impacts at Waste Lane between Hodgetts Lane to Windmill Lane/Kelsey Lane junction in Sections 4.4.9 to 4.4.14, and 4.4.16 of main ES Appendix SV-003-018. However, Waste Lane is outside the study area of this traffic noise assessment.

5.8.14 The criteria for determining impact classification derives from the SMR paragraphs 14.3.30 and 14.3.31, and the main ES (Volume 5: Appendix SV-003-018) paragraphs 4.3.7 and 4.3.8. Table 11 lists the impact classification.

Table 11: Impact classification for changes in traffic flows

Impact	High existing sound level [1]	Other existing sound level
Minor impact	between 1.0 to 2.9 dB	between 3.0 to 4.9 dB
Moderate impact	between 3.0 to 4.9 dB	between 5.0 to 9.9 dB
Major impact	5.0 dB or more	10.0 dB or more

Note: [1] during the day and night a high existing sound level shall be equal or above $L_{pAeq,16hr}$ 65 dB and equal or above $L_{pAeq,8hr}$ 55 dB respectively.

5.8.15 The change in traffic noise level has been predicted at a reference distance of 10m from the edge of the nearside carriageway resulting from the presence of diverted traffic during the construction phase for a given road based upon traffic information for the proposed works.

5.8.16 The results for all road links considered are presented in Table 12:

- where the potentially significant effect column is highlighted, then a potentially significant effect is identified on nearby communities or individual receptors;

- yellow denotes a minor impact, orange denotes a moderate impact, and red denotes a major impact;
- 'Day' columns refer to Daytime $L_{pAeq,16hr}$ 07:00-23:00 free-field; and
- 'Night' columns refer to Night-time $L_{pAeq,8hr}$ 23:00-07:00 free-field.

Table 12: Assessment of diverted traffic noise levels during construction

Road name	Link	Future baseline sound level (dB)		Diverted traffic sound level (dB)		Road change (dB)		Potentially significant effect	Adverse or beneficial	New Potential significant effect ***
		Day	Night	Day	Night	Day	Night			
Dalehouse Lane between Common Lane and Knowle Hill	433_434 and 434_435	63.1	55.3	61.1	53.4	-2.0	-1.8	SV-DHL-C01	Beneficial	Yes
Dalehouse Lane between Lulworth Park and Cotton Drive	437_1123	62.6	54.8	57.7	50.4	-4.9	-4.4	SV-DHL-C02	Beneficial	Yes
Dalehouse Lane between Best Avenue and Cotton Drive	437_438	62.5	54.7	55.5	48.4	-7.0	-6.3	SV-DHL-C02	Beneficial	Yes
Dalehouse Lane between Whitehead Drive and Best Avenue	438_439	59.7	52.3	N/A*	N/A*	N/A	N/A	N/A	N/A	N/A
Dalehouse Lane between The Meadow Farm and Whitehead Drive	439_440	59.7	52.3	N/A*	N/A*	N/A	N/A	N/A	N/A	N/A
Dalehouse Lane at west of The Meadow Farm	440_797z	63.1	55.3	N/A*	N/A*	N/A	N/A	N/A	N/A	N/A
Dalehouse Lane at east The Meadow Farm	797z_798	63.3	55.4	N/A*	N/A*	N/A	N/A	N/A	N/A	N/A
Dalehouse Lane between Dalehouse Farm and The Meadow Farm	798_799	63.3	55.4	N/A*	N/A*	N/A	N/A	N/A	N/A	N/A
Dalehouse Lane at Dalehouse Farm	799_800	61.1	53.5	50.2	43.6	-11.0	-9.9	**	Beneficial	Yes
Dalehouse Lane between the west of Dalehouse and Dalehouse Farm	800_801	60.7	53.1	49.4	42.9	-11.3	-10.2	SV-DHL-C03	Beneficial	Yes
Dalehouse Lane at Dalehouse	676z_801	63.0	55.2	49.3	42.8	-13.8	-12.4	SV-DHL-C03	Beneficial	Yes

Road name	Link	Future baseline sound level (dB)		Diverted traffic sound level (dB)		Road change (dB)		Potentially significant effect	Adverse or beneficial	New Potential significant effect ***
		Day	Night	Day	Night	Day	Night			
Dalehouse Lane between Kingswood House and Dalehouse	675z_676z	64.0	56.0	50.2	43.6	-13.8	-12.4	SV-DHL-C03	Beneficial	Yes
Dalehouse Lane between Stoneleigh Road and Kingswood House	249_675z	64.0	56.0	50.0	43.5	-14.0	-12.6	SV-DHL-C03	Beneficial	Yes
Dalehouse Lane between roundabout at Dalehouse Lane/Stoneleigh Road and Kingswood House	248ff_249	62.1	54.4	48.9	42.5	-13.2	-11.9	SV-DHL-C03	Beneficial	Yes
Finham Road between Finham Crescent and Villiers Road	677y_687z	49.1	42.7	45.1	39.1	-4.0	-3.6	SV-DHL-C04	Beneficial	Yes
Finham Road between Dalehouse Lane and Finham Crescent	687z_1059z	48.4	42.0	44.1	38.1	-4.3	-3.9	SV-DHL-C04	Beneficial	Yes
A429 Kenilworth Road northbound exit connect to Gibbet Hill roundabout	1178_1496	60.9	53.3	64.4	56.4	+3.5	+3.1	**	Adverse	Yes
Gibbet Hill roundabout connection between Gibber Hill Road exit and A429 Kenilworth Road northbound entrance	1494z_1497	65.0	57.0	66.6	58.4	+1.6	+1.4	**	Adverse	Yes
Gibbet Hill roundabout connection at Gibber Hill Road between A429 Kenilworth Road entrance and exit	1495_1494z	60.4	52.8	64.0	56.1	+3.6	+3.2	**	Adverse	Yes
Gibbet Hill roundabout connection between A429 Kenilworth Road	1496_1495	65.4	57.3	66.7	58.5	+1.3	+1.2	**	Adverse	Yes

Road name	Link	Future baseline sound level (dB)		Diverted traffic sound level (dB)		Road change (dB)		Potentially significant effect	Adverse or beneficial	New Potential significant effect ***
		Day	Night	Day	Night	Day	Night			
northbound exit and Gibber Hill Road entrance										
Gibbet Hill roundabout connection between A429 Kenilworth Road southbound exit and Stoneleigh Road entrance	1498_1499	65.4	57.4	66.9	58.7	+1.5	+1.3	**	Adverse	Yes
Gibbet Hill roundabout connect to Stoneleigh Road entrance	1499_845	62.9	55.1	65.2	57.1	+2.3	+2.1	**	Adverse	Yes
Stoneleigh Road exit connect to Gibbet Hill roundabout	845_1500	65.8	57.7	64.7	56.7	-1.1	-1.0	**	Beneficial	Yes
Blacklow roundabout towards B4115	166_167	53.4	46.5	44.8	38.8	-8.5	-7.7	**	Beneficial	Yes
A429 Kenilworth Road between Spinneys End and N Hague & Sons (closer to N Hague & Sons)	829_1708	65.7	57.6	66.7	58.5	+1.0	+0.9	SV-DHL-C05	Adverse	Yes
A429 Kenilworth Road between Spinneys End and N Hague & Sons (closer to Spinneys End)	829_830	66.2	58.0	67.3	59.0	+1.1	+1.0	SV-DHL-C05	Adverse	Yes
Connection road at roundabout between the connection roads to Stoneleigh junction	2005zsi_2006ysi	47.1	40.9	29.1	24.7	-18.1	-16.2	**	Beneficial	Yes
Connection road at roundabout between roads from Stoneleigh junction and Dalehouse Lane entrance	2006ysi_2007zsi	66.6	58.4	65.0	57.0	-1.6	-1.5	**	Beneficial	Yes

Road name	Link	Future baseline sound level (dB)		Diverted traffic sound level (dB)		Road change (dB)		Potentially significant effect	Adverse or beneficial	New Potential significant effect ***
		Day	Night	Day	Night	Day	Night			
Roundabout at Dalehouse Lane/Stoneleigh exit to Dalehouse Lane	2007zsi_248ff	56.6	49.4	48.3	42.0	-8.3	-7.5	**	Beneficial	Yes
Connection road at roundabout between Dalehouse Lane exit and Stoneleigh Road entrance	2008sif_2009sif	66.8	58.6	65.0	57.0	-1.9	-1.7	**	Beneficial	Yes
Connection road at roundabout between and Stoneleigh Road entrance and exit	2009sif_2004zsi	57.7	50.4	48.5	42.1	-9.1	-8.2	**	Beneficial	Yes
Connection road to enter roundabout at Dalehouse Lane/Stoneleigh Road from Stoneleigh Junction	2010sif_2006ysi	66.5	58.4	65.0	57.0	-1.6	-1.4	**	Beneficial	Yes
Dalehouse Lane exit to roundabout at Dalehouse Lane/Stoneleigh Road	248ff_2008sif	58.1	50.8	48.3	42.0	-9.8	-8.8	**	Beneficial	Yes
Stoneleigh Road exit to roundabout at Dalehouse Lane/Stoneleigh Road	258ff_2004zsi	62.9	55.1	65.1	57.0	+2.2	+2.0	**	Adverse	Yes
Stoneleigh junction off slip towards to roundabout at Dalehouse Lane/Stoneleigh Road	2112sif_2268	65.9	57.8	64.4	56.5	-1.5	-1.3	**	Beneficial	Yes
Connection road at Stoneleigh junction between A46 Kenilworth bypass southbound off slip and Stoneleigh Road eastbound entrance	2259y_2271	64.7	56.7	66.0	57.9	+1.3	+1.1	**	Adverse	Yes

