


Stage 2 Road Safety Audit

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Radstock Regeneration Infrastructure Works

Jubb Consulting Engineers Ltd

06 December 2013



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RSA Road Safety Consultants Ltd

The Annexe
Torf House Shepherds Lane
Winchester
Hants
SO21 2AD
Tel +44 (0) 782 6746878
enquiries@rsasolutions.co.uk

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Document history

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This document has been issued and amended as follows:

Version	Date	Description	Created by	Verified by	Approved by
1.0	05/12/13	Draft	M Chamberlain	I Medd	M Chamberlain
1.0	05/12/13	Final	M Chamberlain	I Medd	M Chamberlain

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1 Introduction

This report results from a Stage 2 Road Safety Audit carried out on the proposed Radstock Regeneration Infrastructure Works scheme. The scheme consists of the following elements:

- Changing The Street from the existing one-way northbound to two-way traffic; providing on-street parking on the north side; a zebra crossing and modifications to the junction with Fortescue Road and Church Street;
- Changing Fortescue Road from one-way southbound to one-way northbound;
- Changing the junction of The Street and Wells Road from a priority junction to a mini-roundabout;
- The creation of a new link, Frome Road;
- Introducing a new small roundabout at the junction of Frome Road and the Frome Road New Link;
- Implementation of traffic calming on Frome Road and introducing a 20mph speed limit on all roads within the regeneration area.

The Audit Team membership was as follows:-

Matt Chamberlain BSc (Hons) MICE MCIHT MSoRSA

Ian Medd MCIHT FSoRSA

This report is presented based upon the checklist contained in Annex B of HD19/03. The team has examined and reported only on the road safety implications of the design and has not examined or verified the compliance of the layout to any other criteria, in accordance with HD 19/03.

A visit to the site was made on Thursday 5th December 2013 between 12.30 and 14.00 hours when the weather was overcast and the road surface dry.

No Departures from Standard have been submitted to the Audit Team.

Collision Data obtained from the Transport Assessment (TAR01-Jubb Consulting Engineers May 2013) shows that for the five year period from 1 January 2008 to 31 December 2012, there were 26 slight injury accidents within the scheme extents.

Eight slight incidents took place at the A362/A367 double mini-roundabout including one cyclist associated injury of which the most prevalent collision types were failure to give way (3 collisions) and rear end shunts (two collisions). Four were reported at Wells Road/The Street as the result of the driver's failing to give way to oncoming vehicles and included three slight injuries to cyclists.

Traffic flows obtained from the Department of Transport for 2012 show that the A367 Wells Road just west of the town has a daily two way flow of around 13,500 vehicles per day and the A362 Frome Road just east of the town has a flow of around 10,500 vehicles per day.

Each of the problems identified by the Audit Team has been allocated a unique reference number and is as shown on the plan extracts contained within Appendix

2 Items Raised at the Previous Stage 1 Road Safety Audit

These proposals were subject to a Stage 1 Road Safety Audit (Halcrow - GBB-NES-020 RSA1 001) in June 2013. There are no outstanding road safety problems resulting from that Audit.

3 General

3.1 Drainage

3.1.1 Location: Bus Stops on Frome Road New Link

Summary: Gullies likely to be overrun by buses causing premature gully collapse and causing a possible hazard to road users

Drawing TC8308-H101 shows that double gullies will be placed in the carriageway in a location that is likely to be overrun by buses entering and exiting the bus stops on Frome Road New Link. This could lead to the gullies collapsing prematurely and causing a possible hazard to road users and in particular two wheelers.

Recommendation

Move the gullies west so that they are not in a position likely to be overrun by buses.

3.1.2 Location: Junction on Frome Road (North) just north of proposed new roundabout

Summary: Gully may be overrun by vehicles or be a hazard to cyclists

Drawing TC8308-H102 shows that a gully will be positioned on the south side of the junction potentially in the wheel track of buses exiting the road. This could lead to premature damage which could then be a hazard to cyclists using this route.

