Land North of Shaw Lane, Carlton

Highway Proof of Evidence – Richard Ellam
Planning Appeal Reference: APP/R4408/W/24/3341097

July 2024

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1 Introduction

1.1 Qualifications and Experience

1.1.1 My name is Richard Ellam. I am a Chartered Engineer (CEng) and a Member of the Institution of Highways and Transportation (MIHT), with over 25 years' professional experience in the Transport and Development Planning field. I have a Bachelor of Civil Engineering (BEng) Degree from the University of Liverpool.

1.1.2 I am a Divisional Director with Pell Frischmann Consultants Limited (PF), one of the UK's leading Civil Engineering consultancies. I am responsible for the company's Transport work in the North of England and Wales, and I am based in our local Wakefield office.

1.1.3 I am responsible for managing a wide range of transport and infrastructure planning projects for both private and public sector clients across the UK. I have been involved in the promotion and delivery of numerous large developments across the country including in the Yorkshire region - Thorpe Park, Leeds, the redevelopment of Headingley Stadium and Silkwood Park, Wakefield. I include, as **Appendix 1** to my evidence, a summary of the major developments in which I have been involved.

1.1.4 My areas of expertise include Transport Assessments, Travel Planning, access appraisals, traffic engineering, and I have provided expert witness services at numerous planning inquiries and hearings.

1.1.5 I am fully familiar with the proposed site and have been involved in preparing the transport evidence that has been submitted to date to support the planning application.

1.1.6 The evidence I have prepared for the appeal and inquiry is true and I confirm that the opinions expressed are my professional opinions.

1.2 Scope of Evidence

1.2.1 My evidence considers the highways and transport related Reasons for Refusals (RfR) associated with the application. I set out the relevant RfRs in Section 2 of my evidence.

1.2.2 I have sought to agree as many highways and transport-related matters with the Council in advance of the Appeal. The matters agreed between the parties are set out within Section 4 of my evidence.

2 Reasons for Refusal (RfR)

2.1 Relevant Transport Reasons

2.1.1 The relevant Reasons for Refusal relevant to highways and transport matters are as follows:

1. ***In the opinion of the Local Planning Authority the development of this site would fail to bring forward a coordinated, comprehensive and quality development of the wider Local Plan MU3 allocation and would fail to provide essential infrastructure, including the Northern Access Road, that is required to enable the whole of the allocation to be delivered in line with the Carlton Masterplan Framework, Design Code and Delivery Strategy (application site = site ref L11 within that document). In addition, the proposal is also regarded to out of sequence, premature and piecemeal. Furthermore, if this is solely accessed from Shaw Lane, contrary to the Delivery Strategy, then a critical part of the Carlton Masterplan required infrastructure would be under threat as there is no commitment within the application to assist with its delivery as required, and the burden of the Northern Access Road would fall on the developers of the neighbouring sites. It is also the case that the plans fail to include a small local shop for the benefit of the local community in this part of the site which is a requirement of the Masterplan Framework. As such, the proposal would have a prejudicial and undermining impact on the masterplan and would jeopardise its delivery.***

2. ***In the opinion of the Local Planning Authority the proposed site access from Shaw Lane has not been designed in accordance with the design requirements of the South Yorkshire Residential Design Guide and gives rise to road safety concerns. Furthermore, the proposed offsite highway works at the Church Lane / Shaw Lane / Fish Dam Lane junction are not acceptable as they would not help deliver the new Northern Access Road that is identified as being necessary in the Carlton Masterplan in order to relieve existing congestion in Carlton and along Shaw Lane. Furthermore, the proposed works would give rise to road safety concerns in their own right. The application has also not demonstrated that foot and cycle links provide appropriate levels of sustainable access to and from the site. The links shown to the TPT cannot be fully achieved without land outside the applicant's control. Walk distances to public transport also far exceed the 400m walk distance guidelines. As such, the scheme is contrary to the Carlton Masterplan/Delivery Strategy, the NPPF and Local Plan Policies T3 'New Development and Sustainable Travel' and T4 'New Development and Transport Safety'.***

2.1.2 I note that RfR number 6 relates to the impact in the conservation area of the proposed traffic signal mitigation. Whilst these are proposed as part of the scheme's highway works, I consider the objections raised to be relevant to conservation matters and therefore I understand these matters are now fully agreed between the Council and the appellant.

2.2 Analysis of Refusal

2.2.1 The first RfR relates to the overall delivery of the Northern Access Road (NAR) and concerns that the application would fail to deliver this piece of infrastructure and prejudice its overall delivery. I consider this matter in detail in Section 14 of my evidence.

2.2.2 I would note that the site proposes the delivery of the first phase of the NAR, (i.e. the section through the site itself). The proposed highway through the site has been designed to meet the requirements for the NAR, in respect to proposed road widths, alignment and general standard. It has been aligned to take the most direct highway route through the development site along its western flank.

2.2.3 The second main point of contention, identified in RfR2 is the impact on the Shaw Lane/Church Lane junction to the west of the site. The appellant proposes to improve the existing priority junction via the signalisation and provision of pedestrian facilities, to offset the impact of the development. The Council consider the form of mitigation proposed to be unsafe and I consider this matter in further detail in Section 12 of my evidence.

2.2.4 The Council also, in the reasons for refusal, refer to the form of proposed access junction and the pedestrian accessibility of the site, in particular along Shaw Lane itself. I consider these matters in Sections 11 and 13 of my evidence.

3 Background to the Planning Application

3.1 Overview

3.1.1 An Outline Planning Application (2022/0115) was submitted to Barnsley Metropolitan Borough Council (BMBC) on 4th February 2022 with the following description of the development:

"*Outline planning application for up to 215 dwellings with associated car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane. All other matters reserved apart from means of access.*"

3.1.2 The Application was validated on 22nd February 2022, through which the Council provided a new description of the development. This is shown as follows:

"Residential development of up to 215 dwellings with associated car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane (Outline with all matters reserved apart from means of access)"

3.1.3 Vehicular access to the site is proposed in the form of a new priority junction on Shaw Lane, which as noted will form the first phase of the proposed link road, referred to as the Northern Access Road (NAR) between Shaw Lane and Royston Lane.

3.2 Pre- Application Discussions

3.2.1 In order to assist the developer with the preparation of an application, a meeting was held with highways officers at BMBC and their consultants ARUP, on the 10th of June 2021. This meeting included discussion in respect to the proposed site and application requirements, and also set the ongoing work the Council's consultant ARUP were carrying out on behalf of the Council at the time, in respect to the masterplan. Other than that consultation, the Council have declined to engage directly with the appellant during the application process.

3.2.2 Following these discussions, the appellant supplied the Council / ARUP with the traffic survey data they had collected in 2018 to inform the preparation of the application, to assist them in their own masterplan considerations.

3.2.3 On the 19th of October 2021, the Council supplied the appellant with a copy of the study ARUP had undertaken on their behalf entitled: - "*Carlton Masterplan Framework Shaw Lane / Church Street Junction Assessment*" (*Core Document (CD) Reference 5.3*). This document considered

the impact of the proposed masterplan on the Shaw Lane / Church Lane junction. It concluded that:

"The existing priority-controlled junction is already congested with queuing observed during the surveys. The junction is predicted to operate over capacity in 2033 Do Minimum and with the addition of Carlton development traffic is forecast to be very significantly over capacity in 2033 Do Something.

Options have been explored to reconfigure this junction, namely introduction of a mini roundabout or signalisation. However, the former does not provide capacity improvements, whilst the latter is deemed unacceptable in terms of highway operation, safety and heritage conservation issues.

The conclusion from this assessment, therefore, is that alternative access(es) to the Carlton site are required. These should provide access both for the Carlton development parcels as well as opportunities for existing traffic to divert away from the Church Street / Shaw Lane / Fish Dam Lane junction.

More detailed assessment of access options and how existing and future development traffic will distribute on the highway network is required. It is also noted, that if existing traffic diverts from Shaw Lane through the site, this will potentially change the nature / function of the access route through the site with broader design implications for the site.

3.2.4 I review these conclusions and the findings of this work carried out for the Council on the impact at the Church Lane / Shaw Lane junction, in further detail in Section 12 of my evidence.

3.2.5 To my knowledge, however, no further work has been carried out by the Council to consider alternative access options since the 2021 report.

3.3 Transport Evidence in Support of the Application

3.3.1 In order to support the application, a full Transport Assessment (*CD 6.36*) and Travel Plan (*CD 6.13*) were prepared by Pell Frischmann. These documents were submitted alongside the application in January 2022.

3.3.2 In July 2022, feedback and comments from the highway officers at BMBC on the TA / TP and proposed application, were received by the appellant. A copy of the comments received from highways officers is included as **Appendix 2** to my evidence.

3.3.3 In response to the comments received, an Updated Transport Assessment (*CD 6.40)* was prepared and submitted in February 2023, which sought to address the concerns raised by the Council. The updated TA was based on new traffic survey data (collected in 2022), in response to the Council's concerns about the original 2018 traffic data.

3.3.4 On 14th September 2023, shortly before the proposals were due to be determined at committee, a second set of highways comments was received by the Appellant. A copy of these comments is included as **Appendix 3** to my evidence.

3.3.5 The issues raised are summarised below:

- ***"The application is not in accordance with the masterplan framework / delivery strategy covering this application site.***

- ***HDC cannot conclude that the traffic generated by the proposed development would not have a material and detrimental impact on the local highway network when considered in isolation or cumulatively with committed development. The modelling / network assessment work undertaken includes errors and omissions and cannot be accepted by Highways Development Control.***

- ***Due to the scope of the Transport Assessment not being agreed with BMBC prior to first submission it is requested that the requirements highlighted in the response above are taken into consideration as part of any further submission.***

- ***The site access junction from Shaw Lane has not been designed in accordance with the design requirements of the South Yorkshire Residential Design Guide and gives rise to road safety concerns.***
  - ***The design therefore cannot be accepted by Highways Development Control.***

- ***The application has not demonstrated that foot and cycle links provide appropriate levels of sustainable access to and from the site. The links shown to the TPT cannot be fully achieved without land outside the applicants control. Walk distances to public transport far exceed the 400m walk distance guidelines. The proposed footway widening along Shaw Lane cannot be accepted as presented (lack of information and road safety concerns with carriageway narrowing). The proposed Toucan crossing is not acceptable as the site does not have cycle/footway provision on both sides of the road to facilitate a continuous route. Consideration must be given, particularly in relation to:***
  - ***NPPF 110 which states that:***
    - ***appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;***
    - ***in assessing specific applications for development, it should be ensured that safe and suitable access to the site can be achieved for all users;***
  - ***NPPF 112 which states that applications for development should:***
    - ***give priority first to pedestrian and cycle movements, both within the scheme and within neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;***
    - ***address the needs of people with disabilities and reduced mobility in relation to all modes of transport.***

- ***The proposed design of the offsite highway works for the Church Lane / Shaw Lane / Fish Dam Lane has been assessed and in its current form the design is not acceptable and gives rise to road safety concerns.***

- ***The Road Safety Audit undertaken did not include all changes to the highway network and was undertaken without BMBC having the opportunity to review the brief or for BMBC (particularly a rep from Traffic) be invited to attend the audit. Furthermore, it does not appear from the information provided that the Road Safety Audit team were provided with the swept path drawings for review / comment before or following drafting of the Road Safety Audit report***."

4 Highway Statement of Common Ground

4.1 SoCG with the Local Highway Authority

4.1.1 The Statement of Common Ground (SoCG) agreed between the Appellant and the Authority, considers highways matters of common ground.

4.1.2 A number of additional revised highway plans have been prepared post receipt of the Planning and Regulatory Planning Report 25 September 2023, these include the following:

- Site Access Layout (IPD-22-580-100a, *CD: 7.1*)
- Site Access Visibility Splay (IPD-22-580-101a, *CD: 7.2*)
- Signalised Junction Layout (IPD-22-580-103a, *CD: 7.3*)
- Pedestrian Footway Improvements 1 (IPD-22-580-105a, *CD: 7.4*)

4.1.3 The Council and the Appellant have agreed that the Appeal should be determined on the basis of these revised highway plans. These are minor alterations to the site access and other highways proposals, which do not prejudice the proposals or the description of development. Additionally, further public consultation has been carried out with all those previously consulted, and any interested parties, to ensure they too have had the opportunity to comment upon the most up-to-date information available.

4.1.4 The Council have considered the revised plans and now agree that the visibility splays shown at the proposed site access are acceptable (Plan ref - IPD-22-580-101a, *CD: 7.2*).

4.1.5 In regard to other matters relating to transport, the Council have agreed that the trip generation and trip distributions used in the Transport Assessments, prepared to support the application, are acceptable.

4.1.6 The following areas of dispute remain between the Appellant and the Council:

- The form of the proposed vehicular access with Shaw Lane.
- That the proposed development will not result in a severe transport impact on the highway network
- That the pedestrian and cycle improvements proposed on Shaw Lane are adequate and acceptable.
- In respect to the Northern Access Road, that the proposal fails to accord with the masterplan framework.
- That the revised highways plans, described above in section 4.1.2, in respect to the site access layout, signalised junction improvement and pedestrian footway improvements fail to address their previous concerns, with the exception of the visibility plan.

5 Relevant Transport and Planning Policy

5.1 Overview

5.1.1 The national, regional, and local transport policy, relevant to the proposed development, is outlined below.

5.2 National Policy

National Planning Policy Framework (NPPF)

5.2.1 The Ministry of Housing, Communities & Local Government published the updated NPPF December 2023 (*CD 1.1*). The NPPF emphasises a favourability towards sustainable development, as is evident in Paragraph 109: ***"Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health."***

5.2.2 Paragraph 114 sets out the criteria upon which new developments should be judged from a highways and transportation perspective. When deciding upon planning applications it should be ensured that:

"a) Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) Safe and suitable access to the site can be achieved for all users;

c) The design of streets, parking area, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and

d) Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."

5.2.3 Paragraph 115 states *that "**Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe**."* The transport evidence prepared in support of the proposed development demonstrates that this is not the case and I consider this further in the remainder of my evidence.

5.2.4 Paragraph 116 outlines the following requirements for developments in the context of the above: ***"Applications for development should:***

a) Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) Create places that are safe, secure and attractive – which minimises the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) Allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."

5.2.5 Paragraph 117 states that: "***All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."*** Both a comprehensive Transport Assessment and Travel Plan were submitted in support of the application.

5.3 Regional Policy

Sheffield City Region Transport Strategy 2040

5.3.1 The Sheffield City Region Transport Strategy 2040 sets out the Mayor's transport vision to transform the region's transport network by 2040. The Strategy has been developed in conjunction with the local authorities for Sheffield, Doncaster, Barnsley, and Rotherham. The overarching transport vision for the region is as follows:

"We will build a transport system that works for everyone, connecting people to the places they want to go within the Sheffield City Region as well as nationally and internationally. Our transport system will be safe, reliable, clean, green and affordable. It will be one of the best in the United Kingdom and Europe."

5.3.2 The documents set out three key goals for the transport network over the strategy period. These are as follows:

- Residents and businesses connected to economic opportunity;
- A cleaner and greener Sheffield City Region; and,
- Safe, reliable, and accessibly transport network.

5.3.3 The specific policy relevant to the proposals includes '***Policy 8 – Enhance our multi-modal transport system which encourages sustainable travel choices and is embedded in the assessment of transport requirements for new development, particularly active travel'***.

5.3.4 This policy sets out a number of commitments from the SCR in relation to an enhanced multi-modal transport system and the encouragement of active travel. These include:

- Invest over a sustained period in high quality cycling and walking infrastructure that better connects homes, transport interchanges, education, employment, and recreational opportunities using safer, direct and convenient routes; and
- Work to reduce the reliance on private transport, encouraging people and working with businesses to choose greener and healthier forms of transport both for existing journeys and new journeys stemming from investment in the City Region.

5.3.5 The site forms part of an identified mixed use development allocation set out in the Barnsley Local Plan. As such, a Masterplan Framework has been adopted to ensure the site is developed in a sustainable manner and that active travel is at the heart of future development. Although the development proposals were submitted in outline with all matters reserved except for means of access, the applicant is committed to providing good pedestrian and cycle connections to link with the wider land allocations in Carlton. In addition, the proposals are supported by a comprehensive Travel Plan which will include a package of measures and initiatives to promote sustainable travel to and from the site.

5.3.6 The site will provide 2m wide footways on both sides of the internal spine roads that will link in with existing provision along Shaw Lane, the internal proposals for pedestrian and cycle connections have been designed to tie in with the wider land allocations in Carlton specifically those to the north of the site.

5.3.7 In addition to the on-site pedestrian and cycle links being provided by the development, improvements at the Shaw Lane / Church Street / Fish Dam Lane in the form of new pedestrian crossings are included as part of the development proposals. A new Toucan pedestrian crossing is also proposed on Shaw Lane adjacent to the proposed access junction.

South Yorkshire Residential Design Guide 2011

5.3.8 The South Yorkshire Residential Design Guide (*CD 5.16*) was adopted in 2011 and provides guidance to developers on the design aspects of new residential developments consisting of more than 10 dwellings. The document provides guidance regarding the geometric and layout of access roads and junctions and sets out the necessary visibility requirements. The proposed

site access junction has been designed with consideration of the guidance document. I review the design of the proposed site access and its compliance with the design guide in Section 11.

5.4 Local Policy

Barnsley Local Plan 2014 to 2033

5.4.1 Barnsley's Local Plan (CD 3.1) was adopted in January 2019 and sets out the Council's strategic vision and priorities for housing, employment and commercial development, including transport infrastructure and protection of the local environment. To deliver the vision of the Plan, a number of strategic priorities have been identified, these include:

- ***"Provide opportunities for the creation of new jobs and protection of existing jobs;***
- ***Improve the conditions in which people live, work, travel and take leisure;***
- ***Widen the choice of high-quality homes; Improve the design of development; and***
- ***Protect and enhance Barnsley's environmental assets and achieve net gains in biodiversity."***

5.4.2 Chapter 9 of the Local Plan sets out housing policies and details a number of strategic housing sites. Policy H1 details the number of houses which are required to be delivered over the plan period. It states that the Council will seek to '***achieve at least 21,546 net additional dwellings during the plan period 2014 to 2033***.' Delivery of the site will actively contribute towards delivery of these dwellings over the plan period.

5.4.3 Chapter 10 of the Local Plan document sets out the identified mixed-use development allocations and identifies that the site forms part of a wider mixed use development allocation called '***Site MU3 Land off Shaw Lane Carlton***'. Figure 5-1 shows the extent of Site MU3.

Figure 5-1: Local Plan Site Allocation Extract – MU3

5.4.4 In relation to the proposed site and its allocation, the Local Plan states the following:

'This site is proposed for mixed use for housing and green space. The indicative number of dwellings proposed for this site is 1683. These are included in the Housing figures for Urban Barnsley in the Housing Chapter. The development will be subject to the production of a phased Masterplan Framework covering the entire site to ensure that development is brought forward in a comprehensive manner'.

5.4.5 As the above policy suggests, the site is allocated for the proposed use and also subject to the development of a Masterplan Framework which will guide the development on site. Although the planning application submitted was in outline, the development proposals seek to take due regard for the adopted Masterplan Framework.

5.4.6 The development proposals demonstrate compliance with Policy T3.

- ***"Policy T3 - New Development and Sustainable Travel: "New development will be expected to:***
  - ***Be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists;***
  - ***Provide at least the minimum levels of parking for cycles, motorbikes, scooters, mopeds and disabled people set out in the relevant Supplementary Planning Document;***

- ***Provide a transport statement or assessment in line with guidance set out in the National Planning Policy Framework and guidance including where appropriate regard for cross boundary local authority impacts; and***
- ***Provide a travel plan statement or a travel plan in accordance with guidance set out in the National Planning Policy Framework including where appropriate regard for cross boundary local authority impacts. Travel plans will be secured through a planning obligation or a planning condition."***

5.4.7 The site is located close to existing cycle links and a relatively high frequency bus route which can be accessed from Fish Dam Lane. It is proposed that three direct links to the Trans Pennine Trail running to the west of the site will be provided as part of the development, in addition to this a link will be provided that ties into the TPT to the south of the site.

5.4.8 Furthermore, the planning application was supported by this Transport Assessment and a Travel Plan Framework, demonstrating compliance with Policy T3 of the Local Plan.

- ***"Policy T4 – New Development and Transport Safety***
  - ***New development will be expected to be designed and built to provide all transport users within and surrounding the development with safe, secure and convenient access and movement. If a development is not suitably served by the existing highway or would create or add to problems of safety or the efficiency of the highway or any adjoining rail infrastructure for users, we will expect developers to take mitigating action or to make a financial contribution to make sure the necessary improvements go ahead. Any contributions will be secured through a planning obligation or planning condition".***

Carlton Masterplan Framework

5.4.9 The Carlton Masterplan Framework, dated November 2021 (*CD 5.1*) is now adopted and is a strategic document that sits beneath the Local Plan and provides the key principles that future planning applications for the Local Plan allocation should align to.

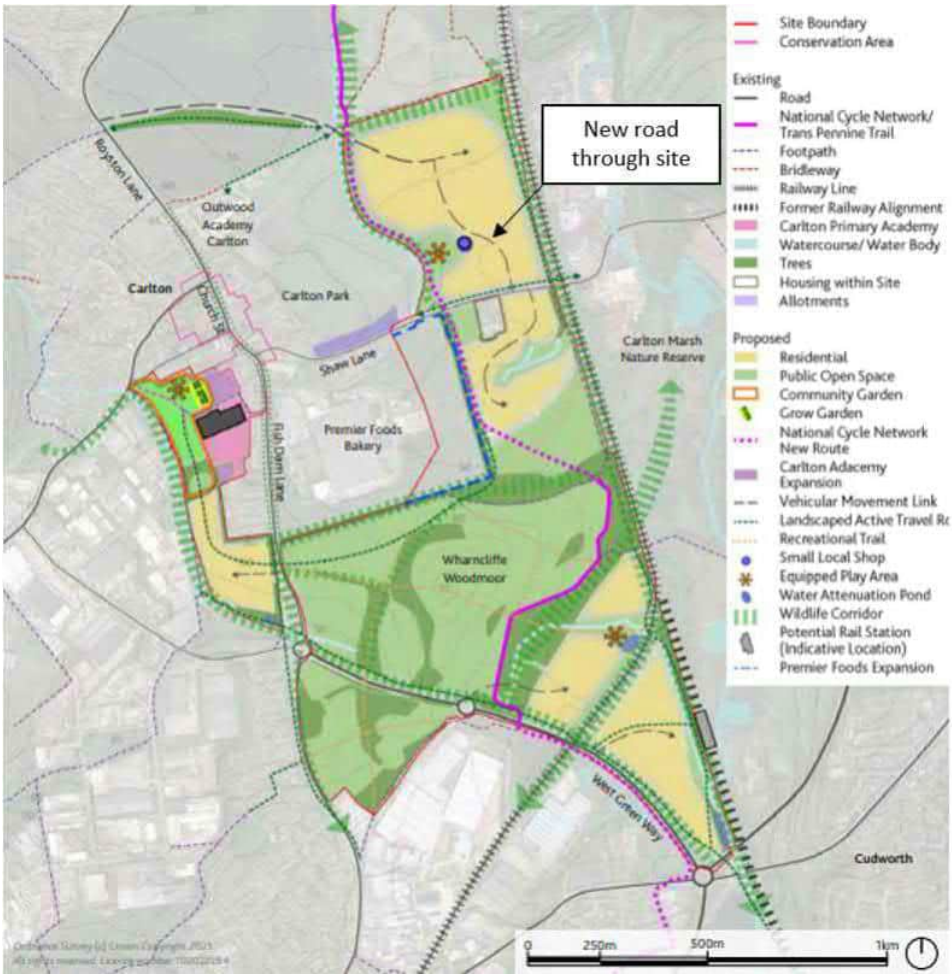
5.4.10 The document states that the overall Local Plan allocation will come forward in phases and will provide a Phasing and Delivery Strategy for the wider allocation. This includes five phases with the development site allocated to Phase 3. The document recognises that the phases do not need to be delivered sequentially, meaning that phases can be delivered in parallel. The specific infrastructure requirements for the application site are as follows:

- ***"To provide highway infrastructure for adoption by the Highway Authority to permit access to Shaw Lane via parcel L11.***
  - ***Reason: to provide means of access and egress to the development scheme in line with the Masterplan Framework.***

- ***Make available land to allow improvements to Shaw Lane.***
  - ***Reason: to provide an active travel corridor for the site occupants and the local community and allow for road safety improvements on Shaw Lane.***
- ***To provide the active travel route through the parcel as indicated in the Masterplan Framework.***
  - ***Reason: to provide active travel routes for the local community"***

5.4.11 An extract of the Masterplan Framework showing the sustainable transport links and proposed highway scheme is shown in Figure 5-2.

Figure 5-2: Carlton Masterplan Framework Extract



5.4.12 Figure 5-2 shows that as part of the Masterplan framework, a new vehicular link is proposed from Shaw Lane to Royston Lane, referred to as the Northern Access Road. In respect to this the Masterplan states:

"The highways proposals seek to relieve current congestion in Carlton with the provision of a new northern highway access route from Royston Lane into the northern parcel of site MU3. This will provide the primary access route to the largest residential

parcel as well as new local shop. The new link to the north forms part of BMBC's strategic ambitions and would connect with the Carlton-Royston Relief Road when it comes forward. The alignment of this road is shown indicatively in the plans and will need to be developed in detail. The form of junction with Royston Lane will be determined through more detailed junction modelling. Access requirements for the Primary Route are for all vehicles - buses, emergency services, refuse / service vehicles and general traffic. A 30mph design speed is proposed for the northern access connection to Royston Lane and a 20mph design speed proposed within the built-up site. Pedestrian footways are to be provided on both sides of the carriageway. A two-way segregated cycle path shall be provided on the primary route in accordance with LTN1-20 guidance based on predicted traffic flows. A Pegasus crossing for the Trans Pennine Trail will be provided. The Primary Route will be adopted by BMBC."

5.4.13 The NAR forms part of a much wider link road strategic ambition which also includes the "***Carlton-Royston Relief Road",*** which will release further land for development around the west and southwest of Royston. Figure 5-3 shows an extract from the Royston Masterplan Document. The link road continues from Royston Lane around Royston to Lee Lane.

Figure 5-3: Royston Masterplan Framework Extract

5.5 Delivery Strategy

5.5.1 The masterplan framework is supported by a delivery strategy document issued in October 2021 by the Council (*CD 5.2*). This sets out the expectations from developers and specific development sites, in respect to the required infrastructure and anticipated levies and charges to be imposed on development.

5.5.2 The proposed site falls within Phase 3, for which the strategy states:

"Due to congestion on the existing highway network, access needs to be secured off Royston Lane via the northern access road. This access road fits in with BMBC's wider strategic transport aspirations. The business case, alignment and environmental mitigation measures will need to be developed in detail. Services to be connected to existing infrastructure on Shaw Lane and/or Royston Lane."

5.5.3 It is my understanding that the business case and associated work for the NAR scheme, has not progressed in the meantime. The strategy does however identify that the delivery of the Northern Access Road would be funded by Section 106 contributions from the developers of Phases 3 and 4. Likewise improvements to active travel provision on Shaw Lane and ***"Any***

other off-site highways works required to make the development acceptable in planning and highways terms" are to be delivered from the same source.

5.5.4 The strategy sets out the specific requirements expected for the L12 allocation, I summarise the relevant highway requirements below:

- ***"To provide highway infrastructure for adoption by the Highway Authority to permit access to parcel L11 and Shaw Lane via parcel L12 including a connection to the proposed northern access road from Royston Lane.***
  - ***Reason: to provide means of access and egress to the development scheme in line with the Masterplan Framework.***

- ***Make available land to allow improvements to Shaw Lane.***
  - ***Reason: to provide an active travel corridor for the site occupants and the local community and allow for road safety improvements on Shaw Lane."***

5.5.5 The Delivery strategy sets out a detailed and specific expectation for these allocations in respect to highways and transport matters.

6 Compliance with Policy Review

6.1 History of the Site

6.1.1 This section of my evidence considers the evolution of the proposed site, how it has been allocated, its fit with the Council's strategic decision making, the masterplanning exercise and its overall consistency with the different levels of policy.

6.1.2 I consider that the current proposal is highly consistent with national, regional, and local policy aspirations. The site is allocated, in a sustainable location and is part of a wider development allocation which will be developed in a way where sustainable transport can be maximised and it seeks to deliver the core elements of the framework identified.

6.2 Local Plan

6.2.1 The Barnsley Local Plan (LP) covers the period from 2015 to 2033 and sets out the Council's strategic vision and priorities for housing, employment and commercial development, including transport infrastructure and protection of our local environment.

6.2.2 The proposed site is allocated in the plan as a mixed-use site, that is proposed for housing and green space. The proposal is entirely consistent with this strategic vision and its allocation has been well considered by the Council along with the surrounding allocations form a key part of the mixed-use strategy.

6.2.3 The Local Plan in Section 12 sets out in detail the Council's Vision for Transport. This focuses, on a strategic level, challenges such as reducing emissions, reliance on the private car and promoting sustainable transport and active travel and how these will be addressed in the Authority. The allocation of the site has therefore been considered in this context and in relation to the Council's wider transport vision, and the conclusion drawn that is a suitable site for the proposed use.

6.2.4 In paragraph 10.3 of the Local Plan, it states that*:*

"All developments will be expected to provide adequate access and internal road layouts to allow the complete development of the entire site, and to provide appropriate vehicular and pedestrian links throughout the site and into adjacent areas".

6.2.5 The proposed site sets out an access junction that is both adequate, safe, and appropriate for the use, but also consistent with the masterplan vision for the site. The application proposes to construct the first section of the NAR through the site in the form of the proposed internal road

layout to connect to L12. In my view it is thus highly consistent with the local plan aspiration of appropriate access and suitable internal road layouts.

6.2.6 In specific regard to MU3, the LP identifies the need to "***provide offsite highway works***" and be subject to the "***production of a phased Masterplan Framework covering the entire site to ensure that development is brought forward in a comprehensive manner***". The application proposes appropriate offsite highway works that mitigate its impact, via the signalisation of the Church Lane / Shaw Lane junction to ensure that the development does not result in severe adverse impacts. This is consistent with the expectations of the Local Plan. I explore the consistency with the subsequent masterplan framework in Section 6.3 below.

6.3 Masterplan Framework

6.3.1 The masterplan framework was prepared by Arup / Gillespie's on behalf of BMBC in November 2021. It sets out how the full allocation should be delivered and how it will contribute towards BMBC's wider objectives and is aligned with the Local Plan.

6.3.2 It states in Section 1.1 that:

"This Masterplan Framework forms part of a wider programme of work to bring forward regeneration and economic growth across Barnsley, including Carlton. This includes improvements proposed through the Local Plan Spatial Strategy, Barnsley Transport Strategy and the Sheffield City Region Transport Strategy and associated Implementation Plans. Whilst this Masterplan Framework is focused on specific Local Plan site allocations, it is reflective of these wider initiatives which are being brought forward by the Council and its partners."

6.3.3 It has thus been prepared for and adopted by the Council with full cognisance of the Council's own transport strategy and the regional transport strategy.

6.3.4 In respect to the site constraints and opportunities for the entire allocation, the framework identities the following:

- Provide safe active travel and public transport links to Carlton Primary Academy, Outwood Academy Carlton, Carlton Park and Recreational Ground and to the local centres of Cudworth and Royston.
- Safe pedestrian and cycle crossing points should be provided along existing roads and connect the site with the surrounding Public Right of Way network.
- Create a thematic and well-connected active travel network across and beyond the site, teeing into surrounding Public Rights of Way and National Cycle Network / Trans Pennine Trail.

6.3.5 All of which the proposed development seeks to do, in the form of improved pedestrian and cycle facilities.

6.3.6 The Masterplan shows access to the proposed site and the adjacent L12 site being taken from Shaw Lane, in the same location of that proposed by the application. It then shows the continuation of this access route through the site, through to L12 and then arching round to meet Royston Lane to the west, thus forming what is referred to as the Northern Access Road. This concept was retained in both the pre and post public consultation exercise of the masterplan and is replicated in the proposed development.

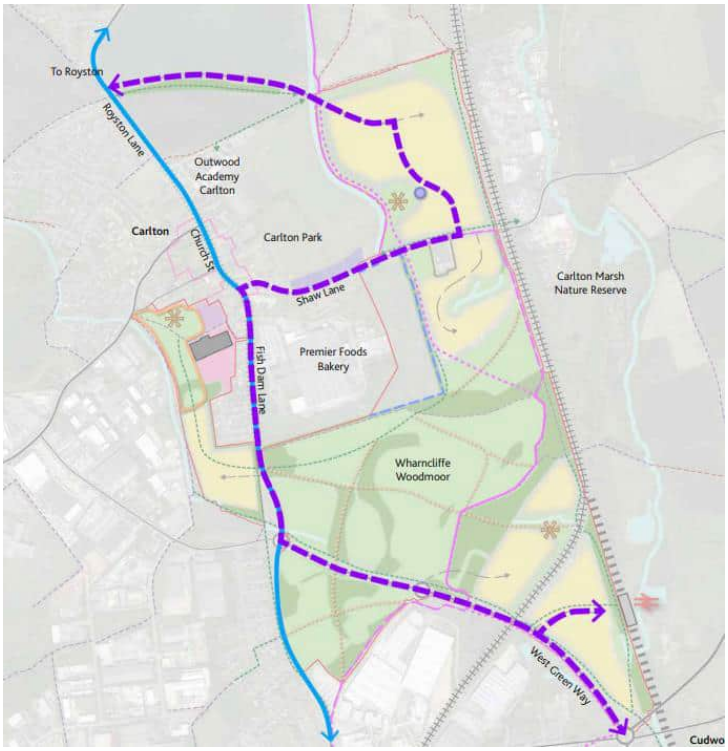
6.3.7 In respect to access to the proposed development site, the masterplan sets:

"New access junctions with Shaw Lane, Fish Dam Lane and West Green Way will provide access into these parcels. These will likely be priority controlled junctions but their form will be determined through more detailed junction modelling. Access requirements are for emergency services, refuse / service vehicles and general traffic. Pedestrian footways are to be provided on both sides of the carriageway. Cycle provision is on-street."

6.3.8 The application proposes a priority controlled junction from Shaw Lane to serve the site, with associated pedestrian facilities. This has been designed and also modelled in the appropriate proprietary software to ensure it is a suitable form of safe access and egress. It is therefore entirely consistent with the masterplan in this respect.

6.3.9 A movement framework for Public Transport is set out in Section 5 of the masterplan, this shows the future vision for bus services directly penetrating the proposed site and using the NAR to serve the full allocation. As shown in Figure 6-1, this would result in all dwellings being within 400m of a bus stop and the potential for co-ordinated public transport services to serve the full allocation in a highly sustainable manner.

Figure 6-1: Public Transport Movement Framework



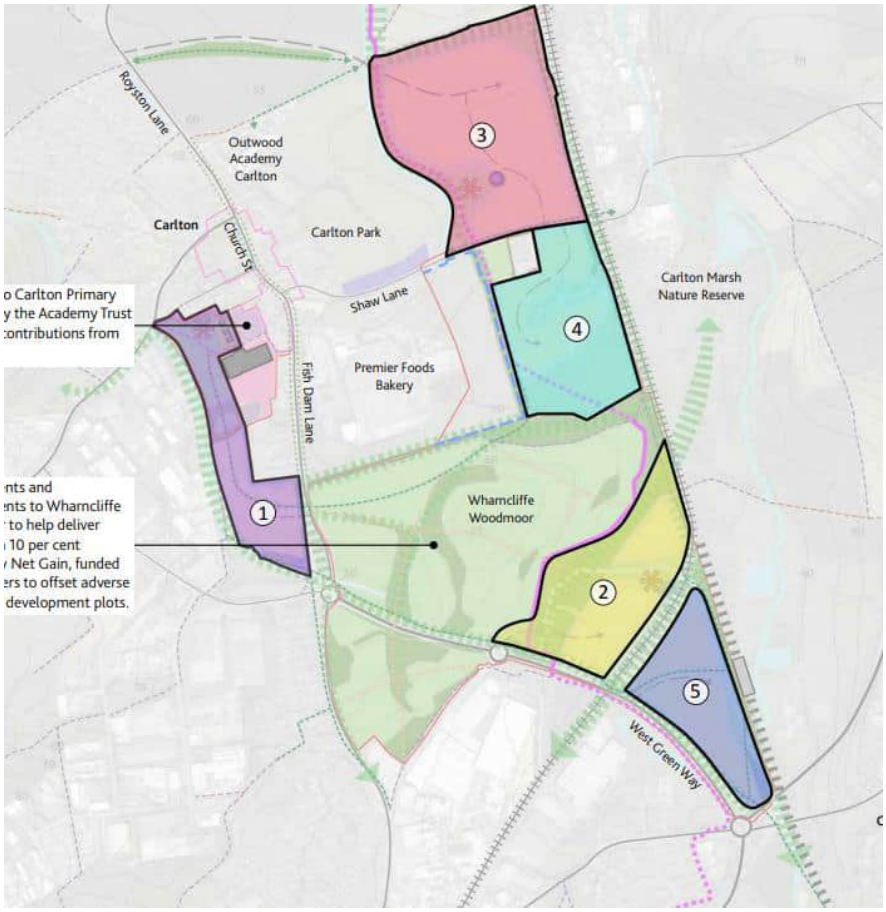
6.3.10 Reference is also made to the footways on Shaw Lane in the masterplan as follows:

"Shaw Lane shall be improved to provide sufficiently wide footways on both sides of the carriageway and appropriate cycling provision in both directions. All improvements shall be in accordance with LTN 1/20. Appropriate streetscape and a speed limit review shall take place to ensure it's a safe environment for all users".

