

HIGH SPEED TWO

PHASE 2a INFORMATION PAPER

F3: INFRASTRUCTURE MAINTENANCE AND RAIL SYSTEMS CONSTRUCTION FACILITIES

This paper provides information regarding the temporary rail systems construction facility (railhead) and infrastructure maintenance facility (IMB-R) for the Proposed Scheme near Stone.

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

This paper was prepared in relation to the promotion of the High Speed Rail (West Midlands-Crewe) Bill which is now enacted. It was finalised at Royal Assent and no further changes will be made.

If you have any queries about this paper or about how it might apply to you, please contact the HS2 Helpdesk in the first instance.

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F3: INFRASTRUCTURE MAINTENANCE AND RAIL SYSTEMS CONSTRUCTION FACILITIES

1. Introduction

- 1.1. High Speed Two (HS2) is the Government's proposal for a new, high speed north-south railway. The proposal is being taken forward in phases: Phase One will connect London with Birmingham and the West Midlands. Phase 2a will extend the route to Crewe. Phase 2b will extend the route to Manchester, Leeds and beyond. The construction and operation of Phase One of HS2 is authorised by the High Speed Rail (London – West Midlands) Act 2017.
- 1.2. HS2 Ltd is the non-departmental public body responsible for developing and promoting these proposals. The company works to a Development Agreement made with the Secretary of State for Transport.
- 1.3. In July 2017, the Government introduced a hybrid Bill¹ to Parliament to seek powers for the construction and operation of Phase 2a of HS2 (the Proposed Scheme). The Proposed Scheme is a railway starting at Fradley at its southern end. At the northern end it connects with the West Coast Main Line (WCML) south of Crewe to allow HS2 services to join the WCML and call at Crewe Station. North of this junction with the WCML, the Proposed Scheme continues to a tunnel portal south of Crewe.
- 1.4. The work to produce the Bill includes an Environmental Impact Assessment (EIA), the results of which are reported in an Environmental Statement (ES) submitted alongside the Bill. The Secretary of State has also published draft Environmental Minimum Requirements (EMRs)², which set out the environmental and sustainability commitments that will be observed in the construction of the Proposed Scheme.
- 1.5. The Secretary of State for Transport is the Promoter of the Bill through Parliament. The Promoter will also appoint a body responsible for delivering the Proposed Scheme under the powers granted by the Bill. This body is known as the 'nominated undertaker'. The nominated undertaker will be bound by the obligations contained in the Bill and the policies established in the EMRs. There may be more than one nominated undertaker.
- 1.6. These information papers have been produced to explain the commitments made in the Bill and the EMRs and how they will be applied to the design and construction of the Proposed Scheme. They also provide information about the Proposed Scheme itself, the powers contained in the Bill and how particular decisions about the Proposed Scheme have been reached.

¹ The High Speed Rail (West Midlands – Crewe) Bill, hereafter 'the Bill'.

² For more information on the EMRs, please see Information Paper E1: Control of Environmental Impacts.

2. Overview

- 2.1. This paper provides information regarding the proposed temporary rail systems construction facility (railhead) and infrastructure maintenance base-rail (IMB-R) near Stone for the Proposed Scheme. It includes:
- an overview of the strategy associated with the temporary construction facility for rail systems: the 'railhead';
 - the reasons behind the proposed railhead location near Stone;
 - an overview of the strategy associated with the IMB-R;
 - the reasons behind the proposed IMB-R location near Stone and the site layout; and
 - the steps that have been taken to mitigate impacts on the local community.
- 2.2. Maintenance or stabling of HS2 passenger rolling stock is not included in this paper, as the Proposed Scheme does not include any rolling stock depot facilities. Facilities at Washwood Heath (Birmingham) on Phase One of HS2 are designed and located to also serve the Proposed Scheme. Further rolling stock depots are anticipated to be built as part of Phase 2b of HS2.

3. Rail systems construction strategy

- 3.1. Rail systems installation starts after the civil engineering installation of structures, earthworks and tunnels is complete. Elements of the rail systems include track laying, overhead line equipment, and signalling and communications equipment installation, testing and commissioning.

The need for a railhead

- 3.2. To construct the rail systems elements of the Proposed Scheme, a temporary construction facility connected to the conventional railway and the proposed route is required. This is known as a 'railhead'.
- 3.3. A connection to the conventional railway is essential because certain rail systems materials, such as rail, which is between 108 m and 216 m in length, cannot reasonably be delivered by road.
- 3.4. Other rail systems materials, such as aggregates, overhead line equipment and cables could be delivered by road, but given the quantum of such materials, it is beneficial to deliver these by rail where possible, to reduce the volume of construction vehicles using the public road network.

