



COUNTRY BRIDGE SOLUTIONS

MODULAR BRIDGE DRAWINGS

TYPE 2 - 1 LANE - 12m SPAN

NEW BRIDGE[†]

BRIDGE No: [†]

DESIGN FILE No: [†]

DESIGN STANDARD: AS 5100 SET 2007 - BRIDGE DESIGN SET
AS/RMS 5100.5 INTERIM - MAY 2015

MAXIMUM No OF VEHICLES PER DAY: 150
CARRIAGEWAY WIDTH: 4200mm

ROAD TRAFFIC LOADING: SM1600

NUMBER OF DESIGN LANES: 1

DESIGN TRAFFIC SPEED: [†]

ACCOMPANYING LANE FACTORS: 1

FATIGUE LOADING:

NUMBER OF HEAVY VEHICLES PER LANE PER DAY: MAXIMUM 20

ROUTE FACTOR: 0.5

TRAFFIC BARRIER PERFORMANCE LEVEL: LOW

THE DESIGN BARRIER PERFORMANCE LEVEL IS LOW. IF ANY OTHER
PERFORMANCE LEVEL IS REQUIRED FOR A SPECIFIC SITE, THE DESIGN SHALL
BE ADJUSTED IN ACCORDANCE WITH AS 5100.

EARTHQUAKE LOADING

BRIDGE CLASSIFICATION: [†]

IMPORTANCE FACTOR: [†]

ACCELERATION COEFFICIENT: [†]

SITE FACTOR (AS 1170-1993): [†]

DESIGN CATEGORY: [†]

WIND LOADING

DESIGN SPEED = m/sec at SLS[†]

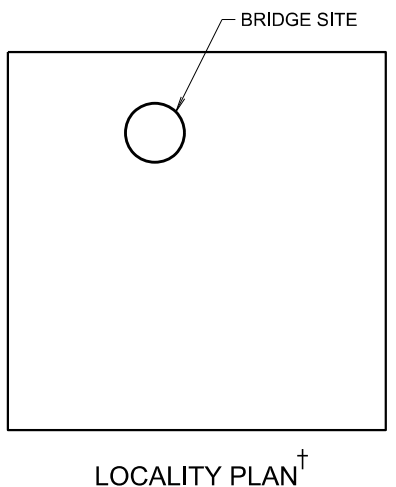
= m/sec at ULS[†]

WATER FLOW DATA[†]

	SLS	ULS
ARI		
FLOW VELOCITY (m/s)		
FLOOD LEVEL (m)		
SCOUR DEPTH (m)		
(i) ABUTMENT A		
(ii) PIER 1		
(iii) ABUTMENT B		

DEPTH OF DEBRIS MATTRESS mm [†]

[†] DIFFERENTIAL SETTLEMENT:
mm TOTAL BETWEEN BRIDGE SUPPORTS



REFERENCE DOCUMENTS:

CBS OVERARCHING GUIDE

CBS SUITABILITY AND INVESTIGATION GUIDE

CBS DESIGN GUIDE

CBS CONSTRUCTION GUIDE

CBS OPERATION AND MAINTENANCE GUIDE

GEOTECHNICAL INVESTIGATION REPORT No: [†]

HYDRAULIC INVESTIGATION REPORT No: [†]

DURABILITY INVESTIGATION REPORT No: [†]

NOTE:

THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ABOVE
REFERENCE DOCUMENTS PARTICULARLY THE DESIGN GUIDE AND TO BE
CONSTRUCTED IN ACCORDANCE WITH RMS QA CONSTRUCTION SPECIFICATIONS.
ANY VARIATION TO THIS STANDARD DRAWING SHALL NOT BE USED
WITHOUT THE APPROVAL OF THE RMS PRINCIPAL ENGINEER BRIDGES.

[†] DENOTES DESIGN DATA RELEVANT TO THE SPECIFIC SITE TO BE DETERMINED
BY THE DESIGNER.

CBS MODULAR BRIDGE DESIGN REQUIREMENTS

1. THE FOLLOWING STRUCTURAL ELEMENTS ARE NOT COVERED IN THIS
STANDARD DESIGN AND SHALL BE DESIGNED, VERIFIED AND CERTIFIED IN ACCORDANCE
WITH AS 5100 AND RMS REFERENCE DOCUMENTS BY SUITABLY QUALIFIED ENGINEERS
EXPERIENCED IN BRIDGE DESIGN WITH A LEVEL OF EXPERIENCE DETERMINED BY THE COUNCIL
• PILES, PILE CAPS, COLUMNS, WALL UNDER ABUTMENT SILL BEAM AND FOOTINGS.
• ANCHORAGE REINFORCEMENT FROM PILES, COLUMNS, FOOTINGS, WALLS AND PILE CAPS
INTO HEADSTOCK AND SILL BEAM RECESSES.
• DECK MODULE HOLDING DOWN BRACKETS FOR BRIDGES WHERE THE ULTIMATE
WATER FLOW VELOCITY EXCEEDS 4m/s AND WHERE THE OVERTOPPING EXCEEDS 5m.
• THE PIER HEADSTOCK SUPPORTING UNEQUAL SPANS ON EACH SIDE.
• TRAFFIC BARRIER, RAILING, ATTACHMENTS, REINFORCEMENTS IN THE PRECAST MODULES
AND WINGWALLS FOR BARRIERS WITH HIGHER PERFORMANCE LEVEL THAN LOW.
• TEMPORARY SUPPORTS AND BRACINGS FOR ALL PRECAST ELEMENTS.
• ANY REQUIRED EMBANKMENT/SCOUR PROTECTION.
2. THE SUBSTRUCTURES ARE DESIGNED FOR MAXIMUM OUT OF POSITION
OF PILES MEASURED AT CUT OFF LEVELS OF PILES OF $\pm 75\text{mm}$.
3. THE STRUCTURE HAS BEEN DESIGNED FOR THE WEIGHT OF WATERPROOF MEMBRANE
WHICH IS REQUIRED TO BE INSTALLED IN ACCORDANCE WITH RMS QA SPECIFICATION B344,
WHEN CRACKS WIDER THAN 0.2mm DEVELOP ON THE DECK SURFACE OR ALONG THE
CONSTRUCTION JOINTS

JACKING OF BRIDGE DECK FOR BEARING REPLACEMENT

JACKING PLATE (FOR INFORMATION ONLY) TO BE 120mm x 16PL x 120mm FOR
10 TONNES JACK.

FOR JACKING LOCATIONS REFER SHEET Nos 7, 14, 16, 18 AND 20.

MAXIMUM LOADS PER JACK ARE 60kN (SLS) AND 75kN (ULS).

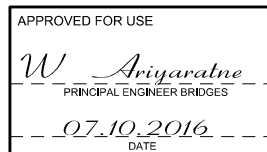
THE MAXIMUM LIFT DURING JACKING SHALL BE LIMITED TO 10mm.

NO TRAFFIC LOAD IS PERMITTED ON THE BRIDGE DURING JACKING.

ALL JACKS AT ENDS OF GIRDERS SHALL BE HYDRAULICALLY LINKED AND HAVE
A CENTRAL MECHANISM TO ENSURE THAT THE SAME VERTICAL DISPLACEMENT
OCCURS AT EACH JACKING POINT AT ALL TIMES DURING THE JACKING OPERATION.

AT PIERS BOTH ENDS OF GIRDERS SHALL BE JACKED SIMULTANEOUSLY.

STEEL PLATES SHALL BE PLACED BETWEEN CONCRETE BEARING SURFACES AND
JACK TO ENSURE CONCRETE BEARING STRESS AT SLS DOES NOT EXCEED 18 MPa.



REGISTRATION No OF PLANS

ISSUE STATUS:

SHEET No MB12SL01 No OF SHEETS 39 ISSUE

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SCHEDULE OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE
MB12SL01	COVER SHEET
MB12SL02	SCHEDULE OF DRAWINGS AND LIST OF SPECIFICATIONS
MB12SL03	GENERAL ARRANGEMENT - SHEET A
MB12SL04	GENERAL ARRANGEMENT - SHEET B
MB12SL05	GENERAL ARRANGEMENT - SHEET C
MB12SL06	GENERAL ARRANGEMENT - SHEET D
MB12SL07	PRECAST ABUTMENT SILL BEAMS CONCRETE
MB12SL08	PRECAST ABUTMENT WINGWALL CONCRETE - SHEET A
MB12SL09	PRECAST ABUTMENT WINGWALL CONCRETE - SHEET B
MB12SL10	PRECAST ABUTMENT SILL BEAM REINFORCEMENT
MB12SL11	PRECAST ABUTMENT WINGWALL REINFORCEMENT - SHEET A
MB12SL12	PRECAST ABUTMENT WINGWALL REINFORCEMENT - SHEET B
MB12SL13	PRECAST ABUTMENT WINGWALL REINFORCEMENT - SHEET C
MB12SL14	PIERS PRECAST HEADSTOCK - 2 COLUMNS - CONCRETE
MB12SL15	PIERS PRECAST HEADSTOCK - 2 COLUMNS - REINFORCEMENT
MB12SL16	PIERS PRECAST HEADSTOCK - 4 COLUMNS - CONCRETE
MB12SL17	PIERS PRECAST HEADSTOCK - 4 COLUMNS - REINFORCEMENT
MB12SL18	PIERS PRECAST HEADSTOCK - 4 PILES - CONCRETE
MB12SL19	PIERS PRECAST HEADSTOCK - 4 PILES - REINFORCEMENT
MB12SL20	NOT USED
MB12SL21	NOT USED
MB12SL22	NOT USED
MB12SL23	PIER COLUMNS - CONCRETE
MB12SL24	PIER COLUMNS - REINFORCEMENT
MB12SL50	BEARINGS - SHEET A
MB12SL51	BEARINGS - SHEET B
MB12SL52	PRECAST MODULE CONCRETE - SHEET A
MB12SL53	PRECAST MODULE CONCRETE - SHEET B
MB12SL54	NOT USED
MB12SL55	PRECAST MODULE REINFORCEMENT - SHEET A
MB12SL56	PRECAST MODULE REINFORCEMENT - SHEET B
MB12SL57	PRECAST MODULE REINFORCEMENT - SHEET C
MB12SL58	DECK CONCRETE - SHEET A
MB12SL59	DECK CONCRETE - SHEET B
MB12SL60	DECK CONCRETE - SHEET C
MB12SL61	HOLDING DOWN BRACKET DETAILS
MB12SL62	DECK REINFORCEMENT - SHEET A
MB12SL63	DECK REINFORCEMENT - SHEET B
MB12SL64	TRAFFIC BARRIER RAILING - SHEET A
MB12SL65	TRAFFIC BARRIER RAILING - SHEET B
MB12SL66	TRAFFIC BARRIER RAILING - SHEET C
MB12SL67	TRAFFIC BARRIER RAILING - SHEET D
MB12SL68	BAR SHAPES DIAGRAM

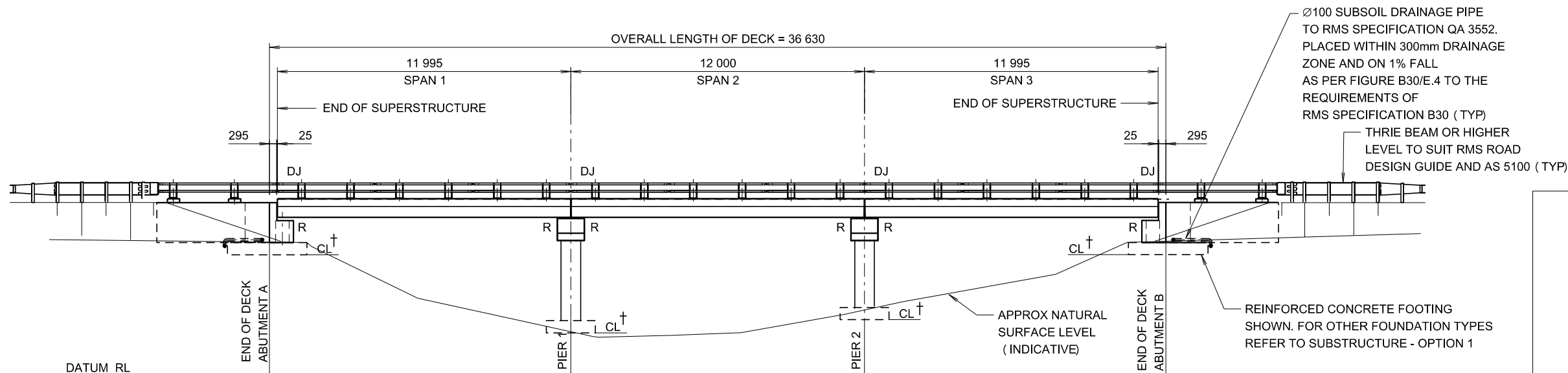
NOTE: SHEETS No MB12SL20 TO MB12SL22, MB12SL25 TO MB12SL49 AND MB12SL54 NOT USED

