

**TRANSPORT AND WORKS ACT 1992**  
**TRANSPORT AND WORKS (INQUIRIES PROCEDURES)**  
**RULES 2004**  
**NETWORK RAIL (LEEDS TO MICKLEFIELD**  
**ENHANCEMENTS) ORDER**

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**ENGINEERING AND DESIGN/CONSTRUCTION**  
**PROOF OF EVIDENCE**  
***PAUL HARRISON***

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Author	Paul Harrison
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**The Network Rail (Leeds to Micklefield Enhancements) Order**  
CD 7.05 - Engineering Design and Construction Proof of Evidence

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## **1. INTRODUCTION**

### **1.1 The Order**

- 1.1.1 My name is Paul Harrison, Engineering Lead for the Alliance. I have a HNC in Electrical and Electronic Engineering. I have 30 years' experience in Railway Engineering Design, Construction and Testing. This covers all disciplines and GRIP 1 to 8, from Output Definition to Project Close Out.
- 1.1.2 I was appointed the Engineering Lead for the Alliance 5 years ago, responsible for Engineering, Network Rail Assurance, Design, Systems Engineering, Requirements and Common Safety Method. I have been involved in the TRU project since 2018 and I am Head of Engineering for the TRU.
- 1.1.3 In this Proof of Evidence, I provide evidence on:
- a) The engineering and construction aspects of the Order Scheme, and the wider Scheme of which it forms part.
  - b) Highways management during construction.
- 1.1.4 Engineering, design and construction of those parts of the Order Scheme which are associated with the closure of level crossings are addressed in the Proof of Evidence of Michael Westwood (**CD 7.26**) and highways design in the Proof of Evidence of Ged Stamper (**CD 7.08**).
- 1.1.5 From an engineering perspective, the Order would:
- Provide the powers to reconstruct three listed structures (Austhorpe Lane, Ridge Road and Crawshaw Woods) and recover one listed structure (Brady Farm).
  - Authorise Network Rail to temporarily take possession of the land required for the compounds associated with Bridge replacements at Kirkgate, Marsh Lane and Osmondthorpe Lane.
  - Authorise Network Rail to temporarily take possession of the land required for strategic compounds Manston Lane, Wykebeck Avenue and Phoenix Avenue.
  - Authorise Network Rail to acquire a strip of land off Newmarket Approach in order to facilitate the provision of a new access from the highway to the Neville Hill railway sidings. The Order would also permit the temporary use of land as a work site in order to facilitate the construction of the new access road; and

- Authorise the installation of electrification and signalling infrastructure works to be carried out alongside the existing railway track at Penny Pocket Park, together with the permanent acquisition of land needed for these works (4 small parcels of land comprising approximately 190 square metres).
- 1.1.6 Leeds City Council is the local highway authority and National Highways is the strategic highway authority over the Leeds-Micklefield length of the TRU. All the roads directly impacted by the Order Scheme are local roads for which Leeds City Council is the highway authority. Network Rail has agreed to enter into a Highways Agreement (see section 3.4) with Leeds City Council that will define the processes for agreeing the temporary traffic management plan prior to each construction phase and for managing and recording street works and permitting. I discuss this further below.

## **1.2 Statement of Matters**

- 1.2.1 The Statement of Matters has been received from the Transport Infrastructure Planning Unit. The following matters will be dealt with by this document read in conjunction with Michael Westwood's Proof of Evidence (**CD 7.26**) and Ged Stamper's Proof of Evidence (**CD 7.08**).
- Item 3 – The main alternative options considered by NR and the reasons for choosing the options set out in the Order;
  - Item 5a – Highways – Impact of the closure of Ridge Road due to the demolition and reconstruction of Ridge Road Bridge; and
  - Item 5c – Highways – Impact of construction traffic.

## **2. SCOPE OF EVIDENCE**

### **2.1 Introduction**

- 2.1.1 My evidence will be structured in two parts:
- a) Engineering & Construction Response to the Statement of Matters; and
  - b) Engineering & Construction response to submitted Objections.
- 2.1.2 Within my evidence I have not described the generalities of the Order Scheme, Option Selection or the full detail of the proposed works. These items are extensively documented in the Network Rail Statement of Case (**CD 5.01**). Specifically, the reader is referred to the following sections of the Statement of Case (SoC):

- SoC Section 6 – The Case for The Scheme
- SoC Section 8 – Scheme Development
- SoC Section 9 – Scheme Description and Construction

2.1.3 The application is based on the emerging design maturity available at the time of initial submission i.e. Approval in Principle (AIP) level of detail. It should be noted that a number of outstanding design decisions and details will only be known when the next stage, Detailed Design, concludes around January 2025.

## **2.2 Response to Statement of Matters**

2.2.1 My evidence, given in Sections 3 and 4, is primarily in response to the Statement of Matters as described above.

2.2.2 I address the following matters in this Proof in connection with the engineering design and construction of the Order Scheme in Section 3 of my Proof:

- Improvement works under to this section of NTPR
- Overview of the order scheme and wider Scheme strategic works compounds
- Bridge replacement works compounds (Kirkgate Viaduct, Marsh Lane, Osmondthorpe Lane)
- Works to listed bridges (Austhorpe Lane, Ridge Road Bridge.
- Construction; and
- Option selection / alternatives considered.

2.2.3 The highways powers sought under the Order and highways management during construction are addressed in Section 4 of my Proof.

## **2.3 Response to Objections and Representations**

2.3.1 I address Objections and Representations in Section 5 of my Proof.

### **3. ENGINEERING AND DESIGN RESPONSE TO STATEMENT OF MATTERS**

#### **3.1 Improvement Works to this Section of NTPR**

- 3.1.1 The Leeds to Micklefield section of the NTPR is a two-track railway that is currently not electrified.
- 3.1.2 As part of the TRU programme, Network Rail intends to electrify this section of NTPR which requires the renewal of various bridge structures on the route, the re-signalling of the railway to modern standards and the renewal of sections of the track using existing permitted development rights, although the use of land is included in the Order to facilitate these works.
- 3.1.3 The electrification of the railway requires the installation of steel masts/structures at a maximum spacing of 74m (dependant on track curvature, limiting structures such as bridges and the constraints of the overhead line electrical 'system') to carry the electrification wires. The standard height that these wires are suspended above each track is 4.7m above rail although this height can be varied (within a defined allowance) via location specific risk assessment. The new electrification masts/structures are positioned to suit the new track alignment.
- 3.1.4 The existing signalling circuits within the Neville Hill Route Relay Interlocking (RRI) and Peckfield RRI will be recovered and replaced by new Computer Based Interlocking (CBI) systems respectively.
- 3.1.5 There are various line speed increases along the route which triggers the renewal and alignment of the track.
- 3.1.6 There will also be along the route, to improve the stability of the railway embankments themselves (including the treatment of shallow mine workings).

#### **3.2 The Order Scheme and wider Scheme: an overview**

- 3.2.1 In addition to the Scheduled Works that would be authorised under the Order (the replacement of Austhorpe Lane Bridge and Ridge Road Bridge with associated gas main diversions; the works to Crawshaw Woods Bridge and the construction of the New Barrowby Lane Bridge) the Order includes a number of powers that would enable Network Rail to carry out the works associated with those works and with other works associated with the E2-E4 Project between Leeds and Micklefield.
- 3.2.2 Land for construction compounds is required to carry out bridge replacement or demolition works at
- Kirkgate Viaduct (Temporary Compound);



- Marsh Lane Viaduct (Temporary Compound);
- Austhorpe Lane Overbridge;
- Crawshaw Woods Bridge (Reconstruct);
- Brady Farm Bridge (Temporary Compound); and
- A656 Ridge Road (Replacement).

3.2.3 In each case construction compounds are required adjacent to the bridges to facilitate the construction works: some of which would be authorised under the Order and/or the request for deemed planning permission, and others under permitted development rights.

3.2.4 Land is also required for strategic works compounds, adjacent to the railway, which are required to facilitate construction of the TRU E2-4 Project. The strategic works compounds for which land is sought under the Order are

- Wykebeck Avenue Compound,
- Manston Lane Compound; and
- Phoenix Avenue Compound

3.2.5 The area within which the Order Scheme falls comprises an approximate 16km section of the railway between Leeds Station and the Micklefield area.

### **3.3 Strategic Works Compounds**

#### **3.3.1 Introduction**

3.3.1.1 A number of strategic works compounds are required to facilitate construction of the TRU E2-4 Project, for example, for track renewal and electrification works.

3.3.1.2 I have provided maps below showing the location of the strategic compounds and compounds related to specific works below, and also showing the location of two major compounds which I refer to in my proof - Marsh Lane Compound and Neville Hill Compound - that do not form part of the Order application or request for deemed planning but are the major compounds from which the E2-E4 Project works will be managed.

3.3.1.3 These compounds need to be located strategically along the Scheme Route to allow rapid access by construction teams to sections of track, to minimise nightly travel time during 'rules of the route' possessions (access windows

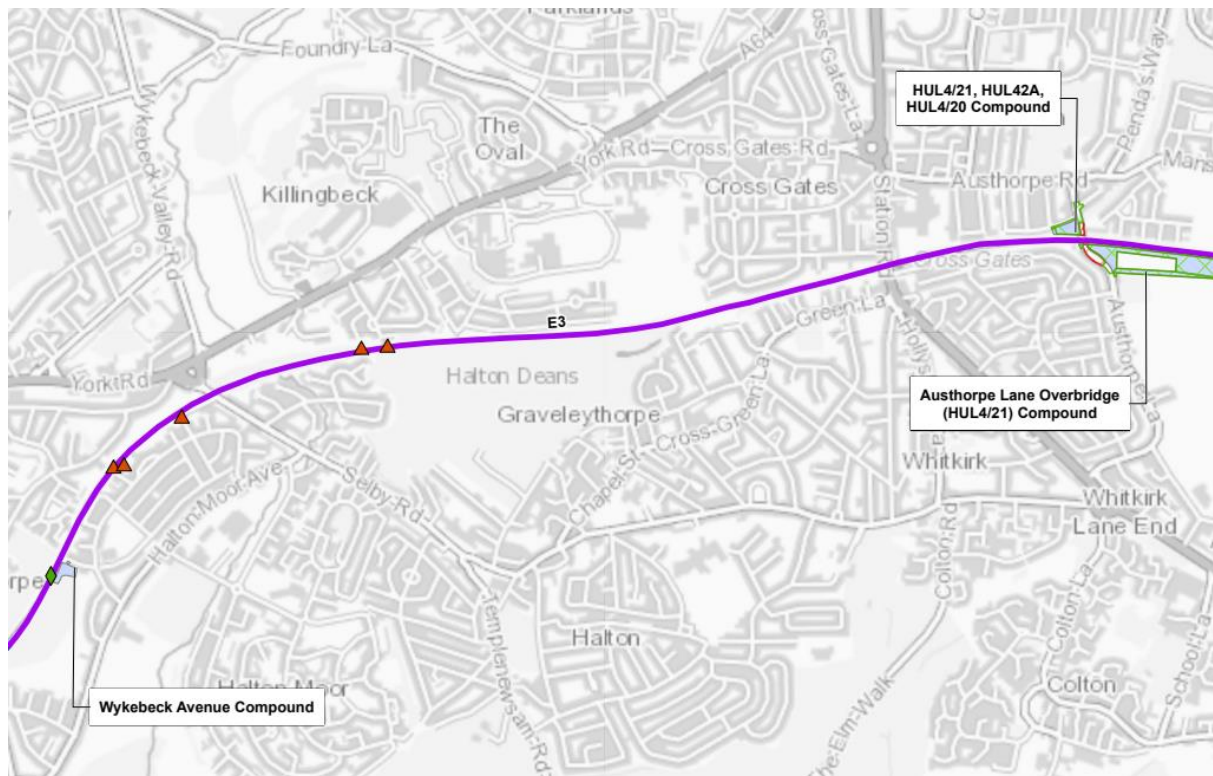
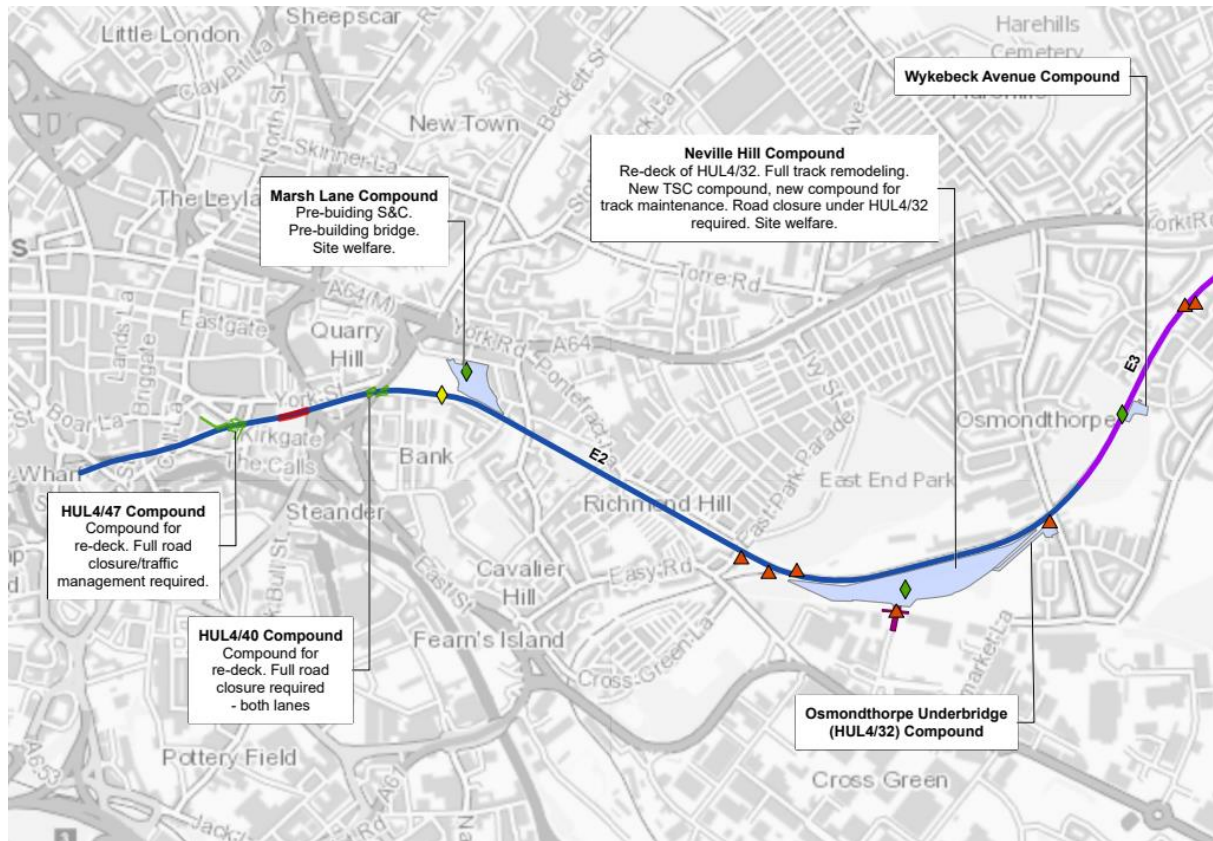
planned into the normal operational timetable for the railway, typically 4-6 hours overnight) thereby optimising the delivery programme.

