

Appendix O

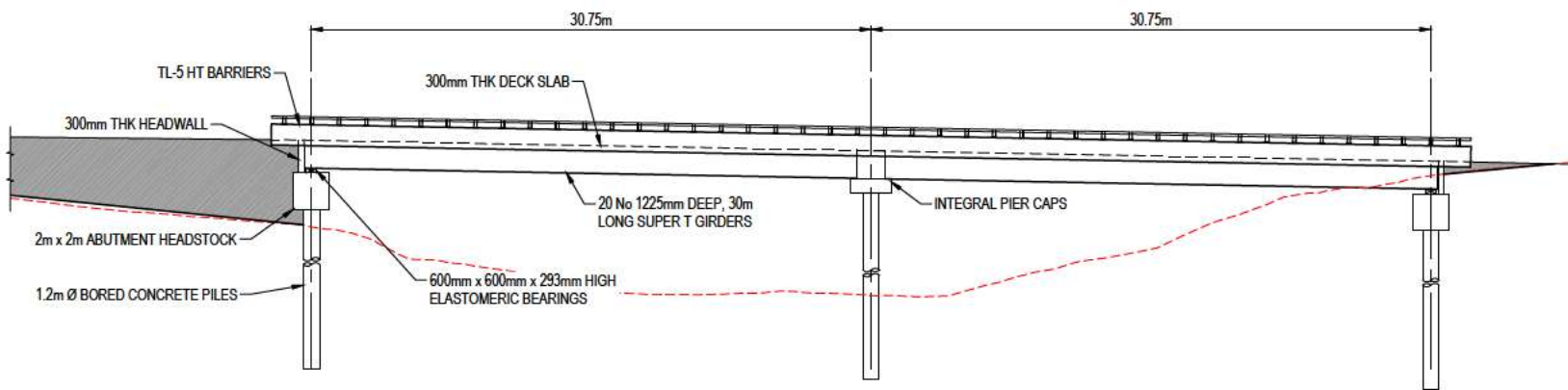


20Connect Design Drawings

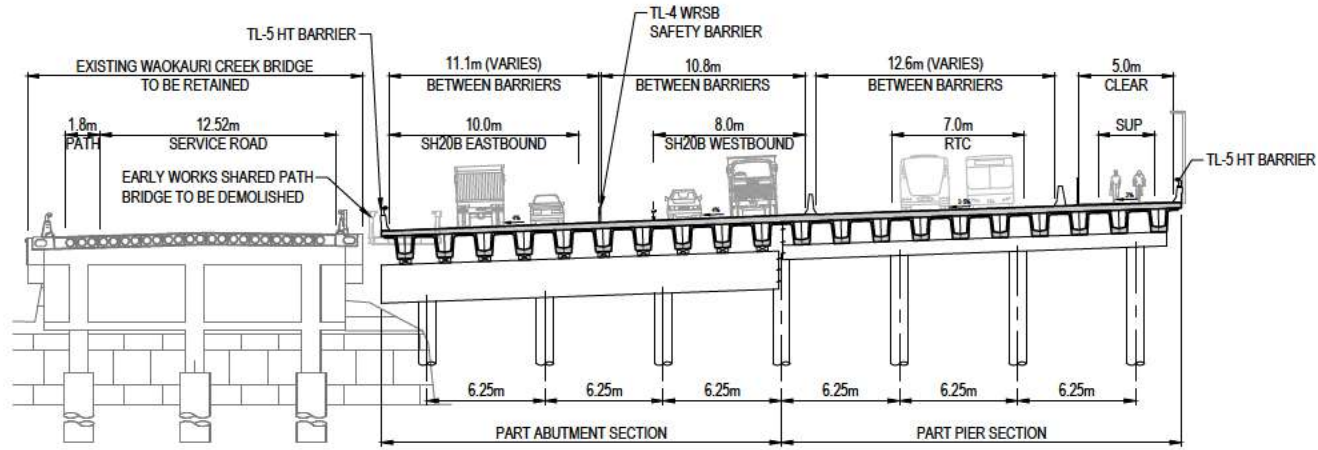
Bridge Detail Drawings



PLAN
1:200



ELEVATION
1:200

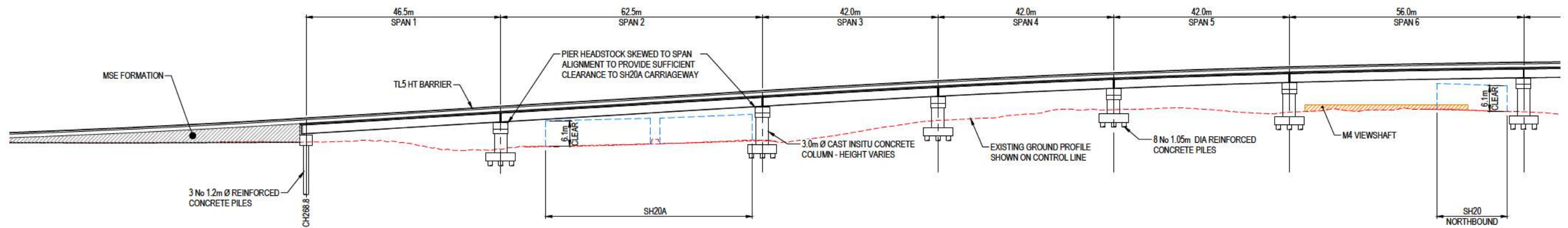


SECTION
1:200

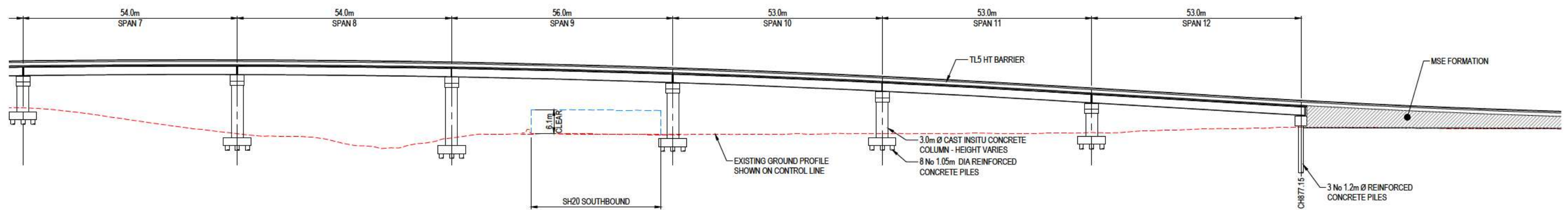


Supplementary Aerial Imagery sourced from the LINZ Data Service and licensed by Auckland Council for re-use under the Creative Commons Attribution 4.0 New Zealand licence.

CLIENT			REV	DATE	REVISION DETAILS	APPROVED	SCALE	SIZE	PRELIMINARY NOT FOR CONSTRUCTION	PROJECT	A2B / 20CONNECT SSBC						
<div></div>	<div></div>	<div></div>	A	04.10.19	ISSUED FOR 20CONNECT SSBC	<div></div>	AS SHOWN	A1	<div></div> <div>APPROVED</div> <div>DATE 04.10.19</div>	TITLE	PREFERRED OPTION WAOKAURI CREEK BRIDGE DETAILS						



LONG SECTION THROUGH PROPOSED SH20A/SH20 SOUTHBOUND RAMP (SPAN 1 TO SPAN 6)
1:500



LONG SECTION THROUGH PROPOSED SH20A/SH20 SOUTHBOUND RAMP (SPAN 7 TO SPAN 12)
1:500



CLIENT

REV DATE REVISION DETAILS

APPROVED

SCALE AS SHOWN

SIZE A1

PRELIMINARY NOT FOR CONSTRUCTION

PROJECT

A2B / 20CONNECT SSBC

TITLE

PREFERRED OPTION

DRAWING No.

SH20A/SH20 SOUTHBOUND RAMP

PROJECT No.