LIST OF RMS QA CONSTRUCTION SPECIFICATIONS

No.	SPECIFICATION TITTLE
B30	EXCAVATION AND BACKFILL FOR BRIDGEWORKS.
B50	DRIVEN REINFORCED CONCRETE PILES.
B58	BORED CAST-IN-PLACE REINFORCED CONCRETE PILES (WITH PERMANENT CASING).
B59	BORED CAST-IN-PLACE REINFORCED CONCRETE PILES (WITHOUT PERMANENT CASING).
B80	CONCRETE WORK FOR BRIDGES.
B110	SUPPLY OF PRESTENSIONED PRECAST CONCRETE MEMBERS.
B115	PRECAST CONCRETE MEMBERS (NOT PRETENSIONED).
B150	ERECTION OF PRETENSIONED PRECAST CONCRETE MEMBERS.
B153	ERECTION OF PRECAST CONCRETE MEMBERS (NOT PRETENSIONED).
B204	WELDING OF BRIDGES AND OTHER ROAD STRUCTURES.
B220	PROTECTIVE TREATMENT OF BRIDGE STEELWORK.
B240	SUPPLY OF BOLTS, NUTS, SCREWS AND WASHERS.
B241	MANUFACTUREAND SUPPLY OF MINOR STEEL ITEMS.
B264	ERECTION OF BARRIER RAILINGS AND MINOR COMPONENTS.
B281	LAMINATED ELASTOMERIC BEARINGS.
B284	INSTALLATION OF BRIDGE BEARINGS.
B312	COLD APPLIED ELASTOMERIC JOINT SEALANTS.
B344	SPRAYED BITUMENOUS WATERPROOFING MEMBRANES.

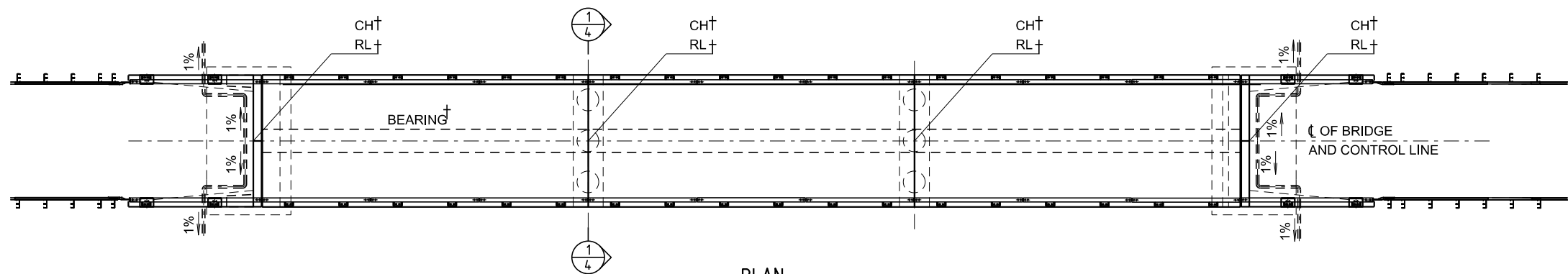
ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN					
SCHEDULE OF DRAWINGS AND LIST OF SPECIFICATIONS					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
	PREPARED	CHECKED	REGISTRATION		
DESIGN	<i>S.Assi</i>	<i>A.Dey</i>	No OF PLANS		
DRAWING	D.G.C.	<i>A.Dey</i>	BRIDGE No		
			ISSUE STATUS		
<i>Salah Assi 07.10.2016</i>					
BRIDGE ENGINEER (NEW DESIGN)			ISSUE	No SHEETS	39
DATE			SHEET No MB12SL02		
APPROVED FOR USE <i>W. Ariyaratne</i> PRINCIPAL ENGINEER BRIDGES <i>07.10.2016</i> DATE					

CAD No 12MCONT_SL.dgn© COPYRIGHT ROADS AND MARITIME SERVICES 2015



DATUM RL					
DESIGN SURFACE LEVEL ALONG CONTROL LINE	†		†	†	†
EXISTING SURFACE LEVEL ALONG CONTROL LINE	†		†	†	†
CHAINAGE ALONG CONTROL LINE	†		†	†	†

ELEVATION



PLAN
SPILL THROUGH BATTER, CONTOURS, WATER FLOW DIRECTION AND NORTH DIRECTION
TO BE ADDED TO SUIT BRIDGE LOCATION

GENERAL NOTES

SCALE 0 1 2 3 4 5m
1 0 5 OR AS SHOWN.

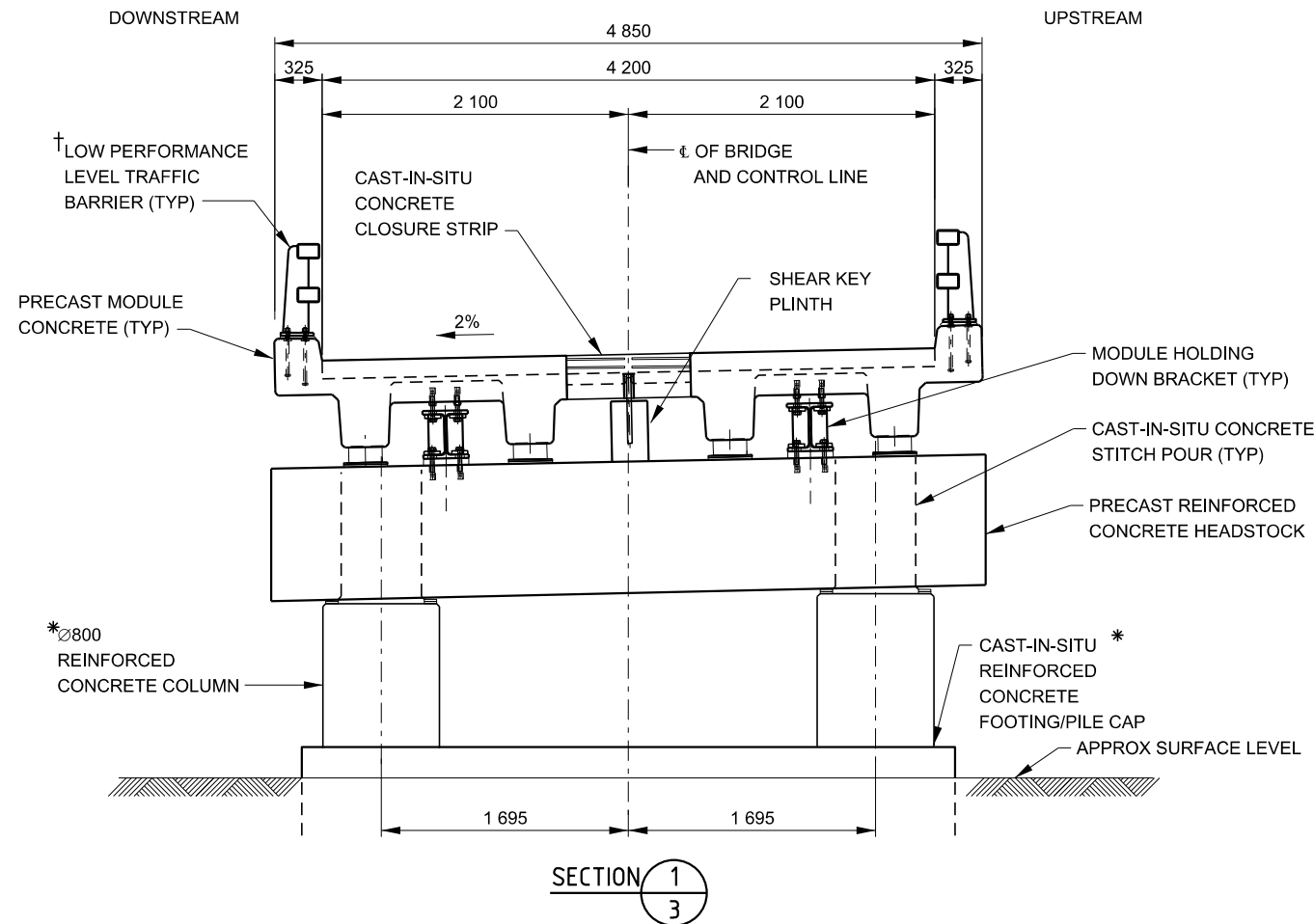
DIMENSIONS ARE IN MILLIMETRES.
CHAINAGES AND REDUCED LEVELS ARE IN METRES.
REDUCED LEVELS ARE RELATED TO AN ASSUMED DATUM
R DENOTES RESTRAINED BEARING.
DJ DENOTES DECK JOINT.
BRIDGE WITH 3/12m SPANS SHOWN. BRIDGES WITH 1/12m SPAN OR
MULTIPLE EQUAL 12m SPANS ARE SIMILAR UNLESS SPECIFIED OTHERWISE
† DENOTES DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.

SUBSTRUCTURE - OPTION 1

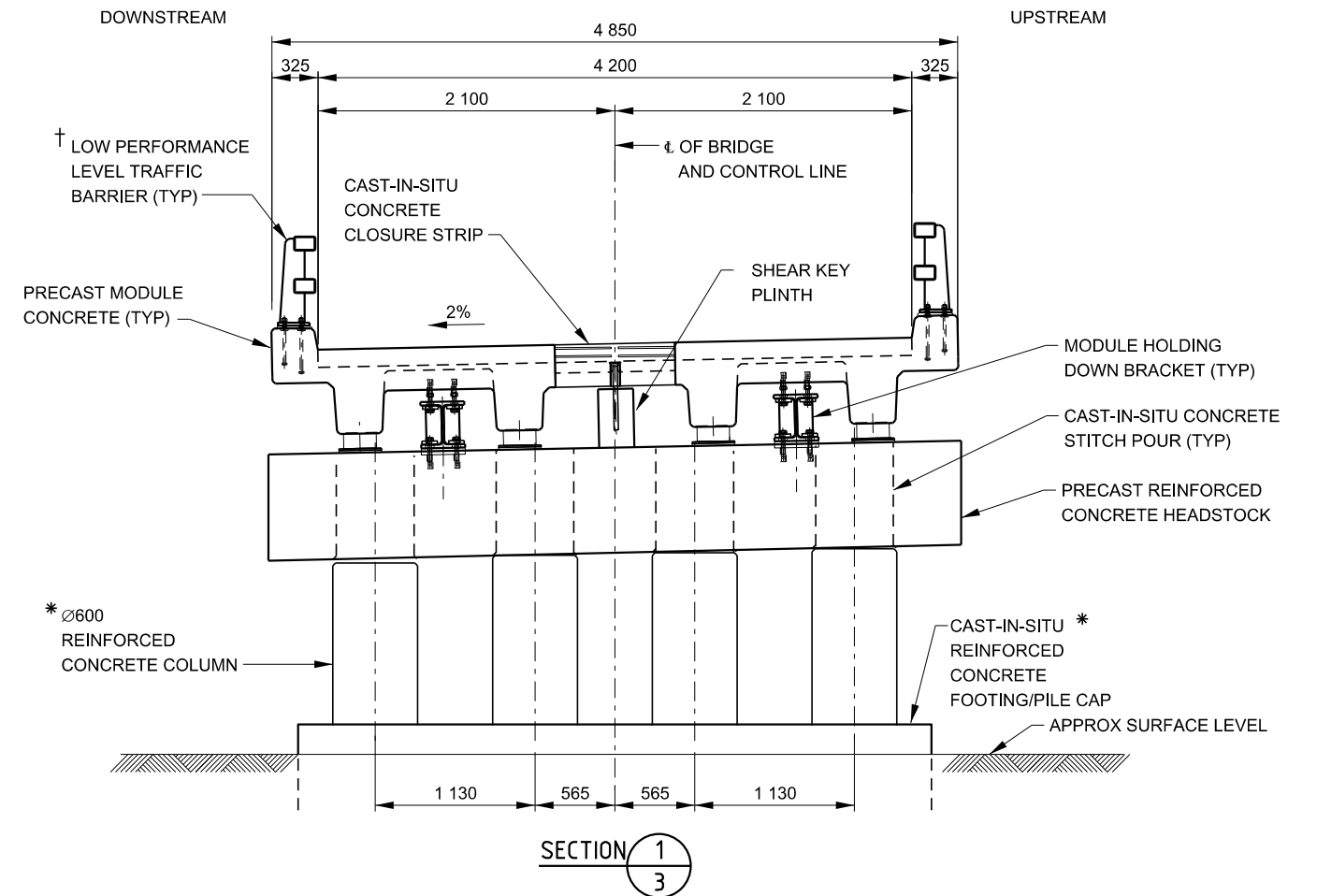
CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTINGS/PILE CAPS AND PILES AT PIERS
AND REINFORCED CONCRETE FOOTINGS/PILE CAPS AND PILES AT ABUTMENTS.