Recommendation

Relocate the gully closer to the kerb line away from the wheel track.

4 Junctions

4.1 Layout

4.1.1 Location: Junction of Fortesque Road and the High Street

Summary: Junction alignment may not deter drivers from turning right out of Fortesque Road in violation of turning ban

Under the proposals, drivers will only be permitted to turn left from Fortesque Road onto the High Street. The Audit Team are concerned that despite signing/road markings, the proposed approach alignment of the junction may still encourage drivers to make the banned right turn movement which could increase the risk of conflicts occurring.

Recommendation

Modify the junction alignment to physically deter drivers from turning right from Fortesque Road. This would also have the added benefit of reducing the crossing distance for pedestrians.

4.2 Roundabouts

4.2.1 Location: New Roundabout on Frome Road

Summary: Pedestrian guardrail could interfere with visibility for drivers on the roundabout and also mask children/buggies or wheelchairs waiting to cross

Pedestrian guard rail has been proposed on all arms of the new roundabout. Care should be taken to ensure that the guardrail does not interfere with the sightlines for drivers entering the roundabout as failure to provide adequate visibility could increase the risk of failure to give way type collisions. In addition, the guardrail would significantly narrow the footway width (if installed at the correct clearance) and also could mask children, buggies or wheelchairs waiting at the crossing points.

Recommendation

Given that pedestrian crossing provision has been provided across all arms of the roundabout, it is not clear why the guardrail is required and therefore it is recommended that it is removed from the design proposals.

5 Road Signs, Carriageway Markings and Lighting

5.1 Road Signs

5.1.1 Location: Junction on Frome Road (North) just north of proposed new roundabout

Summary: Proposed “No Entry” sign may be confusing to road users

Drawing TC8308/H111 shows a proposed “No Entry” sign with a supplementary plate “Except Local Buses” installed at the junction. The orientation of the sign is such that drivers travelling north on Frome Road(North) may believe the sign applies to Frome Road. This could lead to driver confusion and late braking or turning movements at the junction.

Recommendation

Align the sign so it is clear that it is intended for the side road. A map type advanced sign such as that illustrated in Figure 15-14 in Chapter 3 of the Traffic Signs Manual could also help to explain the layout to drivers in advance of the junction.

5.1.2 Location: Scheme Extents

Summary: Signs mounted at incorrect mounting heights/clearances could be hazardous to all road users

No details have been provided of mounting heights or horizontal clearances of the proposed road signs. Signs installed at the incorrect mounting heights on footways or at the incorrect clearance from the edge of the carriageway could be hazardous to all road users.

Recommendation

Ensure signs are mounted at the correct mounting heights and clearances as per the guidance given in TSRGD 2002.

6 Audit Team Statement

I certify that this audit has been carried out in accordance with HD 19/03.

Audit Team Leader

Name: Matt Chamberlain Signed:

Position: Audit Team Leader Dated: 06/12/2013

Audit Team Member

Name: Ian Medd

Position: Audit Team Member



Appendix A

List of Drawings and Documents Supplied

<u>Document</u>	<u>Rev.</u>	<u>Description</u>
TAR01	B	Transport Assessment Former GWR Railway Line, Frome Road, Radstock
327790/ITD/ITQ/001/B	B	Radstock PARAMICS Model
TC8308/MW	-	Stage 1 RSA Exception Report
GBB-NES-020 RSA1 001	1	Stage 1 RSA