BRIDGE DETAILS - SHEET 2

DATE

04.10.19

WBS

4403

TYPE

DRG

DISC

BB

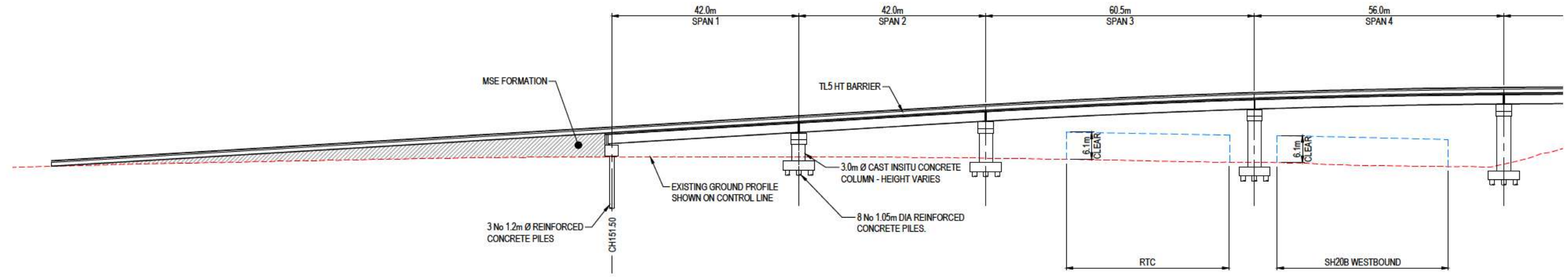
NUMBER

1012

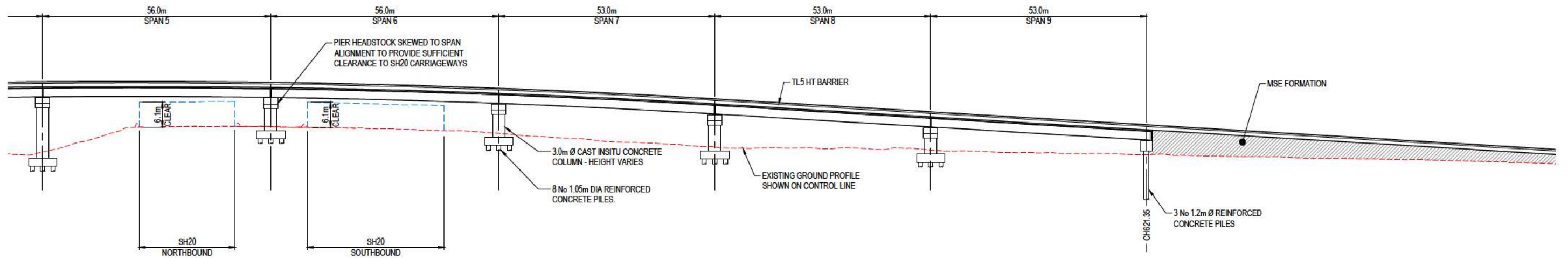
REV

A





LONG SECTION THROUGH PROPOSED SH20B/SH20 SOUTHBOUND RAMP (SPAN 1 TO SPAN 4)
1:500



LONG SECTION THROUGH PROPOSED SH20B/SH20 SOUTHBOUND RAMP (SPAN 5 TO SPAN 9)
1:500

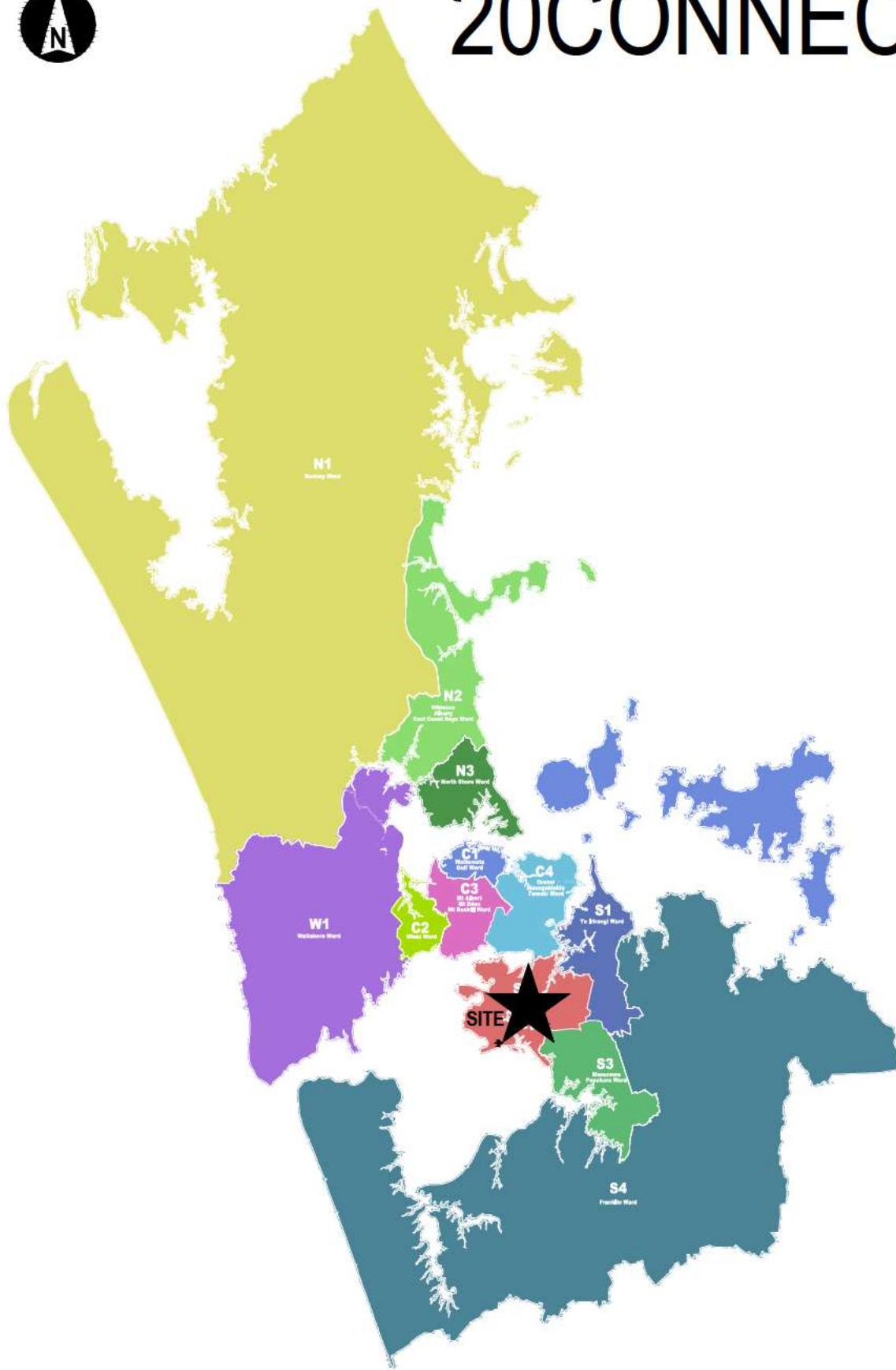


CLIENT			REV	DATE	REVISION DETAILS	APPROVED	SCALE	SIZE	PRELIMINARY NOT FOR CONSTRUCTION		PROJECT	A2B / 20CONNECT SSBC					
			A	04.10.19	ISSUED FOR 20CONNECT SSBC		AS SHOWN	A1									
							DRAWN		APPROVED								
							DESIGNED		DATE								
							REVIEWED		04.10.19								

