Appendix 29
Geometric Design Strategy Record
A508 Route Upgrade

CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS

TRANSPORT AND INFRASTRUCTURE

Roxhill Developments
Northampton Gateway
Strategic Rail Freight Interchange

Geometric Design Strategy Record (GDSR)
A508 Route Upgrade

TRANSPORT AND INFRASTRUCTURE

Roxhill Developments Northampton Gateway Strategic Rail Freight Interchange

Geometric Design Strategy Record (GDSR) A508 Route Upgrade

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Notice

CONTENTS PAGE

1.0 INTRODUCTION

Introduction

1.1 Roxhill (Junction 15) Limited (the Applicant), intends to submit an application for a Development Consent Order (DCO). The DCO will authorise the Applicant to construct and operate a Strategic Rail Freight Interchange (SRFI), which is a "nationally significant infrastructure project", as defined in the Planning Act 2008. It will therefore be the subject of an application to the Planning Inspectorate which will be determined by the Secretary of State for Transport.

1.2 The SRFI site is proposed on land to the west of the M1 motorway and to the east of the Northampton Loop railway line. It comprises a total of approximately 247 ha (610 acres) including the works associated with Junction 15.

1.3 A detailed description of the SRFI development is found at Chapter 2 of the Environmental Statement. The proposals include significant improvements to the existing A508 corridor.

1.4 The report is based on the following information:

- Design standards listed in Chapter 2 below
- Topographical survey information prepared by Greenhatch
- OS mapping, aerial photos and Google Streetview
- Various site visit carried out during 2016 and 2017

Purpose

1.5 The purpose of this report is to record the strategy for the geometric design for the A508 route upgrade. Hence this report is termed the Design Strategy Record (DSR). It has been prepared in general accordance with the principles for a DSR as set out in IAN198/17 and covers all of the A508 route upgrade works.

1.6 For each aspect of geometric design this report will describe the proposed geometry. Where relaxations or departures from standard are required, these will be highlighted and a justification provided.

1.7 This report does not include analysis of the trunk road and motorway highway works, these are covered in a separate report.

Overview of the Scheme

1.8 The purpose of the A508 route upgrade is to provide sufficient capacity to facilitate the development of the SRFI. The A508 route upgrade would consist of the following:

- SRFI access and dualling from the access to M1 J15
- A508 Blisworth Road (Courteenhall) junction improvement
- A508 Roade Bypass
- A508 Rookery Lane / Ashton Road junction improvement
- A508 Pury Road junction improvement
- Knock Lane / Blisworth Road (Roade) improvements (not on the A508 but linked to the A508 works due to changes in traffic flows)
- A508 Grafton Regis bus stop crossing and Church Lane junction improvement

1.9 The drawings listed below show the scheme layouts.

1.10 In addition a number of environmental weight restrictions are proposed on minor roads east and west of the A508. The purpose of these is to reduce the impact of HGVs in villages along the A508 corridor. These are shown on the Traffic Regulation Plan included with the Development Consent Order (DCO).

Traffic flows

1.11 The traffic data presented in this report is based on the 2031 Mitigation Case model which includes all of the committed development up to 2031, the SRFI and all of the highway works. Further details on modelling are found in the Transport Assessment.

List of Drawings

Section of Scheme	Highway Plan: General Arrangement	Highway Plan: Long Section	Highway Plan: Cross Section	General Arrangement larger scale sketch See **Appendix A**
A508 dualling and SRFI access roundabout	NGW-BWB-HGN-02-DR-C-102-S3-P9 & NGW-BWB-HGN-03-DR-C-103-S3-P9	NGW-BWB-HGN-02-DR-C-142-S3-P6	NGW-BWB-HGN-02-DR-C-132-S3-P5	NGW-BWB-GEN-XX-SK-C-SK11-S3-P5 & NGW-BWB-GEN-XX-SK-C-SK02-S3-P13
A508 Blisworth Road Junction improvement	NGW-BWB-HGN-03-DR-C-103-S3-P9	NGW-BWB-HGN-04-DR-C-144-S3-P4	NGW-BWB-HGN-04-DR-C-134-S3-P6	NGW-BWB-GEN-XX-SK-C-SK23-S3-P6
A508 Roade bypass	NGW-BWB-HGN-04-DR-C-104-S3-P9 & NGW-BWB-HGN-05-DR-C-105-S3-P8	NGW-BWB-HGN-03-DR-C-143-S3-P5	NGW-BWB-HGN-02-DR-C-132-S3-P5 & NGW-BWB-HGN-02-DR-C-133-S3-P5	-
A508 Rookery Lane / Ashton Road Junction improvement	NGW-BWB-HGN-05-DR-C-105-S3-P8	NGW-BWB-HGN-06-DR-C-146-S3-P3	NGW-BWB-HGN-05-DR-C-135-S3-P4	NGW-BWB-GEN-XX-SK-C-SK19-S3-P5
A508 Pury Road Junction improvement	NGW-BWB-HGN-06-DR-C-106-S3-P9	n/a	n/a	NGW-BWB-GEN-XX-SK-C-SK17-S3-P3

Section of Scheme	Highway Plan: General Arrangement	Highway Plan: Long Section	Highway Plan: Cross Section	General Arrangement larger scale sketch See **Appendix A**
A508 Grafton Regis	NGW-BWB-HGN-06-DR-C-106-S3-P9	n/a	n/a	NGW-BWB-GEN-XX-SK-C-SK32-S3-P3
Knock Lane / Blisworth Road	NGW-BWB-HGN-06-DR-C-106-S3-P9	NGW-BWB-HGN-04-DR-C-144-S3-P4	NGW-BWB-HGN-05-DR-C-135-S3-P4	NGW-BWB-GEN-XX-SK-C-SK29-S3-P4

1.12 The Highway Plans are found within the formal documentation associated with the Development Consent Order application.

1.13 The following vehicle tracking drawings are found at **Appendix B**:

- NGW-BWB-GEN-XX-SK-C-SK41-S3-P1 – Roade Bypass Vehicle Tracking
- NGW-BWB-GEN-XX-SK-C-SK43-S3-P1 – SRFI Access Vehicle Tracking

1.14 Drawing NGW-BWB-GEN-XX-SK-C-SK42-S3-P1 – Departure location plan, is found at **Appendix C**.

2.0 GEOMETRIC DESIGN STANDARDS

Existing situation

2.1 The A508 south of M1 J15 is a principal road and primary route, predominantly a single carriageway of varying standard, connecting with the A5 north of Milton Keynes and Old Stratford.

2.2 North and south of Roade the existing A508 is subject to a 50mph speed limit due to the presence of a number of tight bends and substandard junctions. There are a number of speed cameras to improve compliance due to a number of accident locations.

2.3 The A508 passes though Roade village where it is currently subject to a 30mph speed limit. The road widths over the existing rail bridge makes it difficult for HGVs to pass when traveling in opposite directions.

Standards used

2.4 Unless stated otherwise the A508 route upgrade will be designed in accordance with the following Design Manual for Roads and Bridges (DMRB) standards:

- TA46/97 "Traffic flow ranges for use in the assessment of new rural roads"
- TA91/05 "Provision for Non-motorised Users"
- TD9/93 "Highway Link Design"
- TD16/07 "Geometric Design of Roundabouts"
- TD27/05 "Cross-Sections and Headrooms"
- TD41/95 "Vehicular Access to All-Purpose Trunk Roads"
- TD42/95 "Geometric Design of Major/Minor Priority Junctions"
- TD50/04 "The Geometric Layout of Signal-Controlled Junctions and Signalised Roundabouts"
- TD51/17 "Segregated Left Turn Lanes and Subsidiary Deflection Islands at Roundabouts"
- TD69/07 "The Location and Layout of Lay-bys and Rest Areas"
- IAN195/16 "Cycle traffic and the strategic road network"
- IAN198/17 "Existing Dual Carriageway All-Purpose Trunk Road Network: Additional Requirements and Relaxations"

2.5 The scheme includes alterations to several rural lanes. It is not considered appropriate to design rural lanes in full accordance with the DMRB which is purposely written for trunk roads, although in many cases it is also used for major local roads hence why it is appropriate for the A508 itself.

2.6 However, there are no recognised design standards for rural lanes. By their very nature they are generally historical routes their purpose being to access local villages and surrounding land. It is therefore proposed to design the rural lanes in accordance with the following criteria:

- A design speed of 70kph unless the carriageway width and visibility are sufficient to demonstrate that a greater design speed is considered appropriate
- Transition curves are not mandatory, especially in locations where they could result in a driver misreading the tightness of a bend
- Combinations of relaxations are not departures from standard
- The carriageway width shall be the minimum of the following:

- Existing width
- 5.5m where there are forecast to be few HGVs
- 6.75m where there are forecast to be a greater number of HGVs

- Widening shall be provided at corners / junctions as dictated by swept path analysis
- Footways or shared use footways/cycleways shall be provided where local circumstances demonstrate that there would be a benefit to do so

2.7 It is proposed that urban single carriageways are designed in accordance with the principles of Manual for Streets rather than the DMRB.

Design Speed

2.8 The design speeds for each section of the scheme are given as follows.

Road / Link Section	Road / Link Type	Design Speed (kph)	Derived from
A508 dualling and SRFI access roundabout			
A508 north of SRFI access roundabout	Urban dual carriageway	85	TD9/93 Table 3 for 50mph speed limit
A508 south of SRFI access roundabout	Rural single carriageway	85	TD9/93 for 50mph speed limit
A508 Blisworth Road Junction improvement			
A508	Rural single carriageway	85	TD9/93 for 50mph speed limit
Blisworth Road (Courteenhall)	Rural lane	70	See Rural Lane criteria above
A508 Roade bypass			
A508 Roade bypass	Rural single carriageway	100	TD9/93 for Rural Road
A508 North of Roade Bypass	Rural single carriageway	85	TD9/93 Table 3 for 50mph speed limit
Northampton Road (south of Roade Bypass)	Rural single carriageway	60	TD9/93 Table 3 for 30mph speed limit
Blisworth Road (Roade) (east of Roade Bypass)	Urban single carriageway	50	Manual for Streets (see above)
Blisworth Road / Knock lane (west of Roade Bypass)	Rural lane	70	See Rural Lane criteria above
Stratford Road (north / east of Roade Bypass)	Rural single carriageway	85	TD9/93 Table 3 for 50mph speed limit
A508 South of Roade Bypass	Rural single carriageway	85	TD9/93 Table 3 for 50mph speed limit
A508 Rookery Lane / Ashton Road Junction improvement			
A508	Rural single carriageway	85	TD9/93 for 50mph speed limit
Rookery Lane	Rural lane	70	See Rural Lane criteria above

Road / Link Section	Road / Link Type	Design Speed (kph)	Derived from
Ashton Road	Rural lane	70	See Rural Lane criteria above
A508 Pury Road Junction improvement			
A508	Rural single carriageway	100	TD9/93
A508 Grafton Regis			
A508	Urban single carriageway	60	TD9/93 Table 3 for 30mph speed limit

Departures from Standard

2.9 Various departures from standard are included in the scheme proposals and are identified within this report. All departures relate to the nature of the existing A508 and it is considered that the proposed improvements, including departures, will constitute a significant improvement over the existing situation.

2.10 Locations of departures are summarised on drawing **NGW-BWB-GEN-XX-SK-C-SK42** found at **Appendix C.**

3.0 HORIZONTAL DESIGN OF LINKS

3.1 The horizontal alignment consists of various elements, depending on the type of link. Each aspect is considered below.

A508 dualling and SRFI access roundabout

3.2 The various elements of the horizontal alignment are as stated below.

A508 Northbound – Between SRFI access roundabout and Junction 15

Chainage	Element	Standard (85kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-47.226	**Roundabout**			
47.226-126.823	Left Hand Curve	510m desirable min radius	510m	None
126.823-202.558	Left Hand Curve	510m desirable min radius	1020m	None
202.558-289.558	Transition curve to Straight	~86m length transition curve	87m	None
289.558-377.443	Straight	-	-	None
377.443/286.986	*Change of Alignment String*			
286.986-234.892	Straight	-	-	None
234.892-210.580	Left Hand Curve	510m desirable min radius	1020m	None
210.580-150.132	Straight	-	-	None
150.132	**NCC/ HE Boundary**			

A508 Southbound – Between Junction 15 and SRFI access roundabout

Chainage	Element	Standard (85kph design speed)	Proposed Design	
			Details	Relaxations / Departures
149.580	**NCC/ HE Boundary**			
149.580 - 299.467	Left hand curve	510m desirable min radius	255m	Two steps below desirable minimum is a permitted relaxation
299.467 / 372.881	*Change of Alignment String*			
372.881 - 260.723	Straight	-	-	None
260.723 - 217.723	Transition curve to Straight	~86m length transition curve	43m	Relaxation of q to 0.6m permitted by TD9/93 para 3.16 due to geometrical constraints
217.723 - 42.454	Left Hand Curve	510m desirable min radius	1035.450m	None
42.454 - 0	**Roundabout**			

A508 – South of SRFI access roundabout

3.3 The various elements of the horizontal alignment between the proposed site access and the tie in to the existing A508 are as stated below.

Chainage	Element	Standard (85kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-159.857	Straight	-		none
159.875-205.752	Left Hand Curve	510m desirable min radius	720m	None
205.752-251.028	**Roundabout**			

A508 Blisworth Road Junction Improvement

3.4 The various elements of the horizontal alignment are as stated below.

A508 (mainline)

Chainage	Element	Standard (85kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-15.292	Straight	-	-	None
15.292-93.292	Transition curve to right hand curve	Maximum 58m length transition curve √(24R)	78m	As existing
93.292-104.843	Right Hand Curve	510m desirable min radius	140m	4 steps below desirable minimum is a permitted relaxation for a Band B road. However, this is not permitted in combination with a relaxation in stopping sight distance and crest K value – see **Departure from Standard** reference **NGW/A508/02** below.
104.843-154.843	Transition to Straight	Maximum 58m length transition curve √(24R)	50m	None
154.843-369.696	Straight	-	-	None
369.696-400.921	Transition curve to right hand curve	Maximum 55m length transition curve √(24R)	31.2m	As existing
400.921-409.078	Right Hand Curve	510m desirable min radius	119m	As existing
409.078-437.191	Transition to Straight	Maximum 55m length transition curve √(24R)	28.1m	As existing
437.191-490.505	Straight	-	-	None

Blisworth Road (Courteenhall)

3.5 The existing horizontal alignment on Blisworth Road is to be retained and is summarised as follows:

Chainage	Element	Standard (70kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-39.928	Left Hand Curve	360m desirable min radius	720m	None
39.928-59.733	Straight	-	-	None
59.733-95.930	Right Hand Curve	360m desirable min radius	180m	Two steps below desirable minimum is a permitted relaxation
95.930	**Give way line**			

A508 Roade Bypass

3.6 The various elements of Roade bypass are as stated below.

A508 (mainline)

Chainage	Element	Standard (100kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-59.224	Straight			None
59.224-199.180	Transition curve to left hand curve	~140m length transition curve	~140m length transition curve	None
199.180-300	Left Hand Curve	720m desirable min radius	510m	1 step below desirable minimum is a permitted relaxation
300-400	**Roundabout**			
400-524.166	Left Hand Curve	720m desirable min radius	510m	1 step below desirable minimum is a permitted relaxation
524.166-664.122	Transition to Straight	~140m length transition curve	~140m length transition curve	None
664.122-742.334	Straight	-	-	None
742.344-882.300	Transition curve to right hand curve	~140m length transition curve	~140m length transition curve	None
882.300-1394.966	Curve	720m desirable min radius	510m	1 step below desirable minimum is a permitted relaxation
1394.966-1534.922	Transition to Straight	~140m length transition curve	~140m length transition curve	None
1534.922-1550	Straight	-	-	None
1550-1650	**Roundabout**			

Chainage	Element	Standard (100kph design speed)	Proposed Design	
			Details	Relaxations / Departures
1650-1695.918	Straight	-	-	None
1695.918-1835.874	Transition curve to right hand curve	~140m length transition curve	~140m length transition curve	None
1835.874-2026.710	Curve	720m desirable min radius	510m	1 step below desirable minimum is a permitted relaxation
2026.710-2166.666	Transition to Straight	~140m length transition curve	~140m length transition curve	None
2166.666-2253.016	Straight	-	-	None
2253.016-2352.151	Transition curve to right hand curve	~99m length transition curve	~99m length transition curve	None
2352.151-2450	Curve	720m desirable min radius	720m	None
2450	**Roundabout**			

Northampton Road - North

3.7 The various elements of the link to connect the roundabout to the existing A508 are as stated below.

Chainage	Element	Standard (85kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-165.183	Left Hand Curve	720m desirable min radius	720m	None
165.183-226.166	**Roundabout**			

Northampton Road (South of bypass)

3.8 The various elements of the link to Roade are as stated below.

Chainage	Element	Standard (50kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-9.923	Straight	-	-	None
9.923-158.623	Curve	255m desirable min radius	90m	3 steps below desirable minimum is a permitted relaxation
158.623-	**Roundabout**			

Blisworth Road (Roade) (East of bypass)

3.9 The various elements of the link to Roade are as stated below.

Chainage	Element	Standard (70kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-11.441	Straight	-	-	
11.441-66.006	Curve	255m desirable min radius	60m	Radii designed to Manual for Streets for urban single carriageway road
66.006-86.643	Straight			
86.643-131.564	Curve	255m desirable min radius	60m	Radii designed to Manual for Streets for urban single carriageway road
131.564-165.385	**Roundabout**			

Blisworth Road (Roade) (West of bypass)

3.10 The various elements of the link to Blisworth are as stated below.

Chainage	Element	Standard (70kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-20.000	Straight	-	-	None
20.000 - 68.000	Transition curve to left hand curve	~96m length transition curve	~48m length transition curve	Relaxation of q to 0.6m permitted by TD9/93 para 3.16 due to geometrical constraints
68.000 - 70.784	Curve	360m desirable min radius	255m	1 step below desirable minimum is a permitted relaxation
70.784 - 110.784	Transition curve to Straight	~96m length transition curve (√24R = 78m)	~40m length transition curve	As noted above full transition curves are not considered mandatory for rural lanes
110.784 - 153.784	Transition curve to right hand curve	~136m length transition curve (√24R =66m)	~43m length transition curve	As noted above full transition curves are not considered mandatory for rural lanes
153.784 -179.429	Curve	360m desirable min radius	180m	2 steps below desirable minimum is a permitted relaxation
179.429 - 199.956	**Roundabout**			

Stratford Road (north of Roade bypass)

3.11 The various elements of the link to the south of Roade are as stated below.

Chainage	Element	Standard (85kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-9.923	Straight	-	-	None
9.923-158.623	Curve	510m desirable min radius	180m	3 steps below desirable minimum is a permitted relaxation. However, this is not permitted in combination with a relaxation in sag K value – see **Departure from Standard** reference **NGW/A508/06** below.
158.623-183.420	Straight	-	-	None
183.420	**Roundabout**			

Knock Lane

3.12 The various elements of the Knock Lane improvements are as stated below.

Knock Lane / Blisworth Road (Roade) bend widening

Chainage	Element	Standard (70kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-58.252	Straight	-	-	None
58.252-68.203	Curve	360m desirable min radius	1020m	None
68.203-112.924	Straight	-	-	None
112.924-172.067	Curve	360m desirable min radius	180m	2 steps below desirable minimum is a permitted relaxation. Used in combination with a 2 step relaxation in stopping sight distance. This is an existing combination.
172.067-221.059	Straight	-	-	None
221.059-223.074	Curve	360m desirable min radius	1020m	None
223.074-285.118	Straight	-	-	None

Stoke Road / Knock Lane Junction improvement (Knock Lane)

Chainage	Element	Standard (70kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-14.080	**Stoke Road junction**			
14.080-104.895	Straight	-	-	None
104.895-177.362	Curve	360m desirable min radius	255m	1 step below desirable minimum is a permitted relaxation.
177.362-197.362	Curve	360m desirable min radius	1517m	None

A508 Rookery Lane / Ashton Road Junction improvement

3.13 The various elements of A508 Rookery Lane / Ashton Road Junction improvement are as stated below.

A508 Northbound

Chainage	Element	Standard (85kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-6.475	Straight	-	-	None
6.475-92.425	Transition curve to left hand curve	~172m length transition curve	~86m length transition curve	Relaxation of q to 0.6m permitted by TD9/93 para 3.16 due to geometrical constraints
92.425-155.925	Left hand Curve	510m desirable min radius	255m	2 steps below desirable minimum is a permitted relaxation. However, this is not permitted in combination with a relaxation in crest K value – see **Departure from Standard** reference **NGW/A508/10** below.
155.925-241.875	Transition curve to straight	~172m length transition curve	~86m length transition curve	Relaxation of q to 0.6m permitted by TD9/93 para 3.16 due to geometrical constraints
241.875-362.030	Straight	-	-	None
362.030-448.030	Transition curve to right hand curve	~86m length transition curve	~86m length transition curve	None
448.030-549.573	Right hand Curve	510m desirable min radius	510m	None
549.573-635.573	Transition curve to straight	~86m length transition curve	~86m length transition curve	None
635.573-658.0	Straight	-	-	None

A508 Southbound

Chainage	Element	Standard (85kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-22.906	Straight	-	-	None
22.906-130.418	Transition curve to left hand curve	~122m length transition curve	~122m length transition curve	None
130.418-171.362	Left hand Curve	510m desirable min radius	360m	1 step relaxation below desirable minimum is a permitted relaxation. However, this is not permitted in combination with a relaxation in crest K value – see **Departure from Standard** reference **NGW/A508/13** below.
171.362-232.242	Transition curve to straight	~122m length transition curve	~61m length transition curve	Relaxation of q to 0.6m permitted by TD9/93 para 3.16 due to geometrical constraints
232.242-399.250	Straight	-	-	None
399.250-483.810	Transition curve to right hand curve	~169m length transition curve	~84m length transition curve	Relaxation of q to 0.6m permitted by TD9/93 para 3.16 due to geometrical constraints
483.810-551.900	Right hand curve	510m desirable min radius	260m	1 to 2 steps relaxation below desirable minimum is a permitted relaxation.
551.900-636.190	Transition curve to straight	~169m length transition curve	~84m length transition curve	Relaxation of q to 0.6m permitted by TD9/93 para 3.16 due to geometrical constraints
636.190-660.0	Straight	-	-	None

Rookery Lane

Chainage	Element	Standard (70kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-53.372	Straight	-	-	None
53.372	**Junction**			

Ashton Road

Chainage	Element	Standard (70kph design speed)	Proposed Design	
			Details	Relaxations / Departures
0-19.615	Straight	-	-	None
19.615-57.257	Curve	360m desirable min radius	180m	2 steps below desirable minimum is a permitted relaxation. However, this is not permitted in combination with a relaxation in crest or Sag K values – see **Departure from**

Chainage	Element	Standard (70kph design speed)	Proposed Design	
			Details	Relaxations / Departures
				Standard reference **NGW/A508/17 & 19** which are assessed in detail below. No transitions are proposed and these are not mandatory for rural lanes as discussed above.
57.257-65.0	Straight	-	-	None
65.0	**Junction**			

A508 Pury Road Junction Improvement

3.14 No changes to the horizontal alignment of the A508 or Pury Road are proposed. The changes to the junction layout are assessed below.