QA08-Drawing_Register 2 of 4

Planning & Transport Development			Form: QA08																	
Transportation Service - Drawing Register			Project No. TC8308																	
Scheme/Project Title		RADSTOCK TOWN CENTRE REDEVELOPMENT									Sheet No. 2									
Issued by: MW			Revision dates																	
			11-Oct-13	22-Oct-13	23-Oct-13															
Ref No.			Size	Revision designation (A,B,C etc)																
TC8308-H119	PROPOSED SERVICES DIVERSIONS ELECTRICAL	A1	A	A	A															
TC8308-H120	PROPOSED SERVICES DIVERSIONS TELECOMMUNICATIONS	A1	A	A	A															
TC8308-H121	EXISTING SERVICES LAYOUT SHEET 1 OF 3	A1	-	-	-															
TC8308-H122	EXISTING SERVICES LAYOUT SHEET 2 OF 3	A1	B	B	B															
TC8308-H123	EXISTING SERVICES LAYOUT SHEET 3 OF 3	A1	-	-	-															
TC8308-H124	EXISTING TOPOGRAPHICAL SURVEY	A1	A	B	B															
TC8308-H125	KEY DATES, SECTIONAL COMPLETION AND HIGHWAY CONSTRAINTS	A1	B	B	C															
TC8308-H135	TEMPORARY FOOTPATH DIVERSION AND SUBWAY	A1	A	B	B															
TC8308-H138	SITE CLEARANCE	A1	-	-	-															
TC8308-H139	GENERAL ARRANGEMENT	A1	B	B	B															
TC8308-H140	LOCATION PLAN	a1	B	B	B															
TC8308-H141	DRIVER INFORMATION BOARDS	A1	A	B	B															
TC8308-H144	SUBWAY DEMOLITION DETAILS	A1	-	-																
TC8308-H145	PROPOSED RETAINING WALL	A1	-	-																
TC8308-H150	PUFFIN CROSSING	A1	A	B	B															
TC8308-H151	DETAILS HIGH STREET PELICAN	A1	A	B	B															
TC8308-H152	DESIGN STRINGS SHEET 1 OF 3	A1	-	-	-															
Distribution			No. of Copies and Type (p = paper copy, pdf = pdf copy, a = AutoCad copy)																	
Rob Harry			E1	E1	E1															
Remarks:																				

