

TRANSPORT AND WORKS ACT 1992
TRANSPORT AND WORKS (INQUIRIES PROCEDURES)
RULES 2004
NETWORK RAIL (HUDDERSFIELD TO WESTTOWN
(DEWSBURY) IMPROVEMENTS) ORDER

HIGHWAYS
PROOF OF EVIDENCE
Chris Williams

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The Network Rail (Huddersfield to Westtown (Dewsbury) Improvements) Order 5 October 2021

Proof of Evidence – Highways

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LIST OF ACRONYMS / GLOSSARY

Abbreviation/Term	Definition
CRE	Certified Reliability Engineer
CTMP	Construction Traffic Management Plan
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DRL	Dewsbury Riverside Limited
Huddersfield to Westtown (Dewsbury) Order	The Order Scheme
ICE	Institute of Civil Engineers
LTN	Local Transport Note
Network Rail	Network Rail Infrastructure Limited
OLE	Overhead Line Equipment
PRM	Persons of Reduced Mobility
RRAP	Road Rail Access Point
The Council	Kirklees Metropolitan Borough Council
TWA	Transport and Works Act

1. INTRODUCTION

1.1 Qualifications and Experience

1.1.1 I am an Associate at Ove Arup & Partners “Arup”. I have a Masters of Engineering in Civil Engineering (University of Leeds) and am a Chartered Civil Engineer and member of the Institute of Civil Engineers (ICE). I have 19 years’ experience working within the Civil Engineering profession, with experience in leading extensive multidisciplinary design teams on public transport, S278 highway, site development, civil and drainage infrastructure schemes on major highway projects, bus and rail interchange/station developments and site masterplanning and regeneration schemes. Recent projects have included the following:

- York Railway Station Gateway. I was the Project Manager responsible for the design of the realignment of Station Road/Queen Street, the reconfiguration of the existing station frontage and the provision of improved bus and taxi facilities.
- Woodsith Mine, Polyhalite Project. I was the Project Manager responsible for coordinating and leading Arup’s design activities which include several off-site highway improvement schemes, site wide masterplanning including site layout development, utilities coordination, surface water drainage, site preparation works and earthworks strategy and design.
- A61 Wakefield Road, Barnsley Corridor Feasibility Study. I was the Project Manager for this transport and cost benefit appraisal study for the A61 corridor in Barnsley. More recently, I was responsible for leading the detailed design of the various interventions (including signalised junction and bridge widening schemes) and for preparing detailed planning submissions for the interventions.
- Charter Square Highway Improvement Works, Sheffield. I was the lead highways engineer for the development of the Charter Square public realm and bus infrastructure improvement works in Sheffield.
- Rotherham, Parkgate. I was the Project Manager for the development of a transport, feasibility and cost appraisal study for this proposed highway scheme in Rotherham.
- Monks Cross Retail Park, York. I was responsible for leading the detailed design of the Section 38/278 highway works as part of the scheme. This included the reconfiguration of the existing highway layout in the vicinity of the site and the construction of new access roads leading to the development. The works included the provision two new signalised pedestrian crossings and a new signalised access junction.

1.1.2 I have been the Highways and Minor Stations CRE for the Proposed Huddersfield to Westtown (Dewsbury) Improvements Scheme – the Order Scheme – since 2018. My role involves managing a team of engineers with responsibility for the design of the three minor stations (Deighton, Mirfield and Ravensthorpe) and all highway design works on the route, namely:

- John William Street junction with Viaduct Street
- Whitacre Street

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- The A62 Leeds Road
- The B6118 Colne Bridge Road
- Parks Overbridge
- Station Road, Mirfield
- Calder Road
- B6117 Fall Lane, Thornhill Road

2. SCOPE OF EVIDENCE

2.1 Scope of Evidence

2.1.1 My evidence will be structured as follows:

- A response to the Statement of Matters with respect to the design and layout of highways, provided in Section 3.
- A response to objections/part of objections with respect to the design and layout of highways, provided in Section 4.

2.1.2 My evidence does not include a description of the Scheme or option development/selection, except where this helps to explain in response to an objection why a particular design solution has not been progressed. Details of the Scheme and option selection are documented in the NR28 Statement of Case. (Section 6 – Scheme Development, Section 7 - Scheme Description and Construction and Appendix B Option Selection Detail).

2.1.3 My evidence also does not address the strategic alternatives considered, other than the highway alignment associated with the grade-separation at Ravensthorpe. This is contained within the Engineering and Design Evidence of Graham Thomas.

2.2 Response to Statement of Matters

2.2.1 My evidence is in response to the following points of the Statement of Matters, which are affected by the chosen design option:

- **Point 3:** The likely impact of the exercise of the powers in the proposed TWA Order on local businesses, tenants, and occupiers. My evidence will describe the impacts on access to and within the area, including accesses to businesses and the permanent impact on parking facilities.
- **Point 6.** The impact of the Scheme as designed on other development proposals in the local area. My evidence will demonstrate on the Scheme has positively responded to development proposals which are directly influenced by the Scheme.

2.3 Response to Objections

2.3.1 My evidence is in response to specific objections as listed below. Generally, this is structured by highway/highway structure in response to the relevant parts of **OBJ 33** Kirklees Council (the Council). Where responses to other objections are required, this will be addressed in the relevant geography. These relevant objections include:

- **OBJ 34** Taurus Limited
- **OBJ 36** Dewsbury Riverside Limited
- **OBJ 37** Mamas and Papas

3. HIGHWAYS RESPONSE OT THE STATEMENT OF MATTERS

3.1 Introduction

- 3.1.1 In considering my evidence, please refer to Section 3.1 of the Proof of Evidence of Graham Thomas, which provides details of the alternatives considered.

3.2 Impact on Local Businesses, Tenants and Occupiers

- 3.2.1 The impact of the proposed highways design on land take from properties adjacent to the highway works is a key consideration as part of the design development, particularly with respect to the alignments and application of the relevant design standards. This section sets out the design approach for the highway schemes where land take has been a key constraint and has had an influence on the design.

Working within Highway Standards

- 3.2.2 The highways design work undertaken has been completed in accordance with the relevant standards from the Design Manual for Roads and Bridges (DMRB) and other relevant standards and guidance. These are:

- CD 109 - Highway link design
- CD 123 - Geometric design of at-grade priority and signal-controlled junctions
- CD 127 - Cross-sections and headroom
- CD 225 - Design for new pavement foundations
- CD 226 - Design for new pavement construction
- CD 239 - Footway and cycleway pavement design
- CD 169 - The design of lay-bys, maintenance hardstanding's, rest areas, service areas and observation platforms
- CD 358 - Waterproofing and surfacing of concrete bridge decks
- CD 377 - Requirements for road restraint systems
- CD 521 - Hydraulic design of road edge surface water channels and outlets
- CD 524 - Edge of pavement details
- CG 501 - Design of highway drainage systems
- CS 228 - Skidding resistance
- Accessible Bus Stop Design Guidance - Transport for London
- LTN 1/20 Cycle infrastructure design – guidance
- Kirklees Local Plan - Highway Design Guide - October 2018

- 3.2.3 Where appropriate and in the correct manner throughout the design of the highways elements of the scheme, I have continuously challenged the application of standards to the boundaries of acceptable design for all users of the relevant highways and to also minimise the impact on third party landowners.