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN GENERAL ARRANGEMENT - SHEET A					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
ISSUE STATUS			ISSUE		
No SHEETS			39	SHEET No MB12SL03	

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07.10.2016 DATE



OPTION 1 WITH TWO CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTING/PILE CAP AND PILES



OPTION 1 WITH FOUR CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTING/PILE CAP AND PILES

GENERAL NOTES

SCALE 0 500 1 000 1 500mm OR AS SHOWN

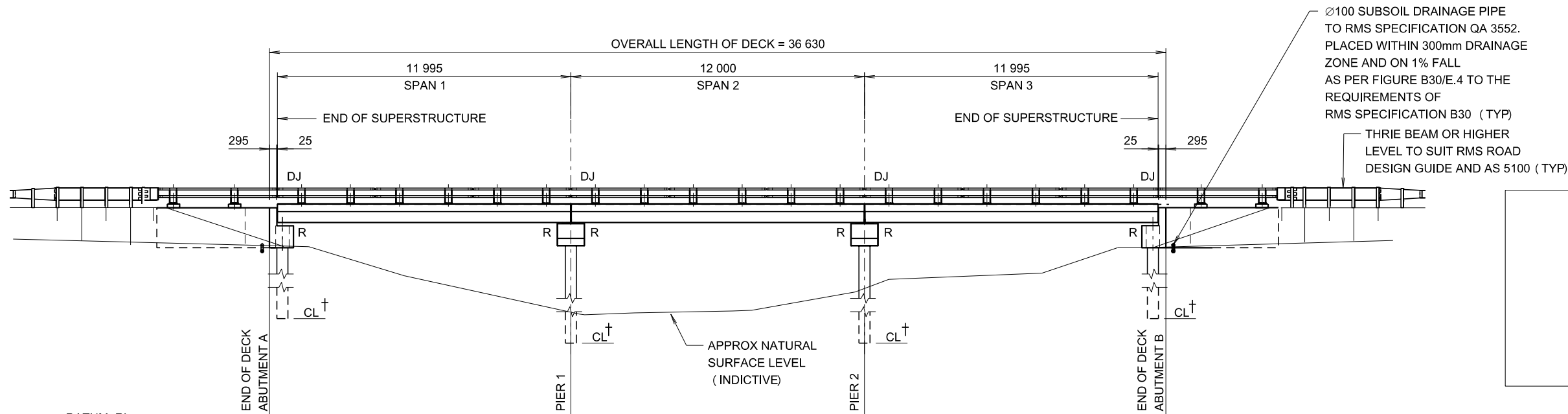
- * DENOTES COLUMNS AND FOOTINGS OR PILE CAP AND PILES TO BE DESIGNED BY SUITABLY QUALIFIED ENGINEER TO SUIT SPECIFIC BRIDGE SITE.
 - † DENOTES DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.
- FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 3.

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN GENERAL ARRANGEMENT - SHEET B					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			NSW Transport Roads & Maritime Services GOVERNMENT www.rms.gov.au		
DESIGN		SAssi	CHECKED		ADey
DRAWING		D.G.C.	CHECKED		ADey
DATE		07.10.2016	BRIDGE ENGINEER (NEW DESIGN)		Salah Assi 07.10.2016
ISSUE		No SHEETS	39	SHEET No MB12SL04	

APPROVED FOR USE

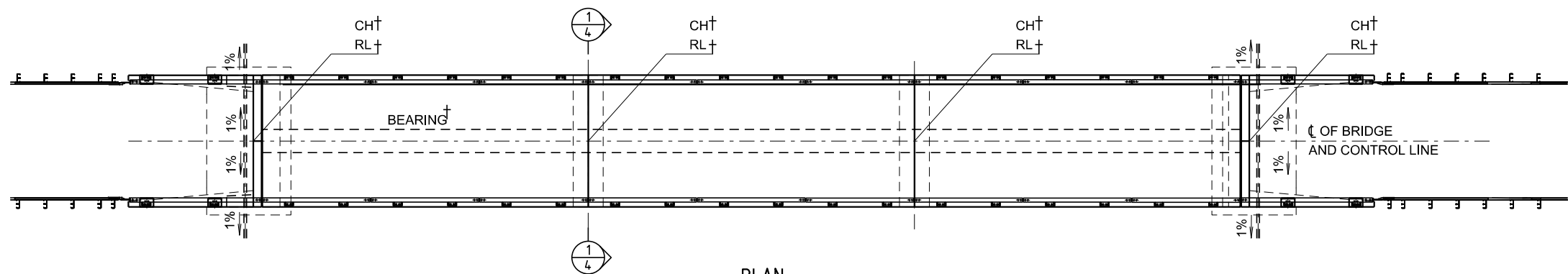
W. Ariyaratne
PRINCIPAL ENGINEER BRIDGES

07.10.2016
DATE



DATUM RL					
DESIGN SURFACE LEVEL ALONG CONTROL LINE	†		†		†
EXISTING SURFACE LEVEL ALONG CONTROL LINE	†		†		†
CHAINAGE ALONG CONTROL LINE	†		†		†

ELEVATION



PLAN
SPILL THROUGH BATTER, CONTOURS, WATER FLOW DIRECTION AND NORTH DIRECTION
TO BE ADDED TO SUIT BRIDGE LOCATION

SITE PLAN †

GENERAL NOTES

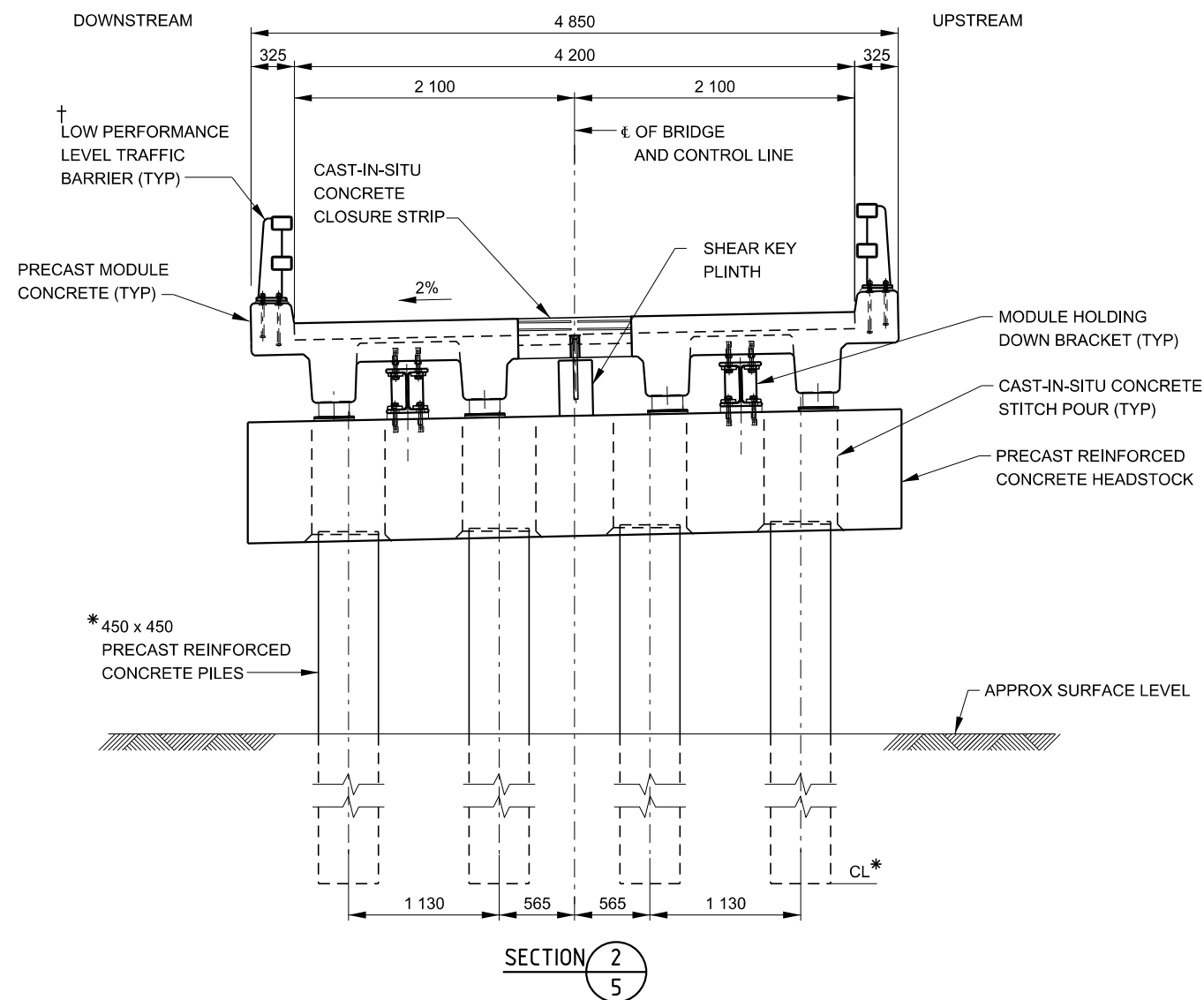
SCALE 0 1 2 3 4 5m OR AS SHOWN.
1 0 5

DIMENSIONS ARE IN MILLIMETRES.
CHAINAGES AND REDUCED LEVELS ARE IN METRES.
REDUCED LEVELS ARE RELATED TO AN ASSUMED DATUM
R DENOTES RESTRAINED BEARING.
EJ DENOTES DECK JOINT.
BRIDGE WITH 3/12m SPANS SHOWN. BRIDGES WITH 1/12m SPAN OR
MULTIPLE EQUAL 12m SPANS ARE SIMILAR UNLESS SPECIFIED OTHERWISE
† DENOTES DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.