- 3.3.1.4 The Order (if granted) would authorise Network Rail to temporarily possess and use land for three strategic works compounds.
- 3.3.1.5 Wykebeck Avenue is a small compound for transferring equipment to the railway, whereas Manston Lane and Phoenix Avenue are larger compounds to accommodate offices, parking and material storage.
- 3.3.1.6 In selecting suitable land for these compounds, a key requirement was the ability to transfer material and workforce from the public highway to the railway via road-rail access points (RRAP). The presence of an existing adjacent RRAP, or ability to provide a new RRAP, was therefore central to the selection of the three strategic compounds which form part of the Order Scheme: Wykebeck Avenue Temporary Compound, Manston Lane Temporary Compound and Phoenix Avenue Temporary Compound.
- 3.3.1.7 At Wykebeck Avenue Temporary Compound and Phoenix Avenue Temporary Compound there is an existing, adjacent RRAP. At Manston Lane Compound, a new RRAP will be created adjacent to the Compound, replacing an existing RRAP located approximately 200m to the west.
- 3.3.1.8 Other key considerations in selecting the locations for these compounds were accessibility to the public highway and minimising impacts on sensitive receptors, in particular residential properties.
- 3.3.1.9 All three compounds benefit from suitable public highway access arrangements. Manston Lane Compound and Phoenix Avenue Compounds are located away from residential areas. The Wykebeck Avenue Compound is located in a more urbanised section of the route but in an area where there are no alternative locations offering road to rail access further away from residential properties.

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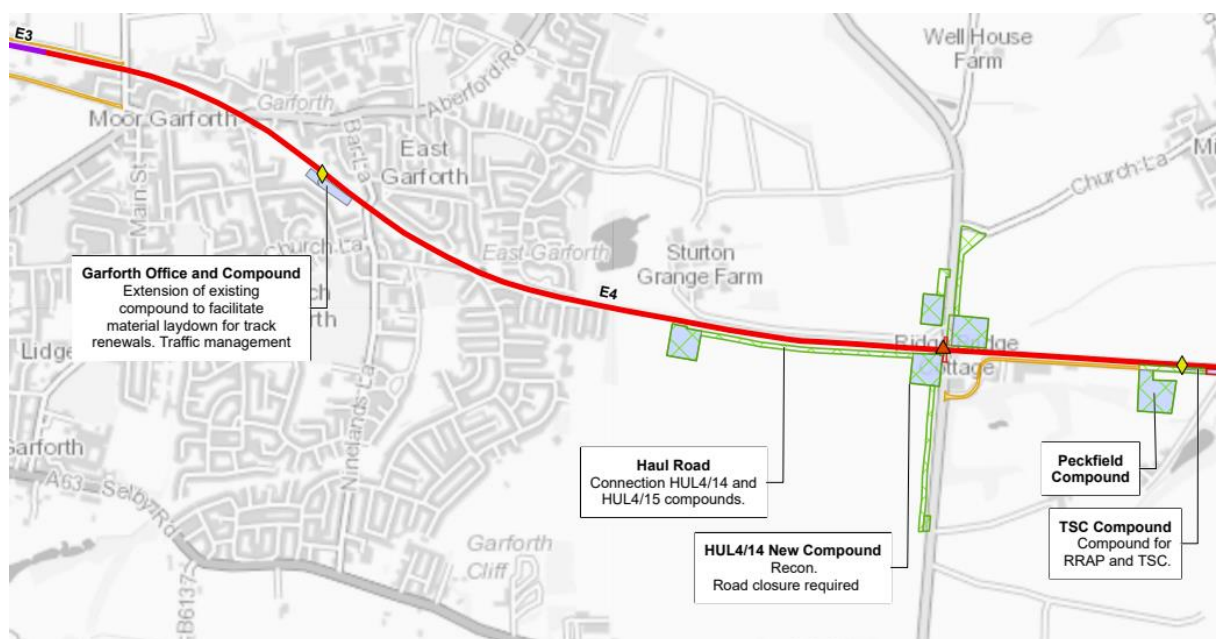
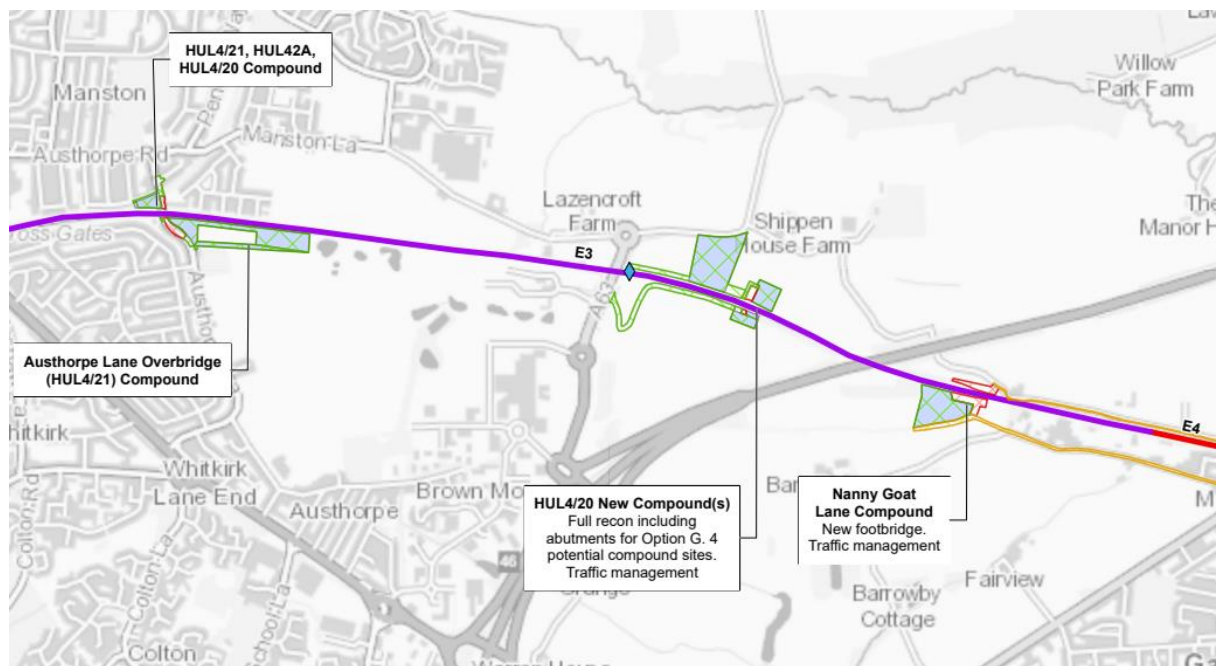
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Maps showing location of all the compounds:



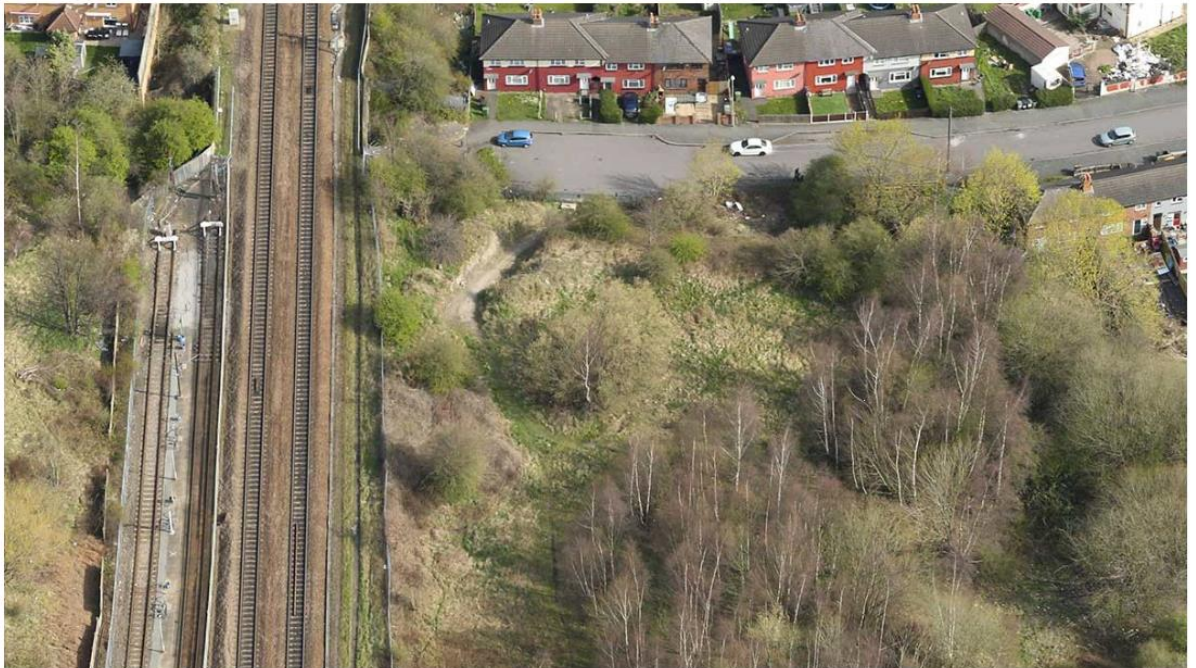
## ***The Network Rail (Leeds to Micklefield Enhancements) Order***

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### **3.3.2 Wykebeck Avenue**



- 3.3.2.1 Wykebeck Avenue is located in the Osmondthorpe area of Leeds. The land at Wykebeck Avenue is required as a temporary compound (including storage) to enable track renewal and overhead line clearance works and to enable upgrade of tracks and electrification of the line in that area.

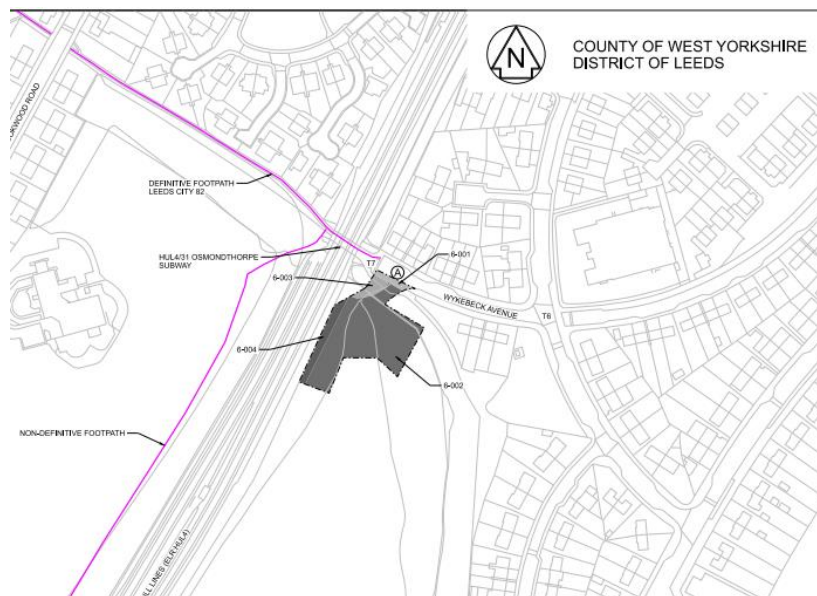


Figure 1: Works and Land Plan- Sheet 3

***The Network Rail (Leeds to Micklefield Enhancements) Order***

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- 3.3.2.2 The Order will authorise the temporary use of the land for this compound. The works supported by the compound would be carried out under permitted development rights, within Network Rail's operational land. This compound is scheduled to be in place for around three and a half years, including setup and decommissioning.
- 3.3.2.3 This compound is generally required to get access to the rail lines through a new RRAP. The RRAP will be brought to site and will be installed by a specialist supply chain partner. This compound will nominally accommodate c10 personnel and a 24ft accommodation unit.
- 3.3.2.4 A bellmouth will be constructed directly off Wykebeck Avenue to create access into the site. Access arrangements to and from the site, in terms of matters such as construction traffic routes, and any site-specific controls, would be managed through the arrangements I discuss in section 4 below.
- 3.3.2.5 As part of site clearance there are two mature trees to be removed. There is also potential contaminated ground to be managed. Currently the proposal is that all excavated material is bunded and remains on site.
- 3.3.2.6 At decommissioning, we return the site to a condition which is to be agreed with the relevant landowners.
- 3.3.2.7 This location has been chosen due to there being no other possible locations with an existing RRAP or where it would be feasible to install a RRAP, between Manston Lane at 14m 77ch and Shannon Street at 19m 50ch. As I have set out above, quick and close access to track along the whole route is critical to the efficient delivery of the E2-E4 Project.
- 3.3.2.8 Without the Wykebeck Avenue Temporary Compound, working in this area, could potentially mean an approx. 2.5-mile travel to the furthest place of work from another compound. Based on 5mph walking speed it would take approx. 20minutes to walk 1 mile. This could mean the loss of an hour each way, in an approx. 4-to-5-hour. With a mid-week possession time of 4-5 hours, this has the potential to impact on the project's success, especially on project area E3 element of TRU between Killingbeck and Garforth Station.

## An aerial photograph showing a multi-lane highway interchange. To the left of the highway is a large, vibrant green field. A railway line runs parallel to the highway, separating it from another green field on the right. The highway has several lanes with white lane markings. A few vehicles are visible on the road. The overall scene is a mix of infrastructure and natural landscape.

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- 3.3.3.2 The Order will authorise the temporary possession of the land for access and the construction of the working site at Manston Lane temporary compound.
- 3.3.3.3 The Order will authorise the temporary possession of the land for access and the construction of the working site at Manston Lane temporary compound.
- 3.3.3.4 26no Containex Cabins will be placed on site to accommodate c100 personnel. The site will have 24/7 manned security, with solar powered tower lights. The compound is expected to be in situ for around three and a half years including set up and decommissioning.
- 3.3.3.5 Access to the compound will be via the new ring road, the A6120 (turn onto Manston Lane at the roundabout). A new bellmouth will be constructed into the compound / an existing bellmouth would be widened to provide access into the compound from the public highway.
- 3.3.3.6 Access arrangements to and from the site, in terms of matters such as construction traffic routes, and any site-specific controls, would be managed through the arrangements I discuss in section 4 below.
- 3.3.3.7 At decommissioning, we return the site to a condition which is to be agreed with the relevant landowners.
- 3.3.3.8 Manston Lane at 14m 77ch is strategically placed central to the E3 scope of works and the only suitable location for a strategic compound and RRAP due to the (existing) cutting that runs all the way from this area to Wykebeck Avenue at 18m 11ch. Without Manston Lane Temporary Compound the nearest other



RRAP would be at Garforth 13m 20ch over 5 miles away from Wykebeck Avenue.

### **3.3.4 Phoenix Avenue**

- 3.3.4.1 Phoenix Avenue Temporary Compound is located in Micklefield, Leeds. This compound is a key requirement for the Scheme, and will facilitate track renewals and electrification works, as well as providing access for the new Micklefield TSC and supporting works associated with the closure of Peckfield Level Crossing. On site works are currently scheduled between August 2024 and April 2028.