LTN1/20 Cycle Infrastructure Design guidance

- 3.2.4 Local Transport Note (LTN) 1/20 Cycle Design guidance is the Department for Transport's (DfT) guidance for Local Authorities to consider for the provision safe infrastructure for cycling including in the design of highways schemes. As well as planning for cycling, it gives consideration to the following which are of relevance for the Scheme:
- space for cycling within highways
 - transitions between carriageways, cycle lanes and cycle tracks
 - junctions and crossings
- 3.2.5 The guidance was published in July 2020 and replaces Shared Use Routes for Pedestrians and Cyclists (LTN 1/12) and Cycle Infrastructure Design (LTN 2/08).
- 3.2.6 The provision for cycling has been considered as part of the design of the highways for the Scheme and where relevant, LTN1/20 has been allowed for. However, the guidance does not prescribe that provision for cyclists should always be made and does describe instances where segregated or off-carriageway provision may not be appropriate, as I have referred to in relation to the design of the B6118 Colne Bridge Road in my evidence.

A62 Leeds Road Overbridge (MVL3/102)

- 3.2.7 The proposal for the new A62 Leeds Road design would see the reconstruction of the bridge in two phases with the structure partially overlapping with the existing bridge footprint to minimise traffic disruption. The two-phase partial offline bridge construction means that the requirements for full road closures are minimised and are significantly less than for other options which would have required full road closures for significant durations of the works.
- 3.2.8 The highway realignment ties in just north of Neptune Way on the south side of the bridge and to the central reservation just south of Deighton Road on the north side of the bridge. The design provides for the following:
- An 8.0m wide carriageway with 2.0m wide on-carriageway cycleways in each direction
 - 2.0m wide footways in each direction
 - A 90m forward visibility envelope on the approaches
 - A horizontal radius of 180m
 - A maximum gradient of 5.75%
- 3.2.9 The vertical geometry of the highway is controlled by the tie in to the north and south of the railway and ensuring that sufficient clearance is achieved over the railway to enable the installation of overhead line equipment (OLE). The TWA Order scheme included a vertical gradient of 5.75% to the south of the railway. This was dictated by achieving the clearance over the railway and tying into the existing carriageway alignment to the north of Neptune Way. This minimised any works to the existing signalised junction and disruption to local businesses.

3.2.10 The tie-in on the southern approach was the driving factor for the maximum gradient of 5.75% and is a consequence of tying into the existing highway layout and levels prior to the existing A62 Leeds Road / Neptune Way signalised junction. In addition, the OLE clearances and bridge deck construction thicknesses have been minimised to reduce the vertical gradient as much as possible.

3.2.11 Additional constraints on the design include:

- Third party landowners to the north and south of the railway include the Allcar Garage to the north of the railway and Audi garage and storage yard on the south side of the railway. These properties restrict the corridor width and horizontal and vertical geometry to the north of the railway in what is a constrained cross section between the garage and the railway cutting.
- Landowners and businesses on Neptune Way which would be impacted by significant works to the existing A62 Leeds Road / Neptune Way signalised junction.
- The need to re-provide bus stops on the northbound and southbound carriageways.
- The eastern extents of the replacement highway structure is defined by the proposals to retain and utilise the existing northern bridge abutment. This option has been selected to help reduce the impact on the A62 Leeds Road transport corridor during the works, including the provision of the temporary highway diversion.

B6118 Colne Bridge Road (MVL3/107)

3.2.12 At the B6118 Colne Bridge Road, it is proposed to construct the new bridge to the east and adjacent to the existing structure to minimise disruption to traffic and pedestrians during construction. The layout proposes the following:

- Carriageway widths of 7.3m on the new railway crossing
- A 2.0m wide footway is provided on the eastern side of the road. No footway is provided to the western side of the road which reflects the current layout
- A horizontal radius of 180m

3.2.13 This is a significant improvement on the existing highway provision which has an approximate minimum carriageway width of 4.5m and a footway width of approximately 700mm on the bridge. This is significantly sub-standard by modern highway design standards.

3.2.14 Provision for cycling has been considered at this location. However, due to several land and third-party constraints, the cross section of the highway and bridge has not been increased further. These include:

- The Huddersfield Broad Canal Bridge to the south of the existing Colne Bridge Road railway bridge which is outside of the Order Limits and not subject to any works under the TWA Order. The narrow cross section of the bridge is such that any provision for cycling could only be provided on the existing carriageway and would need to be in the form of advisory cyclelanes.

- Construction of an off-line bridge so that the disruption due a bridge closure can be kept to a minimum.
- The area around the bridge is particularly constrained with business units located on three corners of the structure.
- Third party land constraints to the east and west of the B6118 Colne Bridge Road. The Scheme already impacts Mamas and Papas (**OBJ 34 and 37**) to the east and requires a reconfiguration of a critical access to the rear of the building and its car park.

Calder Road Overbridge (MNV2/202)

Grade Separation, Highway Alternatives Considered

- 3.2.15 Constraints on the highway geometry, both horizontal and vertical geometry, include the River Calder bridge to the north of the railway and the residential properties adjacent to Ravensthorpe Road on the south side of the railway. It is also noted that the existing highway geometry has an approximate maximum vertical gradient of 5.3%.
- 3.2.16 To provide sufficient vertical clearance to the fast lines for trains and the OLE, it is proposed to construct the new Calder Road overbridge at a higher level than existing with the highway approaches on either side modified to suit. It is not possible to reconstruct the Calder Road overbridge on its current highway alignment without significantly increasing the vertical gradients on each approach to the bridge. This would also result in a reduced vertical alignment geometry other the bridge and forward visibility.
- 3.2.17 Full details of the reasons for and the alternatives considered for grade separation in the Ravensthorpe area are provided in the Proofs of Evidence of Graham Thomas and Mike Pedley. In this section, I will set out the alternatives considered for the highway alignment for the Calder Road.