Road name	Link	Future baseline sound level (dB)		Diverted traffic sound level (dB)		Road change (dB)		Potentially significant effect	Adverse or beneficial	New Potential significant effect ***
		Day	Night	Day	Night	Day	Night			
Connection road at Stoneleigh junction between Stoneleigh Road eastbound exit and A46 Kenilworth bypass southbound off slip	2261z_233siff	64.5	56.5	66.6	58.4	+2.1	+1.9	**	Adverse	Yes
Connection road at Stoneleigh junction between A46 Kenilworth bypass northbound on slip and southbound off slip	2264z_2270	62.9	55.0	64.3	56.4	+1.5	+1.3	**	Adverse	Yes
Connection road between the road enter Stoneleigh junction from the roundabout at Dalehouse Lane/Stoneleigh Road and A46 Kenilworth bypass northbound on slip	2266_2264z	65.2	57.1	66.2	58.1	+1.0	+0.9	**	Adverse	Yes
Stoneleigh junction off slip towards to roundabout at Dalehouse Lane/Stoneleigh Road	2268_2265	66.1	58.0	64.8	56.8	-1.3	-1.2	**	Beneficial	Yes
Connection road at Stoneleigh junction between A46 Kenilworth bypass northbound on slip and southbound off slip	2270_2259y	62.9	55.1	64.4	56.4	+1.5	+1.3	**	Adverse	Yes
A46 Kenilworth bypass northbound off slip to Stoneleigh junction	229_231siff	65.6	57.5	64.0	56.1	-1.6	-1.4	**	Beneficial	Yes

Road name	Link	Future baseline sound level (dB)		Diverted traffic sound level (dB)		Road change (dB)		Potentially significant effect	Adverse or beneficial	New Potential significant effect ***
		Day	Night	Day	Night	Day	Night			
A46 Kenilworth bypass southbound on slip from Stoneleigh junction	2275_241	63.4	55.5	65.4	57.4	+2.0	+1.8	**	Adverse	Yes
Stoneleigh road between Stoneleigh junction and B4115	240_2304z	63.1	55.3	64.8	56.8	+1.7	+1.5	**	Adverse	Yes

Note:

** road closure.*

*** limited number of properties within 50m of the affected road.*

**** justification of the determination of new potential adverse/beneficial significant effect is given in below sections.*

Assessment of significant effects

5.8.17 This section considers the potential new significant effects identified in Table 12 and applies the significance criteria in the SMR to determine if a new significant effect is predicted.

5.8.18 Construction phase diverted traffic is likely to cause beneficial effects on residential receptors along the following local roads due to the road closure of Dalehouse Lane:

- Dalehouse Lane between Common Lane and Knowle Hill (SV-DHL-C01). Approximately 30 residential dwellings and buildings located along this street are forecast to experience minor decrease in traffic noise level for night-time period. Therefore, a significant beneficial effect is likely;
- Dalehouse Lane between Lulworth Park and Best Avenue (SV-DHL-C02). Approximately 30 residential dwellings and buildings located along this street are forecast to experience minor to moderate decrease in traffic noise level for both daytime and night-time periods. Therefore, a significant beneficial effect is likely;
- Dalehouse Lane between Dalehouse and roundabout at Dalehouse Lane/Stoneleigh Road (SV-DHL-C03). Approximately 8 residential dwellings and buildings located along this street are forecast to experience major decrease in traffic noise level for both daytime and night-time periods. Therefore, a significant beneficial effect is likely; and
- Finham Road between Dalehouse Lane and Villiers Road (SV-DHL-C04). Approximately 40 residential dwellings and buildings located along this street are forecast to experience minor decrease in traffic noise level for both daytime and night-time periods. Therefore, a significant beneficial effect is likely.

5.8.19 Construction phase diverted traffic is likely to cause a minor adverse effect on the residential receptor at Spinneys End due to the road link at A429 Kenilworth Road between Spinneys End and N Hague & Sons (SV-DHL-C05). However, the distance between the road link and receptor is more than 70m, therefore, a significant adverse effect is unlikely.

5.8.20 The diverted traffic is unlikely to cause beneficial/adverse effects for non-residential receptors arising from diverted traffic in the study area.

5.8.21 The following road links identified in Table 12 with minor to moderate noise changes are not considered to result in any new significant effects. This is due to the fact that the road links are not predicted to be sufficiently dominant at nearby receptors due to the large separation distance (more than 50m) and the likely dominance of the nearby main traffic road links such as, Dalehouse Lane, A429 Kenilworth Road, Stoneleigh Road and A46 Kenilworth bypass:

- Dalehouse Farm at Dalehouse Lane;
- connection roads at roundabout at A429 Kenilworth Road/Stoneleigh Road/Gibbet Hill Road;
- Blacklow roundabout towards B4115;
- connections roads at roundabout at Dalehouse Lane/Stoneleigh Road;

- connections roads at Stoneleigh junction at A46 Kenilworth bypass;
- slip road at A46 Kenilworth bypass southbound exit Stoneleigh junction; and
- Stoneleigh road between Stoneleigh junction and B4115.

5.8.22 Following the application of the significance criteria, there are predicted to be new significant effects for receptors adjacent to the following road links:

- a **minor beneficial effect** at Dalehouse Lane between Common Lane and Knowle Hill (SV-DHL-C01);
- a **minor to moderate beneficial effect** at Dalehouse Lane between Lulworth Park and Best Avenue (SV-DHL-C02);
- a **major beneficial effect** at Dalehouse Lane between Dalehouse and roundabout at Dalehouse Lane/Stoneleigh Road (SV-DHL-C03); and
- a **minor beneficial effect** at Finham Road between Dalehouse Lane and Villiers Road (SV-DHL-C04).

Mitigation measures

5.8.23 Mitigation measures set out in the main ES will be applied. No additional mitigation measures have been identified. All significant effects identified in the assessment have been beneficial, therefore, no additional mitigation will be required.

5.9 Traffic and transport

Introduction

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

Scope, assumptions and limitations

5.9.2 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. There is no change to the scope, assumptions and limitations as reported in the main ES.

5.9.3 The scope for this assessment is limited to the effects arising from the temporary closure of Dalehouse Lane, which is expected to take place for a period of approximately 14 months, starting in Spring/Summer 2025.

5.9.4 Under the latest proposals to construct a new overbridge across the HS2 mainline, Dalehouse Lane is to be fully closed to through traffic for the duration of the temporary closure, thus incurring associated vehicle diversions.

Assumptions and limitations

5.9.5 WCC's Kenilworth and Stoneleigh Wide Area (KSWA) model has been utilised to consider the impact of closing Dalehouse Lane to allow construction of the HS2 mainline. This model was developed using S-Paramics Software (v2014.1).

5.9.6 Junctions that demonstrated queue length increases of more than 10 vehicles during each of the peak hours (as per KSWA microsimulation modelling) were subject to further investigation as a precursor to the potential introduction of mitigation. The diversion of vehicular movements also contributed to additional delay on other surrounding roads, but as this level of traffic change fell below the minimum margin, they did not warrant further assessment (i.e. there is no significant effect on traffic severance).

5.9.7 Given the COVID-19 pandemic in 2020, where traffic levels declined, growth factors have not been applied to the modelled traffic flow data for 2021. The post-pandemic traffic flow levels for 2021 have been maintained because it was considered these flow levels would be greater than those for 2025, thus providing a more robust assessment.

Environmental baseline

5.9.8 The baseline traffic and transport information for the area is as described in Volume 2, CFA Report 18, Section 12 of the main ES. There is no change to the future baseline for construction as reported in the main ES.

5.9.9 The main ES within CFA Report 18 (2013) included mitigation to address where significant effects were identified. The document was produced for the area to the east of Kenilworth and focuses on the works that are to be carried out along the A445 Leicester Lane, Stareton Lane, B4113 Stoneleigh Road, the B4115 Ashow Road, the A46 Kenilworth Bypass, Dalehouse Lane, the A429 Kenilworth Road, Crackley Lane, Cromwell Lane and the B4101 Waste Lane.

5.9.10 In CFA Report 18 (2013), it was stated there would be overnight and/or weekend closures on the A445 Leicester Lane, Stareton Lane, the B4113 Stoneleigh Road, the B4115 Ashow Road, the A429 Kenilworth Road, Dalehouse Lane, Crackley Lane and the B4101 Waste Lane. The effect of these off peak closures on traffic flows and delays to vehicle occupant, in terms of the diversions and traffic congestion, were deemed to be not significant at the time of reporting.

5.9.11 In terms of full road closures and diversions, it was proposed that these were to be limited to overnight and weekends only.

Effects arising during construction

Quantitative identification of impacts and effects

5.9.12 Under the criteria stated within Section 3.4 (Traffic Flow and Delay to Vehicle Occupants Assessment) of the SMR Addendum Annex I: Traffic and Transport Technical Note, the

closure of Dalehouse Lane, based on the reassignment of traffic as outlined within the KSWA microsimulation model, is expected to affect approximately 13,400 two-way vehicular movements per day on Dalehouse Lane.

5.9.13 HGV movements at this location have not been assessed as part of the microsimulation modelling exercise. It is expected that potential HGV increases on diversionary routes will be negligible as Dalehouse Lane does not form a major construction route (there is no significant effect). HS2 related HGV trip movements are anticipated to utilise designated haul roads, which are expected to originate from the nearby A46 Stoneleigh Main Compound site to the east of Dalehouse Lane.

5.9.14 Based on AADT traffic flows as output from the microsimulation model, HS2 related interventions will result in changes in flows across the surrounding road network as highlighted in Table 13.