SUBSTRUCTURE - OPTION 2
PRECAST REINFORCED CONCRETE PILES AT PIERS AND ABUTMENTS

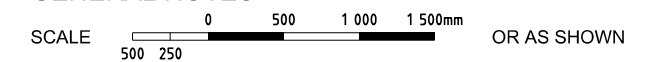
ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN GENERAL ARRANGEMENT - SHEET C					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
ISSUE STATUS			ISSUE		
No SHEETS			39	SHEET No MB12SL05	

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07.10.2016 DATE



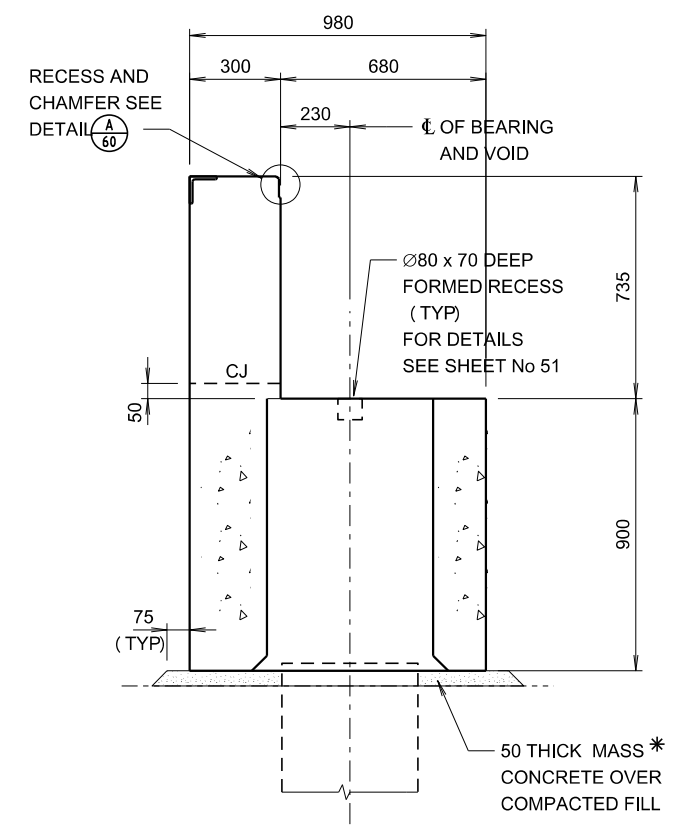
OPTION 2 WITH FOUR PRECAST REINFORCED CONCRETE PILES

GENERAL NOTES

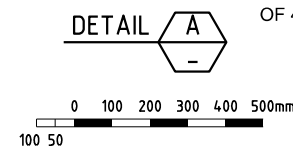


- * DENOTES THE CONTRACT LEVEL AND THE DESIGN OF THE PRECAST REINFORCED CONCRETE PILES SHALL BE CARRIED OUT BY SUITABLY QUALIFIED ENGINEER TO SUIT SPECIFIC BRIDGE SITE AND SHALL BE DETAILED TO COMPLY WITH RMS STANDARD DRAWINGS.
- † DENOTES DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.
- FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 5.

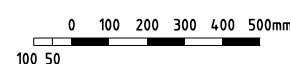
ISSUE	DATE	AMENDMENT DESCRIPTION				PREP	CHECK	AUTH	
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN GENERAL ARRANGEMENT - SHEET D									
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811					 Transport Roads & Maritime Services www.rms.gov.au				
	PREPARED	CHICKED	REGISTRATION						
DESIGN	<i>SAssi</i>	<i>ADey</i>	No Of PLANS						
DRAWING	D.G.C.	<i>ADey</i>	BRIDGE No						
			ISSUE STATUS						
<i>Salah Assi 07.10.2016</i>									
BRIDGE ENGINEER (NEW DESIGN)			ISSUE	No SHEETS			39	SHEET No M12SL06	



OPTION 2 WITH PRECAST[†] REINFORCED CONCRETE PILES



DETAIL 



SCALE  OR AS SHOWN

No OF PILES/COLUMNS/ANCHORAGE GROUPS	VOID/PILE SPACING
2	3390

† DENOTES DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.
* DENOTES TYPICAL SUPPORT UNDER PRECAST SILL BEAM, EXCEPT FOR AREAS UNDER VOIDS, AND WINGWALLS OR SUITABLE ALTERNATIVE TEMPORARY SUPPORT METHOD.
● DENOTES HOT DIP GALVANIZED IN ACCORDANCE WITH RMS SPECIFICATION B241. FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 8.

						TEST PROJECT
ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH	

COUNTRY BRIDGE SOLUTIONS
MODULAR BRIDGE DRAWINGS
TYPE 2 - 1 LANE - 12m SPAN

PRECAST ABUTMENT SILL BEAMS CONCRETE

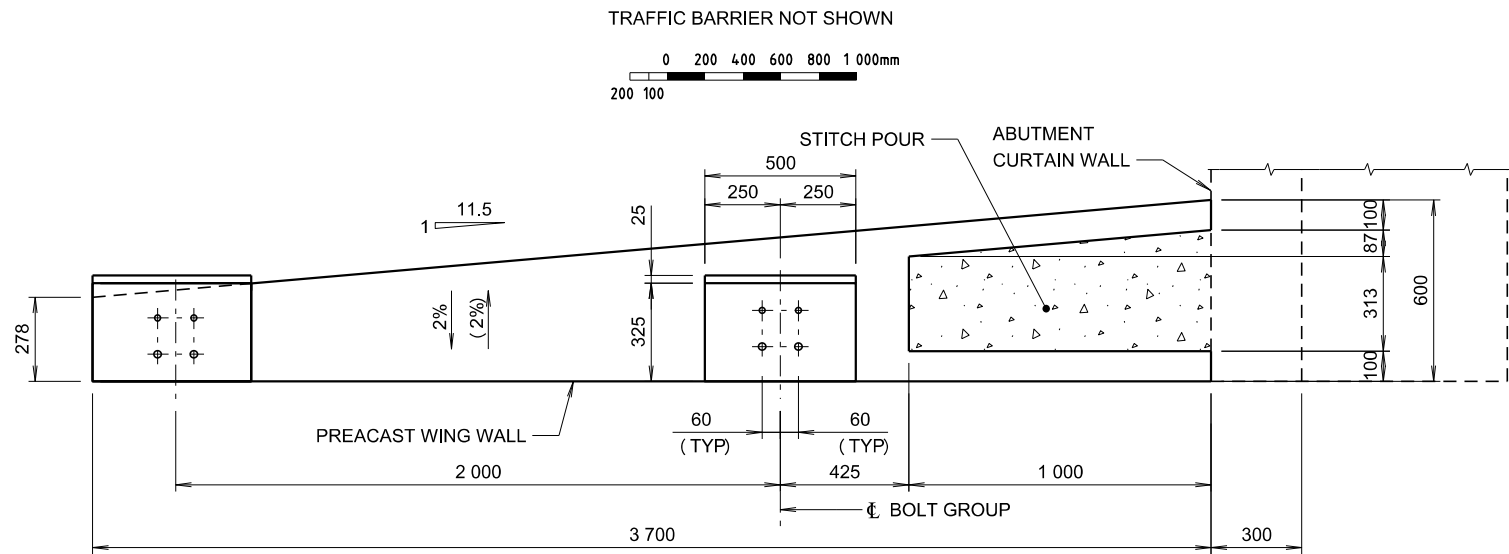
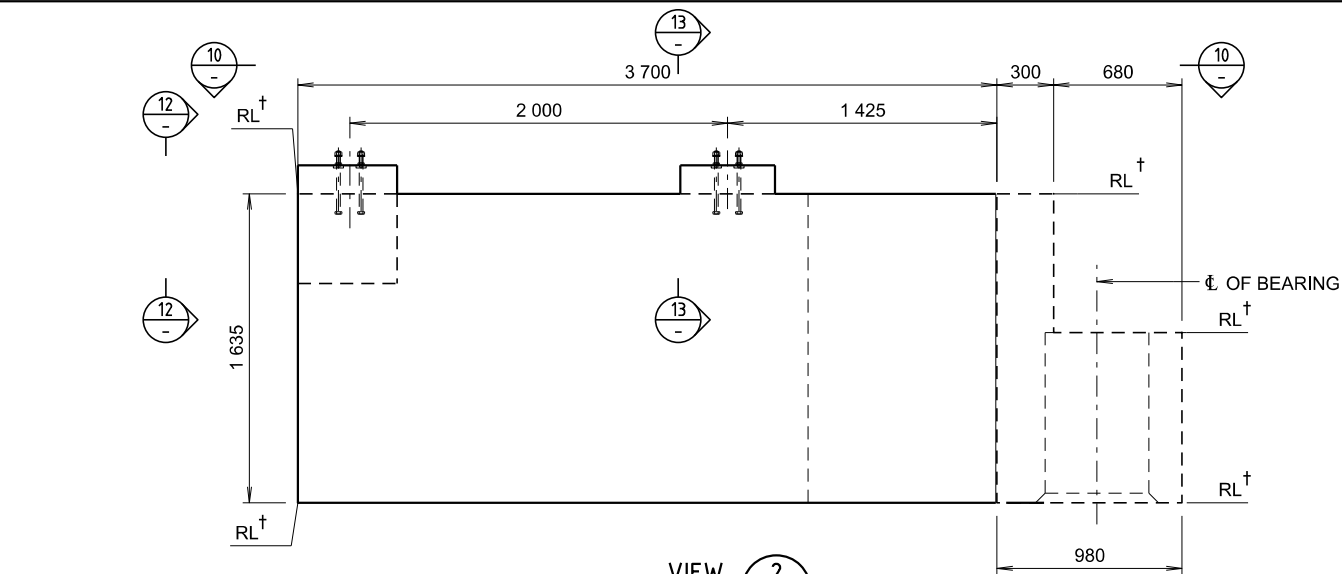
PREPARED BY
BRIDGE ENGINEERING SECTION
PHONE (02) 8837-0811



		www.mrs.gov.au	
	PREPARED	CHECKED	REGISTRATION
DESIGN	<i>SAssi</i>	<i>ADey</i>	No of PLANS
DRAWING	D.G.C.	<i>ADey</i>	BRIDGE No
			ISSUE STATUS
<i>Salah Assi 07.10.2016</i>			
BRIDGE ENGINEER (NEW DESIGN)			
ISSUE	No SHEETS	39	SHEET No MB12SL07

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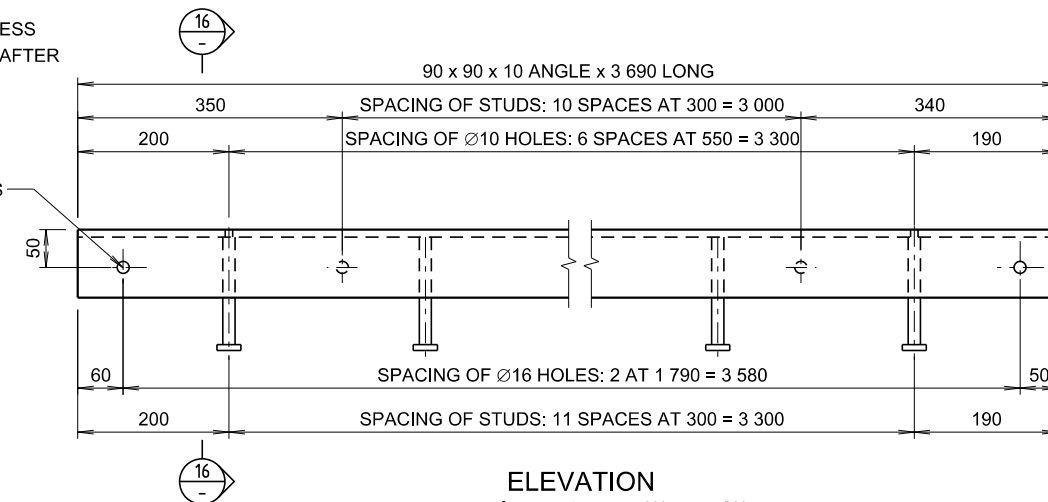
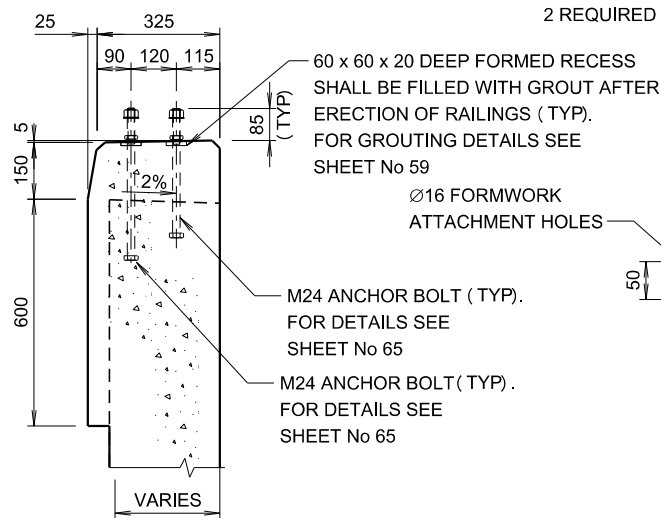
NOTE:
CROSS FALL AT THE TOP OF THE WINGWALL TO MATCH THE
ABUTMENT SILL BEAM CROSS FALL