Overview of railhead requirements

- 3.5. A railhead will usually act as the main construction compound in terms of managing the rail systems installation, and needs to have the space and facilities to be able to receive, handle and store enough materials to maintain an efficient rail systems installation programme.

- 3.6. Rail systems installation is generally carried out in a 'linear' manner, working away from the railhead, using newly installed track to deliver materials further along the route. This limits the efficient range of the railhead. For Phase One of Hs2, this meant that more than one railhead was proposed.
- 3.7. As installation works progress in this linear manner moving away from the railhead, it is important that the railhead isn't 'bounded' by complex civils engineering works, which may block progress of the rail systems installation if they are delayed.
- 3.8. A railhead has several core functional requirements such as:
 - connection to the conventional railway network to a line that can accommodate freight trains to deliver and remove material;
 - good connection to the road network;
 - connection, preferably in both directions, to the main line; and
 - suitable space to load and unload trains as well as to store plant, trains and materials.
- 3.9. The above points are all critical in terms of considering the optimum location for a temporary railhead or railheads for the Proposed Scheme.

4. The railhead location

- 4.1. During the design development process since the announcement of the preferred Phase 2a route to Crewe in November 2015, detailed consideration has been given to the location of all temporary construction compounds required to construct the Proposed Scheme. This includes the temporary railhead needed for the rail systems construction works.
- 4.2. A preliminary options appraisal for the railhead looked at a number of areas and designs where the Proposed Scheme passes near the conventional railway, including Basford (south Crewe), Madeley and near Stone. Four options were not taken forward for further consideration as they were not deemed to be reasonable alternatives. Four options were considered in more detail, looking at environmental impact, cost, and suitability. An additional option named Aldersey's Rough (in the Whitmore Heath to Madeley area), raised as a result of representations made following publication of the working draft EIA Report and the Design Refinement Consultation, was also appraised.
- 4.3. All of the options considered are described in more detail in the ES, Volume 5, Alternatives Report (CT-002-000)³.
- 4.4. After careful evaluation, the proposed option near Stone was chosen as the preferred location. This is sited in an ideal strategic position, at the mid-way point along the route of the Proposed Scheme, able to support construction activities heading north and south simultaneously, which offers significant programme and construction benefits. It is able to connect directly to the

³ This is available here: <https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement>

existing Norton Bridge to Stone Railway and to the M6 via new slip roads provided under the Proposed Scheme, and is not bounded by 'complex' civil engineering elements, such as tunnels or long viaducts.

- 4.5. Siting the railhead at Basford (south Crewe), at the northern extent of the Proposed Scheme would place significant restrictions on the construction programme, as the facility could only support the construction of the Proposed Scheme in one direction. It is also bounded by 'complex' civil engineering elements such as tunnels.
- 4.6. Siting the railhead at Aldersey's Rough, at a location 1km south-east of Madeley with connections to the M6 and West Coast Main Line, would place restrictions on the construction programme. This is due to its more northerly location and connections to the route of the Proposed Scheme being bounded by 'complex' civil engineering elements, such as the proposed tunnels at Madeley and Whitmore. The rail connection to the West Coast Main Line would require part of the out of use Silverdale branch of the Stoke to Market Drayton Railway to be reopened and upgraded.
- 4.7. The proposed railhead option near Stone was considered optimal, for reasons of central positioning on the Proposed Scheme and co-location with the existing railway and strategic road network. These factors enable the railhead to be established early in the construction programme and the local impact of road based deliveries to be minimised, as well as providing rail systems construction programme robustness.
- 4.8. The proposed railhead location near Stone is shown in the ES, Volume 2 Community area 3 Stone and Swynnerton Mapbook.

5. Infrastructure maintenance strategy

Types of maintenance

- 5.1. Maintenance is the general day-to-day upkeep of the railway that keeps trains running. It consists of:
 - preventative maintenance to keep things working at their optimum level;
 - predictive maintenance to address issues with equipment before it fails; and
 - corrective maintenance to repair or replace elements once they have failed.
- 5.2. HS2 Ltd's infrastructure maintenance strategy is to undertake a programme of preventative and predictive maintenance by gathering and analysing real-time information about the condition of all elements of HS2 infrastructure, to avoid corrective maintenance as far as possible.
- 5.3. This condition-monitoring information will be obtained by:
 - using active monitoring systems on passenger trains;
 - running dedicated inspection trains with on-board specialised measuring equipment;

- using automated fixed monitoring systems on the elements themselves (track controlling systems, security systems, fire detectors etc.) that flag up the need for additional maintenance before they fail; and
- utilising maintenance teams to conduct on-site inspections.