Figure 3: Works and Land Plan – Sheet 11

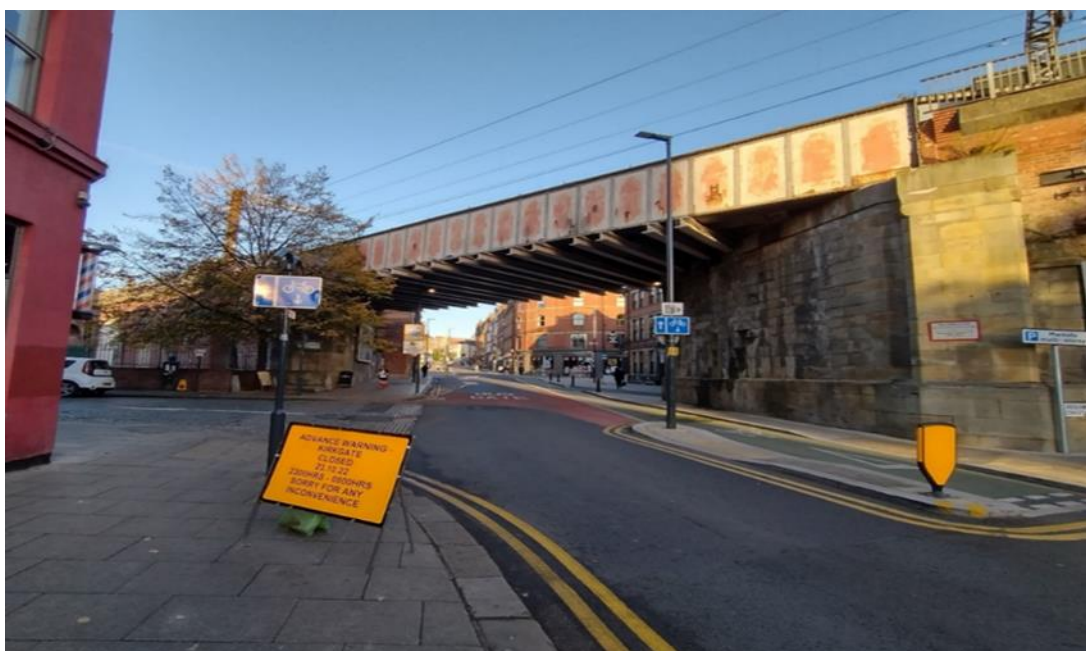
- 3.3.4.2 The Order will authorise the temporary use of land as a compound.
- 3.3.4.3 The location of the Phoenix Avenue Temporary Compound was chosen due to there being an existing RRAP adjacent to the Compound site, the Compound site being previously developed land and there being a good existing access route to the public highway, which is designed to provide access to an existing business park.
- 3.3.4.4 There will be welfare facilities for staff on site - 26no Containex Cabins will be brought to site to accommodate c100 personnel as well as the compound being used for storage of materials. The site will need 24/7 manned security and PIDS.
- 3.3.4.5 Access to this compound will be from an existing bellmouth off Phoenix Avenue which is directly off Ridge Road close to the M1. The traffic movements associated with the Peckfield Level Crossings works and Micklefield TSC are set out in Appendix 11 in Volume 3 of the ER (**CD 1.16.02**).
- 3.3.4.6 Access arrangements to and from the compound, in terms of matters such as construction traffic routes, and any site-specific controls, would be managed through the arrangements I discuss in section 4 below.

### **3.4 Bridge Replacement Works Compounds**

#### **3.4.1 Introduction**

- 3.4.1.1 In addition to the compounds associated with works to the bridges which are authorised under the Order, the deemed request for planning permission and/or the listed building consents, land is also required for construction compounds to carry out bridge replacement works at Kirkgate, Marsh Lane and Osmondthorpe Lane.
- 3.4.1.2 In each case, construction compounds are required adjacent to the bridges to facilitate the construction works, which need to be of a size suitable to accommodate the specific construction requirements for the works to that bridge.
- 3.4.1.3 In identifying the land for these construction sites, the sites had to meet those construction requirements, including access from the public highway for construction vehicles. In selecting the sites for the compounds, Network Rail also sought to minimise impacts on private land, and to avoid land take from residential properties.
- 3.4.1.4 Environmental considerations were also assessed during the selection process. The location and layouts of compounds have been chosen and designed where possible to minimise impacts on trees and protected species and their habitats as well as on nearby sensitive receptors such as residential properties.

#### **3.4.2 Kirkgate Viaduct Temporary Compound**



- 3.4.2.1 Kirkgate Viaduct is a single span bridge structure sitting within the larger elevated structure carrying the railway from Leeds Station East junction to approximately 80m west of Shannon Street footbridge.
- 3.4.2.2 The structure carries the electrified up and down main lines over Kirkgate.
- 3.4.2.3 The existing structure comprises longitudinally spanning wrought iron box main edge girders supporting rivetted cross girders, which in turn support a metallic deck. The structure has been previously strengthened and underpinned.
- 3.4.2.4 As a result of the increase in linespeed proposed by the TRU project the structure has been identified for reconstruction.
- 3.4.2.5 This bridge is to be replaced with a new modern bridge to accommodate the increased dynamic loads of the proposed line speed increase. The replacement of this bridge will be carried out under permitted development rights and would not be authorised under the draft Order or deemed request for planning permission.
- 3.4.2.6 The Order Scheme includes land for two small temporary construction compounds off Wharf Street and construction works adjacent to the Kirkgate bridge (see Land and Works Plan Order Sheet 1), all of which are required to support the bridge replacement works.
- 3.4.2.7 Two small temporary construction compounds next to the bridge are required in addition to one of two major construction compounds for the E2-E4 Project – Marsh Lane compound. This major compound, which will be the primary compound for the renewal of Kirkgate Viaduct, will be situated on former railway sidings owned by Network Rail and is not included in the Order or request for deemed planning permission. Marsh Lane strategic compound is around 15 mins walk from the Kirkgate Viaduct site.
- 3.4.2.8 The bridge renewal is a complex operation which will involve driving the existing bridge deck out from its current position by Self-Propelled Modular Transport (SPMT) and the new bridge from Marsh Lane major compound (where it will be constructed) driven out to Kirkgate by SPTM via the highway network. The works will require full highway and footway closures. This will be managed in accordance with the arrangements I discuss in Section 4 below.
- 3.4.2.9 The temporary construction compound(s) will provide local welfare, security, administration and management for works associated with the replacement bridge works, including the installation of scaffolding and the recovery of signalling and telecommunications cables as well as the removal of the old bridge and installation of the new bridge. The larger compound, south of the railway line off Wharf Street, is c550m<sup>2</sup> and the northern compound, north of



the railway, c120m2. The area within the southern compound will be used to position an eco-friendly welfare unit. The compounds will be fenced off with heras fencing.

3.4.2.10 The bridge replacement works are due to take place over Christmas 2027 during a 200 hour railway possession. The temporary construction compounds will be required for a total of seven months.

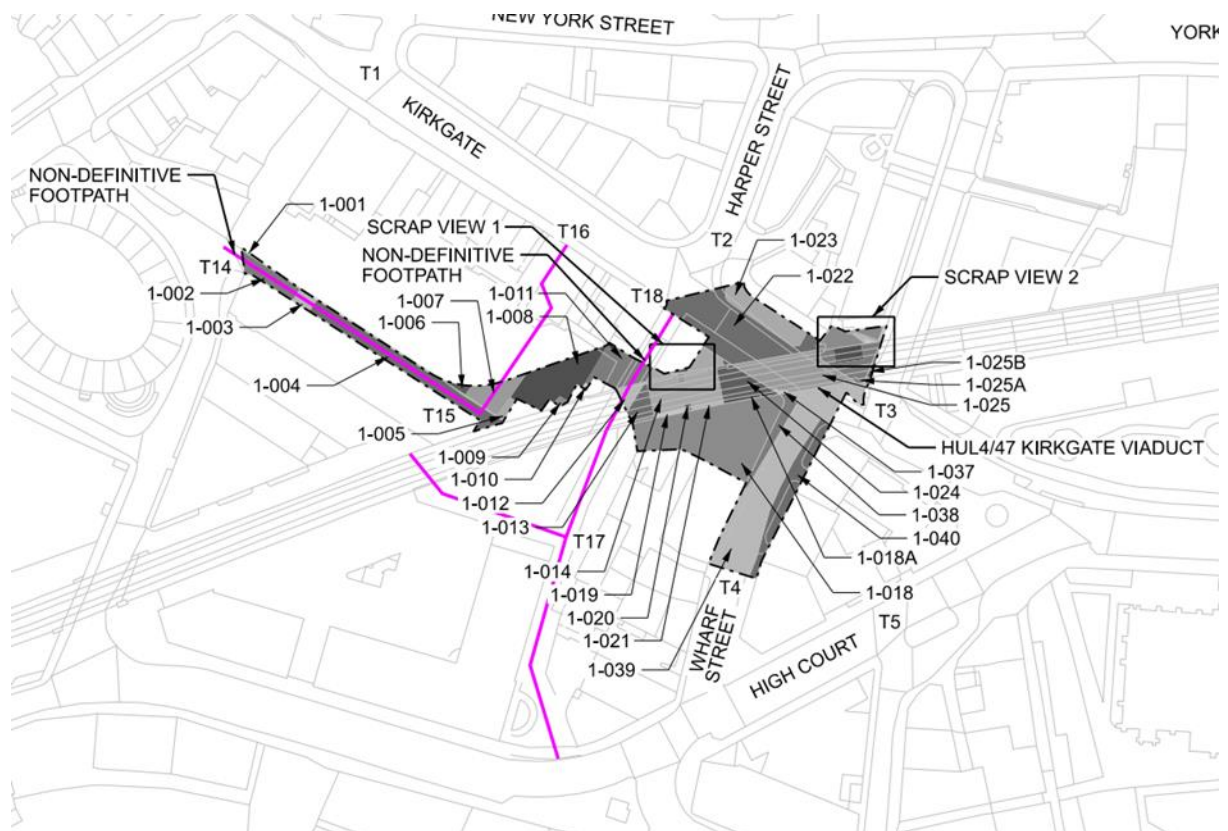


Figure 4: Works and Land Plan – Sheet 1

### **3.4.3 Marsh Lane Temporary Compound**



- 3.4.3.1 This compound is required in connection with the replacement of a single span metallic underbridge forming part of Marsh Lane Viaduct in Leeds.
- 3.4.3.2 The superstructure comprises 2No. wrought iron rivetted box edge girders that support transversely spanning wrought iron cross girders which in turn support longitudinally spanning rivetted wrought iron rail bearers that support a metallic deck plate. The substructure comprises masonry abutments. The structure runs over the A58 Marsh Lane to the east of Leeds Rail Station.
- 3.4.3.3 There is existing OLE present at the structure with a gantry fixed to the high mileage abutment. There is a 25KV HV interconnector that runs along the upside and multiple telecoms and signaling cables within troughing traversing the bridge at the upside and downside elevations, these will need to be supported whilst the works commence on a preinstalled cable bridge to be fitted in advance of the works.
- 3.4.3.4 As a result of the increase in linespeed proposed by the TRU project the structure has been identified for reconstruction.
- 3.4.3.5 This bridge is to be replaced with a new modern bridge to accommodate the increased dynamic loads of the proposed line speed increase. The replacement of this bridge will be carried out under permitted development

rights and would not be authorised under the draft Order or deemed request for planning permission.

3.4.3.6 The Order Scheme includes land for the temporary construction compound at Marsh Lane which is required to support the bridge replacement works.

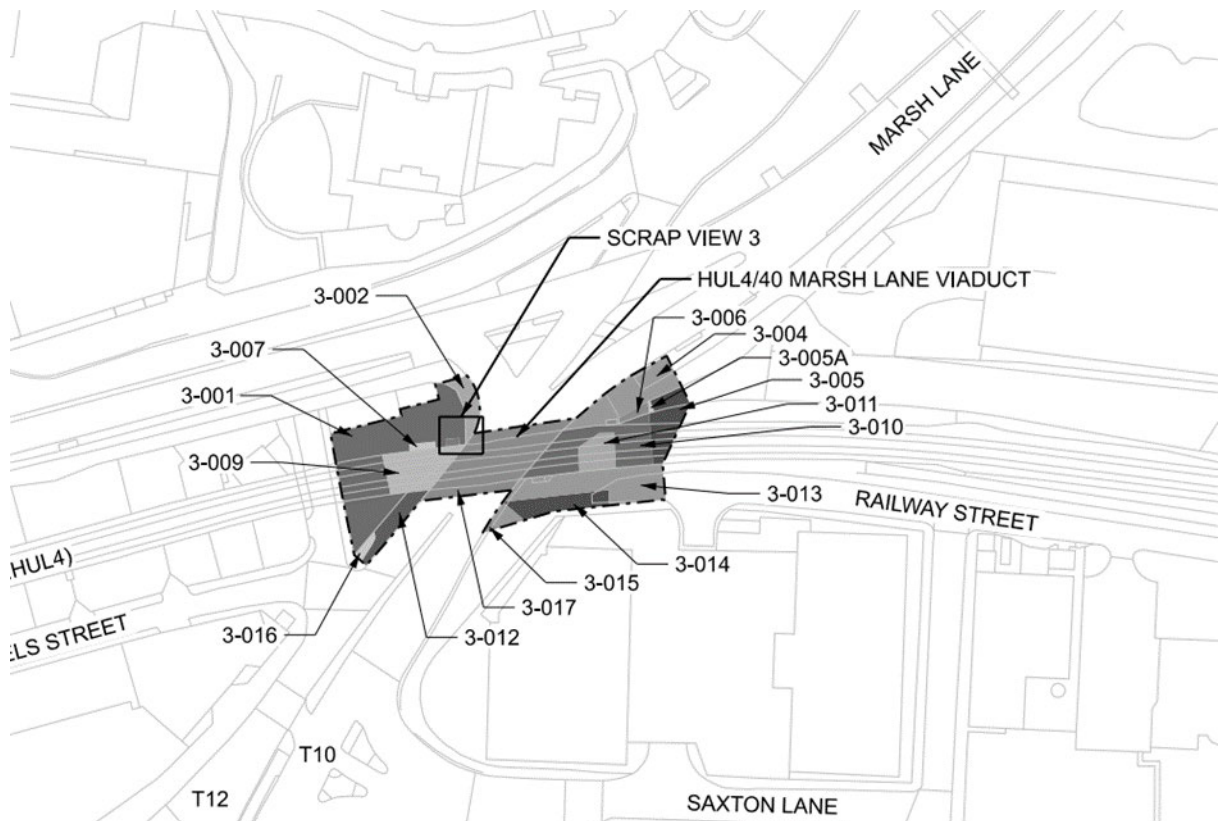


Figure 5: Works and Land Plan - Sheet 1

3.4.3.7 This temporary compound is required in addition to the major construction compound - Marsh Lane compound – discussed above which, like the bridge replacement at Kirkgate, will be the primary compound for the renewal of the Marsh Lane bridge. Marsh Lane major compound is around a 5 minute walk from the site.

3.4.3.8 Like Kirkgate Viaduct, the new bridge will be constructed at Marsh Lane major compound and driven into position by use of a SPMT.

3.4.3.9 The Marsh Lane temporary construction compounds will provide local welfare, security, administration and management for works associated with the replacement bridge works, including the installation of scaffolding and the recovery of signalling and telecommunications cables as well as the removal of the old bridge and installation of the new bridge. The compounds will be fenced with heras fencing. This is predominately to enclose scaffolds to work on the abutments.



3.4.3.10 The works to replace the bridge are due to take place over Christmas 2027 during a 200 hour railway possession. As with the bridge at Kirkgate, the bridge renewal is a complex operation which will involve driving the existing bridge deck out from its current position SPMT and the new bridge from Marsh Lane major compound driven to location by SPTM via the highway network. The works will require full highway and footway closures. This will be managed in accordance with the arrangements I discuss in Section 4 below.

3.4.3.11 The temporary construction compounds will be required for a total of seven months.

### **3.4.4 Osmondthorpe Road**



3.4.4.1 Osmondthorpe Lane underbridge is a single span metallic underbridge located to the east of Neville Hill depot in Leeds. The structure carries:

- non-electrified up and down main lines and up arrival siding; and
- the electrified Neville Hill Local Line and Carriage Washer line over the single lane Osmondthorpe Lane.