VIEW 10/ - SHOWN

VIEW 11/ - SIMILAR EXCEPT WHERE
SHOWN IN BRACKETS

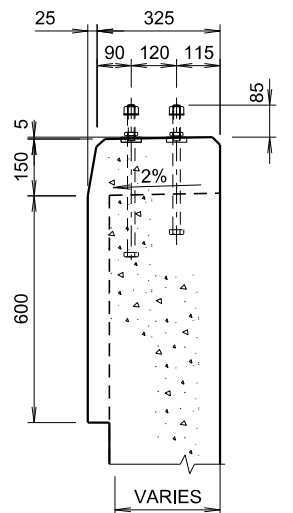
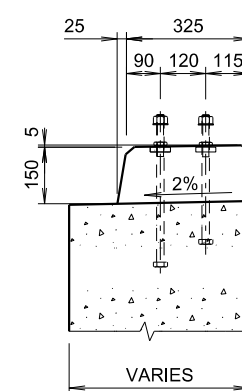
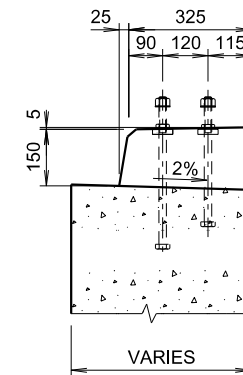
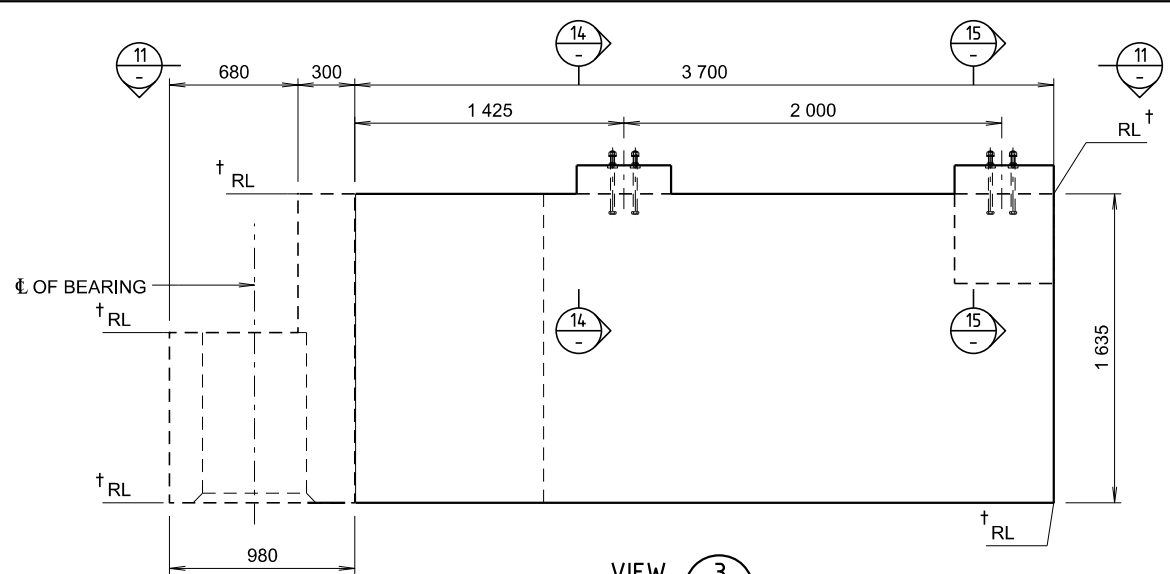
3.7m PRECAST WINGWALL

2 REQUIRED AS SHOWN
2 REQUIRED OPPOSITE HAND



PROTECTION ANGLE ASSEMBLY

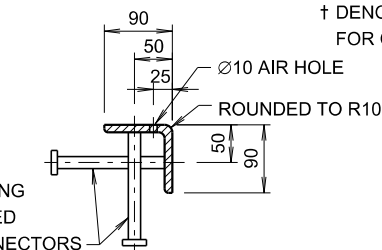
2 REQUIRED



GENERAL NOTES

SCALE 0 250 500 750mm OR AS SHOWN

STEEL SECTIONS SHALL CONFORM TO AS/NZS 3679.1-300.
STEEL DOWELS SHALL CONFORM TO AS/NZS 4671-R250N.
THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1.
WELDING SYMBOLS COMPLY WITH AS 1101.3.
PROTECTION ANGLE ASSEMBLIES SHALL BE HOT-DIP GALVANISED
AFTER FABRICATION.
EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RADIUS OF
1.5mm UNLESS NOTED OTHERWISE.
† DENOTES DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.
FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEETS No 7 AND 8.



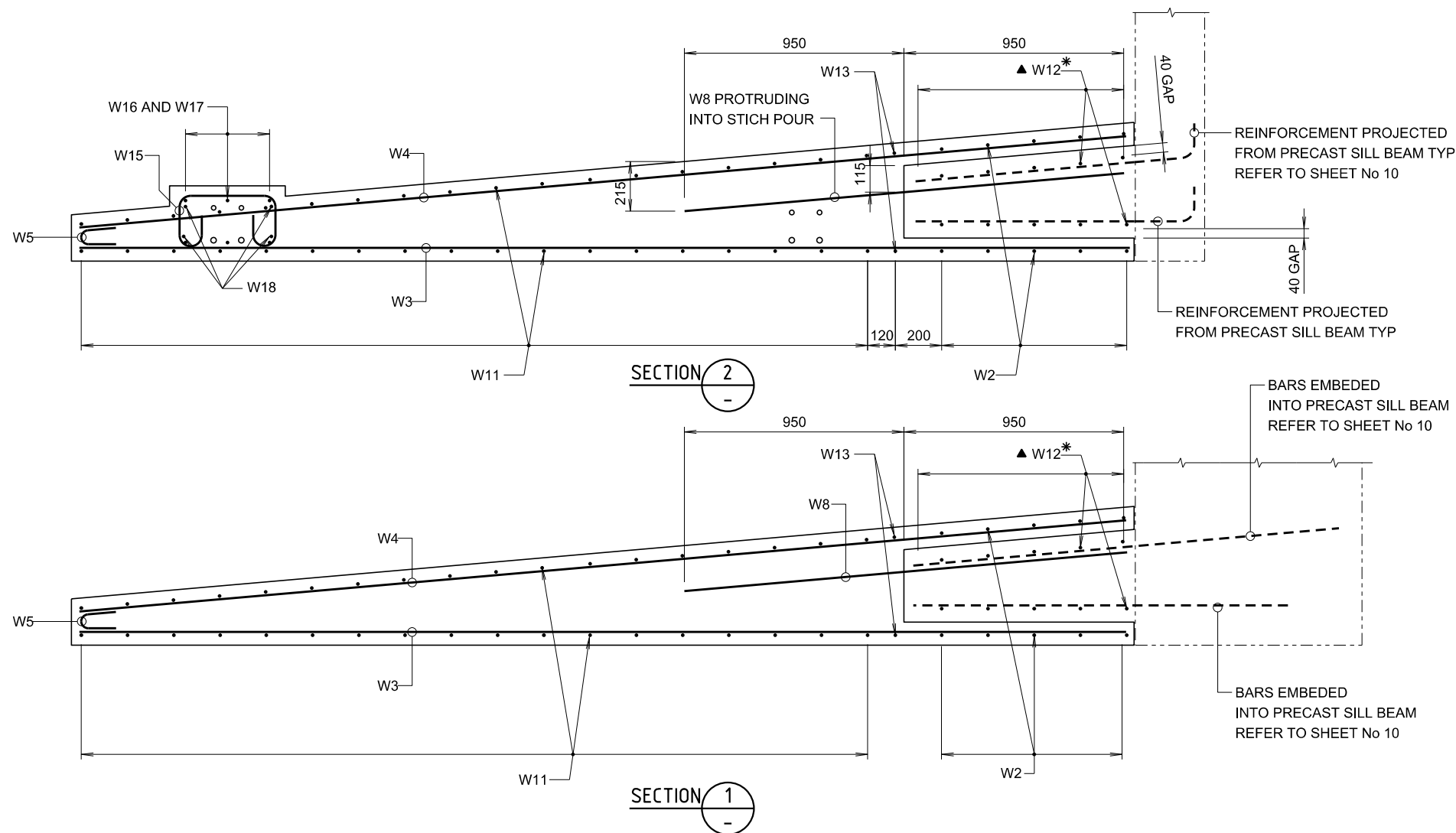
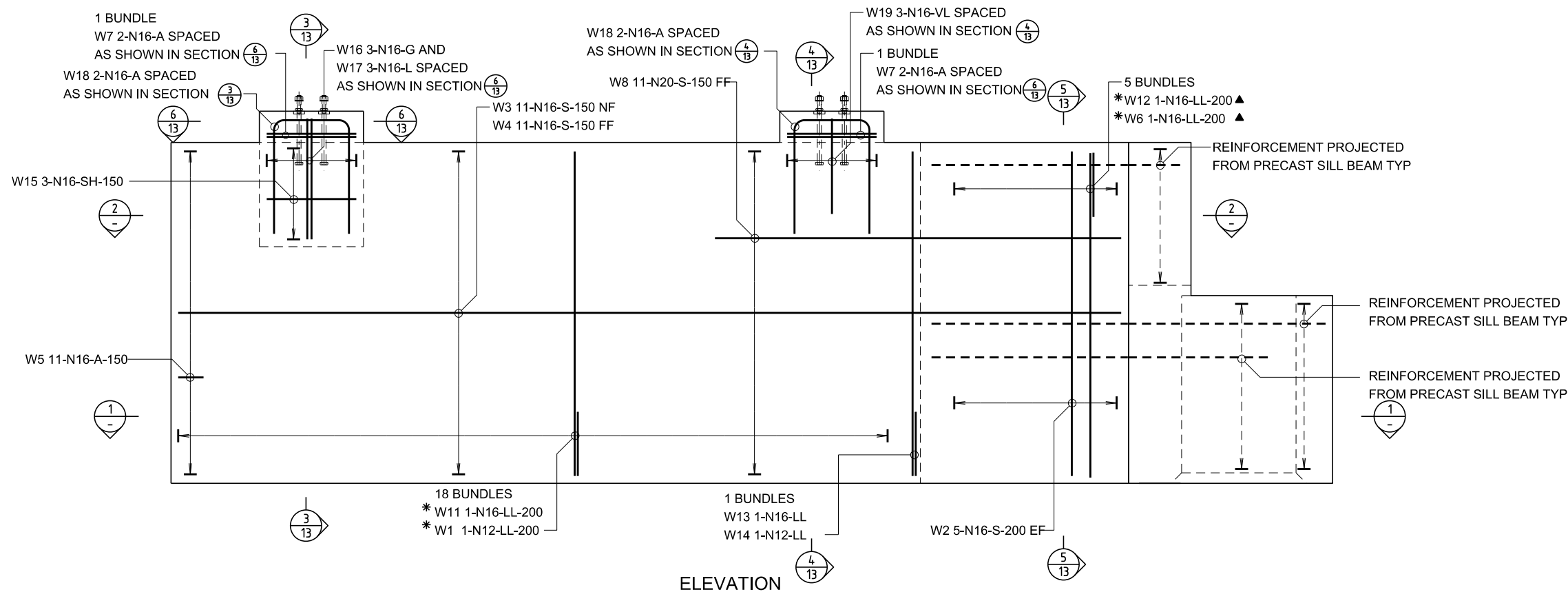
APPROVED FOR USE

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PRINCIPAL ENGINEER BRIDGES

07.10.2016
DATE

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS					
MODULAR BRIDGE DRAWINGS					
TYPE 2 - 1 LANE - 12m SPAN					
PRECAST ABUTMENT WINGWALL CONCRETE - SHEET B					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
Salah Assi 07.10.2016			ISSUE STATUS		
ISSUE	No SHEETS	39	SHEET No MB12SL09		

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4.6m PRECAST WINGWALL

GENERAL NOTES

SCALE 0 250 500 750mm OR AS SHOWN.