Dive-under option

- 3.2.18 For the dive-under option, the vertical alignment of the railway meant that the elevation of the fast lines is lower than that of the slow lines and therefore the proposed bridge structure needed to achieve minimum vertical clearances to the slow lines. Accounting for the bridge construction, OLE clearance and other design requirements, it was possible to reconstruct the Calder Road highway bridge as an on-line or off-line replacement, based on a maximum highway vertical gradient of 5.5%. This retains the existing approximate Calder Road vertical alignment with no works required to the Calder River bridge which are currently proposed by the TWA Order scheme.
- 3.2.19 An off-line realignment was the preferred solution to either the west or east of the existing bridge structure. By construction an off-line solution, this minimised the highways impact and length of road closures required and the impact on utilities, removing the requirement for a temporary utilities bridge.

3.2.20 At the time of option selection, an off-line realignment to the east of the existing bridge structure was the preferred solution. This resulted in impacts on land from the Veolia (OBJ 42) site and Spenborough Engineering, part of the Calder Road Business Park. The impacts on Dewsbury Riverside (OBJ 36) were similar, while there would be no impact on Newlay Concrete (OBJ 18-21) due to the highway works for this option.

TWA Order Scheme – flyover option

3.2.21 For the proposed flyover option, the new bridge is to be constructed to the west of the existing bridge alignment. The level and vertical geometry of the fast lines gradually fall in this direction, reducing the level at which the replacement bridge needs to be constructed. This helps minimise the overall level gain between the River Calder bridge and the new Calder Road railway overbridge, helping to minimise the approach geometry and gradients on either side of the bridge.

3.2.22 The highway, as included in the TWA Order, would comprise the following:

- 7.3m wide carriageway over the new Calder Road overbridge, tying back into the existing carriageway at the Calder River bridge to the north.
- 3m wide footways on either side of the carriageway.

3.2.23 This is an overall improvement on the existing highway which provides a carriageway width of approximately 7.3m and a footway width of approximately 1.6m on the eastern side of the bridge. A narrow verge is also provided on the western side of the structure.

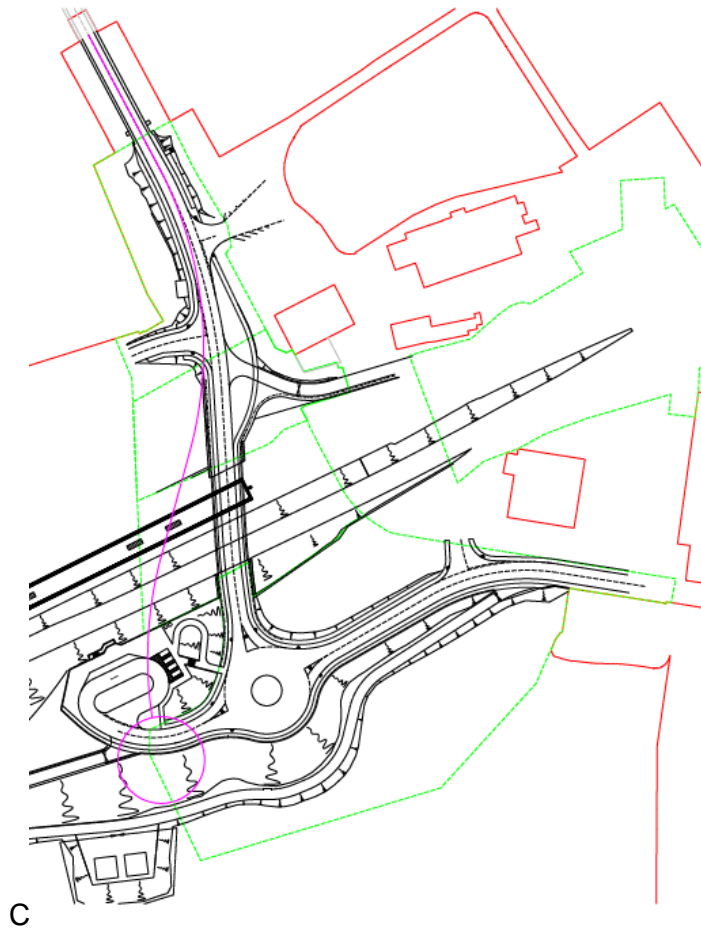
3.2.24 The proposed highway realignment includes a roundabout to the south of the railway. This is included to minimise third-party land use as far as reasonably practicable and to avoid the need for tight bends in the horizontal geometry where it ties back into Ravensthorpe Road. The new Ravensthorpe Station is accessed via the roundabout and access to third party properties are maintained (for the Calder Road Business Park, **OBJs 18-21** Newlay and **OBJ 42** Veolia). Access for **OBJ 37** Dewsbury Riverside is discussed in Section 4.3.

3.2.25 In developing options, highway alignment options with gradients of 5.0% and 5.5% have been considered. In addition, to minimise third-party land use from Dewsbury Riverside (**OBJ 37**) and the Newlay Concrete site (**OBJ18-21**), it is proposed to raise levels across the Calder River bridge by approximately 0.5m. This is proposed to be achieved by locally raising surface levels and the existing parapet support beam to the southern end of the bridge. Options of raising and tilting the whole bridge structure were considered, however ruled out due to construction complexity and additional utility diversions.

3.2.26 Providing a maximum 5.0% alignment compared to 5.5% increases the length of highway required to obtain sufficient vertical clearance to cross the railway. Due to site constraints, the consequence of this is to push the roundabout further west, increasing third-party land requirements. The option also lengthens the permanent pedestrian diversion length for users walking along Ravensthorpe Road / Calder Road. The proposed centreline for the 5% highway alignment is shown by the purple alignment on Figure 3-1. Providing an alignment with a gradient of 5% would result in

the proposed scheme being outside the TWA Order limit of deviation for Calder Road.

Figure 3-1: Roundabout location for 5% gradient option (shown in purple)



3.2.27 Consequently, it is proposed to adopt the 5.5% gradient. This is slightly steeper than the existing highway and footway gradient of 5.3% and steeper than the desirable maximum longitudinal gradient of 5.0%.

4. REPRESENTATIONS AND OBJECTIONS

4.1 Objection 33 Kirklees Council

A62 Leeds Road

- 4.1.1 They key issues raised by the objector on the A62 Leeds Road highway design are focussed on the provision for cyclists and the vertical alignment on the approach to the proposed bridge. My response to these points is provided in the subsequent sections.