A508 Grafton Regis

3.15 No changes to the horizontal alignment of the A508 or Church Lane are proposed. The changes to the junction layout are assessed below.

4.0 SIGHT DISTANCE ON LINKS

4.1 The stopping sight distance is assessed for each of the links identified above. Note that visibility to traffic signals or roundabout give way lines are assessed separately.

A508 dualling and SRFI access roundabout

A508 Northbound – Between SRFI access and Junction 15

4.2 As noted in Chapter 2 above the link will have a design speed of 85kph and the desirable minimum stopping sight distance is 160m.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0- 274.376	Merge of SLTL	≥160m	None
274.376 - 377.440	Immediate approach to proposed signalised junction with M1	≥160m for 240m	None
377.443 / 286.986	*Change of Alignment String*		
286-.986 - 150.132	Immediate approach to proposed signalised junction with M1	≥160m for 240m	None
152.343	NCC/ HE Boundary		

A508 Southbound – Between Junction 15 and SRFI access

4.3 As noted in Chapter 2 above the link will have a design speed of 85kph and the desirable minimum stopping sight distance is 160m. The stopping sight distance along the link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
149.580	NCC/ HE Boundary		
149.580 - 299.467	-	≥160m	None
299.467 / 372.881	*Change of Alignment String*		
372.881 - 257.247	-	≥160m	None

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
257.247 - 17.247	Immediate approach to proposed roundabout	≥160m for 240m	None

A508 – South of site access

4.4 As noted in Chapter 2 above the link will have a design speed of 85kph and the desirable minimum stopping sight distance is 160m.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-5.248m	None	≥160m	None
5.248 - 245.248	Immediate approach to proposed roundabout (northbound)	≥160m for 240m	None

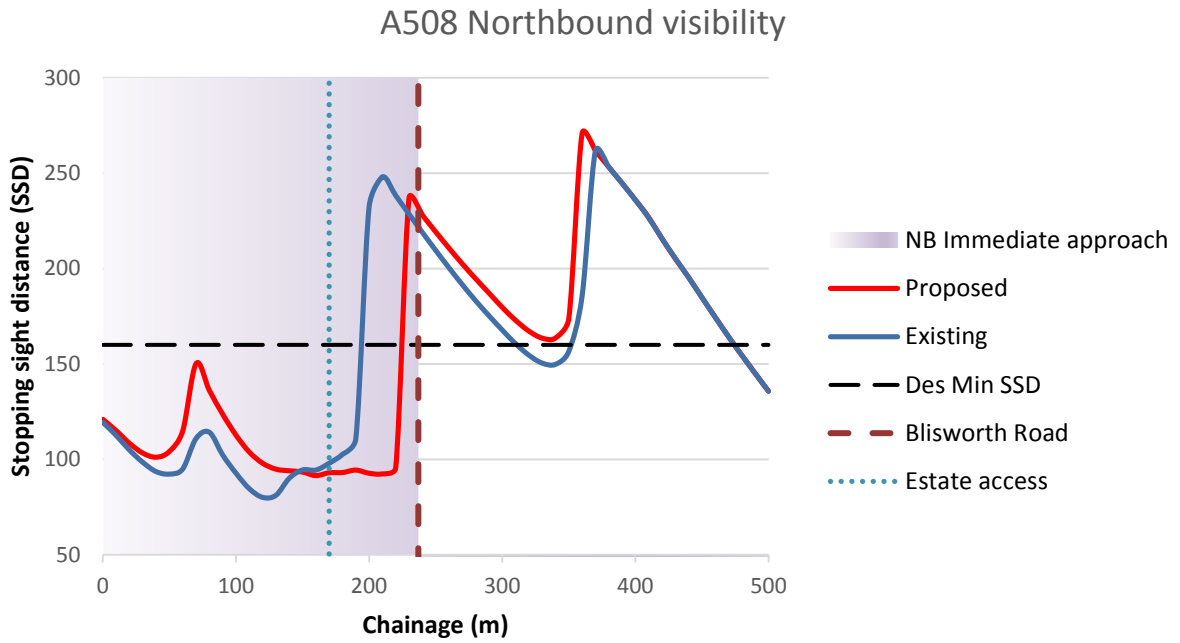
A508 Blisworth Road Junction Improvement

A508 (mainline) Northbound

4.5 As noted in Chapter 2 above the link will have a design speed of 85kph and the desirable minimum stopping sight distance is 160m. The stopping sight distance along the northbound link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-230	Major Minor junction with Blisworth road	≥90m, see graph	2 Steps below desirable minimum. This is on the immediate approach to the junction with Blisworth Road and is therefore a **Departure from Standard** reference **NGW/A508/01.** Furthermore, this is in combination with a 4 step below desirable minimum radius and 2 step relaxation in Crest K value which constitutes a further **Departure from Standard** reference **NGW/A508/02.** See below for further details.
230-490.505	Major Minor junction with Blisworth road	≥160m, see graph	

4.6 The existing and proposed visibility to a 0.26m object height along the A508 northbound at the Blisworth Road junction is shown in full below.



4.7 **Departure from Standard NGW/A508/01** is for the relaxation in visibility on the immediate approach to the Blisworth Road junction in the northbound direction.

4.8 **Departure from Standard NGW/A508/02** is for combination of a 2 step below desirable minimum SSD, 2 step below desirable minimum Crest K value and 4 step below desirable minimum horizontal radius. This applies in both directions.

4.9 **Departure from Standard NGW/A508/03** is for a 2 step below desirable minimum Crest K value on the immediate approach to the Blisworth Road junction in the northbound direction.

4.10 It is not possible to provide a fully compliant layout for the A508 at the Blisworth Road junction without wholescale realignment of the A508 and removal of the substandard existing bends, junctions, accesses and crests. Such wholescale realignment is not considered necessary as a result of the impacts of the SRFI development and would have additional environmental impacts.

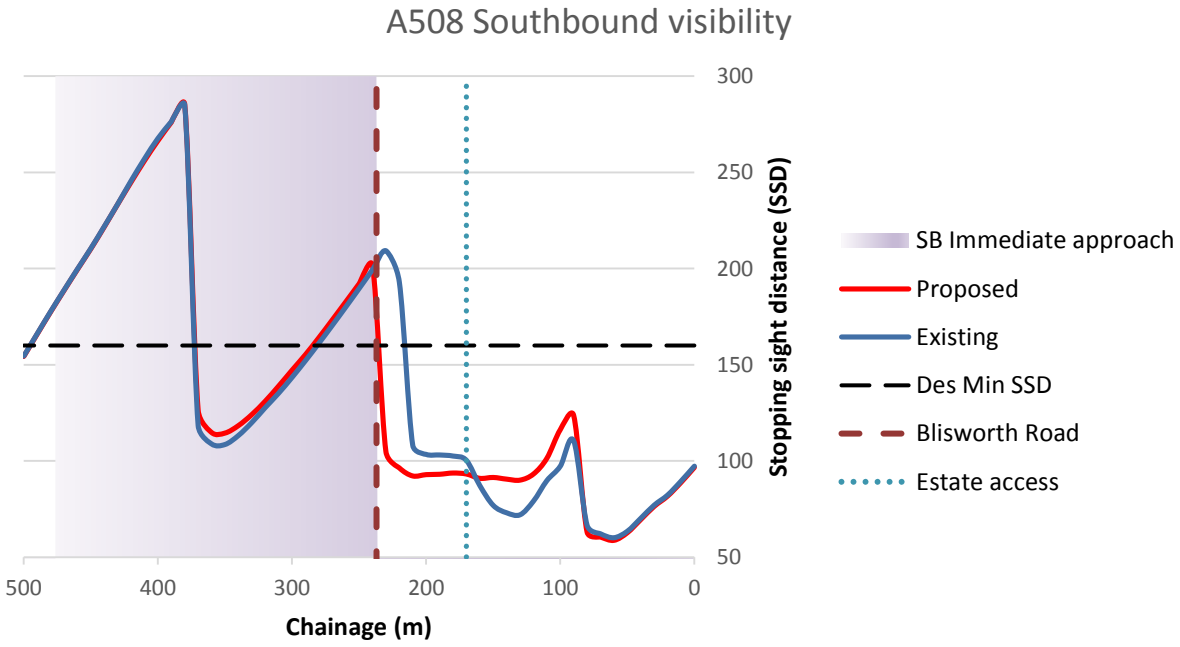
4.11 Whilst the scheme as proposed does have various departures from standard as recorded in this report it is considered that the proposals are a significant improvement over the existing situation for the following reasons:

- The minimum visibility is increased to 90m to the low object height in the northbound direction
- Right turning traffic i.e. the most significantly conflicting traffic, is removed from the junction.
- The crest is moved to the location of the junction which, although extends the distance over which the forward visibility is reduced heading northbound, it does significantly improve the junction visibility. The junction visibility is assessed under Departure from Standard **NGW/A508/07**, see below for further details.

A508 (mainline) Southbound

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
490.505-370		≥160m, see graph	
360-280	Blisworth Road (but right turns not permitted)	≥90m, see graph	2 Steps below desirable minimum, this is in combination with a 4 step below desirable minimum radius and 2 step relaxation in Crest K value which constitutes **Departure from Standard** reference **NGW/A508/02.** See above for further details.
280 - 230	Estate access	≥160m, see graph	
230-90	Estate access	≥90, see graph	2 Steps below desirable minimum
90-0		≥70, see graph	3 Steps below desirable minimum in combination with a 4 step below desirable minimum radius. This is an existing departure from standard.

4.12 The existing and proposed visibility to a 0.26m object height along the A508 southbound is shown in full below.



Blisworth Road (Courteenhall)

4.13 As noted in Chapter 2 above the link will have a design speed of 70kph and the desirable minimum stopping sight distance is 120m. The stopping sight distance along the centre line Blisworth Road is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-96.395	Approach to give way line	≥120m for 180m	None

A508 Roade Bypass

4.14 As noted in chapter 2 above, the design speed is 100kph for the Roade Bypass and thus the desirable minimum stopping sight distance is 215m as per TD9/93 Table 3. South of the bypass the design speed is 85kph and the desirable minimum stopping sight distance is 160m. The stopping sight distance along the link is assessed in the table below.

A508 (mainline) Northbound

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0 – 314.663m	Immediate approach to proposed roundabout	≥160m for 240m	None
314.663-392.664	Roundabout		
392.664-715.164		≥215m	None
715.164-1235.86		≥160m	Relaxation to one step below desirable minimum.
1235.86-1558.360	Immediate approach to proposed roundabout	≥215m for 322.5m	None
1558.360-1646.267	Roundabout		
1646.267-1968.767		≥215m	None
1968.767-2151.526	None	≥215m	None
2151.526-2474.029	Immediate approach to	≥215m for 322.5m	None

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
	proposed roundabout		
2474.029	Roundabout		

A508 (mainline) Southbound

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
2474.029	**Roundabout**		
2474.029-2151.526		≥215m	None
2151.526 - 1968.76	None	≥215m	None
1968.767 - 1646.267	Immediate approach to proposed roundabout	≥215m for 322.5m	None
1646.267 - 1558.360	**Roundabout**		
1558.360 - 1235.860		≥215m	None
1235.860 - 715.164		≥160m	Relaxation to one step below desirable minimum
715.164 - 392.664	Immediate approach to proposed roundabout	≥215m for 322.5m	None
392.664 - 314.663	**Roundabout**		
314.663 - 0		≥160m	None

Northampton Road - North

4.15 As noted in chapter 2 above, the design speed is 85kph and thus the desirable minimum stopping sight distance is 160m as per TD9/93 Table 3. The stopping sight distance along the link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-219.917	Immediate approach to proposed roundabout (southbound)	≥160m for 240m	None

Northampton Road (South of Roade Bypass)

4.16 As noted in chapter 2 above, the design speed is 60kph and thus the desirable minimum stopping sight distance is 90m as per TD9/93 Table 3. The stopping sight distance along the link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-117.400	Immediate approach to proposed roundabout	≥90m for 135m	None

Blisworth Road (Roade) (East of bypass)

4.17 As noted in chapter 2 above, the design speed is 50kph and thus the desirable minimum stopping sight distance is 70m as per TD9/93 Table 3. The stopping sight distance along the link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0 – 55.502	None	≥70	None
55.502-160.502	Immediate approach to proposed roundabout	≥70m for 105m	None

Blisworth Road (Roade) (west of Roade bypass)

4.18 As noted in chapter 2 above, the design speed is 70kph and thus the desirable minimum stopping sight distance is 120m as per TD9/93 Table 3. The stopping sight distance along the link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-53.341	None	≥120	None
53.341-233.341	Immediate approach to proposed roundabout	≥120m for 180m	None

Stratford Road (north of Roade bypass)

4.19 As noted in chapter 2 above, the design speed is 85kph and thus the desirable minimum stopping sight distance is 160m as per TD9/93 Table 3. The stopping sight distance along the link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-36.565	None	≥160	None
36.565-216.565	Immediate approach to proposed roundabout	Horizontal SSD is ≥160 for 240m, but this is affected by vertical alignment crest	See **Departure from Standard** reference **NGW/A508/05,** details are given below.

Knock Lane

Knock Lane / Blisworth Road (Roade) bend widening

4.20 As noted in Chapter 2 above the link will have a design speed of 70kph and the desirable minimum stopping sight distance is 120m. The stopping sight distance along the westbound (inside) lane is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
284-259	None	≥120	None
259-224	None	≥90	Relaxation to one step below desirable minimum
224-199	None	≥70	Relaxation to two steps below desirable minimum
199-164	None	≥50	3 Steps below desirable minimum in combination with a 2 step below desirable minimum radius. This is an existing combination.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
164-154	None	≥70	2 Steps below desirable minimum in combination with a 2 step below desirable minimum radius. This is an existing combination.
154-149	None	≥90	Relaxation to one step below desirable minimum

Stoke Road / Knock Lane Junction improvement (Knock Lane)

4.21 As noted in Chapter 2 above Knock Lane will have a design speed of 70kph and the desirable minimum stopping sight distance is 120m. The stopping sight distance along the westbound lane is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
197.362-180	None	≥120	None
0-180	Approach to give way line	≥120 for 180m	None

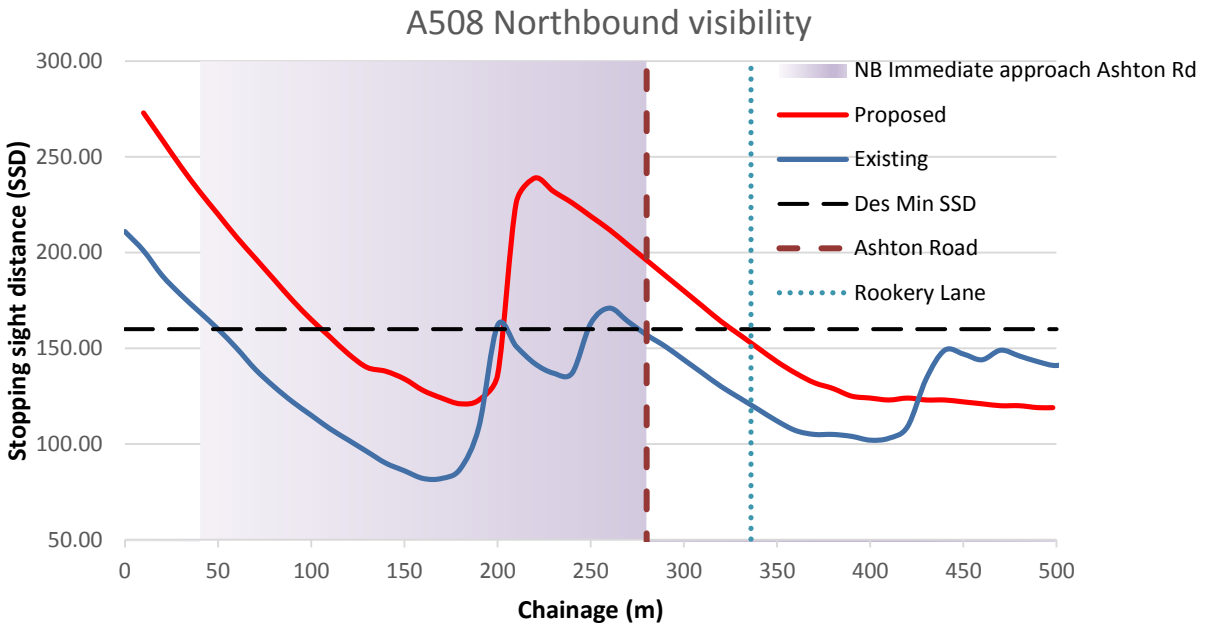
A508 Rookery Lane / Ashton Road Junction improvement

A508 Northbound

4.22 As noted in Chapter 2 above the link will have a design speed of 85kph and the desirable minimum stopping sight distance is 160m. The stopping sight distance along the northbound link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-40	None	≥160m, see graph	None
40-100	Major Minor junction with Ashton Road	≥160m, see graph	None
100-200	Major Minor junction with Ashton Road / Rookery Lane	120 to 160m, see graph	1 Step below desirable minimum. This is on the immediate approach to the junction with Ashton Road / Rookery Lane and is therefore a **Departure from Standard** reference **NGW/A508/09.** Furthermore, this is in combination with a 2 step below desirable minimum radius and 1 step relaxation in Crest K value which constitutes a further **Departure from Standard** reference **NGW/A508/10.** See below for further details.
210-320	Major Minor junction with Ashton Road / Rookery Lane	≥160m, see graph	None
280	Centreline of Ashton Road		
320-336	Major Minor junction with Rookery Lane	150 to 160m, see graph	None
336	Centreline of Rookery Lane		
320-490	None	≥120m, see graph	1 Step below desirable minimum as a permitted relaxation

4.23 The existing and proposed visibility to a 0.26m object height along the A508 northbound is shown in full below.



4.24 **Departure from Standard NGW/A508/09** is for the relaxation in visibility on the immediate approach to the Ashton Road and Rookery Lane junction in the northbound direction.

4.25 **Departure from Standard NGW/A508/10** is for combination of a 1 step below desirable minimum SSD, 1 step below desirable minimum Crest K value and 2 step below desirable minimum horizontal radius. This applies in the northbound direction.

4.26 **Departure from Standard NGW/A508/11** is for the provision of a Crest K at 1 step below the desirable minimum on the immediate approach to the Ashton Road and Rookery Lane junction in the northbound direction. This results in the visibility departure i.e. departure **NGW/A508/09.**

4.27 It is not possible to provide a fully compliant layout for the A508 at the Ashton Road and Rookery Lane junctions without a wholescale realignment of the A508 over a much greater length. This is due to the existing sub-standard alignment and significant difference in level along this short length of road. Such wholescale realignment is not considered necessary as a result of the impacts of the SRFI development and would have additional environmental impacts.

4.28 Whilst the scheme as proposed does have various departures from standard as recorded in this report it is considered that the proposals are a significant improvement over the existing situation for the following reasons:

- Right turning vehicles leaving the A508 will not hold up through traffic
- Right turning vehicles onto the A508 can do so in two stages whereas at present they do it in a single movement, often contrary to the highway code
- The cross-roads 'straight over' movement is removed as the junction would be staggered
- The minimum visibility is increased to 120m to the low object height in the northbound direction which is a significant improvement.
- Visibility to an object height of 1.05m will be available at the stopping sight distance of 160m throughout the junction meaning drivers will see other vehicles

braking and turning ahead for the full stopping sight distance, again a significant improvement over existing.

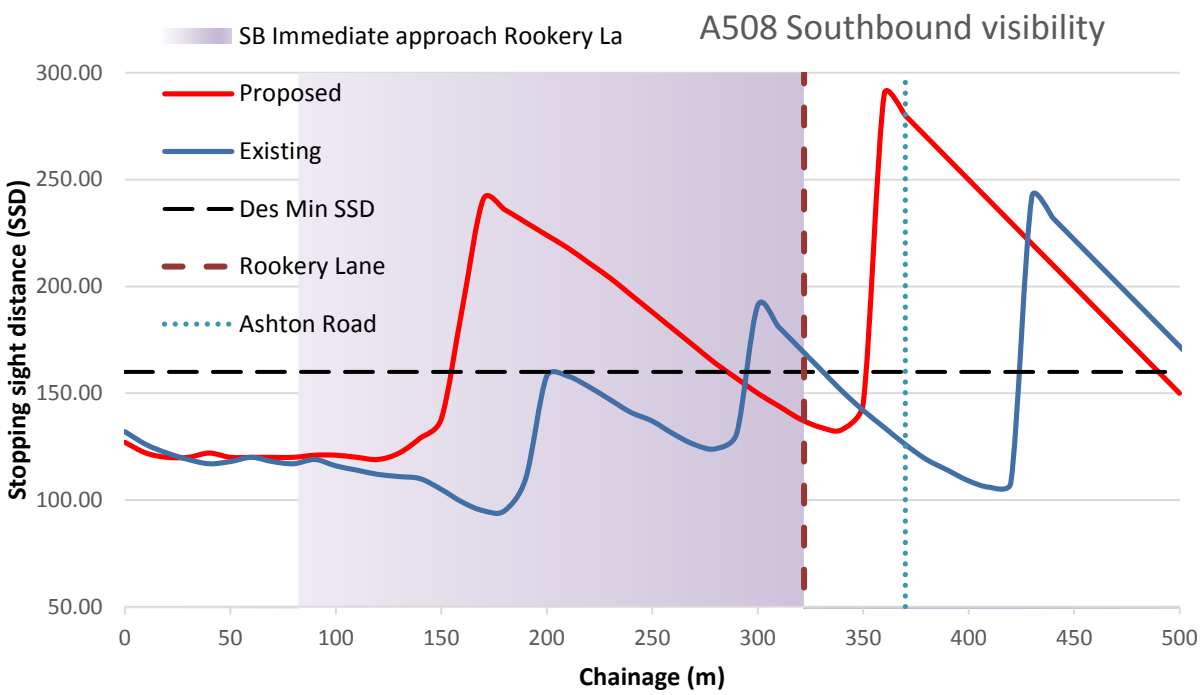
- The junction visibility, which is assessed in detail below, is improved significantly.

A508 (mainline) Southbound

4.29 As noted in Chapter 2 above the link will have a design speed of 85kph and the desirable minimum stopping sight distance is 160m. The stopping sight distance along the northbound link is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-80	None	≥120m, see graph	1 Step below desirable minimum as a permitted relaxation
80-160	Major Minor junction with Ashton Road / Rookery Lane	120 to 160m, see graph	1 Step below desirable minimum. This is on the immediate approach to the junction with Ashton Road / Rookery Lane and is therefore a **Departure from Standard** reference **NGW/A508/12.** Furthermore, this is in combination with a 1 step below desirable minimum radius and 1 step relaxation in Crest K value which constitutes a further **Departure from Standard** reference **NGW/A508/13.** See below for further details.
160-280	Major Minor junction with Ashton Road / Rookery Lane	≥160m, see graph	None
280-360	Major Minor junction with Ashton Road / Rookery Lane	130 to 160m, see graph	1 Step below desirable minimum. This is on the immediate approach to the junction with Ashton Road / Rookery Lane and is therefore a **Departure from Standard** reference **NGW/A508/12.** Furthermore, this is in combination with a 1 step below desirable minimum radius and 1 step relaxation in Crest K value which constitutes a further **Departure from Standard** reference **NGW/A508/13.** See below for further details.
322	Centreline of Rookery Lane		
370	Centreline of Ashton Road		
360-490	None	≥160m, see graph	None

4.30 The existing and proposed visibility to a 0.26m object height along the A508 northbound is shown in full below.



4.31 **Departure from Standard NGW/A508/12** is for the relaxation in visibility on the immediate approach to the Ashton Road and Rookery Lane junction in the southbound direction.