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 35 mm UNLESS SPECIFIED OTHERWISE. UNLESS OTHERWISE SPECIFIED, THE LAP LENGTH SHALL BE AS FOLLOWS:

BAR SIZE:	N12	N16	N20	N24	N28	N32	N36
a) HORIZONTAL BARS WITH >300mm OF CONCRETE CAST BELOW THE BAR:	510	650	880	1190	1520	1870	2760
b) OTHER BARS:	430	530	690	910	1170	1440	1740

THE DEVELOPMENT LENGTHS SHALL BE 80% OF THE VALUE TABULATED ABOVE.

* DENOTES VARIABLE LENGTH BAR.

▲ DENOTES STITCH POUR REINFORCEMENT

REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR DOWELS, ANCHOR BOLTS, HOLES AND RECESSES.

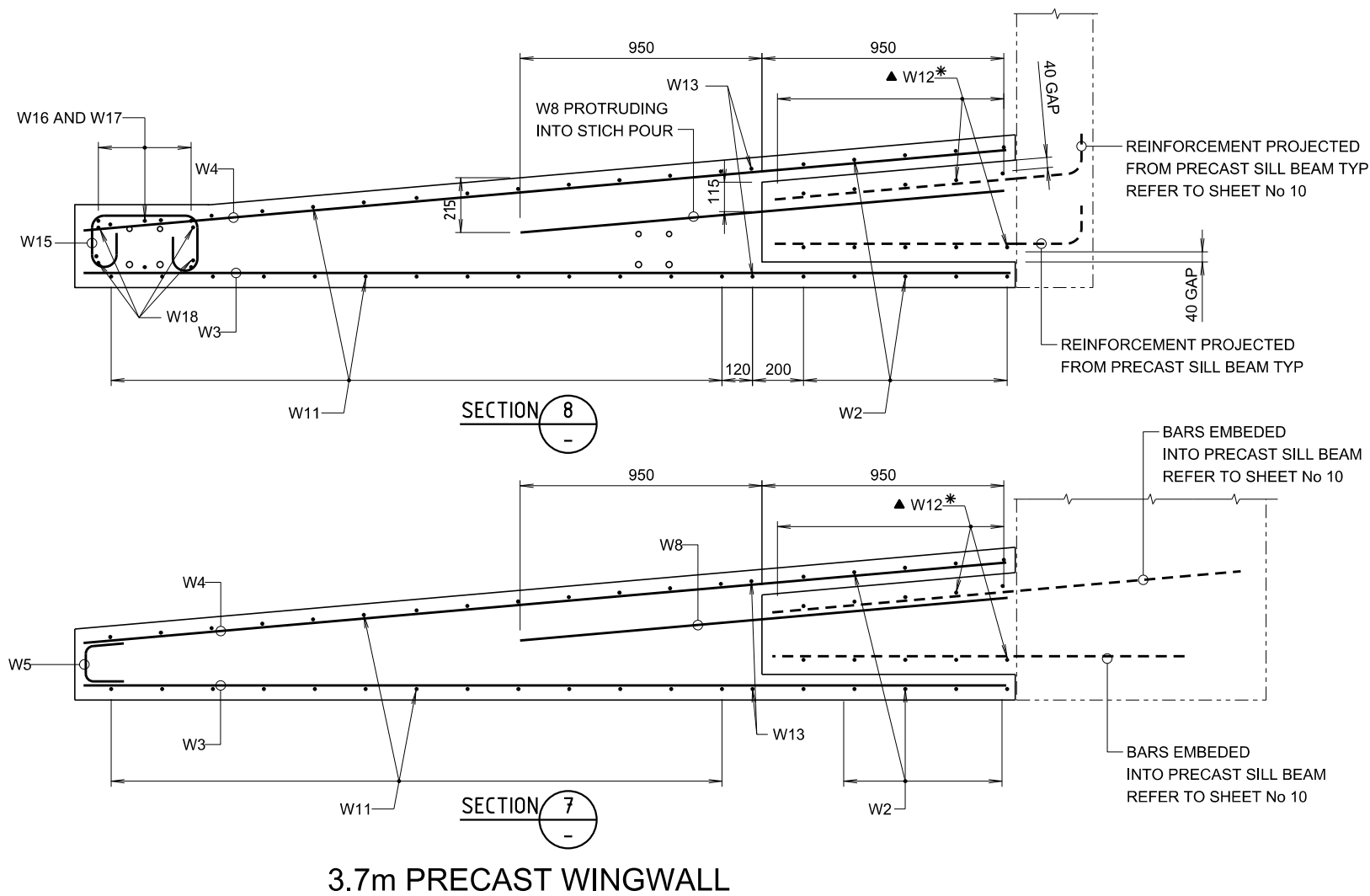
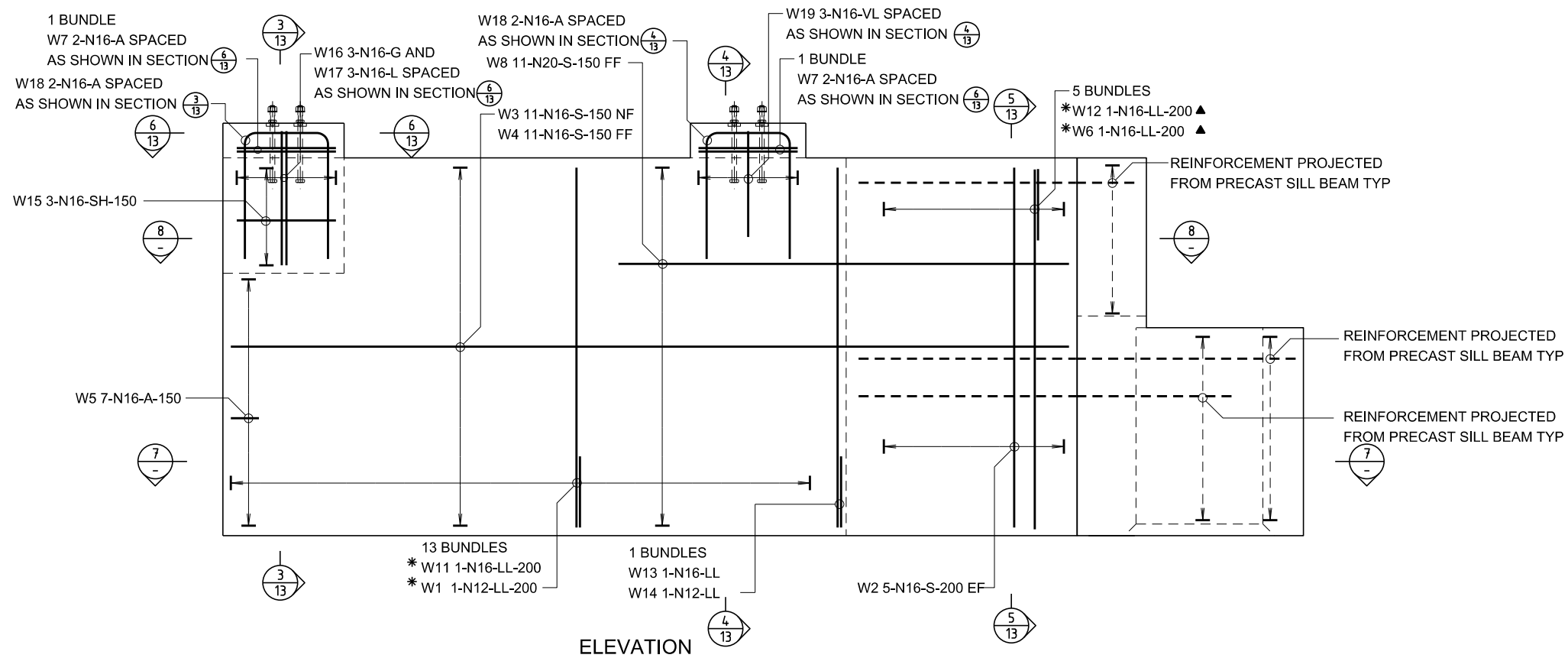
ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN PRECAST ABUTMENT WINGWALL REINFORCEMENT - SHEET A					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
ISSUE STATUS			ISSUE		
No SHEETS			39	SHEET No MB12SL11	

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GENERAL NOTES

SCALE 250 125 0 250 500 750mm OR AS SHOWN

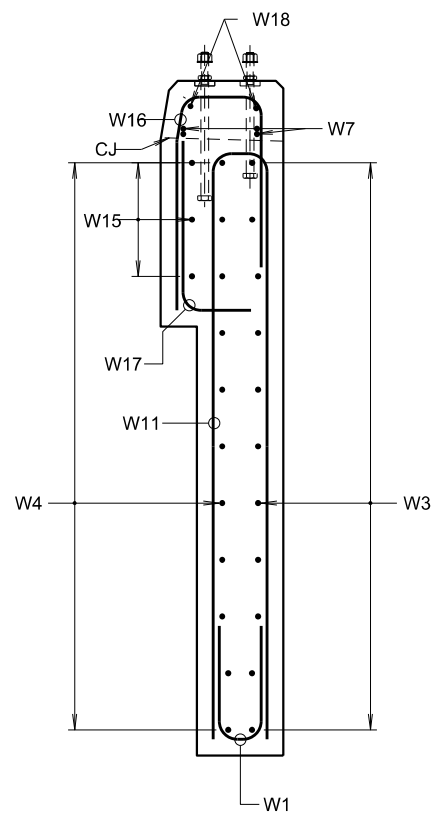
▲ DENOTES STITCH POUR REINFORCEMENT
FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 11.

ISSUE	DATE	ADMENDMENT DESCRIPTION					PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS									
MODULAR BRIDGE DRAWINGS									
TYPE 2 - 1 LANE - 12m SPAN									
PRECAST ABUTMENT WINGWALL REINFORCEMENT - SHEET B									
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811						 Transport Roads & Maritime Services www.rms.gov.au			
	PREPARED	CHECKED	REGISTRATION						
DESIGN	<i>S Assi</i>	<i>A Dey</i>	No Of PLANS						
DRAWING	D.G.C.	<i>A Dey</i>	BRIDGE No						
			ISSUE STATUS						
<i>Salah Assi 07.10.2016</i>									
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GAD No 12MMVB_SL_dgn			© COPYRIGHT ROADS AND MARITIME SERVICES 2015						

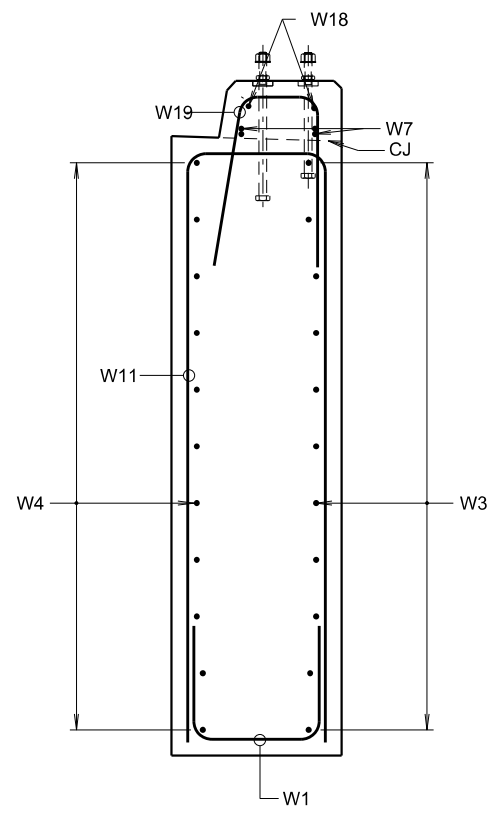
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PRINCIPAL ENGINEER BRIDGES
07.10.2016
DATE