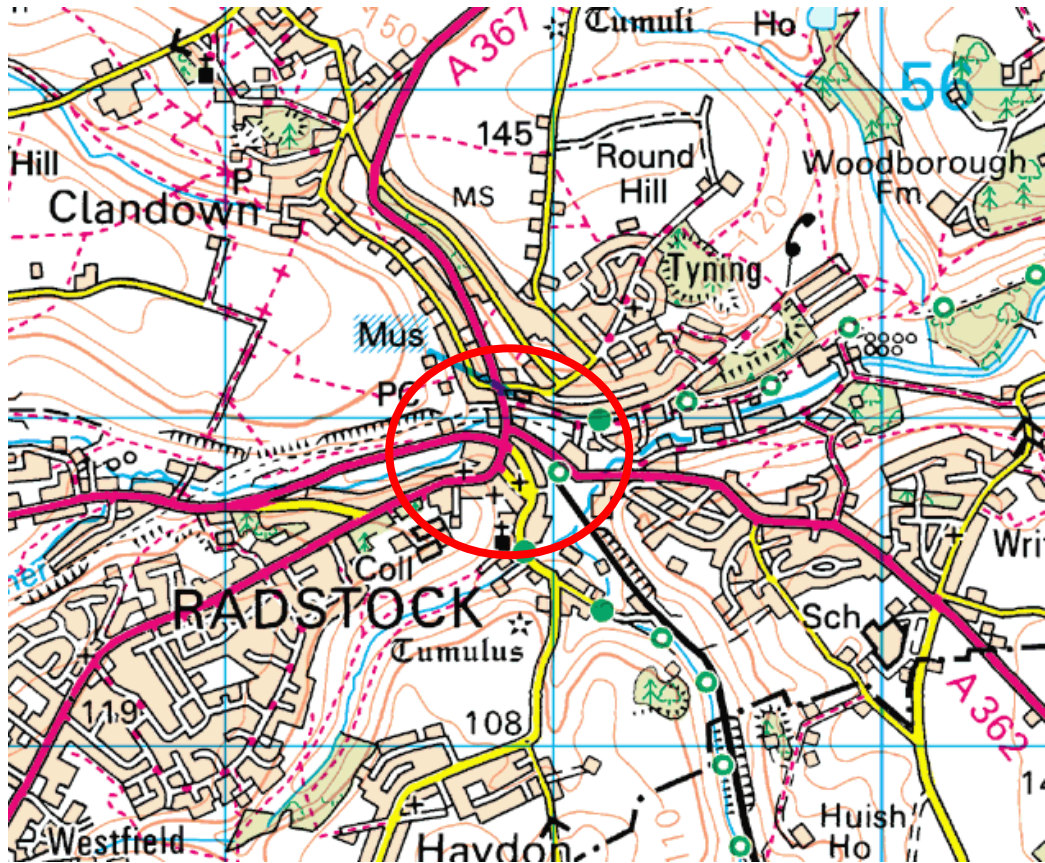
QA08-Drawing_Register 3 of 4

Planning & Transport Development			Form: QA08																			
Transportation Service - Drawing Register			Project No. TC8308																			
Scheme/Project Title		RADSTOCK TOWN CENTRE REDEVELOPMENT										Sheet No. 3										
Issued by: MW		Revision dates																				
		11-Oct-13	22-Oct-13	23-Oct-13																		
		Revision designation (A,B,C etc)																				
Ref No.	Description	Size																				
TC8308-H153	DESIGN STRINGS SHEET 2 OF 3	A1	-	-	-																	
TC8308-H154	DESIGN STRINGS SHEET 3 OF 3	A1	-	-	-																	
TC8308-H155	LONGITUDINAL SECTIONS SHEET 1	A1	-	-	-																	
TC8308-H156	LONGITUDINAL SECTIONS SHEET 2	A1	-	-	-																	
TC8308-H158	KERBING LAYOUT SHEET 1 OF 3	A1	-	-	A																	
TC8308-H159	KERBING LAYOUT SHEET 2 OF 3	A1	-	-	-																	
TC8308-H160	KERBING LAYOUT SHEET 2 OF 3	A1	-	-	-																	
TC8308-H161	PROPOSED CONTOURS SHEET 1 OF 3	A1	-	-	-																	
TC8308-H162	PROPOSED CONTOURS SHEET 2 OF 3	A1	-	-	-																	
TC8308-H163	PROPOSED CONTOURS SHEET 3 OF 3	A1	-	-	-																	
TC8308-H164	ISOPACH HEIGHTS SHEET 1 OF 3	A1	-	-	-																	
TC8308-H165	ISOPACH HEIGHTS SHEET 2 OF 3	A1	-	-	-																	
TC8308-H166	ISOPACH HEIGHTS SHEET 3 OF 3	A1	-	-	-																	