General Arrangement Plan Drawings



20CONNECT DETAIL BUSINESS CASE



DRAWING INDEX

DRG No.	DRAWING TITLE
COVER SHEET	
501094-4403-DRG-RR-1100	LOCALITY PLAN AND DRAWING INDEX
ROAD GEOMETRY	
501094-4403-DRG-RR-1101	GENERAL ARRANGEMENT PLAN - SHEET 1
501094-4403-DRG-RR-1102	GENERAL ARRANGEMENT PLAN - SHEET 2
501094-4403-DRG-RR-1103	GENERAL ARRANGEMENT PLAN - SHEET 3
501094-4403-DRG-RR-1104	GENERAL ARRANGEMENT PLAN - SHEET 4
501094-4403-DRG-RR-1105	GENERAL ARRANGEMENT PLAN - SHEET 5
501094-4403-DRG-RR-1106	GENERAL ARRANGEMENT PLAN - SHEET 6
501094-4403-DRG-RR-1107	GENERAL ARRANGEMENT PLAN - SHEET 7
501094-4403-DRG-RR-1108	GENERAL ARRANGEMENT PLAN - SHEET 8
501094-4403-DRG-RR-1109	GENERAL ARRANGEMENT PLAN - SHEET 9
501094-4403-DRG-RR-1110	GENERAL ARRANGEMENT PLAN - SHEET 10
501094-4403-DRG-RR-1111	GENERAL ARRANGEMENT PLAN - SHEET 11
501094-4403-DRG-RR-1112	GENERAL ARRANGEMENT PLAN - SHEET 12
501094-4403-DRG-RR-1113	GENERAL ARRANGEMENT PLAN - SHEET 13
501094-4403-DRG-RR-1114	GENERAL ARRANGEMENT PLAN - SHEET 14
501094-4403-DRG-RR-1115	GENERAL ARRANGEMENT PLAN - SHEET 15
501094-4403-DRG-RR-1116	GENERAL ARRANGEMENT PLAN - SHEET 16
501094-4403-DRG-RR-1117	GENERAL ARRANGEMENT PLAN - SHEET 17
501094-4403-DRG-RR-1118	GENERAL ARRANGEMENT PLAN - SHEET 18
501094-4403-DRG-RR-1119	GENERAL ARRANGEMENT PLAN - SHEET 19
501094-4403-DRG-RR-1120	GENERAL ARRANGEMENT PLAN - SHEET 20
501094-4403-DRG-RR-1121	GENERAL ARRANGEMENT PLAN - SHEET 21
501094-4403-DRG-RR-1201	PLAN AND LONG SECTION (MC1S) - SH20 MANGERE BRIDGE TO SH20A - SHEET 1
501094-4403-DRG-RR-1202	PLAN AND LONG SECTION (MC1S) - SH20 MANGERE BRIDGE TO SH20A - SHEET 2
501094-4403-DRG-RR-1203	PLAN AND LONG SECTION (MC1S) - SH20 MANGERE BRIDGE TO SH20A - SHEET 3
501094-4403-DRG-RR-1204	PLAN AND LONG SECTION (MC1S) - SH20 MANGERE BRIDGE TO SH20A - SHEET 4
501094-4403-DRG-RR-1205	PLAN AND LONG SECTION (MC1S) - SH20 MANGERE BRIDGE TO SH20A - SHEET 5
501094-4403-DRG-RR-1206	PLAN AND LONG SECTION (MC1S) - SH20 MANGERE BRIDGE TO SH20A - SHEET 6
501094-4403-DRG-RR-1207	PLAN AND LONG SECTION (MC1S) - SH20 MANGERE BRIDGE TO SH20A - SHEET 7
501094-4403-DRG-RR-1211	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 1
501094-4403-DRG-RR-1212	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 2
501094-4403-DRG-RR-1213	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 3
501094-4403-DRG-RR-1214	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 4
501094-4403-DRG-RR-1215	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 5
501094-4403-DRG-RR-1216	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 6
501094-4403-DRG-RR-1217	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 7
501094-4403-DRG-RR-1218	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 8
501094-4403-DRG-RR-1219	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 9
501094-4403-DRG-RR-1220	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 10
501094-4403-DRG-RR-1221	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 11
501094-4403-DRG-RR-1222	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 12
501094-4403-DRG-RR-1223	PLAN AND LONG SECTION (MC2S) - SH20 FROM SH20A TO SH1 - SHEET 13
501094-4403-DRG-RR-1231	PLAN AND LONG SECTION (MCV0) - SH20A SOUTHBOUND RAMP - SHEET 1
501094-4403-DRG-RR-1232	PLAN AND LONG SECTION (MCV0) - SH20A SOUTHBOUND RAMP - SHEET 2
501094-4403-DRG-RR-1241	PLAN AND LONG SECTION (MC4N) - SH20 NORTHBOUND BETWEEN WALMSLEY RD AND BADER DR - SHEET 1
501094-4403-DRG-RR-1242	PLAN AND LONG SECTION (MC4N) - SH20 NORTHBOUND BETWEEN WALMSLEY RD AND BADER DR - SHEET 2
501094-4403-DRG-RR-1243	PLAN AND LONG SECTION (MC4N) - SH20 NORTHBOUND BETWEEN WALMSLEY RD AND BADER DR - SHEET 3
501094-4403-DRG-RR-1245	PLAN AND LONG SECTION (MC6W) - SH20B - SHEET 1
501094-4403-DRG-RR-1246	PLAN AND LONG SECTION (MC6W) - SH20B - SHEET 2
501094-4403-DRG-RR-1247	PLAN AND LONG SECTION (MC6W) - SH20B - SHEET 3
501094-4403-DRG-RR-1248	PLAN AND LONG SECTION (MC6W) - SH20B - SHEET 4
501094-4403-DRG-RR-1251	PLAN AND LONG SECTION (MC7B) - RAPID TRANSIT CORRIDOR ON SH20B - SHEET 1
501094-4403-DRG-RR-1252	PLAN AND LONG SECTION (MC7B) - RAPID TRANSIT CORRIDOR ON SH20B - SHEET 2
501094-4403-DRG-RR-1253	PLAN AND LONG SECTION (MC7B) - RAPID TRANSIT CORRIDOR ON SH20B - SHEET 3
501094-4403-DRG-RR-1254	PLAN AND LONG SECTION (MC7B) - RAPID TRANSIT CORRIDOR ON SH20B - SHEET 4

DRAWING INDEX

DRG No.	DRAWING TITLE
501094-4403-DRG-RR-1261	PLAN AND LONG SECTION (MCM0) - SH20B SOUTHBOUND RAMP - SHEET 1
501094-4403-DRG-RR-1262	PLAN AND LONG SECTION (MCM0) - SH20B SOUTHBOUND RAMP - SHEET 2
501094-4403-DRG-RR-1265	PLAN AND LONG SECTION (MCA0) - SH20 RIMU ROAD NORTHBOUND ON-RAMP
501094-4403-DRG-RR-1266	PLAN AND LONG SECTION (MCB0) - SH20 WALMSLEY ROAD SOUTHBOUND OFF-RAMP
501094-4403-DRG-RR-1267	PLAN AND LONG SECTION (MCC0) - SH20 WALMSLEY ROAD SOUTHBOUND ON-RAMP
501094-4403-DRG-RR-1268	PLAN AND LONG SECTION (MCD0) - SH20 CORONATION ROAD NORTHBOUND ON-RAMP
501094-4403-DRG-RR-1269	PLAN AND LONG SECTION (MCE0) - SH20 CORONATION ROAD NORTHBOUND OFF-RAMP
501094-4403-DRG-RR-1270	PLAN AND LONG SECTION (MCF0) - SH20 NORTHBOUND TO SH20A WESTBOUND RAMP
501094-4403-DRG-RR-1271	PLAN AND LONG SECTION (MCG0) - SH20 MASSEY ROAD SOUTHBOUND OFF-RAMP
501094-4403-DRG-RR-1272	PLAN AND LONG SECTION (MCH0) - SH20 MASSEY ROAD SOUTHBOUND ON-RAMP
501094-4403-DRG-RR-1273	PLAN AND LONG SECTION (MCI0) - SH20 MASSEY ROAD NORTHBOUND ON-RAMP
501094-4403-DRG-RR-1274	PLAN AND LONG SECTION (MCJ0) - SH20 MASSEY ROAD NORTHBOUND OFF-RAMP
501094-4403-DRG-RR-1275	PLAN AND LONG SECTION (MCK0) - SH20 PUHINUI ROAD SOUTHBOUND OFF-RAMP
501094-4403-DRG-RR-1276	PLAN AND LONG SECTION (MCL0) - SH20 PUHINUI ROAD NORTHBOUND ON-RAMP
501094-4403-DRG-RR-1279	PLAN AND LONG SECTION (MCN0) - SH20A KIRKBRIDE ROAD EASTBOUND ON-RAMP
501094-4403-DRG-RR-1280	PLAN AND LONG SECTION (MCO0) - SH20 CAVENDISH DRIVE SOUTHBOUND ON-RAMP
501094-4403-DRG-RR-1281	PLAN AND LONG SECTION (MCP0) - SH20 LAMBIE DRIVE NORTHBOUND ON-RAMP
501094-4403-DRG-RR-1282	PLAN AND LONG SECTION (MC90) - SH20 PUHINUI ROAD SOUTHBOUND BRAIDED RAMP
501094-4403-DRG-RR-1301	TYPICAL CROSS SECTIONS - SHEET 1
501094-4403-DRG-RR-1302	TYPICAL CROSS SECTIONS - SHEET 2
501094-4403-DRG-RR-1303	TYPICAL CROSS SECTIONS - SHEET 3
501094-4403-DRG-RR-1304	TYPICAL CROSS SECTIONS - SHEET 4
501094-4403-DRG-RR-1305	TYPICAL CROSS SECTIONS - SHEET 5
501094-4403-DRG-RR-1306	TYPICAL CROSS SECTIONS - SHEET 6
501094-4403-DRG-RR-1307	TYPICAL CROSS SECTIONS - SHEET 7
501094-4403-DRG-RR-1308	TYPICAL CROSS SECTIONS - SHEET 8
501094-4403-DRG-RR-1309	TYPICAL CROSS SECTIONS - SHEET 9
501094-4403-DRG-RR-1310	TYPICAL CROSS SECTIONS - SHEET 10

CLIENT



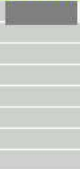
REV

DATE

REVISION DETAILS

A	02.08.19	ISSUE FOR ROAD SAFETY AUDIT

APPROVED



SCALE



SIZE



PRELIMINARY



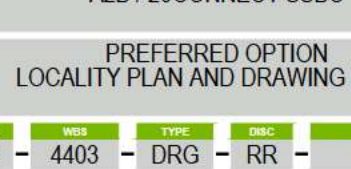
PROJECT



TITLE



A2B / 20CONNECT SSBC



PREFERRED OPTION LOCALITY PLAN AND DRAWING INDEX

DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
501094	4403	DRG	RR		1100	A













NE
OV
WE

RW
LE
MAX.