Table 13: Traffic data summary

Road corridor	Future baseline AADT	Dalehouse Lane construction	+/- Change	% Change
A429 Kenilworth Road	12,802	17,132	4330	34%
Crewe Lane	5,656	9,745	4,089	72%
A452 Leamington Road	31,719	35,162	3,443	11%
Stoneleigh Road West of Dalehouse	26,725	27,259	534	2%
Dalehouse Lane	13,422	248	-13,174	-98%

Crewe Lane assessment

5.9.15 Based on the criteria of Table 9 (Criteria for Stage 2 assessment – traffic flows and delays to vehicle occupants (traffic severance)) within the SMR Addendum Annex I note, the increase in AADT traffic flows is between 60-120% on Crewe Lane. Therefore, the magnitude of impact expected on Crewe Lane is moderate.

5.9.16 The traffic flow on Crewe Lane equates to approximately 406 two-way vehicular movements per hour based on a flat-average 24-hour period. As per SMR addendum Table 9, this falls into the category of 250-750 vehicles per hour and is therefore considered a medium impact.

5.9.17 Therefore, as the Dalehouse Lane closure is to last for 14 months, (falling into the category of '4 months or more') and results in a **major adverse effect** on traffic severance on Crewe Lane.

A429 Kenilworth Road assessment

5.9.18 For A429 Kenilworth Road, the increase in AADT flows is between 30-60%. Therefore, the magnitude of impact expected is minor.

5.9.19 The traffic flow on the A429 Kenilworth Road equates to approximately 714 two-way vehicular movements per hour based on a flat-average 24-hour period. As per SMR

addendum Table 9, this falls into the category of 250-750 vehicles per hour and is therefore considered a medium impact.

5.9.20 Therefore, as the Dalehouse Lane closure is to last for 14 months, (falling into the category of '4 months or more') and results in a **moderate adverse effect** on traffic severance on the A429 Kenilworth Road.

5.9.21 All other road corridors fall into the <30% change in traffic flow category and impacts are therefore considered not significant.

Traffic diversions

5.9.22 The closure of Dalehouse Lane as part of the HS2 related works will result in a diversion of 4.32km that will last for 14 months, affecting approximately 13,400 two-way vehicular movements per day.

5.9.23 Based on the criteria of Table 10 (Criteria for Stage 2 assessment – traffic flows and delays to vehicle occupants (traffic diversions)) within the SMR Addendum Annex I note, as the length of the proposed diversion is expected to be up to 4.32km, while affecting roads carrying >100 vehicles per day, the magnitude of impact is expected to be major.

5.9.24 As the number of travellers diverted is expected to affect >10,000 vehicles per day for a period of >4 weeks (14 months), this will result in a **major adverse effect** for journey times along the diversion route.

Traffic congestion

5.9.25 Junction impact assessments have been undertaken in order to consider the resultant traffic implications of the Dalehouse Lane closure.

5.9.26 The junctions are summarised in Table 14. This includes a comparison between Future baseline and Dalehouse Lane construction saturation levels expressed as percentage of change.

Table 14: Location junction impact assessment summary

Road	Degree of saturation (%)							
	Future baseline		Dalehouse Lane construction		% Change		% Change over SMR criteria (>85%)	
	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak
A452 Gyratory								
A452 Leamington Road (SE)	66%	80%	69%	91%	3%	11%	0%	6%
Warwick Road (S)	43%	48%	46%	44%	3%	-4%	0%	0%
A452 Leamington Road (NW)	89%	75%	86%	73%	-3%	-2%	1%	0%
Birches Lane (E)	55%	62%	66%	74%	11%	12%	0%	0%
A46 Kenilworth bypass/A452 Leamington Road interchange								
A46 Kenilworth bypass (NE)	70%	83%	73%	83%	3%	0%	0%	0%
A452 Leamington Road (SE)	85%	96%	86%	104%	1%	8%	1%	19%
A46 Kenilworth bypass (SW)	62%	54%	55%	42%	-7%	-12%	0%	0%
A452 Leamington Road (NW)	108%	82%	106%	80%	-2%	-2%	21%	0%
B4115/Stoneleigh Road								
B4115 (N)	86%	62%	84%	69%	-2%	7%	0%	0%
Birmingham Road (E)	81%	64%	87%	79%	6%	15%	2%	0%
B4115 (S)	77%	66%	88%	75%	11%	9%	3%	0%
Stoneleigh Road (W)	88%	57%	78%	67%	-10%	10%	0%	0%

5.9.27 As illustrated in Table 14, the implementation of diversions as part of the Dalehouse Lane construction works is likely to result in significant impacts on the current traffic conditions at all three of the assessed junctions.

5.9.28 It should be noted that in order to alleviate the impacts of traffic associated with the A46 Stoneleigh Main Compound site, the B4115/B4113 Stoneleigh Road junction has already been subject to signalised mitigation. The presence of this mitigation has been incorporated into this assessment to ensure it can suitably accommodate diverted traffic from the Dalehouse Lane closure.

5.9.29 Under the criteria of Table 12 (Criteria for Stage 2 assessment – traffic flows and delays to vehicle occupants (traffic congestion), urban) within the SMR Addendum Annex I note, based on the local junction assessments, it was noted that in both the AM and PM peaks, all of the junctions specified operate above capacity with diverted traffic.

5.9.30 The congestion indicators presented at the A452 Gyratory show that in the PM peak, capacity is at 87-92% and the change is between 5-10%. This is a **minor adverse effect.**

5.9.31 The congestion indicators presented at the A46 Kenilworth bypass/A452 Leamington Road interchange show that in the PM peak, capacity is at '98% or more' and the change of 8% is between 5-10%. This is a **major adverse effect.**

5.9.32 The congestion indicators presented at B4115/B4113 Stoneleigh Road signalised crossroads show that in the AM peak, capacity is at 87-92% and the change is between 2-5%. This is a **minor adverse effect.**

Highway safety

5.9.33 The local highway network currently operates with no significant highway safety issues that will need to be addressed as part of the route diversion. There will be no significant effect for accidents and safety.

Public transport

5.9.34 There is currently one public transport service, bus number 24, that travels along Dalehouse Lane. This route travels both northbound and southbound on Dalehouse Lane between Kenilworth and Stoneleigh. A summary of this route is provided in Table 15.

Table 15: Bus service summary

Service number	Route	Frequency		
		Mon – Fri	Saturday	Sunday
24	Coventry – Tile Hill South via Baginton Bubbenhall and Kenilworth	10 times daily	N/A	N/A

5.9.35 The closure of Dalehouse Lane as part of the HS2 related works will result in this bus service following the same diversionary routing as vehicular traffic, with a diversion distance of 4.32km that will last for 14 months.

5.9.36 Based on the criteria of Table 5 (Criteria for Stage 2 assessment – public transport delay, rural) within the SMR Addendum Annex I note, as the length of the proposed diversion is expected to be up to 4.32km, the magnitude of impact is expected to be major.

5.9.37 As the number of buses diverted is expected to be <3 buses per hour for a period of >4 weeks (14 months), this will result in a **moderate adverse effect** for public transport journey times along the diversion route. No rail services are to be affected by the works relating to Dalehouse Lane.

Vulnerable road users

5.9.38 Due to the nature of the road network in the vicinity of Dalehouse Lane, which primarily comprises principal roads, pedestrian and cycle infrastructure surrounding the road closure is limited.

5.9.39 Dalehouse Lane is not suitable for pedestrian movements, with no verges or refuges available along the course of its route, exacerbated by its winding nature which provides very poor visibility. The route is, however, available for use by cyclists. In consideration of any potential pedestrian movements on Dalehouse Lane, the possible impact of the closure on these road users has been assessed.

5.9.40 Pedestrians would be diverted via existing PRoW K29, which travels between Knowle Hill to the south of Dalehouse Lane and B4113 Stoneleigh Road to the northeast across open fields. This natural alternative route is to remain open throughout the HS2 works via provision of a dedicated overbridge through the construction area, which will be built and opened prior to closure of the existing footpath.

5.9.41 The current walking route along Dalehouse Lane is 2.2km, while the diversion of pedestrian movements via PRoW K29 will result in a walking length of 2.82km, thus incurring a journey length increase of 0.62km. The journey time along Dalehouse Lane for pedestrians is currently 28 minutes and will increase to 35 minutes as part of the diversion, thus equating to a 7-minute journey time increase.

5.9.42 As PRoW K29 is unpaved and crossing open fields, it would be unsuitable for cycle traffic. Therefore, cyclists would be diverted via the same route as vehicular traffic along Common Lane, the A429 Kenilworth Road and B4113 Stoneleigh Road.

5.9.43 The existing journey distance is approximately 1.1km, therefore, an increase of journey distances (by approximately 3.21km) is expected for both northbound and southbound cycle movements. Based on a cyclist's average speed of 10kmph, this would result in a journey time of 20 minutes. The existing journey time is approximately 5 minutes, therefore, an increase of journey times (by approximately 15 minutes) is expected for both northbound and southbound cycle movements.

5.9.44 Based on the criteria of Table 19 (Criteria for Stage 2 assessment – severance) within the SMR Addendum Annex I note, as the increase in journey distance is expected to be approximately 0.62km for pedestrians and 3.21km for cyclists, the magnitude of impact is considered to be major.

5.9.45 There is little evidence to suggest there is significant use of Dalehouse Lane by either pedestrian or cycle users, attributed to there being a lack of dedicated facilities and safety concerns. Because of these reasons it is considered that there would likely be <200 users per day, which, based on the period of works being expected to last for 4 months or more (14 months), would constitute a **moderate adverse effect** for vulnerable road users.

Assessment of significant effects

5.9.46 The increase in AADT traffic flows is between 60-120% on Crewe Lane. This will have an impact on traffic flows and delays to vehicle occupants (traffic severance) affecting 250-750 vehicles per hour for 4 months or more. This is a **major adverse effect** for traffic severance.