Maintenance timing and facility positioning

- 5.4. On-site inspection work and the majority of maintenance work itself will normally be carried out along the route at night, once passenger train services are no longer operating. (Passenger services will operate between 05:00 and 00:00 from Monday to Saturday and between 08:00 and 00:00 on Sunday.)
- 5.5. Where urgent corrective maintenance is required, work will be undertaken at any time. In order to minimise disruption to passenger trains, the maximum response time to any incident where an element of HS2 infrastructure has failed has been set at one hour.
- 5.6. With this in mind, positioning maintenance teams and equipment at appropriate locations where they can reach the whole route quickly, will allow preventative, predictive and corrective maintenance to be carried out with minimum disruption to train services and with maximum efficiency.

Maintenance across the different phases of HS2

- 5.7. HS2 is planned to be built in phases, with maintenance facilities constructed separately on each phase. These facilities must be capable of safely, reliably and efficiently maintaining both that phase as well as interacting effectively with facilities provided on previous and future phases.
- 5.8. The maintenance facilities provided on Phase One of HS2 will be capable of fulfilling the maintenance requirements associated with that phase. Once the Proposed Scheme extends the route beyond Phase One of HS2, the Phase One and Phase 2a maintenance facilities will interact to provide a 'maintenance system' that fulfils the requirements of both phases. Once all phases are complete, the maintenance facilities built as part of Phase One, Phase 2a and Phase 2b will work together to fulfil the 'system wide' maintenance requirements.
- 5.9. The maintenance facilities proposed on Phase One of HS2 are not sufficient to maintain the Proposed Scheme. As such, a permanent maintenance facility is required as part of Proposed Scheme. This will initially need to maintain the Phase 2a route in conjunction with the facilities provided on Phase One of HS2. This facility must also be capable of maintaining the Phase 2b infrastructure to Golborne and Manchester once this becomes operational, in conjunction with appropriate maintenance facilities in that phase.

The permanent maintenance facility size

- 5.10. Through further development of the HS2 'system wide' maintenance strategy, the specification and size of the maintenance facility previously envisaged to be needed for the Proposed Scheme (and later Phase 2b sections to Golborne and Manchester), has been reduced. The smaller size is specifically designed to cater for the infrastructure maintenance needs of the Phase Two western leg.

- 5.11. As such, the proposed permanent maintenance facility is an 'Infrastructure Maintenance Base-Rail' (IMB-R), which is smaller than the Infrastructure Maintenance Depot (IMD) previously envisaged.

Overview of maintenance facility requirements

- 5.12. In addition to the requirements described above, the permanent maintenance facility has several core functional requirements such as:
- connection to the conventional railway network to a line that can accommodate freight trains to deliver and remove material;
 - good connection to the road network;
 - connection, in both directions, to the HS2 main line; and
 - suitable space to load and unload trains as well as to store plant, trains and materials.
- 5.13. The core functional requirements are very similar to those needed for a railhead. While the temporary railhead and permanent maintenance facilities do not necessarily need to be located at the same site, sharing the footprint, road and rail connections, and infrastructure, would avoid the cost and environmental impact of providing these facilities separately.

6. The permanent maintenance facility location

- 6.1. In November 2015, the Phase 2a route to Crewe was announced, with a permanent maintenance depot, in the form of a large 'Infrastructure Maintenance Depot' (IMD), at Crewe.
- 6.2. During the design development process since the November 2015 announcement, further consideration has been given to the location and operating requirements of a permanent maintenance facility for the Proposed Scheme.
- 6.3. In Autumn 2016, the working draft EIA report retained the IMD at Basford (south Crewe) as the permanent base for maintenance activities. Due to its location at the northern end of the Phase 2a route and distance from Phase One maintenance facilities, 'maintenance loops' (track sidings located adjacent to the main line) were proposed at Pipe Ridware. These maintenance loops would provide a daytime stabling facility for engineering trains working in locations remote from the maintenance depots ('out-stabling').
- 6.4. The Design Refinement Consultation 2016 sought feedback on a proposal to build a temporary railhead on a site bounded to the west by the M6 and to the east by the proposed Phase 2a route near Stone, with the potential that its use could then be changed to become a permanent maintenance facility.
- 6.5. Since the publication of the working draft EIA Report and the Design Refinement Consultation, HS2 Ltd has undertaken further work to consider the location of the permanent maintenance facility for the Proposed Scheme, taking account of consultation responses.