6.3.11 Measures to this affect are proposed as part of the application, recognising the need for other allocations to deliver the sections along their frontages and other appropriate connections, as part of a phased and co-ordinated approach.

6.3.12 The masterplan identifies that the development shall come forward in phases but that there is flexibility on how phases may come together. The proposed site is identified as Phase 3, with the first two phases being sites accessed off West Green Way to the south, as shown in Figure 6-2 below. I would note that only Phases 3 and 4 are linked to the delivery of the NAR –**" which *will be delivered by BMBC using S106 contributions from developers in Phases 3 and 4"***.

Figure 6-2: Masterplan Phasing



6.3.13 In summary, I consider that the delivery of the wider allocation is well considered in respect to general transport policy and the sites allocation as a sustainable and accessible site is well developed.

6.4 Delivery Strategy

6.4.1 The proposed application seeks to improve active travel measures along Shaw Lane to improve facilities for pedestrians and cyclists. I review these measures and their suitability in Section 13 of my evidence. However, this aim is entirely consistent with the strategy.

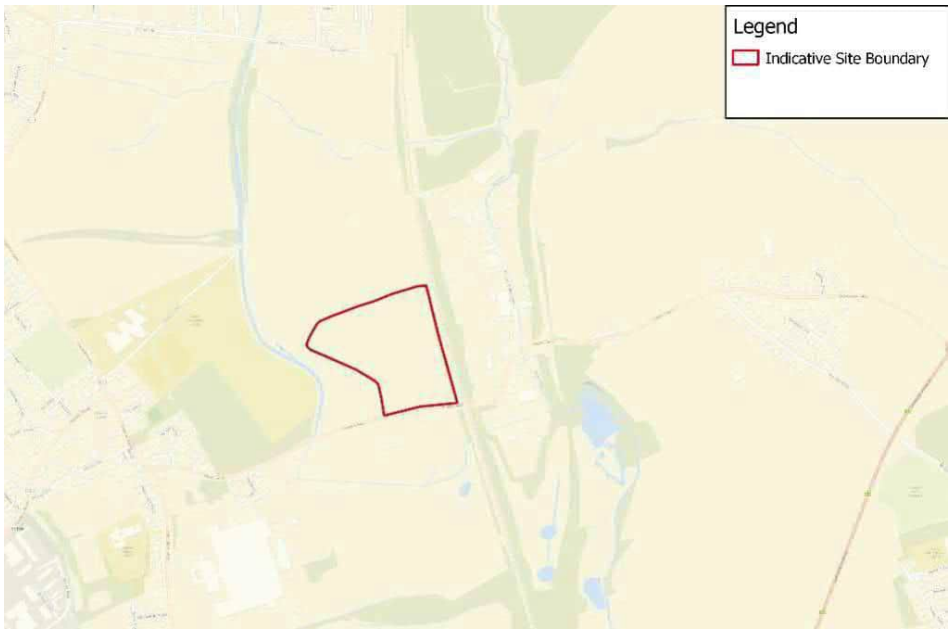
6.4.2 The proposed development seeks to deliver the first phase of the NAR through its site and provide interim mitigation at the Shaw Lane/Church Lane junction until such time as the full NAR is open and operational, as other allocations come forward and facilitate that. I explore the delivery of NAR in further detail in Section 14 of my evidence.

7 Existing Conditions

7.1 Site Location and Description

7.1.1 The site is located approximately 650m to the east of Carlton and 5km north-east of Barnsley. The site is bound to the north by agricultural land and to the west by the disused Barnsley Canal and the Trans-Pennine Trail. Shaw Lane, a public highway, is located immediately to the south and there is an existing freight rail line running in a north – south alignment along the site's eastern boundary. A plan of the site location is shown in Figure 7-1 for reference.

Figure 7-1: Site Location



Shaw Lane

7.1.2 The site is currently accessed via an existing gated access located on Shaw Lane. Shaw Lane runs in an east – west alignment along the southern boundary of the site and links the site to the A628 to the east and Carlton to the west. In the vicinity of the proposed site, Shaw Lane is a single carriageway road with a width of approximately 6.5m. Immediately to the west of the site boundary, the gradient of the road increases as it approaches Carlton. Shaw Lane has a speed limit of 30mph, street lighting is provided and there is a footway with a width of approximately 2m running along the south side of the carriageway.

7.1.3 To the immediate east of the site, Shaw Lane passes under an existing railway bridge with a height restriction of 4.8m. The carriageway width of Shaw Lane reduces to approximately 4.0m as it runs under the bridge and a priority shuttle system is in force giving priority to eastbound traffic. There is no footway provision underneath the bridge. This is shown in Figure 7-2 below.

Figure 7-2: Shaw Lane Bridge Shuttle Working

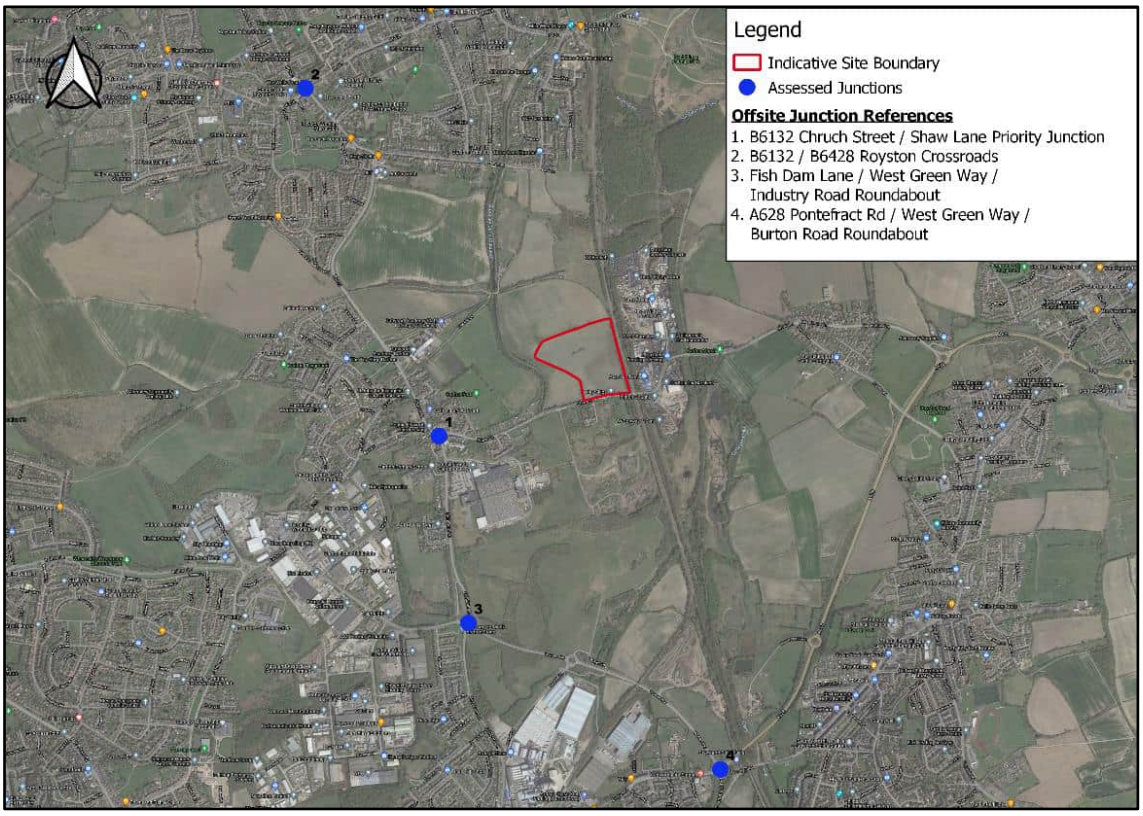
7.2 Study Area

7.2.1 The study area for the TA prepared in support of the application, included the following key junctions and locations:

- Shaw Lane within 150m of the site
- B6132 Church Street / Shaw Lane / Fish Dam Lane priority junction
- B6132 / B6428 Royston Crossroads
- Fish Dam Lane / West Green Way / Industry Road Roundabout
- A628 Pontefract Road /West Green Way /Burton Road Roundabout

7.2.2 The location of the above links and junctions are shown in Figure 7-3.

Figure 7-3: Accident Study Area



7.2.3 DfT Guidance on Transport Assessment states that any junction that experiences an increase of 30 or more two-way vehicle movements should be subject to an impact assessment. Based on the distribution of proposed development trips from the site the TA considered the detailed impact of the scheme at the following locations, which exceed this threshold:

- Shaw Lane Site Access
- B6132 Church Street / Shaw Lane / Fish Dam Lane
- Fish Dam Lane / West Green Way / Industry Road

B6132 Church Street / Shaw Lane / Fish Dam Lane Priority Junction

7.2.4 This key junction is currently a priority-controlled junction located approximately 650m west of the site. The layout of the junction is shown in Figure 7-4. The junction comprises a priority arrangement with Church Street and Fish Dam Lane forming the major arms of the junction and Shaw Lane forming the minor arm of the junction. The junction benefits from having footways on all arms and street lighting is provided. The roads forming the junction have a speed limit of 30mph and there are no formal pedestrian crossings provided on any of the arms of the junction.

Figure 7-4: B6132 Church Street / Shaw Lane / Fish Dam Lane Priority Junction

Fish Dam Lane / West Green Way / Industry Road Roundabout

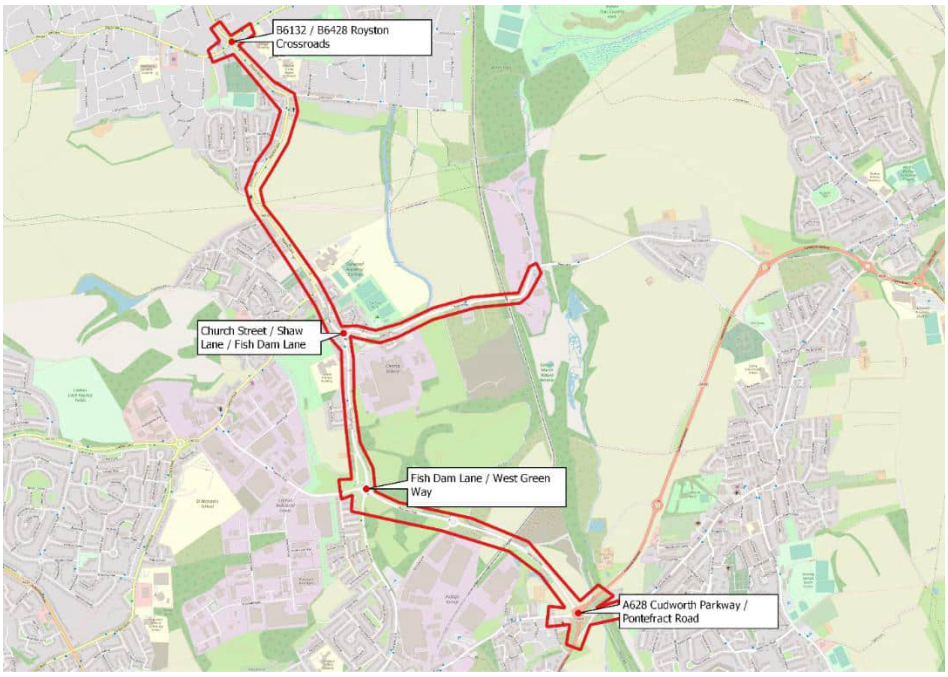
7.2.5 The Fish Dam Lane / West Green Way / Industry Road roundabout is a large four arm roundabout located approximately 1.2km southwest of the site. The layout of the junction is shown in Figure 7-5. All approaches except the West Green Way arm having a speed limit of 30mph. The West Green Way arm has a derestricted (60mph) speed limit which changes to 30mph approximately 10m from the stop line on approach to the roundabout. The junction benefits from pedestrian footways / cycleways on all arms with uncontrolled pedestrian crossings on each arm where tactile paving and refuge islands are provided.

Figure 7-5: Fish Dam Lane / West Green Way / Industry Road Roundabout

7.3 Accident Analysis

7.3.1 To consider whether there are any existing safety issues in the study area which have the potential to be exacerbated by the proposed development, Personal Injury Collision (PIC) data for the study area has been obtained from BMBC to inform the TA. The data was obtained for the years between 2017 and 2021.

Figure 7-6: Personal Injury Collision (PIC) Survey Area



7.3.2 The annual number of reported collisions across all the junctions are shown in Table 7-1.

Table 7-1: Aggregated Number of Accidents by Year and Severity

Year	2017	2018	2019	2020	2021	Total
Slight	9	5	9	7	10	**40**
Serious	3	2	3	1	2	**11**
Fatal	1	1	0	0	0	**2**
Total	13	8	12	8	12	53

7.3.3 The table shows that 53 PICs have been recorded in the study area during the five-year period with 40 being slight in severity, 11 serious and 2 fatal. Table 7-2 and Table 7-3 show the number of accidents by location and severity of accident at each location in the study area.

Table 7-2: Number of Accidents by Location and Year

Junction Name	2017	2018	2019	2020	2021	Total
Site Access / Shaw Lane / Boulder Bridge Lane	2	1	1	0	1	**5**
B6132 Church Street / Shaw Lane Priority Junction	0	0	1	2	1	**4**
B6132 / B6428 Royston Crossroads	3	2	3	0	2	**10**
B6132 Royston Lane / Church Street / Church Hill	2	0	3	0	1	**6**
Fish Dam Lane / West Green Way / Industry Road Roundabout	3	1	0	3	0	**7**
A628 Pontefract Rd / West Green Way / Burton Road Roundabout	1	1	3	1	5	**11**
Total	**11**	**5**	**11**	**6**	**10**	**43**

Table 7-3: Number of Accidents by Location and Severity

Junction Name	Slight	Serious	Fatal	Total
Site Access / Shaw Lane / Boulder Bridge Lane	4	0	1	**5**
B6132 Church Street / Shaw Lane Priority Junction	3	1	0	**4**

B6132 / B6428 Royston Crossroads	6	4	0	**10**
B6132 Royston Lane / Church Street / Church Hill	5	1	0	**6**
Fish Dam Lane / West Green Way / Industry Road Roundabout	6	0	1	**7**
A628 Pontefract Rd / West Green Way / Burton Road Roundabout	7	4	0	**11**
Total	**31**	**10**	**2**	**43**

7.3.4 The additional 10 collisions not accounted for in Tables 7-2 and 7-3 occurred along the stretches of the B6132, Fish Dam Lane and West Green Way within the study area that can be seen in Figure 7-6, as opposed to at junctions. Of these 10 collisions 9 were classified as slight and one as serious.

7.3.5 The tables show that the number of accidents at the junctions appear to be evenly spread over the five-year period with the A628 Pontefract Road / Cudworth Parkway roundabout seeing the highest number of collisions with 11 (21%) PICs recorded followed by the B6132 / B6428 Royston Crossroads with 10 (19%) PICs recorded and the Fish Dam Lane / West Green Way / Industry Road Roundabout with 7 (13%) PICs recorded. The area surrounding the site access and the Church Street / Shaw Lane junction saw the lowest reported number of PICs with 5 and 4 PICs recorded respectively over the five-year period. There is no evidence of clusters to suggest that any of the junctions have untypical accident patterns.

7.3.6 Table 7-4 shows that there were 6 accidents recorded which involved a pedestrian and 7 which involved a cyclist. All but one of the pedestrian accidents occurred at the B6132 / B6428 Royston Crossroads which is unsurprising given the busy urban nature of the junction. There is nothing in the data to suggest that these accidents have been caused by the existing road layout.

Table 7-4: Accidents Involving a Pedestrian or Cyclist

Junction Name	Pedestrian	Pedal Cyclist	Motorcycle	Total
Site Access / Shaw Lane	0	1	0	**1**
B6132 Church Street / Shaw Lane Priority Junction	0	1	0	**1**
B6132 / B6428 Royston Crossroads	5	0	0	**5**
B6132 Royston Lane / Church Street / Church Hill	1	1	0	**0**

Fish Dam Lane / West Green Way / Industry Road Roundabout	0	1	0	**1**
A628 Pontefract Rd / West Green Way / Burton Road Roundabout	0	3	1	**4**
Total	**6**	**7**	**1**	**14**

7.3.7 The 7 collisions which involved a pedal cyclist were split relatively evenly over the study area with a collision being recorded at each offsite junction except for the B6132 / B6428 Royston Crossroads where there were no accidents reported involving a pedal cyclist. The only collision which involved a motorcyclist occurred at the A628 Pontefract Rd / West Green Way / Burton Road Roundabout.

Personal Collision Summary

7.3.8 It is clear from the review of accident data conducted in the TA that the study area has a relatively low collision rate and that there appears to be no pre-existing safety issues on the highway network which could be exacerbated by the proposals, particularly with regard to collisions involving cyclists, pedestrians, and motorcyclists.

8 The Development Proposals

8.1 Development Summary

8.1.1 The proposed residential development comprises construction of up to 215 dwellings. The proposals include a new vehicular access and an internal access road. The new road would act as the first phase of a future NAR between Shaw Lane and Royston Lane to be constructed in accordance with the adopted Carlton Masterplan Framework. The proposals will also include pedestrian footways, a new pedestrian Toucan crossing on Shaw Lane and upgrades to the Shaw Lane / Church Street junction to mitigate any potential impact of the proposals.

8.2 Proposed Access Arrangements

8.2.1 It is proposed that access be taken in the form of a new priority junction from Shaw Lane. The relevant access drawings which show the proposed layout, associated swept path movements and the relevant visibility splays are included as **Appendix 4** to my evidence.

Parking Provision

8.2.2 The proposed development will provide a sufficient number of all types of parking in accordance with Barnsley Local Plan Supplementary Planning Document: Parking (2019). Further details of the level of parking provision for the proposed development will be submitted to BMBC at the reserved matters stage.

Serving Arrangements

8.2.3 The serving of the site will be via the new priority junction which has been designed to accommodate large vehicles. Drawings included in **Appendix 5** demonstrate that the site access can comfortably accommodate refuse and public service vehicles and the internal layout of the site is suitable for a refuse vehicle to navigate the site in order to enter and exit in a forward gear.

Travel Plan

8.2.4 A Travel Plan (TP) sets out a range of measures and initiatives aimed at increasing the use of sustainable transport modes and reducing the use of the private car.

9 Access by Sustainable Modes

9.1 Introduction

9.1.1 The Government's objectives set out in the NPPF are to ensure that new developments are provided in sustainable locations, close to public transport facilities and close to key services. The site has a good level of sustainable transport opportunities and has been identified in the Barnsley Local Plan as being suitable for mixed-use development. In addition, the applicant is committed to encouraging trips by sustainable modes and will be implementing a Travel Plan.

9.1.2 As I set out in Section 5.4 of my evidence the site is allocated for the proposed use in the adopted Local Plan. In formulating and then adopting the Local Plan, the sustainability of the proposed site has already been well considered and tested and subsequently accepted. The relevant transport policy which dictates sustainability for developments has not changed since the plans adoption in 2019 and I concur with the assertion then that the site is sustainable and provides a range of travel choice.

9.1.3 The masterplan also sets out expectations for the proposed site and other relevant allocations in respect to improving sustainable access. I have summarised these expectations in Section 5.4.10 of my evidence and demonstrated that the development is consistent with them. In the remainder of this section, I provide an overview of sustainable access to the site.

9.2 Accessibility by Foot

9.2.1 The site benefits from being located on the edge of Carlton, an existing urban area which has existing footways and street lighting available. These will provide future residents with safe and convenient routes from the site to public transport and local facilities.

9.2.2 To improve facilities for pedestrians along Shaw Lane the following is proposed:

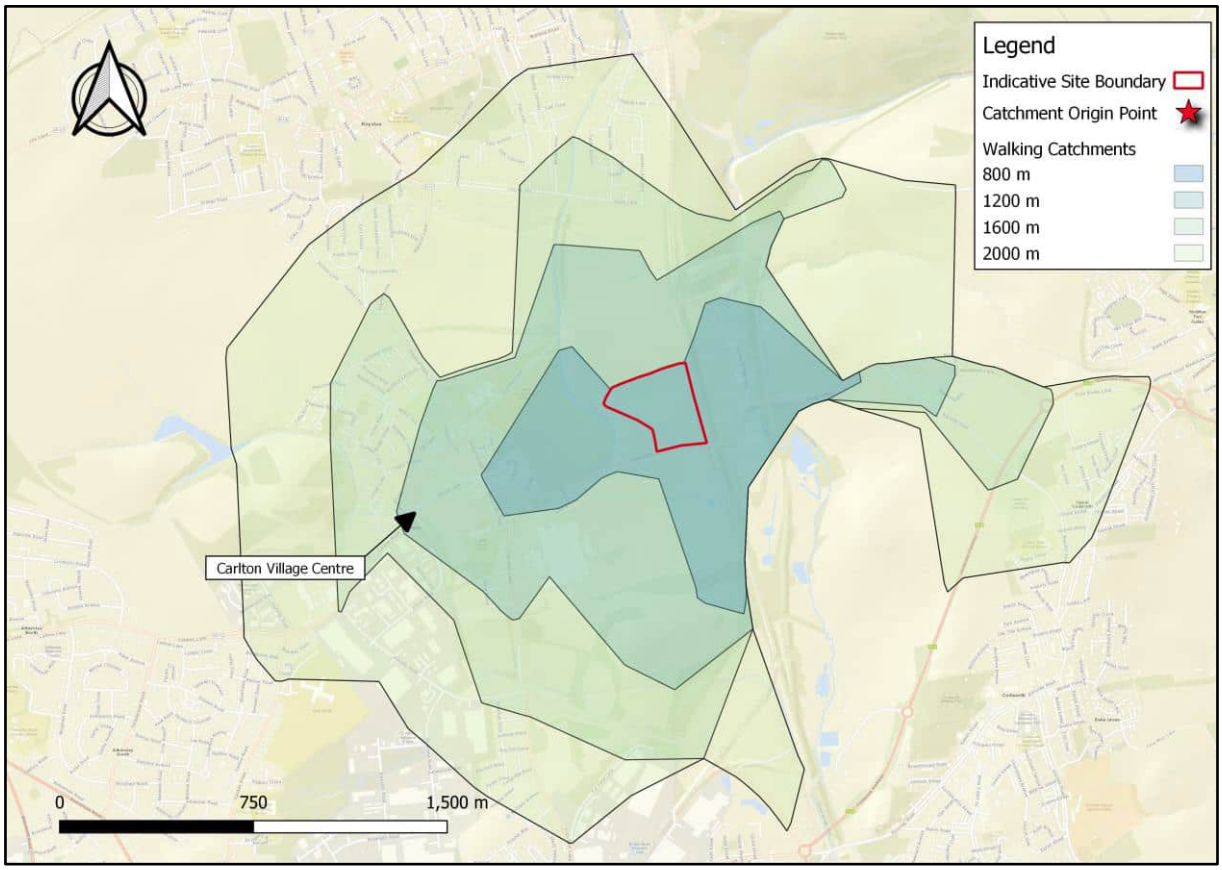
- Widening of existing footway widths through minor carriageway reductions;
- Minor carriageway widening at appropriate locations;
- Cutting back some existing vegetation to improve footway widths;
- Provision of a new TOUCAN crossing on Shaw Lane near the site access point; and
- Provision of a new crossing point to access the canal tow path.

9.2.3 Walking has traditionally been recognised as a significant mode of travel when accessing local services and attractions and has the greatest potential to substitute for short car borne trips (i.e., those journeys of less than 2km in length). In addition, walking can easily be integrated within other forms of transport for journeys further afield, as part of a multimodal journey. This

is consistent with government advice and guidance from the Chartered Institute of Highways and Transportation (CIHT) which suggests a preferred maximum walking distance to facilities as 2km.

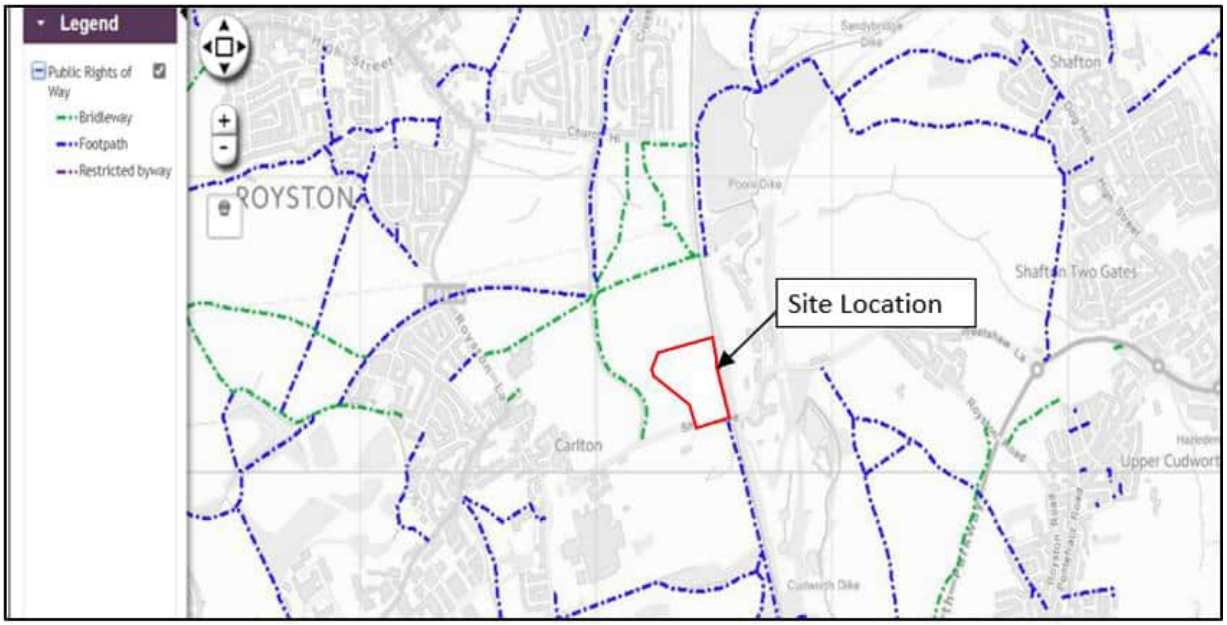
9.2.4 Figure 9-1 shows an 800m, 1,200m, 1,600m and 2,000m walking catchment area (originating from the centre of the site). It demonstrates that the site lies within walking distance of existing residential areas and Carlton Village Centre which offers a range of employment and retail opportunities as well as primary and secondary schools.

Figure 9-1: Walking Catchment from the Proposed Site



9.2.5 Figure 9-2 shows the existing Public Rights of Way (PRoW) which are located in the proximity of the proposed development.

Figure 9-2: Existing PRoWs in the vicinity of the site



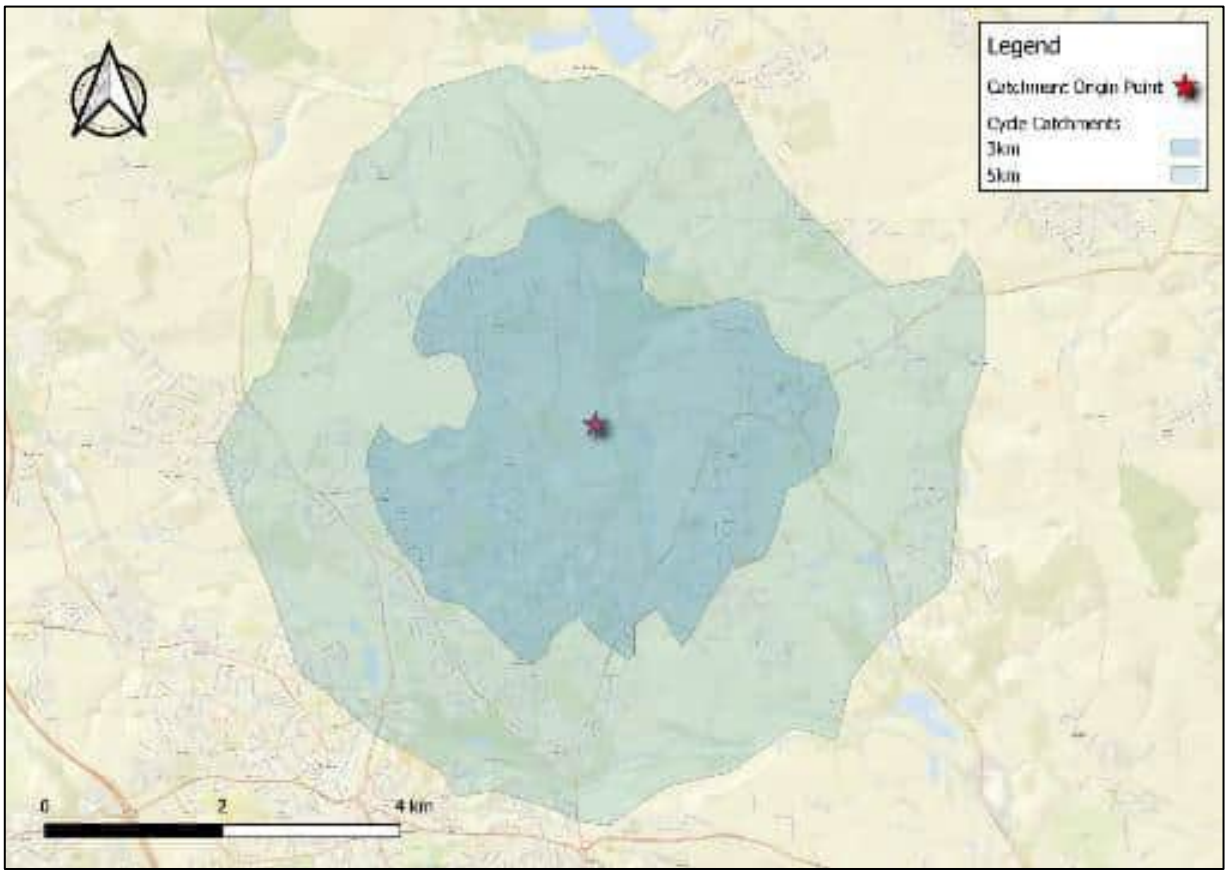
9.2.6 The figure shows that there are two PRoW, the Trans-Pennine Trail which is a bridleway running along the disused Barnsley Canal, located in the immediate vicinity of the site. This runs north to south and links the site with a number of other ProW located to the northwest. The Trans-Pennine Trail also runs south from Shaw Lane down the side of the existing railway line. Both routes are way marked and can be accessed easily from Shaw Lane

9.3 Accessibility by Cycle

9.3.1 The site is located close to the Trans-Pennine trail which runs in a north - south alignment close to the site. Advice contained within the DfT published 'Local Transport Note 2/08' suggests that a 3.0 mile (approximately 5km) catchment represents an acceptable maximum distance with 5.0 miles (approximately 8km) forming the preferred maximum distance. As such, there are a range of employment and retail areas within cycling distance.

9.3.2 Figure 9-3 illustrates a 3km and 5km indicative cycling catchment area (originating from the centre of the proposed development).

Figure 9-3: Cycling Catchment from the Proposed Site



9.3.3 Figure 9-3 demonstrates that the site lies within an acceptable cycling distance of the wider area with a range of employment destinations withing cycling distance. These destinations include:

- Carlton
- Carlton Industrial Estate
- Burton Road Business Park
- Wharncliffe Business Park
- Cudworth
- Sandybridge Lane Industrial Estate

9.3.4 It can therefore be concluded that the site is relatively accessible by cycle.

9.4 Accessibility by Public Transport

9.4.1 The nearest bus stops to the proposed development are located on Fish Dam Lane, approximately 700m west of the site. Pedestrian access from the site to the bus stops are via the existing footways on Shaw Lane.

9.4.2 The stops are served by relatively high frequency bus services which are run by Stagecoach. The existing bus service frequency is summarised in Table 9-1.

Table 9-1: Summary of Bus Services on Fish Dam Street

Bus Service	Route	Daytime One-way Frequency (Minutes)		
		Mon – Friday	Saturday	Sunday
57	Barnsley – Carlton – Royston	30	30	-
59	Barnsley – Carlton - Wakefield	60	60	60
59A	Barnsley – Carlton – Royston	60	60	60

9.4.3 Table 9-1 demonstrates that the site is located close to high frequency bus routes with an average frequency of one service every 15 minutes in a single direction between Monday and Saturday. Services are still accessible on a Sunday, albeit at a slightly reduced frequency with an average of one service in a single direction every 30 minutes. It can therefore be concluded that the site is relatively accessible by bus.

9.4.4 The Carlton Masterplan Framework, states that there may be the potential for future bus upgrades to directly serve the site and that discussions are ongoing between BMBC and bus operators. The design of the access road which will form the first phase of the new route between Shaw Lane and Royston Lane has been designed to accommodate buses through the site once the full link road is built, which will facilitate all dwellings being within 400m of a bus stop.

9.5 Summary

9.5.1 I consider that the proposed allocated site is sustainable and accessible by a range of modes of travel. It proposes a suitable package of improvement measures to improve access and is consistent with the masterplan vision for sustainable access.

10 Highway Impacts

10.1 Overview

10.1.1 This section of my evidence summarises the findings of the Transport Assessment (*CD 6.36*) prepared in support of the application. It identifies the level of development trip generation, its distribution on the local highway network, its impact at key junctions and the need for supporting mitigation.

10.2 Trip Generation

10.2.1 The proposed development site is currently undeveloped greenfield land, and as such does not currently generate any traffic. Therefore, all trips generated by the application will be new to the network.

10.2.2 In order to establish the trip generation associated with the site, in the supporting Transport Assessment, the Trip Rate Information Computer System (TRICS) database was utilised. The vehicular trip rates and traffic generation for the proposed development during the weekday AM and PM Peak hours are set out in Table 10-1 below.

Table 10-1: Multi-modal Trip Generation

Method of Travel to Work	Number	Percent	AM Peak			PM Peak		
			Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
Train	27	1.06%	0	1	2	1	1	2
Bus, minibus or coach	163	6.42%	2	7	10	7	4	11
Taxi	16	0.63%	0	1	1	1	0	1
Motorcycle, scooter or moped	32	1.26%	0	1	2	1	1	2
Driving a car or van	**1,819**	**71.67%**	**28**	**83**	**110**	**79**	**41**	**120**
Passenger in a car or van	195	7.68%	3	9	12	8	4	13
Bicycle	23	0.91%	0	1	1	1	1	2
On foot	250	9.85%	4	11	15	11	6	17
Other method of travel to work	13	0.51%	0	1	1	1	0	1
***Total**	**2,538**	**100.00%**	**39**	**115**	**154**	**111**	**57**	**168**

*derived by dividing 'vehicle trip rate by proportion of car / van drivers according to the 2011 census data

10.3 Trip Distribution

10.3.1 A distribution of development traffic was calculated using '*Location of usual residence and place of work by method of travel to work (MSOA level*)' 2011 census data for the Middle Super Output Area 'E02001510: Barnsley 002'.

10.4 Assessment Years

10.4.1 To assess the impact of the proposed development, the following scenarios were considered for the AM and PM Peak hours.

- 2022 (Existing Baseline);
- 2028 Without Development (including background TEMPRO growth); and
- 2028 With Development.

Background Growth and Committed Development

10.4.2 Growth in background traffic was derived for the periods between the surveyed year and future years using the TEMPRO software package to provide growth factors for Barnsley 002, within which the site is located. Table 10-2 shows the resultant growth factors adopted to forecast traffic growth between 2022 and the future year scenarios detailed above. To ensure a robust assessment, no alternative assumptions have been applied to the growth factors to account for the double counting of trips due to the site being allocated in the Local Plan.