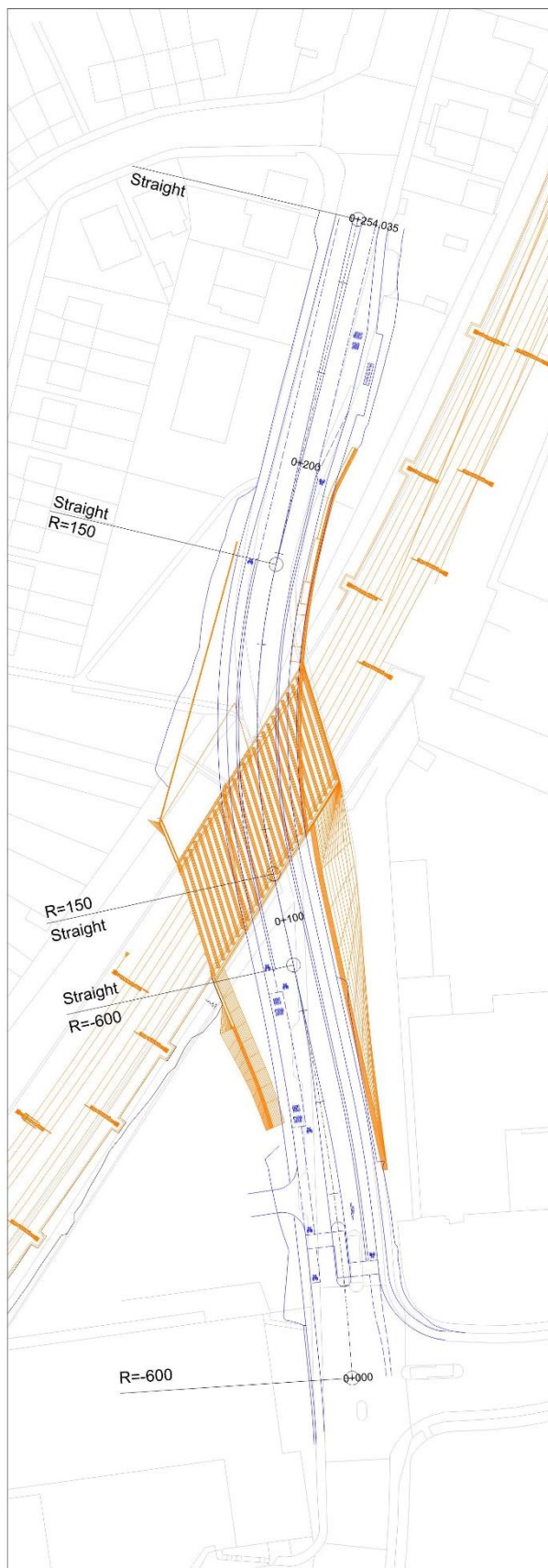
Vertical alignment

- 4.1.2 Details of the design constraints with respect to the vertical gradients are provided in Section 3.2 of my evidence.
- 4.1.3 The vertical geometry of the highway is controlled by the tie in to the north and south of the railway and ensuring that sufficient clearance is achieved over the railway to enable the installation of OLE. The proposed scheme includes a vertical gradient of 5.75% to the south of the railway. This is dictated by the requirements to achieve the required clearances over the railway and tying into the existing carriageway to the north of Neptune Way. This minimises any works to the existing signalised junction and disruption to local businesses who rely on access to their premises via Neptune Way.
- 4.1.4 Providing a maximum 5% gradient would require the works to extend to include the Neptune Way junction, including raising the vertical profile of the carriageway by approximately an additional 400mm on the immediate northern side of the junction and 150mm in the centre of the junction. To achieve this would require the carriageway and footway levels, existing signal equipment and duct chambers to be raised. Other impacts include raising utility chambers and drainage modifications.
- 4.1.5 Reviewing the impact on fronting properties, works to the western side of the junction will require footway levels raising against an existing boundary retaining wall, however a section of this wall will already need to be realigned and reconstructed to incorporate the provision of widened on-carriageway cycle lanes.
- 4.1.6 To the north adjacent to the existing Audi Garage car park, the verge to the rear of the footway would need to be raised and a retaining wall (including parapet) provided to avoid regrading the existing embankment and impacting on the first row of car parking spaces in the Audi garage car park. Without a retaining wall, the highway would need to be moved to the west by approximately 1m, further impacting the properties on the western side of the A62 Leeds Road. However, this would be within the TWA Order limit of deviation.
- 4.1.7 This change would also raise levels along the front of the garage show room, requiring the existing embankment to be regraded. Minor modifications will also be required to the verge to the southeast of the junction.
- 4.1.8 Based on the impacts on third party landowners, it is not proposed to progress with this amendment to the design.

Cycling provision

- 4.1.9 The design as included in the TWA Order provided on-carriageway cycle lanes on a like-for-like basis with the existing provision, while providing an overall improvement in the highway layout, particularly in the horizontal curve with a radius of 180m. The Council has acknowledged the provision of 2m wide cycle lanes; however, it has stated a preference for raised segregated cycle lanes, including a separation strip to the carriageway over the bridge to minimise the risk of vehicles overrunning into the cycle lane.
- 4.1.10 In discussions with the Council, it was suggested that a reduction in the mainline horizontal geometry to a horizontal curve with a radius of 150m would be acceptable to allow for the provision of segregated cycling. Considering this, Network Rail has reviewed the design and reducing this radius to 150m enables the clearance to the eastern parapet to be increased, enabling a 2.0m wide segregated cycle lane and 0.5m segregation strip to be provided. This can be achieved within the Order limits and within the proposed bridge extents included within the Order.
- 4.1.11 Figure 4-1 shows a draft layout which will be considered as part of the ongoing design development. This provides:
- 90m of segregated cycling in the northbound direction, commencing to the north of the re-provided bus stop and terminating at the north of the bridge where the cycle lane needs to narrow to tie back into the existing highway prior to the Allcar Garage.
 - 170m in the southbound direction, commencing to the south of the existing bus stop extending to the junction of the A62 Leeds Road with Neptune Way.
- 4.1.12 The highway geometry in this draft proposal, which will be subject to further and ongoing discussions with the Council, is still an improvement on the existing geometry. Due to the widened footway/cycleway, the revised layout proposal does not result in any reduction in the forward visibility splays achieved.

Figure 4-1: Draft Update to the A62 Leeds Road design to incorporate segregated cycling