- 6.6. Two options were assessed on the basis of engineering and construction feasibility, cost and environmental impacts:
- Stone: A permanent maintenance facility located near Stone, sharing the same footprint and core infrastructure as the proposed Stone railhead. The maintenance facility, in the form of an IMB-R, would be situated on land between the Phase 2a line and the M6, between the Norton Bridge to Stone Railway and the M6 Meaford viaduct, with reception tracks connecting into the Norton Bridge to Stone Railway; and
 - Basford, south Crewe (the IMD as assessed in the working draft EIA Report): A permanent maintenance facility located at Crewe, situated in the west Basford area, with access spurs from the WCML via the proposed Basford Hall sidings and connection to the Phase 2a line east of Hough. It would require land which is planned to be used for regeneration, housing and businesses development. This option would not share any infrastructure with the railhead, which would be constructed separately near Stone. This option would require maintenance loops to be provided at Pipe Ridware.
- 6.7. After careful consideration, the option near Stone was taken forward into the Proposed Scheme. As this option shares the same footprint and core infrastructure as the railhead, it would not introduce any additional environmental effects during construction and would remove the cost of restoring the land needed for the Stone railhead to its original use. It would enable the ongoing use of infrastructure including buildings, utilities connections, rail sidings, connections to the conventional railway and M6, and environmental mitigation.
- 6.8. The Stone option would position the permanent maintenance facility strategically in the middle section of the Phase 2a route, enabling access to the HS2 line in both directions, at a location that will interact effectively with facilities provided on the Phase One infrastructure.
- 6.9. Locating the permanent maintenance facility at Stone would reduce travel time to undertake maintenance activities along the length of the Phase 2a route. Combined with the closer proximity to Phase One facilities, it removes the need for the maintenance loops at Pipe Ridware and maintenance facilities along the remainder of the Phase 2a route, or additional maintenance loops for 'out-stabling' maintenance trains or plant. This makes more efficient use of maintenance plant, as it reduces the need for non-productive shifts used to move the equipment from the maintenance facility to the maintenance loops, whilst still allowing a suitable amount of time for maintenance work to be undertaken in the short night time periods when passenger trains are not running.
- 6.10. As this option allows the maintenance loops to be removed from Pipe Ridware, this in turn removes constraints on the HS2 line alignment that has now been optimised (lowered) in this area. This optimisation has been included in the

Proposed Scheme and is detailed in the ES Volume 5 appendix: Alternatives Report (CT-002-000)⁴.

6.11. Once all phases of HS2 are complete, (with the route from Crewe extended to Manchester and Golborne), the location near Stone would be well positioned between the northern ends of this western leg and the maintenance facilities proposed for Phase One of HS2, to fulfil the 'system wide' maintenance requirements. This is shown diagrammatically in Figure 1.