5.9.47 The increase in AADT traffic flows is between 30-60% on the A429 Kenilworth Road. This will have an impact on traffic flows and delays to vehicle occupants (traffic severance) affecting 250-750 vehicles per hour for 4 months or more. This is a **moderate adverse effect** for traffic severance.

5.9.48 The diversion length of 4.32km will have an impact on traffic flows and delays to vehicle occupants (traffic diversions) that will last for 4 months or more. As the number of travellers diverted is >10,000 vehicles per day for a period of 4 months or more, there will be a **major adverse effect** on vehicle delay.

5.9.49 The A452 Gyratory will experience a **minor adverse effect** for traffic flows and delays to vehicle occupants (traffic congestion).

5.9.50 The A46 Kenilworth bypass/A452 Leamington Road interchange will experience a **major adverse effect** for traffic flows and delays to vehicle occupants (traffic congestion).

5.9.51 The B4115/B4113 Stoneleigh Road junction will experience a **minor adverse effect** for traffic flows and delays to vehicle occupants (traffic congestion).

5.9.52 One bus service is currently scheduled to operate via Dalehouse Lane, which operates 10 times per day. As per vehicular traffic, bus services are to be diverted via the same route for regular traffic, thus resulting in a diversion length of 4.32km, which constitutes a major magnitude of effect. However, due to the number of diverted bus services being <3 buses per hour for a period of 4 months or more (14 months), this will result in a **moderate adverse effect** for public transport journey times along the diversion route.

5.9.53 Pedestrian foot traffic along Dalehouse Lane is expected to be diverted via an adjacent PRoW (K29), which will increase journey distance by 0.62km, while cycle traffic is to be diverted along the same route as vehicular traffic and public transport, which will increase journey distance by 3.21km.

5.9.54 However, as there is little evidence to suggest frequent use of Dalehouse Lane by either foot or cycle traffic attributed to its unsafe conditions for vulnerable road users, it is expected that <200 vulnerable road users are expected to travel this route per day for a period of 4 months or more (14 months), which will result in a **moderate adverse effect** for vulnerable road user journey distances along the diversion route.

5.9.55 As stated, these effects are temporary, and only occur during the 14-month closure of Dalehouse Lane and traffic/public transport diversion.

5.9.56 No new or different significant effects are anticipated for accidents and safety.

Mitigation measures

5.9.57 As identified through operational microsimulation modelling, areas where cumulative changes in traffic flow caused by the closure of Dalehouse Lane will result in congestion impacts have been subject to further local junction impact assessment - the A452 Gyratory, the A46 Kenilworth bypass/A452 Leamington Road interchange and the B4115/B4113 Stoneleigh Road junction.

5.9.58 Temporary mitigation measures that can be implemented if required during the closure period have been recommended for A452 Gyratory and the A46 Kenilworth bypass/A452 Leamington Road interchange during the Dalehouse Lane Closure works. These temporary mitigation measures are recommendations only and have not been created to address any pre-existing congestion concerns at these locations. These recommended mitigation measures may lessen the overall effect but do not remove any of the new significant effects identified.

5.9.59 As stated above, mitigation measures at the B4115/B4113 Stoneleigh Road junction are already implemented in support of the adjacent A46 Stoneleigh Main Compound site.

A452 Gyratory

- recommended mitigation scheme to include full signalisation of all 4 approaches and relining of hatched area on exit towards the A46. It is anticipated that some impacts will continue despite the mitigation measures.

A46 Kenilworth bypass/A452 Leamington Road interchange

- signalisation of approach from Kenilworth and the northbound off-slip.

Residual significant effects

5.9.60 As illustrated in Table 14 the diversion of vehicular movements related to the Dalehouse Lane closure are expected to see increases in the congestion indicators for the A452 Gyratory and the A46 Kenilworth bypass/A452 Leamington Road interchange.

5.9.61 The mitigation measures above are recommendations only but other alternatives may be considered. Any proposed mitigation measures will need to be assessed, accepted, and consented by the local highway authority prior to implementation. Any mitigation measures implemented will need to be designed and confirmed as a working temporary works design solution.

5.9.62 The recommended mitigation schemes identified through microsimulation modelling exercise have been applied in local junction assessments for these two locations, the results of which are summarised in Table 16.

Table 16: Local junction impact assessment summary – with mitigation

Road	Degree of saturation (%)							
	Future baseline		Dalehouse Lane construction – with mitigation		% Change		% Change over SMR criteria (>85%)	
	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak
A452 Gyratory – signalised Gyratory								
A452 (SE)	66%	80%	76%	86%	10%	6%	0%	1%
Warwick Road (S)	43%	48%	73%	86%	30%	38%	0%	1%
A452 (NW)	89%	75%	86%	90%	-3%	15%	1%	5%
Birches Lane (E)	55%	62%	81%	68%	26%	6%	0%	0%
A46 Kenilworth bypass/A452 Leamington Road interchange – signalised large roundabout								
A46 (E)	70%	83%	55%	66%	-15%	-17%	0%	0%
A452 (SE)	85%	96%	59%	71%	-26%	-25%	0%	0%
A46 (SW)	62%	54%	89%	79%	27%	25%	4%	0%
A452 (NW)	108%	82%	99%	84%	-9%	2%	14%	0%

5.9.63 Under the criteria of Table 12 (Criteria for Stage 2 assessment – traffic flows and delays to vehicle occupants (traffic congestion), urban) within the SMR Addendum Annex I note, should the recommended mitigation schemes be implemented at these locations, the potential adverse effects resultant of the Dalehouse Lane Construction works would be revised as follows:

- A452 Gyratory – Congestion indicator remains within 87-92% category – **minor adverse effect**; and
- A46 Kenilworth bypass/A452 Leamington Road interchange.
  - without the recommended mitigation measures, this junction had illustrated an increase in congestion indicator on the A452 SE approach during the PM Peak of 96% to 104%, representing an 8% increase. This was previously quantified as a major adverse effect which would be removed by this mitigation; however
  - the recommended mitigation measures at this location have resulted in an increase in congestion indicator of 62% to 89% on the A46 SW approach during the AM Peak. This recommendation shows an increase of 4% over 85% threshold for SMR criteria, which is quantified as a **minor adverse effect**.

6 Summary of changes to significant effects

6.1 Agriculture, forestry and soils

6.1.1 No new significant effects are anticipated relating to holdings CFA 18/9, CFA 18/10, CFA 18/11 and CFA 18/12.

6.2 Air quality

6.2.1 No new significant air quality effects are anticipated at any receptor in relation to NO_2, PM_{10} and $PM_{2.5}$ concentrations as a consequence of the proposed road closure and traffic diversion.

6.3 Community

6.3.1 A new significant severance effect on cyclists is likely, due to an increase in journey time via the diversion.

6.3.2 A new significant effect on students at Kenilworth School is anticipated as a result of school bus route diversions impacting journey times for students using the route to get to school.

6.4 Ecology

6.4.1 The effects arising from the road diversion presented in other chapters are not considered likely to result in any significant effects on ecological receptors.

6.5 Health

6.5.1 No new health effects are anticipated as a result of the road closure.

6.6 Socio-economics

6.6.1 No new socio-economic effects are anticipated as a result of the road closure.

6.7 Sound, noise and vibration

6.7.1 Several new significant sound noise and vibration effects are anticipated as a consequence of the proposed road closure and traffic diversion:

- a **minor beneficial effect** at Dalehouse Lane between Common Lane and Knowle Hill (SV-DHL-C01);
- a **minor to moderate beneficial effect** at alehouse Lane between Lulworth Park and Best Avenue (SV-DHL-C02);

- a **major beneficial effect** at Dalehouse Lane between Dalehouse and roundabout at Dalehouse Lane/Stoneleigh Road (SV-DHL-C03); and
- a **minor beneficial effect** Finham Road between Dalehouse Lane and Villiers Road (SV-DHL-C04).

6.8 Traffic and transport

6.8.1 There will be a **major adverse effect** on traffic severance on Crewe Lane during the Dalehouse Lane closure.

6.8.2 There will be a **moderate adverse effect** on traffic severance on A429 Kenilworth Road during the Dalehouse Lane closure.

6.8.3 There will be a **major adverse effect** on traffic delay during the Dalehouse Lane closure.

6.8.4 There will be new **significant effects** on vehicle congestion at three junctions during the Dalehouse Lane closure:

- the A452 Gyratory will experience a **minor adverse effect**;
- the A46 Kenilworth bypass/A452 Leamington Road interchange will experience a **major adverse effect**; and
- the B4115/B4113 Stoneleigh Road junction will experience a **minor adverse effect**.

6.8.5 Recommended mitigation measures at the junctions above will result in the changes in the **significant effects** shown below:

- the A452 Gyratory will experience a **minor adverse effect**; and
- the A46 Kenilworth bypass/A452 Leamington Road interchange will experience a **minor adverse effect**.

6.8.6 Mitigation measures at the B4115/B4113 Stoneleigh Road junction are already implemented in support of the adjacent A46 Stoneleigh Main Compound site.

6.8.7 There will be a **moderate adverse effect** for public transport journey times along the diversion route during the Dalehouse Lane closure.

6.8.8 There will be a **moderate adverse effect** for vulnerable road user journey times along the diversion route during the Dalehouse Lane closure.

6.8.9 These effects are temporary, and only occur during the 14-month road closure and traffic/public transport diversion.

6.8.10 No new or different significant effects are anticipated for accidents and safety.

6.9 Other aspects descoped for this assessment

6.9.1 **Accidents and major disasters:** Scoped out as there is no increased risk of accidents and major disasters compared to the main ES assessment as a result of the proposal.