Colne Bridge Road

- 4.1.13 The key issues raised by the Council on the B6118 Colne Bridge Road highway design are focussed on the provision for cyclists. My response to these points is provided in the subsequent section.
- 4.1.14 Details of the design constraints with respect to the provision of cycling are provided in Section 3.2 of my evidence.
- 4.1.15 Network Rail has further reviewed the potential provision for cyclists on the B6118 Colne Bridge Road and my view is that it would not be suitable to incorporate a provision for cycling over and above the currently proposed design and to do so would be contrary to the LTN1/20 Cycle Infrastructure Design guidance.
- 4.1.16 The core design principles of the LTN1/20 guidance include that:
- “Not only must cycle infrastructure be safe, but it should also be perceived to be safe so that more people feel able to cycle”.
 - “Neither cyclists nor pedestrians benefit from unintuitive arrangements that put cyclists in unexpected places away from the carriageway”.
 - “Uncomfortable transitions between on- and off-carriageway facilities are best avoided, particularly at locations where conflict with other road users is more likely”.
- 4.1.17 The Summary Principles of the guidance also state that “Isolated stretches of provision, even if it is good are of little value”.
- 4.1.18 The Council has acknowledged in its Statement of Case (paragraph 8.2.6) that shared provision could be considered due to low pedestrian use. Due to the constraints discussed in Section 3.2 of my evidence, this provision could only be provided over approximately 80m which in my view, would be unintuitive for cyclists in this location. In addition, I believe that a safe and comfortable transition for cyclists is unlikely to be achieved, particularly at the southern end close to the proposed RRAP access point would not be comfortable or safe.
- 4.1.19 The proposed bridge design is an integral bridge constructed independently from the existing structure. If the existing and new structures overlapped, a different bridge form would be required which would increase the bridge deck construction which in turn increases the highway vertical gradient and geometry on the southern bridge approach and reduces the forward visibility achieved. Therefore, widening of the bridge and highway to the west would not provide an opportunity to incorporate suitable provisions for cycling.
- 4.1.20 The Council has also noted in its Statement of Case (paragraph 8.2.6) that this would be the most direct route for cyclists to connect from the existing east-west National Cycle Route 66 (the Calder Valley Greenway) to the proposed Birkby Brighouse Greenway (part of the DfT’s Transforming Cities Fund). Having reviewed the proposals for this, I note that the southern end of the proposed route would be at Brooklands, which is almost directly adjacent to the western end of National Cycle Route 66 at the A62 Leeds Road. It would be far more appropriate and safer for cyclists to connect between these two routes via the National Cycle Route 66, thus avoiding the need to use the B6118 Colne Bridge Road.

Calder Road

4.1.21 The key issues raised by the objector on the Calder Road highway design are focussed on the provision for cyclists, the suitability of the provision of roundabout and the vertical alignment on the approach to the proposed bridge. My response to these points is provided in the subsequent sections.

Vertical alignments

4.1.22 Details of the design constraints with respect to the vertical gradients are provided in Section 3.2.

Roundabout and Cycling provision

4.1.23 The Council's position with respect to the suitability of a roundabout in this location has been noted.

4.1.24 The roundabout gives the capability to connect to the Dewsbury Riverside development should it come forward in the future and is in line with our previous understanding of the Council's own plans for a roundabout in this location (albeit this was in a different location).

4.1.25 To address the concerns regarding the suitability of the roundabout for cycling, Network Rail has reviewed the provision and would be able to cater for cyclists within the Order limits. Options considered include shared use paths through to a full 'Dutch-style' roundabout. Different options lead to different impacts, including significant implications on the design and third-party land take, as follows:

- Additional earthworks required to the south to accommodate different arrangements (considering that a fourth arm on the roundabout may be required in the future) would increase the land-take required from the Dewsbury Riverside limited.
- There would be impacts on the proposed station forecourt.
- Any overall increase in earthworks would lead to an increase in the quantum of material to be exported off-site and increase the number of HGV movements on the local highway network during the works.

4.1.26 Provision for cycling can, however, be accommodated on the roundabout. This is subject to ongoing design development and will be subject to further discussions with the Council, but will comprise shared use paths with appropriate crossings on the roundabout arms. This considers the safety of transitions onto the highway at Ravensthorpe Road, minimising the impact on third party land including Dewsbury Riverside, minimising the impact on the station design and minimising the overall volume of earthworks required. A full Dutch-style roundabout is not proposed due to the additional land requirements.

4.1.27 To the north of the roundabout, shared use paths will be considered as part of design progression. Full segregation on this section would have a significant impact on the bridge design, requiring the bridge to be widened by over 3m, which would further impact third party land.

- 4.1.28 The provision of shared use paths is considered appropriate due to the likely pedestrian/cycle flows to/from the north (to/from Ravensthorpe).
- 4.1.29 The design does not preclude any future direct linkages for walking and cycling to the proposed Ravensthorpe Station from any development to the south as part of the Dewsbury Riverside Masterplan.

Station Road, Mirfield

- 4.1.30 The key issues raised by the objector on the Station Road, Mirfield design are focussed on the junction arrangement at Lowlands Road/Station Road and the width of the highway at the Station Road Underbridge.

Lowlands Road / Station Road

- 4.1.31 The TWA Order works include new access arrangements to the existing Network Rail maintenance compound at Mirfield. This access will be used both during and post construction. The works to the Lowlands Road / Station Road junction propose to widen the existing junction to ease the movement of larger vehicles around the junction.
- 4.1.32 The existing Lowlands Road has an approximate carriageway width varying between 6.3m and 7.1m with vehicles required to enter the junction around a tight 90-degree bend immediately after crossing the canal bridge. The swept path analysis on Figure 4-2 shows that this is a very tight movement, typically requiring larger vehicles to overrun the kerb line on either side of the junction.

Figure 4-2: Station Road/Lowlands Road Swept Path Analysis



4.1.33 The Scheme proposes to widen Lowlands Road locally at the junction bell-mouth to a 7.3m wide carriageway with an additional hatched overrun area. The extents of widening on Lowland Road is constrained by the canal and existing private properties/buildings. The proposed local widening, as shown on Figure 4-3, enables an articulated vehicle to turn into the junction whilst not overrunning the opposing carriageway. As shown on Figure 4-4, the vehicle is still required to slightly overrun the centreline of Station Road to undertake this movement due to the constrained width of Station Road and the existing canal bridge. It is proposed that any requirements for construction management will be agreed as part of the Construction Traffic Management Plan (CTMP) and Highways Network Management Working Group.