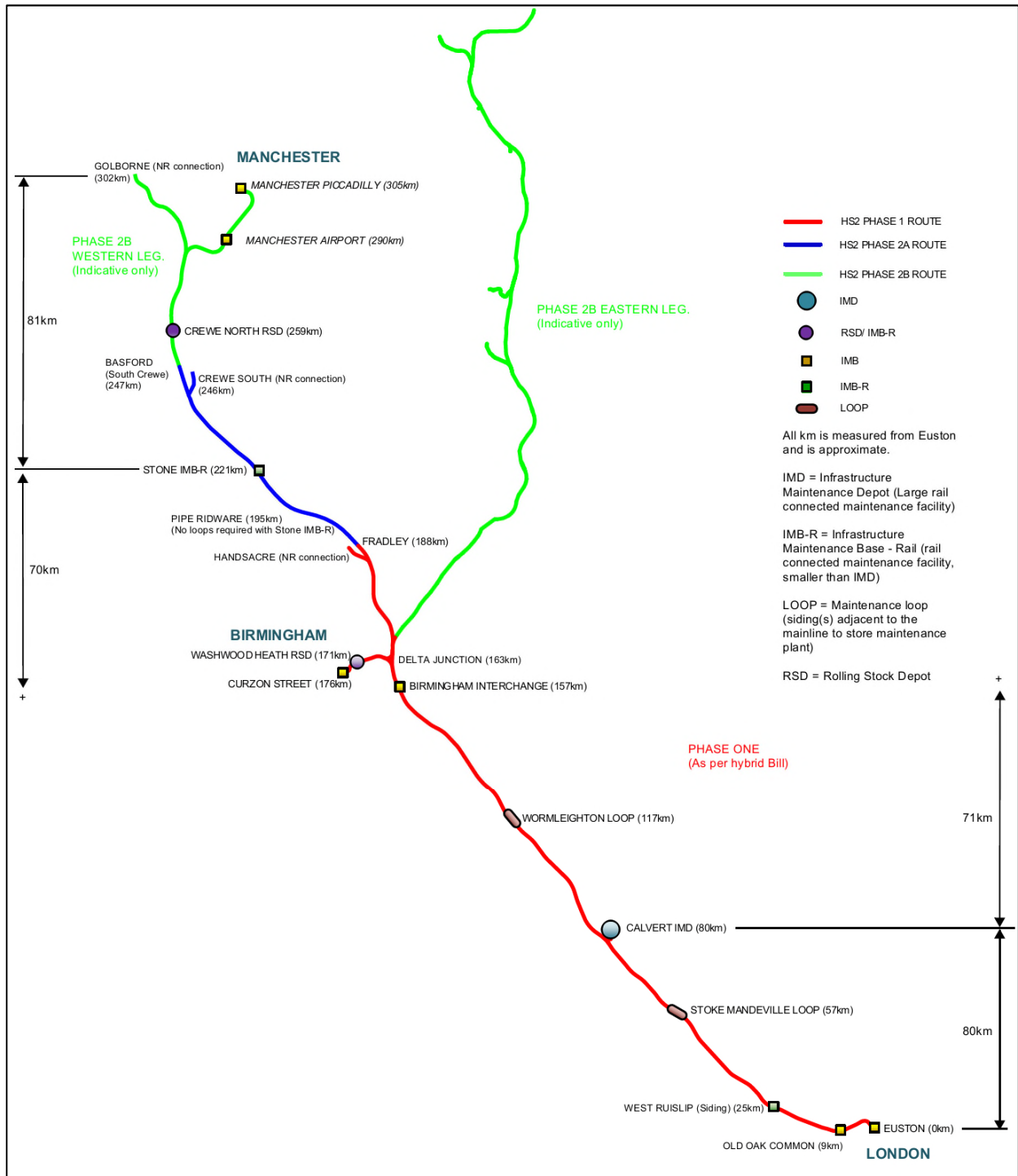


Figure 1: Maintenance Facilities on Phase One and Phase 2a

⁴ This is available here: <https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement>

7. Railhead and IMB-R site layout

- 7.1. Both the Stone railhead layout, and the permanent IMB-R, occupy a site of approximately 40 hectares, and are proposed to use land 'trapped' between the Phase 2a line and the M6, north of the Norton Bridge to Stone railway. Reception tracks, sidings and a headshunt will connect the Phase 2a line to the IMB-R and the Norton Bridge to Stone Railway.
- 7.2. Connection to the M6 will be provided for deliveries to the railhead and IMB-R directly from the motorway network via new slip roads to be constructed early in the programme for construction of the Proposed Scheme. These connections will also accommodate emergency vehicle use, as they replace the existing emergency access connections to the M6.
- 7.3. An offline realignment of Yarnfield Lane has been incorporated into the design, allowing the public highway to remain open during both construction and operation of the Proposed Scheme. Yarnfield Lane will be realigned, crossing over the M6 on a new bridge. Temporary lane restrictions on Yarnfield Lane for the construction of a temporary construction access roundabout to the north-east of the route of the Proposed Scheme will be required for a period of three months. On completion of construction, there will be tie-in works and traffic management requiring two weekend closures over a period of three months. Any closures will be notified to the local community well in advance. Following construction and connection of the realigned Yarnfield Lane, the disconnected section of road will be removed.
- 7.4. The Code of Construction Practice (CoCP) will require that a Route-wide Traffic Management Plan (TMP) be produced, in liaison with highway and traffic authorities and the emergency services. As appropriate, the plan will include:
 - the means of managing lorry flows;
 - the requirement for vehicle and driver safety;
 - requirements for preparing workforce travel plans;
 - the strategy for design and consultation for traffic management (including the signing strategy for emergency service access and lorry wayfinding); and
 - the requirements for protecting highways.
- 7.5. Local TMPs will also be produced in liaison with highway and traffic authorities and the emergency services. As appropriate, these will include:
 - contractors' construction flow assumptions;
 - the local routes to be used by large goods vehicles (approved where applicable), including lorry holding areas required for construction of the Proposed Scheme; and
 - significant works affecting roads and public rights of way, including temporary and permanent closures and diversions.