Table 10-2: Barnsley 002 MSOA Traffic Growth Factor

Period	Peak Hour	
	AM Peak	PM Peak
2022 – 2028	1.0498	1.0506

10.4.3 A review of all committed developments in the area provided by BMBC indicated that all but one has been fully built out at the time of the surveys and as such those trips have been accounted for by the 2022 survey data. With regard to the committed development that is yet to be fully built out (2020/0330 Lee Lane) this would only result in additional trips being noticed at the B6132 / B6148 Royston Crosswords, that junction has been scoped out of the assessment for this report. Accordingly, no committed development trips have been included in subsequent assessments.

10.5 Summary

10.5.1 In summary the approach that has been adopted in the TA supporting the application is considered robust and makes reasonable and considered assumptions. It has been carried out in accordance with industry standards for Transport Assessment and due cognisance to NPPF.

10.5.2 The resultant assessment work shows that the proposed development only has a significant impact at the junction of Shaw Lane/Church Lane and at all other locations within the study are the impact of the development from a highway capacity is acceptable. Mitigation is proposed to offset this impact and address.

10.5.3 The TA and updated TA consider the impact of the scheme with both 2018 traffic surveys and 2022 surveys, both of which result in the same conclusion.

11 Adequacy of the Proposed Access Arrangements

11.1 Overview

11.1.1 It is proposed that a new priority junction access be formed on Shaw Lane to serve the proposed development and form the first section of the NAR. This is consistent with the form of access identified in the Masterplan framework.

11.1.2 This priority junction arrangement would include 2.4m by 160m visibility splays to either side of the proposed junction, which meet the standards of both the South Yorkshire Design Guide and Manual for Streets.

11.1.3 In RfR2 the Council note:

"In the opinion of the Local Planning Authority the proposed site access from Shaw Lane has not been designed in accordance with the design requirements of the South Yorkshire Residential Design Guide and gives rise to road safety concerns".

11.1.4 The specific issue raised by BMBC regarding the site access design was in relation to swept path movements for HGVs. BMBC set out that the South Yorkshire Design Guide states that design vehicles should leave a 0.5m clearance between the vehicle body and carriageway edge. Their concern being that the drawing submitted with the application did not show this level of clearance.

11.2 Revised Proposals

11.2.1 The form of junction proposed is a preliminary design and as such would still be subject to further design and refinement as part of the scheme Section 278 detailed design. I consider these concerns to be matters of detail rather than principal. The land north of Shaw Lane within the vicinity of the proposed junction is within the control of the appellant. There is thus considerable scope to increase the size of the junction to facilitate easier HGV access / egress.

11.2.2 Nevertheless, the proposed access drawings have therefore been updated to amend the junction design to provide a visible and measurable 0.5m offset between the vehicle tracking and kerb lines. These are included as **Appendices 4 & 5** to my evidence. The following design changes have also been made to facilitate this, a 1:30 flare with a 12m radii added to the entry arm for both minor and major arms and a 1:30 flare with a 12m radii added to exit arm. This provides a layout which allows the 0.5m buffer that the Council have identified.

11.2.3 On that basis, I conclude the revised drawings fully meet the requirements of the South Yorkshire Residential Design Guide and the Council's objections are addressed.

12 Adequacy of Mitigation at Church Lane/Shaw Lane Junction

12.1 Point of Concern

12.1.1 In RfR number 2 the Council note:

> ***"Furthermore, the proposed offsite highway works at the Church Lane / Shaw Lane / Fish Dam Lane junction are not acceptable as they would not help deliver the new Northern Access Road that is identified as being necessary in the Carlton Masterplan in order to relieve existing congestion in Carlton and along Shaw Lane. Furthermore, the proposed works would give rise to road safety concerns in their own right."***

12.1.2 I consider the implications of the proposed mitigation on the delivery of the NAR in detail in Section 14 of my evidence. In the remainder of this section, I set out what is proposed at this junction, why that has been proposed, address the safety concerns raised and the wider implications of the proposed mitigation at this location.

12.1.3 It is proposed that the existing priority junction be upgraded to traffic signal control, to offset the highway impacts of the proposed scheme in advance of NAR coming forward and also to provide controlled pedestrian facilities, which are completely absent at present. The masterplan framework identifies the opportunity to provide "***Safe pedestrian and cycle crossing points should be provided along existing roads***" and the provision of controlled crossing facilities is considered a benefit to users of the development and the wider community.

12.1.4 I note that the Council, in the detailed RfR, make no reference to the capacity of the proposed mitigation, but their concerns are focused solely on the safety of the proposals. I would note it is very common to upgrade existing priority junctions to signal control in urban areas, with a view to increasing capacity and improving pedestrian safety. I can see no reason in this location, why this would not be an acceptable and safe form of mitigation. For completeness however, I set out the capacity implications of the development at this junction in Section 12.2 below.

12.2 2022 Transport Assessment Conclusions (CD 6.36)

12.2.1 The TA prepared for the site modelled the existing conditions at the junction in Junctions 9, in the base year of 2018, and concluded that the junction operated satisfactorily in the peak hours, albeit with a Ratio of Flow to Capacity (RFC) of 0.83, in the AM peak hour, slightly below the desirable operational threshold of 0.85. The full results from the 2022 TA can be found in Table 12-1 below:

Table 12-1: Summary of B6132 Church Lane / Shaw Lane / Fish Dam Lane Capacity Results Junctions 9 Results – 2018 Base Year

Approach	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (S)	RFC	Queue (PCU)	Delay (S)	RFC
Shaw Lane to Fish Dam Lane	1	35.06	0.39	0	14.21	0.11
Shaw Lane to Church Street	4	56.04	0.83	2	27.21	0.67
Fish Dam Lane to Church Street / Shaw Lane	0	5.32	0.13	0	5.74	0.18

12.2.2 Once the proposed development traffic was added and the base year factored up to a future assessment year of 2027, the modelling showed that in the AM peak hour the junction was forecast to operate just below its theoretical maximum capacity (RFC of 1.0) in the 2027 'without' development scenario with a maximum RFC of 0.98. This situation was exacerbated following the addition of the development trips with the results of the modelling showing that the RFC will increase above 1.0 indicating that the junction is no longer able operate within capacity. This corresponds with an increase in queues at the junction with a maximum queue of 29 reported. In the PM peak periods the junction was forecast to operate within capacity. The relevant results from the 2021 TA are repeated in Tables 12-2 and 12-3 below.

Table 12-2: 2027 Junction Capacity Assessments – B6132 Church Street / Shaw Lane / Fish Dam Lane Priority Junction – AM Peak Hour

Approach	Without Development			With Development		
	Queue (PCU)	Delay (S)	RFC	Queue (PCU)	Delay (S)	RFC
Shaw Lane to Fish Dam Lane	4	222.17	0.94	12	360.04	1.16
Shaw Lane to Church Street	11	128.18	0.98	29	298.31	1.16
Fish Dam Lane to Church Street / Shaw Lane	0	5.52	0.15	1	5.54	0.21

Table 12-3: 2027 Junction Capacity Assessments – B6132 Church Street / Shaw Lane / Fish Dam Lane Priority Junction – PM Peak Hour

Approach	Without Development			With Development		
	Queue (PCU)	Delay (S)	RFC	Queue (PCU)	Delay (S)	RFC
Shaw Lane to Fish Dam Lane	0	19.82	0.16	1	42.33	0.41
Shaw Lane to Church Street	3	38.34	0.76	5	62.77	0.86
Fish Dam Lane to Church Street / Shaw Lane	1	5.81	0.21	1	7.09	0.35

12.2.3 On that basis, mitigation in the form of signalisation was correctly proposed at the junction to mitigate the specific developments impact. This was put forward noting that "***no mitigation would be required at this junction when the proposed link road put forward as part of the***

adopted Masterplan Framework (in which the proposals will deliver a significant proportion of) is in place."

12.2.4 It was proposed that this mitigation at the Church Lane / Shaw Lane junction would allow the development to come forward in advance of the NAR being fully delivered, with the expectation that the NAR would in the future provide further mitigation at this location through the reassignment of traffic away from the junction. For example, Shaw Lane traffic wishing to go north towards Royston could now use the NAR route and avoid the junction.

12.2.5 The proposed signal mitigation junction would operate with considerable reserve capacity, with 18.7% and 49.6% reserve capacity in the AM and PM peak periods forecast. Thus, demonstrating a very robust capacity solution in advance or in lieu of the NAR coming forward.

12.2.6 The 2022 TA went on to conclude:

"It can be concluded from the above that the proposed junction improvement scheme can successfully mitigate the traffic generated by the development proposals, in the absence or in advance of the proposed link road. …. Therefore, the development proposals will not have a 'severe' impact upon the junction and therefore adhere to NPPF."

12.3 Updated TA Conclusions

12.3.1 In February 2023, the TA was updated to reflect initial comments from the Council, and this included collecting new base traffic survey information (in November 2022), at the insistence of the Council to inform the updated TA.

12.3.2 The updated traffic surveys actually resulted in less traffic generally at the junction in question when compared to 2018 and as such resultant conditions were more favourable. Indeed, in that instance even with the proposed development the existing priority junction operated with RFC values below 1.0 and modest queuing, albeit very marginal reserve capacity.

12.3.3 Despite this the proposal to signalise the junction was retained by the appellant, as RFC values were above the desirable level of 0.85. The proposed signal junction would again operate considerable reserve capacity, with 24.5% and 41.4% reserve capacity in the AM and PM peak periods.

12.3.4 The proposed mitigation layout was also amended in the update TA to seek to take on board the safety concerns raised by the Council.

12.4 June 2021 ARUP Study

12.4.1 The work commissioned by BMBC in June 2021 by Arup, prior to the TA being prepared, also considered the performance of this junction as part of ongoing work to develop the Masterplan Framework for a site at Carlton. The assessments conducted on the existing junction layout in a base year of 2021 are shown in Table 12-4 below. As can be seen the performance of the junction is similar to that set out in the TA and summarised again in paragraph 12.2.1 and Table 12.1 of my evidence.

Table 12-4: Junction Assessments (ARUP) - 2021

Stream	Maximum RFC	Maximum Delay (s)	Maximum Queue (PCU)	Maximum LoS
AM				
B-C	0.17	19.59	0.2	C
C-A	0.65	30.15	1.9	D
C-AB	0.08	5.69	0.2	A
PM				
B-C	0.34	41.14	0.5	E
C-A	0.84	58.93	4.4	F
C-AB	0.17	5.54	0.4	A

12.4.2 The study went on to assess the impact of the full masterplan on the junction. It concluded that the existing priority junction form would operate over capacity with the full masterplan traffic and thus considered options for improving the junction (either a mini roundabout or traffic signals). The conclusion of that exercise being that traffic signals would offer some capacity improvements but would not be acceptable due to design and conservation issues.

12.4.3 The issues raised in the Arup report were as follows and are largely those repeated by highways officers in their subsequent response to the application.

- The existing buildings and boundary walls of surrounding properties restrict intervisibility at the junction. As a result, suitable sight for pedestrians of cars which may skip the lights will not be provided.
- Shaw Lane narrows to the east of the junction which may prevent larger vehicles from passing each other and therefore may result in issues with queuing etc at the junction, (addressed in revised plans).
- The plan shows indicative primary signal head locations – this reduces the footway widths to circa 1.2m in some places. Additional secondary head locations could further restrict the footway widths in some locations. This is below the desirable minimum and provides

constraint for those with reduced mobility, pushchairs etc as well potentially restricting safe access for maintenance etc.

- Local accesses to properties, including the shared access to the two homes at the former pub and 2 Church Street, exit into the junction. These would need to be incorporated into the signal design.
- Bus stops located close to the junction on the Shaw Lane and Fish Dam Lane approaches would need to be relocated.

12.5 Subsequent Officer Comments on Safety

12.5.1 In the second round of highway officer comments received prior to determination, highway officers raised a number of queries in regard to the signalisation of the junction. A great many of these are matters which I would consider as matters of detail design and not fundamental to whether the existing priority junction is suitable for upgrading to signal control.

12.5.2 Such capacity upgrades from priority junctions to signals are extremely common and whilst there are often design constraints and considerations in a busy urban area, in this case I can see no fundamental issues that make the provision of signals unsafe. To the contrary they provide much enhanced safe facilities for pedestrians.

12.5.3 The mitigation plans included in the 2023 updated TA sought to address the comments made by Arup and BMBC initially, albeit again I would consider several of these to be matters of detailed design. This included positioning stop lines to improve intervisibility, Autotrack assessments to demonstrate HGV movements and other related design changes.

12.5.4 The revised mitigation drawings were also accompanied by a Road Safety Audit (RSA) of the design, a copy of which is included as **Appendix 6** to my evidence.

12.5.5 Notwithstanding this, to address the second highways officers' comments further, the appellant has again updated the mitigation drawings since the application to address the main design points made, which are relevant to a preliminary design. The latest mitigation scheme drawings are included as **Appendix 7** to my evidence. The second BMBC highways response regarding the proposed mitigation scheme related to following relevant design issues:

- Swept path vehicles do not maintain 0.5m offset from kerb to vehicle.
- Tactile paving crosses driveway on western side of junction.
- No indication of signal pole locations.

12.5.6 The appellant has made several changes to the proposed mitigation scheme at the Shaw Lane / Church Street / Fish Dam Junction, these are shown on the revised drawings included as **Appendix 7** to my evidence. These improvements are listed below:

- Southern Arm – the Stop line has moved south by 0.9m and reduced in length from 4.5m to 4.0m (intervisibility adjusted to suit) - this allows vehicles turning left out of Shaw Lane more space to manoeuvre. Column location shown.
- North-eastern Arm - Radius between Shaw Lane and Fish Dam Lane increased to increase distance from tracked vehicle to pedestrians on crossing. Because of the adjustment to inter visibility stop line and crossing moved forward by 0.64m. Distance from stop line to crossing adjusted to be 1.7m - Column location shown.
- North-western Arm - Drive location shown on plan. To remove crossing from the drive location the normal pole and long stem of tactile paving on the right hand side, have been flipped to be at the left side (so no column would be located in the driveway), also, the distance from stop line to crossing adjusted to be 1.7m on left hand side and 1.0m at centreline to adjust the location of the tactile paving on the west side of the crossing. Column locations shown. Swept paths re-done to requested tolerance.

12.5.7 In summary, the appellant has demonstrated that the mitigation put forward is suitable to improve the capacity at this junction to address its impacts and is safe and appropriate. It also provides controlled pedestrian facilities which are completely absent at present to assist both existing users and those accessing the proposed development.

13 Linkage for Pedestrians

13.1 Reason for Refusal

13.1.1 The second RfR comments on pedestrian accessibility and notes as follows:

> ***"The application has also not demonstrated that foot and cycle links provide appropriate levels of sustainable access to and from the site. The links shown to the TPT cannot be fully achieved without land outside the applicant's control. Walk distances to public transport also far exceed the 400m walk distance guidelines. As such, the scheme is contrary to the Carlton Masterplan/Delivery Strategy, the NPPF and Local Plan Policies T3 'New Development and Sustainable Travel' and T4 'New Development and Transport Safety'.***

13.1.2 One of the main focuses of these concerns is on the quality of the pedestrian route from the site along Shaw Lane to the Church Lane junction. The supporting highways officers' comments are also critical of the quality and safety of this route, the proposed provision of a new Toucan crossing on Shaw Lane and raised concerns about proposed carriageway narrowing and the swept path movements of vehicles along Shaw Lane.

13.2 Revised Proposals

13.2.1 I would firstly note that the proposed site is already allocated for the use put forward and forms part of a wider masterplan, as such the presumption is that it is in a strategic sense considered sustainable and accessible by the Council. There are also improvements proposed by the appellant to provide enhanced facilities for pedestrians from the site to Carlton, which are consistent with key policy documents.

13.2.2 To improve facilities for pedestrians along Shaw Lane the following is proposed:

- Widening of existing footway widths through minor carriageway reductions;
- Carriageway widening at appropriate locations;
- Cutting back some existing vegetation to improve footway widths;
- Provision of a new TOUCAN crossing on Shaw Lane near the site access point; and
- Provision of a new crossing point to access the canal tow path.

13.2.3 I include plans showing the extents of these works, along with the resultant carriageway and footway widths, to demonstrate these are acceptable, as **Appendix 8** to my evidence.

13.2.4 I also include in **Appendix 8** of my evidence vehicle tracking of the entire route of Shaw Lane from the site to the Church Lane junction showing HGV movements along the route and demonstrating that the minor carriageway reductions proposed do not compromise these movements and minor carriageway widening improves them, to the benefit of all road users.

13.2.5 There are currently no footways along the north side of the carriageway along the proposed site frontage given its current agricultural use. A new 5m wide active travel corridor will be provided to the west of the site entrance to connect to the proposed new Toucan crossing on Shaw Lane and to the site's western boundary with the adjacent L12 allocation.

13.2.6 The proposed crossing will allow pedestrians to cross onto the southern side of the carriageway upon which there are footways all the way into Carlton. There is currently very limited footway provision along the northern side of the carriageway, understandably given the current land uses and demands.

13.2.7 The connection to the boundary with L12 will allow the future formation of a direct connection from the proposed site to the Trans Pennine Trail Link / Canal towpath in due course. This cannot be delivered until the adjacent allocation comes forward, as it would utilise land within this allocated site as the Council infer. However, in the interim period a crossing point is proposed opposite the TPT to allow pedestrians on the southern footway to cross the road and access the TPT, in advance of the full connection being made when L12 comes forward. As set out in the masterplan a phased approach is proposed.

13.2.8 The footway along the southern side of Shaw Lane is, as shown in the plans in **Appendix 8**, is widened in a number of locations to provide an improved footway width, these are in general very minor amendments to kerb lines or cutting back of overgrown vegetation.

13.2.9 Opposite Ivy Farm Close Area the footways on either side of the Ivy Farm Close junction have been modified to 1.8m width to improve pedestrian safety on the substandard eastern side and increased road width as much as possible. The existing road widths on the Ivy Farm Close bend are 5.75m west of the junction, 5.57m (opposite of Ivy Farm Close), 6.345m east of the junction. The current design has the following dimensions, 6.40m west of junction, 5.90m (opposite of Ivy Farm Close), 5.73m east of junction, which gives an overall improvement. The road width is increased in two locations, and although the road has narrowed slightly east of the junction, pedestrian safety is greatly improved.

13.2.10 To the west of High Grove Court, the southern kerb line has been modified to provide a 2.0m wide footway. To ensure a consistent 6.0m wide carriageway the northern kerb has been adjusted. To the east of High Grove Court, the constant 6.0m wide carriageway continues (by relocating the northern kerb) for 52m until the existing carriageway increases to 6.24m.

13.2.11 I would note that the entire length of Shaw Lane already benefits from street lighting provision.

13.2.12 The site is located 700m from the existing bus stops on Fish Dam Lane, this is a reasonable walking distance and provides access to 15-minute frequency services. In the longer term the masterplan framework sets out the desire to provide bus services right through the site and along the NAR, that will greatly improve walk distances for the full site below 400m.

13.2.13 In summary, a comprehensive review of the pedestrian route in question along with an appropriate supporting package of works are proposed to improve pedestrian connectivity. I consider this to be appropriate for an allocated site, providing safe and convenient facilities along Shaw Lane and consistent with the wider masterplan vision.

14 Northern Access Road

14.1 Implications of the Proposal

14.1.1 One of the Council's fundamental concerns is that the proposed development will prejudice the delivery of the NAR and is thus premature. The Local Plan was prepared in 2019 and covers the period up to 2033. Over the years in which this development has been promoted and applications submitted there has been (based on recent discussions with the Council in agreeing common ground) little or no progress on promoting and delivering the NAR and the associated Carlton-Royston link road.

14.1.2 In the five years since the plan was adopted the alignment, exact form, the business case, justification and modelling, and associated work that would be expected to support securing funding and the delivery has not progressed. The cost of constructing a link road from Shaw Lane to Royston Lane is, in my understanding from discussions with the Council, has not been defined to appraise Section 106 contributions.

14.1.3 The only piece of technical appraisal work that has been prepared to my knowledge, is the 2021 Arup report, which goes into detail as to why the Church Lane / Shaw Lane junction cannot be improved but offers nothing in regard to setting out an alternative solution. The presumption remains that the NAR will release this allocation and surrounding allocation but there is no transport evidence base to support its role and / or delivery.

14.1.4 The appellant has throughout the process proposed to construct as part of the development the first section of the NAR through its site to the boundary of L12. The alignment of the route through the site has been designed to allow the most direct highway alignment appropriate for a link road along with appropriate widths and form. This forms a fundamental element of the application.

14.1.5 The expectation is that the adjacent L12 allocation would do the same through its land and that financial contributions from the full masterplan allocations would be used to deliver the connection to Royston Lane and allow the NAR to be built and fully function.

14.1.6 The Council have consistently failed to engage with the appellant on any level, and in specific regard to the NAR, have not suggested any specific requirement or request to contribute toward the financial delivery of the road. In the lead up to the exchange of evidence, I have repeatedly sought clarification from the Council on the anticipated contribution towards the NAR and the reasoning and justification for the level of contribution. To date, this information has not been forthcoming.

14.1.7 In order to allow some housing land to be developed within the plan period, the appellant have therefore offered via the application alternative mitigation to cover its own impacts regardless, and in advance of the delivery of the NAR. The appellant has never been asked or indeed refused to contribute to the financial delivery of the road itself via a Section 106 contribution.

14.1.8 The proposed application seeks to deliver part of the road, not prejudice the delivery of the rest, and to provide some much-needed impetus to delivering the NAR along with appropriately scaled alternative mitigation that addresses the specific allocations highway impact in lieu of the NAR or as an alternative if it never comes forward.

14.1.9 Given my experience in delivering major road schemes for local authorities and my knowledge of the state of play in relation to promoting the NAR, without some intervention it is difficult to see any progress occurring before the end of the plan period.

14.2 The Impact of the Proposed Offsite Mitigation

14.2.1 In this section, I consider the impact of the proposed offsite mitigation on the NAR delivery and wider allocation. I would firstly note that signalising the Church Lane junction has no practical bearing on building the NAR. It might be considered to be redundant works when the NAR comes forward, as this would seemingly move traffic away from this junction and dilute the need for mitigation, but the works have no direct bearing on the delivery. Indeed, even if no capacity benefit were required as the NAR was in place, the signalisation of the junction introduces new pedestrian crossings facilities that are not present at the moment and is beneficial to pedestrians and the local community.

14.2.2 As I set out in paragraph 12.3.3, the proposed signalised mitigation can accommodate the 215 dwellings proposed on the site.

14.2.3 To consider the suitability of the works to accommodate more of the full masterplan, in lieu of the NAR, I have included the adjacent L12 allocation (increasing the total number of dwellings to 584). The resultant LINSIG outputs (based on the same 90 second cycle time), are included as **Appendix 9** of my evidence and the summary results are shown in Table 14-1 below. This shows the 584 dwellings could be accommodated by the proposed mitigation measures and adequate reserve capacity is maintained.

Table 14-1: LINSIG Output Results

	AM		PM	
	DoS (%)	MMQ (pcu)	DoS (%)	MMQ (pcu)
Fish Dam Lane	3.3	11.1	83.8	14.7
Church Street	89.8	21.3	73.0	14.4

Shaw Lane	87.6	14.1	82.6	11.3
PRC	**0.2**		**7.5**	

14.2.4 The results show the mitigation could also accommodate the traffic associated with the adjacent L12 allocation.

14.3 Contribution

14.3.1 In line with the delivery framework for the allocations, the proposed site is anticipated to make a reasonable and equitable contribution to the overall delivery of the NAR. As stated previously, the Council has not indicated what contribution would be expected from the appellant or how this would be reasonably and fairly appraised. This position reflects the general lack of progress that has been made in bringing the road forward in the last five years.

14.3.2 I have, in the lead up to exchange of evidence, asked the Council's highways officers to provide the expected level of financial contribution, along with a clear justification for how this figure has been assessed in respect to both the cost of building the road and the apportionment of cost to the proposed development. To date, this information has still not been received.

14.3.3 The appellant in this application, proposes to construct the necessary junction with Shaw Lane and construct the first section of the NAR through its site. The application also proposes suitable mitigation at the key Church Lane junction in lieu or in absence of the NAR coming forward, which will allow much needed housing to be delivered, without prejudice to the road's delivery.

14.3.4 The appellant accepts that this would be supplemented by the agreement of a fair and proportional Section 106 financial contribution to the delivery of the remaining sections of the NAR and connecting to Royston Lane. But the Council's lack of engagement and lack of progress on promoting the scheme, has made it impossible to agree this level of provision.

15 Interested Parties Representations

15.1 Mrs Michelle Clarke

15.1.1 In her representations Mrs Clarke refers to a number of highways/transport related points, which are as follows:

"I would like to raise my objections again to this planning application with the points I raised before I live on shaw lane and have done so for 40years ,this road is really busy and dangerous at all times the road is too narrow ,there are no foot paths on one side off shaw lane bad bends …….. we do not need more houses we cannot accommodate more houses the road cannot take anymore traffic ……. and the safety of people walking or riding with more traffic is not being taken into consideration we have already had deaths on this road we do not want anymore".

15.1.2 In my evidence, I have set out that the proposal includes a range of measures to improve facilities for pedestrians along Shaw Lane. This includes measures to widen and clear the vegetation on the footpaths on Shaw Lane, along with new pedestrian crossing facilities. In my view the proposals represent an improvement in pedestrian safety along the route to the benefit of both existing and future users.

15.2 Miss Rachel Stewart

15.2.1 In her representations Miss Stewart refers to a number of highways/transport related points, which are as follows:

"I am also concerned about pedestrians as there is not proper footpaths all way down Shaw Lane from Carlton to Royston road, Cudworth. Shaw Lane isn't on a bus route either so people without their own transport will be forced to walk. Cyclists will also be at an increased risk with more traffic in that area as the road is narrow and means it is difficult to overtake with a wide safe gap in places. The Shaw Lane/Church Street junction has been deemed as been at capacity, so more houses will inevitably make that junction even busier even if a link road is built"

15.2.2 Again, in my evidence, I have considered in great detail the provision of facilities for pedestrians along Shaw Lane and also the impact at the Shaw Lane/Church Lane junction. In both instances I conclude that the development adequately and safely addresses its impacts and proposes measures that are appropriate to improve facilities for all road users.

16 Summary

16.1 Overview

16.1.1 My evidence has considered the transport and highways issues relating to the refusal of planning permission given by Barnsley Metropolitan Borough Council (BMBC) in relation to Outline Planning Application (2022/0115) was submitted in February 2022.

16.1.2 I have addressed the Council's reason for refusals which relates to the road safety, traffic impact and sustainability of the development proposals.

16.1.3 In relation to the above my evidence concludes that:

i. The proposed access forms a safe and suitable point of access to the proposed site and is delivered in a manner that is entirely consistent with the wider masterplan and delivery framework.

ii. The proposed mitigation at the Shaw Lane/Church Lane junction is also safe and greatly improves facilities for pedestrians, in addition to offsetting the highways impacts of the proposed site. This provides suitable mitigation to offset the proposal until such time that the NAR is brought forward by the Council.

iii. The proposed improvement works to Shaw Lane to improve pedestrian movements are safe and appropriate and are consistent with the masterplan and delivery framework.

iv. The application proposes to deliver the first phase of the proposed NAR through its site and this has been designed and planned to fully accord with the vison for the road.

16.1.4 I conclude therefore that the Reason for Refusals on Highway grounds as set out are subjective and unreasonable, and that from a transport and highways perspective, there is no reason why consent should not be awarded.

16.1.5 Accordingly, I therefore respectfully ask that planning consent is granted for the appeal proposals.

Appendix 1 Experience Summary

Richard Ellam

Development Experience Summary

Major Schemes

Thorpe Park, Leeds

Project Director for one of the largest development sites in the north of England (1.8m sq.ft of employment uses). Works include numerous Transport Assessments in support of development proposals on the site and design of supporting highway infrastructure including works to Junction 42 of the M1.

Silkwood Park, Wakefield

Responsible for transport work for major employment development in Wakefield, adjacent to the M1, for over 20 years.

Sweet Street, Leeds

Sweet Street West is a multi-phased masterplan for the vacant former Kays Catalogue site in Holbeck, Leeds. PF were appointed by our Client, Platform_ (and their parent company Westrock) to provide transport support for a hybrid planning application to deliver approximately 1,300 homes and 200,000sqft of office space alongside complimentary commercial and community spaces.

York Central

Project Director, Pell Frischmann and architects HTA and Barton Howe have been appointed by Homes England and Network Rail to support the delivery of up to 2,500 homes 112,000m^2 commercial floor space in a world-class location on 45ha of land adjacent to York Railway Station.

Oldham Batteries, Manchester

Residential development on brownfield urban land in Manchester area. Responsible for negotiations with the Council and subsequent removal of "severe" highway objection. Following that involved in CPO process and implementation.

Headingley Stadium, Leeds

Transport work and input into the Event Plan (Match Day Travel) to support a full application for redevelopment of the North/South (rugby/cricket) and South (rugby) stands.

Wentworth Street, Malton

Project Manager for TA and associated work with a new foodstore in the centre of Malton, North Yorkshire. Successfully negotiated consent for controversial scheme, presented at planning committee, hosted member site walk round and liaised with various stakeholders.

Speedway World Cup, Belle Vue

Project Director responsible for securing planning permission for new speedway stadium in Belle Vue, Manchester, including planning of world cup event.

Network Rail Property Framework

Project director for five year framework with NR, looking at securing planning permission for multiple sites across the UK.

Bradford Interchange

Project Director for Station masterplanning study looking at redevelopment of station to accommodate Northern Powerhouse Rail proposals.

Outo Kumpo, Stocksbridge

Project Manager for mixed use development including new foodstore, housing and non food retail.

Beverley and Driffield Hospitals

Project Manager responsible for the preparation for Transport Assessments for a new hospital in Beverley and an expansion of the existing Hospital in Driffield.

Chester Business Park

Transport Assessment and Green Travel Plan for MBNA Banks proposed extension to Chester Business Park, consisting of 38,000 sq.m of B1 office development emerging issues on site, design of site specific travel guide, redrafting of Travel Plan for selected business on site.

Expert Witness/Inquiries

Stokesley Road, Guisborough

Expert witness for highways matters for Taylor Wimpey housing proposal in Guisborough.

Middleton Lodge, North Yorkshire

Expert witness for objectors to proposed tourist attraction located alongside A19.

Student Accommodation, Manchester

Expert witness for promoter of proposed student accommodation proposal in Manchester.

Dewsbury Road, Wakefield

Expert witness for objector to proposed housing scheme.

Stockton Road, Sedgefield

Expert Witness for Avant Homes for proposed 300 dwelling residential development.

Harrowgate Lane, Stockton

Expert Witness for promoter of proposed 400 dwelling residential proposal.

Huby, North Yorkshire

Expert witness for proposed residential development.

Ashfield Works, Otley

Expert witness for proposed mixed use development for Norwood Homes.

Appendix 2 First Set of Highways Officer Comments

Rosie Walker

From: Hannah Richardson <Hannah.Richardson@spawforths.co.uk>
Sent: 20 July 2022 12:37
To: 'Simon Peters'; Richard Ellam
Cc: Laura Young
Subject: RE: Application ref: 2022/0115 - Shaw Lane, Carlton

Follow Up Flag: Follow up
Flag Status: Flagged

Simon/Richard,

Highways response at last !

Richard, can you review at your earliest convenience and advise on a strategy to address please ?

Many Thanks

Hannah

Kind regards
HANNAH RICHARDSON
Associate Director: Chartered Town Planner
Phone: 01924 873873 Mobile: 07876 345404

From: Hyde , James (SPATIAL PLANNING PROJECT MANAGER) <JamesHyde@barnsley.gov.uk>
Sent: 20 July 2022 12:29
To: Hannah Richardson <Hannah.Richardson@spawforths.co.uk>
Subject: RE: Application ref: 2022/0115 - Shaw Lane, Carlton

Hi Hannah,

Yes we now have Highways comments (below), sorry for the delay on this.

Good afternoon James,

Re: 2022/0115 - Residential development of up to 215 dwellings with associated car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane (Outline with all matters reserved apart from means of access)

Many thanks for consulting Highways Development Control in respect of this planning application.

The application seeks outline approval for a residential development of up to 215 dwellings with all matters reserved apart from means of access. The site forms part of the mixed use development allocation within the Local Plan under site plan policy MU3 which is mixed use for housing and green space with an indicative yield of 1683 dwellings. Within the MU3 policy the development has been the subject of a phased masterplan framework covering the entire allocation to ensure the development is brought forward in a coherent and comprehensive manner. The masterplan framework covering sites MU2 and MU3 was informed by a six week public consultation exercise and adopted by full Council on 25th November 2021. In addition to the masterplan framework a delivery strategy was produced which set out the roles and responsibilities of the various landowners and developers alongside BMBC as both the Local Planning Authority and Highway Authority. The issues considered within the

delivery strategy being the planning and phasing strategy together with the infrastructure requirements and delivery. The delivery strategy sets out that it is expected that development will come forward in a series of phases and whilst it is noted that phases may not necessarily be delivered sequentially, the delivery of certain phases will be dependent upon the availability of infrastructure networks including highways to serve respective parts of the site.

This development parcel is identified as L11 and contained within Phase 3 of the phasing strategy. Within the strategy for Phase 3 is states "Due to congestion on the existing highway network, access needs to be secured off Royston Lane via the northern access road. This access road fits in with BMBC's wider strategic transport aspirations." However in order to secure access to Royston Lane, phased development of the parcels will require L12 to be brought forward in advance of L11 and as such this application is deemed to be premature seeking to gain access from Shaw Lane prior to the northern access being secured from Royston Lane.

This site was the subject to a pre-application enquiry for 200 dwellings and a response provided in October 2021. Due to the lack of information presented at that time HDC were unable to provide comment in detail on the proposals. However crucial advice to the request was that the development shall be designed and implemented in accordance with the Carlton masterplan framework, design code and with adherence to the delivery strategy, especially from a highways perspective in relation to the movement framework for highways and active travel. Whilst advice was provided in the response to agree the scope of the Transport Assessment at the earliest opportunity, no scope was provided / agreed prior to submission of the application.

Notwithstanding the above it would be remiss not to comment on the submitted documentation. With reference to the submitted transport assessment (TA), this response focusses on the fundamentals of assessment and access proposals rather than the finer detailed elements of the application and operational analysis undertaken.

Transport Assessment

2.2.7 – Reference to junction arrangement being designed to current standard. Clarification is sought over which design standards are being referred to. Furthermore, no swept paths have been presented for the appropriate design vehicles noting that the masterplan framework details indicative bus routes through the site via the Shaw Lane / Royston Lane junctions.

2.3.4 – Reference to the applicant being committed to providing good pedestrian and cycle connections to link with the wider land allocations in Carlton. Whilst it is noted that the development proposals are in outline (except for access) the development of this land parcel as a first phase constrains the ability to provide these connections beyond the red line boundary. How is this to be addressed?

2.4.8 – Reference to the site being located close to existing cycle links and relatively high frequency bus route. The walk distance to existing bus infrastructure is some 1km from the site centroid. Furthermore, with reference to comments above, and whilst proximity to cycle links is noted, how are these connections to be made?

2.4.9 – Reference to junction design standards and safe access for all road users. Please note previous comments requesting details of design standards / swept path analysis. Furthermore, how has the safety of this junction been assessed for all modes? No Road Safety Audit accompanied the application.

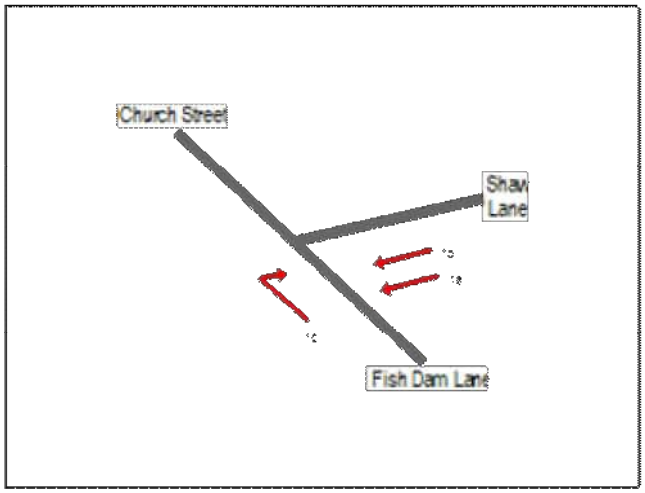
2.4.12 – Reference to the proposals providing the first stage of the link between Shaw Lane and Royston Lane. The masterplan framework and delivery strategy is clear in that the due to congestion on the existing highway network, access needs to be secured off Royston Lane via the northern access road. The first phase of the link road would therefore be the northern section link to Royston Lane.

Sections 3 onwards – It should be noted that as part of the pre-application response it was stated that the scope of the TA and TP be agreed with BMBC at the earliest opportunity, however the scope was not agreed prior to submission of the application.