- 3.4.4.2 The existing structure is comprised of five internal and two external built-up half-through plate girders supporting transverse spanning deck units. The current track alignment means that all of the internal main girders are buried in ballast with sleeper ends shown close to the main girders.
- 3.4.4.3 As part of the proposed works for the E2-E4 Project, there are significant modifications to the track layout in this area. As a result of this, the bridge requires a full reconstruction to remove the hidden elements, provide a compliant ballast depth throughout and improve flexibility for future track alignment in the area.
- 3.4.4.4 Removal of the existing deck and installation of the new deck will require a possession of the railway and closure of the highway during the proposed works.
- 3.4.4.5 The Order Scheme includes land for the construction compound at Osmondthorpe Lane (see Land and Works Plan Order Sheet 3) which is required to support the bridge replacement works.

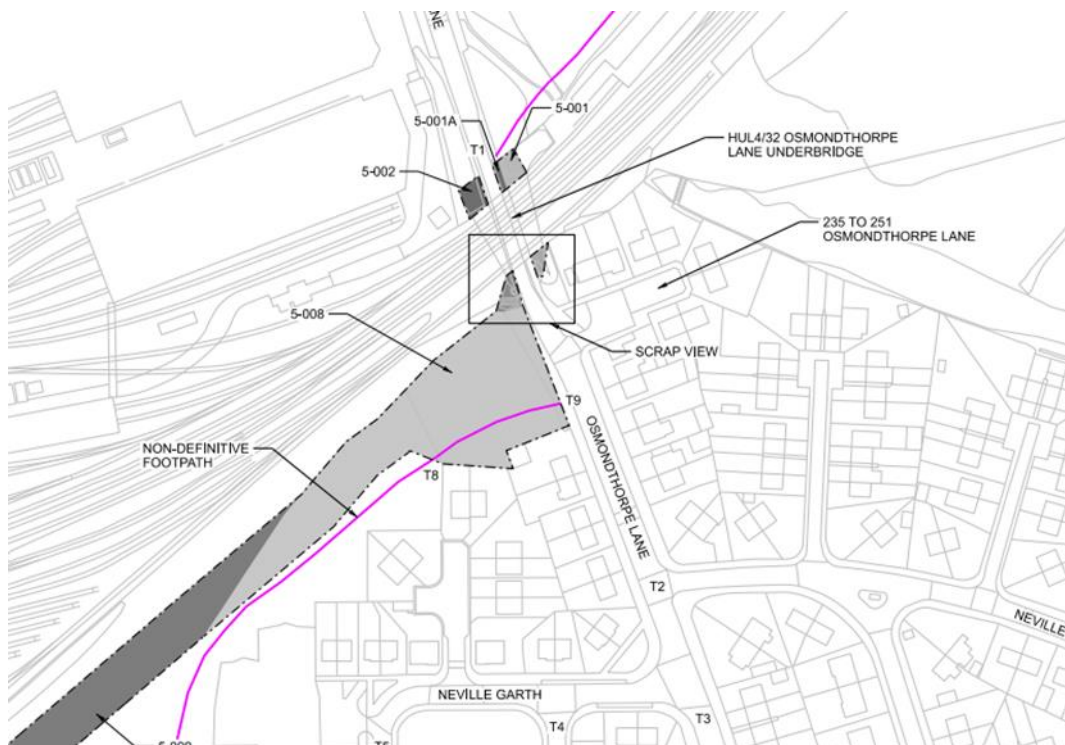


Figure 6: Works and Land Plan – Sheet 3

- 3.4.4.6 This temporary construction compound next to the bridge is required in addition to the second of the two major construction compounds for the E2-E4 project – Neville Hill Compound. That major compound, which will be the primary compound for the renewal of Osmondthorpe Lane bridge, and will be situated on former railway sidings at Neville Hill and is not included in the Order or

request for deemed planning permission, save for the Neville Hill Access Road which is to be constructed from Newmarket Approach to the Neville Hill Depot (Land and Works Plan Order Sheet 2).

3.4.4.7 The Osmondthorpe Lane temporary compound will provide local welfare, security, administration and construction management and to site a crane for the installation of the bridge.

3.4.4.8 The access to this compound will be through the new Newmarket Approach access and along a newly constructed haul road.

3.4.4.9 On site works are currently timetabled between August 2024 and December 2028.

### **3.5 Listed Bridges**

#### **3.5.1 Austhorpe Lane**



#### **Existing Arrangement**

3.5.1.1 Austhorpe Lane Bridge is located 0.6km east of Cross Gates Railway Station. It is a Grade II Listed structure with a single carriageway public highway crossing over it. Austhorpe Lane Footbridge runs immediately adjacent and parallel to the road bridge on the western side of the bridge and is a PRow.

3.5.1.2 It is a single span overbridge carrying a single 4.4m (approximately) carriageway public road, Austhorpe Road, with no footpath. The road narrows

to one lane over the bridge. The total deck width is 5.2m and the total span length is 16.3m approximately.

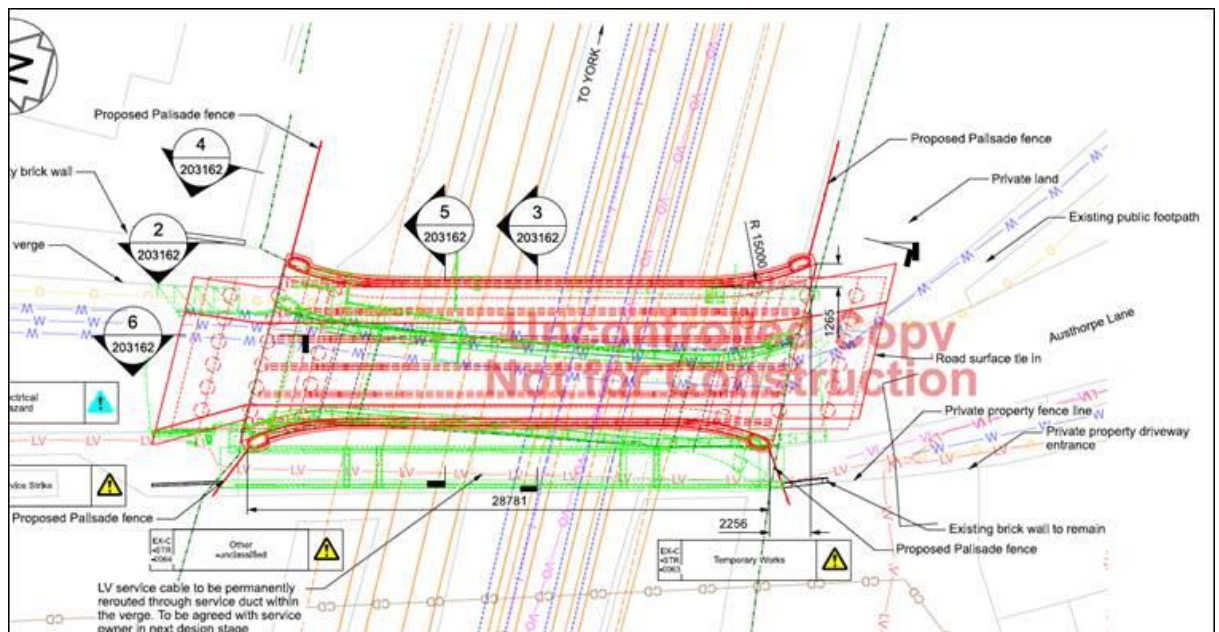
- 3.5.1.3 The bridge spans over 2No. non-electrified tracks, consisting of the Up and Down Hull lines near Cross Gates Station. The structure consists of a single masonry arch span with masonry parapets. Existing parapet height is 1.2m. The substructure consists of stone abutments and wingwalls.
- 3.5.1.4 Lineside infrastructure includes concrete access steps adjacent to the Down Hull Line and an access point with palisade gate. To the low mileage side of the existing bridge, there is a 475mm diameter gas pipe structure (HUL4/20B) which crosses over the railway lines.
- 3.5.1.5 Railtrack records show the arch structure to have been built in 1832. The structure is owned by Network Rail.
- 3.5.1.6 The site is constrained by the adjacent footbridge (HUL4/21A) and adjacent properties. HUL4/21A footbridge is a three-span reinforced concrete deck with half joints over the middle span and reinforced concrete piers. The structure crosses 2No. non-electrified lines and is adjacent to HUL4/21. The structure is outside party owned by Leeds City Council. Existing open railing parapet height is 1.1m. Clear span between pier faces is approximately 16.9m.

**Works to be undertaken pursuant to the Order, deemed planning permission and listed building consent**

- 3.5.1.7 Austhorpe Lane Bridge is to be reconstructed to enable the installation of overhead electrical wires for electrification of the line. A new two-lane carriageway and 2-metre footway on the western side is to be constructed.
- 3.5.1.8 The Gas Main Pipe Bridge is a high-pressure gas main attached to Austhorpe Lane Overbridge on the eastern side of the bridge, connecting into the buried gas main system either side of the bridge. The gas main will be diverted under the railway line via a bored tunnel. This is Scheduled Work No 2 in the draft Order and forms part of the Order Scheme.
- 3.5.1.9 The proposed full bridge reconstruction option would involve removal of the existing HUL4/21 masonry arch superstructure & abutments, removal of the existing HUL4/21A concrete structure and construction of a new arch bridge with new substructure. Redundant HUL4/21 arch abutments to be recovered to a minimum of 300mm below ballast level.
- 3.5.1.10 Due to the significance of the loss of the existing Grade 2 listed heritage asset (which is addressed in the Proof of Amy Jones), the new structure has been designed to replace the existing HUL4/21 and HUL4/21A bridges with a

3.5.1.11 Taking advantage of the fact that the bridge sits in a fairly hard rock cutting, the actual design proposed is a flat concrete deck arrangement with composite main girders and a slender steel arch anchored into the rock at both ends. “I-beams” main girders are made to be integral with reinforced concrete abutments. “I-beams” arch ribs are made to be with a pinned articulation between the arch and the abutment. It is envisaged that the weathering steel will be used for the main girders to minimise future maintenance requirement.

3.5.1.13 Drainage of the proposed deck will tie into the existing highway drainage network.



24



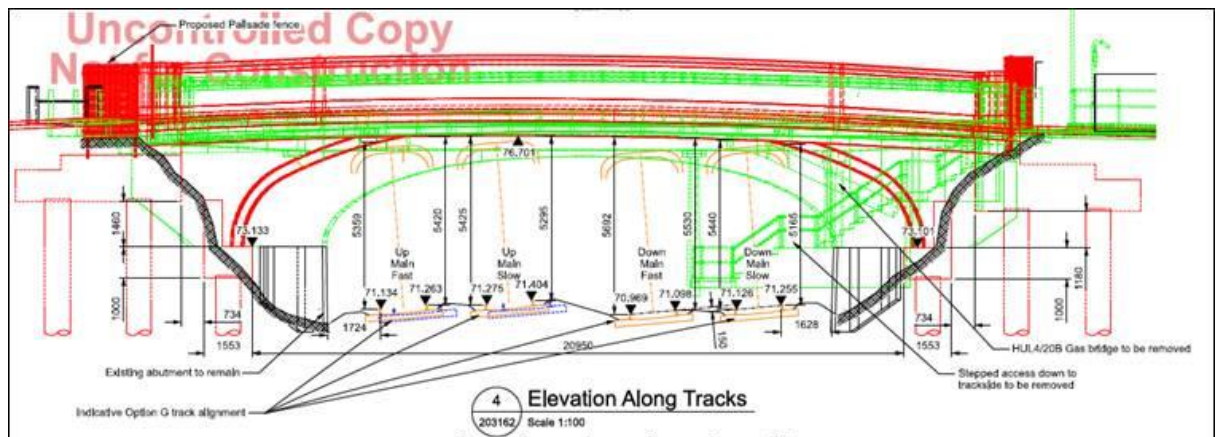


Figure 8

## Construction

3.5.1.14 The works will be carried out from two separate compounds, one on the northwestern side of the railway and one on the southeastern side of the railway, which will be needed for approx. 2yrs 8 months.

3.5.1.15 The southeastern compound will provide accommodation for approximately 50 personnel, including canteen facilities, drying rooms, a meeting room, offices and toilets.

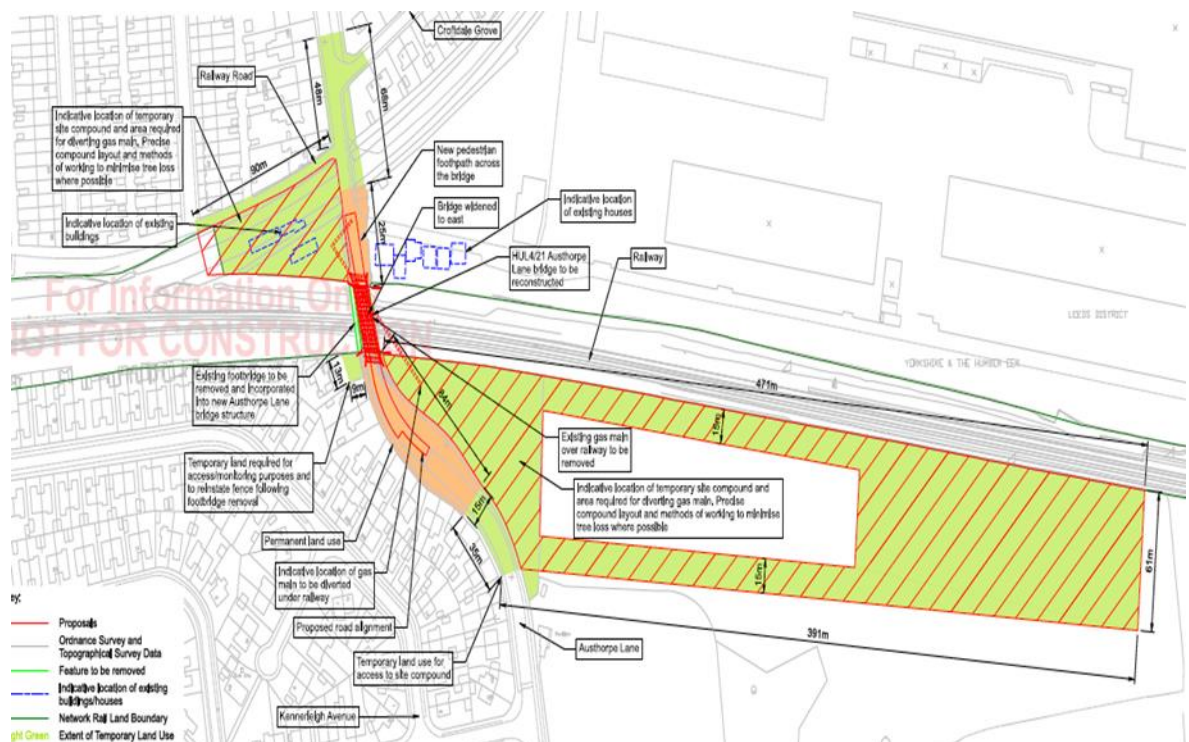


Figure 9 – Compound and Construction Access

3.5.1.16 The set up of the southeastern compound will require the removal of some mature trees and the construction of a new bellmouth access from the existing highway. Both compounds will be secured using heras fencing and security systems and lights that are solar powered will be installed.