Figure 4-3: Proposed Station Road/Lowlands Road junction layout

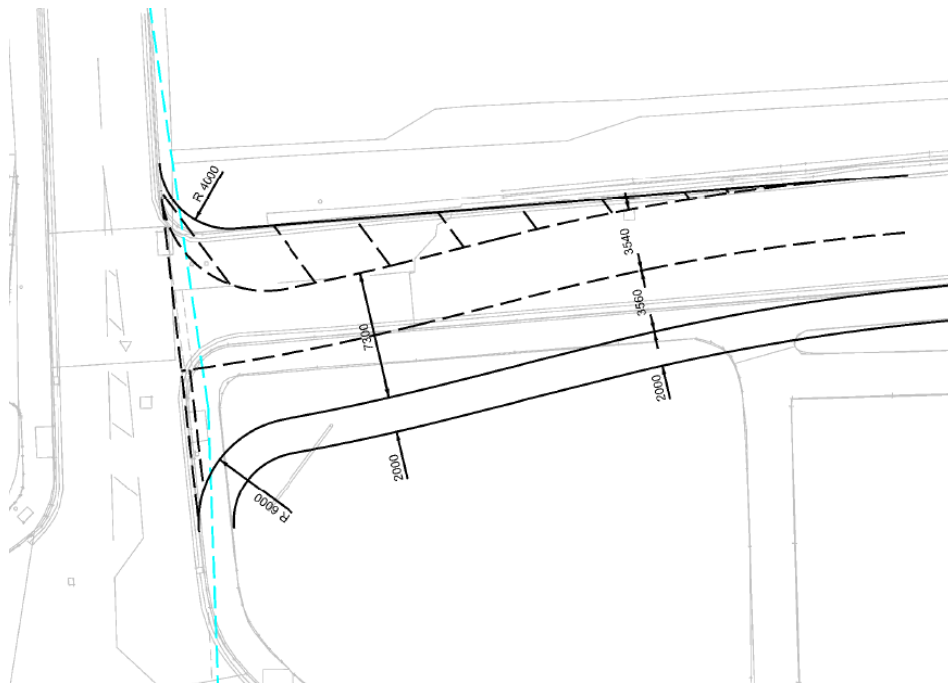
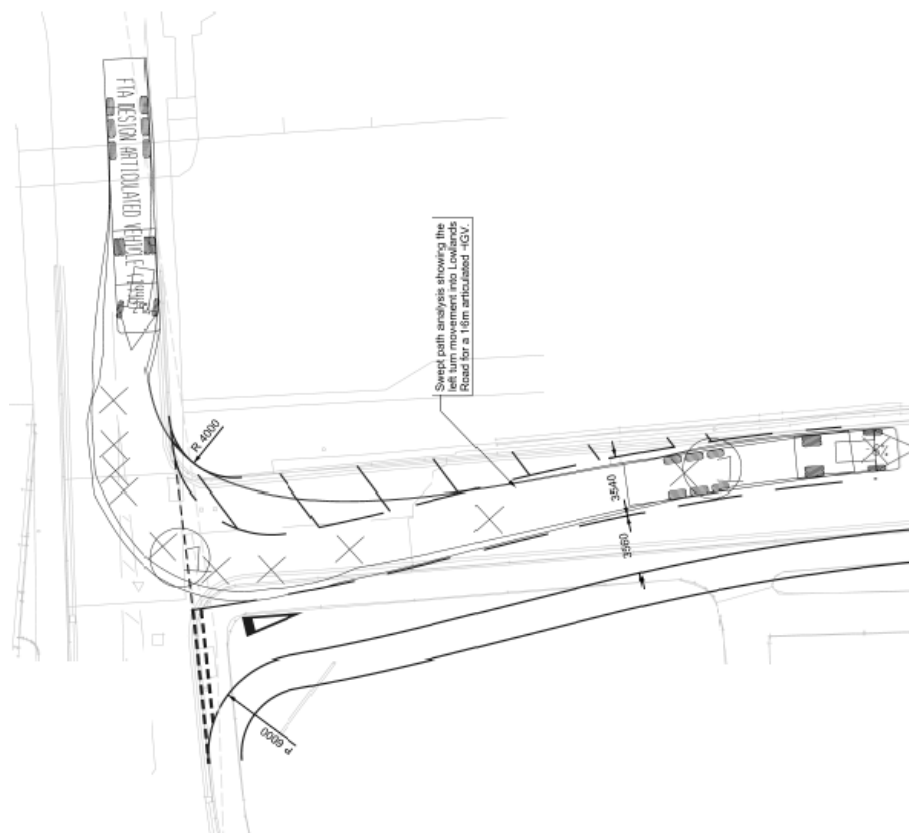


Figure 4-4: Swept Path Analysis for the Proposed Station Road/Lowlands Road junction layout



Station Road Underbridge

4.1.34 The construction of a new Mirfield Station eastern entrance requires modifications to Station Road. The western kerb alignment is to be retained with the half-width bay removed and a full kerb upstand provided. Lane widths are narrowed under the bridge to reduce vehicle speeds and provide a wider footway width directly outside the station entrance.

4.1.35 The kerb in front of the proposed eastern entrance will be raised and a high containment kerb provided, which may require some local utility diversions within the vicinity of the footway. The purpose of this is to raise the threshold levels of new lift infrastructure within the station as high as possible to help minimise the impact of surface water flooding on the station. This positions the lift shaft above the 1 in 25 year storm event. It will, however, not be possible to access Mirfield Station in storm events less than this due to surface flooding on Station Road. The high containment kerb is proposed along with a 1 in 50m (2%) gradient within the station entrance area to raise the threshold level of the lift shaft above the 1 in 25 year flood level.

4.1.36 The high containment kerb is also proposed to:

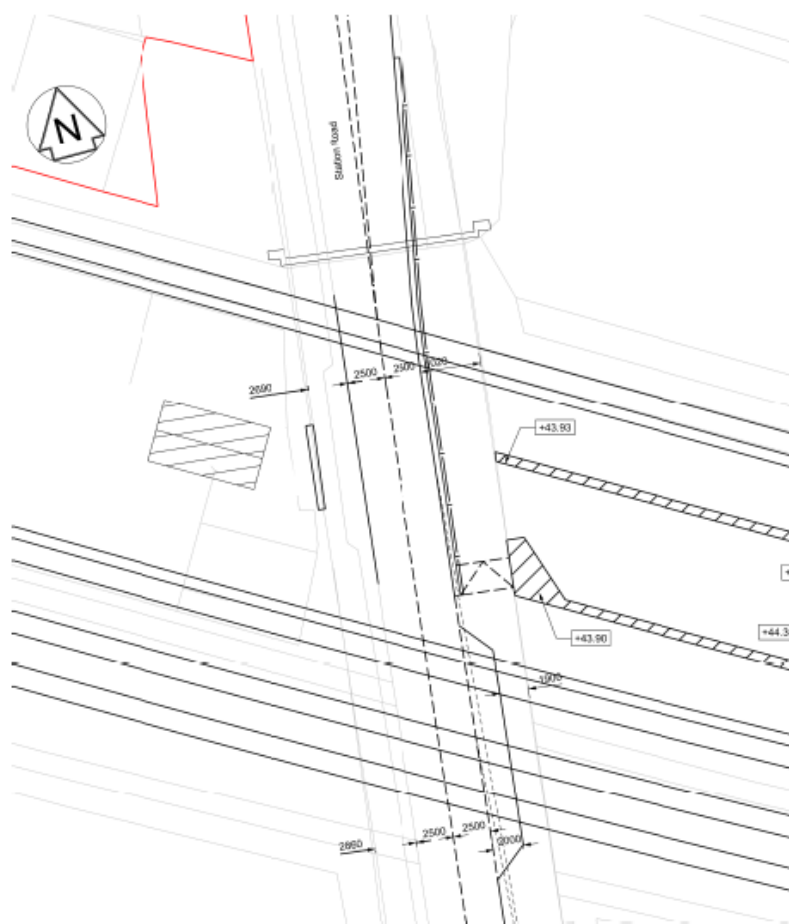
- Discourage vehicles from stopping or mounting the kerb.
- Protect pedestrians (congregating at the entrance) from vehicles.