4.32 **Departure from Standard NGW/A508/13** is for combination of a 1 step below desirable minimum SSD, 1 step below desirable minimum Crest K value and 1 step below desirable minimum horizontal radius. This applies in the southbound direction.

4.33 **Departure from Standard NGW/A508/14** is for the provision of a Crest K at 1 step below the desirable minimum on the immediate approach to the Ashton Road and Rookery Lane junction in the southbound direction. This results in the visibility departure i.e. departure **NGW/A508/12.**

4.34 It is not possible to provide a fully compliant layout for the A508 at the Ashton Road and Rookery Lane junctions without a wholescale realignment of the A508 over a much greater length. This is due to the existing sub-standard alignment and significant difference in level along this short length of road. Such wholescale realignment is not considered necessary as a result of the impacts of the SRFI development and would have additional environmental impacts.

4.35 Whilst the scheme as proposed does have various departures from standard as recorded in this report it is considered that the proposals are a significant improvement over the existing situation for the following reasons:

- Right turning vehicles leaving the A508 will not hold up through traffic
- Right turning vehicles onto the A508 can do so in two stages whereas at present they do it in a single movement, often contrary to the highway code
- The cross-roads 'straight over' movement is removed as the junction would be staggered
- The minimum visibility is increased to 120m to the low object height in the northbound direction which is a significant improvement.

- Visibility to an object height of 1.05m will be available at the stopping sight distance of 160m throughout the junction meaning drivers will see other vehicles braking and turning ahead for the full stopping sight distance, again a significant improvement over existing.
- The junction visibility, which is assessed in detail below, is improved significantly.

Rookery Lane

4.36 As noted in Chapter 2 above the link will have a design speed of 70kph and the desirable minimum stopping sight distance is 120m. The stopping sight distance along the centre line Rookery Lane is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-72	Approach to give way line	≥90m for 180m	1 Step below desirable minimum. This is on the immediate approach to the junction with the A508 and is therefore a **Departure from Standard** reference **NGW/A508/15.** As this results from the vertical alignment this is assessed below.

Ashton Road

4.37 As noted in Chapter 2 above the link will have a design speed of 70kph and the desirable minimum stopping sight distance is 120m. The stopping sight distance along the centre line Ashton Road is assessed in the table below.

Chainage	Junction Features within Length	Proposed SSD	Relaxations / Departures
0-87	Approach to give way line	≥90m for 180m	1 Step below desirable minimum. This is on the immediate approach to the junction with the A508 and is therefore a **Departure from Standard** reference **NGW/A508/16.** As this results from the vertical alignment this is assessed below.

A508 Pury Road Junction Improvement

4.38 No changes to the forward visibility on the A508 or Pury Road are proposed. The changes to the junction layout are assessed below.

A508 Grafton Regis

4.39 No changes to the forward visibility on the A508 or Church Lane are proposed. The changes to the junction layout are assessed below.

5.0 VERTICAL DESIGN OF LINKS

5.1 The vertical alignment consists of various elements, depending on the type of link. Each aspect is considered below.

A508 dualling and SRFI access roundabout

A508 Northbound – Between Site access and Junction 15

5.2 The various elements of the vertical alignment are as stated below.

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-20.504	**Roundabout Exit**				
20.504-224.942	Grade	SLTL merge	0.5% - 4%	-0.97%	
224.942-298.820	Grade	Immediate approach NB to stop line	0.5% - 4%	-0.97%	
298.820-377.443	Sag Curve	Immediate approach NB to stop line	20KF	32.08KF	
377.443/ 286.986	*Change of Alignment String*				
286.986-237.631	Sag Curve	Immediate approach NB to stop line	20KF	32.08KF	
237.631-151.822	Grade	Immediate approach NB to stop line	0.5% - 4%	3.14%	
151.822	**M1 Junction 15 signalised gyratory**				

A508 southbound – Between Site access and Junction 15

5.3 The various elements of the vertical alignment are as stated below.

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
149.580	**M1 Junction 15 signalised gyratory**				
149.581-196.250	Grade		0.5% - 4%	2.84%	
196.250-300.709	Sag Curve		20 KF	55 KF	
300.709-299.467	Grade		0.5% - 4%	0.94%	
299.467/ 372.881	*Change of Alignment String*				
372.881-352.625	Grade		0.5% - 4%	0.94%	

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
352.625-304.128	Sag Curve		20 KF	25 KF	
304.128-257.247	Grade		0.5% - 4%	-1.00%	
257.247-51.154	Grade	Immediate approach SB to roundabout	0.5% - 4%	-1.00%	
51.154-29.406	Sag Curve	Immediate approach SB to roundabout	20 KF	30 KF	
29.406-17.247	Sag Curve	Immediate approach SB to roundabout	20 KF	27.611KF	
17.247	**Give way line**				

A508 – South of Site access

5.4 The various elements of the minor arm are as stated below.

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-151.025	Grade		0.5% - 6%	2.17%	
151.025-245.248	Sag Curve		20 KF	50 KF	
245.248	**Roundabout give way line**				

A508 Blisworth Road Junction Improvement

A508 (mainline)

5.5 The various elements of the vertical alignment are as stated below.

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-13.063	Crest curve	Immediate approach NB to Blisworth Road	55 KF	23.53 KF	Existing Departure
13.063-28.186	Grade	Immediate approach NB to Blisworth Road	0.5% - 6%	3.06 %	As existing
28.186-73.432	Sag Curve	Immediate approach NB to Blisworth Road	20 KF	20 KF	As existing
73.432-129.714	Sag Curve	Immediate approach NB to Blisworth Road	20 KF	13 KF	Existing Departure
129.714-306.818	Crest curve	Immediate approach NB Blisworth Road (at ch. 237)	55 KF	18.44 KF	2 step relaxation in Crest K value on the immediate approach to a junction constitutes a **Departure from Standard** reference **NGW/A508/03.** See above for further details.
306.818-369.279	Sag Curve		20 KF	20 KF	
369.279-415.081	Crest curve		55 KF	23 KF	Existing Departure
415.081-435.913	Grade		0.5% - 6%	4.94 %	
435.913-479.194	Sag Curve		20 KF	77.63 KF	As existing
479.194-490.505	Grade		0.5% - 6%	4.38 %	

Blisworth Road (Courteenhall)

5.6 The various elements of the minor arm are as stated below.

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-9.341	Grade	Immediate approach WB to give way line	0.5% - 6%	2.37 %	As existing
9.341-50.938	Crest curve	Immediate approach WB to give way line	55 KF	40 KF	As existing
50.938-63.193	Grade	Immediate approach WB to give way line	0.5% - 6%	3.41 %	As existing
63.193	**Vertical Tie in point**				

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
63.193-81.718	Sag Curve	Immediate approach WB to give way line	20 KF	20 KF	None
81.718-96.365	Grade	Immediate approach WB to give way line	0.5% - 6%	2.49%	-
96.365	**Give way line**				

A508 Roade Bypass

5.7 The following tables summarise the vertical alignment elements for the various elements of Roade bypass.

A508 (mainline)

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
60.775	**Vertical Tie in point**				
60.755-146.444	Grade	Immediate approach NB to roundabout	0.5% - 6%	1.63%	-
146.444-205.961	Sag curve	Immediate approach NB to roundabout	26KF	26KF	-
205.961-314.242	Grade	Immediate approach NB to roundabout	0.5% - 6%	0.66%	-
314.242-392.606	**Roundabout**				
392.606-400.243	Grade	Immediate approach SB to roundabout	0.5% - 6%	2.21 %	-
400.243-459.757	Sag curve	Immediate approach SB to roundabout	26KF	26KF	-
459.757-482.724	Grade	Immediate approach SB to roundabout	0.5% - 6%	4.50%	-
482.223-715.106	Crest Curve	Immediate approach SB to roundabout	100KF	100KF	-
715.106-1051.238	Crest Curve		100KF	100KF	-
1051.238-1242.592	Grade		0.5% - 6%	-1.19%	-
1242.592-1263.338	Grade	Immediate approach NB to roundabout	0.5% - 6%	-1.19%	-
1263.338-1307.328	Sag Curve	Immediate approach NB to roundabout	26KF	26KF	-
1307.328-1412.515	Grade	Immediate approach NB to roundabout	0.5% - 6%	0.50%	-

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
1412.515-1447.109	Sag Curve	Immediate approach NB to roundabout	26KF	26KF	-
1447.109-1565.092	Grade	Immediate approach NB to roundabout	0.5% - 6%	1.83%	-
1565.092-1631.544	**Roundabout**				
1631.544-1753.243	Grade	Immediate approach SB to roundabout	-	-	-
1753.243-1954.044	Crest curve	Immediate approach SB to roundabout	100KF	100KF	-
1954.044-2053.139	Crest curve		100KF	100KF	-
2053.139-2138.121	Grade		0.5% - 6%	-1.13%	-
2138.121-2150.820	Sag Curve		26KF	26KF	-
2150.820-2189.753	Sag Curve	Immediate approach NB to roundabout	26KF	26KF	-
2189.753-2426.385	Grade	Immediate approach NB to roundabout	0.5% - 6%	0.86%	-
2426.385-2455.395	Sag Curve	Immediate approach NB to roundabout	26KF	26KF	-
2455.395-2473.320	Grade	Immediate approach NB to roundabout	0.5% - 6%	1.97%	-
2473.320-	**Roundabout**				

Northampton Road - North

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0.933-41.494	Grade	Immediate approach SB to roundabout	0.5% - 6%	1.51%	-
41.494-117.677	Crest curve	Immediate approach SB to roundabout	55KF	55KF	-
151.860-166.608	Grade	Immediate approach SB to roundabout	0.5% - 6%	0.78%	-
166.608-218.484	Sag curve	Immediate approach SB to roundabout	20KF	20KF	-
218.484-219.917	Grade	Immediate approach SB to roundabout	0.5% - 6%	2.09%	-
219.917	**Give way line**				

Northampton Road – (South of Roade bypass)

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-16.864	Sag curve	Immediate approach NB to roundabout	13 KF	20KF	-
16.864-61.523	Grade	Immediate approach NB to roundabout	0.5% - 6%	4.12%	-
61.523-123.529	Crest curve	Immediate approach NB to roundabout	17 KF	20KF	-
123.529-117.400	Grade	Immediate approach NB to roundabout	0.5% - 6%	1.018%	-
117.400	**Give way line**				

Blisworth Road (Roade) (East of bypass)

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-4.619	Grade		0.5% - 6%	0.25%	-
4.619-25.502	Crest curve		10KF	30KF	-
25.502-51.944	Crest curve	Immediate approach WB to roundabout	10KF	30KF	-
51.944-60.516	Grade	Immediate approach WB to roundabout	0.5% - 6%	0.91%	-
60.516-124.863	Sag curve	Immediate approach WB to roundabout	9KF	25KF	-
124.863-160.502	Grade	Immediate approach WB to roundabout	0.5% - 6%	1.251%	-
160.502	**Give way line**				

Blisworth Road (Roade) (west of Roade bypass)

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-8.524	**As existing**				
8.524-52.384	Grade		0.5% - 6%	0.52%	-
52.384-110.887	Grade	Immediate approach EB to roundabout	0.5% - 6%	0.52%	-
110.887-192.325	Crest curve	Immediate approach EB to roundabout & Private Access ch.161	30KF	55KF	-
192.325-232.384	Grade	Immediate approach EB to roundabout	0.5% - 6%	2%	-
232.384	**Give way line**				

Stratford Road (north of bypass)

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-10.837	Grade		0.5% - 6%	6.59%	As existing
10.837-154.986	Sag Curve	Immediate approach SB to roundabout & Private Access ch120	20KF	13KF	A 1 step relaxation in Sag K value on the immediate approach to a junction constitutes a **Departure from Standard** reference **NGW/A508/04.** This is in combination with a 3 step below desirable minimum radius which is a further **Departure from Standard** reference **NGW/A508/06**. See below for further details.
154.986-156.096	Grade	Immediate approach SB to roundabout	0.5% - 6%	4.5%	-
156.096-195.872	Crest curve	Immediate approach SB to roundabout	55KF	17KF	A 2 step relaxation in Crest K value on the immediate approach to a junction constitutes a **Departure from Standard** reference **NGW/A508/05.** See below for further details.
195.872-216.565	Grade	Immediate approach SB to roundabout	0.5% - 6%	2.16%	-
216.565	**Give way line**				

5.8 **Departure from Standard NGW/A508/04** is for a 1 step below desirable minimum Sag K value on the immediate approach to the Roade Bypass roundabout junction in the southbound direction.

5.9 **Departure from Standard NGW/A508/05** is for a 2 step below desirable minimum Crest K value on the immediate approach to the Roade Bypass roundabout junction in the southbound direction.

5.10 **Departure from Standard NGW/A508/06** is for the combination of a 1 step below desirable minimum Sag K value with a 3 step below desirable minimum radius which applies in both directions.

5.11 It is not possible to provide a fully compliant layout for the Stratford Road approach to the Roade Bypass roundabout without wholescale realignment of the existing road and removal of the substandard existing bends, junctions, accesses and crests. Such wholescale realignment is not considered necessary as a result of the impacts of the SRFI development or construction of the bypass and would have additional environmental impacts.

5.12 Whilst the scheme as proposed does have three departures from standard as recorded in this report it is considered that the proposals are a significant improvement over the existing situation for the following reasons:

- Stratford Road will have a significant reduction in traffic as a result of the construction of the bypass
- Speed surveys have been undertaken in the vicinity of the bends and the mean speeds are significantly below the 50mph speed limit – the recorded speeds are shown below

Location/direction	Mean speed (mph)
Site 1 (NB)	31.6
Site 1 (SB)	41.4
Site 2 (NB)	40.0
Site 2 (SB)	41.3

Knock Lane

5.13 The various elements of the Knock Lane improvements are assessed below.

Knock Lane / Blisworth Road (Roade) bend widening

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-26.844	Sag curve	None	20KF	17.625KF	As Existing
26.844-41.997	Grade	Immediate approach EB to give way line	0.5% - 6%	0.79%	None

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
41.997-79.280	Sag curve	None	20KF	20KF	None
79.280-116.336	Grade	Immediate approach EB to give way line	0.5% - 6%	1.83%	None
116.336-152.165	Crest curve	Immediate approach EB to give way line	30KF	30KF	None
152.165-175.205	Grade	Immediate approach EB to give way line	0.5% - 6%	0.64%	None
175.205-279.020	Crest curve	Immediate approach EB to give way line	30KF	120KF	None
279.020-285.118	Grade	Immediate approach EB to give way line	0.5% - 6%	2.5%	None

Stoke Road / Knock Lane Junction improvement (Knock Lane)

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
5.404-8.172	Grade	None	0.5% - 6%	1.95%	None
8.172-54.168	Sag curve	None	20KF	20KF	None
54.168-62.539	Grade	None	0.5% - 6%	4.25%	None
62.539-93.920	Crest curve	None	30KF	30KF	None
93.920-126.391	Grade	None	0.5% - 6%	3.20%	None
126.391-134.712	Crest curve	None	30KF	30KF	None
134.712-155.000	Grade	None	0.5% - 6%	2.93%	None

A508 Rookery Lane / Ashton Road Junction improvement

5.14 The various elements of A508 Rookery Lane / Ashton Road Junction improvement are assessed below. The A508 Northbound and Southbound are assessed separately due to the single lane dualling.

A508 Northbound

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-18.298	Sag curve	None	20KF	30KF	None
18.298-139.652	Sag curve	Immediate approach to Ashton Road and Rookery Lane	20KF	20KF	None
139.652-204.226	Grade	Immediate approach to Ashton Road and Rookery Lane	0.5% - 6%	8%	8% is a permitted relaxation (maximum permitted gradient without seeking a departure)
204.226-294.310	Crest curve	Immediate approach to Ashton Road and Rookery Lane	55 KF	30KF	A 1 step relaxation in Crest K value on the immediate approach to a junction constitutes **Departure from Standard** reference **NGW/A508/11.** See above for further details. Used in combination with a relaxation in horizontal radius and SSD this is a further **Departure from Standard** reference **NGW/A508/10.** Again this is reviewed above.
294.310-413.460	Grade	Immediate approach to Rookery Lane	0.5% - 6%	5%	None
413.460-617.235	Crest curve	None	55 KF	30KF	1 step relaxation in Crest K value is a permitted relaxation
617.235-658.478	Grade	None	0.5% - 6%	1.8%	None

A508 Southbound

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-42.819	Grade	None	0.5% - 6%	1.8%	None
42.819-248.511	Crest curve	Immediate approach to Ashton Road and Rookery Lane	55 KF	30KF	A 1 step relaxation in Crest K value on the immediate approach to a junction

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
					constitutes **Departure from Standard** reference **NGW/A508/14.** See above for further details. Used in combination with a relaxation in horizontal radius and SSD this is a further **Departure from Standard** reference **NGW/A508/13.** Again this is reviewed above.
248.511-370.614	Grade	Immediate approach to Rookery Lane	0.5% - 6%	5%	None
370.614-459.263	Crest curve	None	55 KF	30KF	1 step relaxation in Crest K value is a permitted relaxation.
459.263-522.425	Grade	Immediate approach to Ashton Road and Rookery Lane	0.5% - 6%	8%	8% is a permitted relaxation (maximum permitted gradient without seeking a departure)
522.425-643.111	Sag curve	None	20KF	20KF	None
643.111-660.083	Sag curve	None	20KF	30KF	None

Rookery Lane

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-28.949	Grade	Immediate approach EB to give way line	0.5% - 6%	1.1%	None
28.949-64.544	Crest curve	Immediate approach EB to give way line	30KF	10KF	A 2 step relaxation in Crest K value on the immediate approach to a junction constitutes **Departure from Standard** reference **NGW/A508/15.** See below for details.
64.544-67.333	Grade	Immediate approach EB to give way line	0.5% - 6%	2.5%	None

5.15 **Departure from Standard NGW/A508/15** is for a 2 step below desirable minimum Crest K value on the immediate approach to the A508 from Rookery Lane. This results in a 1 step below stopping sight distance on the approach to the junction.

5.16 It is not possible to provide a fully compliant layout for Rookery Lane without wholescale realignment of the existing A508 including removal of the substandard existing crest.

Such wholescale realignment is not considered necessary as a result of the impacts of the SRFI development or construction of the bypass and would have additional environmental impacts.

5.17 Whilst the scheme as proposed does have a departure from standard as recorded in this report it is considered that the proposals are a significant improvement over the existing situation for the following reasons:

- Improved junction visibility from the proposed junction realignment
- The benefits of the improved layout on the major arm of the junction as discussed above.

Ashton Road

Chainage	Vertical Alignment Feature	Junction Features within this Section	Minimum Standard	Proposed Design	
				Details	Relaxations / Departures
0-0.832	Grade	Immediate approach WB to give way line	0.5% - 6%	1.8%	None
0.832-54.917	Crest curve	Immediate approach WB to give way line	30KF	10KF	A 2 step relaxation in Crest K value on the immediate approach to a junction constitutes **Departure from Standard** reference **NGW/A508/16.** See below for further details. Used in combination with a 2 step relaxation in desirable minimum radius this is a further **Departure from Standard** reference **NGW/A508/17.** Again see below for details.
54.917-75.558	Sag curve	Immediate approach WB to give way line	20KF	9KF	A 2 step relaxation in Crest K value on the immediate approach to a junction constitutes **Departure from Standard** reference **NGW/A508/18.** See below for further details. Used in combination with a 2 step relaxation in desirable minimum radius this is a further **Departure from Standard** reference **NGW/A508/19.** Again see below for details.
75.558-81.684	Grade	Immediate approach WB to give way line	0.5% - 6%	5%	None

5.18 **Departure from Standard NGW/A508/16** is for a 2 step below desirable minimum Crest K value on the immediate approach to the A508 from Ashton Road. This results in a 1 step below stopping sight distance on the approach to the junction.

5.19 **Departure from Standard NGW/A508/17** is for the combination of a 2 step below desirable minimum Crest K value with a 2 step below desirable minimum radius which applies in both directions.

5.20 **Departure from Standard NGW/A508/18** is for a 2 step below desirable minimum Sag K value on the immediate approach to the A508 from Ashton Road.

5.21 **Departure from Standard NGW/A508/19** is for the combination of a 2 step below desirable minimum Sag K value with a 2 step below desirable minimum radius which applies in both directions. This overlap is for a distance of around 2 to 3 metres.

5.22 It is not possible to provide a fully compliant layout for Ashton Road without wholescale realignment of the existing A508 including removal of the substandard existing bends, junctions, accesses and crests. Such wholescale realignment is not considered necessary as a result of the impacts of the SRFI development or construction of the bypass and would have additional environmental impacts.

5.23 Whilst the scheme as proposed does have two departures from standard as recorded in this report it is considered that the proposals are a significant improvement over the existing situation for the following reasons:

- Improved forward visibility on the approach to the give way line.
- Improved visibility from the proposed junction realignment.
- The benefits of the improved layout on the major arm of the junction as discussed above.

A508 Pury Road Junction Improvement

5.24 No changes to the vertical alignment are proposed.

A508 Grafton Regis

5.25 No changes to the vertical alignment are proposed.

6.0 CROSS SECTIONS OF LINKS

6.1 The cross section has been assessed for each of the links. The starting point for the assessment is TA46/97 Table 2.1 which provides flow ranges for different types of road. It is important to note that these flow ranges are based on opening year AADT and are for economic assessment purposes and hence do not represent link capacity. TA46/97 states that the flow ranges should be used flexibly.

6.2 As the NSTM traffic model has been used, the design proposals have been modelled within NSTM and hence the predicted flows are based on that model and what level of traffic the proposals can accommodate.

A508 dualling

6.3 The forecast 2-way AADT is 39,000. From TA46/97 Table 2.1 this is at the high end of the range for a D2AP and well within the range for a D3AP.

6.4 However, as noted above TA46/97 is the starting point and it is proposed that the northbound carriageway is 3 lanes and southbound carriageway 2 lanes. 3 lanes are proposed northbound due to the segregated left turn lane from the SRFI site and the need for additional lanes on the approach to M1 J15.

6.5 The layout has been assessed using the VISSIM modelling and this shows that the southbound link will perform well during the peak hours – refer to the "VISSIM Modelling Summary – Proposed Site Access" included in the Transport Assessment for further details.

A508 south of SRFI access

6.6 The following table provides the forecast 2-way AADT flows for the A508 from the SRFI site access to the Rookery Lane / Ashton Road staggered crossroads, i.e. the length of A508 that is to be substantially upgraded. South of the Rookery Lane / Ashton Road staggered crossroads, the works at Pury Road and in Grafton Regis are relatively minor in nature and there is no requirement for a detailed consideration of the link cross section.