3.5.1.17 In broad terms, the works to Austhorpe Lane bridge will involve the following:

*Mine treatment works preparatory works*

- Services surveys and inspection pitting of services
- CCTV condition surveys of drainage
- Condition surveys of highway, buildings and structures affected by drilling works
- Establishment of level monitoring of buildings and structures

*Mine treatment works*

- Install traffic management; partially close road
- Install compound, haulage and screening with 24 hr security.
- Gas monitoring to be established around rig and adjacent buildings.
- Highway and structure monitoring to be established.
- Drill hole positions to be surveyed by an Engineer. A Permit to Break Ground to be obtained.
- Controls to be put in place to prevent any spreading of waste materials.
- For each hole where the target depth has been achieved, grout will be injected from the bottom of the casing. A rise in pressure indicate that any voids at that stage have been filled. Pressures achieved and grout volumes injected will be recorded.
- Validation holes drilled to confirm efficiency.
- On completion of grouting works a final set of CCTV surveys will be completed and checks made to ensure all drainage is clear and functioning.
- All areas disturbed by drilling works will be reinstated to an appropriate standard and, where necessary, the highway and footways locally resurfaced. Any grout splashing will be removed by jet-washing or the like, controlling any runoff to prevent entry into drainage.
- Sign off mine treatment works.
- Remove monitoring, remobilise compound and remove traffic controls to fully reopen highway.

*Bridge preassembly works and compounds*

- Establish compound in the south-east corner and north-west corner for gas works
- Establish the haul road from the north-west corner to the adjacent field compound, parallel to the rail lines
- Establish the haul road from Austhorpe Lane to the compound

## ***The Network Rail (Leeds to Micklefield Enhancements) Order***

### ***CD 7.05 - Engineering Design and Construction Proof of Evidence***

- Bridge brace pairs to be assembled off-site and deliver in line with the delivery schedule
- Erect hoarding along south-eastern woodland and close pathway.
- North-west corner move the landowner to the next plot to make way for compound and gas works
- Secure both locations and erect signage for the compound locations. Maintain a TRU presence to the works whilst NGNW are sinking shafts and completing gas pipe move.
- When gas works completed, take back ownership of areas.
- Temporary works to line-side banking to take realignment of new road possibly Reinforced Concrete

#### ***Works prior to closure of railway line***

- Reroute all services.
- Take delivery of crane.
- Remove redundant gas main pipe bridge.
- Install traffic management and close road.
- Start piling north and south until completed.
- Build formwork for North and South abutments.
- Land hoarded walkways x2.

#### ***Works during possession***

- Demolish existing bridge and abutments and ferry back to compound.
- Remove and demolish footpath bridge.
- Land 8no arches combined as one lift onto flange upstands and drive pins trough and secure.
- Set up jacks in position and to soffit height ready for 4no braced pairs landing.

#### ***Works post – closure of railway line***

- Lay new ducting to footpath location
- Pour deck.
- Strip all and build formwork for walls.
- Stone masons clad the bank seats with stonework back cut to depth from all previous works and clad parapets.
- Take delivery of new with coping stones from the stonemasons. Lift onto east and west walls.
- Install curbing east and west and pour verge and pedestrian upstand footpath.
- Install all road realignment curbing (north and south)
- Relay all footpaths and bridge deck with asphalt.
- Strip out compound, traffic management and hoarding.

- Remove temporary works cable/service bridging.
- Reinstall signage and reopen road.

- 3.5.1.16 During the works to replace Austhorpe Lane bridge, some closures of the road will be required. Half road closures will be required for preparatory works and service diversions. Full road closure will be required during demolition, reconstruction and reinstatement of the highway.
- 3.5.1.17 The proposed diversion routes together with impacts on journey times and traffic flows are set out in Appendix 11 in Vol 3 of the ER (CD 1:16), in particular in Appendix 11A: 'Technical Note: Transport Assessment – Austhorpe Lane Temporary Bridge Closure'. It is proposed that diverted traffic would use the Austhorpe Road / B6902 route, shown on Figure 11A.4, although there are other routes that could potentially be used including Manston Lane and A6120 East Leeds Orbital Road. As set out in Appendix 11A, for users travelling from the Austhorpe Lane/Manston Road junction to the B6902/ B6192 / Selby Road roundabout, the diversion route would add an additional distance of around 1km, adding approx. 2 mins extra to the journey time.
- 3.5.1.18 Pedestrian and cycle access will be maintained during construction via a temporary scaffold bridge, but there will be some short periods during the works when that access will not be available, and diversions will be provided. During those periods, pedestrians and cyclists would need to use the bridge across the railway on Station Road close to Cross Gates Station, and then use local routes to complete their journeys.
- 3.5.1.19 The highway closures and diversions would be managed in accordance with the arrangements I discuss in Section 4 below.

### **3.5.2 Crawshaw Woods**

#### **Existing Arrangement**

- 3.5.2.1 Crawshaw Woods Overbridge is located approximately 2.5km east of Cross Gates Railway Station and 0.3km to the north of the M1 motorway. It is a Grade II Listed structure with private vehicle rights and a public right of way (footpath) running over it.
- 3.5.2.2 It is a single span, small farm accommodation overbridge, made of a steel deck structure installed over a Grade 2 listed cast iron arch structure which has no structural support functions. The existing deck width allows for the passage of a single vehicle only.



- 3.5.2.3 The bridge spans over 2 non-electrified tracks, consisting of the Up and Down Hull lines between Cross Gates Station and Garforth Station.
- 3.5.2.4 The original structure is a Grade 2 listed ornate cast iron arch structure, constructed circa in 1832, which is considered the most significant structure on the route by Historic England from a heritage point of view, due to it being the last remaining cast iron arch structure over a live operational railway in the world.
- 3.5.2.5 In 1943, a new deck structure consisting of 4No. longitudinal steel B.S.B girders was installed above the original cast iron structure to carry the bridge loads. The 4No. B.S.B girders are supported on concrete plinths over the original bridge abutments, the decking consists of transverse timbers. The original arch structure was left in place with no structural function.
- 3.5.2.6 P4 containment steel parapets were added to the structure in 1999. Steel cross members (each replacing one and a half timbers) at deck level connect the P4 parapets. Galvanised steel sheeting is attached to the P4 parapets.
- 3.5.2.7 In 2006, the bridge deck was strengthened through cross-bracing installed between the central B.S.B. girders in 2m spacing and RSA beams connecting the posts support plates. The substructure consists of sandstone and Bramley Fall gritstone abutments and wingwalls. The clear square span of the bridge between abutments is a minimum of 16.1m between coping units.
- 3.5.2.8 The structure is owned and maintained by Network Rail.

**Works to be undertaken pursuant to the Order, the deemed planning permission and listed building consent**

- 3.5.2.9 The works to Crawshaw Woods will broadly comprise the repair and restoration of the original cast iron framework and reinstatement at a higher level, which is required in order to enable the installation of OLE. The bridge abutments will be increased in height through the re-use of original stone from Crawshaw Woods Bridge and from the demolition of Brady Farm, Austhorpe Lane and Ridge Road bridges. The existing bridge parapet is a modern addition and will be replaced

in the new design with a more historically in-keeping design. The Order includes the bridge works and an access point from the public highway.



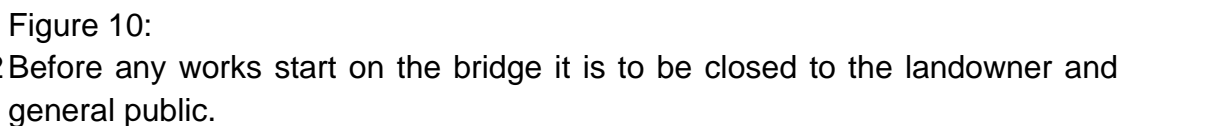
Figure 10. Illustration of proposed raised Crawshaw Woods Bridge design.

## **Construction**

3.5.2.10 The works to Crawshaw Woods Bridge would be undertaken from the Manston Lane strategic works compound and from smaller compounds located either side of the bridge, as shown indicatively on the plan below.

3.5.2.11 Temporary use of land will therefore be required for the compounds on the north and south side of the railway and for construction access. At this stage we plan to access the north-side compound via the Manston Lane strategic works compound and to construct a suitable haul road from William Parkin Way to access the south side compound. (see Land and Works Plans Order Sheet 5). The Order will authorise the temporary use of land for this purpose.

*CD 7.05 - Engineering Design and Construction Proof of Evidence*



3.5.2.12 Before any works start on the bridge it is to be closed to the landowner and general public.

- Preparatory and enabling works, including surveys, establishment of compounds, creation of haul road, and installation of temporary bridge to be installed to facilitate water supply for cattle trough.
- Remove the existing timber deck, B.S.B girders and parapets.
- Cut and permanently remove the old cast-iron handrails.
- Remove the existing filling material behind abutment walls.
- Temporary remove sections of masonry from abutments walls and wingwalls to (i) enable the lifting of arches and (ii) the construction of the proposed abutment new structure.
- Lift and remove temporarily the cast iron arches (the arches should be laid down into the compound by mobile crane so that they can be prepared and adapted to lift back into a 1.4m higher level, following proposed works on the abutment).
- Install the permanent RC abutments.
- Reinstall the abutment wall and wingwalls stones adapted to the final geometry.
- Reinstall the listed cast iron structure without the parapets approximately 1.40m above its current location.
- Backfill behind the abutment walls.
- Install the new ramp approach precast concrete structures and backfill. There will be casted concrete approach ramps on both bridge sides, which should achieve a highway surface level circa 1.29m higher than current level. Approach embankment works will be required on both bridge sides to enable the new proposed road level, and they shall be reviewed further at the next GRIP stage.

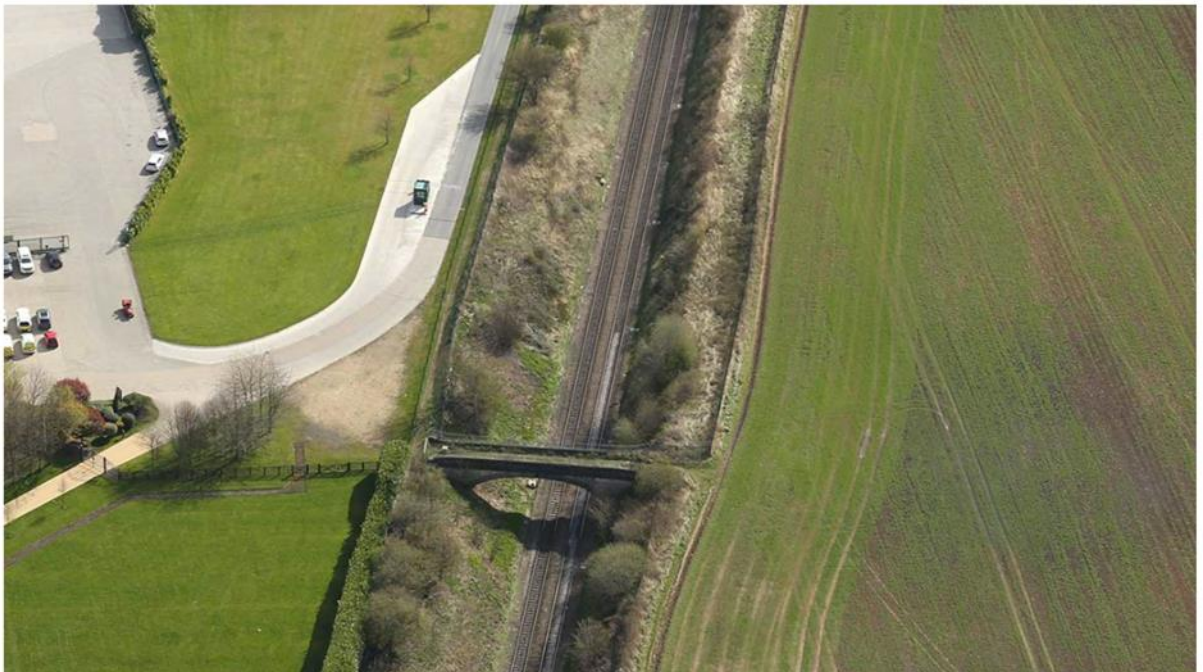
The southern approach ramp gradient will be of 1:20 (or 5%), and the northern approach ramp gradient to the bridge will be reinstated as per the existing gradient, which is of 1:8.3 (or 12%). Whilst this is steeper than the gradients set out in BS 8300 - Design of an accessible and inclusive built environment – Part 1: External environment, of 1:38:3 (or 12%), the TRU proposals do not make the northern approach ramp gradient worse than existing. This solution is proposed to limit impacts on the use of agricultural land that would be affected by a larger, shallower approach ramp and to minimise the use of materials in line with sustainability objectives.

- Install the permanent deck.
- Complete approach ramps, backfilling, surfacing and ancillary works.

3.5.2.14 The surfacing works and installation of new parapet railings would be undertaken before the public right of way over the bridge is re-opened to the public.

3.5.2.15 The land used temporarily for construction compounds would be reinstated to a condition to be agreed with the landowners. The onsite works are currently scheduled to take place between January 2025 and September 2026.

### **3.5.3 Brady Farm Bridge**



#### **Existing Arrangement**

3.5.3.1 Brady Farm Overbridge is located at Sturton Grange in Leeds and is a Grade II listed overbridge.



- 3.5.3.2 It is a single span overbridge carrying a single access track which provides access between two areas of farmland which are under separate ownership. Brady Farm Bridge is made up of a 3.3m wide dirt track without footway which is currently blocked off with a precast concrete kelly block. The overbridge spans over 2No. non-electrified tracks consisting of the Up and Down Hull main lines between East Garforth Station and Micklefield Station.
- 3.5.3.3 The bridge comprises a masonry arch, masonry abutments and wingwalls. The clear square span of the bridge between abutments is an average of 16.25m. The arch structure was constructed circa 1832.
- 3.5.3.4 The bridge soffit has an existing minimum vertical clearance from rail of 4.18m at Up Hull line and 4.79 at Down Hull line. The vertical clearance is not sufficient to accommodate the proposed TRU infrastructure changes and allow installation of Overhead Line Equipment. The clear cess width from the abutment to the adjacent Up Hull line is 1.64m (minimum), and the clear cess width from the abutment to the adjacent Down Hull line is 9.82m (minimum).
- 3.5.3.5 Existing parapets consist of a masonry parapet approximately 425mm high with a steel mesh Kee Klamp parapet fixed on top to an overall height of approximately 1450mm. The existing parapets are not compliant with respect to NR/BS/L1/331 Issue 2 for bridges over electrified railway. The structure is owned and maintained by Network Rail.

**Work to be carried out under the listed building consent**

- 3.5.3.6 As the vertical clearance is not sufficient to accommodate the proposed TRU infrastructure changes, it is not possible to retain Brady Farm Bridge as it is currently. Having considered a number of options for this bridge, it was decided that the bridge should be removed/demolished but that a replacement was not required, having regard to and the fact the structure was no longer in use, the availability of alternative access across the railway and cost.
- 3.5.3.7 Whilst the proposal would result in the total loss of this Grade 2 listed structure (discussed in Amy Jones' Proof), it is proposed to recover and reuse the sandstone from this on other TRU overbridge reconstructions (Austhorpe Lane Bridge / Crawshaw Woods Bridge) where similar Grade 2 Listed basket arch structures are being replaced with modern bespoke weathered steel arch beams, complemented by re-use of existing sandstone materials.
- 3.5.3.8 A temporary compound is required to facilitate and support the works associated with the demolition of Brady Farm Bridge (which is required for installation of overhead wires). The Order will authorise the temporary use of land adjoining the bridge for this purpose and for construction access, as shown on Land and Works Plan Order Sheet 8.