Plan and Long Section Drawings



















PRO









1



H WEST

4
2



























PROJE



















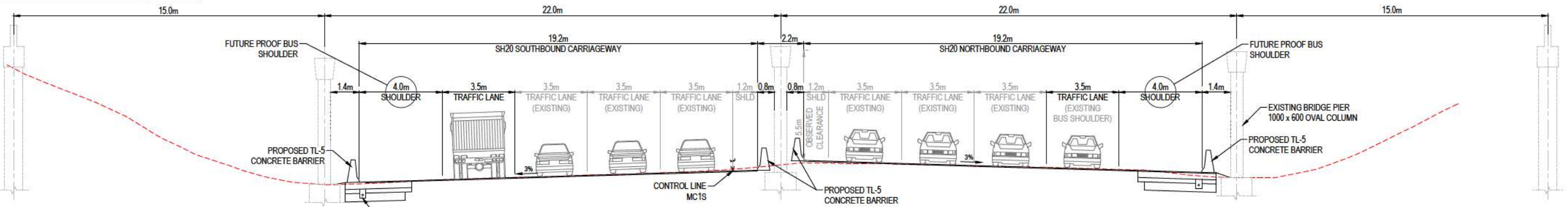
Typical Cross Section Drawings

LEGEND

EXISTING SURFACE

DESIGN SURFACE

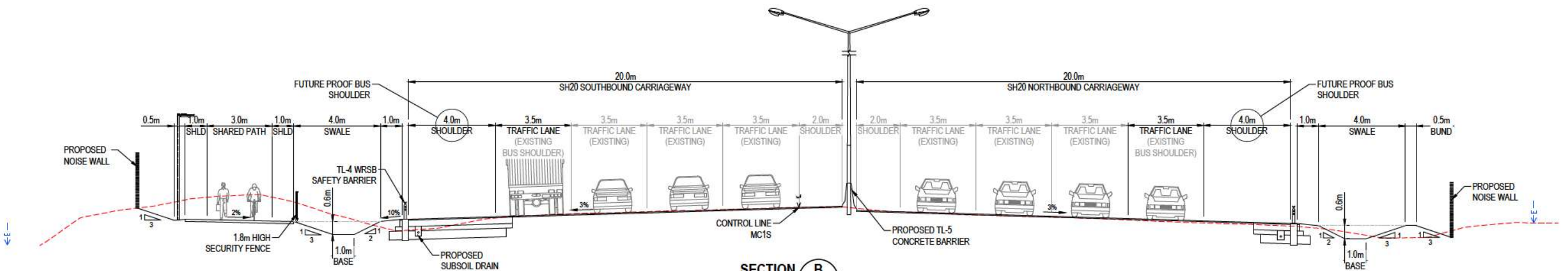
NZTA DESIGNATION BOUNDARY



SECTION A

CH12,250 (MC1S) RR-1101

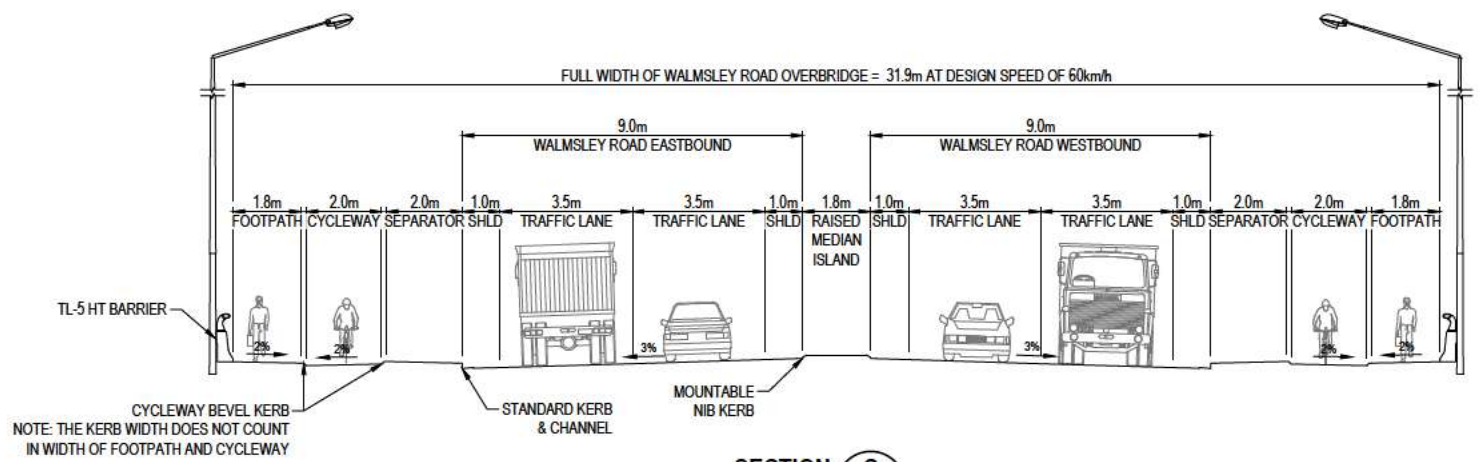
SH20 TYPICAL CROSS SECTION UNDER RIMU ROAD OVERBRIDGE



SECTION B

CH12,960 (MC1S) RR-1102

SH20 TYPICAL CROSS SECTION WITH SWALES



SECTION C

RR-1103

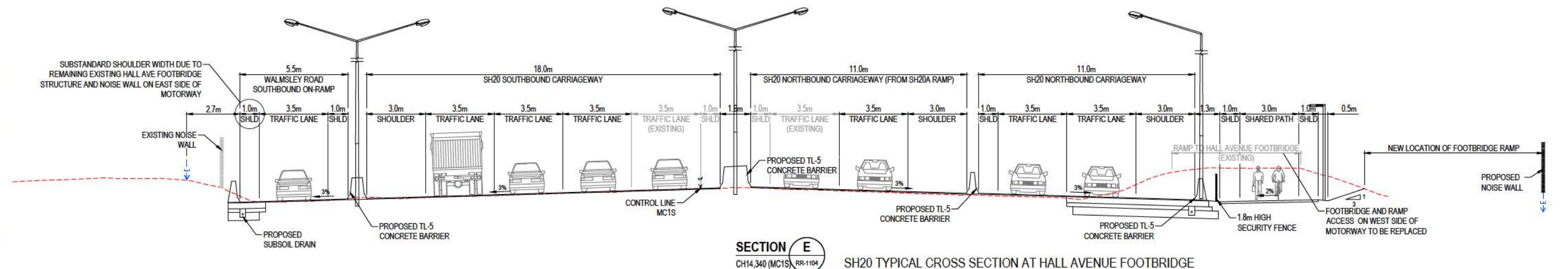
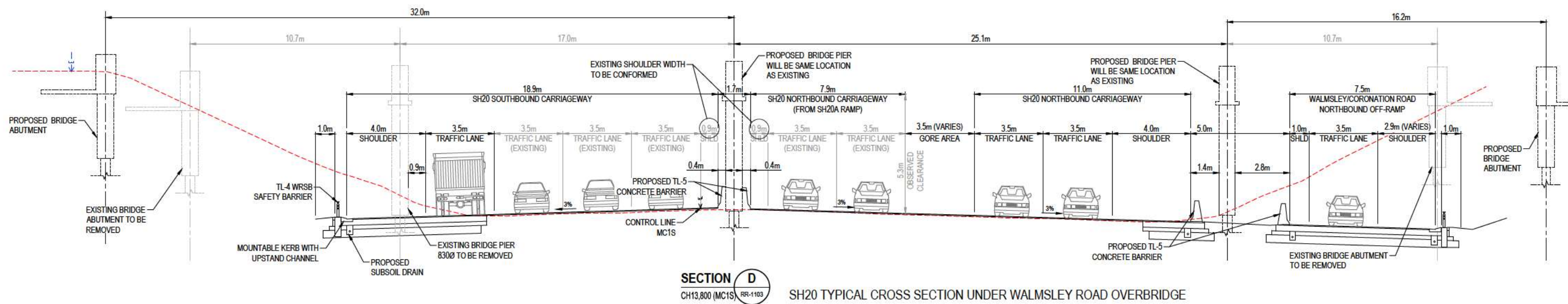
SH20 WALMSLEY ROAD OVERBRIDGE TYPICAL CROSS SECTION



CLIENT			REV	DATE	REVISION DETAILS		APPROVED	SCALE	SIZE	PRELIMINARY NOT FOR CONSTRUCTION		PROJECT	A2B / 20CONNECT SSBC					
			A	02.08.19	ISSUE FOR ROAD SAFETY AUDIT			1:100	A1	<div>APPROVED</div> <div>DATE 06.08.19</div>			PREFERRED OPTION TYPICAL CROSS SECTIONS SHEET 1					

LEGEND

EXISTING SURFACE	---
DESIGN SURFACE	—
NZTA DESIGNATION BOUNDARY	⬇



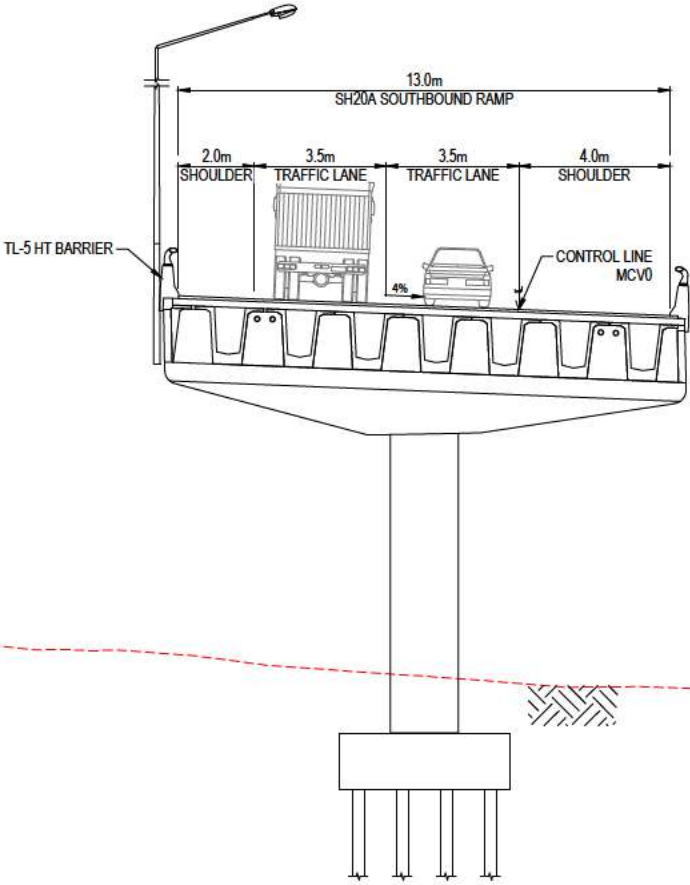
CLIENT			REV	DATE	REVISION DETAILS	APPROVED	SCALE	SIZE	PRELIMINARY NOT FOR CONSTRUCTION		PROJECT	A2B / 20CONNECT SSBC							
<div></div> <div></div>			A	02.08.19	ISSUE FOR ROAD SAFETY AUDIT		1:100	A1											
												</							