6.9.2 **Archaeology and heritage:** Scoped out as the traffic diversion will be confined to existing roads and will not require any excavation or construction. Therefore, there is no potential for the removal, disturbance or truncation of archaeological remains or other non-designated heritage assets as a result of the traffic diversion. The diversion will run through the Kenilworth Road Conservation Area (STN046). However, this is already a busy arterial route and the additional traffic is not expected to alter the character of this conservation area. The traffic diversion will not pass through any other designated assets or non-designated built heritage assets or be within their setting. Therefore, no impacts are expected to any built heritage assets as a result of the traffic diversion. As such no new or different significant effects to those reported in the 2013 ES are anticipated for archaeology and heritage.

6.9.3 **Climate:** Scoped out. The impact of Greenhouse Gas (GHG) emissions is scoped out of this SEI. This is because the main predicted impact of the scheme pertains to emissions from temporarily disrupted transport. However, these emissions are not explicitly part of the original scope of the HS2 route-wide effects on GHG emissions. Similarly, diverted traffic is not part of the off-route effects requiring management as part of the construction. Furthermore, given the initial Environment Statement (ES) did not capture emissions arising from disrupted traffic, it would not be possible to compare the current scheme to the original ES. Additionally, it can be reasonably assumed that the additional GHG emissions from traffic diversion in this area are likely to be minimal and therefore not significant to the scheme as a whole. Finally, an alternative route has already been identified to minimise the effects of diverted traffic. It is unlikely that further mitigation measures can be implemented.

6.9.4 **Climate and in-combination climate impacts:** Scoped out as Dalehouse Lane closure is a temporary, short-term diversion, therefore, there are unlikely to be any significant climate resilience effects. Climate change projections show little change in climate variables over the 18-month period of the scheme and as such, no significant effects of climate change or in-combination climate impacts are expected. Mitigation for potential impacts relating to existing climatic conditions such as flooding and storms during the lifetime of the scheme are anticipated to be addressed through a Construction Management Plan. It is therefore recommended that climate resilience be scoped out of the assessment.

6.9.5 **Land quality:** Scoped out as there is no additional ground break over contaminated sites as a result of the proposal.

6.9.6 **Landscape and visual:** Scoped out as there is no change in visual impact as a result of the proposed diversion. Although tranquillity on Common Lane may be impacted by additional traffic, it is not expected to worsen beyond the moderate adverse impact already identified.

6.9.7 **Waste and material resources:** Scoped out as this topic is not relevant to the scope of the proposal. No additional waste or resources will be required as a result of the traffic diversion along existing roads.

6.9.8 **WRFR:** Scoped out because the closure of Dalehouse Lane is a temporary diversion along existing roads. There is unlikely to be any significant impacts to ground water, surface water or flood risk caused by the lane closures. The only cause for concern arises from the

increase in traffic adjacent roads (normal traffic or construction traffic) and the potential of additional pollution risks this would cause to surrounding watercourses (mainly Finham Brook/Canley Brook), from surface road runoff outfalls. It is assumed that the existing highway drainage will be sufficient to deal with the temporary increase in traffic due to the closure. Please refer to Section 5.9 for more information. 5.9

6.10 Permanent effects

6.10.1 No permanent effects are identified. The proposed changes to the assumptions in the main ES (as amended) relate to the construction phase only and therefore effects will be temporary.

6.10.2 No operational effects are predicted to occur arising from the proposed changes and therefore operational effects are not considered further.

6.11 Summary of likely significant effects

6.11.1 The closure of Dalehouse Lane will impact journey times for students at Kenilworth school reliant on the bus. This will result in a new significant effect.

6.11.2 There may be a new significant severance effect on cyclists due to an increase in journey time via the diversion.

6.11.3 The following new significant effects have been identified for sound, noise and vibration:

- a minor beneficial effect at Dalehouse Lane between Common Lane and Knowle Hill (SV-DHL-C01);
- a minor to moderate beneficial effect at alehouse Lane between Lulworth Park and Best Avenue (SV-DHL-C02);
- a major beneficial effect at Dalehouse Lane between Dalehouse and roundabout at Dalehouse Lane/Stoneleigh Road (SV-DHL-C03); and
- a minor beneficial effect Finham Road between Dalehouse Lane and Villiers Road (SV-DHL-C04).

6.11.4 There will be a major adverse effect on traffic severance on Crewe Lane during the Dalehouse Lane closure.

6.11.5 There will be a moderate adverse effect on traffic severance on A429 Kenilworth Road during the Dalehouse Lane closure.

6.11.6 There will be a major adverse effect on traffic delay during the Dalehouse Lane closure.

6.11.7 There will be new significant effects on vehicle congestion at three junctions during the Dalehouse Lane closure:

- the A452 Gyratory will experience a minor adverse effect;
- the A46/A452 interchange will experience a major adverse effect; and

- the B4115/B4113 Stoneleigh Road junction will experience a minor adverse effect.

6.11.8 There will be a moderate adverse effect for public transport journey times along the diversion route during the Dalehouse Lane closure.

6.11.9 There will be a moderate adverse effect for vulnerable road user journey times along the diversion route during the Dalehouse Lane closure.

6.12 Mitigation and avoidance

6.12.1 The contractor will liaise with the local authority and bus company to monitor impacts on bus services and identify any mitigation measures that can be implemented.

6.12.2 Temporary mitigation measures that can be implemented if required during the closure period have been suggested for A452 Gyratory and A46/A452 interchange. These mitigation measures are recommendations only and have not been created to address any pre-existing congestion concerns at these locations. These mitigation measures may lessen the overall effect but do not remove any of the new significant effects identified.

7 Conclusion

7.1.1 For the reasons outlined in this report, a construction methodology is required which differs from that previously assumed in the main ES (as amended). The proposed solution overcomes the constraints relating to the key drivers and minimises the environmental impacts the construction of this asset will have.

7.1.2 The proposed solution is to close Dalehouse Lane temporarily for a 14-month period. The distance of the diversion route is 4.32km (taking 7 minutes) for vehicular traffic.

7.1.3 The proposed closure of Dalehouse Lane and associated traffic diversion gives rise to new significant adverse effects for community; significant beneficial effects for sound, noise, and vibration; and significant adverse effects for traffic and transport.

8 References

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Office for National Statistics (2012), *Business Register and Employment Survey 2011.*

Sustainability & Environment (2019), *Design Manual for Roads and Bridges LA 105 Revision 0*.

Town and Country Planning (2017), *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.*

Warwick District Council (2021), *Annual Status Report 2021*.

9 Appendices

9.1 Ecology

Desk top study

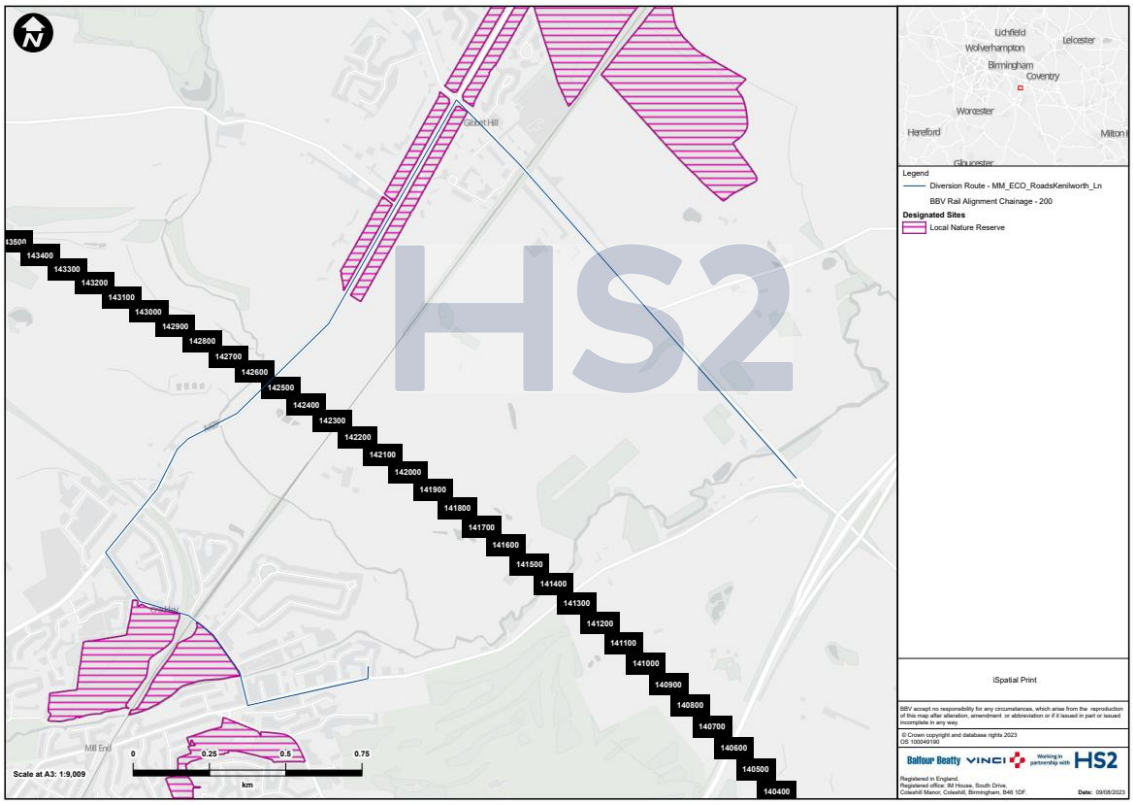
Designated sites

9.1.1 There are three statutory designated sites within 500m of the diversion route. There are also no SAC designated for bats within 500m of the diversion route. Details of the designated sites identified are provided in Table A.1.