3.3 – On what basis was the study area defined? This would have been agreed as part of the scoping exercise. Current adopted supplementary planning guidance provides the underlying thresholds of assessment. This includes any development generating 30 or more two-way vehicles movements in any hour and/or any development generating 100 or more two-way vehicle movements per day. Where there are no firm threshold figures within current TAG guidance for practitioners and appraisers, current policy conforms to the now withdrawn Department for Transport document Guidance on Transport Assessment. This is not purely used to determine the need for a transport assessment but should also be considered as the appropriate metric for determining network impact and therefore the need for individual junction assessment with the TA submission. Please clarify.

3.4.2 – Whilst traffic count data was collected for the Arup Study, this was collected in June 2021, where car borne traffic was circa 90% of pre-covid levels (DfT stats) and given the previous counts were undertaken in 2018, up to date traffic count information will be required to establish the baseline traffic flows. These surveys are to also include queue length surveys to assist validation of the discrete junction modelling works.

3.4.8 – Notwithstanding comments made above in respect of new traffic count data requirements, queue length surveys undertaken in June 2021 at the B6132 Church Lane / Shaw Lane / Fish Dam Lane junction for the modelled period revealed the following queues:



TIME	1a	1b	1c
0745 - 0750	1	7	0
0750 - 0755	1	4	0
0755 - 0800	1	5	1
0800 - 0805	1	10	1
0805 - 0810	1	8	0
0810 - 0815	1	11	0
0815 - 0820	1	6	0
0820 - 0825	1	4	1
0825 - 0830	1	4	0
0830 - 0835	1	4	0
0835 - 0840	1	6	1
0840 - 0845	3	5	1
Hourly Average	1.17	6.17	0.42

TIME	1a	1b	1c
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1625 - 1630	2	8	1
1630 - 1635	0	3	1
1635 - 1640	2	5	1
1640 - 1645	1	3	0
1645 - 1650	1	7	1
1650 - 1655	0	5	1
1655 - 1700	1	7	1
Hourly Average	0.92	6.50	0.75

3.5 – Notwithstanding comments made above regarding study area, this analysis is based on the use of crashmap data. From the information presented, it appears to be a high level review. However a full assessment of all personal injury collision records are required to identify and discernible patterns in collision data that may be attributable to the highway environment or where there may be common causation factors. In addition, any additional critical locations on the highway network within the study area that demonstrate a poor accident history are to be identified and assessed. This is to determine if the proposed development will exacerbate existing problems and what highway mitigation works or traffic management measures would be required to mitigate the effects.

Section 4 – Accessibility by sustainable modes
This section and summary concludes that a range of destinations are accessible from the site by walking, cycling and public transport. However this is based purely on measured distances from the site and no assessment has been undertaken to demonstrate the suitability of the highway and transport network to accommodate the increased level of trips by sustainable modes.

5.1 – Please see previous comments

5.2.1 – Please see previous comments in respect of swept paths and safety audit.

5.2.3 – please provide details of the max achievable visibility splay.

5.2.5 – It should be noted that some on street parking is shown on the illustrative masterplan drawing ref P3921-Spa-XX-ZZ-00-M2 10-006, however in accordance with the South Yorkshire Residential Design Guide, where streets are less than 6m in width, it is necessary to discourage footway parking by providing defined bays beyond the carriageway or by some other means.

5.2.6 – see previous comments regarding swept path requirements.

5.3 The proposal seeks to introduce a traffic signal arrangement as the junction of Church Street / Shaw Lane / Fish Dam Lane in order to mitigate junction capacity issues arising from development traffic. However it should be noted that this is not considered to be acceptable due to the following:

The existing buildings and boundary walls of surrounding properties restrict intervisibility at the junction. The design does not therefore conform to design standards .

Shaw Lane narrows to the east of the junction which may prevent larger vehicles from passing each other and therefore may result in issues with queuing etc at the junction.

The plan shows indicative primary signal head locations – this reduces the footway widths to circa 1.2m in some places. This is below the desirable minimum and provides constraint for those with reduced mobility, pushchairs etc as well potentially restricting safe access for maintenance etc.

Local accesses to properties, including the shared access to the two homes at the former pub and 2 Church Street, exit into the junction. These would need to be incorporated into the signal design.

Bus stops located close to the junction on the Shaw Lane and Fish Dam Lane approaches would need to be relocated.

Traffic signals at the junction may result in traffic queues in all directions, specifically long queues to the north extending into the heart of the conservation area around Stud Farm, Churchfield Gardens and St. John's Church, would introduce visual harm.

The necessary infrastructure (signal heads, control boxes, road markings etc.) would also introduce some minor harm to the setting of the conservation area.

To accommodate the alterations, there are a number of intervisibility issues caused by standing buildings or historic walls as well as areas of footpath that are quite narrow at certain pinch points (as noted above). The conservation

officer would not support measures to alleviate these issues, such as removal of walls or structures that contribute to the conservation area.

6.2 – Vehicular trip Generation
The dataset includes a selected survey undertaken on a Saturday which is not acceptable. Furthermore, whilst it is acknowledged within the TRICs good practice guide that there is a significantly higher correlation between location type and vehicle trip rates than there is between region and vehicular trip rates, I question the comparability of data from surveys undertaken in Munster, Greater Dublin and Ulster and request that these are also removed unless justification can be provided on comparability and filtering criteria used in data selection. Furthermore, in order to capture additional survey data it is suggested that the dwelling parameter range is extended below 200 units during the filtering process.

Section 7 – Highway Impact Assessment
Given earlier comments no detailed comments are provided on this section.

Background Growth – There is a need to include actual committed development flows; Attention should be given to current TAG guidance where "It is important to give appropriate consideration to the cumulative impacts arising from other committed development (i.e. development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next 3 years). At the decision-taking stage this may require the developer to carry out an assessment of the impact of those adopted Local Plan allocations which have the potential to impact on the same sections of transport network as well as other relevant local sites benefitting from as yet unimplemented planning approval". However given comments above regarding prematurity of the application no further detail in respect of committed development is given at this stage. This will be subject to change over time.

7.5.7 – see earlier comments in respect of the proposed mitigation scheme.

Table 7-8 / 7.5.9 – Whilst this response is focussed on the fundamentals of assessment, it should be noted that junctions are deemed to have reached capacity when the practical reserve capacity (PRC) reaches zero. The PRC of a traffic signal junction is breached when the worst degree of saturation of any link exceeds 90% and therefore those results which surpass this threshold indicate that the junctions are operating over capacity.

Section 8 – See earlier comments in respect of the proposed mitigation scheme

Kind regards

Wayne

Wayne Lake MSc MCIHT
Group Leader - Highways Development Control
Transport
Growth and Sustainability
Barnsley Council

Telephone: 01226 772587
Email: waynelake@barnsley.gov.uk
Mail: PO Box 634, BARNSLEY. S70 9GG

*Sat Nav reference: S70 2DR

James Hyde, BA(Hons), MA, MRTPI
Spatial Planning Project Manager

Planning and Building Control
Barnsley MBC
PO Box 634
BARNSLEY
S70 9GG

jameshyde@barnsley.gov.uk

From: Hannah Richardson <Hannah.Richardson@spawforths.co.uk>
Sent: 20 July 2022 12:25
To: Hyde , James (SPATIAL PLANNING PROJECT MANAGER) <JamesHyde@barnsley.gov.uk>
Cc: 'Simon Peters' <speters@networkspace.co.uk>; Laura Young <Laura.Young@spawforths.co.uk>
Subject: RE: Application ref: 2022/0115 - Shaw Lane, Carlton

James,

Further to your email of 12 July, have we any progress on highways please ?

Many Thanks

Hannah

Kind regards
HANNAH RICHARDSON
Associate Director: Chartered Town Planner
Phone: 01924 873873 Mobile: 07876 345404

From: Hyde , James (SPATIAL PLANNING PROJECT MANAGER) <JamesHyde@barnsley.gov.uk>
Sent: 12 July 2022 09:54
To: Laura Young <Laura.Young@spawforths.co.uk>
Subject: RE: Application ref: 2022/0115 - Shaw Lane, Carlton

Hi Laura,

I spoke to the Highways manager about this site last week to re-iterate the length of time the application has been in and that we need a response ASAP. He is personally looking at the site with his colleagues and will get me a response out. I will keep the pressure on them.

Let me know if you need anything in the meantime.

Regards

James Hyde, BA(Hons), MA, MRTPI
Spatial Planning Project Manager

Planning and Building Control
Barnsley MBC
PO Box 634
BARNSLEY
S70 9GG

jameshyde@barnsley.gov.uk

Please note that the views expressed in this email are the informal opinions of officers based on the information available at present. They are not binding on the council, who will determine your planning application

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From: Laura Young <Laura.Young@spawforths.co.uk>
Sent: 11 July 2022 15:37
To: Hyde , James (SPATIAL PLANNING PROJECT MANAGER) <JamesHyde@barnsley.gov.uk>
Subject: RE: Application ref: 2022/0115 - Shaw Lane, Carlton

Hi James,

Do we have any highways update please? Can we escalate this where possible.

Thanks,

Laura

Kind regards
LAURA YOUNG
Senior Planning Assistant
Phone: 01924 873873 Mobile: 07311 628619

From: Hyde , James (SPATIAL PLANNING PROJECT MANAGER) <JamesHyde@barnsley.gov.uk>
Sent: 01 July 2022 16:53
To: Laura Young <Laura.Young@spawforths.co.uk>
Subject: RE: Application ref: 2022/0115 - Shaw Lane, Carlton

Thanks Laura,

I will pass the info on. I am continuing to chase the outstanding consultee comments and will pass these on as soon as I receive them.

Regards

James Hyde, BA(Hons), MA, MRTPI
Spatial Planning Project Manager

Planning and Building Control
Barnsley MBC
PO Box 634

BARNSLEY
S70 9GG

jameshyde@barnsley.gov.uk

Please note that the views expressed in this email are the informal opinions of officers based on the information available at present. They are not binding on the council, who will determine your planning application

---

From: Laura Young <Laura.Young@spawforths.co.uk>
Sent: 01 July 2022 16:38
To: Hyde , James (SPATIAL PLANNING PROJECT MANAGER) <JamesHyde@barnsley.gov.uk>
Cc: Hannah Richardson <Hannah.Richardson@spawforths.co.uk>
Subject: Application ref: 2022/0115 - Shaw Lane, Carlton

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi James,

Please find attached an updated FRA which addresses the comments of the Drainage Officer. I would be grateful if you could forward this on and upload to the public access.

We are past our decision deadline date so we are able to agree to an extension of time with you until 29 July 2022. In the time until then, we will share an updated ecology/ BNG Assessment shortly and can you please chase, as a matter of urgency, the outstanding Highways and urban design comments? It is now 21 weeks since the application was submitted.

Thanks,

Laura

Kind regards
LAURA YOUNG
Planning Assistant
BSc(Hons)

Junction 41 Business Court, East Ardsley, Leeds, WF3 2AB
Main: 01924 873873 Web: www.spawforths.co.uk
Direct: 01924 876841 Email: laura.young@spawforths.co.uk
Mobile: 07311 628619 LinkedIn:

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Appendix 3 Second Set of Highways Officer Comments

Rosie Walker

From:	Lake , Wayne (GROUP LEADER HDC) <WayneLake@barnsley.gov.uk>
Sent:	12 September 2023 15:46
To:	Hyde , James (SPATIAL PLANNING PROJECT MANAGER)
Cc:	HighwaysPlngApps
Subject:	FW: 2022/0115 - Land north of Shaw Lane, Carlton, Barnsley, S71 3HH

Good afternoon James,

Re: 2022/0115 - Residential development of up to 215 dwellings with associated car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane (Outline with all matters reserved apart from means of access)

Many thanks for consulting Highways Development Control on the additional information submitted in respect of this application, covered by the Letter from Spawforths dated 2 June 2023.

Having reviewed this additional information, please find my latest comments in blue appended to my original comments below for ease of reference and a summary of the review and recommendation provided at the end of the consultation response.

Kind Regards

Wayne

From: Lake , Wayne (GROUP LEADER HDC) <WayneLake@barnsley.gov.uk>
Sent: 13 July 2022 13:22
To: Hyde , James (SPATIAL PLANNING PROJECT MANAGER) <JamesHyde@barnsley.gov.uk>
Cc: HighwaysPlngApps <HighwaysPlngApps@barnsley.gov.uk>
Subject: 2022/0115 - Land north of Shaw Lane, Carlton, Barnsley, S71 3HH

Good afternoon James,

Re: 2022/0115 - Residential development of up to 215 dwellings with associated car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane (Outline with all matters reserved apart from means of access)

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be dependent upon the availability of infrastructure networks including highways to serve respective parts of the site.

This development parcel is identified as L11 and contained within Phase 3 of the phasing strategy. Within the strategy for Phase 3 is states "Due to congestion on the existing highway network, access needs to be secured off Royston Lane via the northern access road. This access road fits in with BMBC's wider strategic transport aspirations." However in order to secure access to Royston Lane, phased development of the parcels will require L12 to be brought forward in advance of L11 and as such this application is deemed to be premature seeking to gain access from Shaw Lane prior to the northern access being secured from Royston Lane.

This site was the subject to a pre-application enquiry for 200 dwellings and a response provided in October 2021. Due to the lack of information presented at that time HDC were unable to provide comment in detail on the proposals. However crucial advice to the request was that the development shall be designed and implemented in accordance with the Carlton masterplan framework, design code and with adherence to the delivery strategy, especially from a highways perspective in relation to the movement framework for highways and active travel. Whilst advice was provided in the response to agree the scope of the Transport Assessment at the earliest opportunity, no scope was provided / agreed prior to submission of the application.

The comments above remain applicable.

Notwithstanding the above it would be remiss not to comment on the submitted documentation. With reference to the submitted transport assessment (TA), this response focusses on the fundamentals of assessment and access proposals rather than the finer detailed elements of the application and operational analysis undertaken.

Transport Assessment

2.2.7 – Reference to junction arrangement being designed to current standard. Clarification is sought over which design standards are being referred to. Furthermore, no swept paths have been presented for the appropriate design vehicles noting that the masterplan framework details indicative bus routes through the site via the Shaw Lane / Royston Lane junctions.

The applicant has confirmed that MfS standards have been used in the junction design. Further comments are provided in respect of swept paths below.

2.3.4 – Reference to the applicant being committed to providing good pedestrian and cycle connections to link with the wider land allocations in Carlton. Whilst it is noted that the development proposals are in outline (except for access) the development of this land parcel as a first phase constrains the ability to provide these connections beyond the red line boundary. How is this to be addressed?

Whilst paragraphs 2.35 and 2.36 provide further detail and the masterplan has been updated, the site access deign now incorporates a Toucan crossing which is unacceptable as the crossing does not link to cycle facilities on the southern side of Shaw Lane. DfT Cycle Infrastructure Design LTN 1/20 reads at 10.4.17: Toucan crossings should be used where it is necessary to provide a shared facility, for example when there are space restrictions or **where there is a shared use path or area leading to the crossing.**

Furthermore, the Toucan crossing was highlighted as a problem within the road safety audit which reads: *"A Toucan crossing is being provided to the west of the proposed site access junction. This will provide a crossing for pedestrians and cyclists from the site to cross onto the southern footway along Shaw Lane. To the west of the toucan crossing the footway width reduces to as little as 700mm measured on site. This footway is insufficiently wide enough to accommodate both users without the potential for collisions between them."* However whilst the designers response refers to footway improvements to a minimum of 2m, the proposal does not include provision for cyclists, furthermore, how are on carriageway cyclists proposed to transfer to/from the carriageway? This response is not considered acceptable.

2.4.8 – Reference to the site being located close to existing cycle links and relatively high frequency bus route. The walk distance to existing bus infrastructure is some 1km from the site centroid. Furthermore, with reference to comments above, and whilst proximity to cycle links is noted, how are these connections to be made?

Section 2.47 and Appendix G referenced within this paragraph clearly demonstrates that the 3 direct cycle links cannot be completed / secured without land outside the applicants control and therefore the proposals are not considered to meet the NPPF 112 a and c.

Furthermore, the walk distances to public transport are far in excess of the 400m contained within nationally recognised guidance.

Building Sustainable Transport into New Developments (DfT, 2008) gives the following advice on pedestrian catchment areas: Walking neighbourhoods are typically characterised as having a range of facilities within 10 minutes' walking distance (around 800 metres). However, the propensity to walk or cycle is not only influenced by distance but also the quality of the experience; people may be willing to walk or cycle further where their surroundings are more attractive, safe and stimulating. Developers should consider the safety of the routes (adequacy of surveillance, sight lines and appropriate lighting) as well as landscaping factors (indigenous planting, habitat creation) in their design. The power of a destination determines how far people will walk to get to it. For bus stops in residential areas, 400 metres has traditionally been regarded as a cut-off point and in town centres, 200 metres (DOENI, 2000).

This is reinforced in Sustrans (2022) document Walkable neighbourhoods Building in the right places to reduce car dependency: which recommends accessibility standards of 400m to bus stops.

2.4.9 – Reference to junction design standards and safe access for all road users. Please note previous comments requesting details of design standards / swept path analysis. Furthermore, how has the safety of this junction been assessed for all modes? No Road Safety Audit accompanied the application.

Further comments in respect of the Road Safety Audit and Swept path analysis are provided below.

2.4.12 – Reference to the proposals providing the first stage of the link between Shaw Lane and Royston Lane. The masterplan framework and delivery strategy is clear in that the due to congestion on the existing highway network, access needs to be secured off Royston Lane via the northern access road. The first phase of the link road would therefore be the northern section link to Royston Lane.

This comment remains applicable.

Sections 3 onwards – It should be noted that as part of the pre-application response it was stated that the scope of the TA and TP be agreed with BMBC at the earliest opportunity, however the scope was not agreed prior to submission of the application.

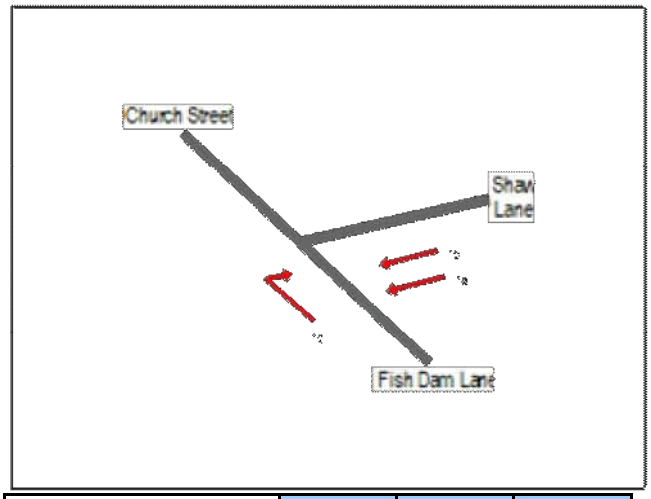
3.3 – On what basis was the study area defined? This would have been agreed as part of the scoping exercise. Current adopted supplementary planning guidance provides the underlying thresholds of assessment. This includes any development generating 30 or more two-way vehicles movements in any hour and/or any development generating 100 or more two-way vehicle movements per day. Where there are no firm threshold figures within current TAG guidance for practitioners and appraisers, current policy conforms to the now withdrawn Department for Transport document Guidance on Transport Assessment. This is not purely used to determine the need for a transport assessment but should also be considered as the appropriate metric for determining network impact and therefore the need for individual junction assessment with the TA submission. Please clarify.

Clarification provided and accepted

3.4.2 – Whilst traffic count data was collected for the Arup Study, this was collected in June 2021, where car borne traffic was circa 90% of pre-covid levels (DfT stats) and given the previous counts were undertaken in 2018, up to date traffic count information will be required to establish the baseline traffic flows. These surveys are to also include queue length surveys to assist validation of the discrete junction modelling works.

Whilst it is acknowledged that surveys were undertaken in November 2022, no queue length survey data is included in the results included in Appendix C as requested. No validation of the base models has been undertaken against observed queuing and therefore the modelling outputs cannot be relied upon. Also see previous comments on 3.4.8 below in respect of this.

3.4.8 – Notwithstanding comments made above in respect of new traffic count data requirements, queue length surveys undertaken in June 2021 at the B6132 Church Lane / Shaw Lane / Fish Dam Lane junction for the modelled period revealed the following queues:



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1640 - 1645	1	3	0
1645 - 1650	1	7	1
1650 - 1655	0	5	1
1655 - 1700	1	7	1
Hourly Average	0.92	6.50	0.75

3.4.8 – Table 3.1. the results shown in table 3.1 have been cross referenced with the model output results included in Appendix E. The output reports included the following warning: *Data errors / warnings on model outputs in relation to vehicle mix – The HV% is zero for all movements / time segments. Vehicle mix matric should be completed whether working in PCU's or vehicles.* This is because some parts of the model work in PCU and other parts use vehicles. If HV%ages are not included there is a risk that in particular queueing and delay results may not

be accurate. This reinforces the need to ensure this data is included in the model and that queue length surveys are undertaken to ensure "base" models can be validated

3.4.9 – Please see comments on 3.4.8 above. Also Shaw Lane historically experiences significant queuing particularly in the evening peak and the queue length surveys undertaken in June 2021 at the B6132 Church Lane / Shaw Lane / Fish Dam Lane junction for the modelled period revealed the greater queueing predicted within the model. As such the base model output results are not accepted.

3.4.10 – Reference is made to the modelling of Fish Dam Lane / West Green Way / Industry Road roundabout. The roundabout is described as a roundabout with an ICD of approximately 25.3m with all approaches except from West Green Way having a speed limit of 30mph. However this is wrong. The ICD of the roundabout is circa 50m, almost double that which has been included in the model(See screenshot below). Therefore the model results are inaccurate and cannot be accepted.

Arms

Arm	Name	Description
1	Fish Dam Lane (N)	
2	West Green Way	
3	Fish Dam Lane (S)	
4	Industry Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	4.05	5.85	3.7	14.1	25.3	63.0	
2	3.46	5.50	8.1	19.3	25.3	34.0	
3	3.95	5.70	5.3	16.3	25.3	45.0	
4	4.00	4.80	2.1	24.0	25.3	47.0	

For a full review of the geometric data included within all of the modelled junctions a plan of each junction with dimensioned geometry is required.

3.4.11 and Table 3-2 – Notwithstanding the above again the base model has not been validated against observed queue length data. Furthermore table 3.2 have been cross referenced with the model output results included in Appendix E. The output reports included the following warning: *Data errors / warnings on model outputs in relation to vehicle mix – The HV% is zero for all movements / time segments. Vehicle mix matric should be completed whether working in PCU's or vehicles.* This is because some parts of the model work in PCU and other parts use vehicles. If HV%ages are not included there is a risk that in particular queueing and delay results may not be accurate. This reinforces the need to ensure this data is included in the model and that queue length surveys are undertaken to ensure "base" models can be validated

3.5 – Notwithstanding comments made above regarding study area, this analysis is based on the use of crashmap data. From the information presented, it appears to be a high level review. However a full assessment of all personal injury collision records are required to identify and discernible patterns in collision data that may be attributable to the highway environment or where there may be common causation factors. In addition, any additional critical locations on the highway network within the study area that demonstrate a poor accident history are to be identified and assessed. This is to determine if the proposed development will exacerbate existing problems and what highway mitigation works or traffic management measures would be required to mitigate the effects.

Full PIC data now included within the Transport Assessment covering the period 2017 to 2021.

Section 4 – Accessibility by sustainable modes

This section and summary concludes that a range of destinations are accessible from the site by walking, cycling and public transport. However this is based purely on measured distances from the site and no assessment has been undertaken to demonstrate the suitability of the highway and transport network to accommodate the increased level of trips by sustainable modes.

This comment remains applicable.

Furthermore, the walk distances to public transport are far in excess of the 400m contained within nationally recognised guidance. Building Sustainable Transport into New Developments (DfT, 2008) gives the following advice on pedestrian catchment areas: Walking neighbourhoods are typically characterised as having a range of facilities within 10 minutes' walking distance (around 800 metres). However, the propensity to walk or cycle is not only influenced by distance but also the quality of the experience; people may be willing to walk or cycle further where their surroundings are more attractive, safe and stimulating. Developers should consider the safety of the routes (adequacy of surveillance, sight lines and appropriate lighting) as well as landscaping factors (indigenous planting, habitat creation) in their design. The power of a destination determines how far people will walk to get to it. For bus stops in residential areas, 400 metres has traditionally been regarded as a cut-off point and in town centres, 200 metres (DOENI, 2000).

This is reinforced in Sustrans (2022) document Walkable neighbourhoods Building in the right places to reduce car dependency: which recommends accessibility standards of 400m to bus stops.

The proposals are not considered to meet the NPPF 112 a and c.

5.1 – Please see previous comments

5.2.1 – Please see previous comments in respect of swept paths and safety audit.

The Road Safety audit report lists in Appendix A the schedule of documents provided to the audit team. No reference is made to swept path drawings and therefore it is considered that the audit team could not fully appraise the proposed junction arrangement. Further comment on Road Safety Audit below.

Section 5.2.1 states that the junction has been designed in accordance with the South Yorkshire Residential Design Guide and MfS. However this is not correct. The South Yorkshire Residential Design Guide states that the design vehicle should be able to turn without crossing into the opposing lane on the major arm when undertaking left in / left out manoeuvres and leave 0.5m clearance between vehicle body and carriageway edge on the minor arm. Swept paths demonstrate that this requirement has not been fulfilled. Therefore the junction design is not acceptable.

Comments on Swept path drawing for site access ref IPD-22-580-102

Viewpoint 1 (top left):
Design vehicle does not maintain 0.5m offset from nearside kerb on major or minor arm and crosses road centreline on minor arm leading to a potential conflict point
Design vehicle does not maintain 0.5m offset from nearside kerb on major or minor arm when undertaking the right out manoeuvre.

Viewpoint 2 (top right):
Design vehicle does not maintain 0.5m offset from nearside kerb on major or minor arm and crosses road centreline on minor arm leading to a potential conflict point
Design vehicle does not maintain 0.5m offset from nearside kerb on major or minor arm when undertaking the right out manoeuvre.

Viewpoint 3 (bottom left):
Design vehicle crosses centre line of major and minor arms when undertaking left out manoeuvre and does not maintain 0.5m offset from nearside kerb on major arm

Viewpoint 4 (bottom right):
Design vehicle does not maintain 0.5m offset from nearside kerb on minor arm when undertaking the right out manoeuvre.

5.2.2 - The survey recorded that the 85th percentile speeds of 41.5mph eastbound and 38.5mph westbound.
The toucan design omits information on how they will mitigate for the 40mph+ speeds. This would typically involve the inclusions of speed discrimination technology (such as SD Loops or placing the crossing under MOVA control).

No assessment of the inclusion of a Toucan crossing facility within the visibility splay has been provided.

5.2.3 – please provide details of the max achievable visibility splay.

5.2.5 – It should be noted that some on street parking is shown on the illustrative masterplan drawing ref P3921-Spa-XX-ZZ-00-M2 10-006, however in accordance with the South Yorkshire Residential Design Guide, where streets are less than 6m in width, it is necessary to discourage footway parking by providing defined bays beyond the carriageway or by some other means.

It is noted that the illustrative masterplan included in Appendix G of the TA does not show on street parking, however comment remains applicable.

5.2.6 – see previous comments regarding swept path requirements.

Disagree with comment that "the site access can comfortably accommodate refuse and public service vehicles" See comments on 5.2.1 above. Proposed design of site access is not acceptable.

5.3 The proposal seeks to introduce a traffic signal arrangement as the junction of Church Street / Shaw Lane / Fish Dam Lane in order to mitigate junction capacity issues arising from development traffic. However it should be noted that this is not considered to be acceptable due to the following:

The existing buildings and boundary walls of surrounding properties restrict intervisibility at the junction. The design does not therefore conform to design standards .

Shaw Lane narrows to the east of the junction which may prevent larger vehicles from passing each other and therefore may result in issues with queuing etc at the junction.

The plan shows indicative primary signal head locations – this reduces the footway widths to circa 1.2m in some places. This is below the desirable minimum and provides constraint for those with reduced mobility, pushchairs etc as well potentially restricting safe access for maintenance etc.

Local accesses to properties, including the shared access to the two homes at the former pub and 2 Church Street, exit into the junction. These would need to be incorporated into the signal design.

Bus stops located close to the junction on the Shaw Lane and Fish Dam Lane approaches would need to be relocated.

Traffic signals at the junction may result in traffic queues in all directions, specifically long queues to the north extending into the heart of the conservation area around Stud Farm, Churchfield Gardens and St. John's Church, would introduce visual harm.

The necessary infrastructure (signal heads, control boxes, road markings etc.) would also introduce some minor harm to the setting of the conservation area.

To accommodate the alterations, there are a number of intervisibility issues caused by standing buildings or historic walls as well as areas of footpath that are quite narrow at certain pinch points (as noted above). The conservation officer would not support measures to alleviate these issues, such as removal of walls or structures that contribute to the conservation area.

5.3.1 – Comments on the design of the offsite highway works for the church street / Shaw Lane / Fish Dam Lane junction are included in Section 8 below

5.3.3 – **A toucan would not be accepted at this location.** The site does not have a continuous LTN1/20 specification cycle/footway on both sides of the road to continue and link up the route to other active travel routes or areas. Footway on southern side is proposed to be widened to 2m (not wide enough to be shared cycle/footway), but no details are provided as to where this route will link into or any further active travel provisions.

The plans showing the footway widening and carriageway narrowing are not accepted. No swept paths have been undertaken to demonstrate that the carriageway narrowing is acceptable from an operational perspective. Furthermore, these proposals were not included in the Stage 1 Road Safety Audit.

5.3.4 / 5.3.5 - The links to the existing TPT do not form part of this application. It is only proposed that the route will travel to the proposed development boundary only as it requires land outside the control of the applicant to facilitate such connectivity.

6.2 – Vehicular trip Generation
The dataset includes a selected survey undertaken on a Saturday which is not acceptable. Furthermore, whilst it is acknowledged within the TRICs good practice guide that there is a significantly higher correlation between location type and vehicle trip rates than there is between region and vehicular trip rates, I question the comparability of data from surveys undertaken in Munster, Greater Dublin and Ulster and request that these are also removed unless justification can be provided on comparability and filtering criteria used in data selection. Furthermore, in order to capture additional survey data it is suggested that the dwelling parameter range is extended below 200 units during the filtering process.

The dataset has been amended and considered acceptable.

Section 7 – Highway Impact Assessment
Given earlier comments no detailed comments are provided on this section.

Background Growth – There is a need to include actual committed development flows; Attention should be given to current TAG guidance where "It is important to give appropriate consideration to the cumulative impacts arising from other committed development (i.e. development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next 3 years). At the decision-taking stage this may require the developer to carry out an assessment of the impact of those adopted Local Plan allocations which have the potential to impact on the same sections of transport network as well as other relevant local sites benefitting from as yet unimplemented planning approval". However given comments above regarding prematurity of the application no further detail in respect of committed development is given at this stage. This will be subject to change over time.

No committed developments have been included in the Highway Assessments, contrary to government guidance highlighted above and considered unacceptable. Future year assessments have been undertaken using Tempro growth only. It is cited that this is to avoid double counting of trips due to the site being allocated in the local plan. However given the scale of allocations in this area it is considered more appropriate to undertake a sensitivity test using allocations as committed developments with comparison to Tempro values in order to ensure most robust "predicted growth" is accounted for. See below.

7.3.2 - Whilst it is acknowledged that surveys were undertaken in November 2022, no queue length survey data is included in the results included in Appendix C as requested. No validation of the base models has been undertaken against observed queuing and therefore the modelling outputs cannot be relied upon.

7.3.5 / 7.36 – Whilst the B6132 / B6148 Royston crossroads does not experience 30 or more to way trips (table 7-2 and 7-3) given the sensitivity of this location and in accordance with DfT guidance there is a need to assess the cumulative impacts of development on the highway network. Although the developer has chosen to remove "The

Wells" junction from the assessment process due to the assessment threshold of 30 or more tway way trips, this approach cannot be supported by HDC and require a full operational assessment of this junction.

Furthermore, given that this site forma part of the wider MU3 allocation, it is considered remiss of the consultant to wholly rely on Tempro background traffic growth as a standalone method of predicting / assessing future year network conditions. As stated above there's a need to undertake a sensitivity test comparing Tempro against local growth using Local Plan allocated sites as committed development namely: MU5; MU3; HS38; HS40; HS36; HS39 and HS35 in order to ensure most robust "predicted growth" and network conditions are accounted for.

It is extremely disappointing that whilst paragraph 1.2.1 of the TA refers to the preapplication process and to email correspondence in Appendix A it continues that's the TA has been prepared broadly in accordance with these principle. However it fails to recognise and heed the comments of the Highways Officers who clearly states *"A Transport Assessment and Travel Plan will be required to be submitted with any forthcoming application, the scope of which is to be agreed with BMBC at the earliest opportunity".* If the scope of assessment been agreed, many of the issues highlighted throughout this review would have been addressed / overcome at an early stage.

Given the above and issues highlighted in respect of omission of queue length data / base model validation, geometric data errors, as well as non-design compliant proposals for the site access junction, I will not comment on the junction capacity modelling results further given that these items will impact on the modelling results presented rendering them inaccurate and not acceptable.

7.5.5 – 7.5.9 – Multiple comments throughout the document that state that the "existing highway infrastructure can accommodate the additional traffic", it is "within theoretical capacity" and the "negative impact is minimal and does not need to be mitigated". On this basis what is reason for the signalisation scheme?

7.5.7 – see earlier comments in respect of the proposed mitigation scheme.

Table 7-8 / 7.5.9 – Whilst this response is focussed on the fundamentals of assessment, it should be noted that junctions are deemed to have reached capacity when the practical reserve capacity (PRC) reaches zero. The PRC of a traffic signal junction is breached when the worst degree of saturation of any link exceeds 90% and therefore those results which surpass this threshold indicate that the junctions are operating over capacity.

7.6.6 - This would only leave some possible improvements to pedestrian safety. There are no PIC concerns at this junction at present. Do we have any projected pedestrian statistics to validate incorporating signalised pedestrian facilities? Noting that pedestrian facilities are only proposed on 2 of the 3 arms, do these match up to anticipated pedestrian routes? Why are pedestrian facilities planned on only 2 of the 3 arms, particularly when an "all-red" phase would be used?

Section 8 – See earlier comments in respect of the proposed mitigation scheme

Section 8 – The proposed design of the offsite highway works for the Church Street / Shaw Lane / Fish Dam Lane has been assessed and in its current form is not acceptable to Highways officers. A number of queries and concerns exist in respect of the information presented :

Very little other information provided so difficult to determine how feasible it would be to construct. Observations/basic queries based on drawings submitted:

- Are waiting restrictions being provided? If MOVA installed, no waiting and no loading restrictions on each approach to 100m would be required to protect induction loops and for visibility.
- Tactile paving for signalised crossing over Church Street on corner and appears to be positioned in middle of driveway on western side.

- No indication of signal pole positions. What footway widths have been maintained and do these meet the desirable minimum? For info, due to H&S issues, straight signal poles are required on all new sites which must be mounted in pole retention sockets at 700mm from the face of the kerb.
- No indication of any other equipment such as the controller, power supply, chambers/ducting. safe area for maintenance engineer parking, statutory undertakers' equipment, footway widths etc.
- How will private access with restricted visibility be catered for to safely enter junction?
- Do signal heads meet minimum visibility requirements on approaches?
- Does street lighting need upgrading in light of pedestrian crossing facilities?
- What is the uncontrolled crossing facility on Shaw Lane, around 90m from the Church Street junction?
- Does highlighted area show new carriageway surfacing extents? Presume this will be a higher PSV? BMBC, on the approach to all junctions with crossing facilities have 53m (from studs) of grey/black high friction surfacing. Has this been incorporated?
    - Bus stops are located on the approach (Shaw Lane) and exit (Fish Dam Lane) to the signals. These would need relocating away from the signals which could mean that stops are not in the most easily accessible locations.

8.2.4 – Refers to concerns raised by BMBC in respect of narrowing of Shaw Lane to the east of the junction with Church street and the impact this may have on the ability for vehicles to pass one another and cites on site measurements of 5.8m and Manual for streets Figure 7.1 which indicates a carriageways width of 5.5m is suitable for to HGV's to pass each other. However this taken out of context. Figure 7.1 provides a very simplistic image of relative carriageway widths and not reflective of the situation on Shaw Lane.

The context to Figure 7.1 reads "*Figure 7.1 illustrates what various carriageway widths can accommodate. They are not necessarily recommendations".*

Moreover, Figure 6.18 of MfS identifies the typical dimension of a lorry as being 3m wide (wing mirror to wing mirror).