LEGEND

EXISTING SURFACE

DESIGN SURFACE

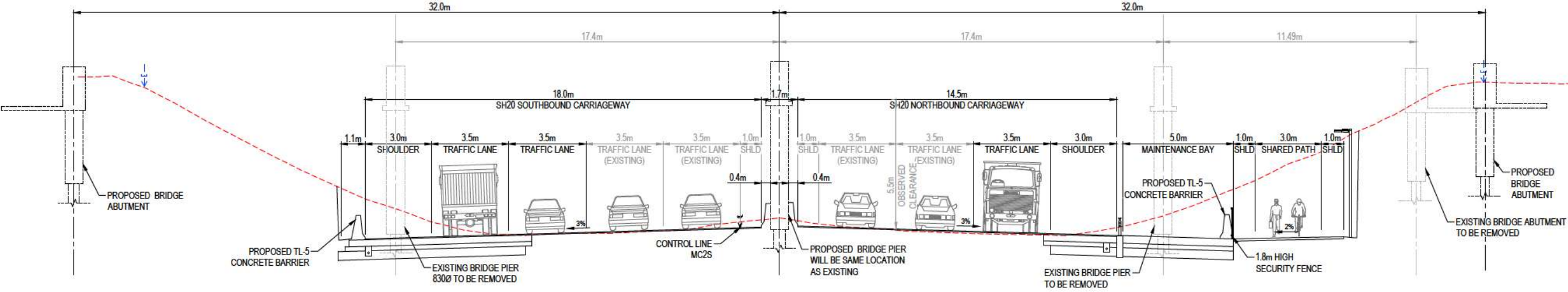
NZTA DESIGNATION BOUNDARY



SECTION F

CH440 (MCV0) RR-1105

SH20A SOUTHBOUND RAMP BRIDGE TYPICAL CROSS SECTION



SECTION G

CH13,30 (MC2S) RR-1106

SH20 TYPICAL CROSS SECTION UNDER BADER DRIVE OVERBRIDGE



CLIENT

REV	DATE	REVISION DETAILS	APPROVED
A	02.08.19	ISSUE FOR ROAD SAFETY AUDIT	

SCALE	SIZE
1:100	A1
DRAWN	
DESIGNED	
REVIEWED	

PRELIMINARY NOT FOR CONSTRUCTION
APPROVED
DATE 06.08.19

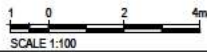
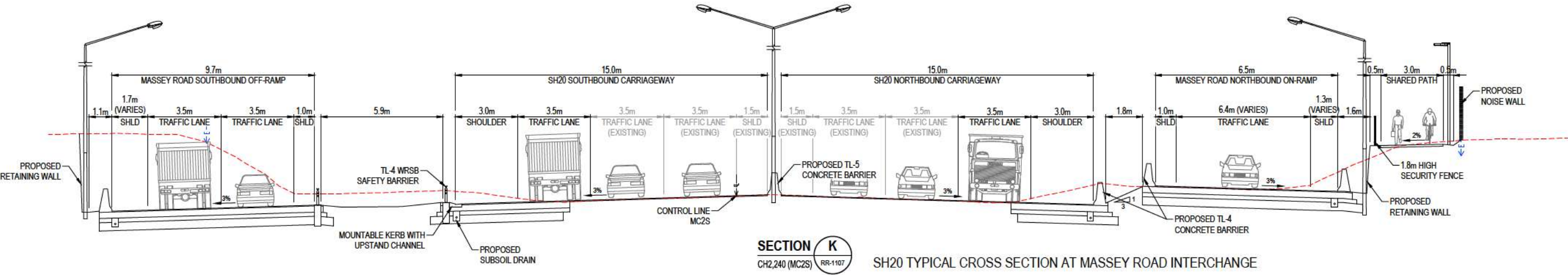
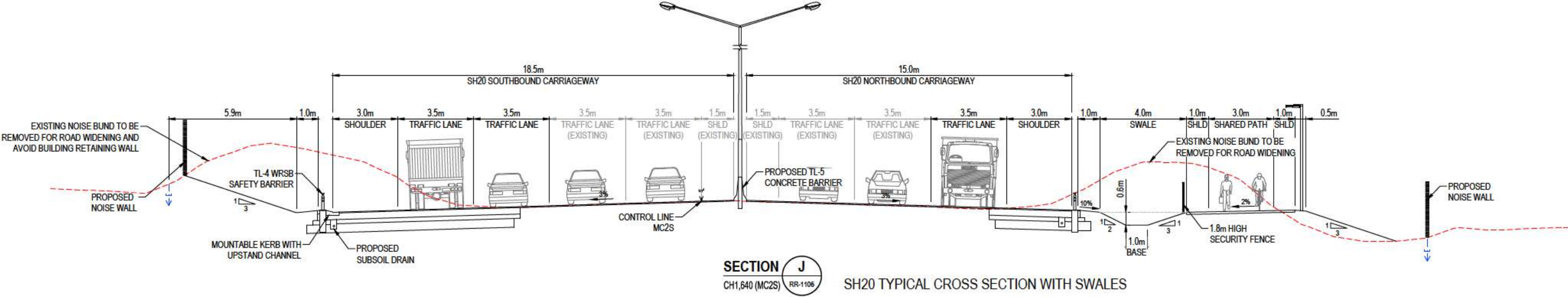
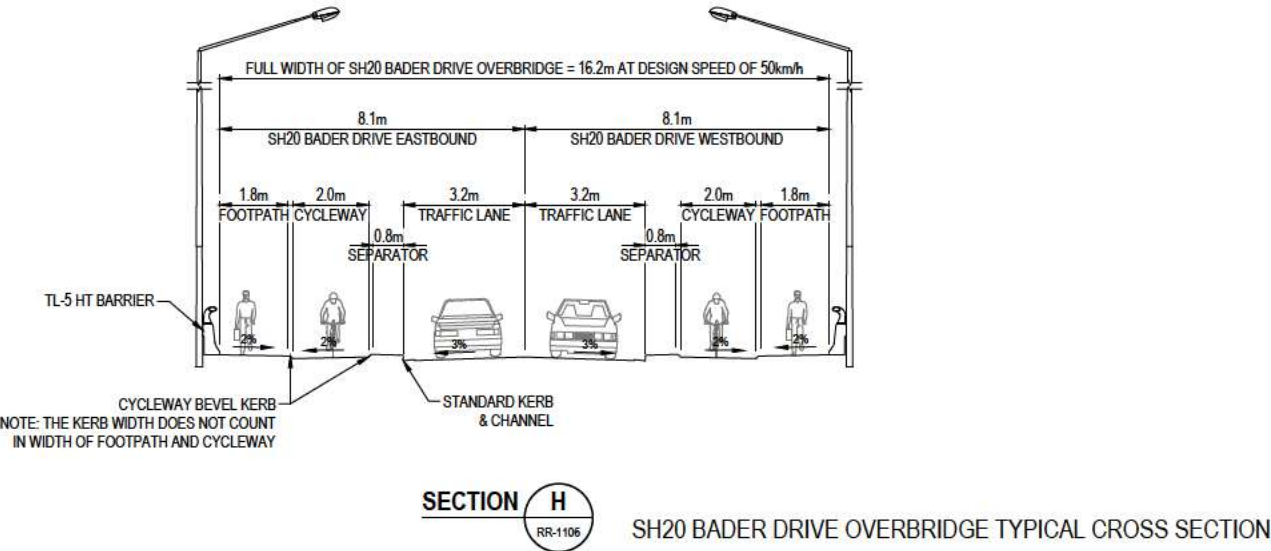
PROJECT	A2B / 20CONNECT SSBC
TITLE	PREFERRED OPTION TYPICAL CROSS SECTIONS SHEET 3
DRAWING No.	501094
PROJECT No.	4403
WBS	DRG
TYPE	RR
DISC	1303
NUMBER	A
REV	

LEGEND

EXISTING SURFACE

DESIGN SURFACE

NZTA DESIGNATION BOUNDARY



CLIENT

REV DATE REVISION DETAILS

APPROVED

SCALE

SIZE

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT

A2B / 20CONNECT SSBC

DRAWN

DESIGNED

REVIEWED

APPROVED

DATE

06.08.19

TITLE

PREFERRED OPTION
TYPICAL CROSS SECTIONS
SHEET 4

DRAWING No.

PROJECT No.