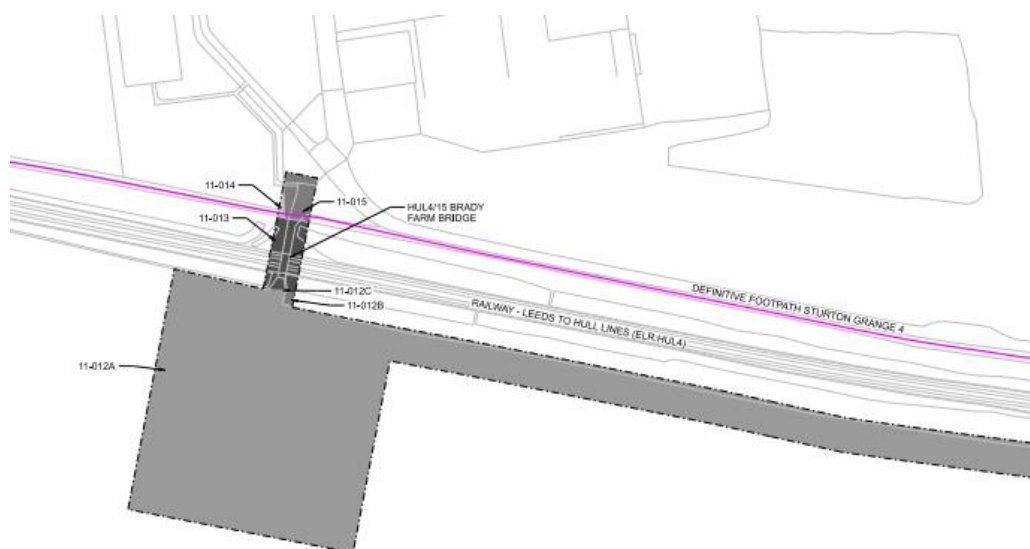


Figure 12: Works and Land Plan – Sheet 8

3.5.3.9 The Order will authorise the extinguishment of existing private rights.

3.5.3.10 The demolition of Brady Bridge does not otherwise fall under the authorisations or powers that would be granted by the Order or the request for deemed planning permission. As is explained in Antony Rivero's Proof of Evidence, the demolition of the bridge can be carried out under permitted development rights, but subject to the listed building consent which Network Rail has also applied for.

### **Construction**

3.5.3.11 The works to demolish and remove Brady Farm Bridge would be undertaken from a compound to the south of the railway, with access taken from Ridge Road, via an existing field access and a new haul road to the compound.

3.5.3.12 The demolition would be carried out using long reach excavators with breakers at track level, with skips placed below to collect the masonry. The retained sandstone will be split from the spoil and transported to Shannon St stone yard storage area via road haulage. Stone will be saved and re-used on other schemes.

3.5.3.13 The cutting slopes will be dressed to match the existing surrounding cutting and made uniform then rewilded with some imported soils and flowers and fauna of wild meadows.

- 3.5.3.14 The compound site would then be reinstated, and possession returned to the landowner as agreed.
- 3.5.3.15 The works are currently scheduled to take place over a period of around 6 months.

### **3.5.4 Ridge Road Bridge**



Figure 13: Aerial view of existing Ridge Road Bridge

#### **Existing Arrangement**

- 3.5.4.1 Ridge Road bridge is located in Micklefield, Leeds and is a Grade II Listed bridge. The bridge currently carries the A656 public highway, as well as a footpath across the railway. There is also a high-pressure gas main that runs via a pipe bridge next to the road bridge. The bridge is to be demolished and reconstructed at a higher level to enable installation of overhead wires for electrification of the line. Those works will also necessitate the diversion of the high-pressure gas main.
- 3.5.4.2 The bridge spans over 2No. non-electrified tracks, consisting of the Up and Down Hull lines between East Garforth and Micklefield Station.
- 3.5.4.3 The structure consists of a single masonry arch span with masonry parapets. Based on record information and site data, the existing stone masonry parapets are approximately <1m high and 0.35m thick. The substructure consists of stone abutments and wingwalls.

- 3.5.4.4 Statutory undertakers records show there is an existing gas main and BT services situated beneath the eastern footpath and an existing water main beneath the western footpath.
- 3.5.4.5 The structure is owned and maintained by Network Rail.
- 3.5.4.6 Approximately 15m to the west of the existing bridge, there is a 630mm diameter gas pipe structure (HUL4/14A) which crosses over the railway lines. It is proposed that the existing HUL4/14A gas pipe structure will be removed and diverted to accommodate the proposed TRU Infrastructure changes. The proposals for the removal and diversion will be undertaken by Northern Gas Network.

**The works to be carried out under the Order, deemed planning permission and listed building consent**

- 3.5.4.7 Like Austhorpe Lane Bridge, Ridge Road Bridge is to be reconstructed to enable the installation of overhead electrical wires for electrification of the line. The new bridge will carry a two-lane carriageway and 2-metre footway on the eastern side is to be constructed on the same alignment, but higher, than the previous bridge.
- 3.5.4.8 The proposed full bridge reconstruction option would involve removal of the existing masonry arch superstructure & abutments, and construction of a new arch bridge with new substructure.
- 3.5.4.9 Due the significance of the loss of the existing Grade 2 listed heritage asset (which is addressed in the Proof of Amy Jones), the new structure has been designed to replace bridges with a “feature” structure, and it was sought to maintain an arched feature, albeit a modern one, with the aim of retaining the thematic arch structures across the TRU Route.
- 3.5.4.10 Taking advantage of the fact that the bridge sits in a fairly hard rock cutting, the actual design proposed is a flat concrete deck arrangement with composite main girders and a slender steel arch anchored into the rock at both ends. “I-beams” main girders are made to be integral with reinforced concrete abutments. “I-beams” arch ribs are made to be simply connected with the abutment and shall be architectural and non-structural, these are required to meet the heritage/consents needs of a basket arch feature. It is envisaged that the weathering steel will be used for the main girders to minimise future maintenance requirement.



- 3.5.4.11 The proposed full bridge reconstruction option would involve removal of the existing arch superstructure and construction of a new arch bridge with new substructure. The redundant arch abutments would be recovered to a minimum of 500mm below ballast level. Tightly bonded waterproofing membrane to be provided and details to be shown on GRIP 5.
- 3.5.4.12 The proposed road levels will be marginally lifted (circa 200mm) and will be part of an overall highway design solution to Ridge Road at this location. This is addressed in more detail in Ged Stamper's Proof of Evidence.
- 3.5.4.13 Minimum soffit height will be 5.67m on Up Hull side and OLE will be free running at this location.
- 3.5.4.14 Parapets will consist of a reinforced concrete core wall faced on both sides with reclaimed stone from Ridge Road, Brady Farm and Austhorpe Lane bridges, maintaining the curved profile of the existing. Anti-climb steeple coping shall be provided atop of the parapet details of which shall be refined at the G5 Detailed design.
- 3.5.4.15 Drainage of the proposed deck shall tie into existing highway drainage network.
- 3.5.4.16 Approximately 15m to the west of the existing bridge, there is a 630mm diameter gas pipe structure (HUL4/14A) which crosses over the railway lines. It is proposed that the existing HUL4/14A gas pipe structure will be removed and diverted to accommodate the proposed TRUe Infrastructure changes. The proposals for the removal and diversion shall be undertaken by Northern Gas Network.

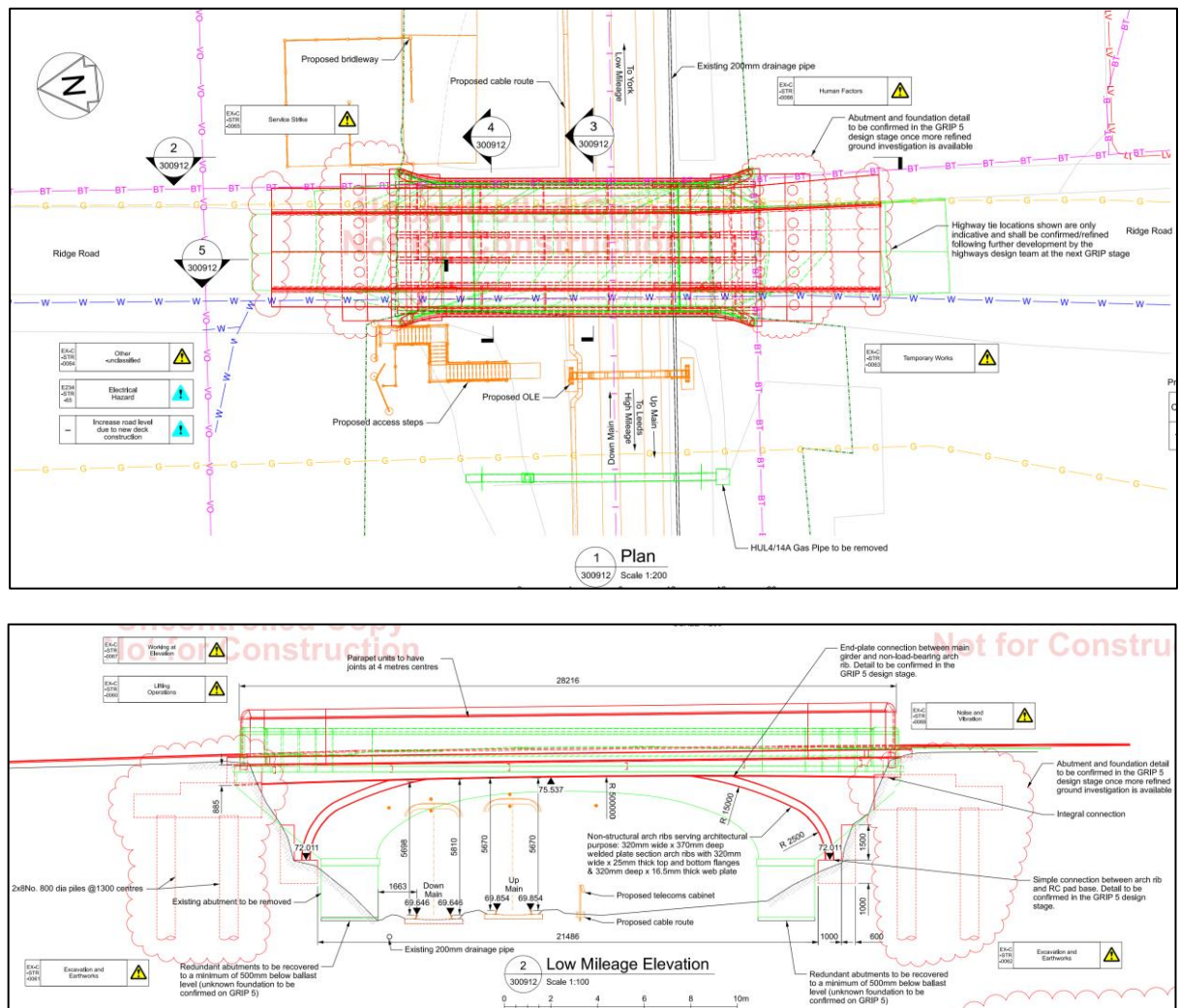


Figure 14: Engineering design of proposed Ridge Road Bridge

## Construction

3.5.4.17 Three compounds will be provided in order to carry out these works.

- 1) Northwest compound for the gas main diversion tunnel works.
- 2) Southwest compound used for the gas diversion tunnel works and Ridge Road replacement bridge works.
- 3) Northeast compound used for Ridge Road replacement bridge works.

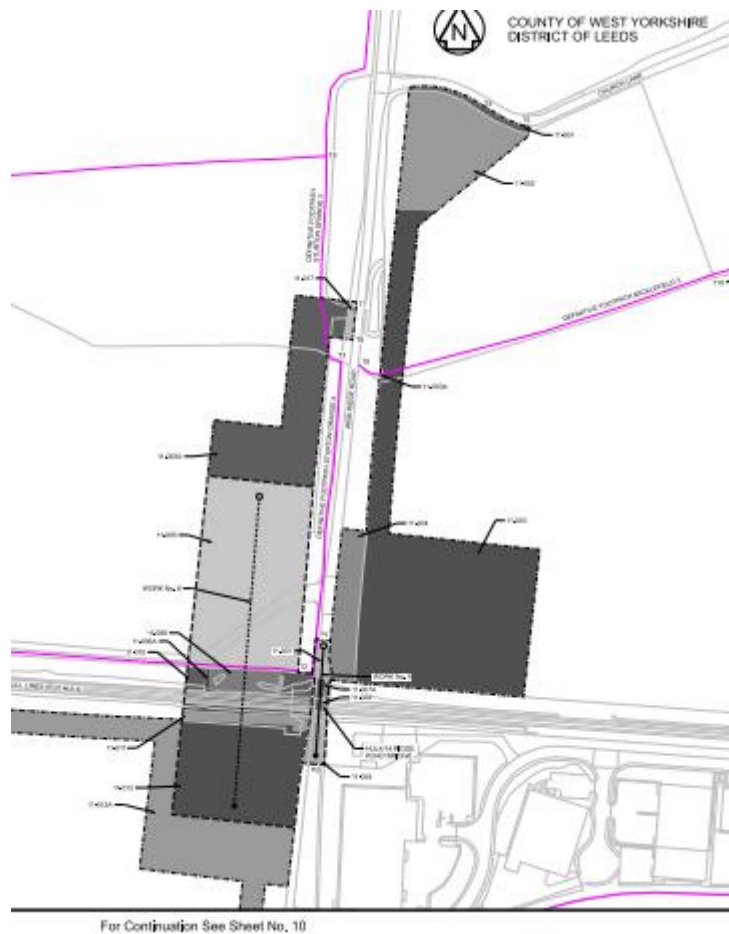


Figure 15: Works and Land Plan – Sheet 9

- 3.5.4.18 The works (which are currently scheduled to take place between June 2024 - September 2026, subject to the timing of obtaining the necessary consents) would broadly involve the following:

*Bridge preassembly works and compound*

- Establish compound in south-east corner and north-west corner for the gas works which would involve installing two number shafts and microbore tunnelling to enable the High Pressure gas main to be rerouted from over the railway lines to 3m beneath the track beds and connected back into the network. Those works in advance are Northern Gas Networks responsibility.
- Establish compound haul road and crane base in the north-east field for crane works.
- North-West corner compound for gas works.
- Secure both locations and erect signage for the compound locations.

*Pre-possession*

- Reroute all services to the eastern side on a service bridge

*Night-time 8-hour possessions*

- Remove redundant gas pipe and upstands. Demolish foundations and lift out and take to compound.

***1st 29hr Planned blockade/ possession works***

- Install traffic management system and close the road.
- Take delivery of two no long reach 360° excavators with munching arms and buckets
- Demolish existing bridge and abutments, ferry back to compound
- Remove stone and spoil to compound for sorting and transport to stone yard for future use

***Between 1st and 2nd 29-hour planned blockade/ possession***

- Make good previous abutment banking's and excavate for bank seats.
- Make rebar cages and form work for pile capping and bank seats and pour concrete
- Create new abutment base and pour x2
- Build formwork for the south abutment and install including rebar. Pour strip and transfer to the north once ready
- Build formwork for the north abutment and install including rebar. Pour and strip once the required curing time has been achieved.
- Welding to bearing plinth shelves for acceptance of new bridge taper plates on bridge lifts.
- Deliver the bridge sections (pairs) to the north bank in procession during the 2nd possession

***2nd 29-hour planned blockade/ possession***

- Land 4no braced pairs inclusive of Paraslims and hoarded walkways x2 with the crane.
- Drop each half arch segment of the new arch detail through the bracing onto the connection flange anchored on the bank seat. This all being prior to the deck ends being cast to make the whole bridge deck and backseat/Abutments an integral structure.
- Repeat above activity until all arch segments are in place - East to West
- Lay GRP Deck between the main beams

***Post-possession works***

- Lay new ducting to the footpath location.
- Fix deck rebar and parapet upstand steel.
- Complete deck end detail to cat abutments to bridge end deck detail.
- Pour deck inclusive of parapet kickers.
- Strip all and build formwork for walls, fix rebar and pour.
- Stone masons clad the bank seats with stonework, back cut to depth from all previous works and clad parapets.
- Install curbing East and West and pour verge and pedestrian upstand footpath.