Furthermore 7.2.1 reads *"The design of new streets or the improvement of existing ones should take into account the functions of the street, and the type, density and character of the development, and 7.2.2 reads " Carriageway widths should be appropriate for the particular context and uses of the street. Key factors to take into account include: • the volume of vehicular traffic and pedestrian activity; • the traffic composition; • the demarcation, if any, between carriageway and footway (e.g. kerb, street furniture or trees and planting); • whether parking is to take place in the carriageway and, if so, its distribution, arrangement, the frequency of occupation, and the likely level of parking enforcement (if any); • the design speed (recommended to be 20 mph or less in residential areas); • the curvature of the street (bends require greater width to accommodate the swept path of larger vehicles); and • any intention to include one-way streets, or short stretches of single lane working in two-way streets*

Given the above, and that the citing of Figure 7.1 is taken out of context this is not accepted by Highways Officers.

8.2.5/8.2.6 – This reads *"The intervisibility on the proposed mitigation now goes through either verge or footway in front of these pinch points. The vegetation around the brick wall to the north would need to be cut back flush to the wall."*

However, BMBC policy is to have stop lines located at 3.0m from studs (2.5m to primary pole), this is consistent across all new and upgraded sites across the Borough. Reducing to 1.7m would not be accepted.

8.12 / 8.3 – Junction capacity Modelling results are presented, however Lane saturation flows have been calculated from the Lanes geometry using Linsig software. Linsig has used sat flows of 1900 – 2046, which is high for this area, Barnsley typically around 1700PCU/hr range, very rarely will we see anything above 1800PCU/hr as such the Lane Saturation flows should be specified manually in accordance with the typical value of 1700PCU/hr or from actual observed / calculated data. The Linsig software user manual states:

Lane Saturation Flows can be specified manually or can be calculated from a Lane's geometry using the formulae published in the TRRL report RR67. Saturation flows are always specified in Passenger Car Units (PCU) in LinSig.

AIthough using saturation flows calculated from geometry may seem like an easy option, it is recommended that wherever possible at least a brief saturation flow survey is done for an existing junction. The RR67 formula, although a good starting point, does not allow for all significant factors when estimating saturation flow. For example, no allowance is made for regional variations in saturation flow leading to the same estimate for Central London and rural Lincolnshire. Additionally the data underlying RR67 was collected over 20 years ago and traffic conditions may well have changed significantly in the meantime. Before using saturation flows calculated from geometry in LinSig it is advisable to obtain and read RR67 and satisfy yourself that the methodology used is acceptable.

It is good practice to consult the Local Authority Traffic Signals Department for a junction's location as most will have considerable local knowledge as to what constitutes an acceptable estimate of saturation flow for similar junctions in the area.

If you choose to use RR67 saturation flows please bear in mind that as queue predictions are very sensitive to inaccurate saturation flows, the possibly small differences between estimated and true saturation flows can lead to potentially much more significant differences between modelled and surveyed queues.

Given the above, the predicted modelling results shown in Table 8-1 are not accepted.

8.2.6 / Swept Path Drawing IPD-22-580-104 – The swept paths presented rely on alterations to the relocation of existing road markings with lane narrowing to Church Lane / Fish Dam Lane in order to accommodate the turning manoeuvres of the design vehicle and it is clear that the abrupt change in alignment of lane demarcation on Fish Dam Lane does not provide for the natural path of vehicle travelling in south – north direction. Furthermore the swept paths are based on optimum pathways with minimum offsets to kerb lines and road centre lines and does is considered does not provide adequate safe passage for vehicles turning within the junction and therefore not accepted.

In addition the RSA identified problem 4 as *"There is a risk that left-turning HGVs from Shaw Lane could potentially conflict with queuing traffic along Fish Dam Lane, resulting in them encroaching onto the footway at the southeastern corner and potentially conflicting with pedestrians. Such a manoeuvre may result in injury to pedestrians or a collision with waiting vehicles." And recommended that "It is recommended that the designer carries out swept path analysis to ensure that the HGV turning manoeuvre can be accommodated within the carriageway and without encroaching into the northbound lane of Fish Dam Lane."*

The designers response stated that Swept path analysis of an Articulated 16.5m vehicle has already been undertaken on this junction. The swept paths can be found under drawing ref: IPD-22-580-104 which shows the vehicle can manoeuvre around the junction adequately."

Furthermore it does not appear from the information provided that the Road safety Audit team were provided with the swept path drawings following the drafting of the Road Safety Audit report review / comment. consideration.

Given the comments above, the highways officers review of the swept paths indicate that the design does not provide adequate safe passage for vehicles turning within the junction and therefore not accepted.

Road Safety Audit and Designers Response

The Road Safety Audit was undertaken without BMBC having the opportunity to review the brief or for BMBC (particularly a rep from Traffic) be invited to attend the RSA. As "overseeing organisation" there should have been the opportunity to review the brief and as such request "maintaining agent" representatives to be present. It is also noted that no Traffic Signals specialist advisor was included in the RSA team.

The RSA identified problem 4 as *"There is a risk that left-turning HGVs from Shaw Lane could potentially conflict with queuing traffic along Fish Dam Lane, resulting in them encroaching onto the footway at the southeastern corner and potentially conflicting with pedestrians. Such a manoeuvre may result in injury to pedestrians or a collision with*

waiting vehicles." And recommended that "It is recommended that the designer carries out swept path analysis to ensure that the HGV turning manoeuvre can be accommodated within the carriageway and without encroaching into the northbound lane of Fish Dam Lane."

The designers response stated that Swept path analysis of an Articulated 16.5m vehicle has already been undertaken on this junction. The swept paths can be found under drawing ref: IPD-22-580-104 which shows the vehicle can manoeuvre around the junction adequately."

Furthermore it does not appear from the information provided that the Road safety Audit team were provided with the swept path drawings for review / comment following the drafting of the Road Safety Audit report.

Not included as an identified problem, but no mention of the intervisibility problems created by the brick walls at the Shaw Lane/Fish Dam Lane signalised junction even though these are specifically shown on the drawing.

DMRB Standard GG119 January 2019 does not refer to designers response report. The correct term is "Road safety audit response report"

Problem 1: Unacceptable response. It offers no solution and passes the decision to BMBC. The Designer should take ownership of their design and provide an appropriate response/solution and advise the client/Overseeing Organisation/BMBC on what a solution could be. This response does not do that. What they've basically said is that "we know our design is wrong and unsafe but it's all we could do"..... That's not acceptable.

Problem 4 – See comments above

Problem 5: Their response actually raises a further safety issue. - Firstly, if cyclists do not have provision on the southern side, why is a toucan crossing being provided i.e. where are cyclists crossing to and from (they need an immediate destination on both sides of the road). How are on carriageway cyclists proposed to transfer to/from the carriageway? No provision made.

Section 5 - Conclusion states Waterman Aspen have produced a RSA1 – it was actually Pell Frischmann

GENERAL: The report does not follow the recommended layout in GG119 Appendix F which allows for comments by the design organisation and the overseeing organisation

Table F.4 Road safety audit decision log

RSA problem	RSA recommendation	Design organisation response	Overseeing Organisation response	Agreed RSA action
Insert the original problem from the RSA report.	Insert the original recommendation from the RSA report.	Insert the design organisation's response.	Insert the Overseeing Organisation's response.	Insert the design organisation's and the Overseeing Organisation's agreed action to the problem.

Summary following review of the application:

- The application is not in accordance with the masterplan framework / delivery strategy covering this application site.
- HDC cannot conclude that the traffic generated by the proposed development would not have a material and detrimental impact on the local highway network when considered in isolation or cumulatively with committed development. The modelling / network assessment work undertaken includes errors and omissions and cannot be accepted by Highways Development Control.

- Due to the scope of the Transport Assessment not being agreed with BMBC prior to first submission it is requested that the requirements highlighted in the response above are taken into consideration as part of any further submission.

- The site access junction from Shaw Lane has not been designed in accordance with the design requirements of the South Yorkshire Residential Design Guide and gives rise to road safety concerns.
    - The design therefore cannot be accepted by Highways Development Control.

- The application has not demonstrated that foot and cycle links provide appropriate levels of sustainable access to and from the site. The links shown to the TPT cannot be fully achieved without land outside the applicants control. Walk distances to public transport far exceed the 400m walk distance guidelines. The proposed footway widening along Shaw Lane cannot be accepted as presented (lack of information and road safety concerns with carriageway narrowing). The proposed Toucan crossing is not acceptable as the site does not have cycle/footway provision on both sides of the road to facilitate a continuous route. Consideration must be given, particularly in relation to:
    - NPPF 110 which states that
    - appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location
    - in assessing specific applications for development, it should be ensured that safe and suitable access to the site can be achieved for all users
    - NPPF 112 which states that applications for development should:
    - give priority first to pedestrian and cycle movements, both within the scheme and within neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
    - address the needs of people with disabilities and reduced mobility in relation to all modes of transport

- The proposed design of the offsite highway works for the Church Lane / Shaw Lane / Fish Dam Lane has been assessed and in its current form the design is not acceptable and gives rise to road safety concerns.

- The Road Safety Audit undertaken did not include all changes to the highway network and was undertaken without BMBC having the opportunity to review the brief or for BMBC (particularly a rep from Traffic) be invited to attend the audit. Furthermore it does not appear from the information provided that the Road Safety Audit team were provided with the swept path drawings for review / comment before or following drafting of the Road Safety Audit report.

In light of the above, Highways Development Control cannot support the application and recommend refusal.

Kind Regards

Wayne

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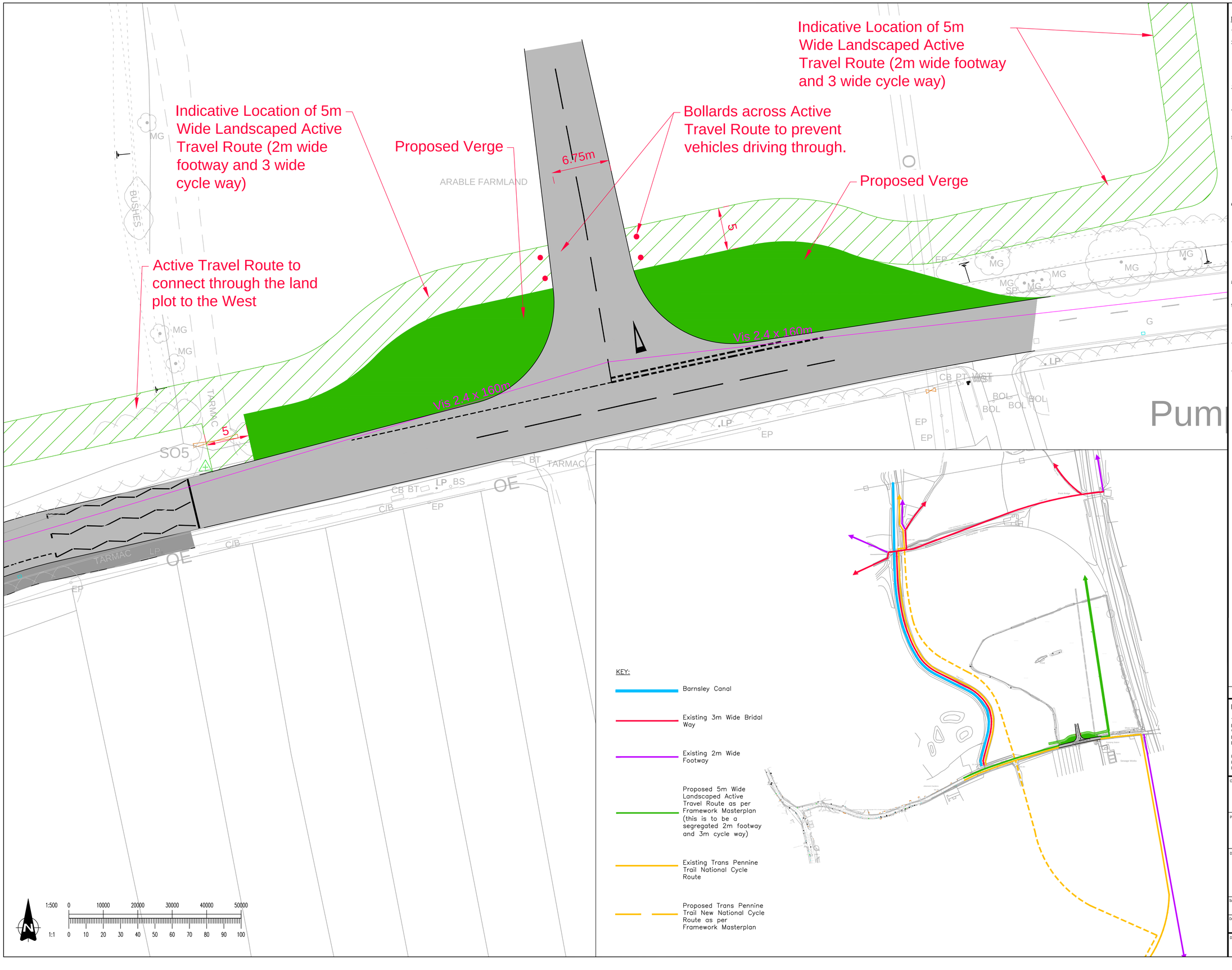
*Sat Nav reference: S70 2DR

Appendix 4 Proposed Site Access Drawings



NOTES:

1. Do not scale from this drawing.
2. The Works shall be constructed in accordance with the current edition of the Department for Transport 'Specification for Highway Works'. All clauses referred to relate to this document. Further to this document the Contractor shall also construct the Works in accordance with Barnsley Metropolitan Borough Council requirements.
3. All IPaD drawings should also be read in conjunction with any drawings produced by third parties connected with this project.
4. The extent of works shown may be extended as required to accommodate traffic management measures, permanent or temporary traffic signs, and permanent or temporary road markings.
5. All works within existing Public Highway, including any temporary works or traffic management measures, are subject to the approval of BMBC. When works are required on the Public Highway, the Contractor shall liaise with and obtain all Statutory Approvals from Barnsley Metropolitan Borough Council, before commencing these works. These approvals include, but are not limited to, approval of traffic management measures, issue of works commencement notices, road opening notices, temporary traffic regulation orders etc.
6. All traffic management shall comply with the requirements as set out in Chapter 8 of the Traffic Signs Manual. Warning signs may be erected outside the indicated boundaries. Any obstructions to traffic or pedestrians shall be properly signed and protected with barriers, cones, signs, and lamps.
7. Roads and Footways to be adopted under Section 278 of the Highways Act 1980 shall comply with the Barnsley Metropolitan Borough Council Highway Design Guidelines for New Developments and be in accordance with the National Highways Design Manual for Roads and Bridges.
8. Highway drains to be adopted under Section 278 of the Highways Act 1980 shall comply with the Water UK Guide "Sewers for Adoption 6th Edition".
9. ALL PLANTING in visibility splays to be agreed and approved by the Engineer and in all cases NO planting to be above 600mm in height above the carriageway. Also NO obstructions of any kind within the visibility splay areas, and thereafter as a permanent measure.
10. The Developer to provide road markings and signs to Barnsley Metropolitan Borough Council for approval. All road markings to be in accordance with Traffic Signs Manual Chapter 5.
11. Street lighting design to be provided by 3rd Party.

KEY:

- Proposed Carriageways
- Proposed Footways
- Indicative Location of Active Travel Route
- Verge

XREFS LOADED INTO THIS DRAWING

IPD- Existing and proposed public right of way
IPD- Site Access 1
Shaw Lane TOPO 2D- 06.12.22
IPD- Shaw Lane Pedestrian Footway Improvements 1
Shaw lane site OS

Rev.	Date	Description	Drawn	Approved
A	20.09.23	Flares added onto the junction arms	BO	RNP

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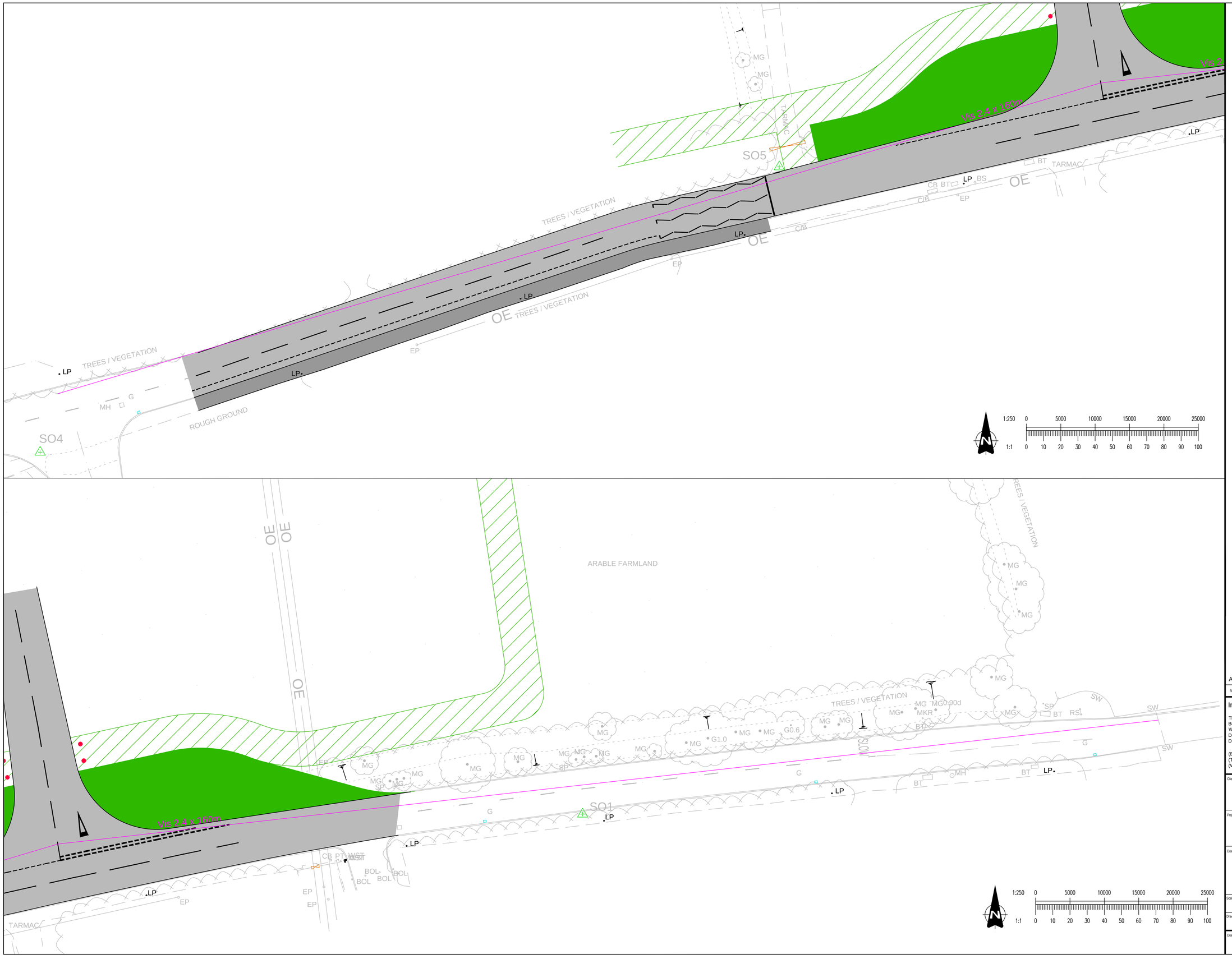
Client: NETWORK SPACE

Project title: SHAW LANE CARLTON

Drawing title: SITE ACCESS

Scale	Original drg. size	Date
1:500	A1	05.01.2023
Drawn: BO	Checked: SEF	Approved: RNP

Drawing Number: IPD-22-580-100 | Rev: A



XREFS LOADED INTO THIS DRAWING

IPD- Site Access 1

Shaw Lane TOPO 2D- 06.12.22

IPD- Shaw Lane Pedestrian Footway Improvements 1

Rev.	Date	Description	Drawn	Approved
A	20.09.23	Drawing updated with latest site access design.	BO	RNP

Infrastructure Planning and Design

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Client

NETWORK SPACE

Project title

SHAW LANE
CARLTON

Drawing title

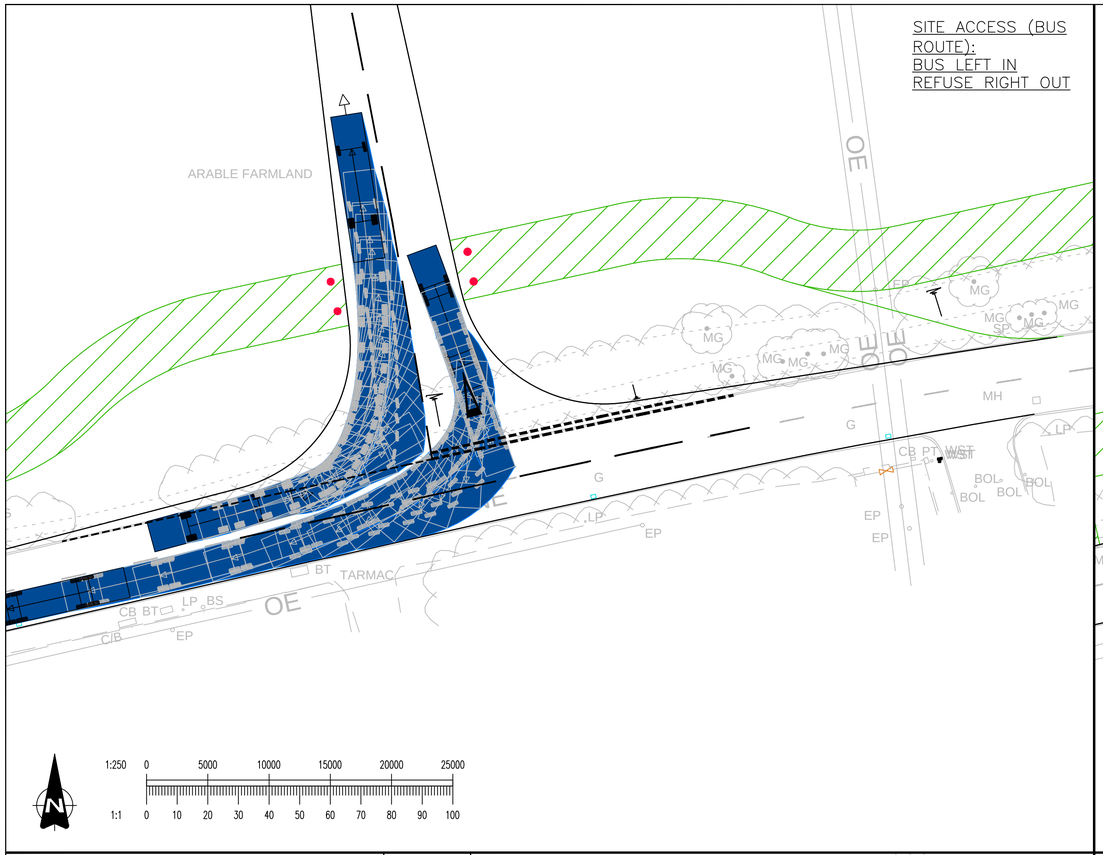
SITE ACCESS
VISIBILITY SPLAY

Scale	Original drg. size	Date
1:250	A1	05.01.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number	Rev
IPD-22-580-101	A

Appendix 5 Access Tracking Plans

SITE ACCESS (BUS ROUTE):
BUS LEFT IN
REFUSE RIGHT OUT



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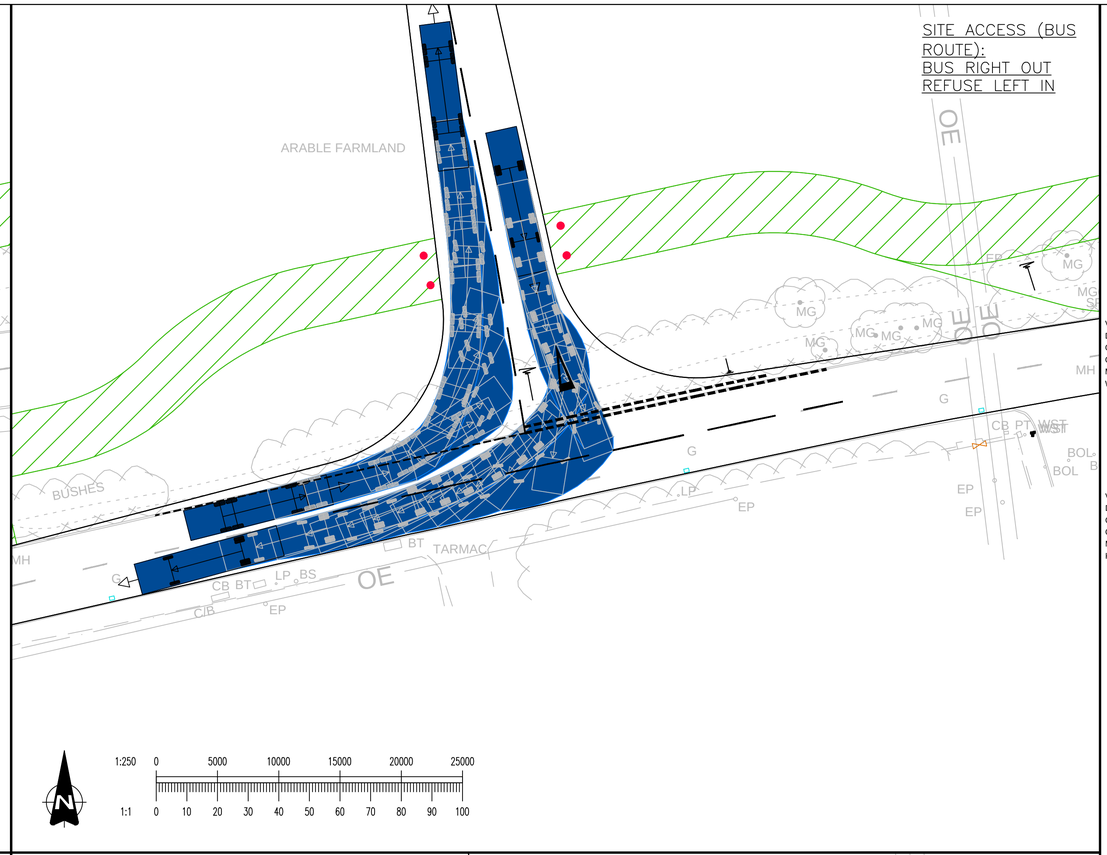
SITE ACCESS (BUS ROUTE):
BUS RIGHT OUT
REFUSE LEFT IN



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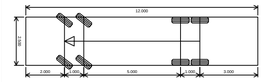
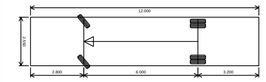
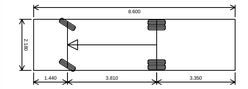


Vehicle name	12m Refuse Vehicle
Description	12m Refuse Vehicle
Overall length (m)	12.000
Overall width (m)	2.500
Maximum track width (m)	2.470
Kerb to kerb radius (m)	11.000

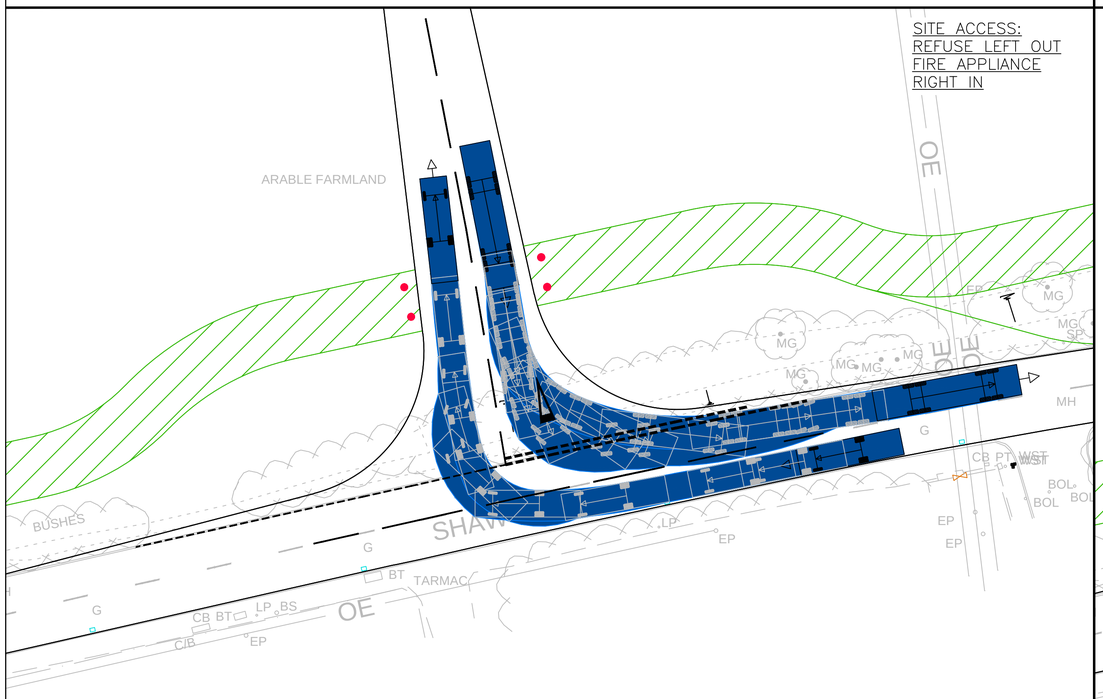


Vehicle name	Standard Rigid Bus
Description	TfL Accessible Bus Stop Design Guidance
Overall length (m)	12.000
Overall width (m)	2.550
Maximum track width (m)	2.350
Wall to wall radius (m)	10.771



Vehicle name	Fire Appliance
Description	Design Bulletin 32
Overall length (m)	8.600
Overall width (m)	2.180
Maximum track width (m)	2.121
Kerb to kerb radius (m)	7.910

SITE ACCESS:
REFUSE LEFT OUT
FIRE APPLIANCE
RIGHT IN



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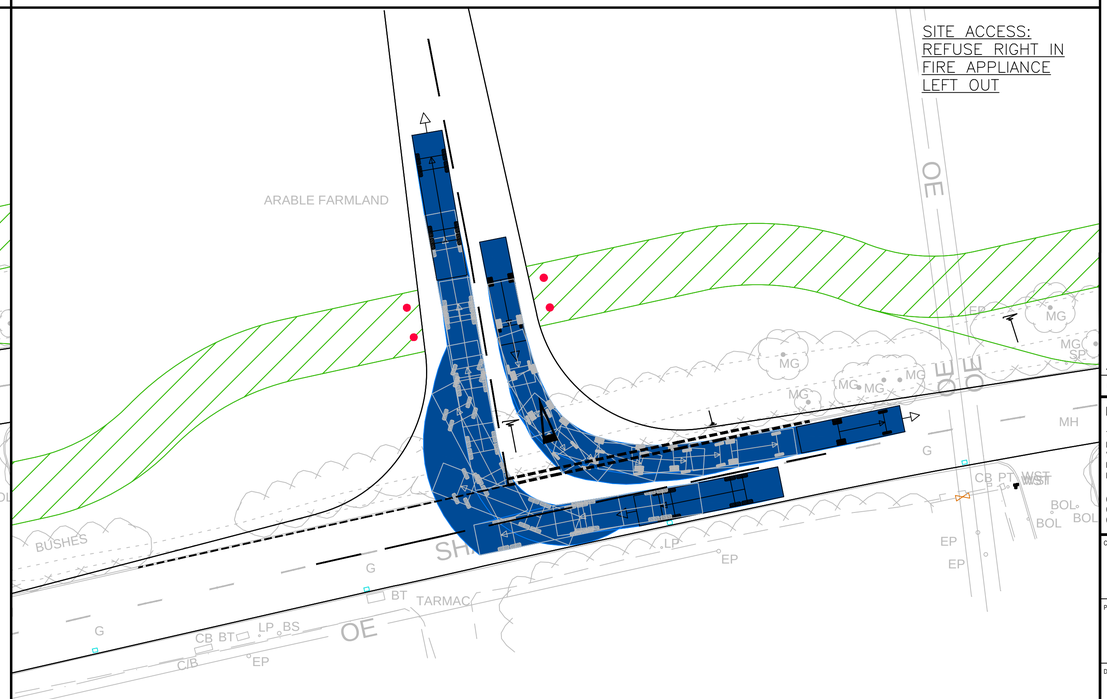
1:1 0 10 20 30 40 50 60 70 80 90 100

SITE ACCESS:
REFUSE RIGHT IN
FIRE APPLIANCE
LEFT OUT



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XREFS LOADED INTO THIS DRAWING

IPD- Autotracks 1

IPD- Site Access 1

Shaw Lane TOPO 2D- 06.12.22

Rev.	Date	Description	Drawn	Approved
A	20.09.23	Autotracks amended to suit latest layout. Tracks done with 0.5m offset from kerb line	BO	RNP

Infrastructure Planning and Design

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Client: NETWORK SPACE

Project title: SHAW LANE CARLTON

Drawing title: SITE ACCESS AUTOTRACKS

Scale	Original drg. size	Date
1:250	A1	05.01.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number	Rev
IPD-22-580-102	A

Appendix 6 Road Safety Audit and Designers Response

Pell Frischmann

Land off Shaw Lane, Carlton, Barnsley

Associated Highway Improvements – Stage 1 Road Safety Audit

February 2023

Report Ref.	**102107-PEF-XX-XX-RP-D-000001**
File Path	**\\RSBGUKFS01\WAKEngineer\data\102107 - Shaw Lane, Barnsley\Road Safety Audit\102107-PEF-XX-XX-RP-D-000001 Stage 1 RSA.docx**

Rev	Suit	Description	Date	Originator	Checker	Approver
C01	A2	Final	15 Feb 2023	D Spaul	U Khan	D Spaul

Ref. reference. Rev revision. Suit suitability.

Prepared for

Network Space

Centrix House
Crow Lane East
Newton-le-willows
WA12 9UY

Prepared by

Pell Frischmann

G37B Trinity Walk
Market Walk
Wakefield
WF1 1QR

Contents

Figures

Executive Summary	
Site Name	Land off Shaw Lane, Carlton, Barnsley
Location	Shaw Lane, Carlton, Barnsley
Summary	This report presents the result of a Stage 1 Road Safety Audit carried out on highway improvement works to accommodate a new development

1 Introduction

This report results from a Stage 1 Road Safety Audit of proposed highway improvements provided as part of a proposed residential development located to the north of Shaw Lane, Carlton, Barnsley.

The Audit Team membership was as follows:

- David Spaul, an Associate employed by Pell Frischmann at Wakefield (Team Leader); and
- Usman Khan, a Senior Transport Planner employed by Pell Frischmann at Wakefield.

The Audit took place during February 2023. The Audit comprised an examination of documents provided by the Designer, which are listed in Appendix A. The Audit team also visited the site between 10.35am and 11.45am on Tuesday 14 February 2023. The weather was dry and misty with hazy sunshine. The road surface was slightly damp.

The terms of reference of the audit are as described in the Design Manual for Roads and Bridges GG 119 'Road Safety Audit' document. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. Any audit comments should not be construed as implying that a technical audit has been undertaken in any respect.

Any problem that has been identified is described in section 2 of this report and in each case a recommendation is given. The location of each problem is shown in Appendix B.