WBS

TYPE

DISC

NUMBER

REV

501094

4403

DRG

RR

1304

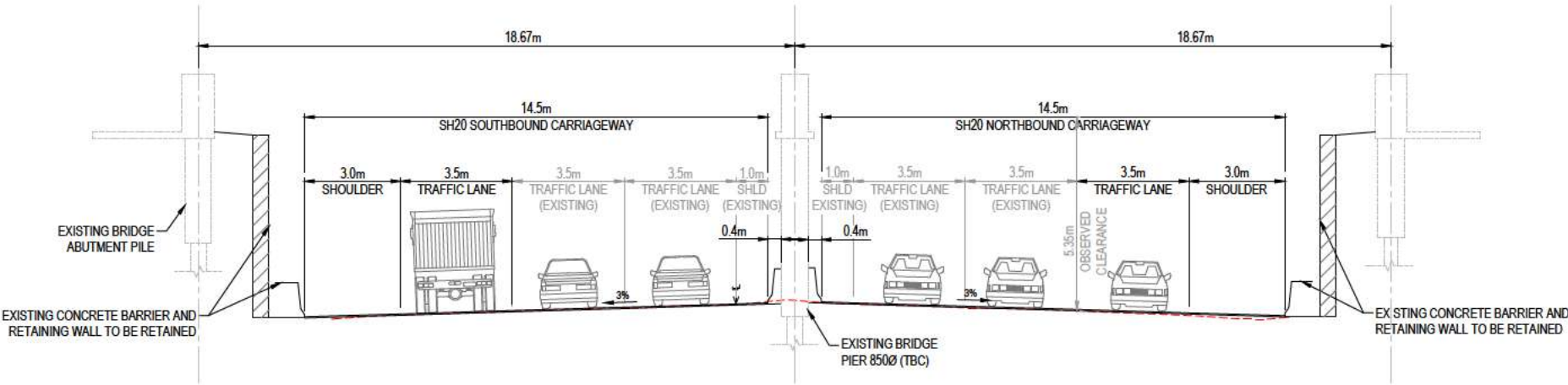
A

LEGEND

EXISTING SURFACE

DESIGN SURFACE

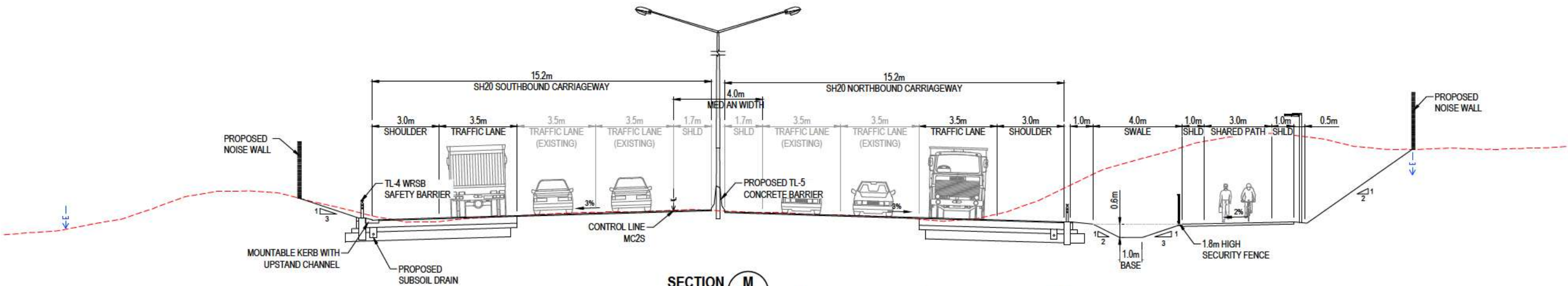
NZTA DESIGNATION BOUNDARY



SECTION L

CH2,430 (MC2S) RR-1108

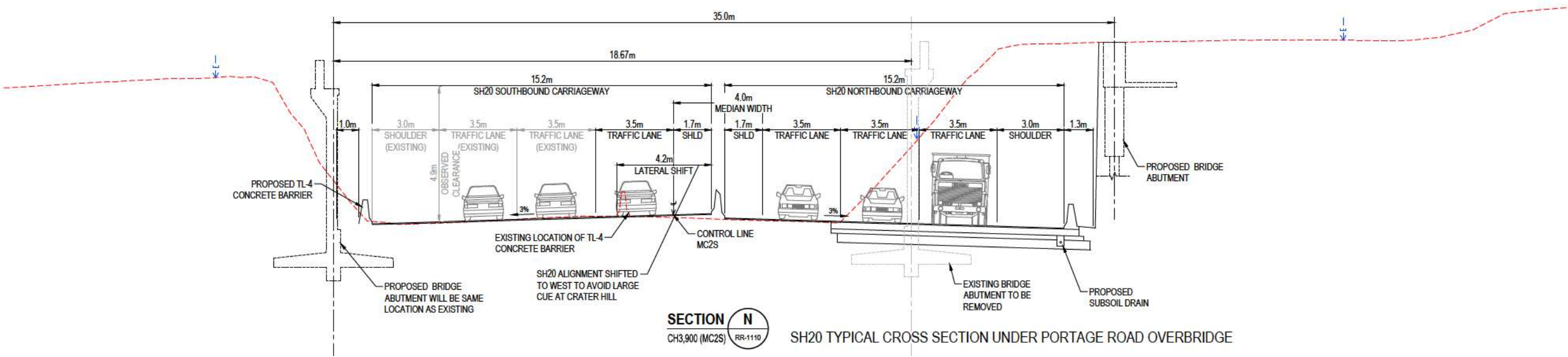
SH20 TYPICAL CROSS SECTION UNDER MASSEY ROAD OVERBRIDGE



SECTION M

CH3,340 (MC2S) RR-1109

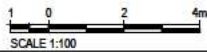
SH20 TYPICAL CROSS SECTION WITH SWALES



SECTION N

CH3,900 (MC2S) RR-1110

SH20 TYPICAL CROSS SECTION UNDER PORTAGE ROAD OVERBRIDGE



CLIENT

REV DATE REVISION DETAILS

APPROVED

SCALE

SIZE

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT

A2B / 20CONNECT SSBC

DRAWN

DESIGNED

REVIEWED

APPROVED

DATE

06.08.19

TITLE

PREFERRED OPTION
TYPICAL CROSS SECTIONS
SHEET 5

DRAWING No.

PROJECT No.

WBS

TYPE

DISC

NUMBER

REV

501094

4403

DRG

RR

1305

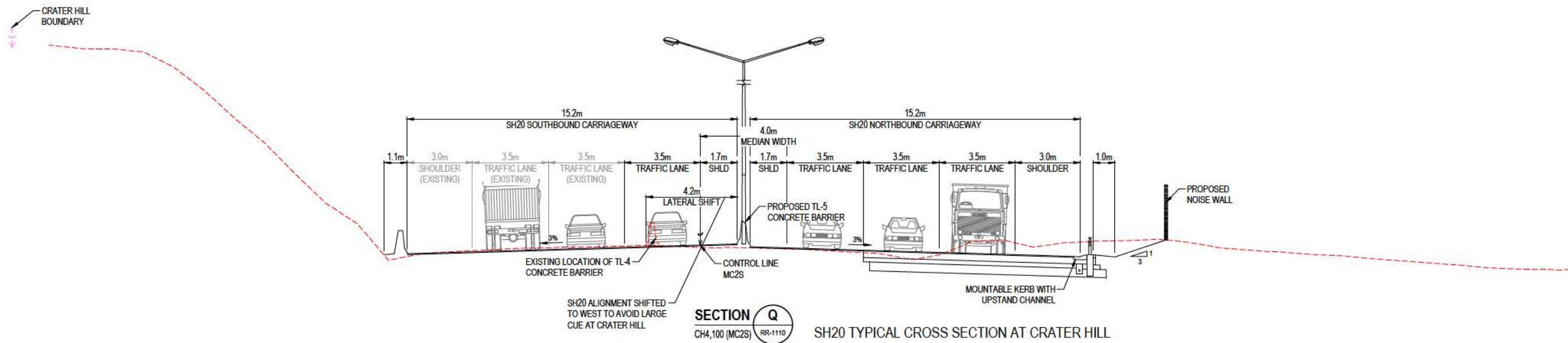
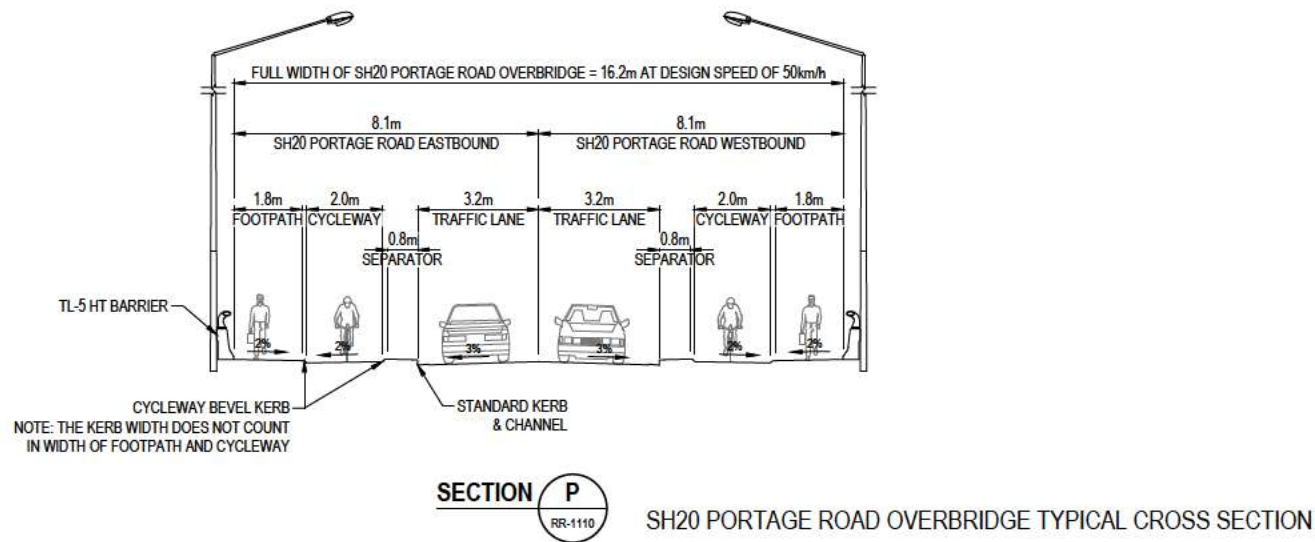
A