From	To	2-way AADT	Suggested cross section(s) from TA46/97
SRFI roundabout	Blisworth Road (Courteenhall)	27,300	D2AP / D3AP
Blisworth Road (Courteenhall)	Roade Bypass (Northampton Road)	26,600	D2AP / D3AP
Roade Bypass north roundabout Northampton Road	Blisworth Road (Roade) roundabout	20,500	WS2 / D2AP
Roade Bypass Blisworth Road (Roade) roundabout	Stratford Road	18,700	WS2 / D2AP
Roade Bypass south roundabout (Stratford Road)	Rookery Lane / Ashton Road	21,300	D2AP

6.7 As noted above the flow ranges given in TA46/97 are for economic appraisal and are given for guidance.

6.8 Given that the primary purpose of upgrading the A508 is to mitigate the impact of the SRFI development, rather than for general economic benefit as would be the case if it were a standalone highway improvement, there is no absolute requirement for the corridor to be upgraded to a rural dual carriageway standard. Provision of a dual carriageway would not be commensurate with the impact of the SRFI.

6.9 Whilst TA46/97 refers to wide single carriageway (WS2) roads, there are safety issues associated with such roads as they can encourage inappropriate overtaking. For this reason a WS2 road has been discounted.

6.10 As a result of the above and based on the existing A508 corridor, a single 2 lane carriageway (S2) has been assessed in the NSTM modelling. The modelling demonstrates that this is an acceptable provision in traffic capacity terms and the development impact does not require a greater standard to be provided.

6.11 Hence, the improved sections of the A508 south of the SRFI access will be designed to cross section S2 (TD27/05 Figure 4-3a).

A508 Blisworth Road Junction Improvement

A508 (mainline)

6.12 The widths of the A508 through lanes are proposed to be 4m plus 1m nearside and offside hardstrips. This is in accordance with TD42/95 para 7.21 for single lane dualling A508 (mainline).

6.13 To the north and south this link will connect to the existing A508 which is generally a S2 cross section but without hardstrips. These are existing departures from standard.

6.14 Throughout the widened section verges will be provided as for cross section S2, and a 3m footway will be provided on the western side. This is wider than would normally be provided for a footway but permits an element of future proofing if there was a separate scheme in the future to provide a shared use footway / cycleway.

Blisworth Road (Courteenhall)

6.15 The carriageway width for Blisworth Road is 6m in both the existing situation and proposed design which is in accordance with the design principles for Rural Lanes set out above. There is no existing footway provision.

A508 Roade Bypass

6.16 As noted above the cross section on the bypass will be S2. A 3m shared use footway / cycleway will be provided along the length of the bypass.

Climbing lanes

6.17 Consideration to the provision of a climbing lanes is required on single carriageway roads and these affect the cross section. The maximum gradient proposed on the bypass is 4.5%, which is below the 6% desirable maximum gradient (TD9/93 para 4.1).

6.18 TD9/93 para 5.9 states that a climbing lane can be considered, if it can be justified, where there is a gradient steeper than 2% for more than 500m. This occurs in the northbound direction at the between the Stratford road roundabout and the Blisworth lane roundabout. In this location, there is a vertical rise of 13.2m over a distance of 520m (2.5% average).

6.19 TD9/93 requires a minimum length of climbing lane of 500m followed by a further 220m past the point where the gradient reduces below 2%, followed by 200m of tapers.

6.20 There is no absolute requirement to provide climbing lanes and given that the gradient is only slightly above the threshold it is not considered justifiable to provide one in this location. Furthermore, junctions are not permitted within the extents of climbing lanes or tapers and there are 2 field accesses proposed within this section.

6.21 For single carriageways, there is a safety benefit in providing a climbing lane as they permit overtaking. However, as noted in the chapter below, the overall route already includes provision for overtaking and it is not required to provide an overtaking facility on the bypass link.

6.22 As a result of the above analysis it is considered that there is no justification to provide any climbing lanes on the Roade Bypass.

Connections to existing A508

6.23 To the north and south of the bypass the A508 will connect to the existing road which is generally a S2 cross section but without hardstrips. These are existing departures from standard.

6.24 The existing cross sections will be retained for the connections into Roade.

Knock Lane / Blisworth Road (Roade)

South of the Bypass

6.25 The carriageway width of the proposed link is 6m plus widening due to the horizontal alignment, giving a total width of 7.2m. This will connect to the existing road which is around 5m in width.

6.26 A footway/cycleway will be provided alongside in order to provide connectivity from Roade to the facilities along the bypass.

North of the Bypass

6.27 The existing road width between Stoke Road and the bypass varies along its length from around 4.2m to 5.0m. Improvements are proposed at the following locations, the justification for which is provided in the Transport Assessment:

- Immediately north of the bypass: widening to 5.5m for the length of the realigned road.
- At the existing bend (approximately halfway along the length): widening to 5.5m over the length of the bend. The road widens with tapers of 1:50 from the existing width to the proposed 5.5m.
- Immediate approach to Stoke Road: widening to 6.0m. The additional width here is provided in order to permit swept paths of larger vehicles to pass each other at the Stoke Road junction.

6.28 These proposals are consistent with the approach to the design of rural lanes set out above.

A508 Rookery Lane / Ashton Road Junction improvement

6.29 The widths of the A508 through lanes are proposed to be 4m plus 1m nearside and offside hardstrips. This is in accordance with TD42/95 para 7.21 for single lane dualling A508 (mainline).

6.30 To the north and south this link will connect to the existing A508 which is generally a S2 cross section but without hardstrips. These are existing departures from standard.

6.31 Throughout the widened and realigned section verges will be provided as for cross section S2.

6.32 Footways and shared use footway / cycleways will be provided where considered appropriate.

A508 Pury Road Junction Improvement

6.33 Details of the changes in the junction geometry are given below.

A508 Grafton Regis

6.34 Details of the changes in the junction geometry are given below.

7.0 A508 DUALLING & SRFI ACCESS ROUNDABOUT JUNCTION AND FEATURES

Roundabout

7.1 The proposed roundabout will serve the SRFI site. The proposed ICD is 85m and the circulatory width is 13.5m, which is between 1 and 1.2 times the maximum entry width of 13.5m.

7.2 There will be three approaches to the roundabout and these are assessed as follows:

A508 Northbound Approach (Design speed: 85kph)

Requirement	Criteria	Actual provided	Departure from Standard?
Visibility on approach	160m for 240m (1.5 x SSD)	≥ 160m for 240m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	40°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 4.5m	No

A508 Southbound approach (Design speed: 85kph)

Requirement	Criteria	Actual provided	Departure from Standard?
Visibility on approach	160m for 240m (1.5 x SSD)	≥ 160m for 240m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	38°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*

A508 Southbound approach (Design speed: 85kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Lane width on entry	3-4.5m	3 x 4.5m	No

SRFI approach (Design speed: 60kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility on approach	90m for 135m (1.5 x SSD)	≥ 90m for 135m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	47°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 4.1m	No

Bus stops

7.3 Two bus stops are proposed on the A508 in this location. Both are proposed to be lay-bys due to the volume of traffic and speed of road and are designed in accordance with TD69 Figure 5/1.

A508 southbound roundabout exit

7.4 The A508 is a single carriageway south of the roundabout and there is a merge on the exit from the roundabout from two lanes to one. Two southbound ahead lanes through the roundabout are required for capacity purposes. The merge is recommended to take place with a 1:15 to 1:20 taper in accordance with TD16. However, the traffic modelling analysis using VISSIM has demonstrated that this could result in queuing back onto the roundabout at peak times and the merge is proposed to be extended by use of a longer taper. The 1:15 to 1:20 taper is a recommendation in TD16 and is not a mandatory requirement.

7.5 A refuge island is proposed towards the end of the merge to reduce the risk of merging traffic entering the opposing lane.

SRFI approach segregated left turn lane

7.6 It is proposed to provide a segregated left turn lane (SLTL) from the SRFI approach onto the A508 northbound towards M1 J15. A SLTL should be considered where the left turning flow is greater than the total entry arm flow divided by the number of lanes at the roundabout.

Location	AM	PM
Left turning flow (vph) (L)	197	861
Total entry arm flow (vph) (F)	206	934
Number of lanes (E)	3	3
F / E	69	311
Is L > (F / E) ?	Yes	Yes

7.7 It can be seen from the above that a SLTL should be considered and based on the above analysis there is an overwhelming case for a SLTL to be provided.

7.8 Furthermore, it is proposed that, as part of the SRFI scheme, HGVs from the SRFI will be prohibited from turning right onto the A508. This is to be achieved by providing a SLTL and a height barrier on the roundabout approach (the height barrier will not be within the public highway).

7.9 The design of the proposed segregated left turn lane is in accordance with TD51/17 and is assessed as follows:

Requirement	Criteria (TD51)	Proposed Design	Proposed Departure from Standard?
Nearside kerb radius	-	32m	-
Physical island length	-	>50m	-
Desirable minimum SSD	70	≥70m	No
SLTL carriageway width	7.8m	7.8m	No
Exit taper length factor	25	25	No
Exit taper length	107.5m	107.5m	No

Lane Widths

7.10 TD42 table 7/2 has therefore been used as the basis for widening lanes where radii are 100m or less.

7.11 In addition, a detailed tracking assessment has been undertaken with both the 15.5m and 16.5m articulated vehicles. These are shown on drawing **NGW-BWB-GEN-XX-SK-C-SK43.**

7.12 The vehicle tracking assessment that has been based on the 15.5m long articulated vehicle with a single rear axle as this is design vehicle as stated in TD22 para 7.15. The vehicle tracking assessment shows that minor lane encroachments are necessary to complete some manoeuvres. However, this is considered to be acceptable given the relatively rare nature of the vehicle and the overall size of the roundabout.

7.13 The vehicle tracking that has been based on the common 16.5m has shown that these HGVs would stay within their lanes around the junction

8.0 A508 BLISWORTH ROAD JUNCTION

8.1 The existing junction between the A508 and Blisworth Road (Courteenhall) is a simple priority junction. It is located immediately north of the access into the Courteenhall Estate which in itself is a simple priority junction. A bus stop lay-by is present on the A508 northbound and there is a war memorial opposite the Courteenhall Estate access.

8.2 The existing A508 horizontal and vertical alignments are poor as shown in the relevant sections above. This results in poor visibility both at the Blisworth Road junction and the Courteenhall Estate access.

8.3 The proposed scheme is to amend the Blisworth Road junction to a left-in left-out junction and prohibiting right turn manoeuvres. This removes right turn conflicts which would, if retained, result in capacity and safety problems.

Visibility

8.4 Assessment of forward visibility on the A508 mainline is given above. The visibility from the junction and Courteenhall Estate access is as follows.

Blisworth Road Junction Visibility

Requirement	Criteria (TD42) for 85kph design speed	Existing visibility & Departures	Actual Proposed	Proposed Departure from Standard?
Visibility to right	9m x 160m	Horizontal 9.0 x 23m 4.5 x 41m 2.4 x 160m Relaxation Vertical See table below (Existing departure)	Horizontal 9m x 160m Vertical See table below	As the visibility is not achieved to the low object height this constitutes a **Departure from Standard** reference **NGW/A508/07.**
Visibility to left	9m x 160m	9.0 x 16m 4.5 x 24m 2.4 x 61m (Existing departure)	Not applicable as left turn only	-
Visibility to determine junction form	15m on Minor Road to see junction layout	10m on Minor Road to see junction layout (Existing departure)	15m on Minor Road to see junction layout	-

8.5 The vertical visibility to the right is assessed as follows:

Object height	Existing distance	Proposed distance
0.26m	91m	95m
0.6m	106m	112m
0.95m	118m	133m
1.05m	126m	>160m

8.6 **Departure from Standard NGW/A508/07** is for the junction visibility to the right not being available to a 0.26m object height.

8.7 As discussed above it is not possible to provide a fully compliant layout for the A508 at the Blisworth Road junction. Whilst the scheme as proposed does have various departures from standard as recorded in this report it is considered that the proposals are a significant improvement over the existing situation for the following reasons:

- Visibility to the right is significantly improved with the x distance increased from 2.4m to 9.0m
- The visibility to the right will also be improved by repositioning of the crest on the A508. This enables an object height of 1.05m to be seen for over 160m whereas at present it can be seen for 126m due to the dip in the road. This means that vehicles will not fully disappear into the existing 'dip' when viewed from drivers turning left from Blisworth Road.

Courteenhall Estate Access Junction Visibility

Requirement	Criteria (TD41) for 85kph design speed	Existing visibility & Departures	Actual Proposed	Proposed Departure from Standard?
Visibility to right	4.5m x 160m	Horizontal 2.0m x 160m Vertical See table below	Horizontal 2.0m x 160m Vertical See table below	Relaxation of 'x' distance to 2.0m permitted for lightly trafficked access in difficult conditions. As the visibility is not achieved to the low object height this constitutes a **Departure from Standard** reference **NGW/A508/08.**
Visibility to left	4.5m x 160m	2.0m x 63m which is a departure from standard for the 'y' distance	2.0m x 63m	Relaxation of 'x' distance to 2.0m permitted for lightly trafficked access in difficult conditions. 'y' distance is a departure from standard, which is considered to be an existing departure unaffected by the proposed scheme.

8.8 The vertical visibility to the right is assessed as follows:

Object height	Existing distance	Proposed distance
0.26m	102m	94m
0.6m	121m	110m
0.95m	138m	122m
1.05m	143m	126m

8.9 **Departure from Standard NGW/A508/08** is for the visibility to the right from the access not being available to a 0.26m object height.

8.10 It can be seen from the above that the visibility to the right is slightly reduced from the existing situation. However, the reduction is relatively minor and it is considered that the

benefits through imporinv the visibility to Blisworth Road outweigh the disbenefits to the Courteenhall Estate access. During the detailed design further work will be undertaken to determine if the crest on the A508 southbound can be reduced given that it does not need to exactly follow the A508 northbound due to the presence of the central island.

A508 Blisworth Road Junction Geometry

8.11 The proposed junction layout is a left-in left-out with a narrow central reserve to inhibit right turn manoeuvres.

8.12 The widths of the A508 through lanes are proposed to be 4m plus 1m nearside and offside hardstrips. This is in accordance with TD42/95 para 7.21 for single lane dualling.

8.13 A 1.5m wide central reserve is proposed which is considered sufficiently wide to provide street furniture within it with a set back (measured from the trafficked face of the hardstrip) of 1.2m minimum.

8.14 The Blisworth Road geometry is assessed as follows:

Requirement	Criteria (TD42)	Actual provided	Departure from Standard?
Physical island width	10m	3.5m	No, as the single lane dualling does not include a crossing point
Blisworth Road junction radii	20m radius in all other circumstances	15m radius with tapers of 1:6 over a distance of 30m	Permitted relaxation as this is only a recommendation in TD42. The geometry proposed is that used for a ghost island.

8.15 The need for nearside diverging tapers has been reviewed. These shall be provided at all junctions where:

- the left turn AADT is greater than 600
- the HGV% is greater than 20% and left turn AADT is greater than 450
- where the major road AADT is greater than 7000-8000 the above figures are halved

8.16 The predicted flows are as follows:

- A508 Northbound ahead: 12,500 AADT
- Left turn into Blisworth road: 600 AADT

8.17 Based on the above a nearside diverging taper should be provided. However, there is insufficient room to provide a taper due to the existing war memorial. The omission of the taper is a **Departure from Standard** reference **NGW/A508/26.** The justification for the omission is as follows:

- The existing junction does not have such a taper.
- Provision of a taper would either have a significant adverse effect on the war memorial or would require substantial realignment of Blisworth Road, to the north.

- There is not a desire to encourage traffic along Blisworth Road through provision of a significantly larger junction.
- The left turn onto Blisworth Road is not impeded and the radii and tapers will be greater than existing, allowing slightly higher turning speeds.
- The safety risk to drivers is considered to be very low as drivers would indicate to turn left and slow down as is commonplace on the road network. The principal reason for provision of the taper is to not impede ahead movements rather than on safety grounds.

8.18 It is considered that, even though there are several departures from standard associated with the A508 Blisworth Road junction, the scheme would constitute a significant improvement on the existing situation through, in particular, removal of right turn manoeuvres and adjustments to the horizontal and vertical alignment.

Bus stop

8.19 A replacement northbound bus stop is proposed on the A508 in this location. This is proposed to be lay-bys due to the volume of traffic and speed of road. The lay-by is designed in accordance with TD69 Figure 5/1.

9.0 ROADE BYPASS JUNCTIONS AND FEATURES

Overtaking opportunities

9.1 Due to the alignment of the bypass, which results from various constraints such as the West Coast Mainline crossing and general topography, the entire bypass is considered to be a non-overtaking section and has been designed as such. No horizontal radii are used within Band C (TD9/93 Figure 24) as used within the design.

9.2 For single carriageway roads, TD9/93 para 7.20 requires an overtaking value of 30% to be achieved for a Category 3 road (The bypass is considered to be a Category 3 road as defined by TD9/93 Table 4).

9.3 Due to the presence of roundabout junctions with 2 lane entries and exits along Roade bypass, it is considered that a lack of overtaking on the bypass link itself will not present a significant problem. It is also considered that the bypass will be of a much higher standard than the existing single carriageway through and either side of Roade.

Farm accesses

9.4 Direct access points into farmland are proposed from the Roade Bypass and Blisworth Road at several locations. These will be generally designed to TD41/95 Layout 1. The visibility requirements are assessed as follows:

Location	Access from	Visibility splay provided
Land east of bypass, South of bridleway Ch. 719	Roade Bypass	2.4m x 215m
Land west of bypass, North of bridleway Ch. 1008	Roade Bypass	2.4m x 215m
Land west of Blisworth Road and east of bypass Ch.110	Blisworth Road	2.4m x 90m
Land north of blisworth Road / Knock Lane Ch.179	Blisworth Road	2.4m x 120m

9.5 It is considered that relaxation of the x distance to 2.4m is appropriate given the low usage of these accesses.

Non-motorised user (NMU) crossing points

9.6 NMU crossing points have been incorporated into the splitter islands where footway cycleway is present. Two at grade NMU crossings are proposed over the Roade Bypass away from the roundabouts to maintain links with the existing footpath KZ2a and the bridleway RZ3.

9.7 An underpass is proposed for bridleway RZ1 due to the high equestrian usage of the bridleway given its proximity to the stables at Dovecote Farm.

9.8 The 2-way AADT for the northern (busier) section of the bypass is approximately 20,500. Under TA91/05 Table 6/1, this would mean that an at-grade crossing would be on the would be "not normally appropriate". It is therefore proposed to provide a central

refuge island at both crossing points which would result in an at-grade crossing being assessed as "potentially appropriate". Given the predicted pedestrian flows for the crossings are very low this is considered acceptable.

A508 Stratford Road roundabout

9.9 The proposed ICD is 80m and the circulatory width is 10.8m, which is between 1 and 1.2 times the maximum entry width of 9.0m.

9.10 There will be three approaches to the roundabout and these are assessed as follows:

A508 Northbound Approach (Design speed: 85kph)

Requirement	Criteria	Actual provided	Departure from Standard?
Visibility on approach	160m for 240m (1.5 x SSD)	≥ 160m for 240m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	48°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 4.5m	No

Roade Bypass Approach (Design speed: 100kph)

Requirement	Criteria	Actual provided	Departure from Standard?
Visibility on approach	215m for 322.5m (1.5 x SSD)	≥ 215m for 322.5m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	53°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*

Roade Bypass Approach (Design speed: 100kph)			
Requirement	Criteria	Actual provided	Departure from Standard?
Lane width on entry	3-4.5m	2 x 4.5m	No

Approach from Roade (Design speed: 85kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility on approach	160m for 240m (1.5 x SSD)	Horizontal SSD is ≥ 160m for 240m, but it is affected by the vertical alignment	See **Departure from Standard** reference **NGW/A508/05,** details are given above.
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	28°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 3.2m	No

9.11 The roundabouts are designed to allow two ahead lanes of traffic on the A508 in each direction. The roundabout exit tapers are between 1:15 and 1:20 to reduce the width to a single lane.

9.12 A refuge island is proposed towards the end of each merge to reduce the risk of merging traffic entering the opposing lane.

9.13 A detailed tracking assessment has been undertaken to check that HGVs would stay within their lanes around the junction. This is shown on drawing **NGW-BWB-GEN-XX-SK-C-SK41.**

9.14 The vehicle tracking assessment has been based on a 15.5m long articulated vehicle with a single rear axle as this is more onerous as stated in TD42 para 7.16. Although this vehicle is relatively rare, it is considered that given the number of HGVs predicted to use J15 that this vehicle should be used.

A508 Blisworth Road roundabout

9.15 The proposed ICD is 80m and the circulatory width is 10.8m, which is between 1 and 1.2 times the maximum entry width of 9.0m.

9.16 There will be four approaches to the roundabout and these are assessed as follows:

Approach from Roade Bypass (south) (Design speed: 100ph)			
Requirement	Criteria	Actual provided	Departure from Standard?
Visibility on approach	215m for 322.5m (1.5 x SSD)	≥ 215m for 322.5m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	43°	*Guidance as criteria not in black box*
Entry radius	20m	30m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 4.5m	No

Approach from Roade Bypass (north) (Design speed: 100kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility on approach	215m for 322.5m (1.5 x SSD)	≥ 215m for 322.5m	No
Visibility on entry	40m at 15m back from give way line	≥ 40m at 15m back from give way line	No
Visibility to right on entry	40m from give way line and 15m back from give way line	≥ 40m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	37°	*Guidance as criteria not in black box*
Entry radius	20m	30m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 4.5m	No

Approach from Blisworth Road South (Design speed: 50kph)			
Requirement	Criteria	Actual provided	Departure from Standard?
Visibility on approach	70m	≥ 70m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	38°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 3m	No

Approach from Blisworth Road North (Design speed: 70kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility on approach	120m for 180m (1.5 x SSD)	≥ 120m for 180m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	32°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 3m	No

9.17 The roundabouts are designed to allow two ahead lanes of traffic on the A508 in each direction. The roundabout exit tapers are between 1:15 and 1:20 to reduce the width to a single lane.

9.18 A refuge island is proposed towards the end of each merge to reduce the risk of merging traffic entering the opposing lane.

9.19 TD42 table 7/2 has therefore been used as the basis for widening lanes where radii are 100m or less.

9.20 In addition, a detailed tracking assessment has been undertaken to check that HGVs would stay within their lanes around the junction. This is shown on drawing **NGW-BWB-GEN-XX-SK-C-SK41.**

9.21 The vehicle tracking assessment has been based on a 15.5m long articulated vehicle with a single rear axle as this is more onerous as stated in TD42 para 7.16. Although this vehicle is relatively rare, it is considered that given the number of HGVs predicted to use J15 that this vehicle should be used.

A508 Northampton Road roundabout

9.22 Due to the predicted high left turn flows consideration has been given to provision of a segregated left turn lane (SLTL). A SLTL should be considered where the left turning flow is greater than the total entry arm flow divided by the number of lanes at the roundabout.

9.23 The traffic flow data for the A508 Roade Bypass entry arm to the roundabout is as follows:

Location	AM	PM
Left turning flow (vph) (L)	925	918
Total entry arm flow (vph) (F)	1041	1068
Number of lanes (E)	2	2
F / E	521	534
Is L > (F / E) ?	Yes	Yes

9.24 It can therefore be seen from the above that, following TD51/57, a SLTL should clearly be considered.

9.25 If a SLTL were to be provided in this location then it would need to be a single lane with a give way exit onto the A508 northbound due to it being a single carriageway. This therefore offers no appreciable benefit in capacity terms over a give way at the roundabout. Furthermore, provision of a SLTL would prohibit the use of two left turning lanes at the roundabout and would, in effect, reduce capacity. For these reasons a SLTL is not proposed in this location.