- Install all road realignment curbing north and south of the bridge.
- Relay all footpaths and bridge deck with asphalt.
- All rerouted serviced onto service bridge then routed through duction in the new bridge deck and service bridge dismantled.

*Demobilise*

- Strip out compound, traffic management and hoarding.
- Reinststate signage and reopen road.
- Remove scaffolding / hoarding from abutments.

- 3.5.4.19 During the works to replace Ridge Road Bridge, some periods of road closure will be required.
- 3.5.4.20 The proposed diversion routes together with impacts on journey times and traffic flows are set out in Appendix 11 in Vol 3 of the ER (CD 1:16), in particular in Appendix 11B: 'Technical Note: Transport Assessment – Ridge Road Temporary Bridge Closure'. It is proposed that diverted traffic would use the A63 Selby Road / A642 Wakefield Road route, shown on Figure 11B.4, although there are other routes that could potentially be used as identified in para 2.5.6 of Appendix 11B.
- 3.5.4.21 For the A63 Selby Road / A642 Wakefield Road diversion route, would be an additional distance of around 8km, adding around 11 minutes to vehicular journey times.
- 3.5.4.22 Pedestrian and cycle access will be maintained during construction via a temporary scaffold bridge, but there will be some short periods during the works when that access will not be available, and diversions will be provided. During those periods, pedestrians and cyclists would need to use the bridge across the railway on Station Road close to Cross Gates Station, and then use local routes to complete their journeys.
- 3.5.4.23 The highway closures and diversions would be managed in accordance with the arrangements I discuss in Section 4 below.

### **3.5.5 Option Selection & Alternatives Considered**

- 3.5.5.1 Three of the Order Scheme elements, at Austhorpe Lane, Crawshaw Woods Bridge Raising and A656 Ridge Road Replacement, involve the dismantling or demolition and reconstruction of a Grade II listed overbridge.
- 3.5.5.2 For each structure an initial engineering review was undertaken to identify alternative options which would facilitate OLE construction through the



structures. This process looked at various high-level options to achieve electrical clearance for the installation of OLE while maintaining the historic fabric. These options focussed on:

- c) track movement to increase soffit height;
- d) structure intervention to increase soffit height; and
- e) reduced electrical clearances with additional control mitigations.

3.5.5.3 For all the bridges, both track slue and track lower were rejected due to the natural geology of the area which would require extensive rock breakout and re-stabilisation of the adjacent cutting slope, considered to be a high risk construction activity requiring track closures outside the permitted allowances. This risk is increased by the presence of historic mine workings in the area which could de-stabilise the track. The cost required to deliver such works would also be prohibitive and it was concluded that a track lower and slue option was not a feasible solution.

3.5.5.4 The options considered, and reasons for selecting the preferred options, are set out in some detail in the Design and Access Statement (Core Document 15), Section 11 of the Statement of Case (Core Document 19) and in the Alternative Options Evaluation Study for Austhorpe Lane Overbridge, the Alternative Options Evaluation Study for Crawshaw Woods Overbridge, and the Alternative Options Evaluation Study for Ridge Road Overbridge, which accompany the listed building consent applications for each of those options.

3.5.5.5 The options considered for Brady Farm Bridge and reasons for selecting the option for which listed building consent is sought are discussed in section 11 of the Statement of Case and in the Alternative Options Evaluation Study for Brady Farm Bridge, which was submitted with the application for listed building consent for that bridge.

3.5.5.6 The options for each of the structures were considered against a common framework. An Options Assessment Matrix was created, recording the topics and sub-topics against which each of the options were assessed, being:

- Environment and Consent Risk
- Land & Property
- Cost
- Design/engineering feasibility
- Construction

- Maintenance
- Deliverability

3.5.5.7 A RAG (Red Amber Green) rating was assigned to each of these topics, and sub-topics, and recorded in the OAM. The assessment of each option considered is set out in the Alternative Options Evaluation Study for each bridge.

3.5.5.8 I provide a brief overview of the options considered, and reasons for selecting the option taken forward by the TRU project below.

### **Austhorpe Lane**

3.5.5.9 An initial high level engineering review of options for Austhorpe Lane Bridge that would enable the installation of OLE identified three potentially feasible options:

- Option A (1 and 2) – Structure Intervention to raise soffit height.
- Option B – Track Slue and Lower.

3.5.5.10 Two options were considered for Option A. Option A1 was reconstruction of the bridge deck with a standard composite flat deck. Option A2 was reconstruction of the whole structure with a modern feature bridge in the form of a flat deck with an applied arch. That option would also allow the integration of the footbridge to the west within the structure and provide options for improvements to the existing highway.

3.5.5.11 Under Option B, a combination of track lower and slue was considered in order to achieve the necessary clearance, within the constraints posed by the adjacent residential development. The Option considered the minimum track lower / slue combination that would be required to achieve sub-functional electrical clearance only. This would have involved deviation from normal Network Rail standards.

3.5.5.12 A further option of bridge jacking was also considered. This would involve lifting the existing masonry arch and reinstating it at a higher level. That option was immediately discounted due to the fact it would significantly raise the level of the carriageway, and also due to the view of specialist sub-contractors that there would be a significant construction risk associated with jacking this type of arch, together with the lack of available track access that would be needed to carry it out.

- 3.5.5.13 In considering the Options, the TRU project was very much aware of the listed status of the bridge and the great weight that has to be applied to conservation of heritage assets.
- 3.5.5.14 The assessment concluded that track lower and track slue was not feasible due to impact on the associated highway, construction risk, programme impact and cost. Bridge intervention (Option A) was therefore the only feasible option to deliver the project, even though it was graded Unsupportive against the 'Cultural Heritage' topic.
- 3.5.5.15 As Option A2 provided the better opportunity to compensation for the loss of the listed structure and following consultation with English Heritage and Leeds City Council, this was the Option taken forward for further development.

### **Crawshaw Woods**

- 3.5.5.16 An initial high level engineering review of options for Crawshaw Woods Bridge looked at two high level options to enable the installation of OLE:
1. Structure intervention to increase soffit height; and
  2. Track lowers/slews to increase soffit height.
- 3.5.5.17 The outcome of that initial engineering review identified 4 potentially feasible options:
- Option A (1 and 2) – Structure intervention to raise soffit height.
  - Option B – Track slue.
  - Option C – Track Slue.
  - Option D – Track lower and slue.
- 3.5.5.18 Options B and C were discounted as neither track lower nor track slue alone would meet project requirements.
- 3.5.5.19 Option A1 proposed the removal of the cast iron arch and its replacement of a new superstructure with, most likely, a flat deck. Option A2 proposed the lifting of the cast iron arch to achieve the required clearance, which would require the dismantling of the cast iron structure and its reconstruction 1.4m higher than present, with the additional height to be achieved by adding additional stone courses to the existing abutments.
- 3.5.5.20 Option D would have involved moving both tracks to facilitate the installation of OLE under the existing structure. Track level services would need to be slued 1130mm horizontally and lowered 720mm vertically. The track lower/slue considered would have been required to achieve a sub-functional electrical clearance for the structure, which would have required a deviation from normal

Network Rail standards. Due to the extent of the lower/slue required for the sub-functional electrical clearance, achieving full basic clearance was not even considered as it would have required even more extensive track lowers. The proposed realignment would also have extended into the area of the proposed Thorpe Park Station, comprising track geometry and platform interface, and required reprofiling or installation of a significant earthwork retaining structure in the cutting slopes approaching the Crawshaw Woods bridge.

- 3.5.5.21 It was concluded that Option D was not a feasible option due to impacts on rail users, construction risk, programme impact and cost, and that bridge intervention was therefore necessary.
- 3.5.5.22 Whilst Option A1 would not have required any permanent land take, was straightforward from a design and engineering point of view, and could be installed at a relatively low cost (particularly when compared to the track lower and slue options), and was assessed as a feasible option for the project, it was discounted as the preferred option in favour of Option A2 given the historic interest of the bridge – including that it was the only surviving example of cast-iron structures along the Selby to Leeds railway and believed to be the earliest cast-iron railway bridge still in use over an operational railway – and its Grade II listed status, and the fact that Option A2 whilst more expensive, requiring some permanent land take, and more complex in engineering terms, was still regarded as a feasible option.

### **Brady Farm**

- 3.5.5.23 An initial high level engineering review of options for Brady Farm Bridge identified four potentially feasible options to enable the installation of OLE in this location:
- Option A – Abandonment
  - Option B (1 and 2) – Structure intervention to raise soffit height
  - Option C – Track Slue
  - Option D – Track lower
- 3.5.5.24 Two sub-options within Option B were assessed: B1, reconstruction of the bridge deck, and B2, jacking of the existing bridge arch.
- 3.5.5.25 For Options C and D, three sub-options were identified and assessed which varied the magnitude of the track slue/lower. As at Austhorpe Lane Bridge and Crawshaw Woods Bridge, the sub-options considered under Options C and D were varied to take into account potential to agree a sub-functional clearance for the structure, which would involve a deviation from Network Rail's standards.

- 3.5.5.26 Following the assessment, Options C and D were assessed as not being feasible, due to the extensive nature of the works required, the requirement for rock break-out and re-stabilisation being a high-risk construction activity, prolonged track closures being required and the potential for further delays in the event that historic mine workings being discovered during construction.
- 3.5.5.27 Option B2, bridge jacking, was also not considered to be a feasible option, due to the length of track closure required for the physical works to the bridge, with the additional risk of further closure if there was a failure of the structure.
- 3.5.5.28 Option B1 was a feasible option, but ultimately, as the existing Brady Farm Bridge was considered to be a redundant structure, the costs and land use associated with this option could alternatively be limited to the works associated with removal of the structure only (i.e. Option A).
- 3.5.5.29 Further, the cost savings realised from not building a replacement structure under Option B1, could be deployed towards replacing such structures elsewhere. Option A was therefore selected as the preferred option. In reaching that decision, the Project was aware that Option A was graded 'Highly Unsupportive' and B1 'Unsupportive' against the Cultural Heritage topic, with both options involving the removal of the existing structure and Option B1 involving a replacement bridge with the potential to create a bespoke design that builds-in features that retain the ethos behind the original basket arch design.

### **Ridge Road**

- 3.5.5.30 The initial high level engineering review of options for Brady Farm Bridge identified three potentially feasible options to enable the installation of OLE in this location:
- Option A (1 and 2) – Structure intervention to raise soffit height
  - Option B – Track Slue
  - Option C – Track lower
- 3.5.5.31 For Option A, two sub-options were assessed: A1, reconstruction of the bridge deck, and A2, jacking of the existing bridge arch. For options B and C, three sub-options were assessed, varying the magnitude of track slue/lower, but, as with the other bridge discussed above, this was on the basis of the potential to agree a sub-functional clearance which would involve deviation from normal Network Rail standards.



- 3.5.5.32 In terms of the assessments of each of the Options, the assessment broadly reflected that which I have discussed in relation to Austhorpe Lane above. Option A1 (structure intervention) was identified as the preferred option, and two main options for this sub-option were then considered:

- (1) deck reconstruction with a flat composite steel/concrete deck; and
- (2) full replacement of the structure with an arched feature composite deck.

- 3.5.5.33 As with Austhorpe Lane, whilst both options would have been feasible, replacement of the structure with a new structure was considered to provide the better opportunity to integrate features from the historic structure and to compensate for the harm caused through the loss of the structure. That was therefore the option taken forward for further development.

### **3.6 Other Order Scheme Works (Penny Pocket Park, Micklefield TSC, Neville Hill Access Road)**

#### **3.6.1 Penny Pocket Park**

- 3.6.1.1 Penny Pocket Park is referred to in the supporting TWAO documents as the Kirkgate to Marsh Land. This is located on a railway embankment in central Leeds, approximately 1.6km east of Leeds Railway Station. The railway embankment forms part of an approximately 1ha public park known as Penny Pocket Park.
- 3.6.1.2 As part of the Trans Pennine Route upgrade, the signalling system is to be upgraded to a computer-controlled system and the installation of new signalling assets. The positions of signals is determined by number of requirements, from spacing due to line speed, braking performance of trains to the sighting (visibility) of the signals. The signal proposed at Penny Pocket Park has been positioned considering all these requirements. The control of signals is undertaken by what is termed as lineside signalling equipment that has to be positioned a specified distance from the railway to ensure safe access for example maintenance activities and within a certain proximity of the signal. Marsh Lane Viaduct is a very narrow rail corridor and space into which new assets are positioned is limited, Network Rail standards dictate that there has to be to be minimum clearances from the rail for new assets to ensure for example that they do not clash with trains and can be safely accessed for working at. This has meant in this instance the positioning of these new signalling asset outside the existing railway boundary.
- 3.6.1.3 As part of the new signalling system, Signalling Lock Out devices are being installed. The requirement for these devices is to assist with the provision of safe access along the viaduct which currently is very difficult to achieve due to

the narrow corridor along the viaduct. As per the above-mentioned proposed signal assets, the positioning of these Signalling Lock Out devices is governed by Network Rail standards to ensure they can be accessed and operated safely, which has meant they need to be positioned outside railway boundary.

### **3.6.2 Micklefield TSC**

- 3.6.2.1** A new track sectioning cabin is needed to safely regulate the power supply to the overhead electric wires in the local area and thus to enable electrification of the line. It will be located 50 metres to the west of the existing Peckfield Level Crossing.
- 3.6.2.2** The Order would also authorise the permanent acquisition of land required for the construction of the TSC. The TSC forms part of the application for deemed planning permission.

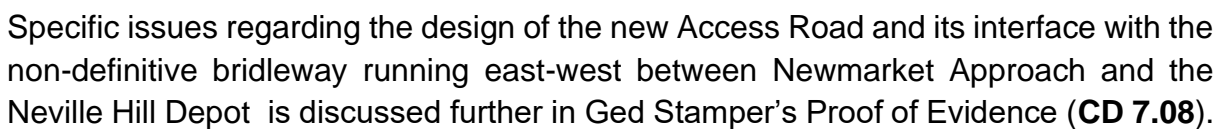
### **3.6.3 Neville Hill**



- 3.6.3.1** Neville Hill Access Land comprises a parcel of land (approximately 0.195ha) at the end of Newmarket Approach which is an adopted highway in Leeds. The

land consists of areas of grass verge and a footpath connecting Newmarket Approach to a non-definitive bridleway which travels east to west between Halton Moor Road and Pontefract Lane.