Appendix B

Location Plan

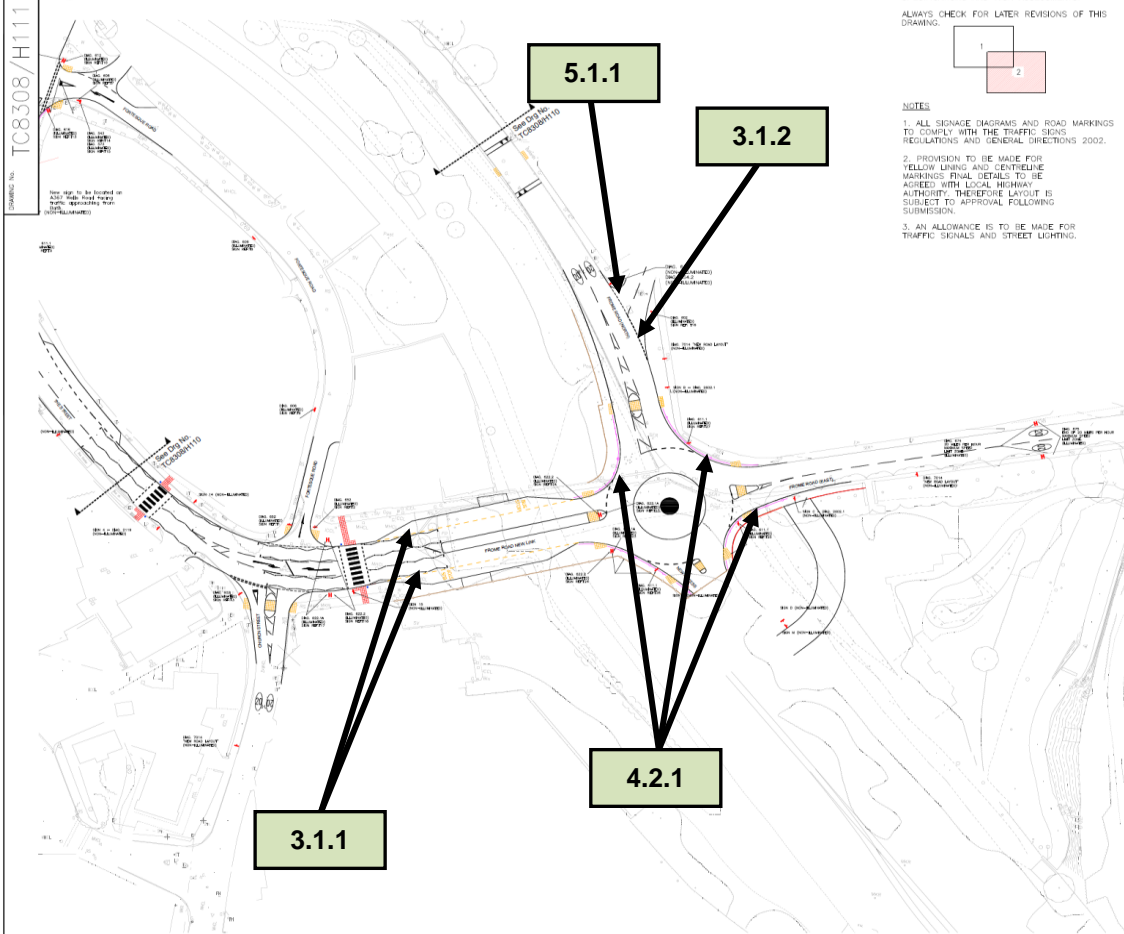




Appendix C

Key Plans

5.1.2 SCHEME EXTENTS



(C) THIS DRAWING IS COPYRIGHT
 THIS DRAWING MUST BE READ IN CONJUNCTION
 WITH THE CURRENT ENGINEERING
 SPECIFICATIONS AND RISK ASSESSMENTS.
 ALWAYS CHECK FOR LATER REVISIONS OF THIS
 DRAWING.

- NOTES
1. ALL SIGNAGE DIAGRAMS AND ROAD MARKINGS TO COMPLY WITH THE TRAFFIC SIGNS REGULATIONS AND GENERAL DIRECTIONS 2002.
 2. PROVISION TO BE MADE FOR YELLOW LINING AND CENTRELINE MARKINGS. FINAL DETAILS TO BE AGREED WITH LOCAL HIGHWAY AUTHORITY. THEREFORE LAYOUT IS SUBJECT TO APPROVAL FOLLOWING SUBMISSION.
 3. AN ALLOWANCE IS TO BE MADE FOR TRAFFIC SIGNALS AND STREET LIGHTING.