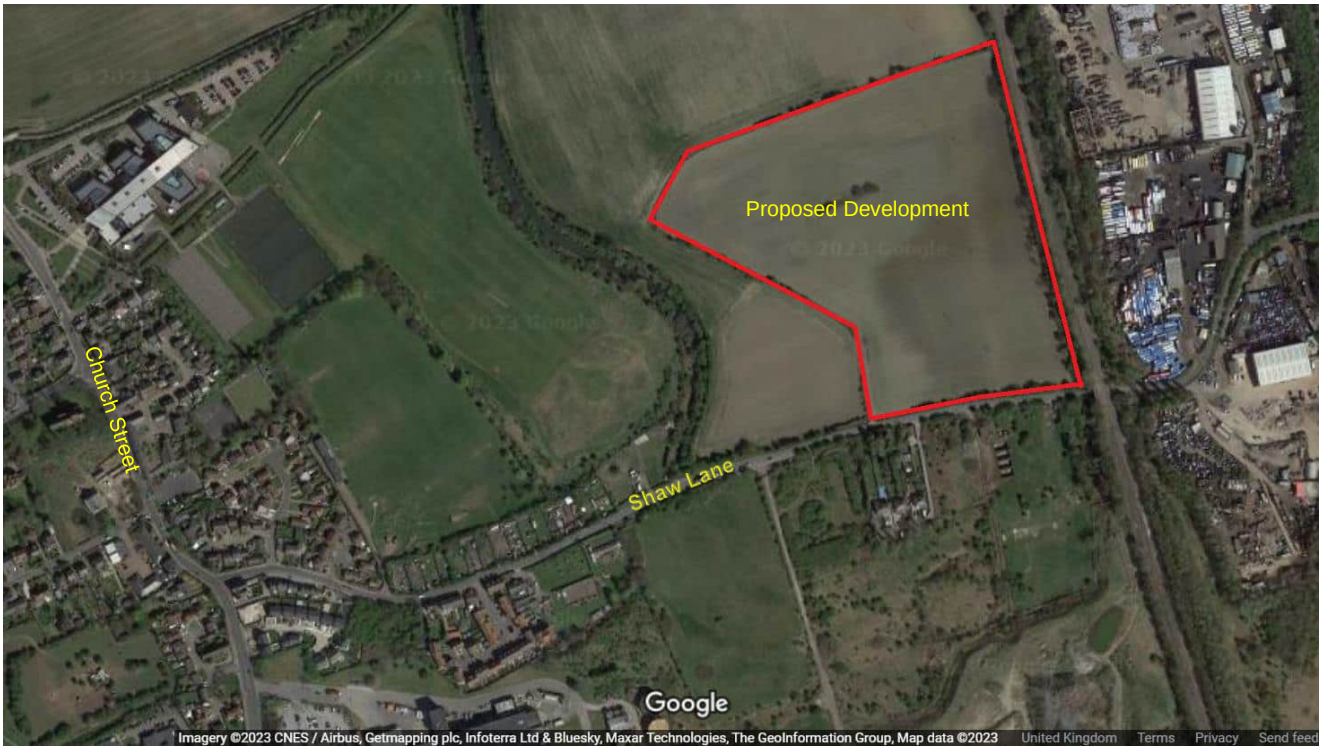


Figure 1 Site Location with indicative boundary shown in red

The development proposals comprise of approximately 215 residential dwellings with access by means of a new priority junction located on Shaw Lane. The proposals include a new vehicular access and an internal access road. The new road would act as the first phase of a future link road between Shaw Lane and Royston Lane (to the west of the development site) to be constructed in accordance with the adopted Carlton Masterplan Framework. The proposals will also include pedestrian footways and improvements to the junction of Shaw Lane with Church Street and Fish Dam Lane (west of the development site) in order to mitigate against any potential impact of the new development.

The scope of this Road Safety Audit is restricted to the following highway improvement proposals resulting from this development:

- Proposed signalisation of the existing priority junction of Shaw Lane with Church Street and Fish Dam Lane; and
- Proposed new priority 'T' junction on Shaw Lane and associated toucan crossing, providing access to the new development. The toucan crossing is some 40 metres to the west of the new junction.

2 Items raised at this Stage 1 Road Safety Audit

2.1 Problem 1

Location: Junction of Shaw Lane, Church Street & Fish Dam Lane

Summary: The controlled crossing on the north side of the junction conflicts with a private driveway

It is proposed to signalise the existing priority junction where Shaw Lane meets Church Street and Fish Dam Lane. The proposal includes controlled pedestrian crossings on Shaw Lane and Church Street to the east and north side of the junction respectively. On the western side of the junction is a private driveway. The western end of the pedestrian crossing on Church Street will result in the red blister tactile paving being laid within the width of the vehicular crossing across the footway. This will result in a risk to waiting or crossing pedestrians being struck by a vehicle emerging from, or turning into, the driveway. The associated signal pole, supporting the push button and pedestrian indicator, will restrict vehicular access to the driveway making access more hazardous, resulting in the manoeuvre to and from the driveway taking longer and increasing the risk of a sideswipe collision with passing vehicles.

Figure 2 Driveway emerging into junction

Recommendation

It is recommended that the location and orientation of the controlled crossing of Church Street is amended to avoid any conflict with the driveway.

2.2 Problem 2

Location: Junction of Shaw Lane, Church Street & Fish Dam Lane

Summary: Vehicles emerging from the driveway into the junction not under signal control

It is proposed to signalise the existing priority junction where Shaw Lane meets Church Street and Fish Dam Lane. On the western side of the junction is a private driveway. The driveway emerges onto the junction with vehicles from the driveway not being under signal control, as a result vehicles may potentially enter the junction at any time. As such, there is a potential conflict with traffic moving through the junction on a green signal or

pedestrians crossing on a green signal resulting in a sideswipe collision or a pedestrian being struck on the crossing.

Recommendation

It is assumed that even if regular users of the driveway may be familiar with the new layout, visitors and deliveries may not be. Use of the driveway is unlikely to require a separate signal. To mitigate risks between an emerging vehicle and others passing through the junction it will be beneficial if the emerging driver can view the signals to choose an appropriate time to enter the junction. It is therefore recommended that far-sided secondary signals are provided which can be also viewed by a driver emerging from the driveway.

2.3 Problem 3

Location: Junction of Shaw Lane, Church Street & Fish Dam Lane

Summary: Stop lines appear to be too close to the controlled crossings

The drawing appears to show the stop lines at the signal-controlled crossing to be too close to the controlled crossing. The proximity of the stop line to the crossing will increase the risk to pedestrians using the crossing of being struck by a vehicle should the driver brake late and over run the stop line on a red signal.

Recommendation

The risk of a pedestrian being struck by a late braking vehicle will be reduced if the stop line is moved further in advance of the crossing. The Traffic Signs Manual (Chapter 6, para 18.1.5) states the stop line must be placed a minimum of 1.7m and normally not more than 3m from the studs (refer to the controlled zone layout in Schedule 14, Part 2, Item 51 of the Traffic Signs Regulations and General Directions 2016). In addition, para 4.2.2 (chapter 6) also states that the stop line should be at least 1.5m in advance of the nearside primary signal, although 2.5m is preferable. It is recommended that the stop line is relocated further from the crossing.

2.4 Problem 4

Location: Junction of Shaw Lane, Church Street & Fish Dam Lane

Summary: HGVs turning left from Shaw Lane may over run the footway to avoid queuing traffic at signals

There is a risk that left-turning HGVs from Shaw Lane could potentially conflict with queuing traffic along Fish Dam Lane, resulting in them encroaching onto the footway at the south-eastern corner and potentially conflicting with pedestrians. Such a manoeuvre may result in injury to pedestrians or a collision with waiting vehicles.

Recommendation

It is recommended that the designer carries out swept path analysis to ensure that the HGV turning manoeuvre can be accommodated within the carriageway and without encroaching into the northbound lane of Fish Dam Lane.

2.5 Problem 5

Location: Shaw Lane west of development access – proposed toucan crossing

Summary: The use of the southern footway by cyclists may lead to conflict with pedestrians

A Toucan crossing is being provided to the west of the proposed site access junction. This will provide a crossing for pedestrians and cyclists from the site to cross onto the southern footway along Shaw Lane. To the west of the toucan crossing the footway width reduces to as little as 700mm measured on site. This footway is insufficiently wide enough to accommodate both users without the potential for collisions between them.

Figure 3 Shaw Lane footway narrowing to 700mm wide west of the proposed toucan crossing

Recommendation

It is recommended that the designer review the route for cyclists to and from the western side of the proposed development.

3 Audit Team Statement

We certify that this Road Safety Audit has been carried out in accordance with GG 119.

AUDIT TEAM LEADER

David Spaul, Associate

Pell Frischmann, G37B Trinity Walk, Market Walk, Wakefield WF1 1QR

Signed:

Dated: 15/02/2023

AUDIT TEAM MEMBER

Usman Khan, Senior Transport Planner

Pell Frischmann, G37B Trinity Walk, Market Walk, Wakefield WF1 1QR

Signed:

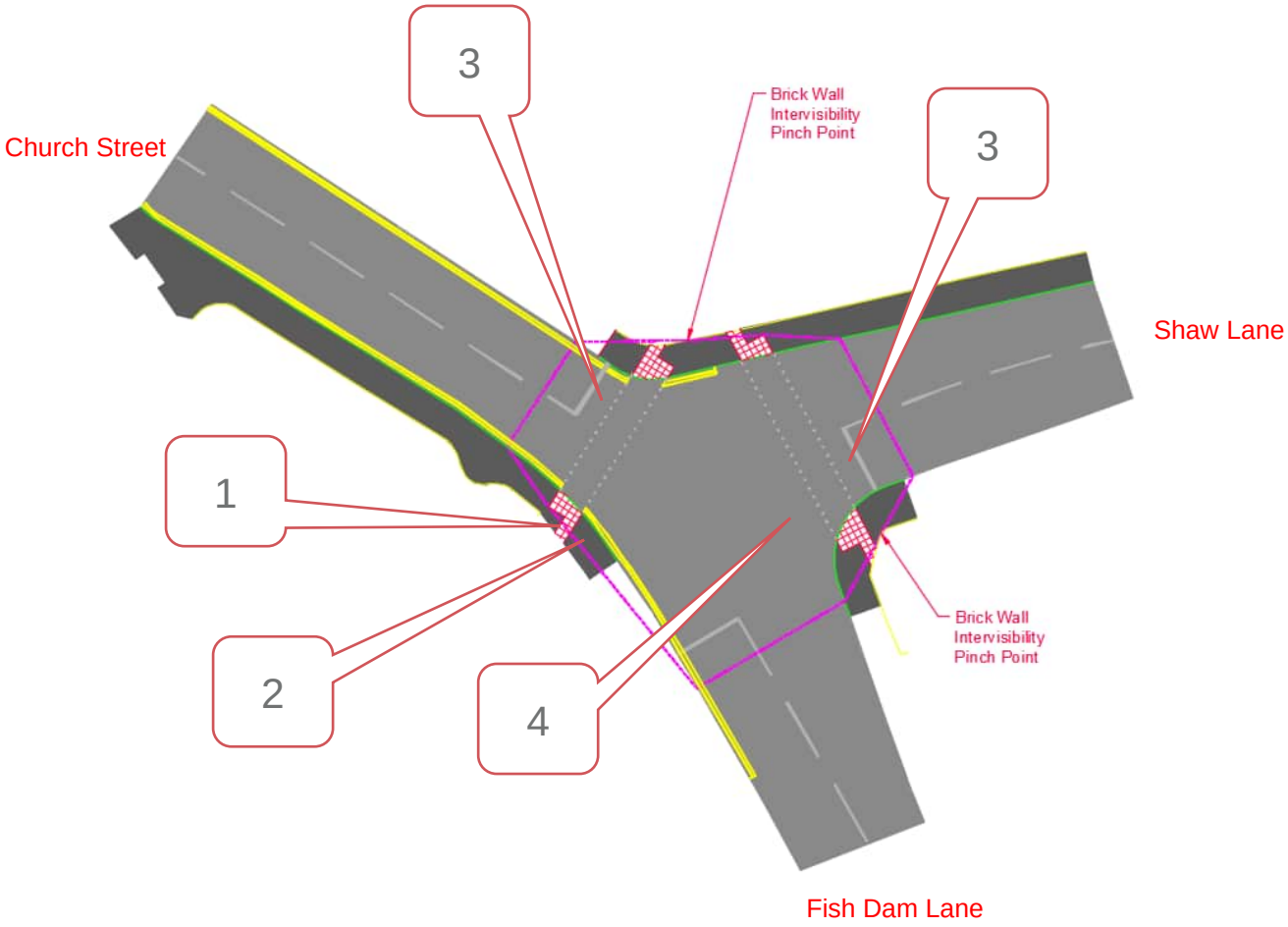
Dated: 15/02/2023

Appendix A Schedule of documents

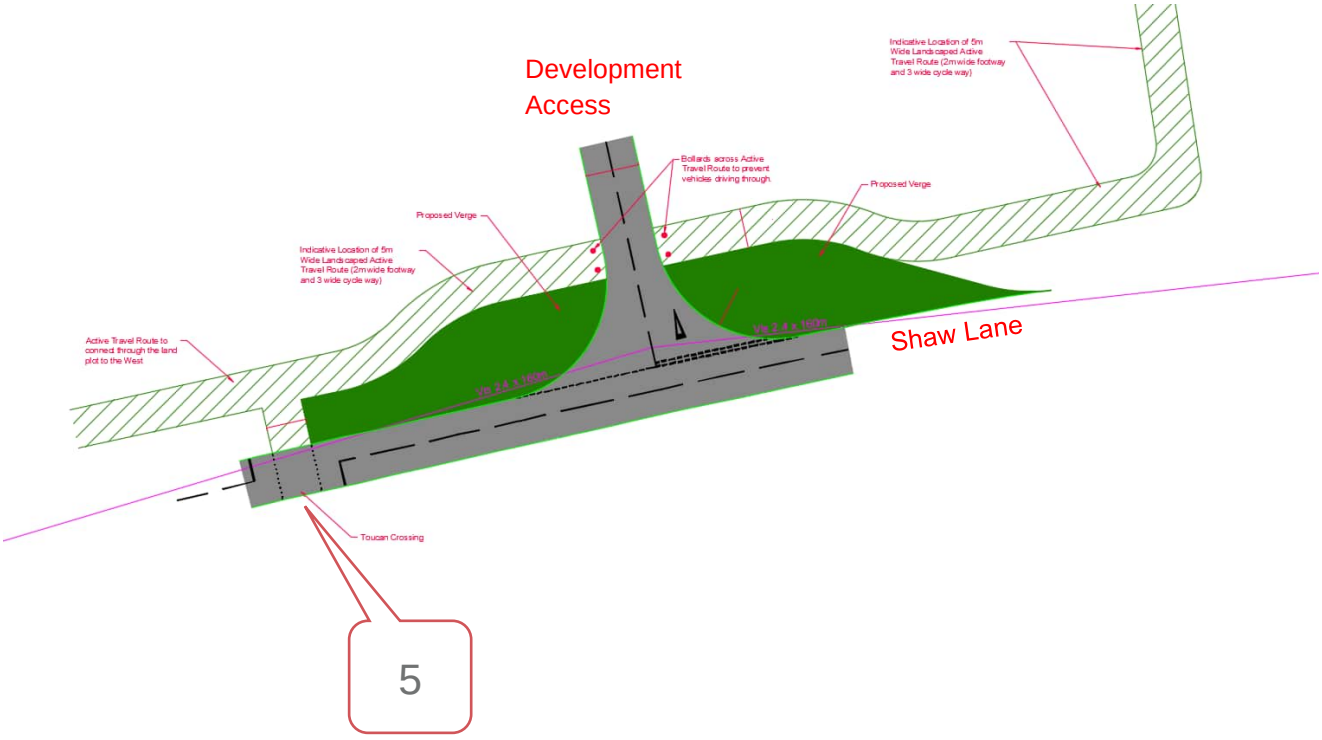
IPD- Signal Junction Design	DWG file dated 06/02/2023 10:52
IPD- Site Access	DWG file dated 06/02/2023 10:51
102107-PEF-XX-XX-T-000001	Land at Shaw Lane Updated Transport Assessment Revision P01 dated 01/02/2023

Appendix B Problem Location Plans

Proposed Shaw Lane signalised junction with Church Street and Fish Dam Lane



Proposed development access off Shaw Lane



IPD-22-580 – SHAW LANE, CARLTON, BARNSLEY.

ROAD SAFETY AUDIT – STAGE ONE DESIGNER'S RESPONSE REPORT.

Client
Network Space Centrix House Crow Lane East Newton-le-Willows WA12 9UY

IPD-22-580 – SHAW LANE, CARLTON, BARNSLEY.

ROAD SAFETY AUDIT – STAGE ONE DESIGNER'S RESPONSE REPORT.

Project Information
Infrastructure Planning and Design Ltd. The Hayloft Barn Borough Hill Farm Walton-on-Trent Derbyshire DE12 8LL Tel: 01283 716869 Mob: info@ipd-ltd.com

Job No.	IPD-22-580
Report No.	R.001
Prepared By	BO / SEF
Checked By	CLP
Approved By	RNP
Status	FINAL
Issue No.	-
Date	16.02.2023

1 Introduction

1.1 This report is the highway designer's response for the Stage 1 Road Safety Audit (RSA1) in relation to the proposed highway improvements provided as part of the Land of Shaw Lane, Carlton, Barnsley proposals. The scope of the RSA1 included the proposed new priority T-Junction on Shaw Lane and a proposed signalisation of the existing priority junction on Shaw Lane/ Church Street/Fish Dam Lane. The RSA1 was undertaken by Pell Frischmann on Tuesday 14th February 2023.

1.2 The format of this report will be as follows:

In Section 2 of this report, the design team have listed problems and recommendations in the safety audit and followed them with a designers' response. Generally, these actions will either be:

- Accept the recommendation of the auditor and make changes accordingly.
- Accept the issue raised by the auditor but offer an alternative design solution to that of the Auditor's recommendation.
- Disagree with the auditors comments.

1.3 The information and comments contained in this report will also be retained and regularly revisited during the design process.

2 Matters Arising from Previous Audits

2.1 No previous audits have been undertaken to date.

3 Matters Arising from the Stage 1 Road Safety Audit

Location: Junction of Shaw Lane, Church Street and Fish Dam Lane

Problem Summary: The controlled crossing on the north side of the junction conflicts with a private driveway.

3.1 *PROBLEM 1- "*It is proposed to signalise the existing priority junction where Shaw Lane meets Church Street and Fish Dam Lane. The proposal includes controlled pedestrian crossings on Shaw Lane and Church Street to the east and north side of the junction respectively. On the western side of the junction is a private driveway. The western end of the pedestrian crossing on Church Street will result in the red blister tactile paving being laid within the width of the vehicular crossing across the footway. This will result in a risk to waiting or crossing pedestrians being struck by a vehicle emerging from, or turning into, the driveway. The associated signal pole, supporting the push button and pedestrian indicator, will restrict vehicular access to the driveway making access more hazardous, resulting in the manoeuvre to and from the driveway taking longer and increasing the risk of a sideswipe collision with passing vehicles*."*

Recommendation

*"*It is recommended that the location and orientation of the controlled crossing of Church Street is amended to avoid any conflict with the driveway*."*

Designer's Response

Due to the very tight constraints of the junction visibility splay, and the walls at the rear of highway land, inserting a signal junction with two crossings is complex. To enable the design to continue to retain two crossings, (and avoid the drive crossing – not shown on topo) the design would need to deviate away from the design standards and have the crossing positioned not parallel to the stop line. (If this acceptable to Barnsley Council). If not this cross would need to be removed.

Location: Junction of Shaw Lane, Church Street and Fish Dam Lane

Problem Summary: Vehicles emerging from the driveway into the junction not under signal control

3.2 *PROBLEM 2- "*It is proposed to signalise the existing priority junction where Shaw Lane meets Church Street and Fish Dam Lane. On the western side of the junction is a private driveway. The driveway emerges onto the junction with vehicles from the driveway not being under signal control, as a result vehicles may potentially enter the junction at any time. As such, there is a potential conflict with traffic moving through the junction on a green signal or pedestrians crossing on a green signal resulting in a sideswipe collision or a pedestrian being struck on the crossing*."*

Recommendation

*"*Recommendation It is assumed that even if regular users of the driveway may be familiar with the new layout, visitors and deliveries may not be. Use of the driveway is unlikely to require a separate signal. To mitigate risks between an emerging vehicle and others passing through the junction it will be beneficial if the emerging driver can view the signals to choose an appropriate time to enter the junction. It is therefore recommended that far-sided secondary signals are provided which can be also viewed by a driver emerging from the driveway*."*

Designer's Response

Agreed, this will be incorporated in the next iteration of the design.

Location: Junction of Shaw Lane, Church Street and Fish Dam Lane

Problem Summary: Stop Lines appear to close to controlled crossings

3.3 *PROBLEM 3- "*The drawing appears to show the stop lines at the signal-controlled crossing to be too close to the controlled crossing. The proximity of the stop line to the crossing will increase the risk to pedestrians using the crossing of being struck by a vehicle should the driver brake late and over run the stop line on a red signal*."*

Recommendation

*"*The risk of a pedestrian being struck by a late braking vehicle will be reduced if the stop line is moved further in advance of the crossing. The Traffic Signs Manual (Chapter 6, para 18.1.5) states the stop line must be placed a minimum of 1.7m and normally not more than 3m from the studs (refer to the controlled zone layout in Schedule 14, Part 2, Item 51 of the Traffic Signs Regulations and General Directions 2016). In addition, para 4.2.2 (chapter 6) also states that the stop line should be at least 1.5m in advance of the nearside primary signal, although 2.5m is preferable. It is recommended that the stop line is relocated further from the crossing*."*

Designer's Response

The crossing have been shown 1.7m from the stop line, this meets standard.

Location: Junction of Shaw Lane, Church Street and Fish Dam Lane

Problem Summary: HGV's turning left from Shaw Lane may over run the footway to avoid queuing traffic at signals

3.4 *PROBLEM 4- "*There is a risk that left-turning HGVs from Shaw Lane could potentially conflict with queuing traffic along Fish Dam Lane, resulting in them encroaching onto the footway at the south-eastern corner and potentially conflicting with pedestrians. Such a manoeuvre may result in injury to pedestrians or a collision with waiting vehicles*."*

Recommendation

*"*It is recommended that the designer carries out swept path analysis to ensure that the HGV turning manoeuvre can be accommodated within the carriageway and without encroaching into the northbound lane of Fish Dam Lane*."*

Designer's Response

"Swepth path analysis of an Articulated 16.5m vehicle has already been undertaken on this junction. The swepth paths can be found under drawing ref: IPD-22-580-104 which shows the vehicle can manoeuvre around the junction adequately."

Location: Shaw Lane west of development access- proposed toucan crossing

Problem Summary: The use of the southern footway by cyclists may lead to conflict with pedestrians

3.5 *PROBLEM 5- "*A Toucan crossing is being provided to the west of the proposed site access junction. This will provide a crossing for pedestrians and cyclists from the site to cross onto the southern footway along Shaw Lane. To the west of the toucan crossing the footway width reduces to as little as 700mm measured on site. This footway is insufficiently wide enough to accommodate both users without the potential for collisions between them*."*

Recommendation

*"*It is recommended that the designer review the route for cyclists to and from the western side of the proposed development*."*

Designer's Response

"Footway improvements are being proposed along the whole stretch of Shaw Lane, from the new priority T-Junction to the Shaw Lane/Church Street/ Fish Dam Lane Junction to the west. The improvements include widening of the footway to a minimum of 2m along the whole southern side of Shaw Lane. The improvements can be seen on drawing ref: IPD-22-580-105, IPD-22-580-106 and IPD-22-580-107." Cyclists will not be able to ride on the footway and must use the carriageway.

4 General Comments

No general comments have been raised by the Audit Team.

5 Conclusions

5.1 Waterman Aspen has produced a Stage 1 Road Safety Audit for the Proposed Development at Shaw Lane, Carlton, Barnsley.

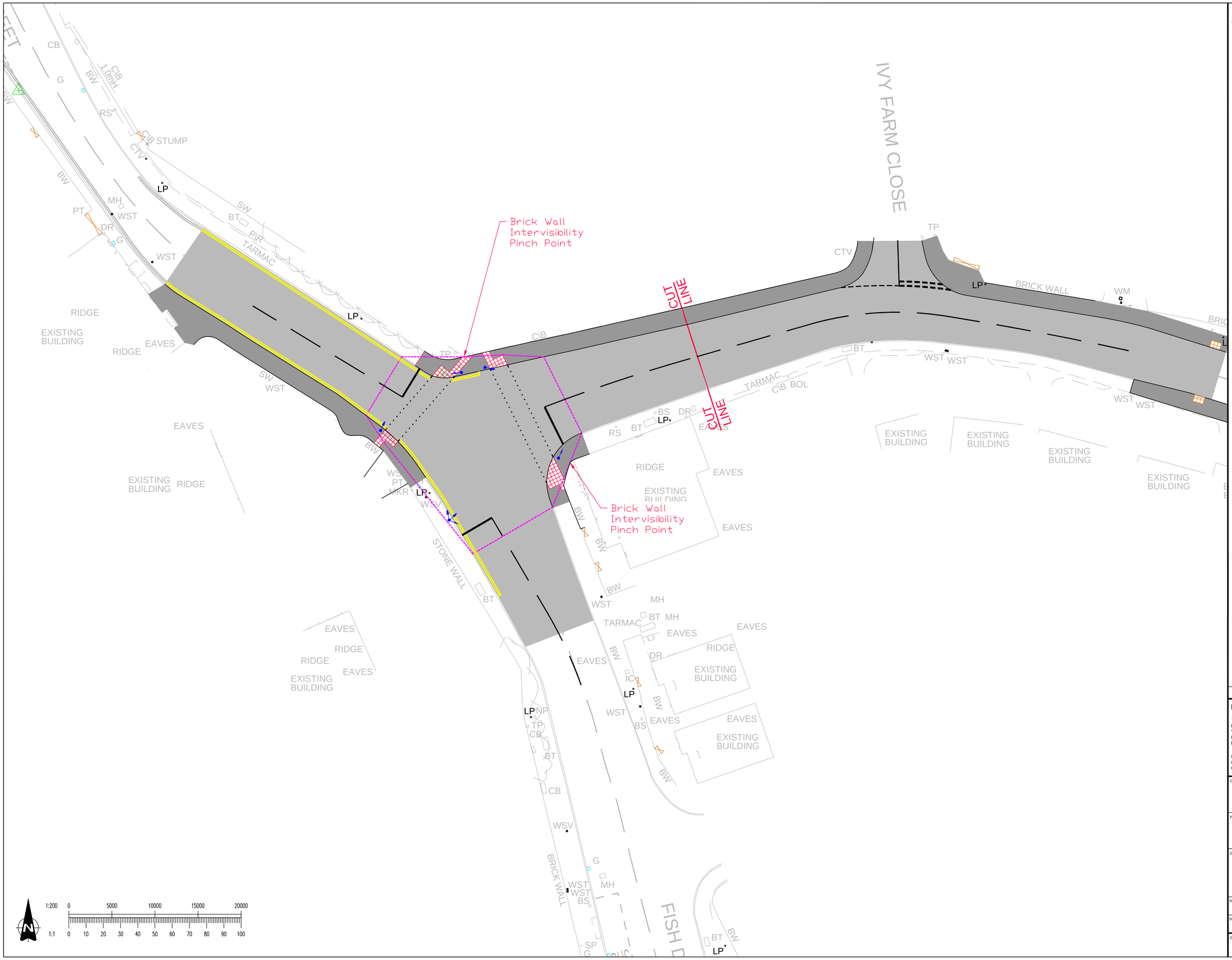
5.2 Infrastructure Planning and Design, as designers, has subsequently produced this Designer's Response to the RSA findings.

5.3 The RSA notes were split into 2 sections to reflect specific and general comments

5.4 The designer's comments took one of two formats:

- Accept the recommendation of the auditor and make changes accordingly.
- Provide additional information to elaborate on the auditors' comments.

Appendix 7 Signalisation Latest Plans



NOTES:

1. Do not scale from this drawing.
2. The Works shall be constructed in accordance with the current edition of the Department for Transport "Specification for Highway Works". All clauses referred to relate to this document. Further to this document the Contractor shall also construct the Works in accordance with Barnsley Metropolitan Borough Council requirements.
3. All iPaD drawings should also be read in conjunction with any drawings produced by third parties connected with this project.
4. The extent of works shown may be extended as required to accommodate traffic management measures, permanent or temporary traffic signs, and permanent or temporary road markings.
5. All works within existing Public Highway, including any temporary works or traffic management measures, are subject to the approval of BMBC. When works are required on the Public Highway, the Contractor shall liaise with and obtain all Statutory Approvals from Barnsley Metropolitan Borough Council, before commencing these works. These approvals include, but are not limited to, approval of traffic management measures, issue of works commencement notices, road opening notices, temporary traffic regulation orders etc.
6. All traffic management shall comply with the requirements as set out in Chapter 8 of the Traffic Signs Manual. Warning signs may be erected outside the indicated boundaries. Any obstructions to traffic or pedestrians shall be properly signed and protected with barriers, cones, signs, and lamps.
7. Roads and Footways to be adopted under Section 278 of the Highways Act 1980 shall comply with the Barnsley Metropolitan Borough Council Highway Design Guidelines for New Developments and be in accordance with the National Highways Design Manual for Roads and Bridges.
8. Highway drains to be adopted under Section 278 of the Highways Act 1980 shall comply with the Water UK Guide "Sewers for Adoption 6th Edition".
9. ALL PLANTING in visibility splays to be agreed and approved by the Engineer and in all cases NO planting to be above 600mm in height above the carriageway. Also NO obstructions of any kind within the visibility splay areas, and thereafter as a permanent measure.
10. The Developer to provide road markings and signs to Barnsley Metropolitan Borough Council for approval. All road markings to be in accordance with Traffic Signs Manual Chapter 5.
11. Street lighting design to be provided by 3rd Party.

KEY:

Proposed Carriageways

Proposed Footways

XREFS LOADED INTO THIS DRAWING

IPD- Signal Junction Design 1

Shaw Lane TOPO 2D- 06.12.22

IPD- shaw lane pedestrian footway improvment 1

Rev.	Date	Description	Drawn	Approved
A	20.09.23	Tactile crossing moved from driveway. White lining amended to give more room for turning HGVs. Kerbs amended.	BO	RNP

Infrastructure Planning and Design

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Client: NETWORK SPACE

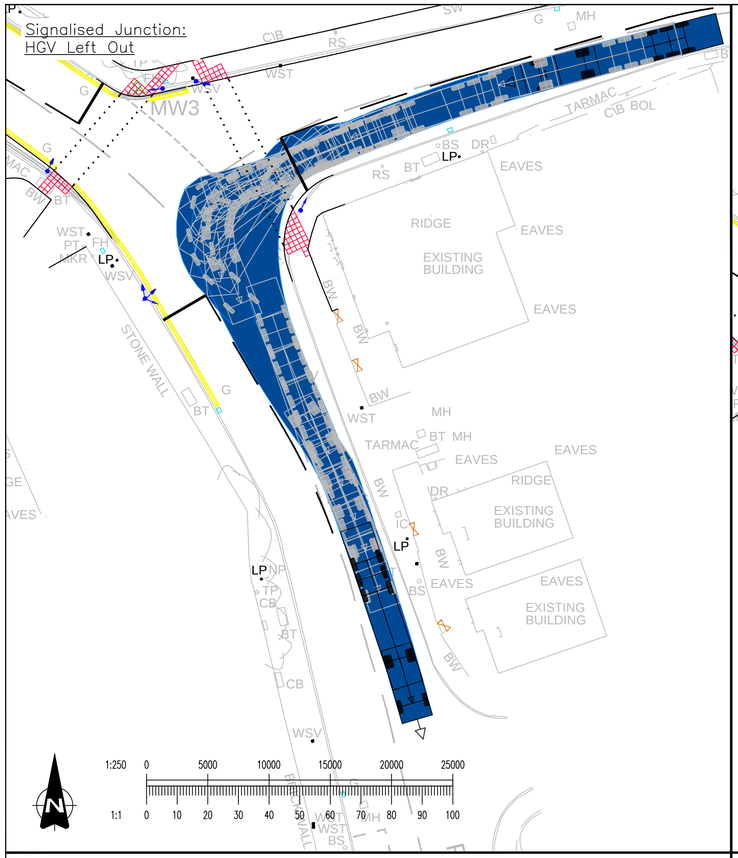
Project title: SHAW LANE CARLTON

Drawing title: SHAW LANE SIGNALISED JUNCTION

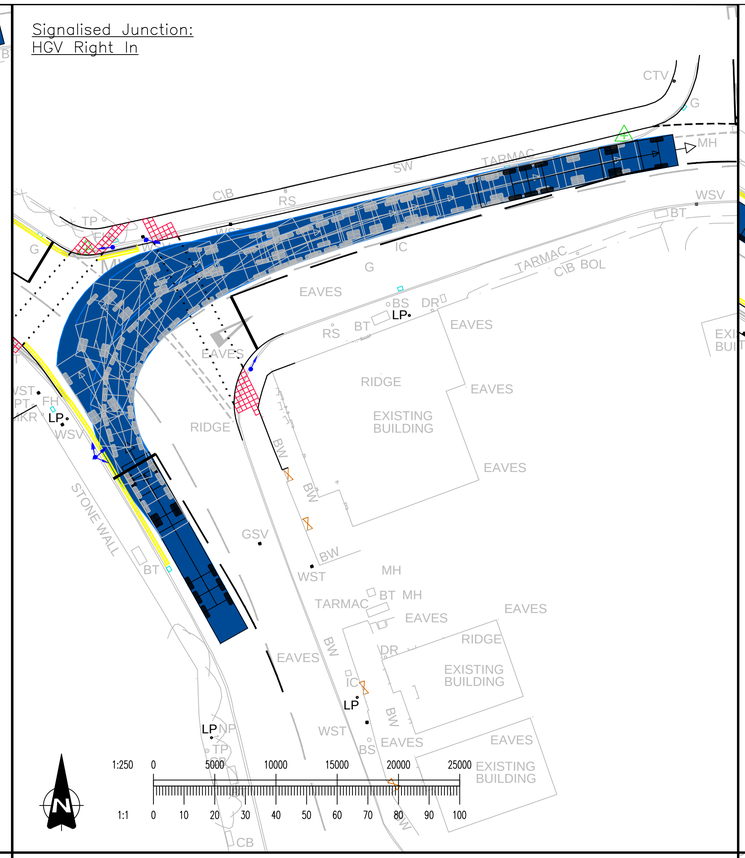
Scale	Original drg. size	Date
1:200	A1	05.01.2023
Drawn: BO	Checked: SEF	Approved: RNP

Drawing Number: IPD-22-580-103 Rev: A

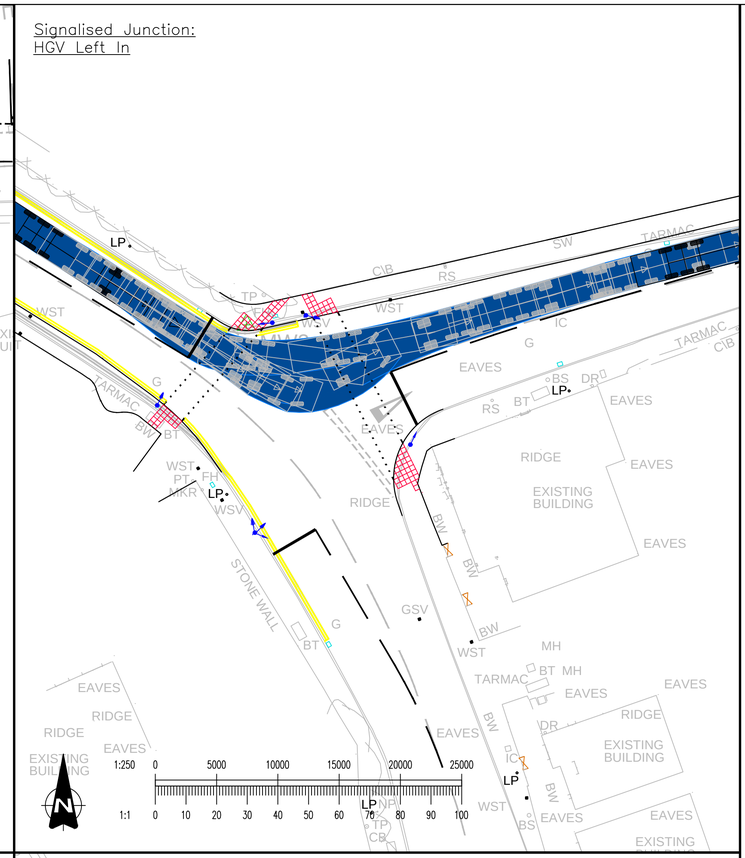
Signalised Junction:
HGV Left Out



Signalised Junction:
HGV Right In



Signalised Junction:
HGV Left In



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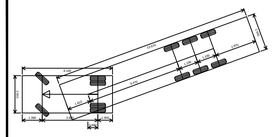
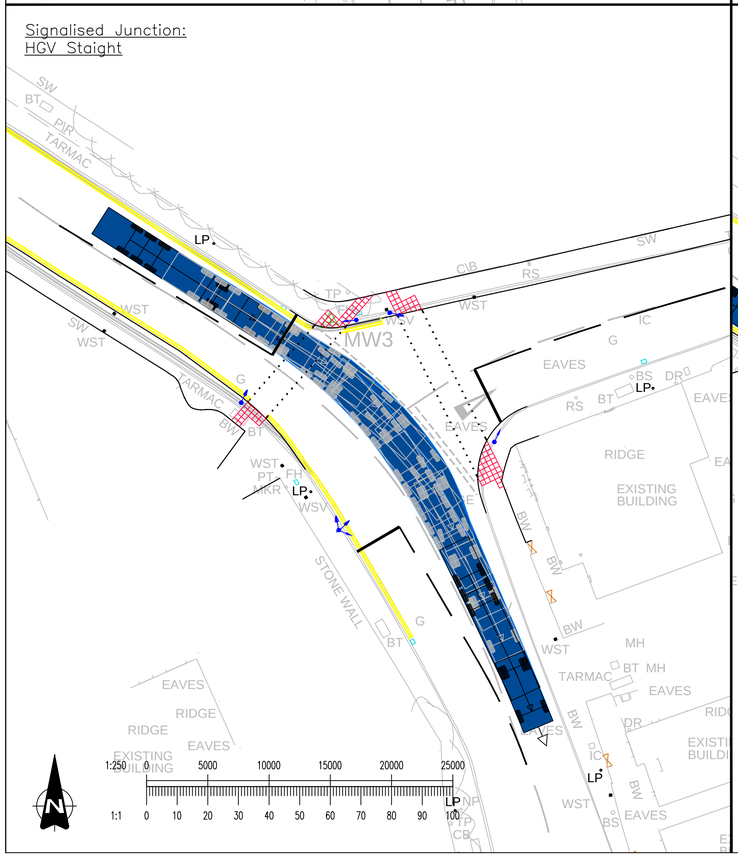
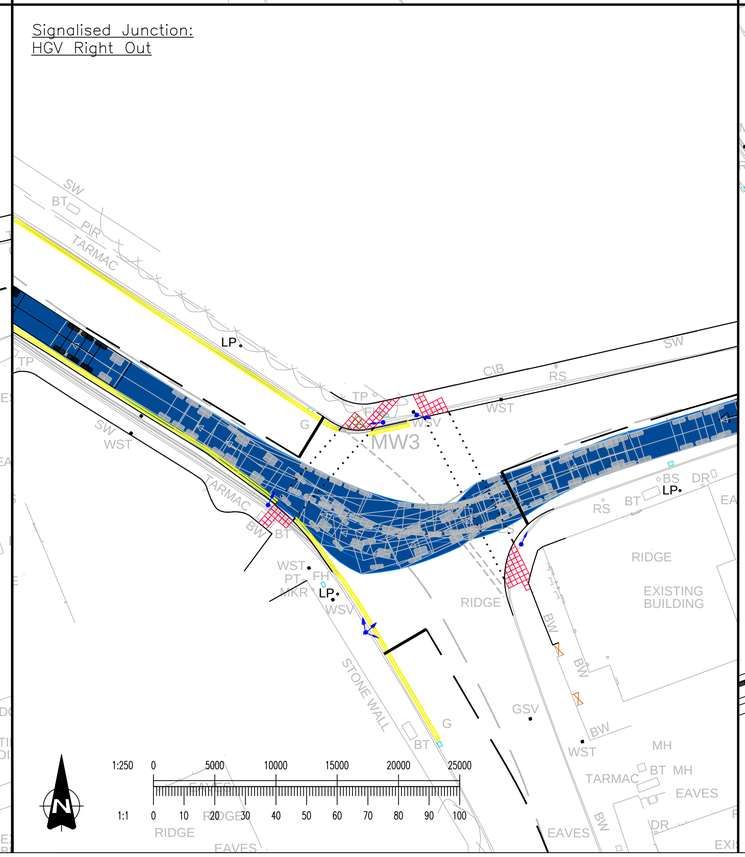