- 3.6.3.2 The Order would authorise Network Rail to acquire a strip of land off Newmarket Approach in order to facilitate the provision of a new access from the highway to the Neville Hill railway sidings. The Order would also permit the temporary use of land as a work site in order to facilitate the construction of the new access road.
- 3.6.3.3 This compound is currently accessed from the existing Red Lane access point. When the new access at Newmarket Approach is built then this will become the main access point.
- 3.6.3.4 This is accessed from Pontefract Lane which is a dual carriageway leading to the A1M motorway. Vehicles will turn left off Pontefract Lane and travel along Newmarket Approach for approximately 300m to the new access point.
- 3.6.3.5 The Neville Hill area is a large expanse of Network Rail owned land. Within this area of land a compound is already set up for the works at that location. Access to this compound is currently along the existing Red Lane access road.
- 3.6.3.6 Going forward, a new access way will be constructed off Newmarket Approach into the Neville Hill site area. This will ultimately become a NR permanent access point.
- 3.6.3.7 This access will be constructed by the Logistics team, also within the wider Neville Hill Logistics scope will be the following
  - 1. The relocation of the existing temporary compound
  - 2. Construction of a haul road to this temporary compound
  - 3. Construction of a haul road to Osmonthorpe bridge
  - 4. Construction of a compound at Osmonthorpe Bridge
  - 5. Construction of a new Access and compound off Neville Garth



## 4.1 Highways powers

- 4.1.1 The draft Order includes a range of powers to enable Network Rail to carry out works to streets.
- 4.1.2 Article 9 – power to **execute street works**. Under Article 9, Network Rail may undertake street works, such as breaking open the street and placing apparatus in it, in streets specified in **Schedule 3** of the Order.
- 4.1.3 Article 10 – power to **permanently stop-up streets**. Under Article 10, Network Rail may permanently stop-up streets specified in **Schedule 4** of the Order. Article 10 provides that Network Rail must, for streets in Part 1 of Schedule 4, provide a new street in substitution for the permanently stopped up street and provide and maintain a temporary alternative route for the street to be stopped-up whilst the new street is constructed.
- 4.1.4 Article 11 - power to **alter layout of streets**. Under Article 11, network Rail may temporarily alter the access to or layout of, or carry out ancillary works to, streets specified in **Schedule 5** of the Order.
- 4.1.5 Article 12 – power to **temporarily stop-up streets**. Under Article 12, Network Rail may temporarily stop up streets (i.e. divert vehicular and other traffic from

a street) specified within **Schedule 6** of the Order and within the Order Limits as defined on the Works and Land Drawings (NR09).

- 4.1.6 Article 13 - power to enable access to works. Under Article 13, Network Rail may **form a new access or improve an existing access** in the locations specified in **Schedule 7** of the Order and in other locations within the Order limits with the prior approval of the highway authority.
- 4.1.7 Article 14 – power to **construct new streets**. Under Article 14, Network Rail may, which must be maintained for a period of 12 months. Article 14 gives Network Rail the power to maintain.
- 4.1.8 Article 41 and 42 – traffic regulation. Under Article 41 and 42, Network Rail may, subject to the consent of the local highway authority, **impose or amend traffic regulations** temporarily or permanently, such as weight restrictions, traffic regulation orders, parking and speed restrictions and vehicular direction or access.
- 4.1.9 Under Articles 11, 12 and 13 (part) and 41-42, Network Rail must make an application to Leeds City Council for the approval of its proposals to exercise its powers.

## **4.2 Highways Agreement**

- 4.2.1 Leeds City Council is the local highway authority that ordinarily would regulate works to streets. In order to address concerns of Leeds City Council regarding how the Order powers might affect the operation of the local highway network, Network Rail and Leeds City Council have negotiated a draft Highways Agreement, the main purpose of which is, in addition to agreeing the design of any new streets constructed under the Order, to set out a series of protocols under which Network Rail will provide Leeds City Council with details of its street works proposals under Articles 9-14 and 41-42 of the Order, in advance of applications for approval under the Order.
- 4.2.2 The following sections of this proof summarises the Highways Agreement protocols for matters relevant to highways network management.

### Highways Working Group

- 4.2.3 Firstly, Highways Agreement provides for and sets out the parameters for the formation of a Network Rail and Leeds City Council Highways Working Group. The Highways Working Group will oversee the effective co-ordination of the highway works to be undertaken by Network Rail pursuant to the powers conferred by the Order for the purposes of the Authorised Works and the wider TRU Project.



Alteration to Streets Protocol

- 4.2.4 Secondly, the Highways Agreement sets out a protocol which Network Rail must follow regarding consultation of Leeds City Council on its proposals to exercise its powers under articles 9, 11 and 14 of the Order (i.e. execute street works, alter layout of streets and construct a new street), prior to exercising its powers under the Order.
- 4.2.5 This Protocol requires Network Rail to provide details of the streets to be stopped-up and the applicable dates, together with details of the layout alterations and/or other ancillary works proposed and any associated works or measures in accordance with a Traffic Management Plan (see paragraphs 4.2.12 – 4.2.13).

Permanent Stopping up of Streets

- 4.2.6 Thirdly, the Highways Agreement sets out a protocol which Network Rail must follow regarding consultation of Leeds City Council on its proposals to permanently stop up streets, in advance of making an application to Leeds City Council for the approval of its proposals under Article 10 of the Order.
- 4.2.7 This protocol requires Network Rail to provide details of the streets to be stopped-up and the applicable dates, together with plan and duration of any alternative route proposed and plans and specifications and any associated works or measures in accordance with a Traffic Management Plan showing how and to what extent the Existing Streets are to be stopped up.

Temporary Stopping up of Streets

- 4.2.8 Fourthly, the Highways Agreement sets out a protocol which Network Rail must follow regarding consultation of Leeds City Council on its proposals to temporarily stop up streets, in advance of making an application to Leeds City Council for the approval of its proposals under Article 12 of the Order.
- 4.2.9 This protocol requires Network Rail to provide details of the streets to be stopped-up and the applicable dates, together with plan and any associated works or measures in accordance with a Traffic Management Plan

Traffic Regulation

- 4.2.10 Fifthly, the Highways Agreement sets out a protocol which Network Rail must follow regarding consultation of Leeds City Council on its proposals for Traffic

Regulation Orders, in advance of making an application to Leeds City Council for the approval of its proposals under Articles 41 and 42 of the Order.

- 4.2.11 This protocol requires Network Rail to provide details of the proposed traffic regulations for the approval of the highway authority.

The Traffic Management Plan and the Construction Traffic Management and Travel Plan

- 4.2.12 Sixthly, the Highways Agreement sets out the scope of a Traffic Management Plan (TMP) that Network Rail is required to produce and be approved by Leeds City Council. The purpose of the TMP is to address measures to be taken by NR to manage the impacts of its construction work on users of the highway, including details of temporary road closures and diversions, temporary and permanent suspension of parking bays etc.
- 4.2.13 Network Rail and Leeds City Council are also working towards agreement on a separate Environmental Agreement, which includes a commitment by Network Rail to produce, for the approval of Leeds City Council, a Construction Traffic Management and Travel Plan (CTM&TP). The CTM&TP will include details of the routing and control of construction vehicles and measures to prevent mud etc on the highway caused by construction vehicles. Under the Environmental Agreement, the CTM&TP will apply to construction compounds that are permitted development but associated with the elements of the Order Scheme that require deemed planning permission and with the strategic works compounds (see section 3.3).

### **4.3 Highways Management**

Introduction

- 4.3.1 In this chapter, a general description is provided of the highways management measures that will be implemented by Network Rail to ensure that the impacts of its works on the public highway are managed and mitigated appropriately. These measures will be applied generally to the construction works described below.

#### **Road Closures and Creation of Construction Access**

- 4.3.2 Road closure applications will be submitted to Leeds City Council in advance of the commencement of works, in accordance with the Order requirements, following adherence to the relevant Highways Agreement protocols. Applications will include details of proposed traffic management including diversionary routes for emergency services, pedestrians and vehicles, which will

be in line with the Safety at Street Works and Road Works (SASWRW) code of practice.

### **The Construction Traffic Management and Travel Plan**

4.3.3 Network Rail will submit to Leeds City Council for its approval a Construction Traffic Management and Travel Plan, which shall include the following components.

- (i) Details of construction access routes including access and egress routes points onto the public highway, including visibility splays, width, radii, existing traffic regulations and on-street parking conditions.
- (ii) The package of interventions and mitigation outlined in Section 11.3 of Chapter 11 in Volume One of the Environmental Report including an implementation timetable for each stage.
- (iii) Details of anticipated off site traffic movements of vehicles associated with staff, commercial or construction vehicles and construction activities.
- (iv) Prohibited routes for construction traffic.
- (v) Any proposed time restrictions imposed on any routes.
- (vi) Details of the monitoring of construction HGV for compliance with the CTMP.
- (vii) Controls on interference with carriageway (including methods to be employed to prevent mud, grit, dust and dirt being carried onto the public highway).
- (viii) Details of site parking, including for site operatives, and turning, loading and off-loading facilities.

## **4.4 The Traffic Management Plan**

4.4.1 Network Rail will submit a Traffic Management Plan to be approved in writing by Leeds City Council in relation to a relevant stage of the construction of the authorised works. The Traffic Management Plan shall include the following elements.

4.4.2 Traffic management proposals including traffic control measures, to be in accordance with Chapter 8 of the Traffic Signs Manual or Safety at Street Works and Road Works 2013.

- 4.4.3 Any temporary closures or diversions with associated details of traffic management for any vehicular or pedestrian routes.
- 4.4.4 Details of arrangements for temporary and permanent suspension of parking bays.
- 4.4.5 Compliance with the prohibition of parking of any construction site vehicles, plant or machinery or staff vehicles along the existing adopted highway (as applicable).
- 4.4.6 Network Rail will submit traffic management permit applications Council in accordance with the Leeds Permit Scheme utilising the Department for Transport's Street Manager service but for the avoidance of doubt there is no requirement on Network Rail to obtain any approvals from the Council nor comply with any timescales pursuant to the Leeds Permit Scheme.

#### **4.5 Conditions Surveys and Maintenance**

- 4.5.1 Prior to commencement of any construction works being undertaken, a road condition survey of roads defined in the Highways Agreement will be completed and submitted to Leeds City Council.
- 4.5.2 During construction works, road closures will be inspected daily, aligned to the Traffic Management Plan to ensure compliance to SASWRW code of practice.
- 4.5.3 Any defects during the construction period will be remedied.

#### **4.6 Site Access Management**

- 4.6.1 Access to the construction site including deliveries will be managed by traffic marshals in line with the approved Traffic Management Plan.

#### **4.7 Site Demobilisation**

- 4.7.1 Before site demobilisation is undertaken the project team will undertake any remedial works required to remedy defects caused by the construction works, in accordance with the Order, Highways Agreement and similar to the requirements of the New Roads and Street Works Act 1991.

### **5. ENGINEERING AND DESIGN RESPONSE TO OBJECTIONS**

- 5.1 This section covers the relevant Engineering-based objections to the Order. Objections and representations (whole or part) addressed within this section include:

**In response to REP 03 – J Hebden (Micklefield Parish Council) and to OBJ 12 – E Todd.**

- 5.1.1 Micklefield Parish Council objects to demolishing the Grade II listed Ridge Road bridge. E Todd objects to the demolition of Ridge Road bridge and it being rebuilt in a new design, noting its listed status and requesting that it should be protected or maintained and reconstructed in the original design.
- 5.1.2 The Parish Council also objects to any extended closure of Ridge Road.
- 5.1.3 I have discussed in section 3.5.5 the alternative options to demolition that were considered in order to enable the installation of OLE at this location, including re-building in the original bridge design or 'jacking-up' the height of the existing bridge and the reasons why the demolition and reconstruction of the bridge was the only feasible option that could be selected by the project.
- 5.1.4 The proof of evidence of Amy Jones explains the justification of the design of the replacement bridge and the consultation undertaken with Historic England and Leeds City Council to agree in principle the design of the new bridge.
- 5.1.5 I have discussed in section 3.5.4 the need to close the A656 Ridge Road temporarily during the demolition and reconstruction of Ridge Road bridge, and at paragraph 3.5.4 the requirement for Network Rail to implement a route for diverted traffic that will be agreed in advance with Leeds City Council.

**In response to REP 06 – P Bedford (National Highways)**

- 5.1.6 National Highways requests protective provisions are included for their benefit. On 08 January 2024 Network Rail and National Highways signed a Compromise Agreement, which confirms that Network Rail will not undertake any work to the Strategic Road Network without the consent of National Highways. National Highways has withdrawn its representation.

**In response to SUP 03 - West Yorkshire Combined Authority**

- 5.1.7 West Yorkshire Combined Authority asked if Network Rail could confirm if electrification and line speed improvements are included in the overall scope of the Transpennine Route Upgrade work which is crucial to the development and growth of the rail network.
- 5.1.8 I can confirm that electrification and line speed improvements are included in the Scheme.

**In response to OBJ 01 – Brian Hall**

- 5.1.9 Brian Hall objects to the demolition of the Grade II listed Austhorpe Lane bridge and to the location of the footpath on the opposite side of the bridge to the current location, meaning residents will have to cross Austhorpe Lane road walking from the estate (name not stated) raising concerns over pedestrian safety.



5.1.10 I have discussed in section 3.5.5 the alternative options to demolition that were considered in order to enable the installation of OLE at this location and the reasons why the demolition and reconstruction of the bridge was the only feasible option that could be selected by the project.

5.1.11 The proof of evidence of Amy Jones explains the justification of the design of the replacement bridge and the consultation undertaken with Historic England and Leeds City Council to agree in principle the design of the new bridge.

5.1.12 Sections 3.5 to 3.9 of Ged Stamper's proof, set out the reasons for providing a footpath as part of the new Austhorpe Lane bridge and relocating the footpath to the opposite (western) side of the bridge are explained.

**In response to OBJ 16 – E Galley**

5.1.13 E Galley objects to increased line speeds noting environmental concerns and increase in use of fuel and carbon dioxide emissions and raises concerns over increased noise.

5.1.14 Mr Vernon's proof explains that the TRU project involves facilitating the use of electric trains, which reduce carbon dioxide emissions and are quieter in operation than the existing diesel-powered trains.

**In response to OBJ 21 – J Freeman and OBJ 22 – P Freeman**

5.1.15 Regarding the proposals for a replacement Austhorpe Lane bridge, J and P Freeman present various design alternatives, including diversion via Manston Lane and raise a safety concern about whether the proposed 1.8m high parapet wall could allow people to climb onto it.

5.1.16 I have discussed in section 3.5.1 the need to close Austhorpe Lane / Austhorpe Road temporarily during the demolition and reconstruction of new Austhorpe Lane bridge, and at paragraph 3.5.1 the requirement for Network Rail to implement a route for diverted traffic that will be agreed in advance with Leeds City Council.

5.1.17 In section 3.5.2 of Ged Stamper's proof, it is explained that the design of the bridge parapets on the replacement Austhorpe Lane bridge is to accepted safety design standards.

**In response to OBJ 26 – J Kilburn & B Elliott**

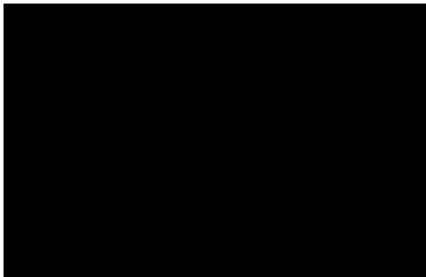
5.1.18 J Kilburn and P Elliott query whether closure of Railway Rd/ Austhorpe Road is just temporary and whether the Construction Traffic Management Plan (CTMP) will be consulted on.

5.1.19 In section 3.5 I confirm that the closure of Austhorpe Lane / Austhorpe Road will be temporary for the short duration of the demolition of the existing bridge and the construction of the new bridge and the plans to implement a route for diverted traffic that will be agreed in advance with Leeds City Council. In section 4.3 I set out the requirement for Network Rail to produce a Construction Traffic Management and Travel Plan for the control of Network Rail construction traffic and a Traffic Management Plan for the management of the impact of Network Rail works on users of the Highway. Network Rail is required to consult Leeds City Council on the content of both these plans and under the latter plan a route for diverted traffic that will be agreed in advance with Leeds City Council.

**6. WITNESS DECLARATION**

**6.1 Statement of declaration**

- 6.1.1 This Proof of Evidence includes the facts which I regard as being relevant to the opinions which I have expressed, and the Inquiry's attention has been drawn to any matter which would affect the validity of that opinion.
- 6.1.2 I believe the facts which I have stated in this PoE are true and that the opinions expressed are correct, and,
- 6.1.3 I understand my duty to the Inquiry to help it with the matters within my expertise and I believe I have complied with that duty.



6/2/24