SIGN REF: 2

Scheme Ref: 13308	h-height: 75.0
Sign Ref: 2	Sign Face
Letter colour: BLACK	Sign Face
Background: WHITE	Width: 230mm
Outline: BLACK	Height: 150mm
Material: Class RA2 (12899+1:2007)	Area: 3.46sq.m



SIGN REF: 4

Scheme Ref: 13308	h-height: 75.0
Sign Ref: 4	Sign Face
Letter colour: BLACK	Sign Face
Background: WHITE	Width: 180mm
Outline: BLACK	Height: 150mm
Material: Class RA2 (12899+1:2007)	Area: 2.22sq.m

SIGN REF: 14

Scheme Ref: 13308	h-height: 75.0
Sign Ref: 14	Sign Face
Letter colour: BLACK	Sign Face
Background: WHITE	Width: 100mm
Outline: BLACK	Height: 100mm
Material: Class RA2 (12899+1:2007)	Area: 0.31sq.m

SIGN REF: 15

Scheme Ref: 13308	h-height: 75.0
Sign Ref: 15	Sign Face
Letter colour: BLACK	Sign Face
Background: WHITE	Width: 100mm
Outline: BLACK	Height: 100mm
Material: Class RA2 (12899+1:2007)	Area: 0.31sq.m

SIGN A

Scheme Ref: 13308	h-height: 35.0
Sign Ref: 14	Sign Face
Letter colour: WHITE	Sign Face
Background: BLUE	Width: 90mm
Outline: WHITE	Height: 90mm
Material: Class RA2 (12899+1:2007)	Area: 0.27sq.m

SIGN B

Scheme Ref: 13308	h-height: 35.0
Sign Ref: 14	Sign Face
Letter colour: WHITE	Sign Face
Background: BLUE	Width: 90mm
Outline: WHITE	Height: 90mm
Material: Class RA2 (12899+1:2007)	Area: 0.27sq.m

SIGN C

Scheme Ref: 13308	h-height: 35.0
Sign Ref: 14	Sign Face
Letter colour: WHITE	Sign Face
Background: BLUE	Width: 90mm
Outline: WHITE	Height: 90mm
Material: Class RA2 (12899+1:2007)	Area: 0.27sq.m

SIGN D

Scheme Ref: 13308	h-height: 35.0
Sign Ref: 14	Sign Face
Letter colour: WHITE	Sign Face
Background: BLUE	Width: 90mm
Outline: WHITE	Height: 90mm
Material: Class RA2 (12899+1:2007)	Area: 0.27sq.m

SIGN H

Scheme Ref: 13308	h-height: 35.0
Sign Ref: 14	Sign Face
Letter colour: WHITE	Sign Face
Background: BLUE	Width: 90mm
Outline: WHITE	Height: 90mm
Material: Class RA2 (12899+1:2007)	Area: 0.27sq.m

SIGN L

Scheme Ref: 13308	h-height: 35.0
Sign Ref: 14	Sign Face
Letter colour: WHITE	Sign Face
Background: BLUE	Width: 90mm
Outline: WHITE	Height: 90mm
Material: Class RA2 (12899+1:2007)	Area: 0.27sq.m

SCHEDULE OF ROAD TRAFFIC SIGNS

- DIAGRAM 543 TRAFFIC SIGNALS AHEAD (ILLUMINATED)
- DIAGRAM 602 ONE WAY (ILLUMINATED)
- DIAGRAM 612 NO RIGHT TURN FOR VEHICULAR TRAFFIC (ILLUMINATED)
- DIAG 633 NO LEFT TURN FOR VEHICULAR TRAFFIC (ILLUMINATED)
- DIAG 616 NO ENTRY FOR VEHICULAR TRAFFIC (ILLUMINATED)
- DIAG 611 VEHICLES ENTERING THE JUNCTION MUST COMPLY WITH REQUIREMENTS PRESCRIBED IN REGULATION 16 (ILLUMINATED)
- DIAG 610 NO THROUGH ROAD FOR VEHICULAR TRAFFIC (ILLUMINATED) BUT REFLECTORIZED IN ACCORDANCE WITH REGULATION 19.3 (ILLUMINATED)
- DIAG 954.2 SIGNS EXCLUDED FROM RESTRICTION OR PROHIBITION COVERED BY ASSOCIATED SIGN (ILLUMINATED)
- DIAGRAM 511.4 NEW ROAD LAYOUT AHEAD (ILLUMINATED)
- DIAGRAM 608 ONE WAY TRAFFIC (ILLUMINATED)
- DIAGRAM 613 PROHIBITION TO HAZARD (ILLUMINATED)
- DIAG 610 20 MILES PER HOUR MAXIMUM SPEED LIMIT ZONE (ILLUMINATED)
- DIAG 610 30 MILES PER HOUR MAXIMUM SPEED LIMIT ZONE (ILLUMINATED)
- DIAG 610 VEHICULAR TRAFFIC MUST COMPLY WITH THE REQUIREMENTS PRESCRIBED IN REGULATION 16 (ILLUMINATED)
- DIAG 644.1 RECEIPTS IN ROAD AHEAD (ILLUMINATED)
- DIAG 622.14 00000 VEHICLES MAXIMUM HEIGHT PROHIBITED (ILLUMINATED)
- DIAG 622.2 END OF 00000 VEHICLES MAXIMUM HEIGHT PROHIBITED (ILLUMINATED)