Table A.1: Statutory designated sites

Name	Status	Details	Distance and direction from diversion
Kenilworth Common	LNR	Diverse woodland dominated by oak, beech, and birch with holly and hawthorn in the scrub layer. There is a little relict heathland with gorse and heather on the railway edge of the reserve. Management aims to restore some heathland on the site.	Immediately adjacent to the diversion route
Wainbody Wood and Stivichall Common, Kenilworth Road Spinney	LNR	A mixed woodland which is good for spring flowers, including bluebells.	Immediately adjacent to the diversion route
Knowle Hill	LNR	The woodland, scrub and grassland are particularly important for butterflies including small copper, small skipper, holly blue and marbled white. Plants include gorse, broom, harebell and sheep's sorrel which reflect the slightly acid conditions.	0.6km southwest

Figure A.1: Statutory designated sites



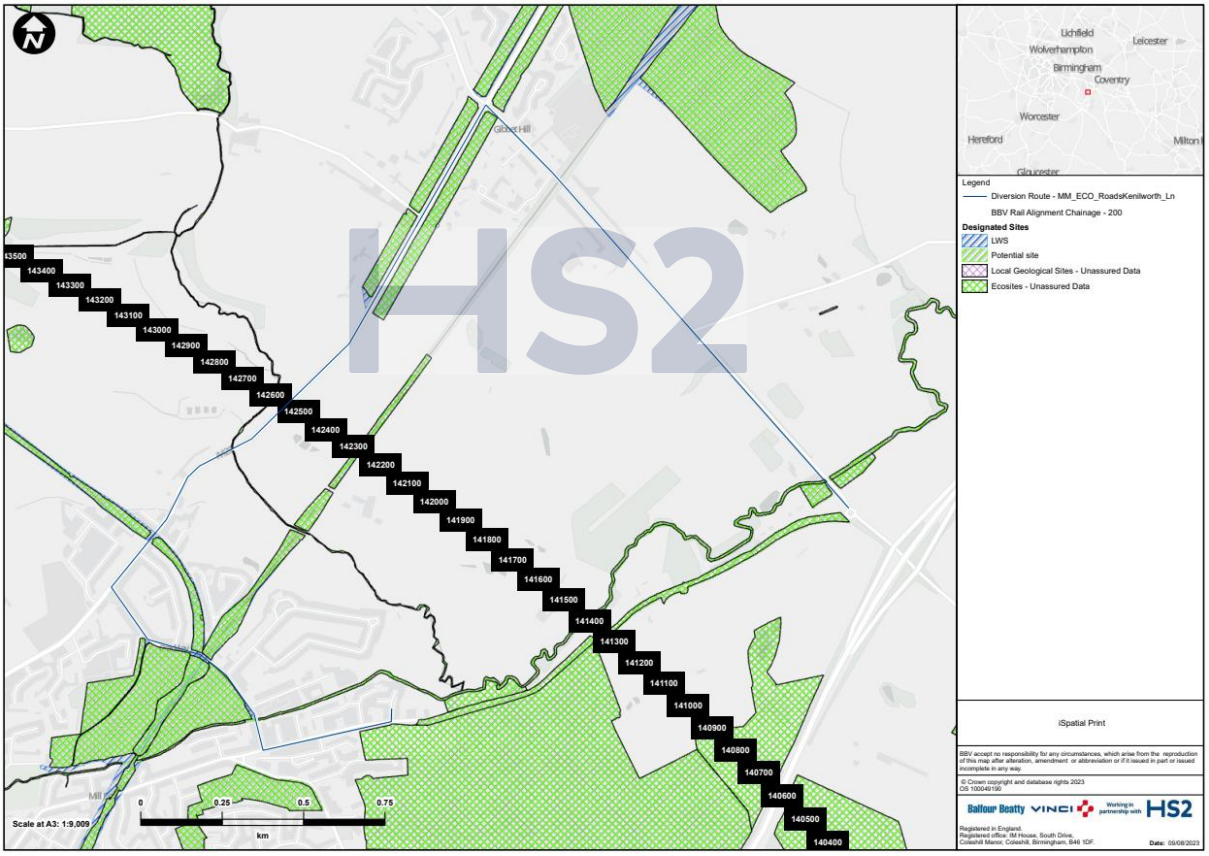
9.1.2 There is one non-statutory designated site within the diversion route. Fourteen non-statutory designated sites fall immediately adjacent to the diversion route. Details of the designated sites are provided in Table A.2.

Table A.2: Non-statutory designated sites

Name	Status	Details	Distance and direction from diversion
Kenilworth Greenway	LWS	The Kenilworth Greenway is a 6.5km long linear country park owned by Warwickshire County Council occupying the route of a former railway running from Common Lane on the perimeter of Kenilworth Common LWS, north-westwards to a point 100m east of Berkswell.	Within the diversion route
Wainbody and Kenilworth Road Wood	LWS	A large, combined area of mature semi-natural woodland (partly ancient) of exceptional beauty and moderate social value. Designated partly on the basis of the high nature	Immediately adjacent to the diversion rout

Name	Status	Details	Distance and direction from diversion
		conservation value attached to old woodland.	
Kenilworth Common	LWS	The common, which was once open heathland, is all that remains of the once extensive Odybarn Heath which was largely enclosed during the 18th century, and now consists of acidic Oak-Birch woodland.	Immediately adjacent to the diversion route

Figure A.2: Non-statutory designated sites



9.1.3 An additional nine Ecosites and Potential Local Wildlife Sites (pLWS) also fall immediately adjacent to the diversion route but are not considered in this assessment in line with the main ES.

HS2 Phase One bat records

9.1.4 There have been two roosts recorded within 500m of the diversion route as part of the ongoing HS2 Phase One surveys in 2020 to 2021. The two closest records of roosts were a common pipistrelle maternity roost and an unconfirmed roost Chiroptera sp., located

0.38km southeast from the diversion route. There has been one maternity roost recorded, a common pipistrelle maternity roost located 0.38km southeast from the diversion route. No hibernation roosts have been recorded within 500m of the diversion route.

9.1.5 Details of the bat roosts are provided in Table A.3. All roosts can be seen in Figure A.3 to Figure A.5.

Table A.3: HS2 Phase One surveys 2020 to 2021

Species	Roost type	Survey type	Details	Distance and direction from diversion	Date
Common pipistrelle	Possible maternity roost	Emergence	Multiple observations of common pipistrelle bats emerging from the building.	0.38km southeast	06/08/2020
Unknown Species	Unknown		Bat emerged from loose tiling but was not picked up on the detector.		