LEGEND

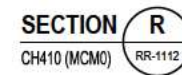
EXISTING SURFACE

DESIGN SURFACE

NZTA DESIGNATION BOUNDARY



CLIENT			REV	DATE	REVISION DETAILS	APPROVED	SCALE	SIZE	PRELIMINARY NOT FOR CONSTRUCTION		PROJECT	A2B / 20CONNECT SSBC										
			A	02.08.19	ISSUE FOR ROAD SAFETY AUDIT		AS SHOWN	A1														
							DRAWN		APPROVED		TITLE	PREFERRED OPTION TYPICAL CROSS SECTIONS SHEET 6										
							DESIGNED		DATE 06.08.19													
							REVIEWED															
											DRAWING No.	501094	-	4403	-	DRG	-	RR	-	1306	-	A



The diagram illustrates the proposed road layout for the SH20 Southbound and Northbound Carriageways. Key features include:

- SH20B SOUTHBOUND RAMP:** 10.0m wide, consisting of a 3.0m SHOULDER, a 3.5m TRAFFIC LANE (with a truck icon), and another 3.5m TRAFFIC LANE. A 3% slope is indicated.
- MERGE GORE AREA:** 4.0m (VARIES) wide.
- SH20 SOUTHBOUND CARRIAGEWAY:** 9.0m wide, consisting of a 3.5m TRAFFIC LANE (EXISTING) with a car icon, a 3.5m TRAFFIC LANE, and a 2.0m SHOULDER. A 3% slope is indicated.
- Barriers:** A TL-4 CONCRETE BARRIER is at the left end. A PROPOSED TL-5 CONCRETE BARRIER separates the southbound and northbound carriageways.
- Drainage:** A V-DRAIN is located between the southbound and northbound carriageways. A PROPOSED DISH CHANNEL and PROPOSED SUBSOIL DRAIN are shown at the bottom.
- SH20 NORTHBOUND CARRIAGEWAY:** 12.0m wide, consisting of a 2.0m SHLD (EXISTING), a 3.5m TRAFFIC LANE (EXISTING) with a car icon, another 3.5m TRAFFIC LANE (EXISTING) with a car icon, and a 3.0m SHOULDER (EXISTING). A 3% slope is indicated.
- Other Features:** An EXISTING SAFETY BARRIER is at the right end. A CONTROL LINE MC2S is marked near the center.

SECTION **S**
CH6,300 (MC2S) RR-1113

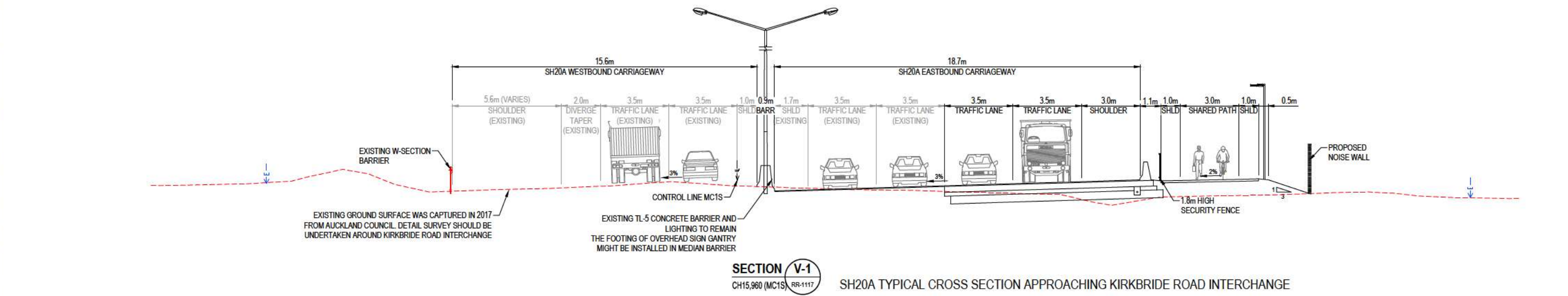
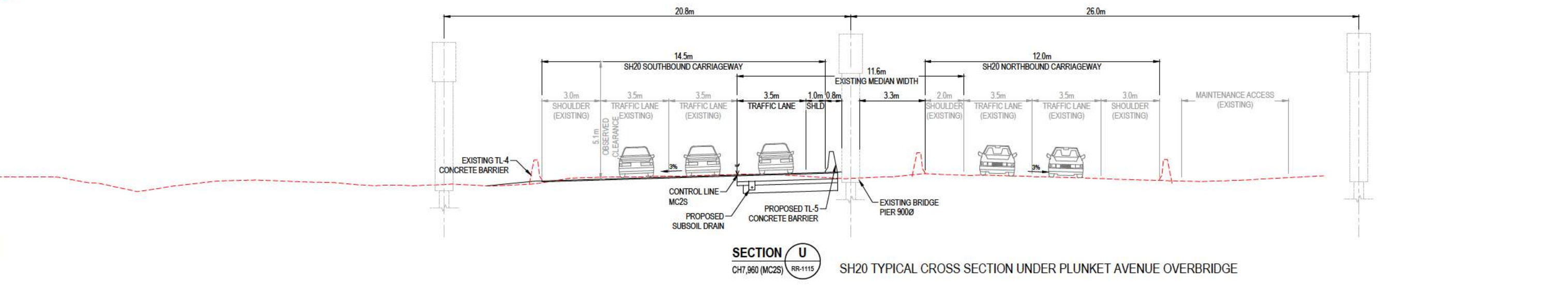
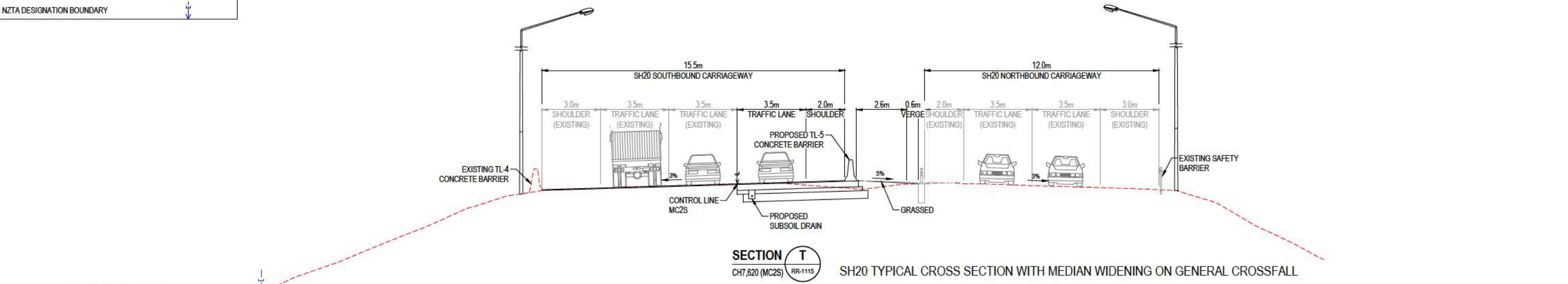
[illegible]

LEGEND

EXISTING SURFACE

DESIGN SURFACE

NZTA DESIGNATION BOUNDARY



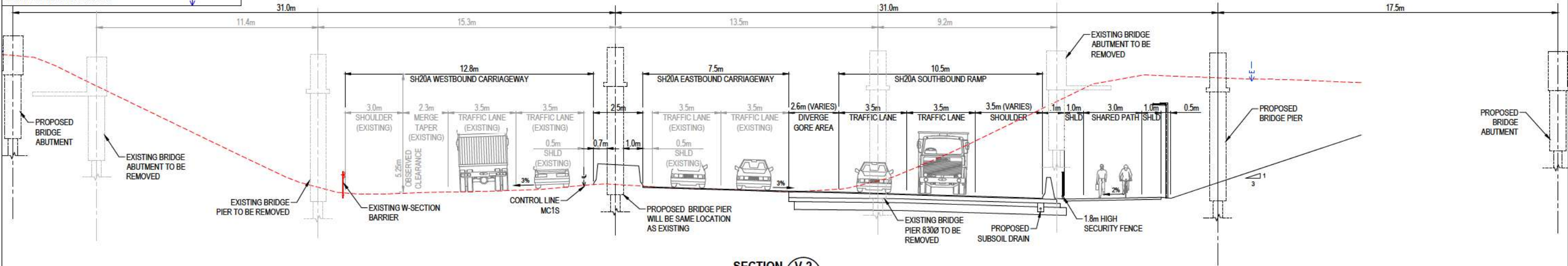
CLIENT			REV		DATE	REVISION DETAILS	APPROVED	SCALE	SIZE	PRELIMINARY NOT FOR CONSTRUCTION	PROJECT	A2B / 20CONNECT SSBC					
			A		02.08.19	ISSUE FOR ROAD SAFETY AUDIT		1:100	A1								
										APPROVED DATE 06.08.19	TITLE	PREFERRED OPTION TYPICAL CROSS SECTIONS SHEET 8					
											DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
												501094	4403	DRG	RR	1308	A