Vehicle name	Articulated Vehicle (FTA 1998)
Description	Designing for deliveries, FTA 1998
Overall length (m)	16.480
Overall width (m)	2.550
Maximum track width (m)	2.470
Kerb to kerb radius (m)	6.550
Maximum articulation (degrees)	90.0

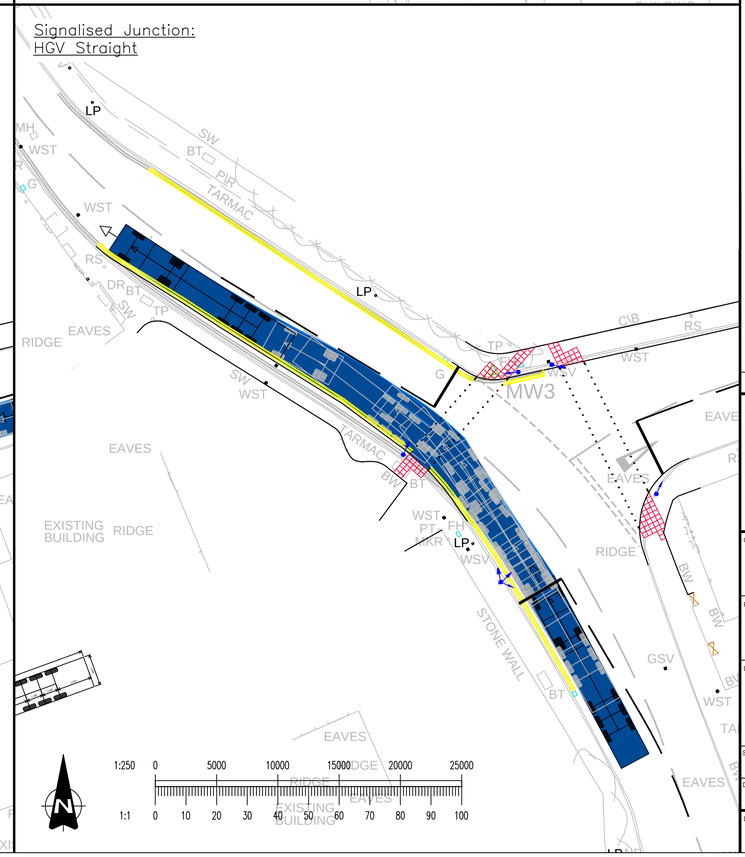
Signalised Junction:
HGV Staight



Signalised Junction:
HGV Right Out



Signalised Junction:
HGV Straight



XREFS LOADED INTO THIS DRAWING

IPD- Autotracks 1

IPD- Signal Junction Design 1

Shaw Lane TOPO 2D- 06.12.22

IPD- Shaw Lane Pedestrian Footway Improvements 1

Rev.	Date	Description	Drawn	Approved
A	20.09.23	Autotracks amended to suit latest layout. Tracks done with a 0.5m offset from kerb lines	BO	RNP

Infrastructure Planning and Design

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Client: NETWORK SPACE

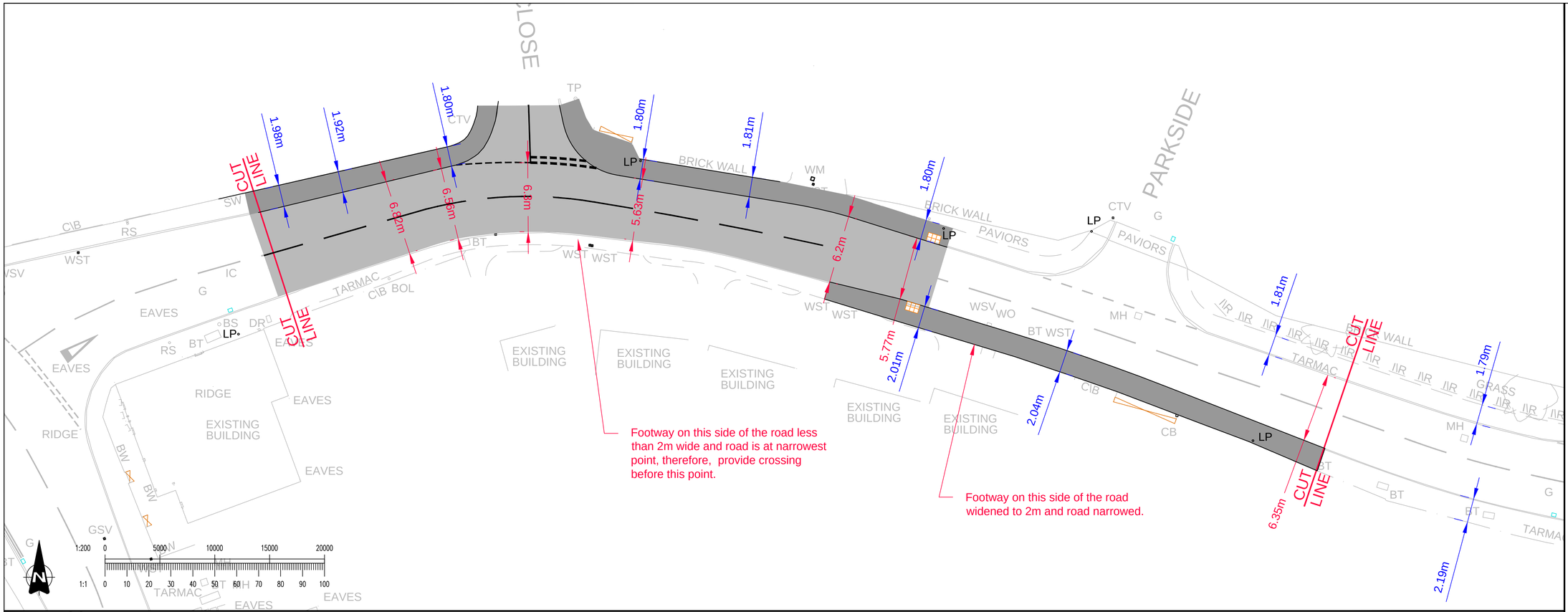
Project title: SHAW LANE CARLTON

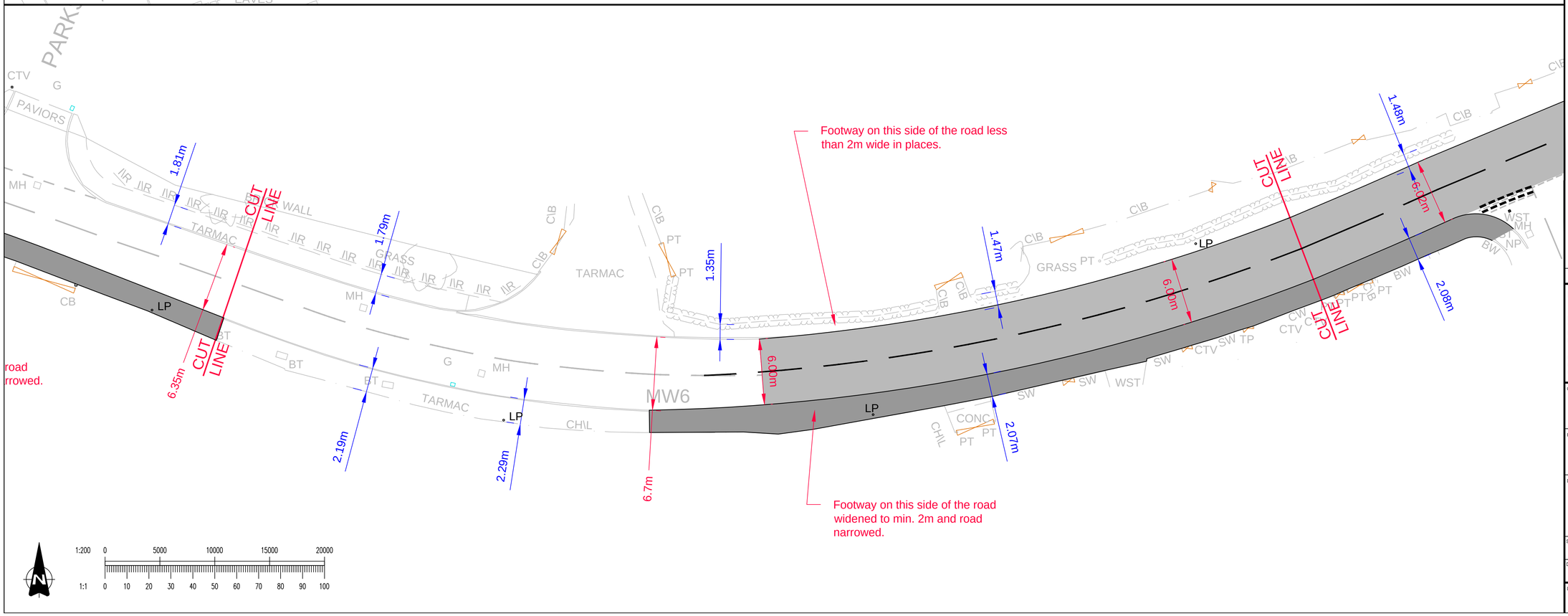
Drawing title: SHAW LANE SIGNALISED JUNCTION AUTOTRACKS

Scale	Original drg. size	Date
1:250	A1	05.01.2023
Drawn: BO	Checked: SEF	Approved: RNP

Drawing Number: IPD-22-580-104 Rev: A

Appendix 8 Pedestrian Improvement Plans and Tracking





XREFS LOADED INTO THIS DRAWING

IPD- Shaw Lane Pedestrian Footway Improvements 1

Shaw Lane TOPO 2D- 06.12.22

Rev.	Date	Description	Drawn	Approved
A	25.09.23	Carriageway widening around the junction of Ivy Farm Close	BO	RNP

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Client: NETWORK SPACE

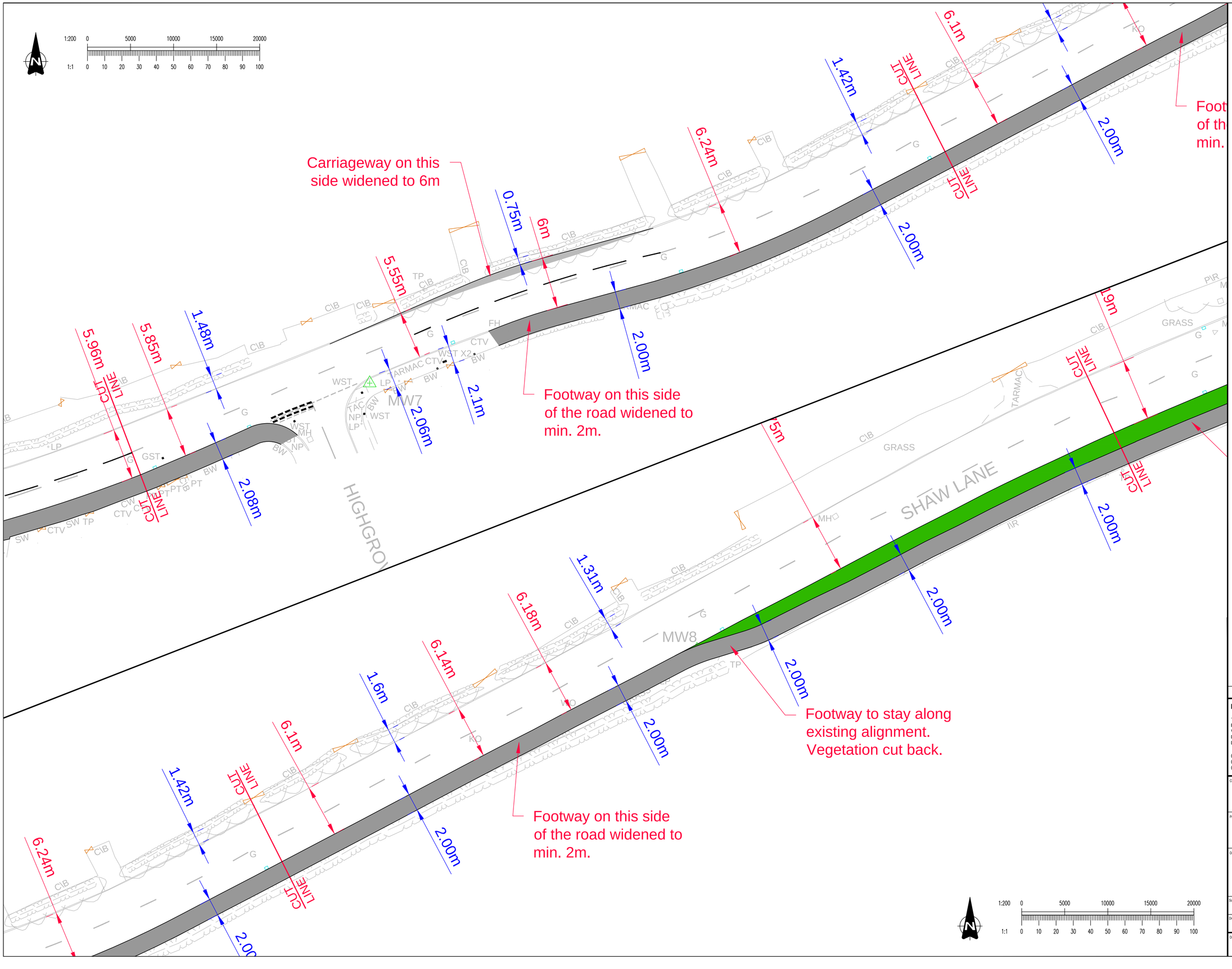
Project title: SHAW LANE CARLTON

Drawing title: SHAW LANE PEDESTRIAN FOOTWAY IMPROVEMENTS SHEET 1 OF 3

Scale	Original drg. size	Date
1:200	A1	05.01.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number: IPD-22-580-105

Rev: A



XREFS LOADED INTO THIS DRAWING

IPD- Shaw Lane Pedestrian Footway Improvements

Shaw Lane TOPO 2D- 06.12.22

Rev.	Date	Description	Drawn	Approved

Infrastructure Planning and Design

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Client

NETWORK SPACE

Project title

SHAW LANE
CARLTON

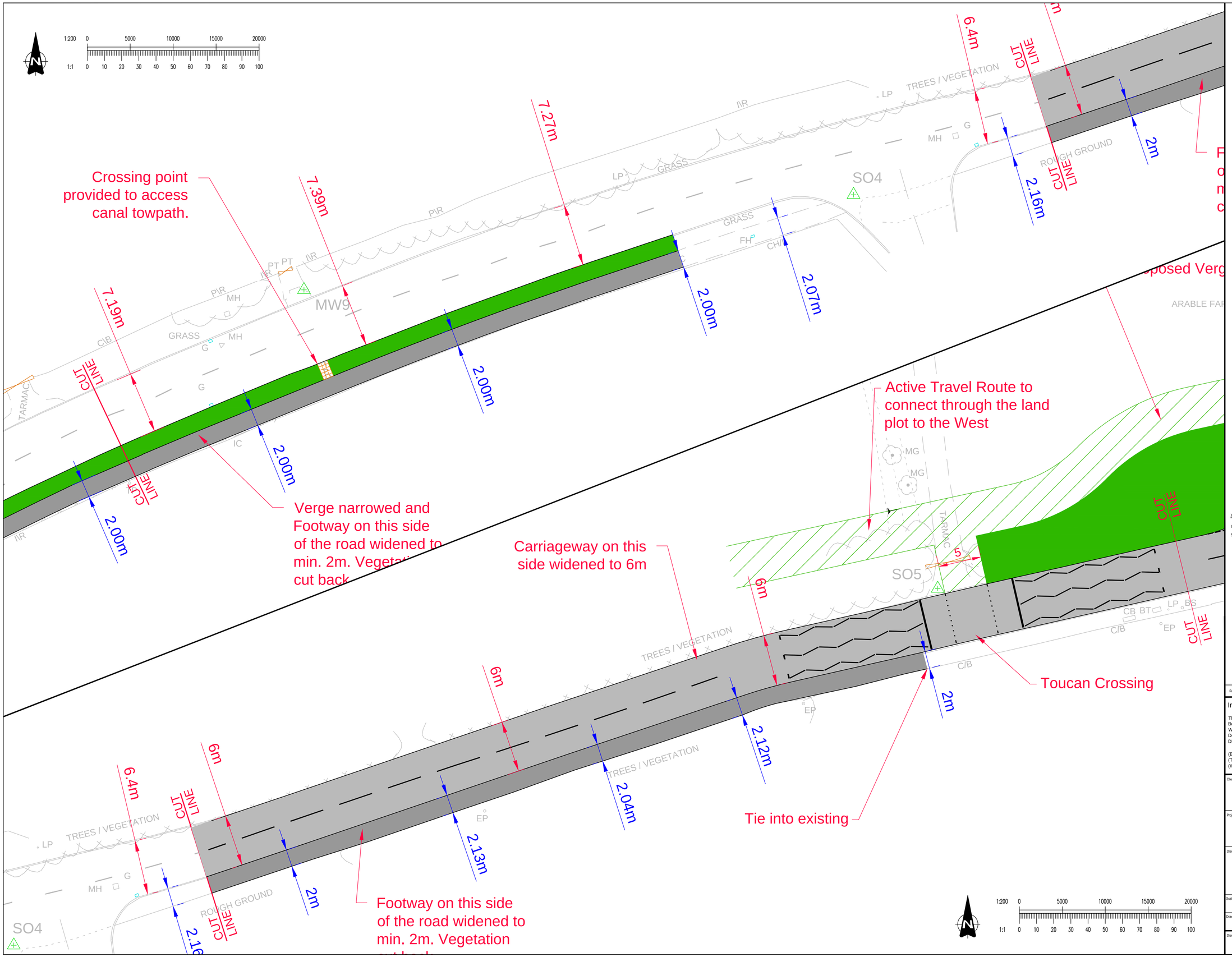
Drawing title

SHAW LANE PEDESTRIAN
FOOTWAY IMPROVEMENTS
SHEET 2 OF 3

Scale	Original drg. size	Date
1:200	A1	05.01.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number: IPD-22-580-106

Rev: -



Rev.	Date	Description	Drawn	Approved

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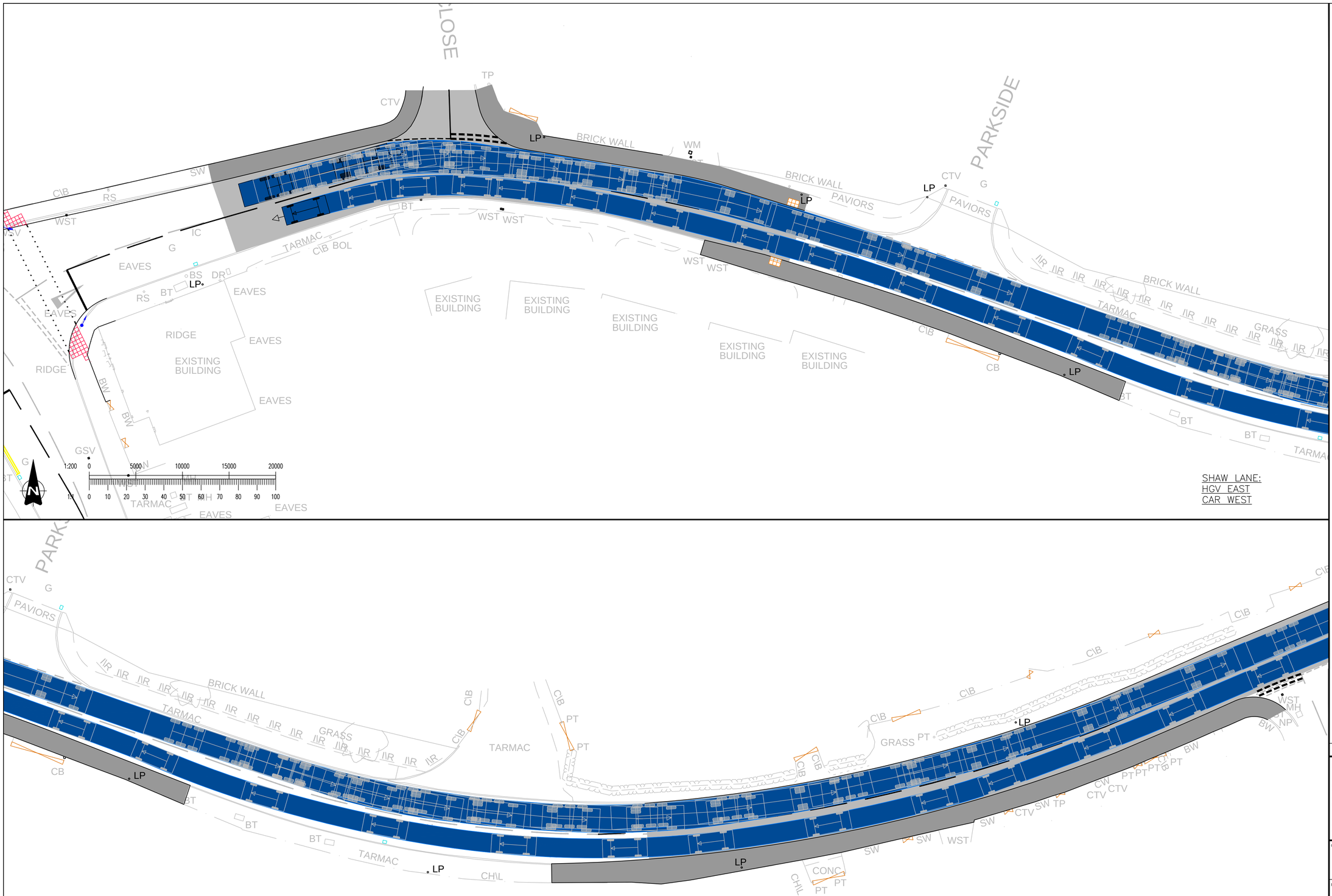
Client: NETWORK SPACE

Project title: SHAW LANE CARLTON

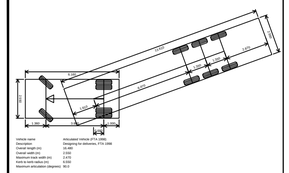
Drawing title: SHAW LANE PEDESTRIAN FOOTWAY IMPROVEMENTS SHEET 3 OF 3

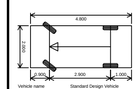
Scale	Original drg. size	Date
1:200	A1	05.01.2023
Drawn: BO	Checked: SEF	Approved: RNP

Drawing Number: IPD-22-580-107 Rev: -



SHAW LANE:
HGV EAST
CAR WEST





XREFS LOADED INTO THIS DRAWING

IPD- Shaw Lane Pedestrian Footway Improvements 1
Shaw Lane TOPO 2D- 06.12.22
IPD- Autotracks 1
IPD- Signal Junction Design 1

Rev.	Date	Description	Drawn	Approved

Infrastructure Planning and Design

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Derbyshire
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Client
NETWORK SPACE

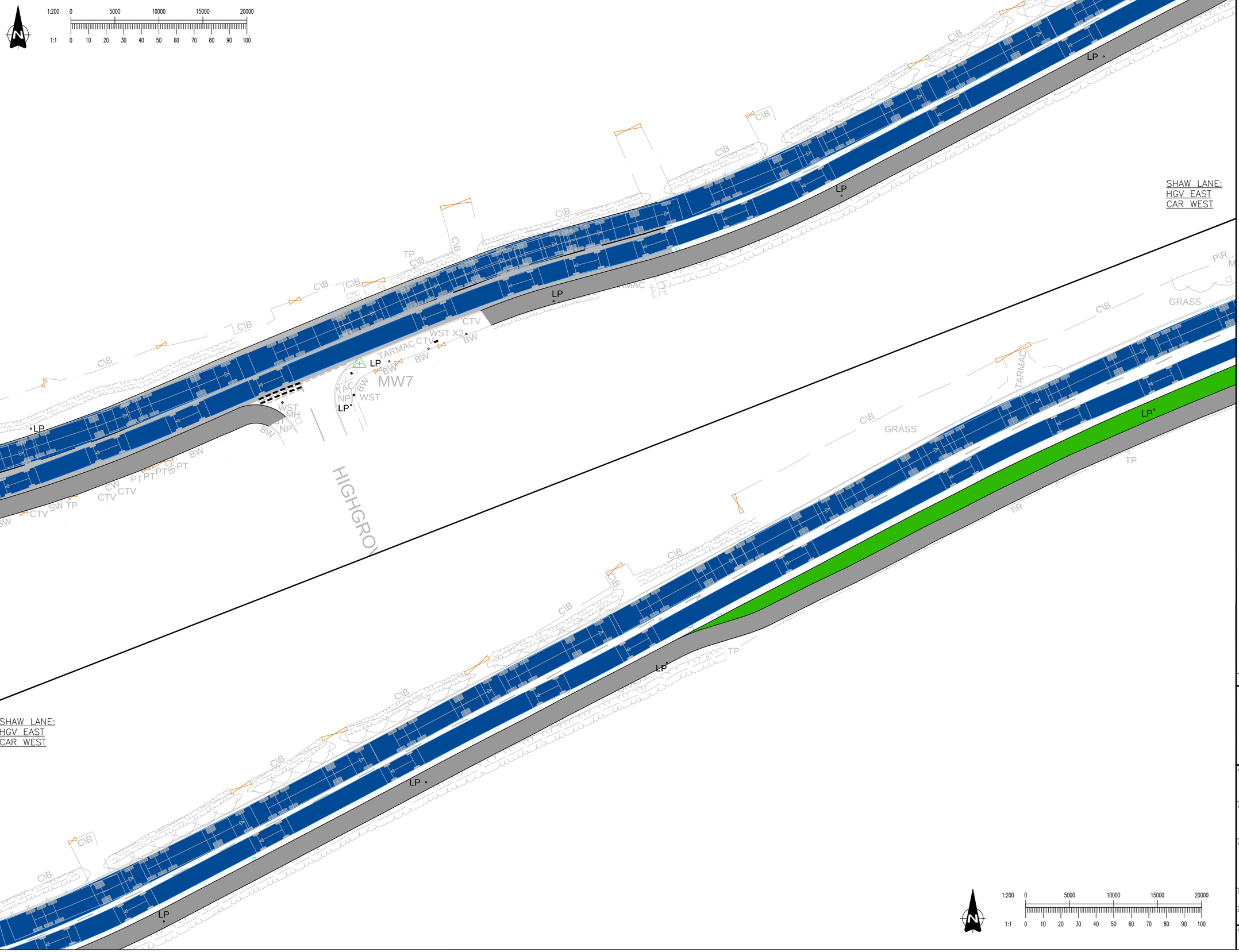
Project title
SHAW LANE
CARLTON

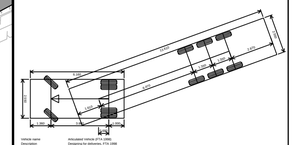
Drawing title
SHAW LANE
AUTOTRACKS
SHEET 1 OF 6

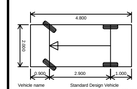
Scale	Original drg. size	Date
1:200	A1	21.09.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number	Rev
IPD-22-580-108	-

SHAW LANE:
HGV EAST
CAR WEST







XREFS LOADED INTO THIS DRAWING

IPD- Shaw Lane Pedestrian Footway Improvements 1

Shaw Lane TOPO 2D- 06.12.22

IPD- Autotracks 1

Rev.	Date	Description	Drawn	Approved

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Client

NETWORK SPACE

Project title

SHAW LANE
CARLTON

Drawing title

SHAW LANE
AUTOTRACKS
SHEET 2 OF 6

Scale	Original drg. size	Date
1:200	A1	21.09.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number: IPD-22-580-109

Rev: -

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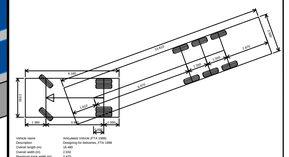
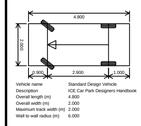
TREES / VEGETATION
IIR
LP
GRASS
ROUGH GROUND
SO4
PIR
PT
MH
C/B
TARMAC
IC
TP
FH
CH/L
EP
BT
BS
MG
SO5
ARABLE FAR

SHAW LANE:
HGV EAST
CAR WEST





XREFS LOADED INTO THIS DRAWING

IPD- Shaw Lane Pedestrian Footway Improvements 1

Shaw Lane TOPO 2D- 06.12.22

IPD- Autotracks 1

IPD- Site Access 1

Rev.	Date	Description	Drawn	Approved

Infrastructure Planning and Design

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Client

NETWORK SPACE

Project title

SHAW LANE
CARLTON

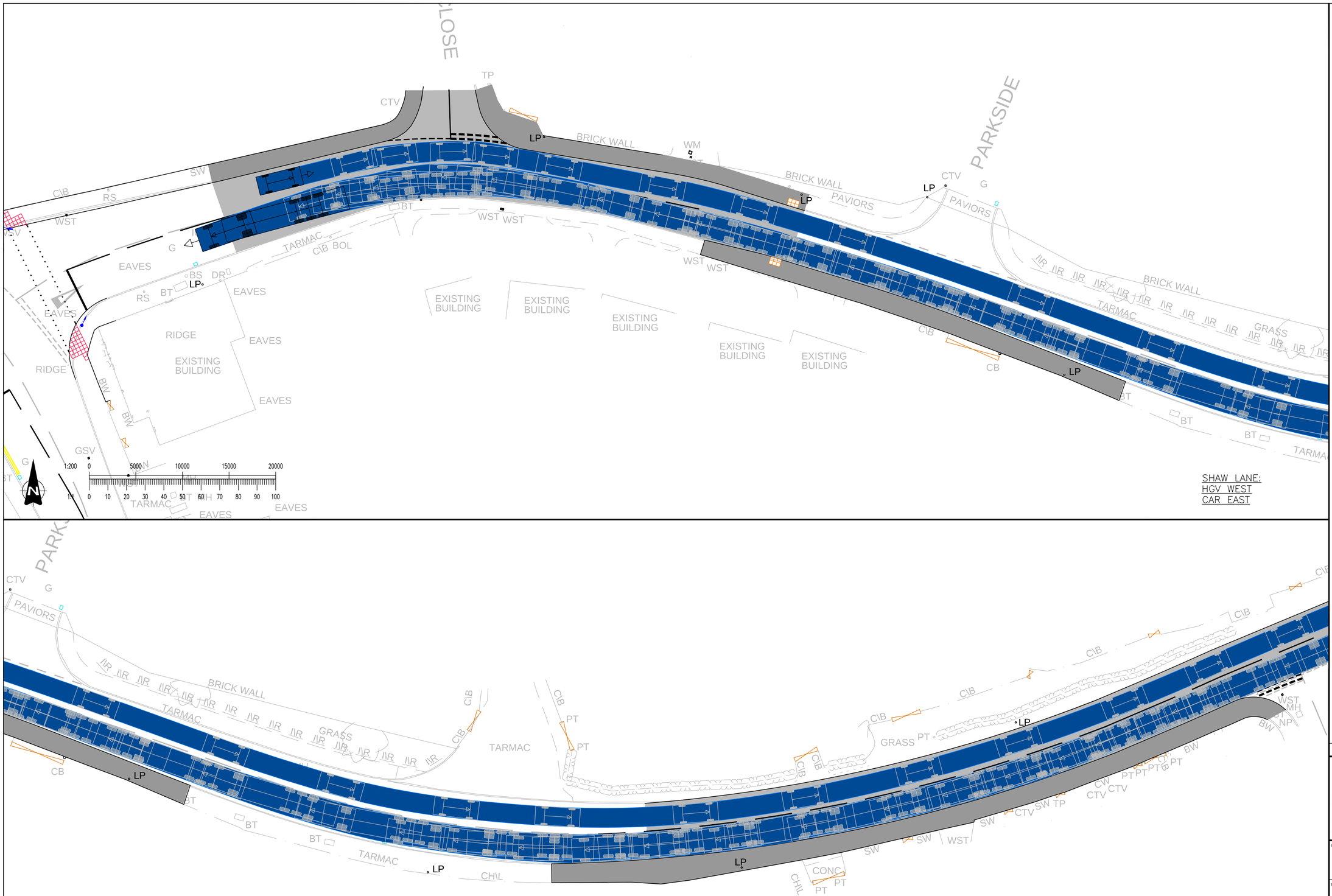
Drawing title

SHAW LANE
AUTOTRACKS
SHET 3 OF 6

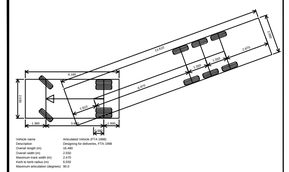
Scale	Original drg. size	Date
1:200	A1	21.09.2023
Drawn	Checked	Approved
BO	SEF	RNP