9.26 The proposed ICD is 70m and the circulatory width is 10.8m, which is between 1 and 1.2 times the maximum entry width of 9.0m.

9.27 There will be three approaches to the roundabout and these are assessed as follows:

Approach from A508 Northampton Road (Design speed: 85kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility on approach	160m for 240m (1.5 x SSD)	≥ 160m for 240m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No

Approach from A508 Northampton Road (Design speed: 85kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	37°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 4.5m	No

Approach from Roade Bypass south (Design speed: 100kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility on approach	215m for 322.5m (1.5 x SSD)	≥ 215m for 322.5m	No
Visibility on entry	40m at 15m back from give way line	≥ 40m at 15m back from give way line	No
Visibility to right on entry	40m from give way line and 15m back from give way line	≥ 40m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	32°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 4.5m	No

Approach from Roade – Northampton Road (Design speed: 60kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility on approach	90m for 135m (1.5 x SSD)	≥ 90m for 135m	No
Visibility on entry	50m at 15m back from give way line	≥ 50m at 15m back from give way line	No

Approach from Roade – Northampton Road (Design speed: 60kph)			
Requirement	**Criteria**	**Actual provided**	**Departure from Standard?**
Visibility to right on entry	50m from give way line and 15m back from give way line	≥ 50m in both circumstances	No
Entry path curvature	≤ 100m	< 100m	No
Entry angle	20° to 60°	36°	*Guidance as criteria not in black box*
Entry radius	20m	20m	*Guidance as criteria not in black box*
Lane width on entry	3-4.5m	2 x 4m	No

9.28 The roundabouts are designed to allow two ahead lanes of traffic on the A508 in each direction. The roundabout exit tapers are between 1:15 and 1:20 to reduce the width to a single lane.

9.29 A refuge island is proposed towards the end of each merge to reduce the risk of merging traffic entering the opposing lane.

9.30 A detailed tracking assessment has been undertaken to check that HGVs would stay within their lanes around the junction. This is shown on drawing **NGW-BWB-GEN-XX-SK-C-SK41.**

9.31 The vehicle tracking assessment has been based on a 15.5m long articulated vehicle with a single rear axle as this is more onerous as stated in TD42 para 7.16. Although this vehicle is relatively rare, it is considered that given the number of HGVs predicted to use J15 that this vehicle should be used.

10.0 A508 ROOKERY LANE / ASHTON ROAD JUNCTION

10.1 The existing junction is a staggered crossroads with the minor roads forming simple junctions with the A508. It is located where the A508 is on a poor horizontal and vertical alignment and there is poor visibility. The existing stagger distance is 21m which is a departure from TD42/95 para 7.64. It is also noted that Ashton Road meets the A508 at a 45 degree skew.

10.2 The proposed junction is for a staggered crossroads in the form of single lane dualling as shown in TD42/95 Figure 8/2. The proposed stagger distance is 52m which exceeds the minimum requirement of 40m in TD42. The Ashton Road approach is realigned to remove the skew.

10.3 The provision of a single lane dualling junction complies with TD42 para 2.23 as there are limited overtaking opportunities either side of the junction and traffic from the minor roads need to turn right in two manoeuvres.

10.4 There is no dual carriageway within 3km of the junction (TD42 para 2.24).

10.5 The widths of the A508 through lanes are proposed to be 4m plus 1m nearside and offside hardstrips. This is in accordance with TD42/95 para 7.21 for single lane dualling.

10.6 There are three private accesses to residential premises from east side of the A508 north of Ashton Road. These need to be retained in the scheme design.

Visibility

10.7 The following summarises the existing and proposed junction visibility:

Requirement	Criteria (TD42)	Existing visibility & Departures	Actual Proposed	Proposed Departure from Standard?
Ashton Road Visibility to right	9m x 160m	Horizontal 9.0 x 52m 4.5 x 61m 2.4 x 63m Existing departure	Horizontal 9m x 160m Vertical 9m x 160m	No
Ashton Road Visibility to left	9m x 160m	Horizontal 9.0 x 21m 4.5 x 28m 2.4 x 37m Existing departure	Horizontal 9m x 160m Vertical 9m x >160m	No
Ashton Road Visibility to determine junction form	15m on Minor Road to see junction layout	>15m on Minor Road to see junction layout	15m on Minor Road to see junction layout	No
Rookery Lane Visibility to right	9m x 160m	Horizontal 9.0 x 38m 4.5 x 126m 2.4 x 128m	Horizontal 9m x 160m Vertical	As the visibility is not achieved to the low object height this constitutes a

Requirement	Criteria (TD42)	Existing visibility & Departures	Actual Proposed	Proposed Departure from Standard?
		Existing departure	9m x 105m (to 0.26m object height) 9m x 120m (to 0.42m object height) 9m x 160m (to 1.25m object height)	**Departure from Standard** reference **NGW/A508/20.**
Rookery Lane Visibility to left	9m x 160m	Horizontal 9.0 x 35m 4.5 x 75m 2.4 x 160m Relaxation Vertical 2.4 x 114m to 0.26m object Existing Departure	Horizontal 9m >160m Vertical 9m >160m	No
Rookery Lane Visibility to determine junction form	15m on Minor Road to see junction layout	>15m on Minor Road to see junction layout	15m on Minor Road to see junction layout	No

10.8 **Departure from Standard NGW/A508/20** is for the junction visibility to the right from Rookery Lane not being available to a 0.26m object height.

10.9 As discussed above it is not possible to provide a fully compliant layout for the A508 at the Rookery Lane / Blisworth Road junction. Whilst the scheme as proposed does have various departures from standard as recorded in this report it is considered that the proposals are a significant improvement over the existing situation for the following reasons:

- Visibility to the right is significantly improved with the x distance increased from 2.4m to 9.0m
- Visibility to the right to an object height of 1.05m is achievable at a y distance of 160m. This means that drivers turning right from Rookery Lane will be able to see approaching vehicles for the full stopping sight distance of 160m – again a significant improvement over the existing situation.

10.10 The following summarises the existing and proposed private access visibility.

Requirement	Criteria (TD41)	Existing visibility & Departures	Actual Proposed	Proposed Departure from Standard?
North access (Stoke gap Cottage) Visibility to right	4.5m x 160m	2.4 x 28m Existing Departure	2.4m x 83m (hedgerow constraint)	Relaxation in x distance is a permitted relaxation under TD41 para 2.21 for a single dwelling. Relaxation in y distance is a **Departure from Standard** reference

Requirement	Criteria (TD41)	Existing visibility & Departures	Actual Proposed	Proposed Departure from Standard?
				NGW/A508/21. See further details below.
North access (Stoke gap Cottage) Visibility to left	4.5m x 160m	2.4 x 51m Existing Departure	2.4m x >160m (to 0.97m object height) 2.4 x 103m (to 0.26 object height)	Relaxation in x distance is a permitted relaxation under TD41 para 2.21 for a single dwelling. Relaxation in y distance is a **Departure from Standard** reference **NGW/A508/22**. See further details below
Central access (Stoke hill Cottage) Visibility to right	4.5m x 160m	2.4 x 56m Existing Departure	2.4m x 98m (hedgerow constraint)	Relaxation in x distance is a permitted relaxation under TD41 para 2.21 for a single dwelling. Relaxation in y distance is a **Departure from Standard** reference **NGW/A508/23**. See further details below.
Central access (Stoke hill Cottage) Visibility to left	4.5m x 160m	2.4 x 17m Existing Departure	2.4m x >160m (to 0.38m object height) 2.4m x 120m (to 0.26m object height)	Relaxation in x distance is a permitted relaxation under TD41 para 2.21 for a single dwelling. Relaxation in y distance is a **Departure from Standard** reference **NGW/A508/24**. See further details below.
South access (The Old Granary) Visibility to right	4.5m x 160m	2.4 x 23m Existing Departure	2.4m x 122m (hedgerow constraint)	Relaxation in x distance is a permitted relaxation under TD41 para 2.21 for a single dwelling. Relaxation in y distance is a **Departure from Standard** reference **NGW/A508/25**. See further details below.
South access (The Old Granary) Visibility to left	4.5m x 160m	2.4 x 55m Existing Departure	2.4m x >160m	Relaxation in x distance is a permitted relaxation under TD41 para 2.21 for a single dwelling.

10.11 **Departures from Standard** references **NGW/A508/21 to 25** are departures from standard TD41 para 2.22 are proposed for the private accesses. It can be seen, however, that the scheme would provide a substantial improvement over the existing situation for all of the accesses. On the basis that the scheme would improve the existing situation it is considered that these departures are justified.

Junction Geometry

10.12 The various elements of junction geometry are assessed as follows:

Requirement	Criteria (TD42) (85kph design speed)	Proposed design	Departure from Standard?
A508 northbound turning length	10m	10m	No
A508 northbound queuing length	0m (min)	25m	No
A508 northbound deceleration length	55m	55m	No
A508 northbound direct taper length	15m	15m	No
Minimum physical island width (south of Ashton Road)	3.5m	6.35m	No
Central reserve opening at Ashton Road	15m	15m	No
Physical island width	10m	10m (see commentary below)	No
A508 southbound turning length	10m	10m	No
A508 southbound queuing length	0m (min)	25m	No
A508 southbound deceleration length	55m	55m	No
A508 southbound direct taper length	15m	15m	No
Central reserve opening at Rookery Lane	15m	15m	No
Minimum physical island width (north of Rookery Lane)	3.5m	4.05m	No – however see below for review of private drive accesses
Ashton Road junction radii	20m radius in all other circumstances	15m radius with tapers of 1:6 over a distance of 30m	Permitted relaxation as this is only a recommendation in TD42. The geometry proposed is that used for a ghost island.
Rookery Lane junction radii	20m radius in all other circumstances	15m radius with tapers of 1:6 over a distance of 30m	Permitted relaxation as this is only a recommendation in TD42. The geometry proposed is that used for a ghost island.

10.13 The need for nearside diverging tapers has been reviewed. These shall be provided at all junctions where:

- the left turn AADT is greater than 600
- the HGV% is greater than 20% and left turn AADT is greater than 450
- where the major road AADT is greater than 7000-8000 the above figures are halved

10.14 Whilst the mainline flows are high and the left turn figures can be halved, the left turn flows are every low. In the case of Rookery Lane it is negligible as traffic to Stoke Bruerne will turn left at the previous junction. In the case of Ashton Road, the predicted flow is around 140 AADT. On this basis no nearside diverging tapers are proposed.

10.15 Merging tapers shall only be used at dual carriageway junctions and as this is a single lane dualling junction no merge tapers are proposed.

10.16 Within the central section of the single lane dualling it is considered that emphasis on priority needs to be provided. It is important to permit right turning vehicles from the minor roads to be able to turn right in two distinct stages rather than having to judge a gap in both directions at once. It is therefore proposed to include the method of regulating the priority in the central reserve opening as shown at TD42/95 Figure 7/10 at both minor road junctions.

10.17 TD42 para 7.38 requires a 10m wide central reservation area. This can be increased to allow larger vehicles to be sheltered only in exceptional circumstances. We do not consider that occasional use by long agricultural vehicles would constitute such an exceptional circumstance for the following reasons:

- The use by long agricultural vehicles will be occasional and the additional land take implications in order to provide a wider central reserve area would be significant, and we are of the view that such additional land take could not be justified especially when-
- Except for peak traffic times we would expect that right turns can be made in a single movement as at present
- An alternative route (heading south out of Stoke Bruerne, left onto the A508 and then right into Ashton Road – and vice versa) is available

10.18 As noted above three no. private accesses are to be retained on the east side of the A508. The layout for each of these is in accordance with TD41/95 Layout 2. This is appropriate for single dwellings.

11.0 A508 PURY ROAD JUNCTION IMPROVEMENT

11.1 There is an existing ghost island junction between the A508 and Pury Road. The purpose of the scheme is to increase the queuing length available within the right turn lane. The maximum length of the increase is dictated by the Tollgate cottage access.

11.2 It is also proposed in increase the width of the lanes through the ghost island section of the A508 so that they would be in accordance with TD42.

11.3 The junction geometry is assessed as follows:

Requirement	Criteria (TD42) (100kph design speed)	Existing provision	Proposed design	Departure from Standard?
A508 turning length	10m	10m	10m	No
A508 queuing length	0m (min)	4m	31m	No
A508 deceleration length	80m	80m	80m	No
A508 direct taper length	25m	15m (departure)	25m	No
A508 through lane width	3.0m (min) 3.65m (max)	3.0m	3.65m	No
A508 turning lane width	3.5m	3.2m (permitted relaxation)	3.5m	No

11.4 No significant changes to the junction radii are proposed.

11.5 A minor private access opposite Pury Road will be retained in the scheme design.

12.0 A508 GRAFTON REGIS

12.1 There is an existing simple priority junction between the A508 and Church Lane, and there is a bus stop on the northbound side of the A508. The purpose of the scheme is to improve pedestrian connectivity to the bus stop by providing a 2m wide refuge.

12.2 In order to provide the refuge a realignment of the A508 through the Church Lane junction is required and this results in a ghost island junction being the most appropriate solution.

Pedestrian crossing

12.3 In the 2031 reference case the NSTM two-way AADT traffic flow on the A508 north of Church Lane through Grafton Regis is forecast to be 10,371 vehicles. In the 2031 development case, the two-way AADT flow on this section of road is forecast to increase to 14,926. However, by providing the pedestrian refuge, pedestrians accessing the bus stop will be able to cross the A508 in two stages, hence the higher directional AADT flow is taken, which in this case is the northbound direction with an AADT flow of 7,862 vehicles.

12.4 Table 6/1 of DMRB Volume 5, Section 2, Part 5, TA 91/05 'Provision of Non-Motorised Users' provides guidance on the suitability of informal at grade crossings based on AADT flow. The appropriateness of informal crossings is defined by three AADT flow ranges, as follows:

- Normally Appropriate (AADT below 8,000)
- Potentially Appropriate (AADT 8,000 to 12,000)
- Not Normally Appropriate (AADT above 12,000)

12.5 The 2031 reference case AADT flow of 10,371 vehicles places the existing informal crossing arrangement in the potentially appropriate category. With the proposed pedestrian refuge on the A508 in place, the 2031 development case AADT flow of 7,862 vehicles puts the proposed informal crossing in the normally appropriate category.

12.6 Based on the above assessment, combined with the location of the crossing within a 30mph area and the likely low usage of the crossing, it is considered that a controlled crossing is not required.

Church Lane ghost island

12.7 The junction geometry is assessed as follows:

Requirement	Criteria (TD42) (60kph design speed)	Proposed design	Departure from Standard?
A508 turning length	10m	10m	No
A508 queuing length	0m (min)	0m	No
A508 deceleration length	25m	25m	No

Requirement	Criteria (TD42) (60kph design speed)	Proposed design	Departure from Standard?
A508 direct taper length	5m	5m	No
A508 through lane width	3.0m (min) 3.65m (max)	3.65m	No
A508 turning lane width	3.5m	3.5m	No

12.8 No significant changes to the junction radii are proposed.

12.9 An additional refuge is proposed at the start of the right turn lane to protect turning vehicles – this would not be a pedestrian crossing point.

12.10 The swept paths of large vehicles have been assessed in order that the provision of the refuge does not prohibit such manoeuvres.

Bus stop and lay-by

12.11 Due to the realignment of the A508 northbound the existing lay-by is to be removed and a replacement northbound bus stop is proposed. This is proposed to be a lay-by due to the volume of traffic and that this stop is used for timing. The lay-by is designed in accordance with TD69 Figure 5/1.

13.0 A508 SIGNAGE STRATEGY

Introduction

13.1 The proposed improvements to M1 J15 associated with the Northampton Gateway Strategic Rail Freight Interchange necessitate amendment of directional signage. This raises some queries about integration with existing signage, and offers opportunities for improvement of the overall signage scheme around J15 and on the A508.

13.2 This chapter of the GDSR records the proposed signage strategy for the A508.

Main destinations

13.3 'Main destinations' refers to the main forward destinations to be used on the A508. These are not the same as any official 'primary destinations', although some will be.

A508 Northbound

13.4 The following forward destinations on the A508 Northbound are proposed throughout the scheme:

- (M1)
- Northampton

13.5 South of Roade it is proposed that Roade is also provided as a forward destination.

13.6 No signage for the SRFI is proposed on the A508 Northbound until the SRFI access roundabout itself.

13.7 The above is summarised as follows:

Forward destinations	Additional destinations for RCS
M1 Junction 15	
(See M1 J15 signage strategy)	No RCS provided on this link
SRFI access junction	
(M1) Northampton	None
Roade (Southern end of Bypass)	
(M1) Northampton Roade	None
A5 Old Stratford	

A508 Southbound

13.8 The A508 is generally signed southbound towards Old Stratford south of the M1, occasionally supplemented or replaced, from Roade southwards, by Milton Keynes. Stony Stratford has been used together with the SRFI at M1 J15 (see the signage strategy

for J15) as it is not considered appropriate to split the signing of Milton Keynes from the M1 but instead direct such traffic to M1 J14.

13.9 However, south of (but not including) the SRFI access junction, Milton Keynes can be used as forward destination.

13.10 No mention is made of Buckingham (A422) on the existing signage until the A5 Old Stratford roundabout. It is considered that Buckingham (A422) could be a useful addition to any RCS provided along the route.

13.11 The above is summarised as follows:

Forward destinations	Additional destinations for RCS
M1 Junction 15	
Stony Stratford Roade	No RCS provided on this link
SRFI access junction	
Milton Keynes Stony Stratford Roade	At detailed design consider: Buckingham (A422)
Roade (Northern end of bypass)	
Milton Keynes Stony Stratford	At detailed design consider: Buckingham (A422)
A5 Old Stratford	

Local destinations

13.12 In some locations it may be appropriate to sign a local destination as a forward destination on the A508. The following local destinations may fall into this category and their use would be agreed at detailed design stage.

- Grafton Regis
- Yardley Gobion

Junctions with minor roads

13.13 At minor side roads it is considered that forward destinations need not be provided unless there is a traffic management reason to do so (i.e. keeping traffic on a more appropriate route).

13.14 The following summarises the destinations to be signed from each of the junctions that are to be provided as part of the A508 scheme.

SRFI access junction

13.15 The destination "Rail freight terminal" is proposed, although it is considered that a name of the development may ultimately be added.

Blisworth Road (Courteenhall)

13.16 The destination "Blisworth" will be provided as existing. As this junction will operate as a left-in left-out arrangement the signage will need to reflect this.

Roade bypass (Northampton Road roundabout)

13.17 Signage for Roade, Ashton and Hartwell will be provided from the A508 southbound.

13.18 On the A508 northbound only Roade is considered necessary.

Roade bypass (Blisworth Road roundabout)

13.19 Signage for "Blisworth" is proposed heading away from Roade.

13.20 The legend "Local access only" is considered appropriate for the Roade direction.

Roade bypass (Stratford Road roundabout)

13.21 It is considered that "Roade" is appropriate for the A508 in both directions.

Rookery Lane / Ashton Road

13.22 In both directions on the A508 it is proposed to sign "Stoke Bruerne" & "Shutlanger" to the west, and "Ashton" & "Hartwell" to the east.

Pury Road

13.23 "Alderton" would be signed, as at present, from the A508.

Church Lane (Grafton Regis)

13.24 There are no destinations signed at present from the A508 onto Church Lane. The next villages are Ashton and Hartwell, and it is considered more appropriate to sign these at the Rookery Lane / Ashton Road junction.

Other signage

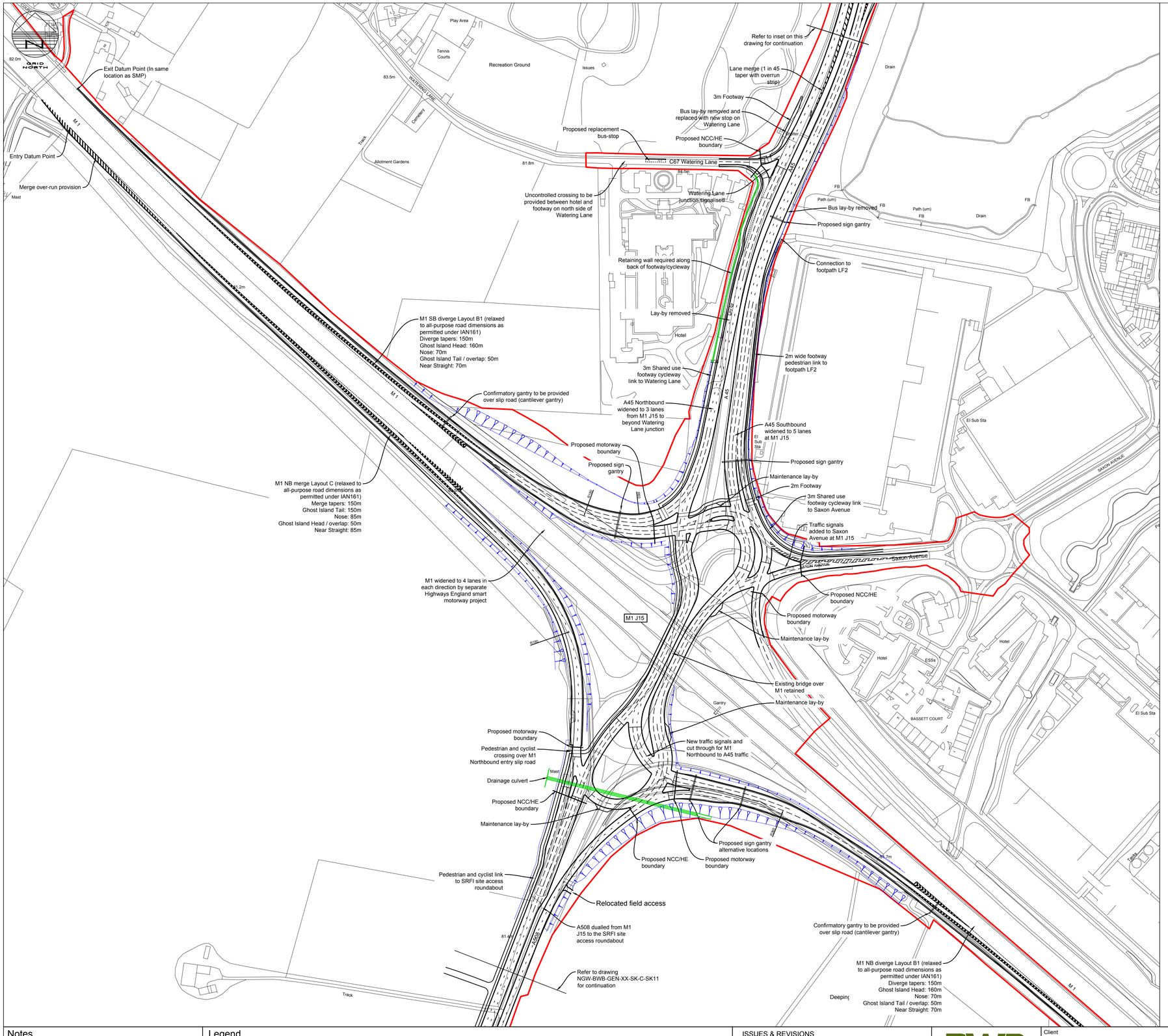
13.25 This strategy does not include for any of the following signs, the proposals for which would be developed at the detailed design stage:

- Tourist destination signs
- Diversion symbols
- Lorry routes
- Regulatory signs (speed limits etc.)
- Warning signs
- Miscellaneous informatory signs

APPENDICES

APPENDIX A

Appendix A: General Arrangements, larger scale sketches



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Legend

Order Limits

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P5	19.07.17	M1 slip roads updated	SRH	SRH
P6	06.09.17	Gantries added, other minor updates	SRH	SRH
P7	15.09.17	Minor alignment updates on A45	SRH	SRH
P8	07.11.17	M1 SB diverge and associated node amended	SRH	SRH
P9	08.12.17	General updates and issued with draft GDSR	SRH	SRH
P10	29.01.18	General updates	PG	SRH
P11	07.03.18	General updates	PG	SRH
P12	16.04.18	General updates	PG	SRH
P13	30.04.18	Updates following HE review	PG	SRH

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Project Title: **NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE**

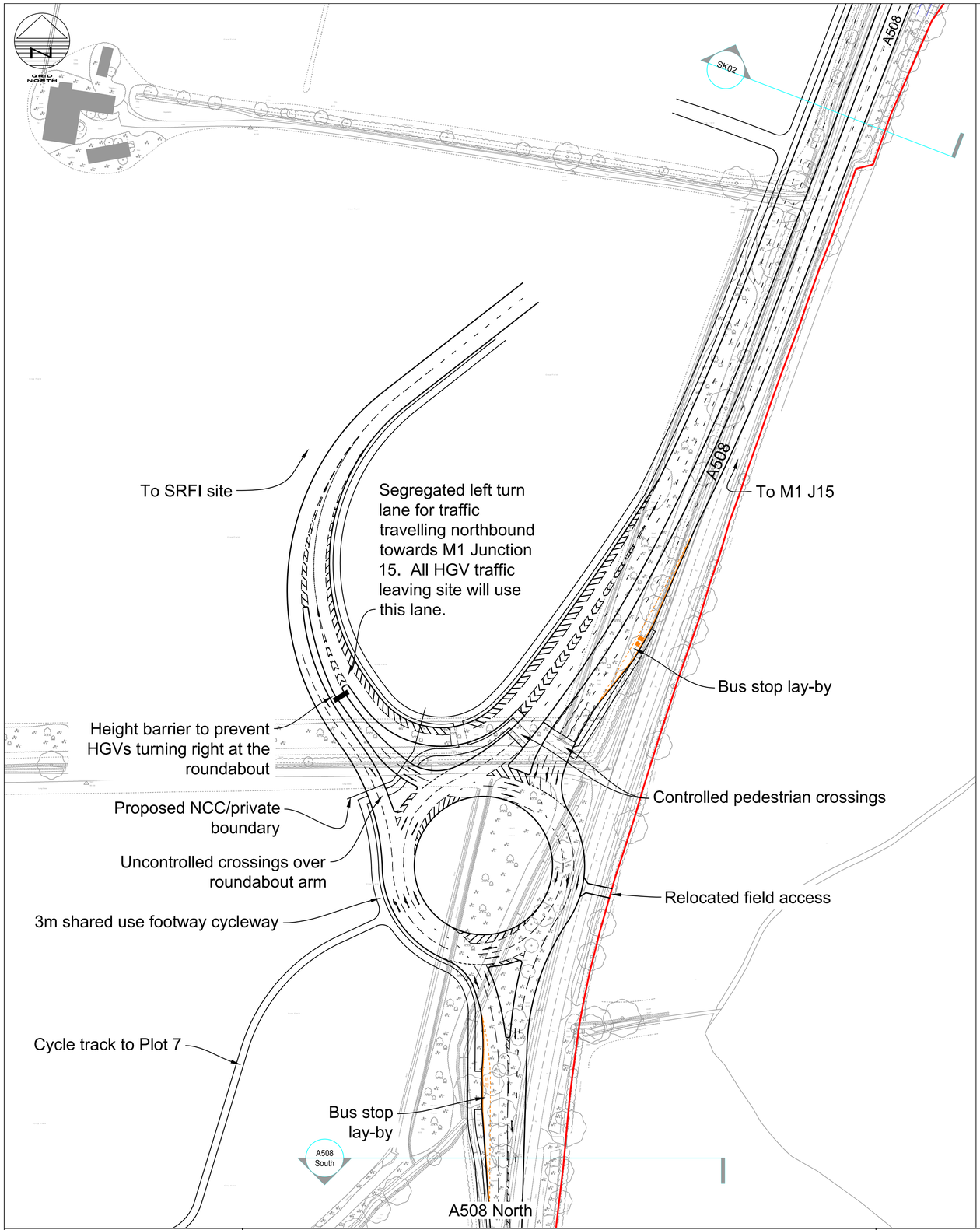
Drawing Title: **M1 JUNCTION 15 GENERAL ARRANGEMENT**

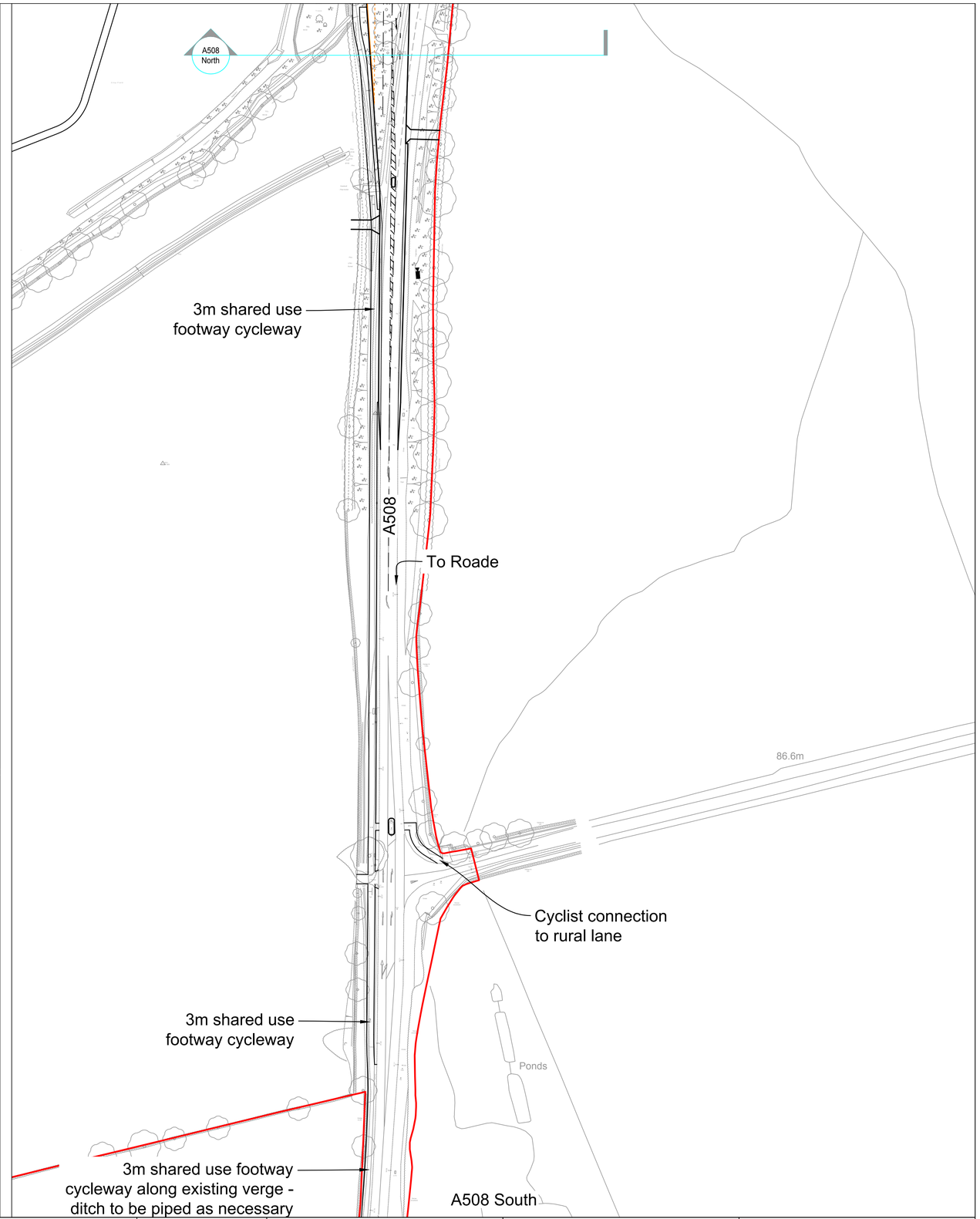
Drawn:	S. Hilditch	Reviewed:	S. Hilditch		
BWB Ref:	NTH 2315	Date:	17.02.17	Scale@A1:	1:2000

Drawing Status: **FOR COMMENT**

Project - Originator - Zone - Level - Type - Role - Number: **NGW-BWB-GEN-XX-SK-C-SK02**

Status: **S3** Rev: **P13**





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Order Limits

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P1	09.05.17	For Comment	PG	SRH
P2	29.08.17	Bus stops, ANPR and Highway Boundary added	PG	SRH
P3	07.11.17	A508 south merge amended	PG	SRH
P4	29.01.18	Layout revised to include a bus stop lay-by	PG	SRH
P5	30.04.18	Updates following Stage 1 RSA	PG	SRH

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Client: ROXHILL

Project Title: **NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE**

Drawing Title: **A50□ SRFI ACCESS GENERAL ARRANGEMENT**

Drawn:	S. Hilditch	Reviewed:	S. Hilditch
BWB Ref:	NTH 2315	Date:	09.05.17
Scale@A1:	1:1000		

Drawing Status: **FOR COMMENT**

Project - Originator - Zone - Level - Type - Role - Number: **NGW-BWB-GEN-XX-SK-□-SK11**

Status: **S3** Rev: **P5**

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ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P1	11.08.17	Preliminary Issue	PG	DM
P2	15.09.17	Bus stop added	PG	SRH
P3	20.10.17	Works to Woodleys Farm access shown	SRH	SRH
P4	07.11.17	Updated design geometry	SRH	SRH
P5	29.01.18	Footway extents and minor amendments	PG	SRH
P6	30.04.18	Updates following Stage 1 RSA	PG	SRH

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Project Title: **NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE**

Drawing Title: **A50□ BLISWORTH ROA□ J□NCTION GENERAL ARRANGEMENT LEFT IN AN□ LEFT O□T**

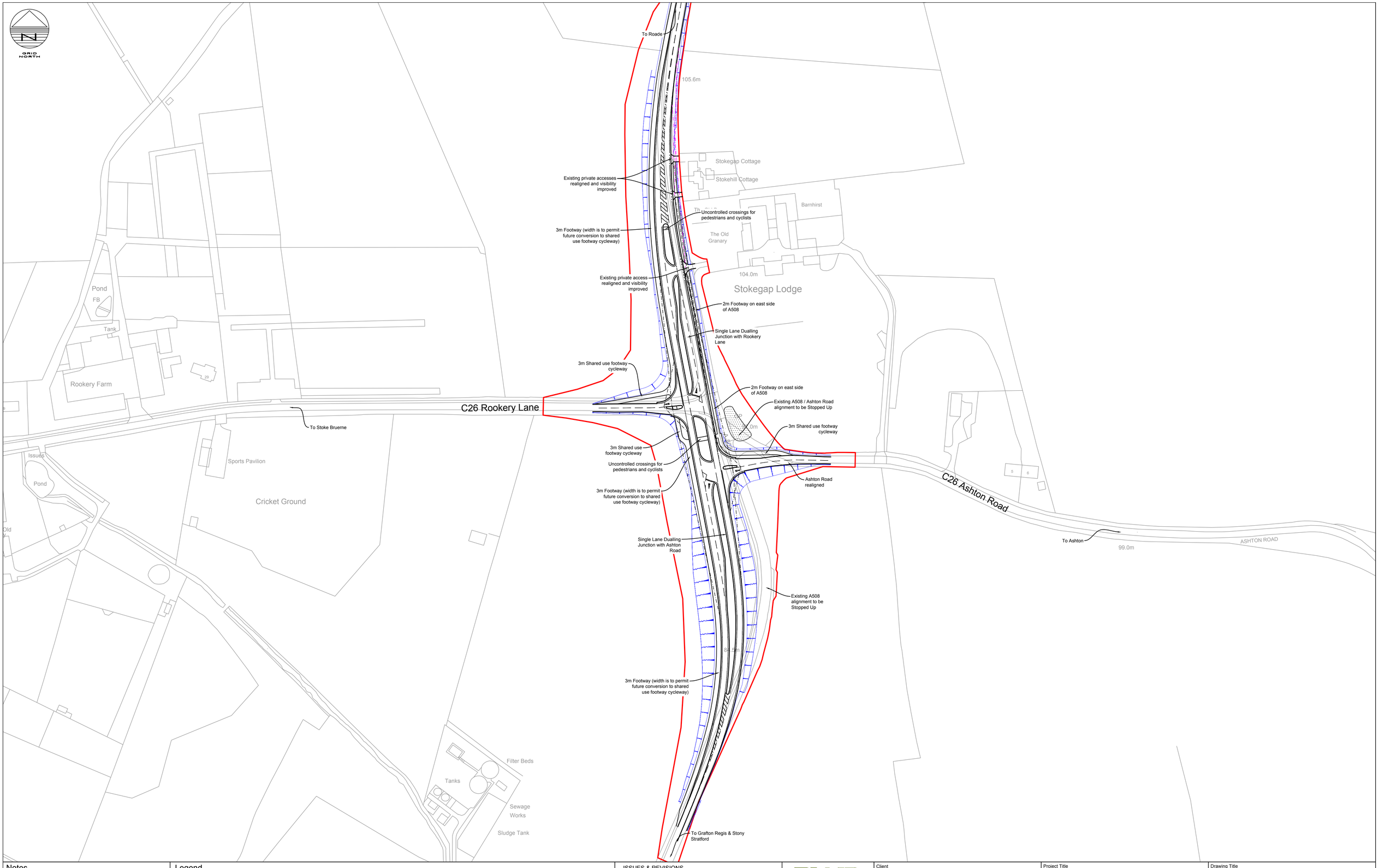
Drawn:	P. Goodyear	Reviewed:	D. Mackrory		
BWB Ref:	NTH 2315	Date:	11.08.17	Scale@A1:	1:1250

Drawing Status: **FOR COMMENT**

Project - Originator - Zone - Level - Type - Role - Number: **NGW-BWB-GEN-XX-SK-C-SK23**

Status: **S3**

Rev: **P□**



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ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P1	25.07.17	Preliminary Issue	SRH	SRH
P2	16.08.17	Order limits added	PG	PG
P3	20.10.17	Changed to single land dualling, NMU xings added	SRH	SRH
P4	26.01.18	Revised layout and extents of earthworks added	PG	SRH
P5	30.04.18	Updates following Stage 1 RSA	PG	SRH

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Client: ROXHILL

Project Title: **NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE**

Drawing Title: **A50 ROOKERY LANE / ASHTON ROAD JUNCTION GENERAL ARRANGEMENT**

Drawn:	S. Hilditch	Reviewed:	S. Hilditch		
BWB Ref:	NTH 2315	Date:	25.07.17	Scale@A1:	1:1250

Drawing Status: **FOR COMMENT**

Project - Originator - Zone - Level - Type - Role - Number: **NGW-BWB-GEN-XX-SK-C-SK1**

Status: **S3**

Rev: **P5**

GRID NORTH

NORTHAMPTON ROAD

Ward Bdy

To Roade

Tollgate cottage access

75.2m

Def

Ward Bdy

Proposed refuge island

Carriageway widening to accommodate 3.65m wide through lanes and 3.5m wide turning lane (plus 1m hardstrips)

Existing ghost island extended

Existing access retained

Existing refuge island retained

C85 Pury Road

A508 Northampton Road

To Grafton Regis & Stony Stratford

92.4m

GP

92.9m

95.4m

ETL

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5. Refer to Appendix 7/1 of the contract specification for details of proposed Pavement Types and restrictions.

Legend

Order Limits

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P1	20.07.17	Preliminary Issue	SRH	SRH
P2	16.08.17	Order limits shown	PG	PG
P3	26.01.18	Updated following topographical survey	PG	SRH

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Project Title: **NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE**

Drawing Title: **A50□ P□RY ROA□ J□NCTION GENERAL ARRANGEMENT**

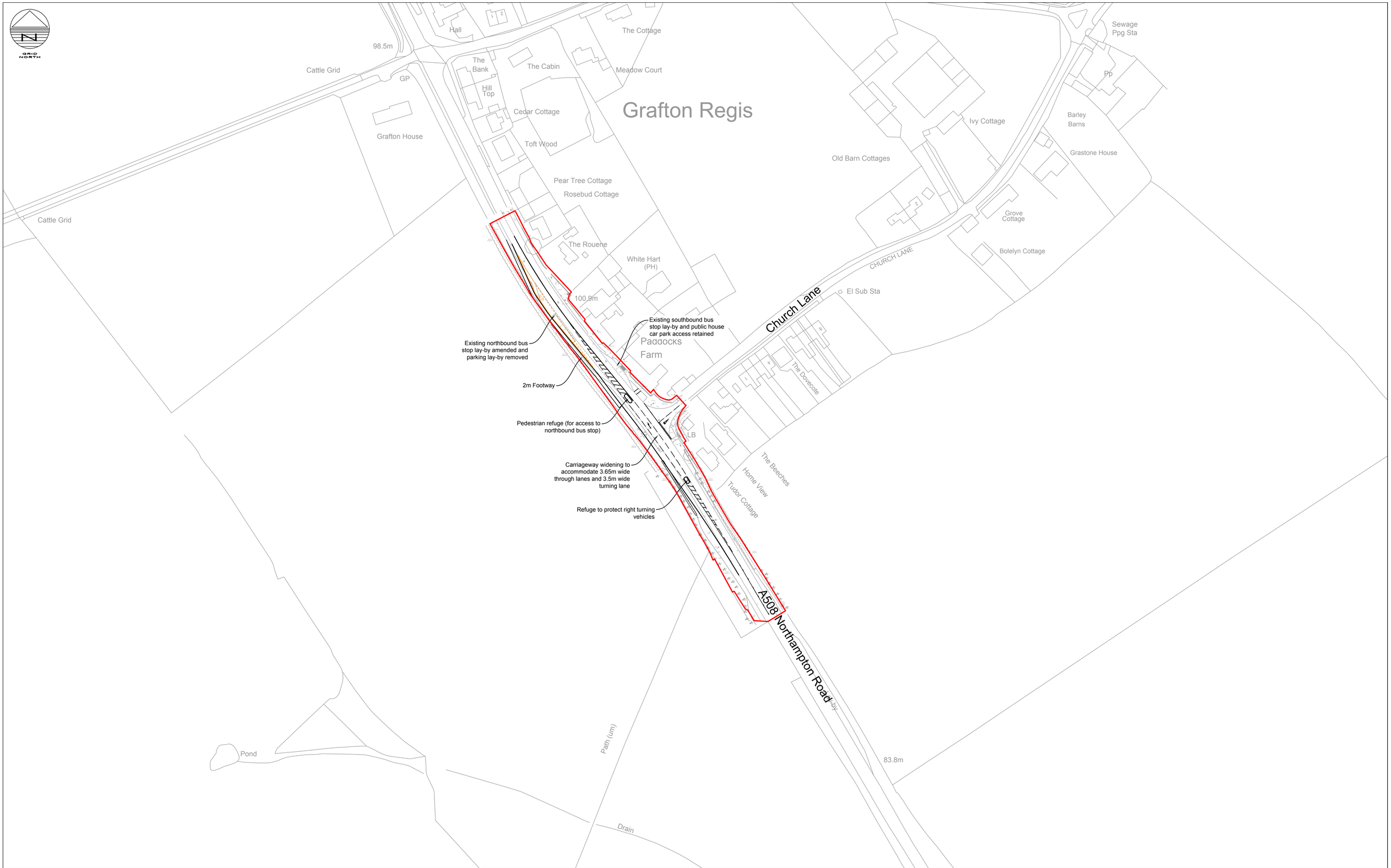
Drawn:	S. Hilditch	Reviewed:	S. Hilditch		
BWB Ref:	NTH 2315	Date:	20.07.17	Scale@A1:	1:1250

Drawing Status: **FOR COMMENT**

Project - Originator - Zone - Level - Type - Role - Number: **NGW-BWB-GEN-XX-SK-C-SK1□**

Status: **S3**

Rev: **P3**



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Order Limits

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P1	07.09.17	Preliminary Issue	SRH	SRH
P2	26.01.18	Updated following topographical survey	PG	SRH
P3	30.04.18	Updates following Stage 1 RSA	PG	SRH

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Project Title: **NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE**

Drawing Title: **A50 CHURCH LANE GRAFTON REGIS GENERAL ARRANGEMENT**

Drawn:	S. Hilditch	Reviewed:	S. Hilditch
BWB Ref:	NTH 2315	Date:	07.09.17
Scale@A1:	1:1000		

Drawing Status: **FOR COMMENT**

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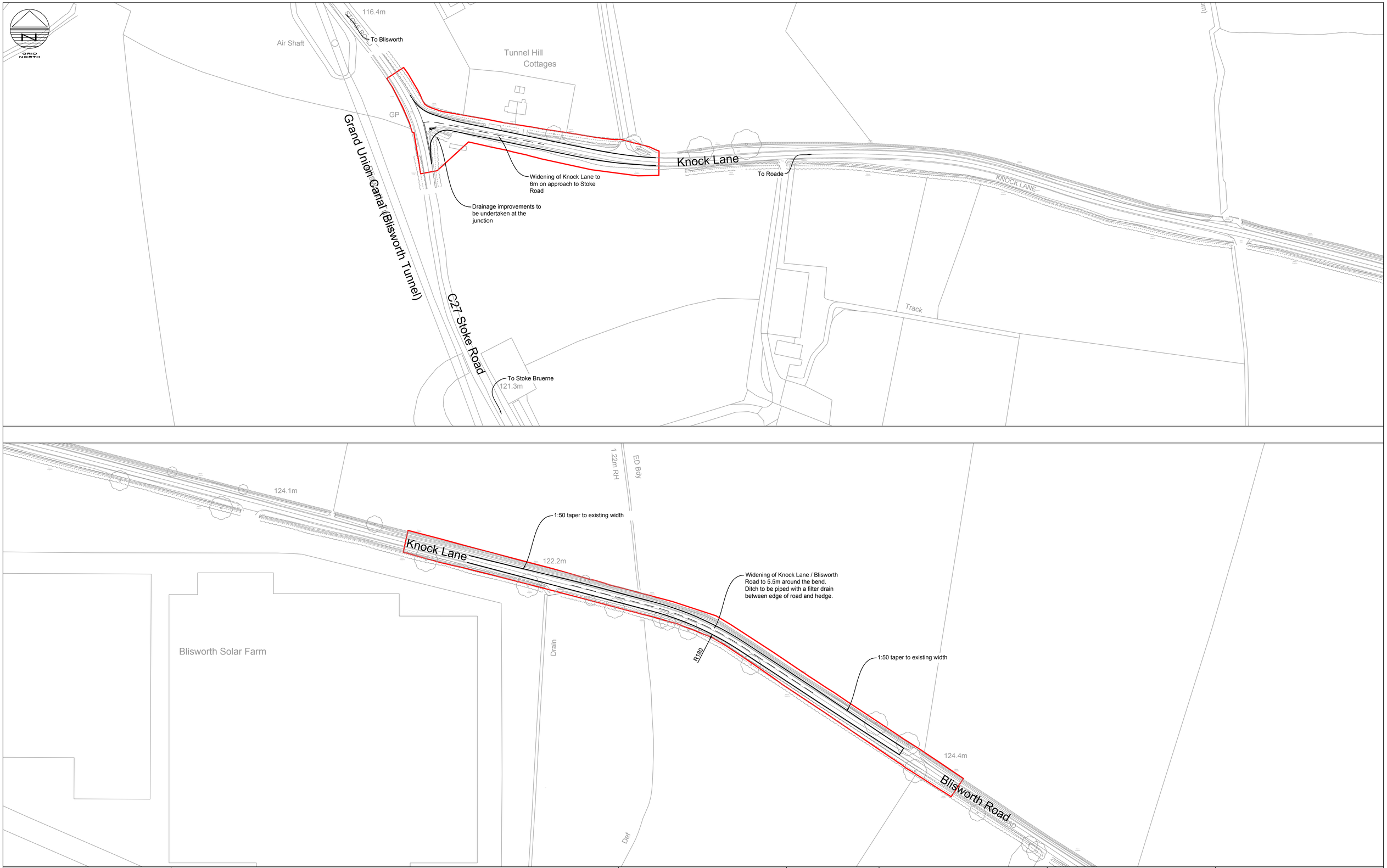
Status: **S3**