- 7.6 Contractors will be required to consider and, where reasonably practicable, mitigate noise generated by road-going construction traffic.
- 7.7 Construction vehicles and their impact on road safety will be managed, monitored and controlled by:
- a vehicle monitoring system, to enable contractors to provide forecast and actual movement data as well as information on safety compliance;
 - vehicle flow monitoring, where there are specific restrictions on numbers of vehicles permitted to use a route;
 - vehicle identification;
 - driver training in vulnerable road user awareness, rural road driving and fuel efficiency;
 - requirements for vehicle safety equipment and blind spot minimisation;
 - the implementation of fleet operator quality schemes; and
 - the implementation of route and flow monitoring, including monitoring that the driver and vehicle safety requirements are being met.
- 7.8 For more information, please see Information Paper D3: Code of Construction Practice, Information Paper E3: Management of Traffic During Construction and Information Paper E8: Vehicle Flow Management and Safety Requirements During Construction.
- 7.9 The facility will operate as a base for maintenance activities to support the railway infrastructure for the Proposed Scheme and, following the coming into operation of Phase 2b from 2033 onwards, for the Phase 2b western leg to Manchester and Golborne.
- 7.10 The outline design of the IMB-R, on which the land requirements and works in the Bill are based, is shown in the ES, Volume 2 Community area 3 Stone and Swynnerton Mapbook⁵.
- 7.11 Figure 2 below shows the key features.

⁵ This can be found here: <https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement>