- ROAD MARKINGS
- DIAGRAM NO. 1003
 - DIAGRAM NO. 1003.1
 - DIAGRAM NO. 1004
 - DIAGRAM NO. 1009
 - DIAGRAM NO. 1010
 - DIAGRAM NO. 1038
 - DIAGRAM NO. 1023
 - DIAGRAM NO. 1062
 - DIAGRAM NO. 1040
 - DIAGRAM NO. 1001.3
 - DIAGRAM NO. 1025.4
 - DIAGRAM NO. 1055.1
 - DIAGRAM NO. 1003.4
 - DIAGRAM NO. 1005 4.9m HIGH 1.5m WIDE

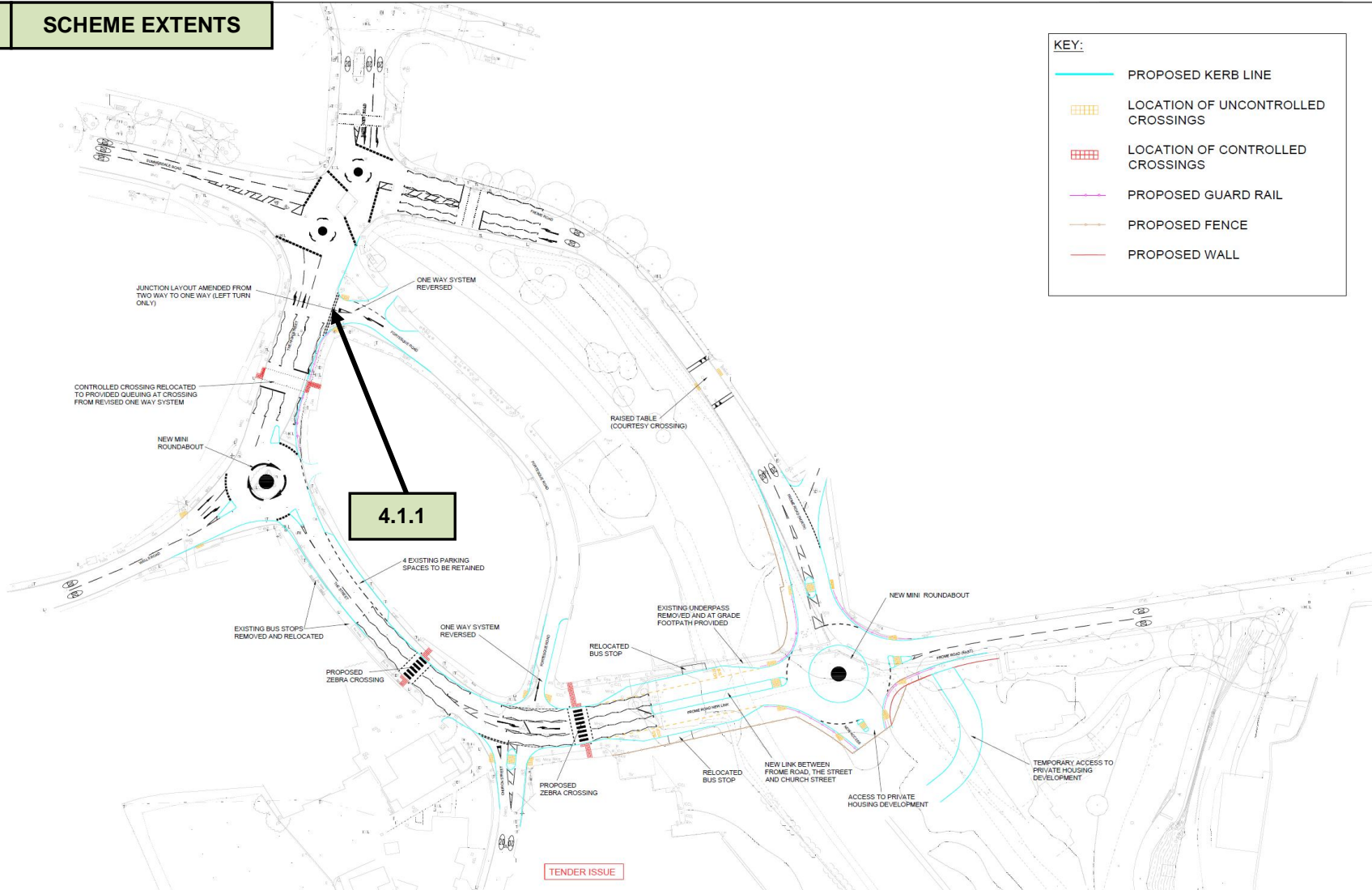
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Bath & North East Somerset Council STEVE PROGGATT, BSc. (Hons) C.Eng. MICE MIHT DESIGN & PROJECTS MANAGER ENVIRONMENTAL SERVICES	PRODUCED BY	SCHEME TITLE	DRAWING TITLE	DATE	DRAWN BY	APPROVED BY
	DESIGN GROUP	RADSTOCK TOWN CENTRE REDEVELOPMENT INFRASTRUCTURE WORKS	TRAFFIC SIGNS & ROAD MARKINGS SHEET 2 OF 2	JUNE 13	DMM	SUF
TENDER ISSUE 18.08.13				REV	DATE	REVISIONS
ENGINEERING CONSULTANCY/UTOCAD/HIGHWAY/STC8308 RADSTOCK TOWN CENTRE DEVELOPMENT/DRAWINGS/STC8308-H111.DWG				CH	MR	SUF