4.1.37 Due to the change in level (290mm) between the footway and Station Road, there is a requirement for a pedestrian guardrail along this length of elevated footway across the station entrance to prevent falls. This has the added benefit of:

- Providing an additional level of protection to pedestrians from vehicles.
- Preventing pedestrians from walking straight out onto Station Road from the station entrance.
- Directs pedestrians to the designated crossings.

4.1.38 To maximise the footway width in front of the station entrance, minimum vehicle lane widths proposed are 2.5m with a footway width of approximately 4m (carriageway channel to back of footway), as shown on Figure 3. Accounting for the inclusion of the high containment kerb and a pedestrian barrier this results in an effective width (barrier to bridge abutment) of 3.5m.

Figure 4-5: Station Road Proposed Layout



4.1.39 Narrowing the carriageway was considered acceptable given the restricted headroom with the bridge structure above preventing the movement of larger vehicles along this section. This also enables a short non-PRM (persons of reduced mobility) drop-off bay to be positioned to the south of the entrance. This is addition to the main station drop off that is proposed within the existing station car parking area. This will provide

lift / step access to Platforms 1 and 2, although it is noted that this impacts on visibility of a proposed pedestrian crossing.

- 4.1.40 After recent engagement with the Council, the opportunity to provide a one-way localised narrowing adjacent to the station entrance was discussed. This was considered an appropriate provision and enables a widened footway to be provided adjacent to the station entrance. This opportunity will be explored in more detail with the Council as the design is developed.

John William Street

- 4.1.41 They key issues raised by the Council on the John William Street bridge and associated highway design are focussed on the layout of the junction including a requirement for swept path analysis and consideration of the cycle land on Viaduct Street and the low headroom at John William Street (footway only) and the risk of vehicle incursion.
- 4.1.42 The extension of the bridge to this eastern face proposes a modification to the highway and footpath on Viaduct Street. The existing footway width and pedestrian crossing infrastructure would be re-provided. Bollards are also proposed on the corner of John William St and Viaduct Street to protect a cantilevered cill beam which supports the new platform above. This will be achieved through a reduction in the length of the existing parking bay. The soffit height and minimum vehicle clearance of the existing bridge is maintained under the new structure.
- 4.1.43 The highway layout proposed maintains access to the Tesco service yard and shortened the cycle lane to the north side of the Tesco service yard entrance.
- 4.1.44 After recent engagement with the Council, a further review of the design of the John William Street structure has been undertaken and progress is being made with resolving the headroom issues that have been raised. The ongoing design work is seeking to pull the edge girder in towards the inner girder, which ensure that the girders to not overhang the abutment, removing the headroom issue and thus the need for bollards at street level as a mitigation for this. However, any change to the design of the structure needs to be considered against the heritage assessment undertaken for the bridge. This will be subject to ongoing design development and will be subject to further discussions with the Council.
- 4.1.45 Should the above approach to resolve the headroom issues not have any heritage implications, there may not be a requirement to permanently modify the junction with John William Street and Viaduct Street.

Fieldhouse Overbridge

- 4.1.46 The proposed structure would have clear width of 3m to match the existing provision. It would be formed from weathering steel with a galvanised steel canopy. The canopy has been specified to replicate the existing security arrangement on the footbridge with anti-climb measures proposed. Palisade fencing up to a height of 3m would be installed for safety and security.
- 4.1.47 To provide sufficient vertical clearance for the electrification below the structure, the new footbridge deck level needs to be higher thereby affecting the tie-ins into the approach paths. On the northern approach the new footbridge ties into the existing footpath within the bridge span. On the southern approach 10 steps and a ramp are proposed, with three 1:8.5 sections with 2.0m long intermediate rest areas in between. This is a shallower gradient than the route from Old Fieldhouse Lane to the bridge, which has an average gradient of 1:7.
- 4.1.48 The proposed surfacing is as follow:
- Bridge deck – spray applied surfacing to metallic bridge deck

- Top stair landing - spray applied surfacing to concrete. GRP tactile strip fixed to concrete
- Stairs – GRP nosing fixed to concrete

4.1.49 On the approach ramp and bottom landing, a concrete surface will be considered as the design develops, subject to the development of a suitable drainage strategy.

4.2 Objection 34 Taurus Investment Limited and Objection 37 Mamas and Papas

4.2.1 As discussed in the Section 3.2 (paragraph 3.2.13), the realignment of the B6118 Colne Bridge Road requires a reconfiguration of the access to the rear of the existing Mamas and Papas building and reprovision of its car parking. Maintaining this access and car parking has been a key consideration in the highway layout, developed and the design, including the highway approach to the bridge, ensures that:

- Access from the current roundabout on the B6118 Colne Bridge Road to the east (and west) is maintained.
- Access via the south-west corner of the existing building would be maintained for all vehicles required (including HGVs).
- Parking for 39 cars/light vehicles would be maintained under a reconfigured layout.

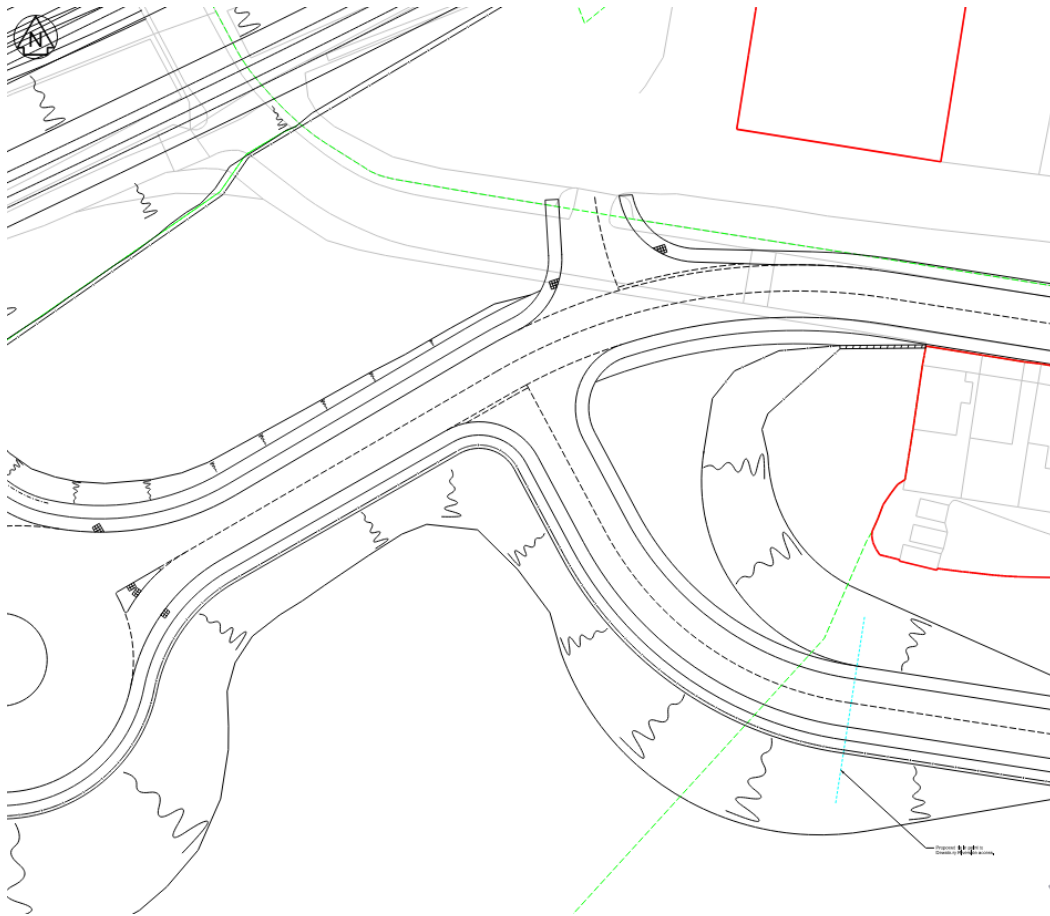
4.3 Objection 36 Dewsbury Riverside Limited