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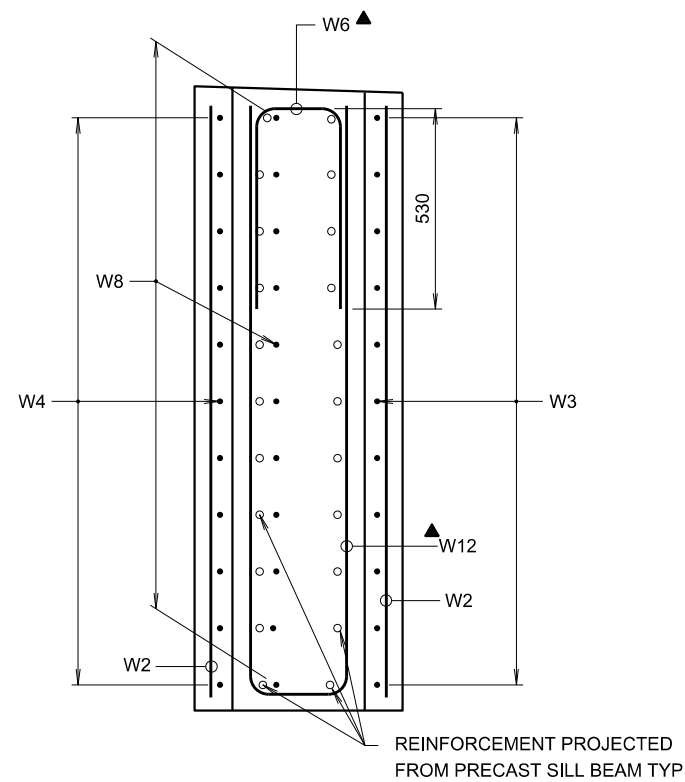
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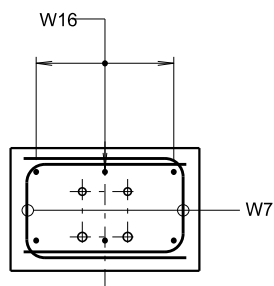
SECTION 3
11,12



SECTION 4
11,12



SECTION 5
11,12



SECTION 6
11,12

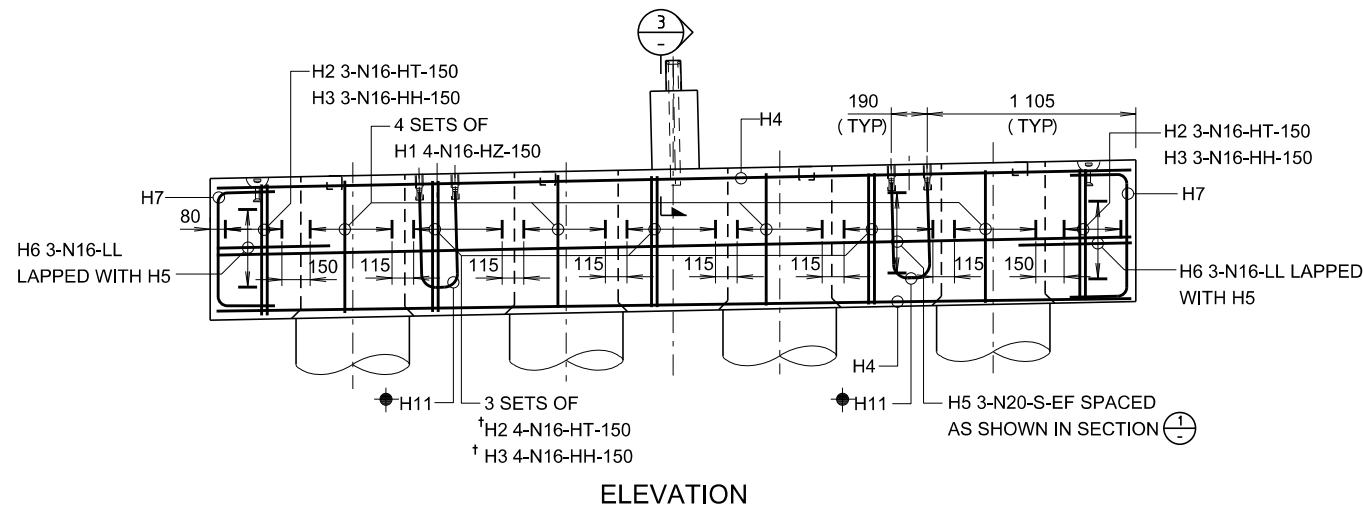
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SCALE OR AS SHOWN

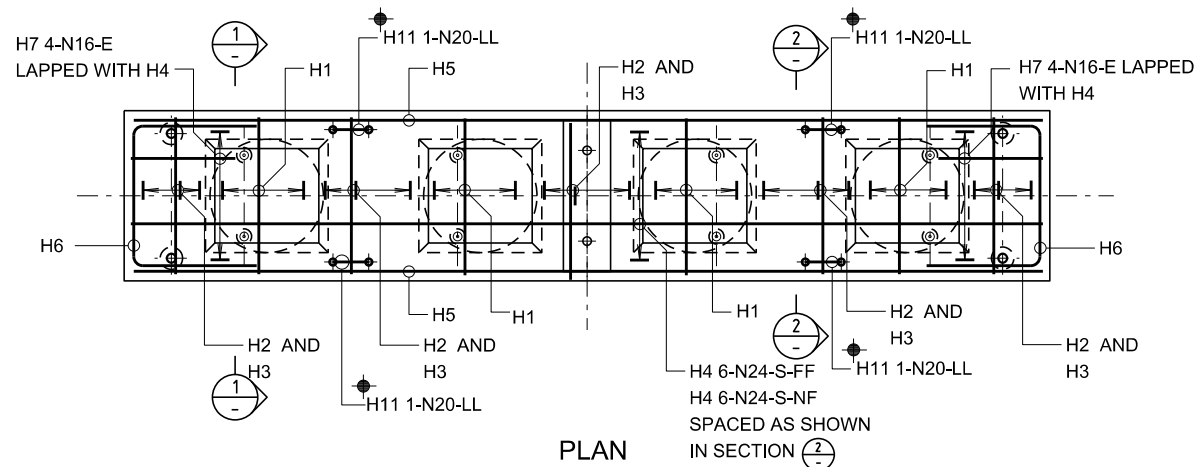
FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 11.

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN PRECAST ABUTMENT WINGWALL REINFORCEMENT - SHEET C					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION		
DRAWING	D.G.C.	ADey	No OF PLANS		
APPROVED FOR USE PRINCIPAL ENGINEER BRIDGES 07.10.2016 DATE			BRIDGE No ISSUE STATUS ISSUE		
BRIDGE ENGINEER (NEW DESIGN) CAD No 12MWC_SL.dgn			No SHEETS 39 SHEET No MB12SL13 © COPYRIGHT ROADS AND MARITIME SERVICES 2015		

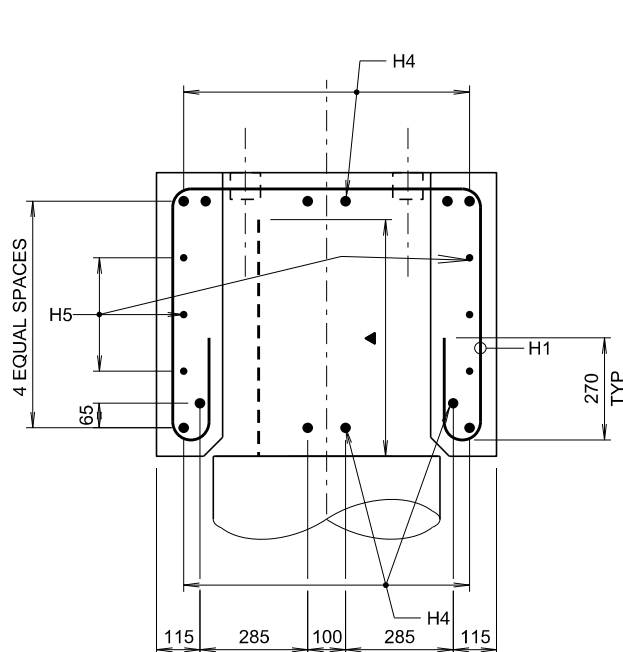
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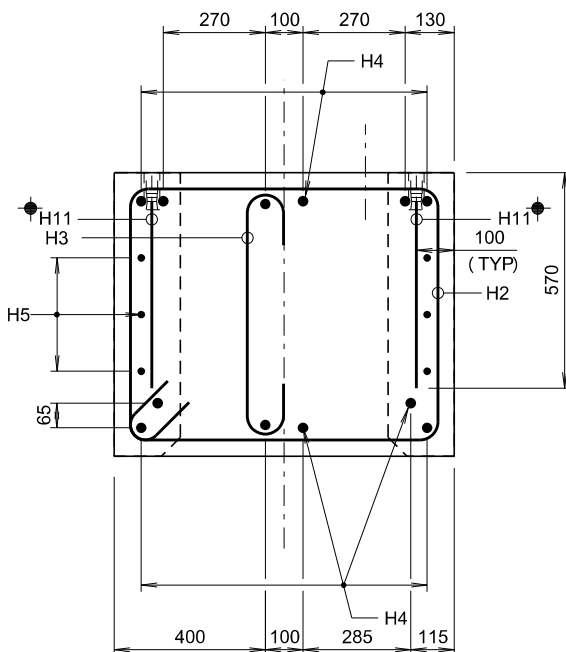
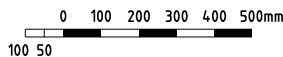
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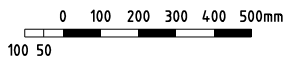
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SECTION 1

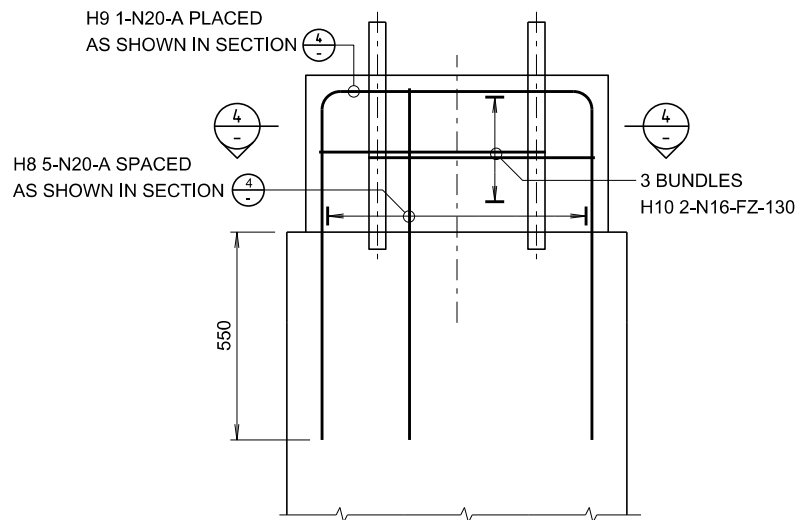


SECTION 2

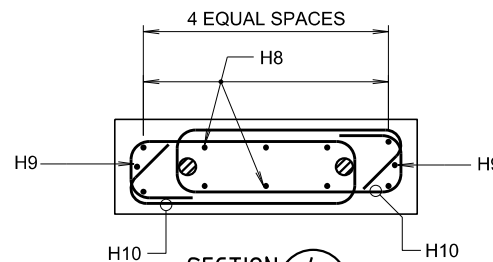
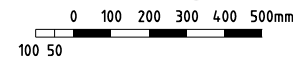


▲ DENOTES TYPICAL PROTUDING REINFORCING BARS FROM TOP OF COLUMN INTO SILL BEAM ARE INDICATIVE ONLY. THE NUMBER AND DEVELOPMENT LENGTH OF THESE BARS SHALL BE DETERMINED BY THE DESIGNER TO SUIT SUBSTRUCTURE DESIGN.