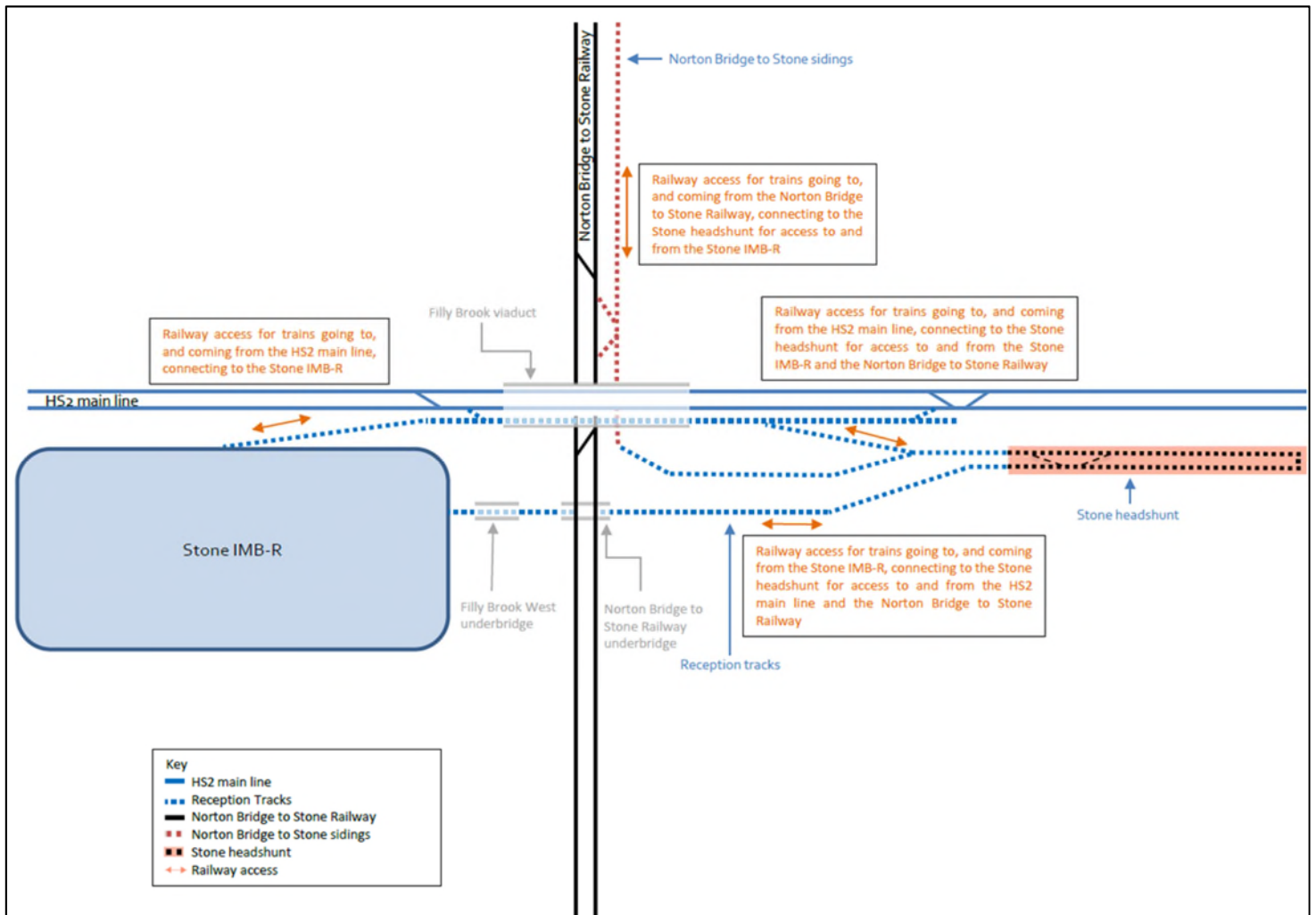


Figure 2: Stone IMB-R indicative layout

- 7.12 The IMB-R will connect to both the northbound and southbound Phase 2a tracks to allow maintenance trains to access all parts of the route where maintenance is required.
- 7.13 As the majority of heavy materials will arrive by rail rather than by road, reception sidings and a headshunt connecting the Norton Bridge to Stone Line to the IMB-R will also be provided. Once in the depot, trains carrying heavy materials will be stabled or unloaded.
- 7.14 The IMB-R will also consist of a range of buildings, varying in size but not exceeding two storeys in height. Buildings and other facilities will include:
- a secure storage area, 200m x 40m, and a two-storey workshop measuring 100m x 40m;
 - a single-storey covered storage and light maintenance workshop area of 0.4ha;
 - an external storage area with a concrete base measuring 270m x 75m, containing a small welfare unit 10m x 10m and storage unit 20m x 20m;

- two sidings, one comprising 75m hard standing and one extending for 100m with train washing facilities and fuel storage;
 - car parking for up to 100 vehicles;
 - two two-storey units, 50m x 25m, with ground floor stores and workshops and first floor office and welfare facilities;
 - trackform storage areas, one 400m x 10m and one 275m x 10m, and one concrete store 125m x 10m in area; and
 - stabling sidings to allow the handling and storage of rail infrastructure replacement materials and maintenance trains.
- 7.15 The detailed design will be subject to the planning regime set out in Schedule 17 of the Bill. This means that the final plans and specification for the design of the IMB-R will be subject to local authority approval following Royal Assent. For more information, please see Information Paper B2: The Main Provisions of the Planning Regime.
- 7.16 Screen planting will be used to mitigate visual impacts. Most notably to the south-west, blocks of woodland are proposed to aid visual screening from Yarnfield whilst being in keeping with the local character; and to the north-east, woodland planting will screen views of the Proposed Scheme from the surrounding residential properties in Stone.
- 7.17 To integrate the Proposed Scheme, including the IMB-R, into the landscape, earthworks will be graded to form smooth slopes used for additional mitigation planting, responding to the existing undulating landforms and woodland blocks that create the scenic quality of the landscape in this area.
- 7.18 Various ecological enhancements are proposed. The landscape mitigation and associated planting, the ecological mitigation and enhancements and mitigation measures for other identified environmental effects are outlined in Section 8.7.
- 7.19 More information regarding the facility can be found in the ES, Volume 2 Community area 3 Stone and Swynnerton.

8. IMB-R operations

- 8.1 The IMB-R will be open 24-hours a day, 7-days-a-week.
- 8.2 Engineering trains will normally be prepared and teams dispatched from the IMB-R to work on the railway at around midnight each night and return before the closure of the maintenance window, at 04:59 Monday to Saturday and at 07:59 on Sunday. However, this may vary when responding to incidents and emergencies.
- 8.3 Supplies will be delivered to the Stone IMB-R via road or rail. The majority of heavy materials will arrive by rail, with access via the M6 and Yarnfield Lane used only for light equipment and spare parts, or if rail transport is not appropriate. HGV access to the Stone IMB-R will be from the M6 via southbound slip roads.