Figure A.3: 2020 - 2021 bat surveys - emergence / re-entry surveys

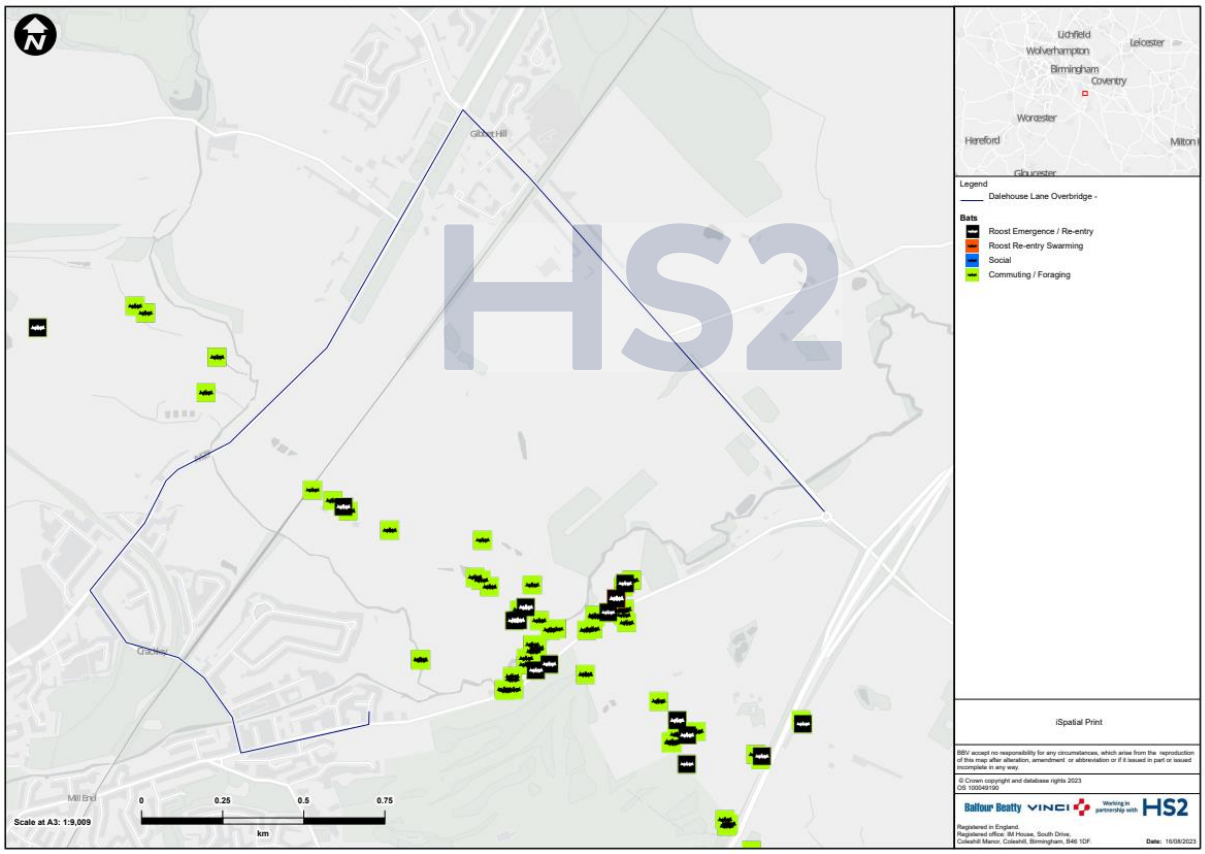


Figure A.4: 2020 – 2021 building roost assessment internal inspection

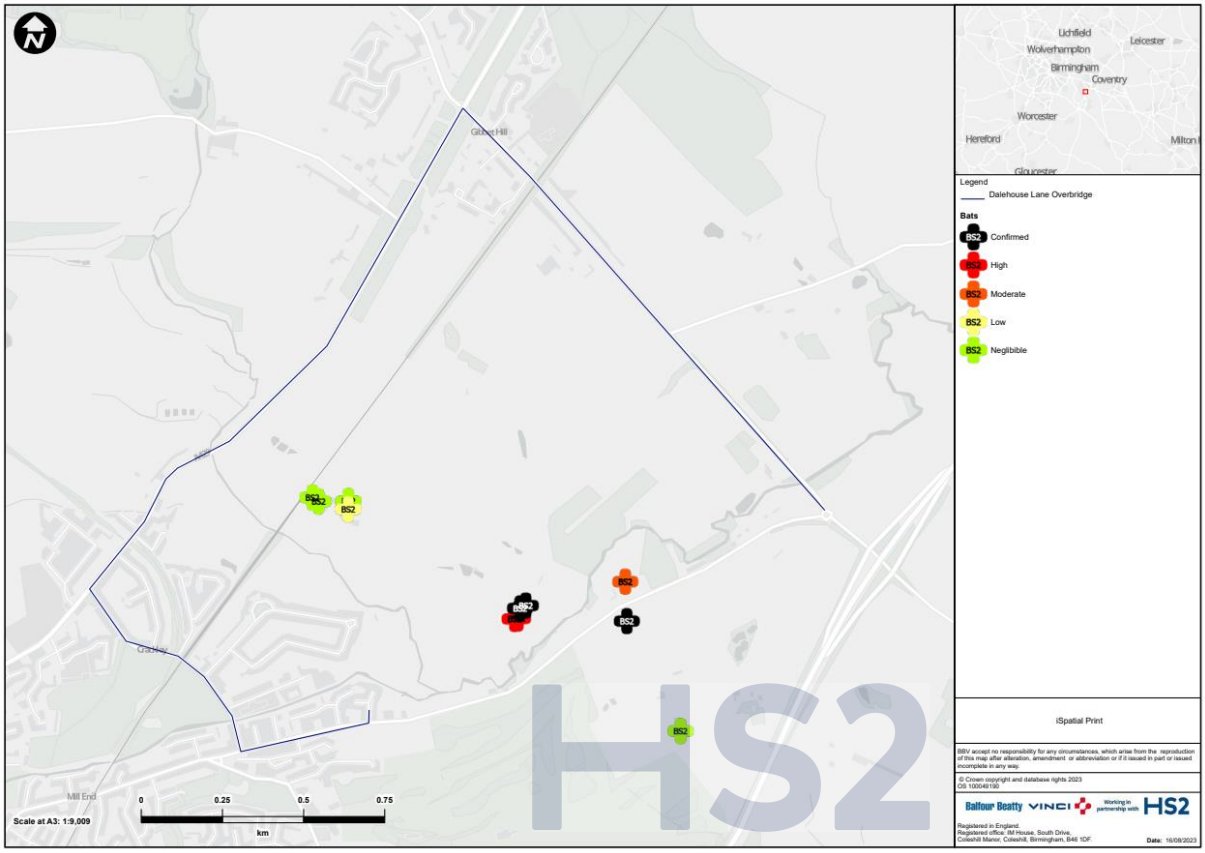
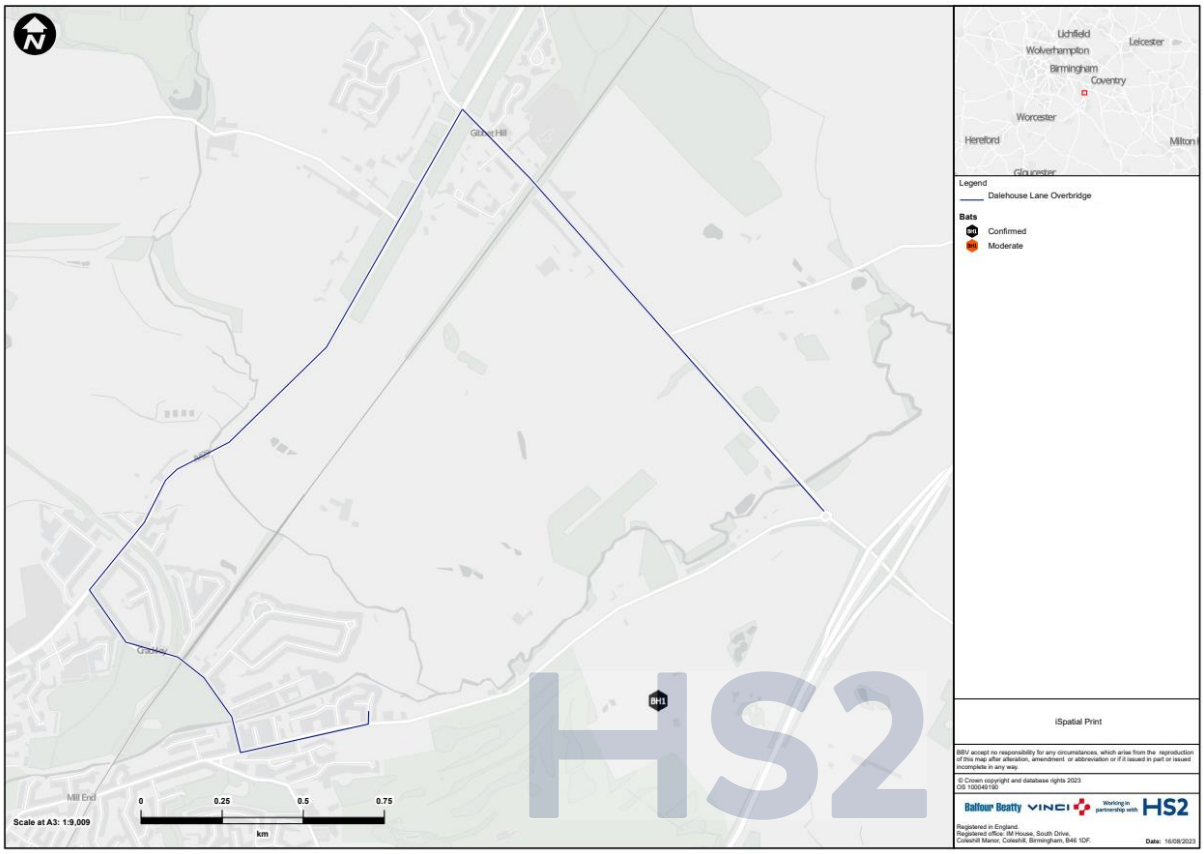


Figure A.5: 2020 - 2021 hibernation surveys



9.1.6 There have been seven roosts recorded within 500m of the diversion route as part of the HS2 Phase One baseline surveys in 2012 to 2020. The closest roost was an unknown roost located 0.03km from the diversion route. No maternity roosts were recorded. One hibernation roost was recorded, an unconfirmed species located 0.35km southeast of the diversion route.

9.1.7 Details of the bat roosts are provided in Table A.4. The locations of the confirmed roosts can be seen in the Figure A.6 and Figure A.7.

Table A.4: HS2 Phase One surveys 2012 to 2020

Species	Roost type	Details	Distance and direction from diversion	Date
Unknown	Unknown	Tree. No details.	0.03km northwest	06/06/2019
Unknown	Unknown	Tree. No details.	0.21km northwest	04/07/2019
Unknown	Unknown	Tree. No details.	0.32km southeast	16/07/2012
Unknown	Unknown	Building. No details.	0.34km southeast	16/07/2012
Unknown	Hibernation	Building. Hibernation roost identified.	0.35km southeast	2015
Unknown	Day	Building. Day roost identified.	0.35km southeast	2015
Unknown	Unknown	Building. No details.	0.35km southeast	16/07/2012