				DM	MR	SC
				DRN	DRN	APPROV
				DATE	CHECKED	DATE
				SCALE	1:500@A1	
				CLIENT REF		
				DRAWING NO.	TC8308/H111	REV
						B

5.1.2

SCHEME EXTENTS

DRAWING No. TC8308/H139



KEY:

- PROPOSED KERB LINE
- LOCATION OF UNCONTROLLED CROSSINGS
- LOCATION OF CONTROLLED CROSSINGS
- PROPOSED GUARD RAIL
- PROPOSED FENCE
- PROPOSED WALL

4.1.1

TENDER ISSUE

 STEVE PROGGATT, BSc. (Hons) C.Eng. MICE MIHT DESIGN & PROJECTS MANAGER ENVIRONMENTAL SERVICES	PRODUCED BY	SCHEME TITLE	DRAWING TITLE						
	DESIGN GROUP	RADSTOCK TOWN CENTRE REDEVELOPMENT INFRASTRUCTURE WORKS	GENERAL ARRANGEMENT						
				B 22.10.11 A 16.09.13	TENDER ISSUE TENDER ISSUE	DM DM	MW MW	SC SC	DATE MAY 13 SCALE 1:500 CLIENT REF. DRAWING No. TC8308/H139
				REV	DATE	REVISIONS	DRAWN	CHKD	APPROV
									APPROVED BY SJF