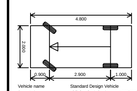
Drawing Number: IPD-22-580-110

Rev: -



SHAW LANE:
HGV WEST
CAR EAST





XREFS LOADED INTO THIS DRAWING

IPD- Shaw Lane Pedestrian Footway Improvements 1

Shaw Lane TOPO 2D- 06.12.22

IPD- Autotracks 1

IPD- Signal Junction Design 1

Rev.	Date	Description	Drawn	Approved

Infrastructure Planning and Design

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Client

NETWORK SPACE

Project title

SHAW LANE
CARLTON

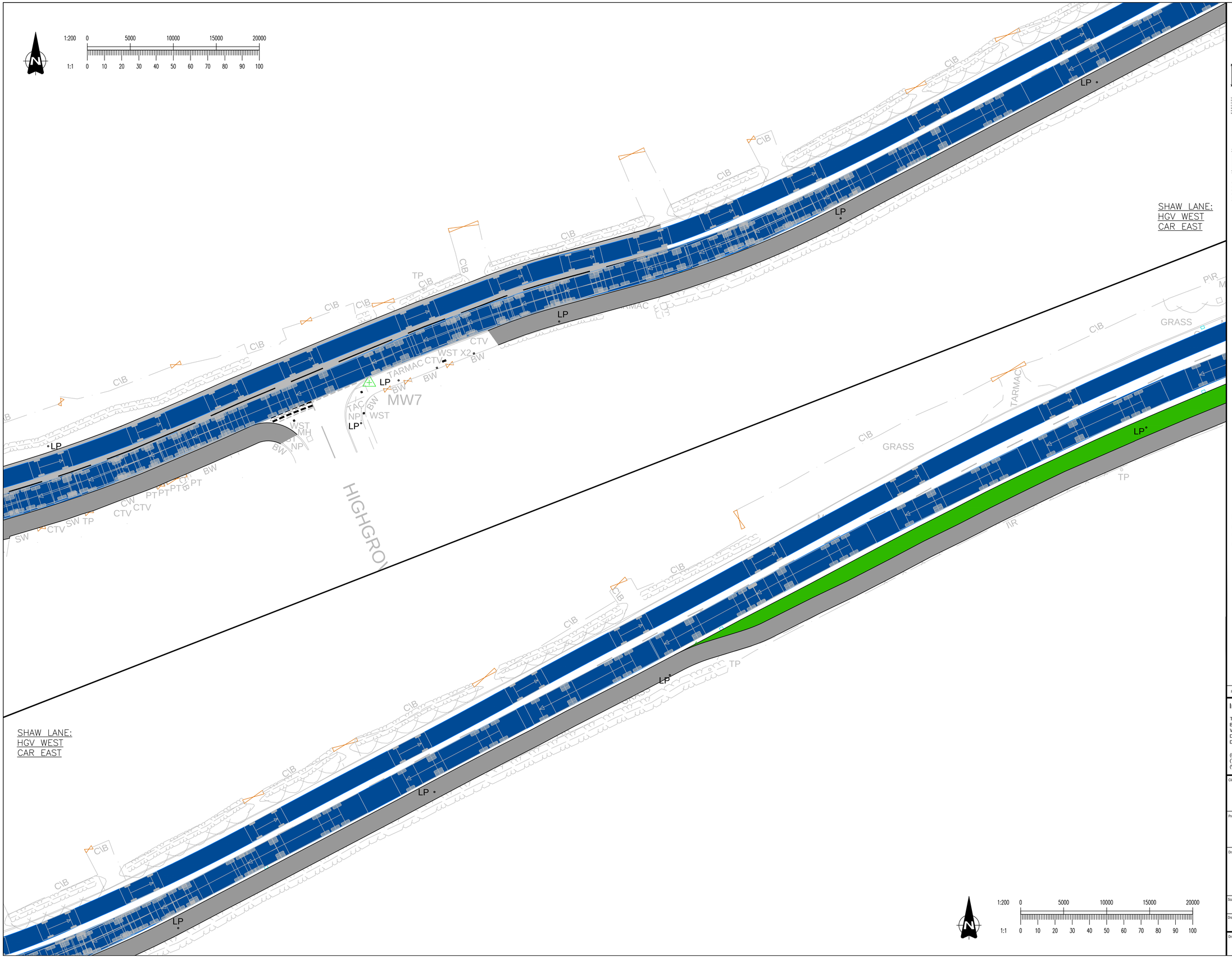
Drawing title

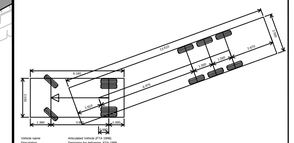
SHAW LANE
AUTOTRACKS
SHEET 4 OF 6

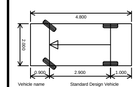
Scale	Original drg. size	Date
1:200	A1	21.09.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number: IPD-22-580-111

Rev: -







XREFS LOADED INTO THIS DRAWING

IPD- Shaw Lane Pedestrian Footway Improvements 1

Shaw Lane TOPO 2D- 06.12.22

IPD- Autotracks 1

Rev.	Date	Description	Drawn	Approved

Infrastructure Planning and Design

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Client

NETWORK SPACE

Project title

SHAW LANE
CARLTON

Drawing title

SHAW LANE
AUTOTRACKS
SHEET 5 OF 6

Scale	Original drg. size	Date
1:200	A1	21.09.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number: IPD-22-580-112

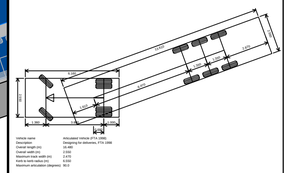
Rev: -

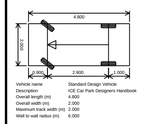
1:200 0 5000 10000 15000 20000

1:1 0 10 20 30 40 50 60 70 80 90 100

TREES / VEGETATION
IIR
LP
GRASS
ROUGH GROUND
SO4
PIR
PT
MH
C/B
TARMAC
IC
TP
FH
CH/L
ARABLE FAR
MG
SO5
CB
BT
BS
EP

SHAW LANE:
HGV WEST
CAR EAST





XREFS LOADED INTO THIS DRAWING

IPD- Shaw Lane Pedestrian Footway Improvements 1

Shaw Lane TOPO 2D- 06.12.22

IPD- Autotracks 1

IPD- Site Access 1

Rev.	Date	Description	Drawn	Approved

Infrastructure Planning and Design

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(W) www.ipd-ltd.com

Client

NETWORK SPACE

Project title

SHAW LANE
CARLTON

Drawing title

SHAW LANE
AUTOTRACKS
SHET 6 OF 6

Scale	Original drg. size	Date
1:200	A1	21.09.2023
Drawn	Checked	Approved
BO	SEF	RNP

Drawing Number: IPD-22-580-113

Rev: -

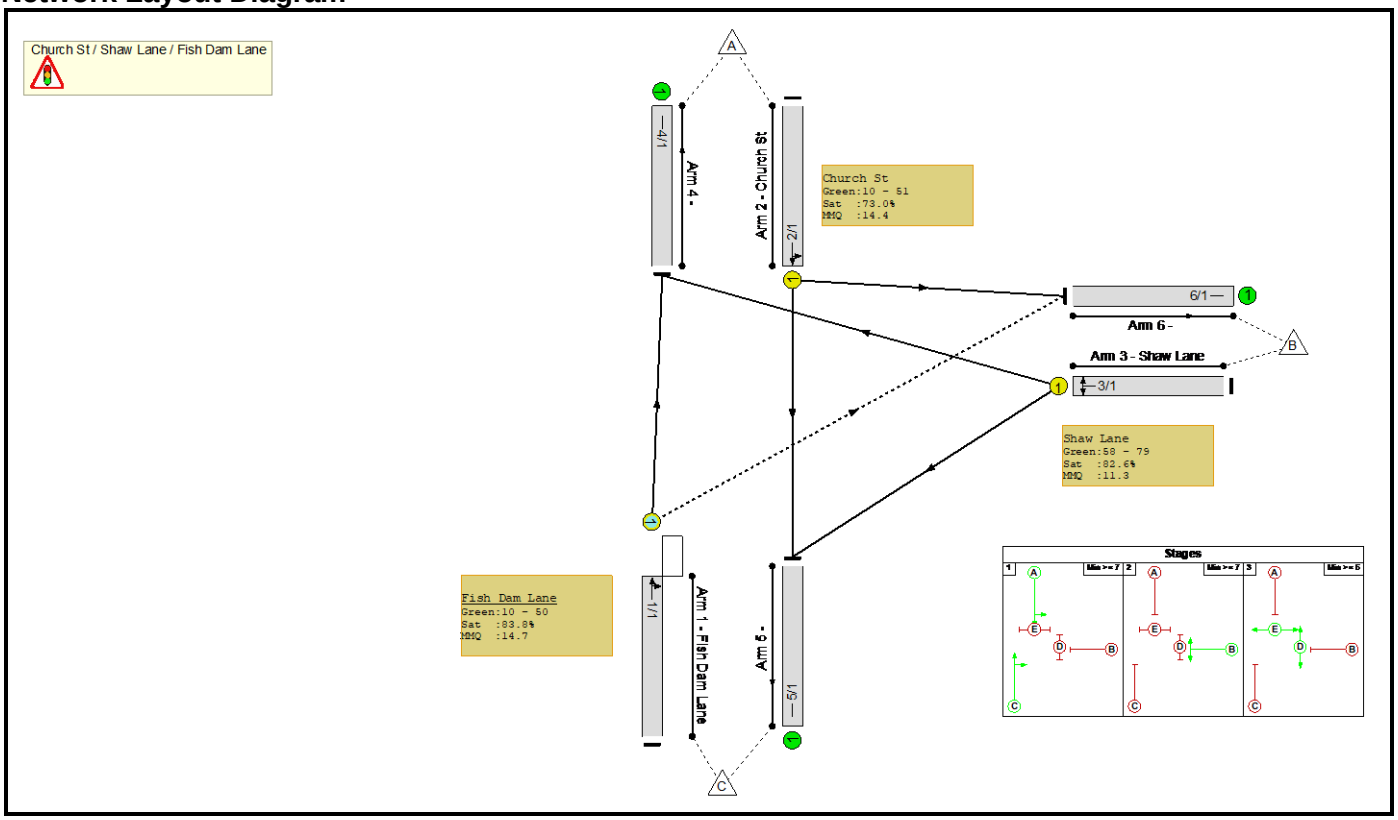
Appendix 9 LINSIG Assessment – L12 Impacts

Full Input Data And Results

User and Project Details

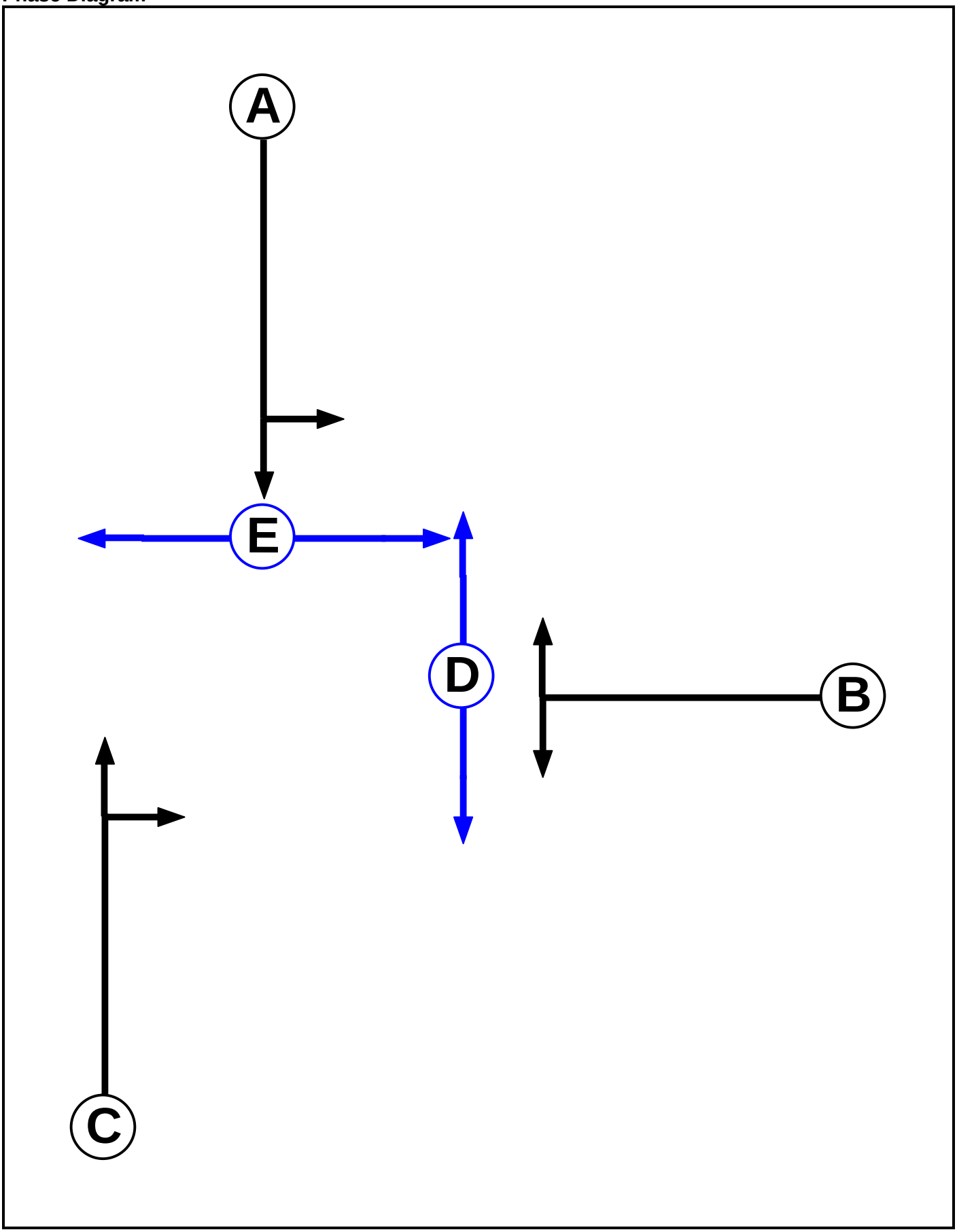
Project:	**Shaw Lane**
Title:	**Shaw Lane / Church St Signalisation**
Location:	
Additional detail:	
File name:	Church St_Shaw Lane Signal.lsg3x
Author:	
Company:	Pell Frischmann
Address:	G37B Trinity Walk, Market Walk, Wakefield, WF1 1QR

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		5	5
E	Pedestrian		5	5

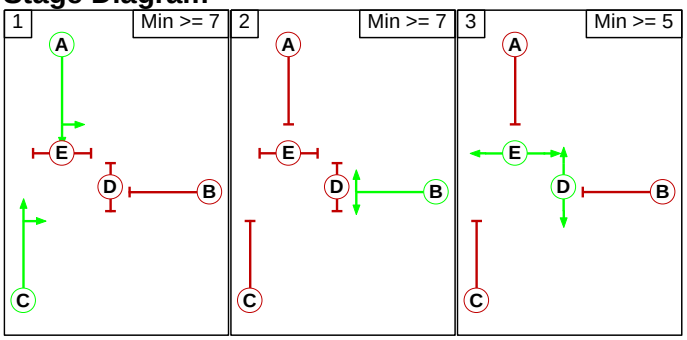
Phase Intergreens Matrix

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		7	-	6	5
	B	7		7	5	6
	C	-	7		6	6
	D	10	10	10		-
	E	9	9	9	-	

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	B
3	D E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	1	1

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		8	6
	2	7		6
	3	10	10	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Church St / Shaw Lane / Fish Dam Lane											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/1 (Fish Dam Lane)	6/1 (Right)	1439	0	2/1	1.09	All	3.00	3.00	0.50	3	3.00

Full Input Data And Results

Lane Input Data

Junction: Church St / Shaw Lane / Fish Dam Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Fish Dam Lane)	O	C	2	3	60.0	Geom	-	5.00	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Right	9.37
2/1 (Church St)	U	A	2	3	60.0	Geom	-	3.78	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Left	15.70
3/1 (Shaw Lane)	U	B	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 4 Right	26.23
											Arm 5 Left	18.75
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2028 AM (580 dwellings)'	07:45	08:45	01:00	
2: '2028 PM (580 dwellings)'	16:00	17:00	01:00	

Scenario 1: '2028 AM (580 dwellings)' (FG1: '2028 AM (580 dwellings)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	268	482	750
	B	281	0	179	460
	C	423	88	0	511
	Tot.	704	356	661	1721

Traffic Lane Flows

Lane	Scenario 1: 2028 AM (580 dwellings)
Junction: Church St / Shaw Lane / Fish Dam Lane	
1/1	511
2/1	750
3/1	460
4/1	704
5/1	661
6/1	356

Full Input Data And Results

Lane Saturation Flows

Junction: Church St / Shaw Lane / Fish Dam Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Fish Dam Lane)	5.00	0.00	Y	Arm 4 Ahead	Inf	82.8 %	2058	2058
				Arm 6 Right	9.37	17.2 %		
2/1 (Church St)	3.78	0.00	Y	Arm 5 Ahead	Inf	64.3 %	1927	1927
				Arm 6 Left	15.70	35.7 %		
3/1 (Shaw Lane)	4.00	0.00	Y	Arm 4 Right	26.23	61.1 %	1890	1890
				Arm 5 Left	18.75	38.9 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2028 PM (580 dwellings)' (FG2: '2028 PM (580 dwellings)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	297	354	651
	B	299	0	84	383
	C	369	164	0	533
	Tot.	668	461	438	1567

Traffic Lane Flows

Lane	Scenario 2: 2028 PM (580 dwellings)
Junction: Church St / Shaw Lane / Fish Dam Lane	
1/1	533
2/1	651
3/1	383
4/1	668
5/1	438
6/1	461

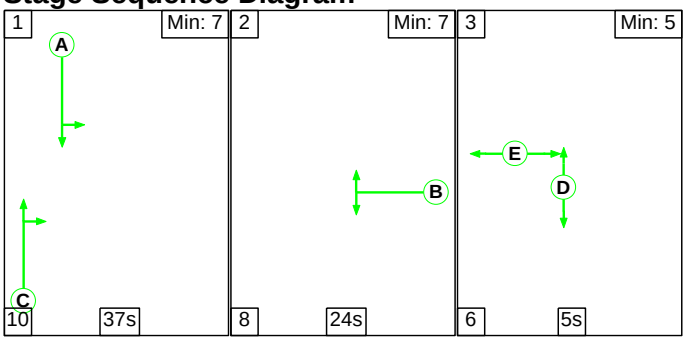
Full Input Data And Results

Lane Saturation Flows

Junction: Church St / Shaw Lane / Fish Dam Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Fish Dam Lane)	5.00	0.00	Y	Arm 4 Ahead	Inf	69.2 %	2016	2016
				Arm 6 Right	9.37	30.8 %		
2/1 (Church St)	3.78	0.00	Y	Arm 5 Ahead	Inf	54.4 %	1910	1910
				Arm 6 Left	15.70	45.6 %		
3/1 (Shaw Lane)	4.00	0.00	Y	Arm 4 Right	26.23	78.1 %	1897	1897
				Arm 5 Left	18.75	21.9 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2028 AM (580 dwellings)' (FG1: '2028 AM (580 dwellings)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

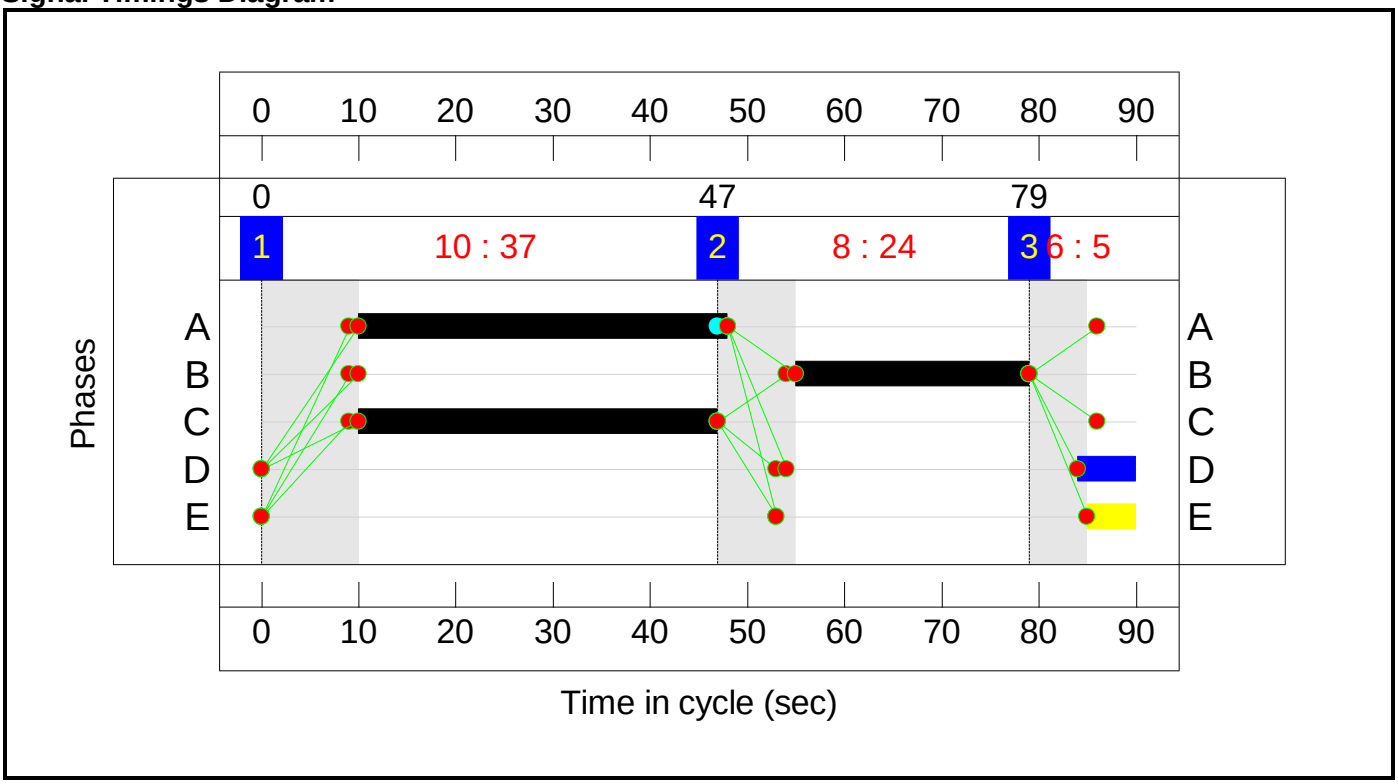


Stage Timings

Stage	1	2	3
Duration	37	24	5
Change Point	0	47	79

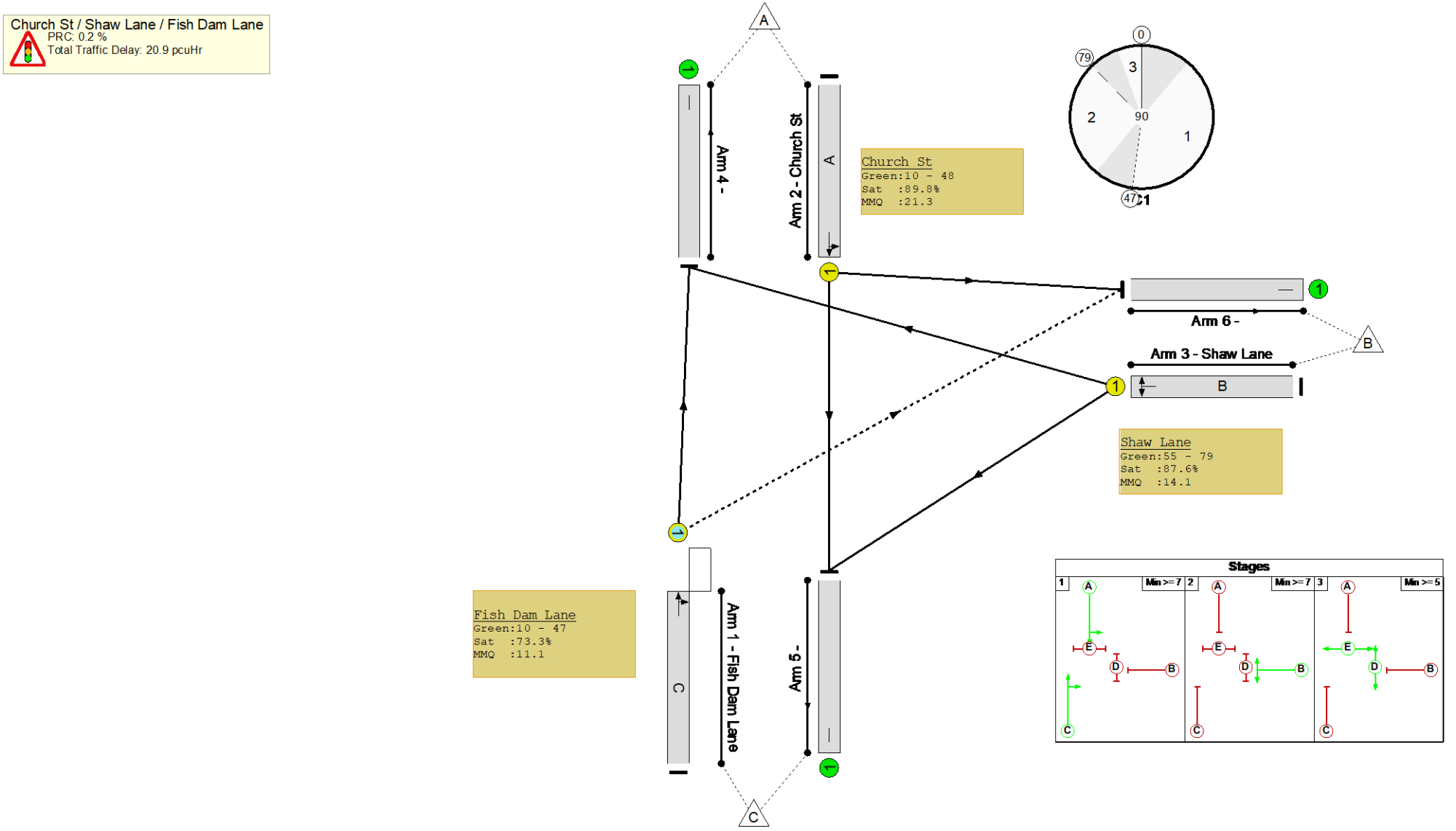
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Shaw Lane / Church St Signalisation	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**89.8%**
Church St / Shaw Lane / Fish Dam Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**89.8%**
1/1	Fish Dam Lane Ahead Right	O	N/A	N/A	C		1	37	-	511	2058	697	73.3%
2/1	Church St Ahead Left	U	N/A	N/A	A		1	38	-	750	1927	835	89.8%
3/1	Shaw Lane Right Left	U	N/A	N/A	B		1	24	-	460	1890	525	87.6%
4/1		U	N/A	N/A	-		-	-	-	704	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	661	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	356	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Shaw Lane / Church St Signalisation	**-**	**-**	**41**	**0**	**47**	**11.7**	**8.6**	**0.6**	**20.9**	**-**	**-**	**-**	**-**
Church St / Shaw Lane / Fish Dam Lane	**-**	**-**	**41**	**0**	**47**	**11.7**	**8.6**	**0.6**	**20.9**	**-**	**-**	**-**	**-**
1/1	511	511	41	0	47	2.8	1.4	0.6	4.8	33.7	9.8	1.4	11.1
2/1	750	750	-	-	-	4.9	4.0	-	9.0	43.0	17.3	4.0	21.3
3/1	460	460	-	-	-	4.0	3.2	-	7.2	56.2	10.9	3.2	14.1
4/1	704	704	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	661	661	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	356	356	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

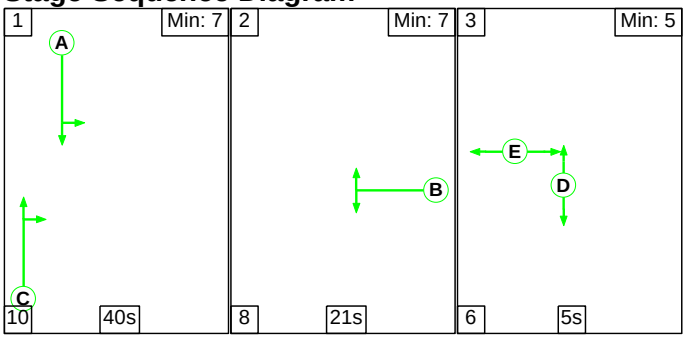
C1 PRC for Signalled Lanes (%): 0.2 Total Delay for Signalled Lanes (pcuHr): 20.92 Cycle Time (s): 90
PRC Over All Lanes (%): 0.2 Total Delay Over All Lanes(pcuHr): 20.92

Full Input Data And Results

Full Input Data And Results

Scenario 2: '2028 PM (580 dwellings)' (FG2: '2028 PM (580 dwellings)', Plan 1: 'Network Control Plan 1')

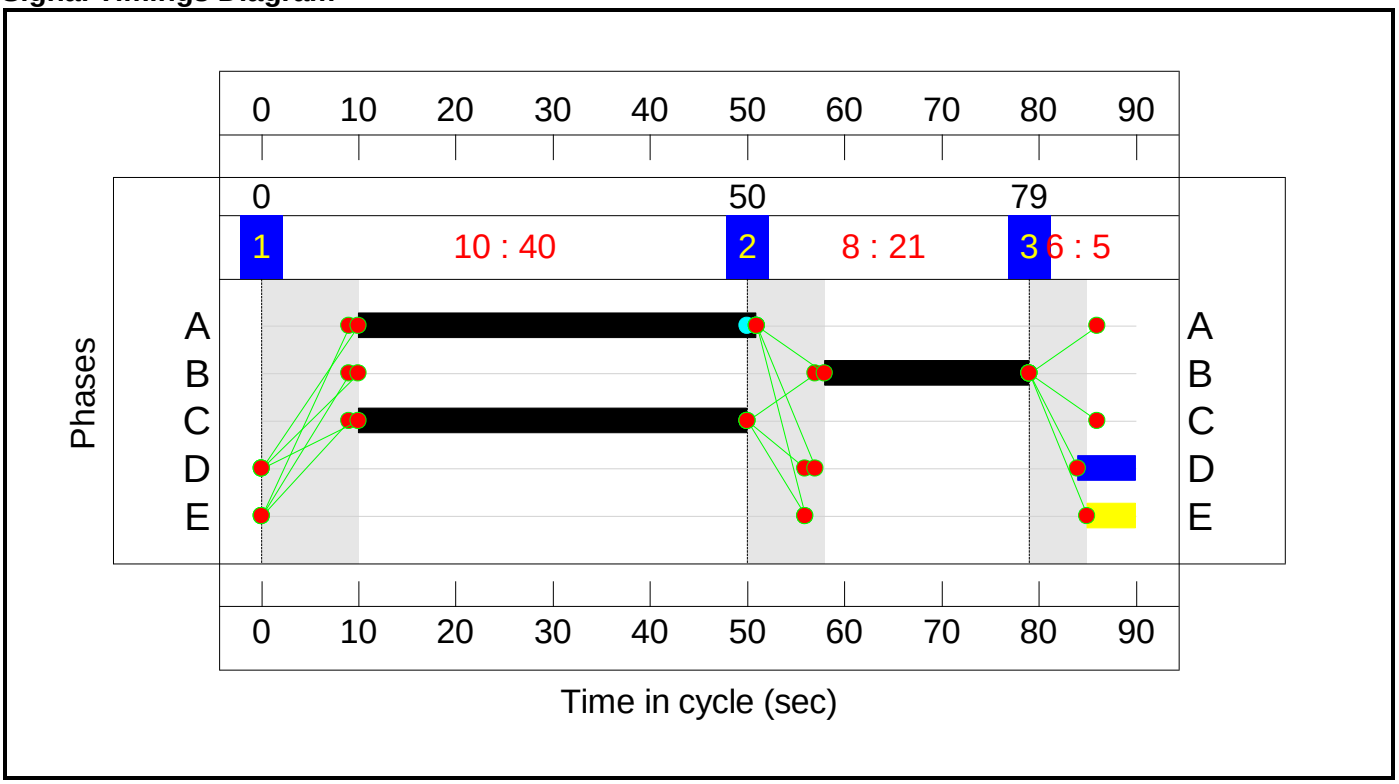
Stage Sequence Diagram



Stage Timings

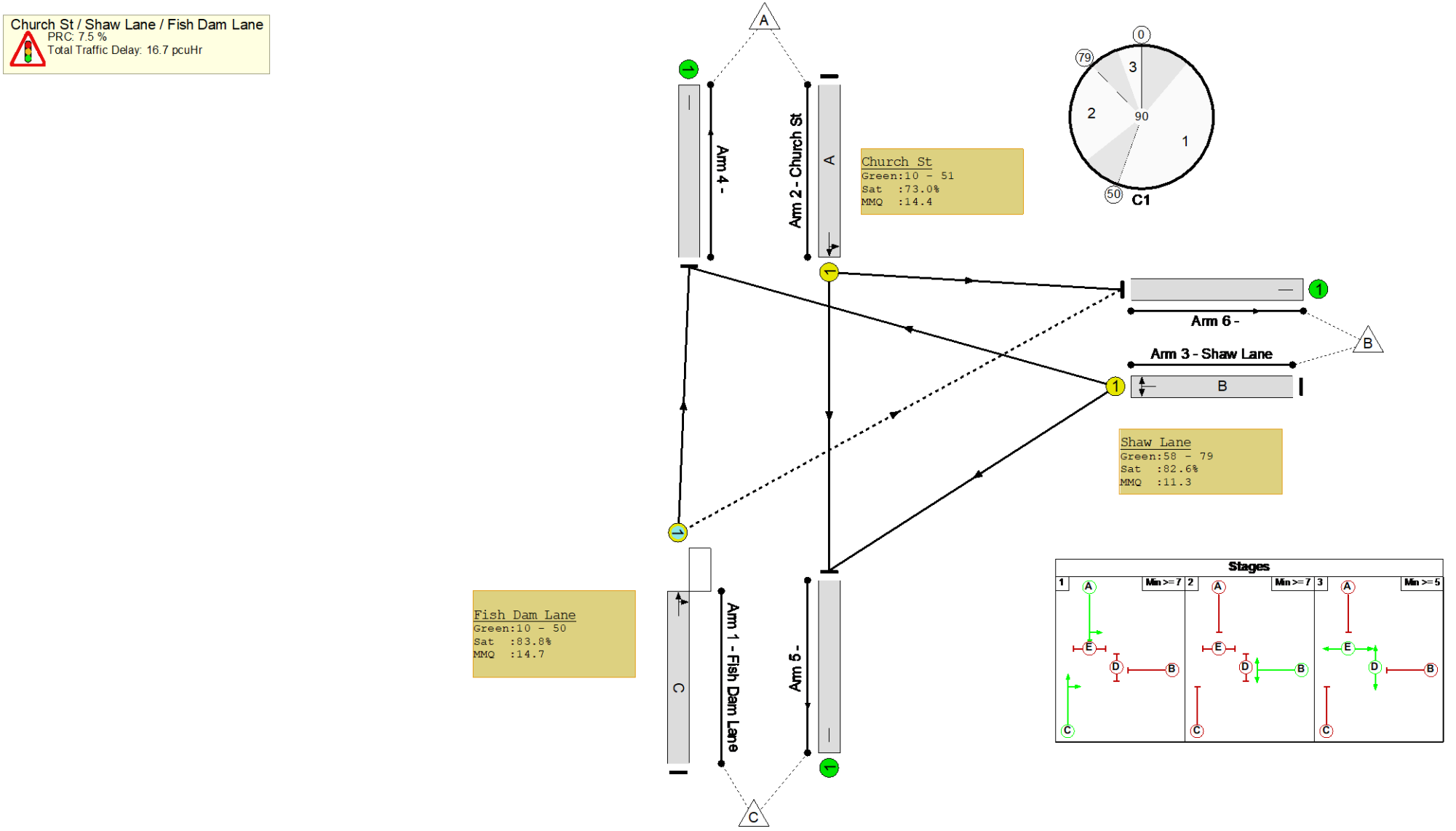
Stage	1	2	3
Duration	40	21	5
Change Point	0	50	79

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Shaw Lane / Church St Signalisation	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.8%**
Church St / Shaw Lane / Fish Dam Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.8%**
1/1	Fish Dam Lane Ahead Right	O	N/A	N/A	C		1	40	-	533	2016	636	83.8%
2/1	Church St Ahead Left	U	N/A	N/A	A		1	41	-	651	1910	891	73.0%
3/1	Shaw Lane Right Left	U	N/A	N/A	B		1	21	-	383	1897	464	82.6%
4/1		U	N/A	N/A	-		-	-	-	668	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	438	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	461	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Shaw Lane / Church St Signalisation	**-**	**-**	**138**	**0**	**26**	**9.8**	**6.0**	**0.8**	**16.7**	**-**	**-**	**-**	**-**
Church St / Shaw Lane / Fish Dam Lane	**-**	**-**	**138**	**0**	**26**	**9.8**	**6.0**	**0.8**	**16.7**	**-**	**-**	**-**	**-**
1/1	533	533	138	0	26	2.9	2.5	0.8	6.2	41.8	12.3	2.5	14.7
2/1	651	651	-	-	-	3.5	1.3	-	4.9	26.8	13.0	1.3	14.4
3/1	383	383	-	-	-	3.4	2.2	-	5.7	53.3	9.0	2.2	11.3
4/1	668	668	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	438	438	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	461	461	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 7.5 Total Delay for Signalled Lanes (pcuHr): 16.71 Cycle Time (s): 90
PRC Over All Lanes (%): 7.5 Total Delay Over All Lanes(pcuHr): 16.71

Full Input Data And Results