- 8.4 Significant noise effects from the operation of the IMB-R will be avoided through the design of buildings and plant and the specification noise emission requirements of the facility and associated equipment, features and activities. In addition, bunds and noise fence barriers will be included in the detailed design of the IMB-R (as described in Section 8.7).
- 8.5 Lighting will be required for all external working areas of the IMB-R, including general circulation areas and walkways, with enhanced lighting to loading areas. The height of lighting installations will be kept as low as possible to reduce light pollution and facilitate maintenance. Automatic lighting control systems, complete with photocells and time clocks, will be used to operate all external lighting. The external lighting at the IMB-R will satisfy the environmental guidance for a 'dark sky' lighting installation. The luminaires and their support systems will also be installed to reduce the visual impact of the lighting installation. LED or low energy lamps will be used for lighting in the external areas to reduce energy consumption. Permanent operational lighting is one of the matters subject to the planning regime set out in Schedule 17 of the Bill.
- 8.6 Maintenance and operation of the Proposed Scheme, including the IMB-R, will be in accordance with environmental legislation and good practice.
- 8.7 More detailed design will be carried out as the Proposed Scheme progresses, subject to the planning regime in the Bill described in paragraph 7.15 above.

9. Further mitigation measures

- 9.1. To mitigate the loss from the Pool House Wood local wildlife site (LWS), a 2.6ha area of broadleaved woodland will be planted to the east of the IMB-R adjacent to the current extent of Pool House Wood. This will compensate the loss of the 3.3ha of existing woodland and reduce the effect upon woodland habitat.
- 9.2. Realignment of a section of Filly Brook will be required. The realigned Brook has been designed to allow it to be a naturalised open channel, rather than culverted. A 300m long existing culvert on this watercourse will be removed. These measures will reduce the extent of habitat loss and thereby reduce the fragmentation and barrier effects, allowing free passage of wildlife along the Filly Brook corridor. Approximately 4.4ha of native species-rich grassland will be created directly adjacent and to the south of the re-aligned Filly Brook, within the IMB-R site, to compensate for the loss of lowland meadow within the floodplain of Filly Brook.
- 9.3. As well as controls on the lighting of the IMB-R, the Proposed Scheme provides landscape bunds, with associated planting to mitigate views of the Proposed Scheme from sensitive receptors, including:
- landscape earthworks and landscape mitigation planting to the northern side of the Phase 2a line to integrate the Proposed Scheme into the surrounding landscape;
 - an area of landscape mitigation planting, 1km in length, along the southern side of the Norton Bridge to Stone sidings;

- a landscape bund 90m in length and 3m in height, will be located at the eastern extent of the Norton Bridge to Stone sidings. A noise fence barrier, 2m in height will run along the top of the landscape bund. The landscape mitigation planting, bund and barrier will provide visual and acoustic screening for Micklow House Farm and residents of properties in Walton;
 - a landscape, noise and flood mitigation bund, with woodland habitat creation, 430m in length and 3m in height, to the west of the M6 and north of the realigned Yarnfield Lane. The bund will provide noise and visual screening for properties to the west of the Proposed Scheme and flood attenuation for the IMB-R and Norton Bridge to Stone Railway; and
 - four areas of landscape mitigation planting, on the southern side of the Phase 2a, between the M6 and Yarnfield, including three sections adjacent to Swynnerton Bridleway 39.
- 9.4. A noise fence barrier, 2m in height will run along the top of the landscape bund on the eastern side of the Norton Bridge to Stone sidings. This noise fence barrier and the landscape bund adjacent to the site and west of the M6 will also mitigate noise effects.
- 9.5. A workplace travel plan will be prepared and implemented for the IMB-R, this will help to mitigate any operational impacts of traffic and transport movements, including measures to reduce single occupancy car journeys and encourage use of sustainable modes of transport.
- 9.6. A servicing and delivery strategy for the IMB-R will be implemented, which will include movement of materials by rail to reduce movement by road.
- 9.7. Please refer to the ES, Volume 2 Community area 3 Stone and Swynnerton for further information.

10. Employment at Stone IMB-R

- 10.1. Up to 100 staff are expected to work at the IMB-R in three, eight hour, shifts during each 24 hour period. The maximum number of staff on site is likely to be during the night shift at the start and end of the maintenance periods when 30 to 50 people may be at the IMB-R at any time. Peaks of activity and shift handovers may increase these numbers.
- 10.2. Staff access to the IMB-R will be from the M6 (southbound) and Yarnfield Lane. The majority of staff will be normally working at work sites along the railway line at night and so will be away from the depot for most of their shift.

11. More information

- 11.1. More detail on the Bill and related documents can be found at:
<http://www.gov.uk/HS2>