Figure A.6: HS2 2012 - 2020 bat surveys – buildings

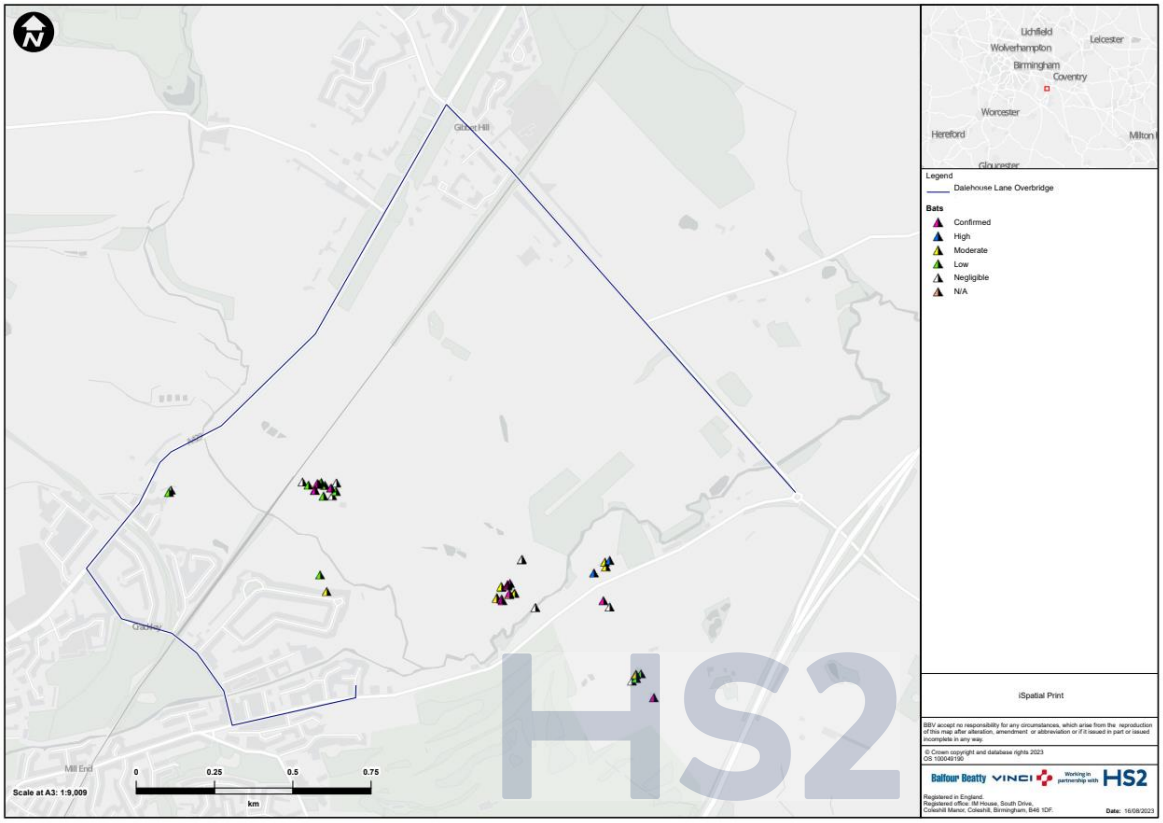
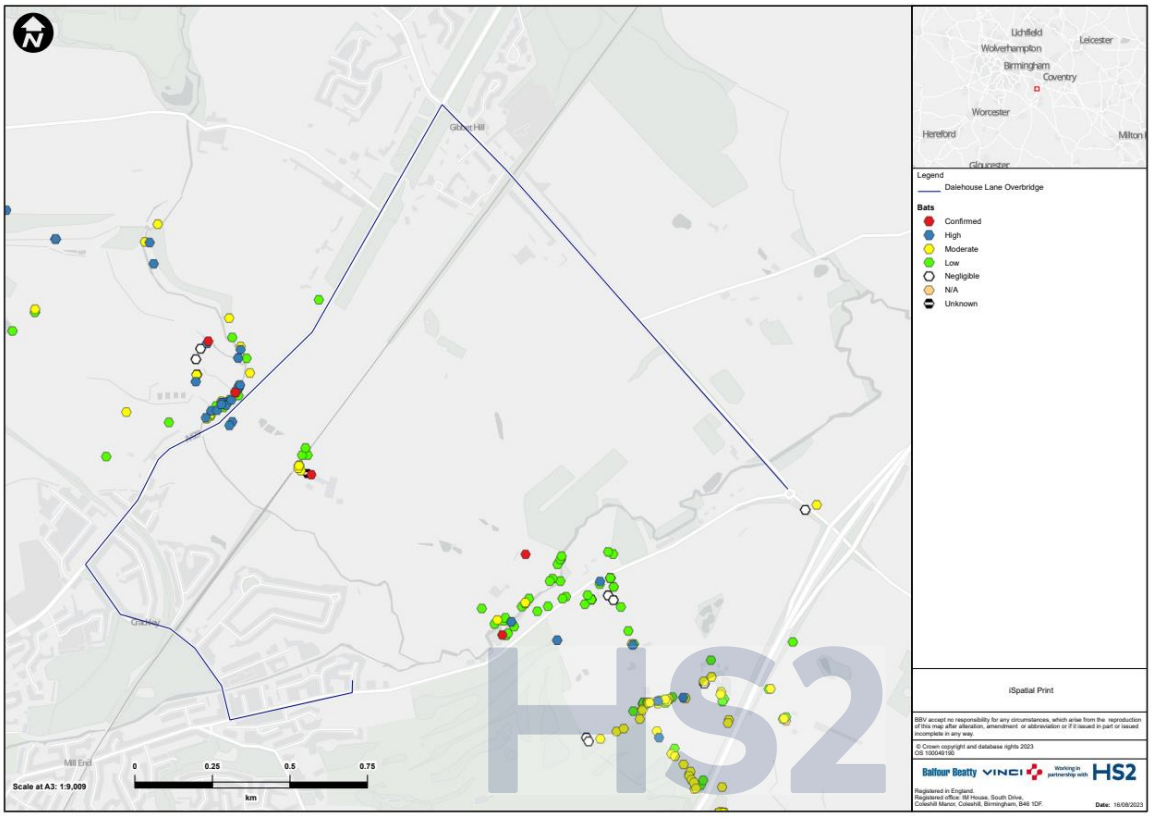


Figure A.7: HS2 2012 - 2020 bat surveys - trees



Bat species records

9.1.8 There were seven records of bat roosts returned from Warwickshire Biological Record Centre within 500m of the diversion route. The closest roost was a Leisler's bat of an unknown roost type located 0.09km from the diversion route. No maternity or hibernations roosts were returned within 500m of the diversion route.

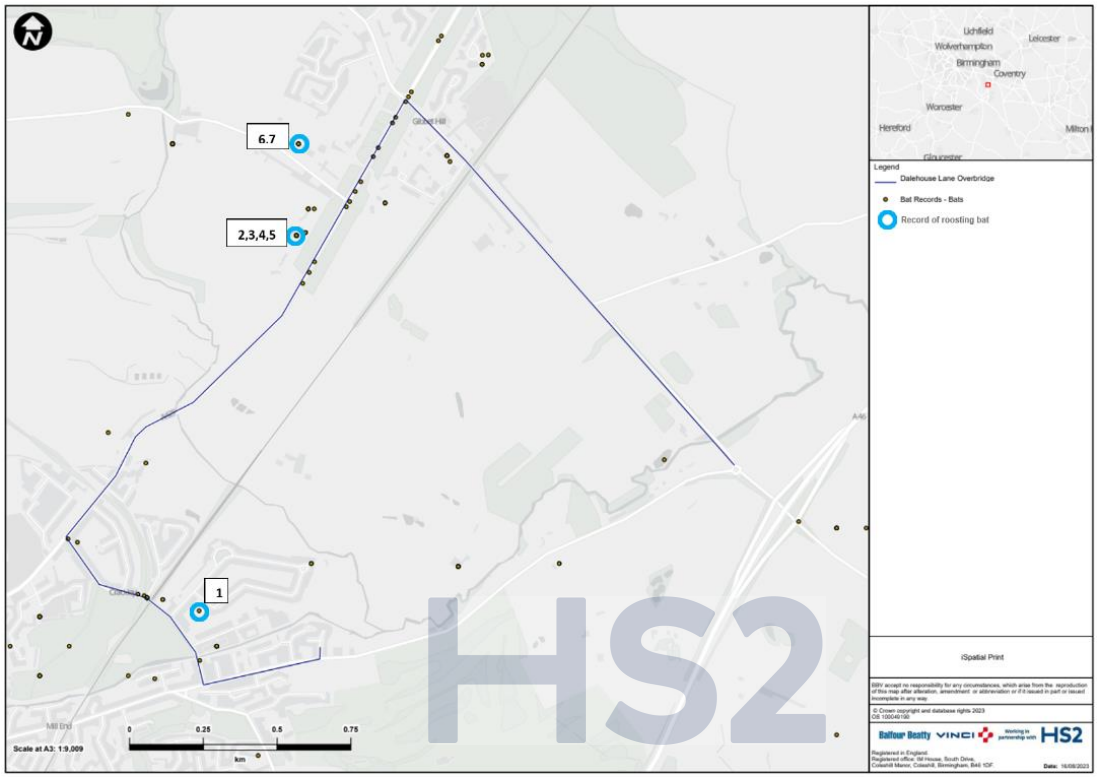
9.1.9 Details of the bat roosts are provided in Table A.5. Roost locations can be seen in Figure A.8 and Figure A.9.

Table A.5: Biological record search

Number	Species	Roost type	Details	Distance and direction from diversion	Date
1	Leisler's bat	Unknown	Droppings found. Confirmed by DNA analysis.	0.09km northeast	24/05/22
2	Brown long-eared bat	Possible day based on further emergence / re-entry surveys undertaken (see records 4,5 and 6 below)	Droppings and feeding remains found. DNA analysis confirmed the species.	0.09km northwest	01/10/23
3	Brown long-eared bat	Possible day roost	Species emerged during activity survey from southwest gable, returning after a brief circuit along hedgerow. At 21:50-22:00 an individual seen flying up and down inside the upper floor of the property.	0.09km northwest	02/05/14 to 06/06/14
4	Soprano pipistrelle	Possible day roost	Emerging at 21:07 from hanging tile on NW gable extension. Further counts of passes, foraging activity.	0.09km northwest	02/05/14 to 06/06/14
5	Pipistrelle species	Possible day roost	Suspected emergence of 3 individuals between from soffits of NW elevation. One individual emerging from soffit on SW elevation.	0.09km northwest	02/05/14 to 06/06/14
6	Chiroptera	Possible day roost based on further surveys (see record 8 below)	75 droppings identified scattered under ridge board, consistent with brown long-eared bat droppings.	0.24km northwest	02/09/16
7	Common pipistrelle	Possible day roost	Single bat emerged on 5/5/2017 during a dusk	0.24m northwest	05/05/17 – 24/05/17

Number	Species	Roost type	Details	Distance and direction from diversion	Date
			survey, 4 bats returned to roost on 24/05/2017 during a dawn survey.		

Figure A.8: Records of roosting bats returned from the Biological Record Centre



9.1.10 The records in Figure A.8 not shown as bat roosts are records of bat rescues, foraging or commuting bats.

Figure A.9: Records of maternity, hibernation and unknown roosts returned from the Biological Record Centre