Rev: **P3**



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Order Limits

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P1	23.08.17	Preliminary Issue	SRH	SRH
P2	25.08.17	Proposals updated	SRH	SRH
P3	06.11.17	Proposals updated	SRH	SRH
P4	26.01.18	Proposals updated following 3d design	PG	SRH

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Client: ROXHILL

Project Title: **NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE**

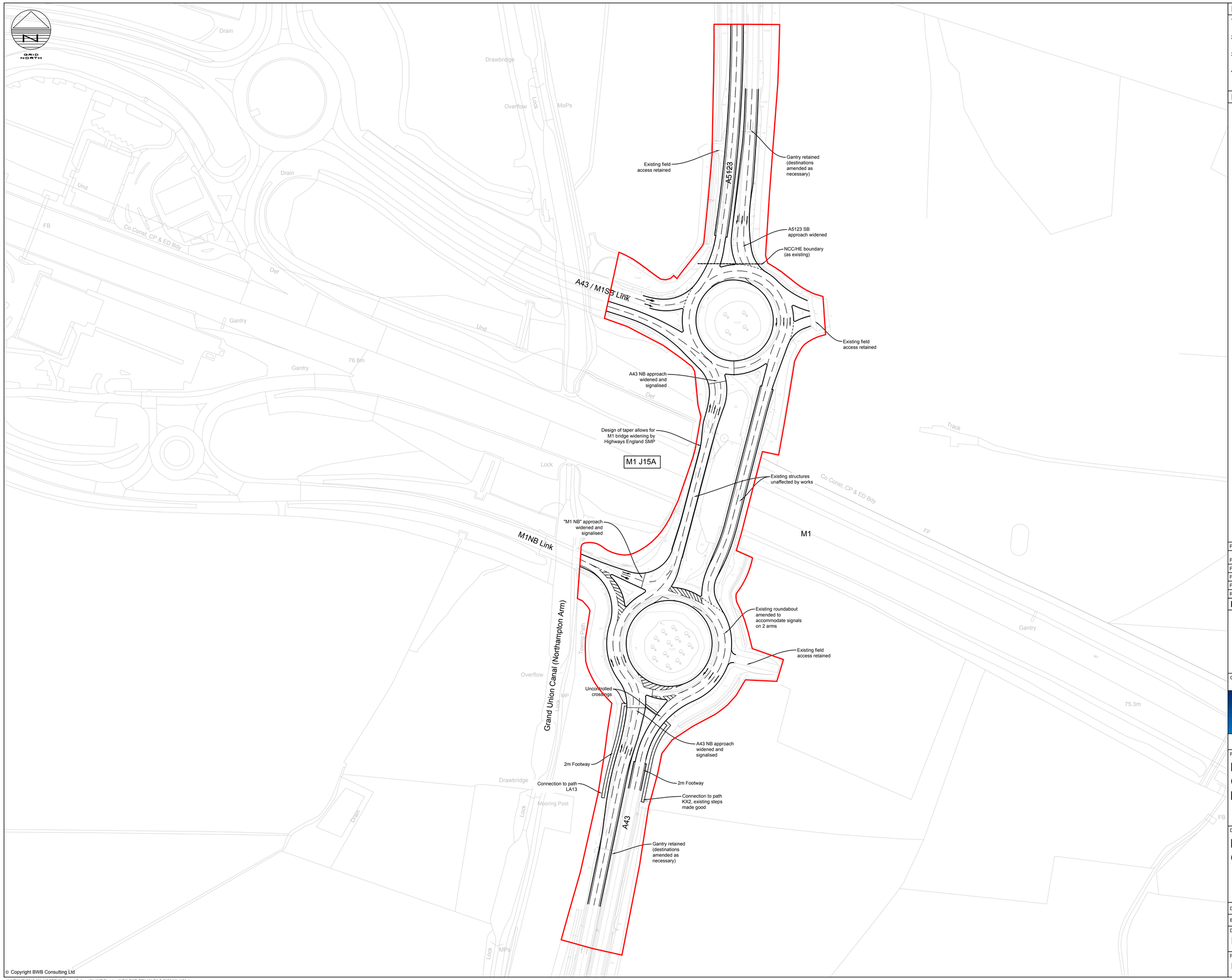
Drawing Title: **KNOCK LANE / BLISWORTH ROA□ IMPRO□EMENTS GENERAL ARRANGEMENT**

Drawn:	S. Hilditch	Reviewed:	S. Hilditch		
BWB Ref:	NTH 2315	Date:	23.08.17	Scale@A1:	1:1000

Drawing Status: **FOR COMMENT**

Project - Originator - Zone - Level - Type - Role - Number: **NGW-BWB-GEN-XX-SK-C-SK2□**

Status: **S3** Rev: **P4**



Notes

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3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Legend

Order Limits

Rev	Date	Details of issue / revision	Drw	Rev
P5	30.04.18	Updated following RSA1 and HE review	PG	PG
P4	07.03.18	Southern roundabout geometry amended & footway and uncontrolled crossings added	PG	SRH
P3	21.12.17	Layout amended to reflect topographical survey	PG	SRH
P2	16.08.17	Order limits added	PG	PG
P1	26.07.17	Preliminary Issue	SRH	SRH

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ROXHILL

Project Title

NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE

Drawing Title

M1 J15A (A43/A5123) GENERAL ARRANGEMENT

Drawn:	S. Hilditch		Reviewed:	S. Hilditch	
BWB Ref:	NTH 2315	Date:	26.07.17	Scale@A1:	1:1250

Drawing Status

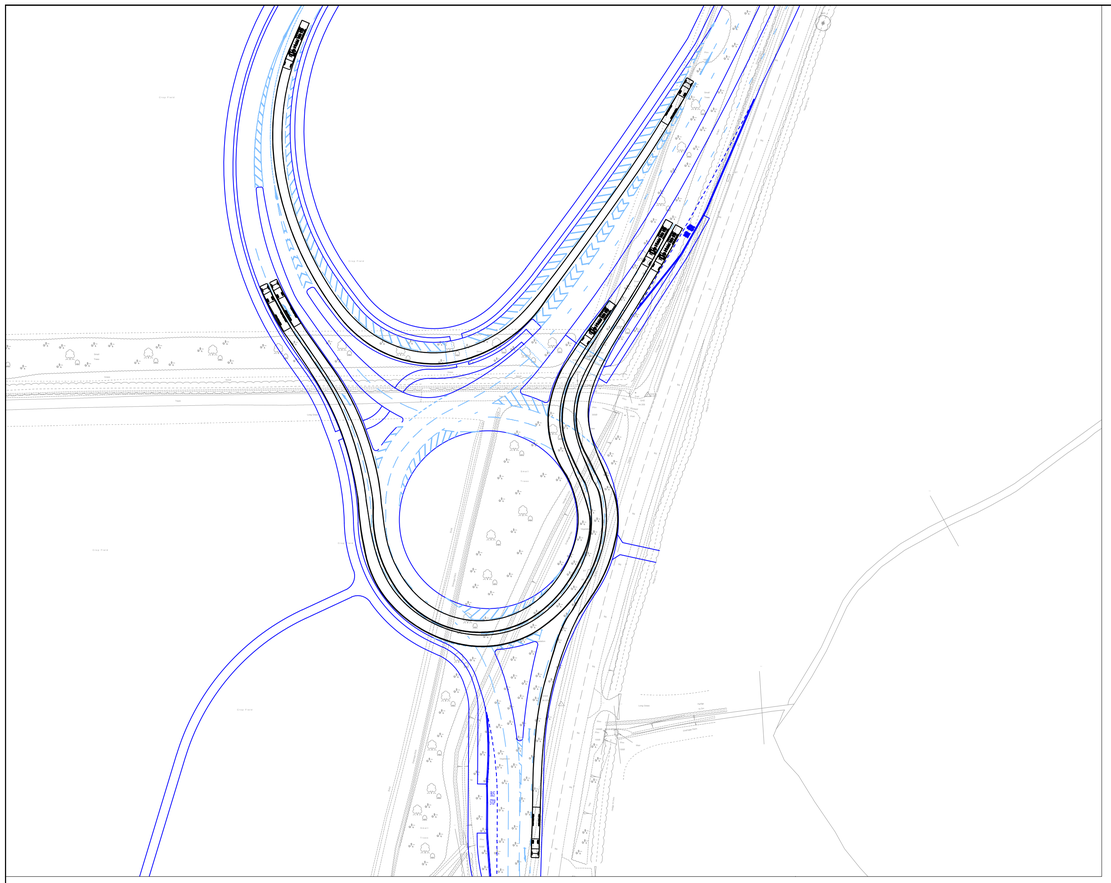
FOR COMMENT

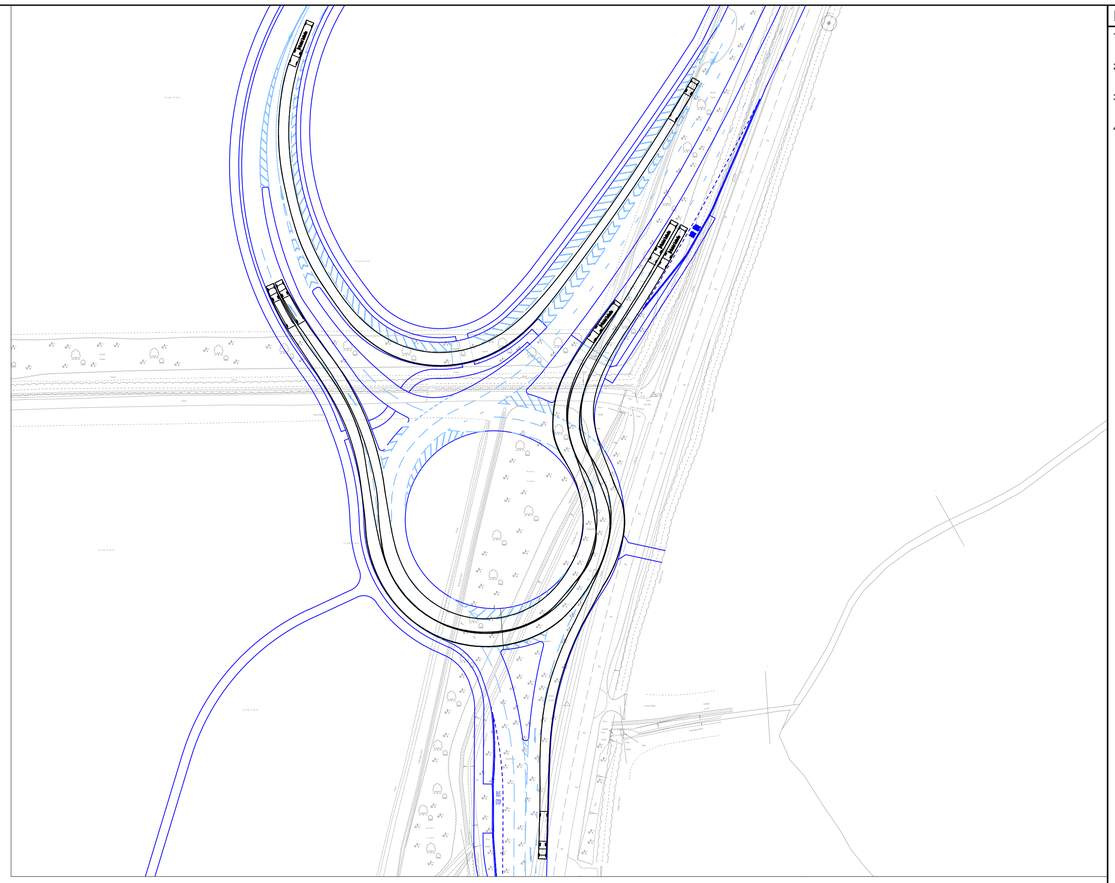
Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
NGW-BWB-GEN-XX-SK-C-SK20	S3	P5

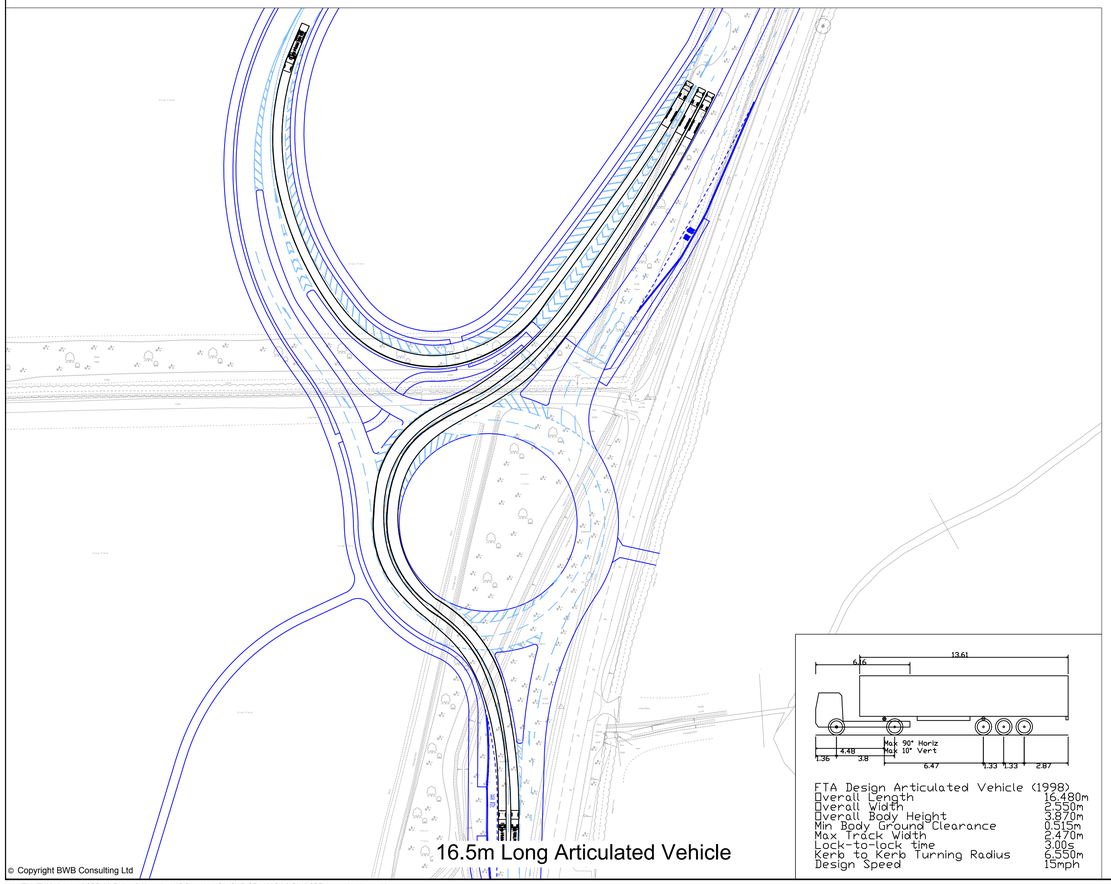
Y:\NTH\NTH2315_M1 J15 SRFI\02. Project Delivery\01. WIP\Sketches\NGW-BWB-GEN-XX-SK-C-SK20 M1 J15A.dwg

APPENDIX B

Appendix B: Vehicle Tracking drawings



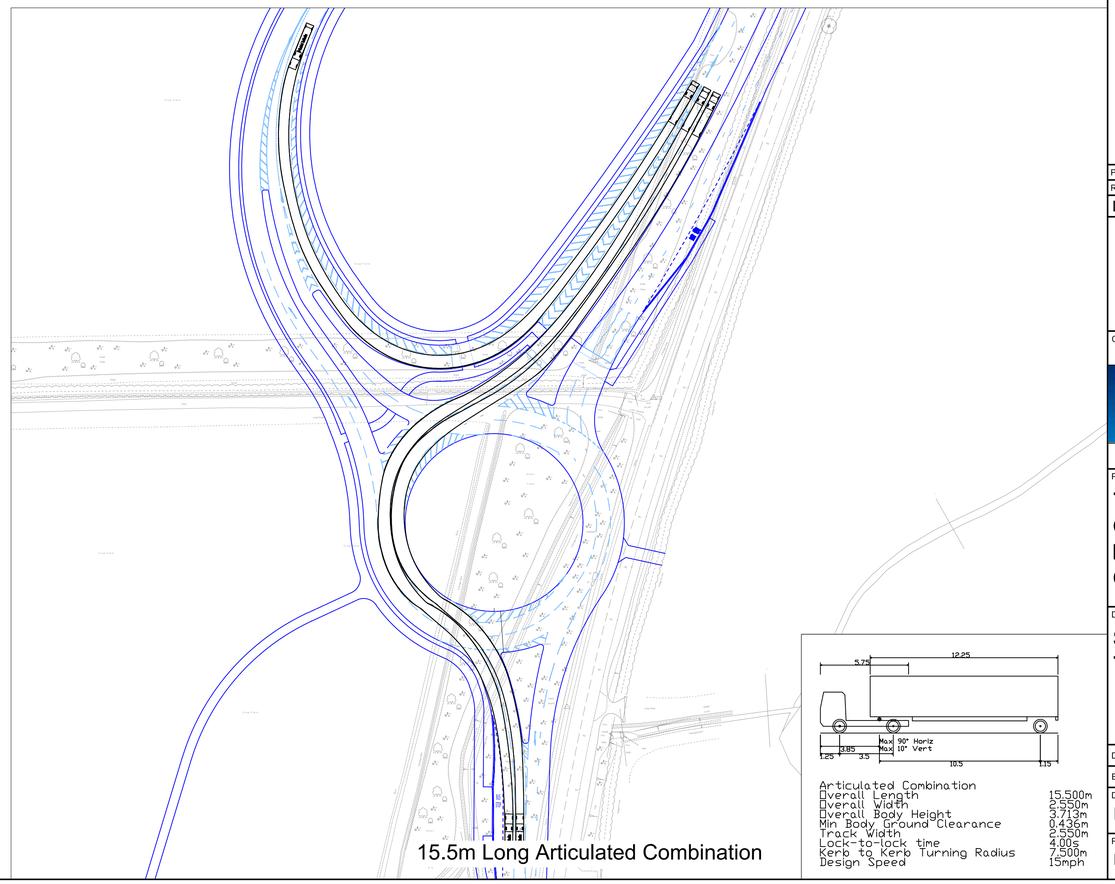




FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock-to-lock time	3.00s
Kerb to Kerb Turning Radius	6.550m
Design Speed	15mph

16.5m Long Articulated Vehicle



Articulated Combination

Overall Length	15.500m
Overall Width	2.550m
Overall Body Height	3.713m
Min Body Ground Clearance	0.436m
Track Width	2.550m
Lock-to-lock time	4.00s
Kerb to Kerb Turning Radius	7.500m
Design Speed	15mph

15.5m Long Articulated Combination

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Rev	Date	Details of issue / revision	Drw	Rev
P1	29.01.18	Preliminary Issue	PG	SRH

Issues & Revisions

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Client

ROXHILL

Project Title

THE NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE OR□ER 201X

Drawing Title

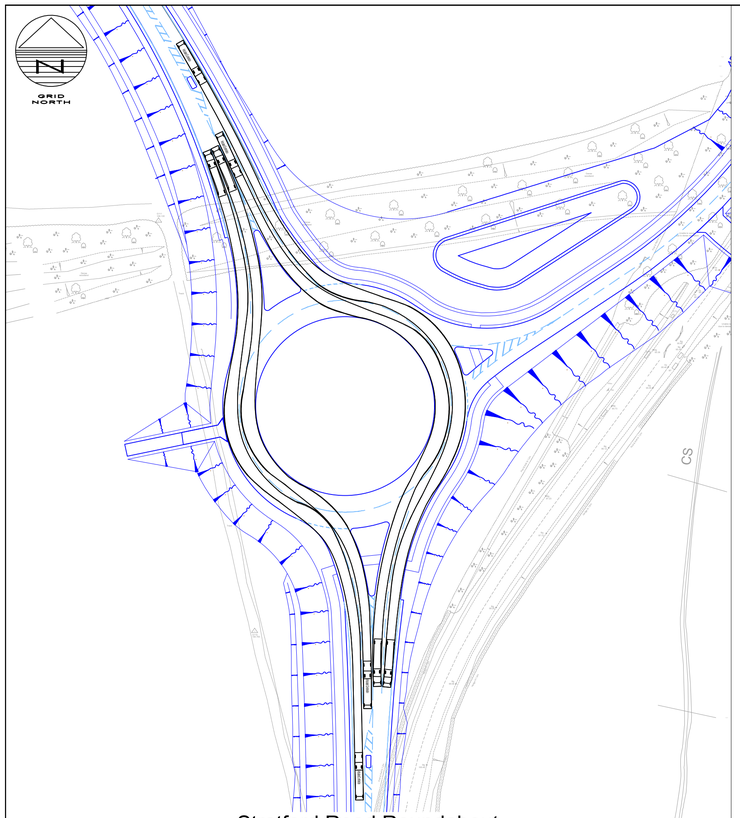
SRFI ACCESS □EHICLE TRACKING

Drawn:	P. Goodyear		Reviewed:	S. Hilditch	
BWB Ref:	NTH 2315	Date:	26.01.18	Scale@A1:	1:1000