LEGEND

EXISTING SURFACE

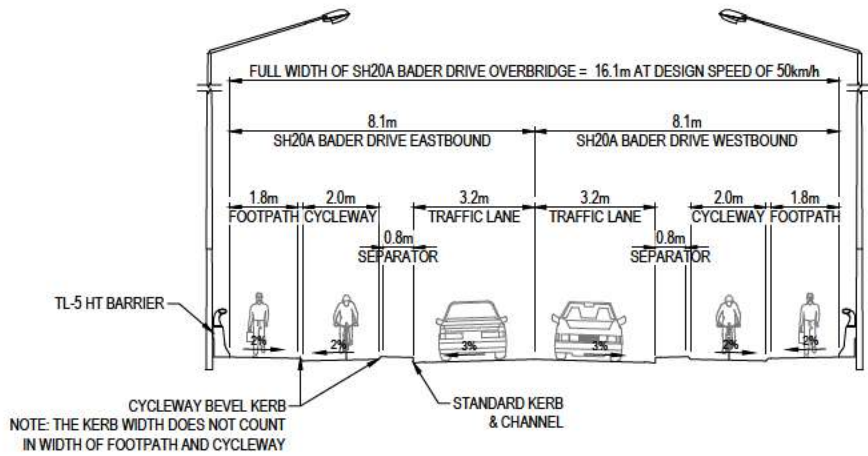
DESIGN SURFACE

NZTA DESIGNATION BOUNDARY



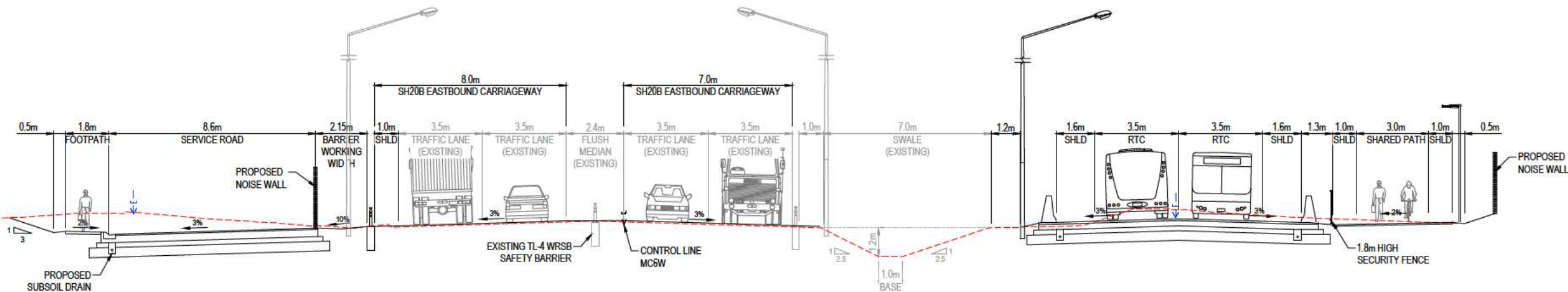
SECTION V-2
CH15,420 (MC1S) RR-1118

SH20A TYPICAL CROSS SECTION UNDER BADER DRIVE BRIDGE



SECTION V-3
RR-1118

SH20A BADER DRIVE OVERBRIDGE TYPICAL CROSS SECTION



SECTION W-1
CH1,260 (MC6W) RR-1119

SH20B TYPICAL CROSS SECTION WITH SWALES

1 0 2 4m
SCALE 1:100

CLIENT

REV DATE REVISION DETAILS

A 02.08.19 ISSUE FOR ROAD SAFETY AUDIT

APPROVED

SCALE 1:100

SIZE A1

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT

A2B / 20CONNECT SSBC

APPROVED

TITLE

PREFERRED OPTION
TYPICAL CROSS SECTIONS
SHEET 9

DRAWING No.

PROJECT No.

WBS

TYPE

DISC

NUMBER

REV

501094

4403

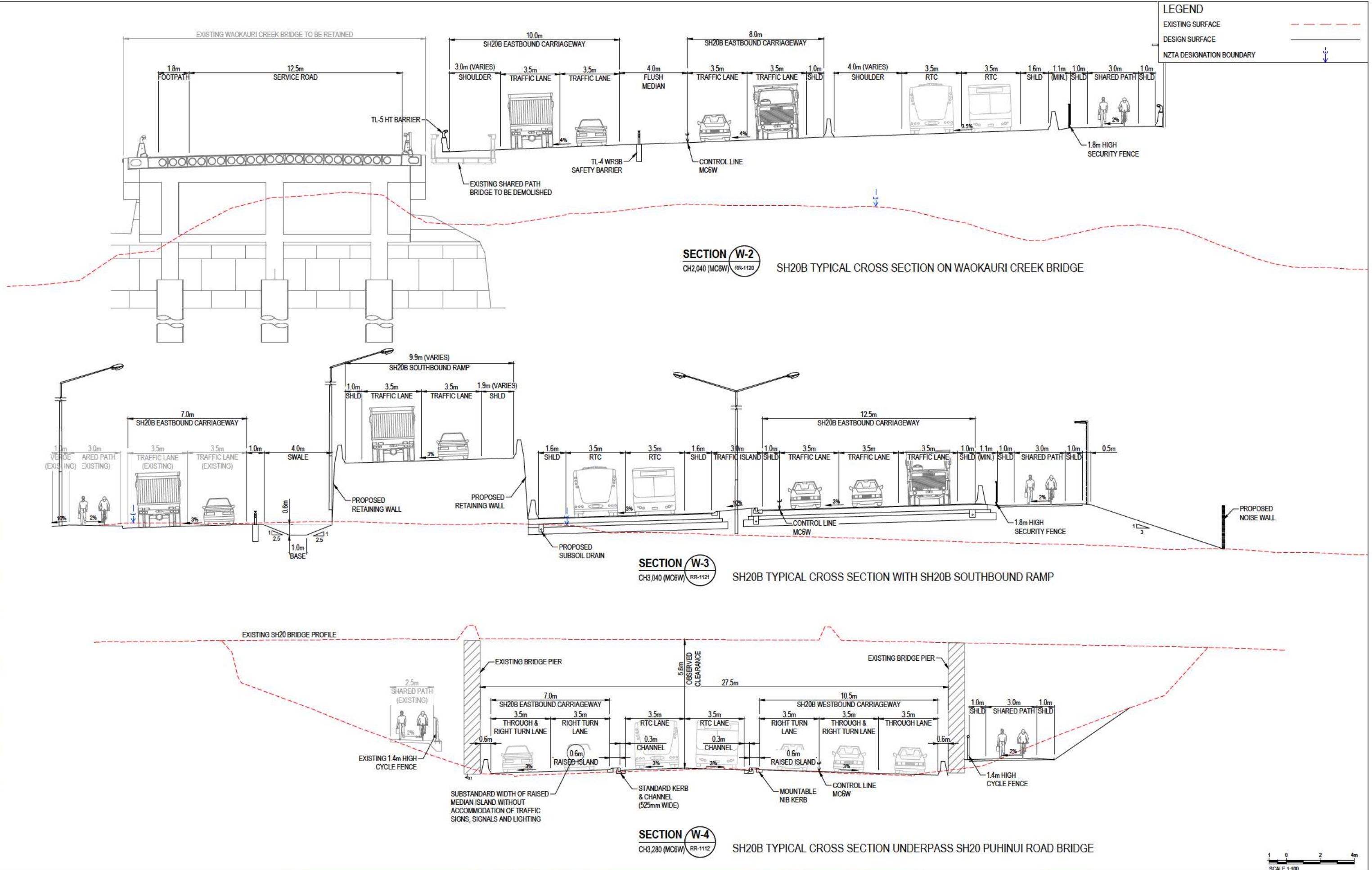
DRG

RR

1309

A

Project: A2B / 20CONNECT SSBC
Drawing: SH20B TYPICAL CROSS SECTIONS
Scale: 1:100
Date: 08.08.19
Author: [Redacted]
Checked: [Redacted]
Approved: [Redacted]



CLIENT			REV	DATE	REVISION DETAILS	APPROVED	SCALE	SIZE	PRELIMINARY NOT FOR CONSTRUCTION		PROJECT	A2B / 20CONNECT SSBC										
			A	02.08.19	ISSUE FOR ROAD SAFETY AUDIT		1:100	A1	APPROVED DATE 08.08.19		TITLE	PREFERRED OPTION TYPICAL CROSS SECTIONS SHEET 10										
											DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV					
												501094	-	4403	-	DRG	-	RR	-	1310	-	A

Stormwater Plan Drawings









