4.3.1 My evidence responds to Ground 1 (Effect of the Draft Order on the DRL Junction (in relation to the OPP), Ground 2 (Effect of the Draft Order on access to DRL Land (in relation to development of Dewsbury Riverside on DRL Land) and Ground 3 (Effect of the Draft Order on access to DRL Land (in relation to development of wider Dewsbury Riverside Local Plan allocation)).

Grounds 1 and 2

4.3.2 The proposed design submitted as part of the TWA Order did not show an access to the south-east to facilitate access to the proposed 120 homes that has Outline Planning Permission (OPP) and is subject to an ongoing (at the time of writing) reserved matters application. Access to the 120 homes, could however, be provided as shown indicatively on Figure 4-6, with a new access onto Ravensthorpe Road incorporated into the design for the realignment of Ravensthorpe Road.

Figure 4-6: Indicative access to the 120 Homes



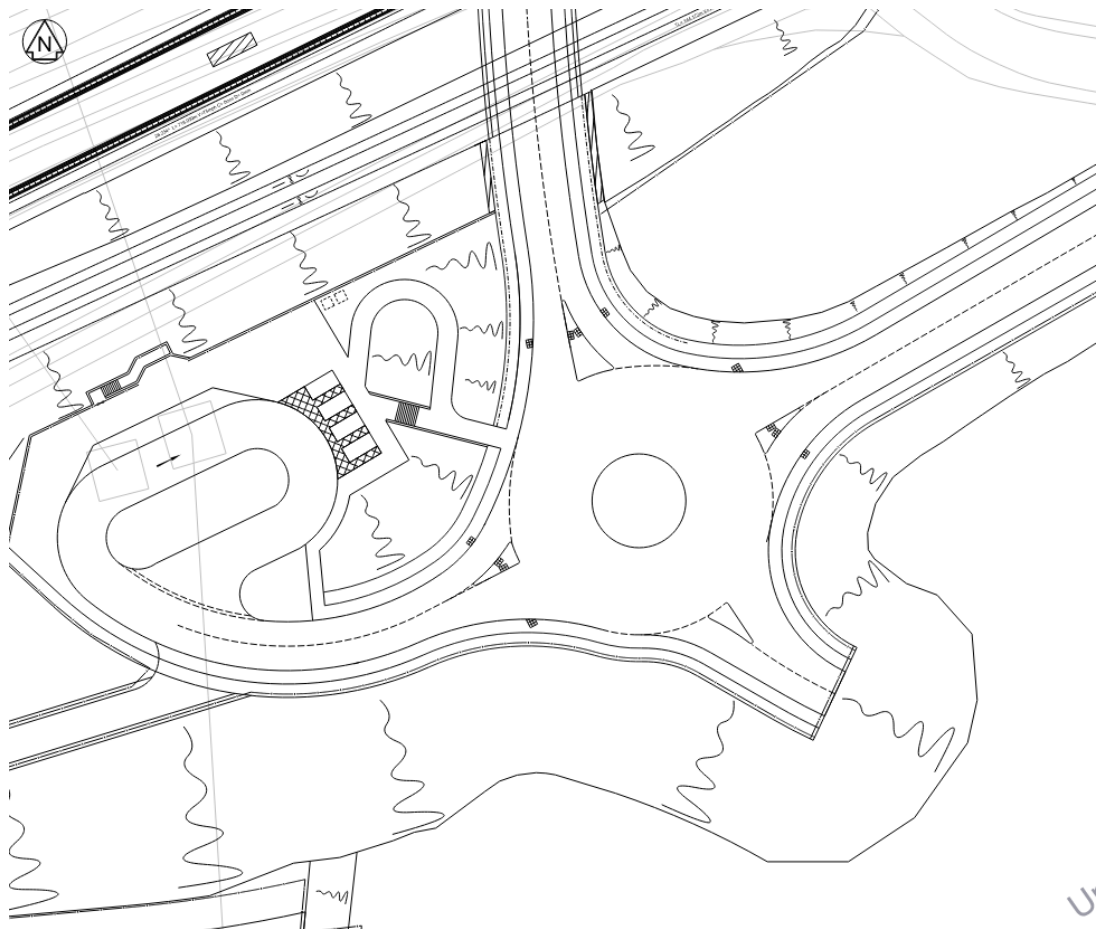
4.3.3 The design of the access road would achieve 70m visibility splays to the east and west to allow for all movements to be undertaken. This will be subject to technical approval from Kirklees Council.

4.3.4 The access would be provided as part of the Scheme should construction of the 120 homes have commenced or should access be required for any completed homes.

Ground 3

4.3.5 Consideration has also been given to how the provision of a fourth arm on the TWA Order roundabout could be provided to enable access to the wider Dewsbury Riverside allocation, if required. While not shown as part of the TWA Order plans, an indicative arrangement for a connection to the roundabout is shown on Figure 4-7.

Figure 4-7: Enabled Access from the Roundabout



5. WITNESS DECLARATION

5.1 Statement of declaration

5.1.1 I hereby declare as follows:

- (i) This proof of evidence includes all facts which I regard as being relevant to the opinions that I have expressed, and that the Inquiry's attention has been drawn to any matter which would affect the validity of that opinion.
- (ii) I believe the facts that I have stated in this proof of evidence are true and that the opinion expressed are correct.
- (iii) I understand my duty to the Inquiry to help it with matters within my expertise and I have complied with that duty.