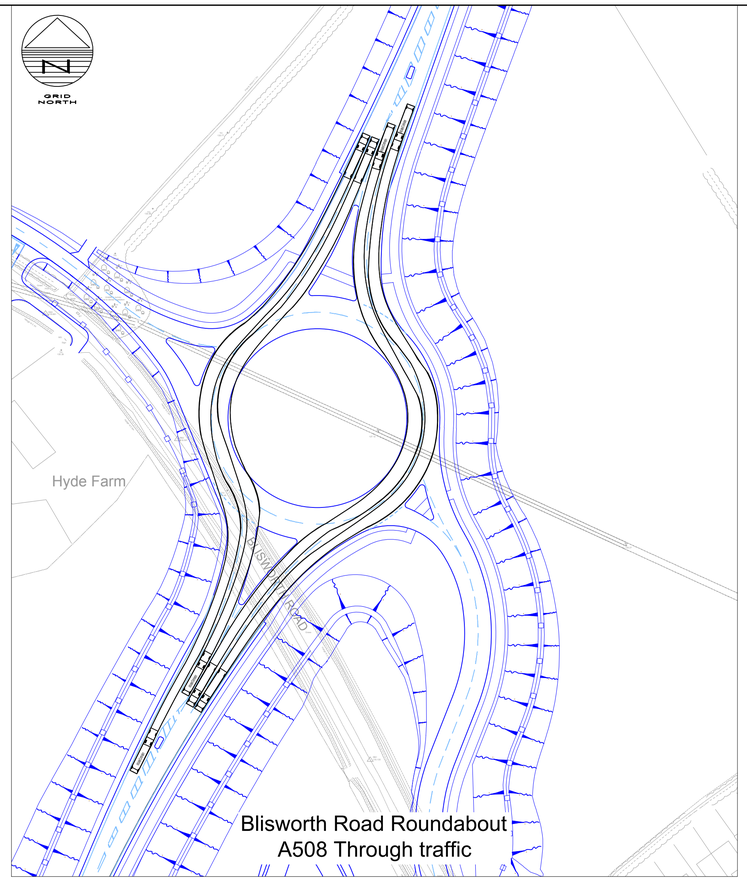
Drawing Status

FOR COMMENT

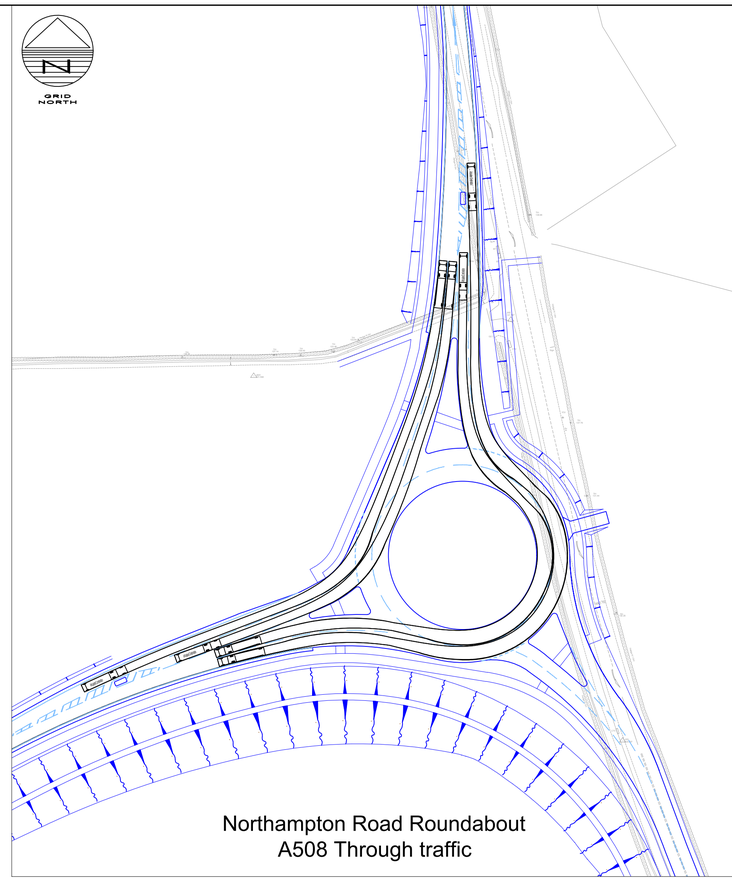
Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
NGW-BWB-GEN-XX-SK-C-SK43	S3	P1



Stratford Road Roundabout
A508 Through traffic



Blisworth Road Roundabout
A508 Through traffic



Northampton Road Roundabout
A508 Through traffic

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
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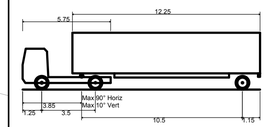
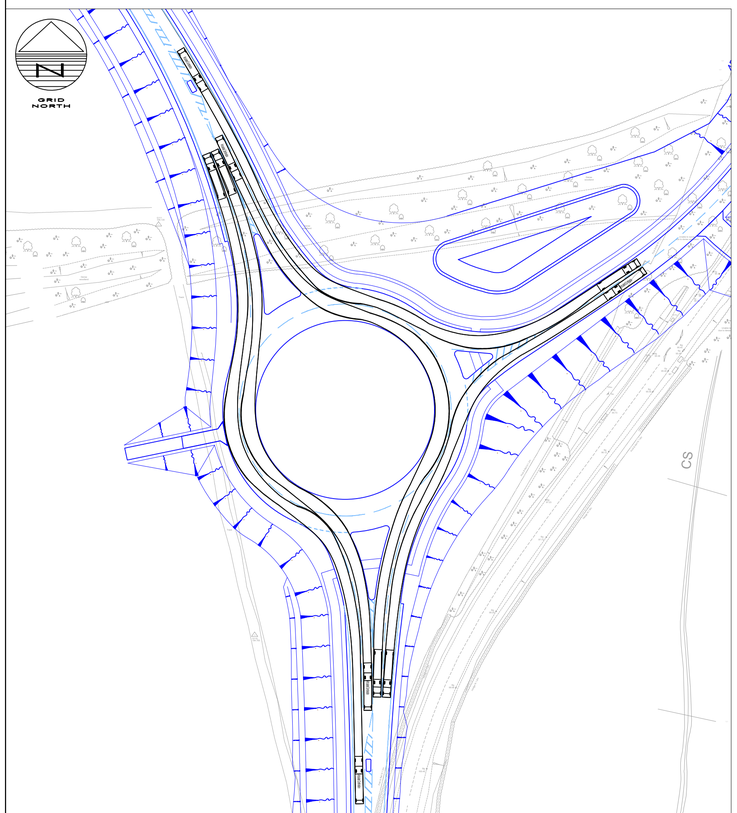
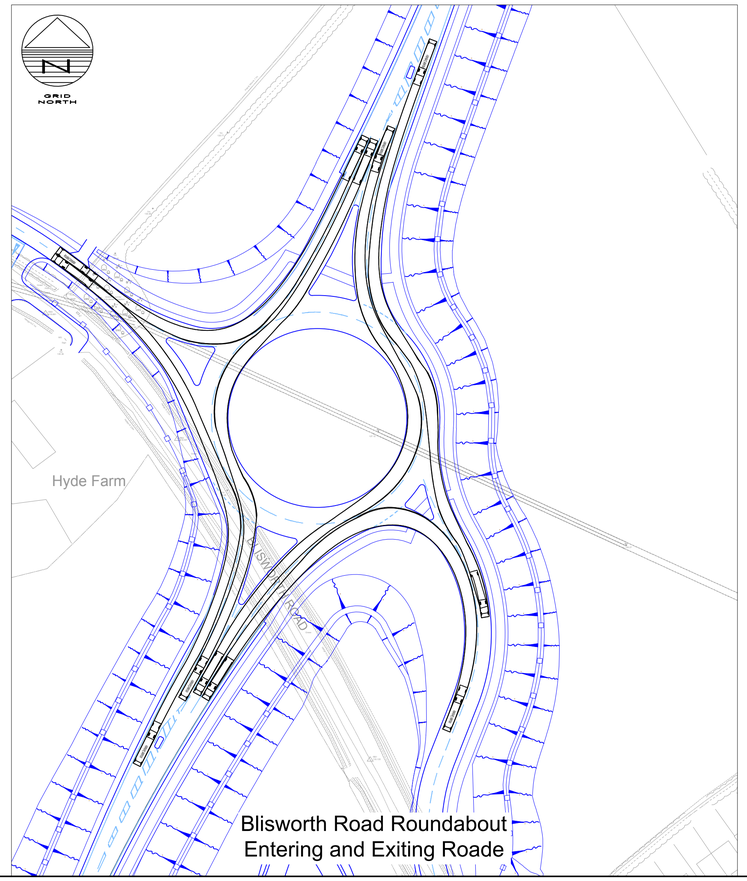
4. Any discrepancies noted on site are to be reported to the engineer immediately.



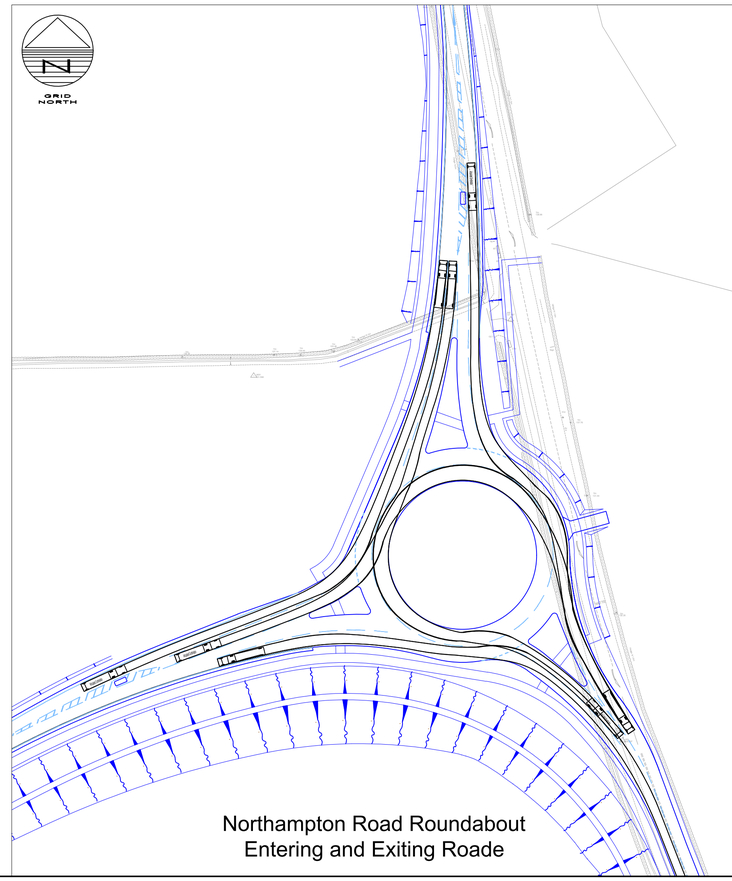
Articulated Combination	
Overall Length	15.500m
Overall Width	2.550m
Overall Body Height	3.713m
Min Body Ground Clearance	0.436m
Track Width	2.550m
Lock-to-lock time	4.00s
Kerb to Kerb Turning Radius	7.500m
Design Speed	15mph



Stratford Road Roundabout
Entering and Exiting Roade



Blisworth Road Roundabout
Entering and Exiting Roade



Northampton Road Roundabout
Entering and Exiting Roade

Y:\NTH\NTH2315\M1 J15 SRFI 02. Project Delivery 01. WIP Sketches\NGW-BWB-GEN-XX-SK-C-SK41 A508 Roade Bypass Vehicle tracking.dwg

Rev	Date	Details of issue / revision	Drw	Rev
P1	29.01.18	Preliminary Issue	PG	SRH

Issues & Revisions

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Client

ROXHILL

Project Title

THE NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE OR□ER 201X

Drawing Title

A50□ ROA□E BYPASS □EHICLE TRACKING

Drawn:	P. Goodyear	Reviewed:	S. Hilditch		
BWB Ref:	NTH 2315	Date:	26.01.18	Scale@A1:	1:2000

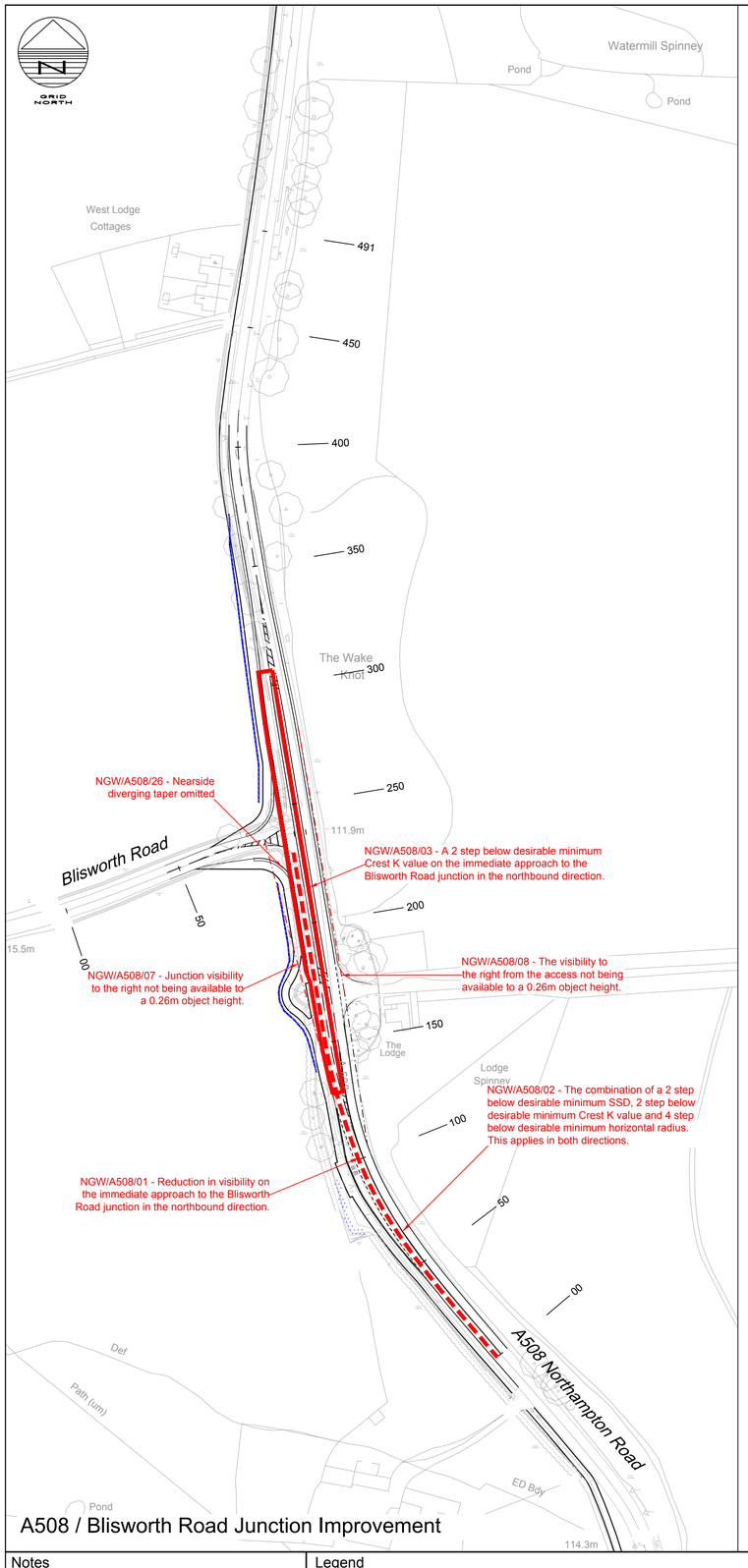
Drawing Status

FOR COMMENT

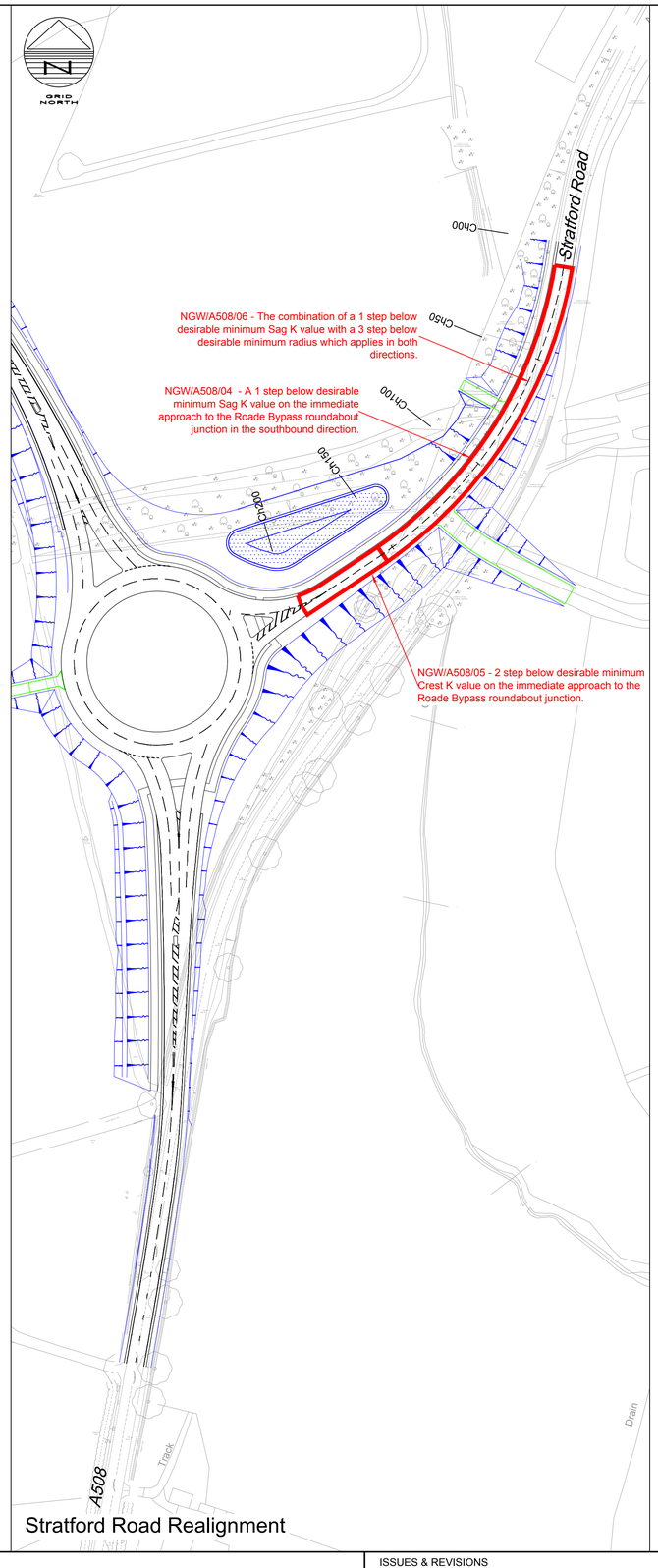
Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
NGW-BWB-GEN-XX-SK-C-SK41	S3	P1

APPENDIX C

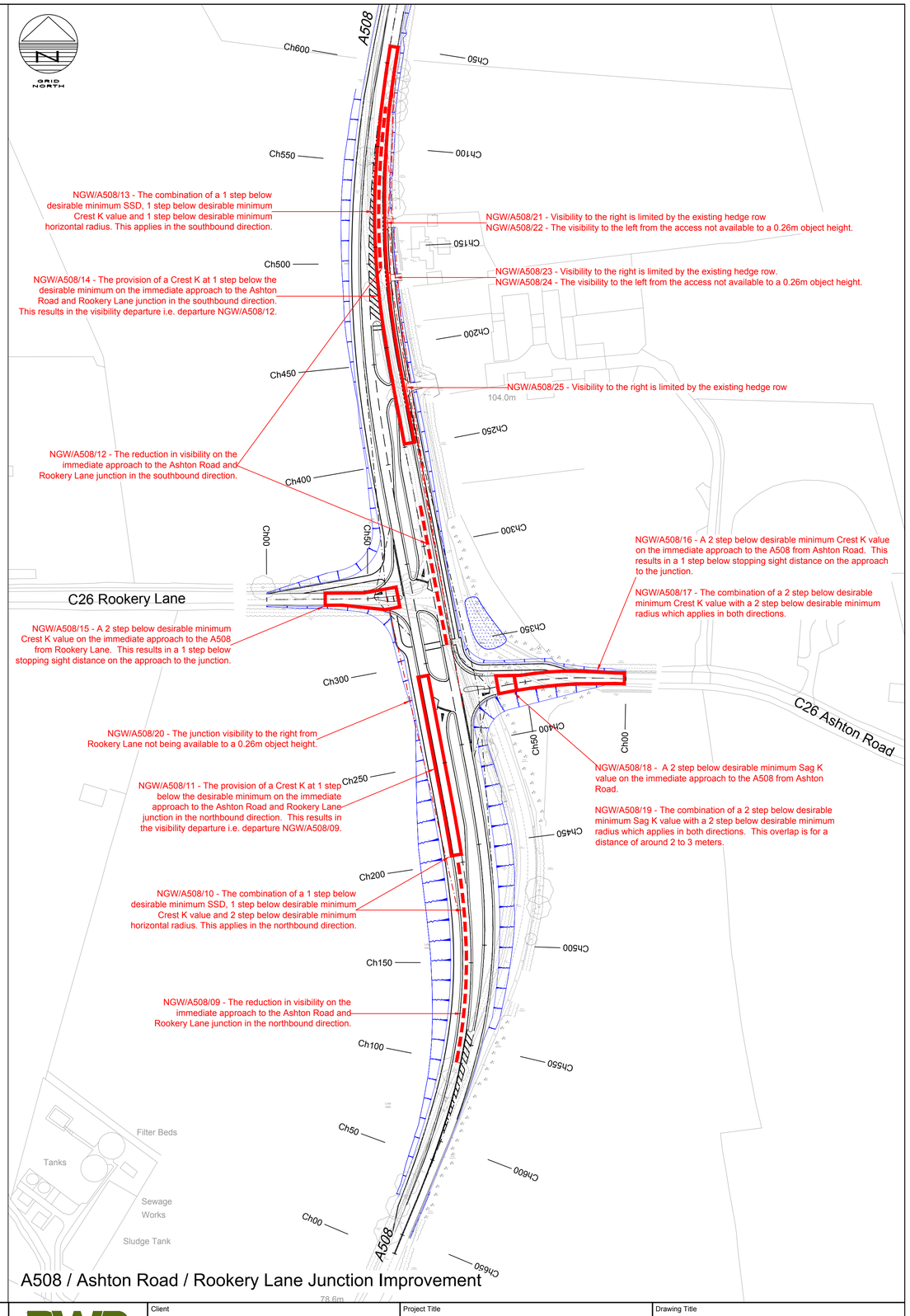
Appendix C: Departures from Standard location plan



A508 / Blisworth Road Junction Improvement



Stratford Road Realignment



A508 / Ashton Road / Rookery Lane Junction Improvement

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Legend

- Denotes departure from standard - Vertical Alignment
- Denotes departure from standard - Forward Visibility
- Denotes departure from standard - Junction Visibility

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P1	26.01.18	Preliminary Issue	PG	SRH
P2	04.05.18	Updated following NCC's Comments	PG	SRH

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Client: ROXHILL

Project Title: **NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE**

Drawing Title: **A508 DEPARTURES LOCATION PLAN**

Drawn:	P. Goodyear	Reviewed:	S. Hilditch		
BWB Ref:	NTH 2315	Date:	26.01.18	Scale@A1:	1:1250

Drawing Status: **FOR COMMENT**

Project - Originator - Zone - Level - Type - Role - Number: **NGW-BWB-GEN-XX-SK-C-SK42**

Status: **S3** Rev: **P2**

Y:\NTH\NTH2315_M1 J15 SRFI\02. Project Delivery\01. WIP\Sketches\NGW-BWB-GEN-XX-SK-C-SK42 A508 Departure plans.dwg

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