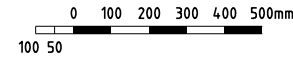
OPTION 1 WITH FOUR CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTING/PILE CAP AND PILES



SECTION 3



SECTION 4



GENERAL NOTES

SCALE 0 200 400 600 800 1 000mm OR AS SHOWN. 200 100

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 35 mm UNLESS SPECIFIED OTHERWISE. UNLESS OTHERWISE SPECIFIED, THE LAP LENGTH SHALL BE AS FOLLOWS:

BAR SIZE:	N12	N16	N20	N24	N28	N32	N36
a) HORIZONTAL BARS WITH >300mm OF CONCRETE CAST BELOW THE BAR:	510	650	880	1190	1520	1870	2760
b) OTHER BARS:	430	530	690	910	1170	1440	1740

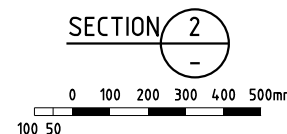
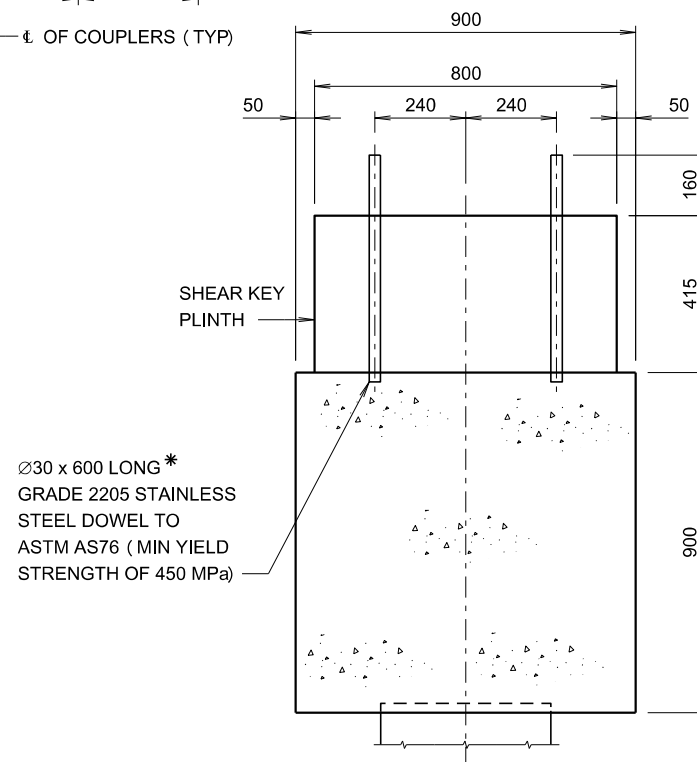
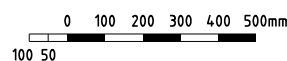
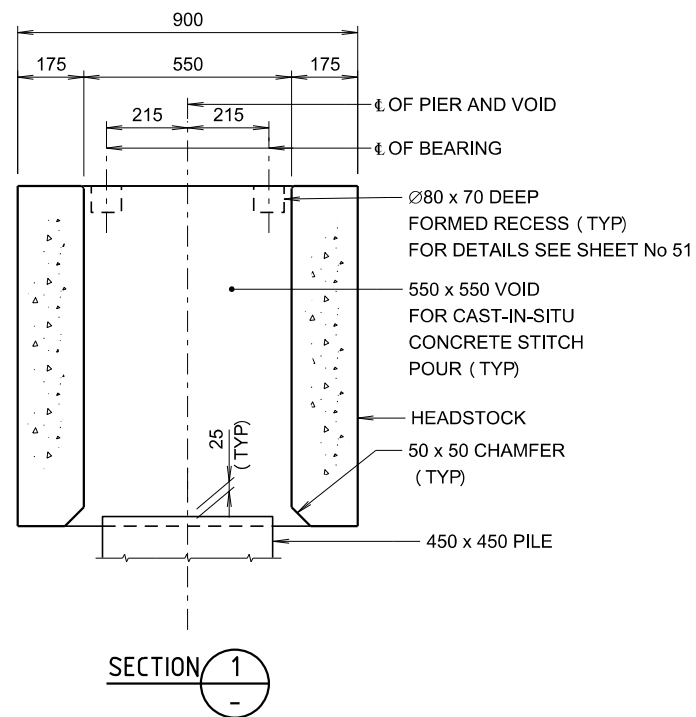
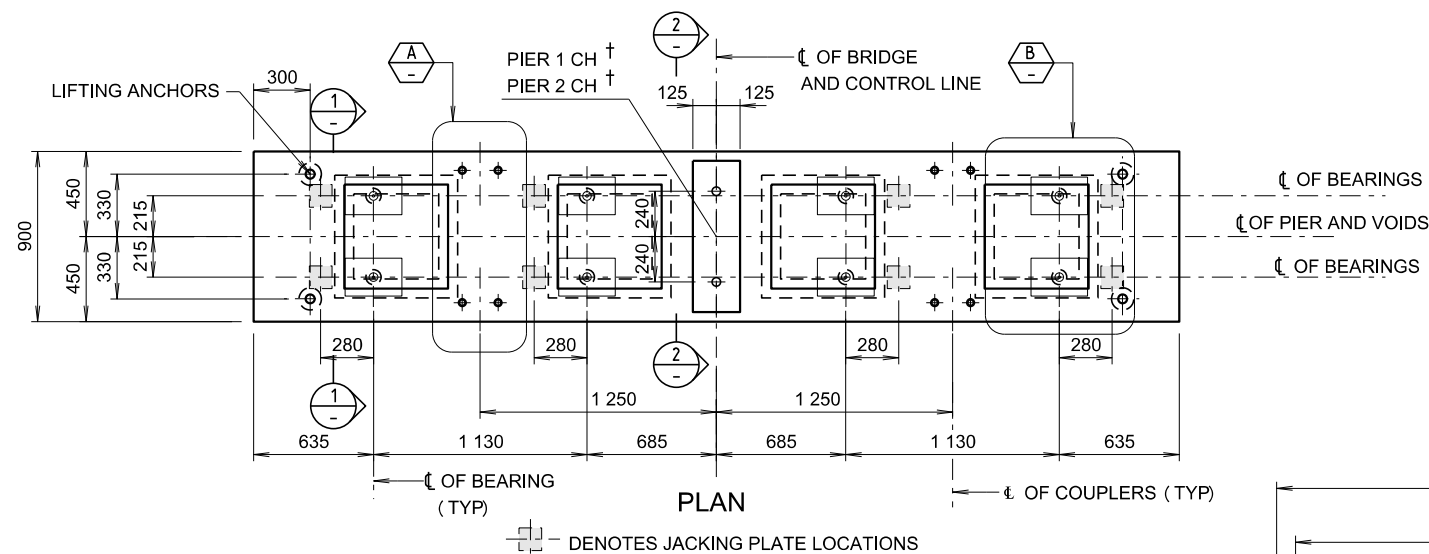
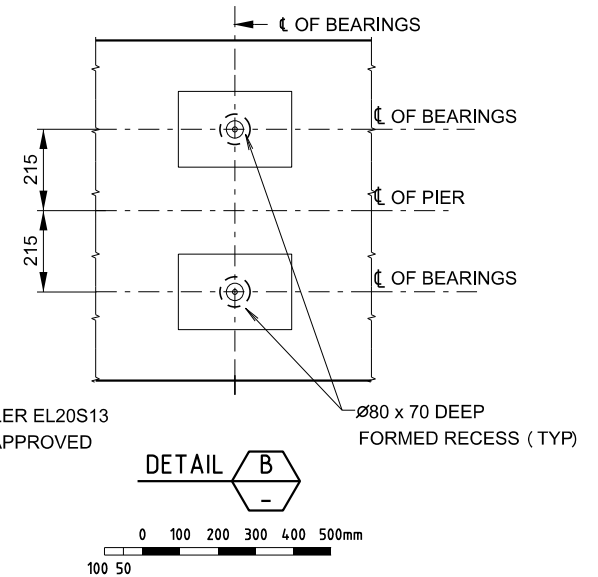
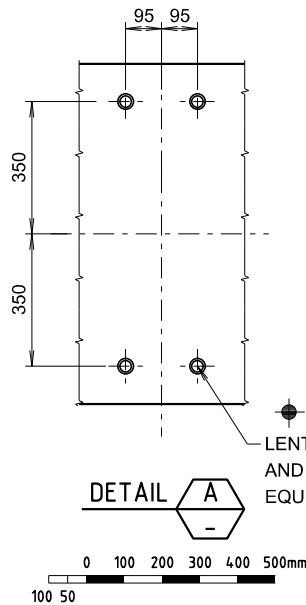
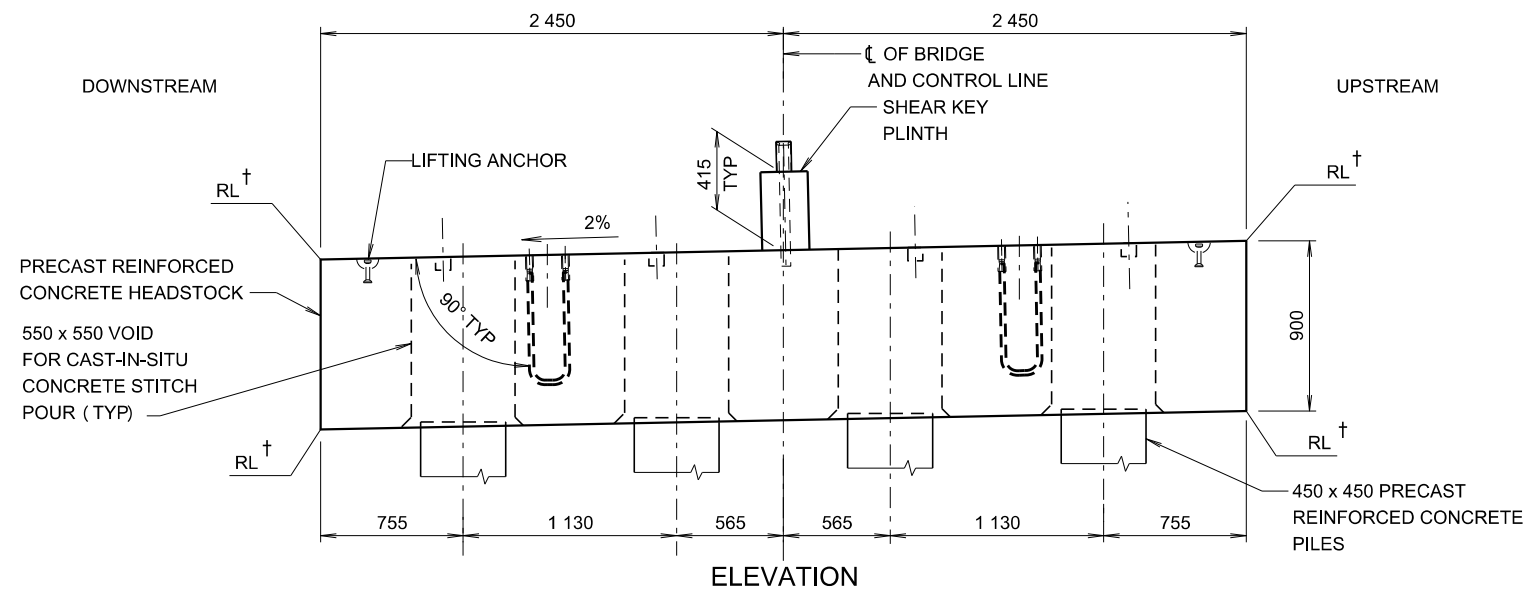
THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE. REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR COUPLERS, DOWELS, ANCHOR BOLTS, HOLES AND RECESSES. REINFORCEMENT FOR OPTION 1 WITH FOUR COLUMNS IS SHOWN. REINFORCEMENT FOR OTHER OPTIONS ARE SIMILAR EXCEPT AS NOTED OTHERWISE.

† DENOTES NUMBER OF BARS TO BE ADJUSTED TO SUIT THE NUMBER OF VOIDS. ♦ DENOTES LENTON BOLT COUPLER EL20S13 AND N20 REBAR TO BE THREADED AT ENDS AND TIGHTENED INTO COUPLERS IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT.

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN PIERS PRECAST HEADSTOCK - 4 COLUMNS - REINFORCEMENT					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	CHECKED	ADey	REGISTRATION No OF PLANS	
DRAWING	D.G.C.	CHECKED	ADey	BRIDGE No	
ISSUE STATUS			ISSUE		
No SHEETS			39	SHEET No MB12SL17	

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07.10.2016 DATE

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OPTION 2 WITH FOUR PRECAST REINFORCED CONCRETE PILES

GENERAL NOTES

SCALE 0 200 400 600 800 1000mm OR AS SHOWN.

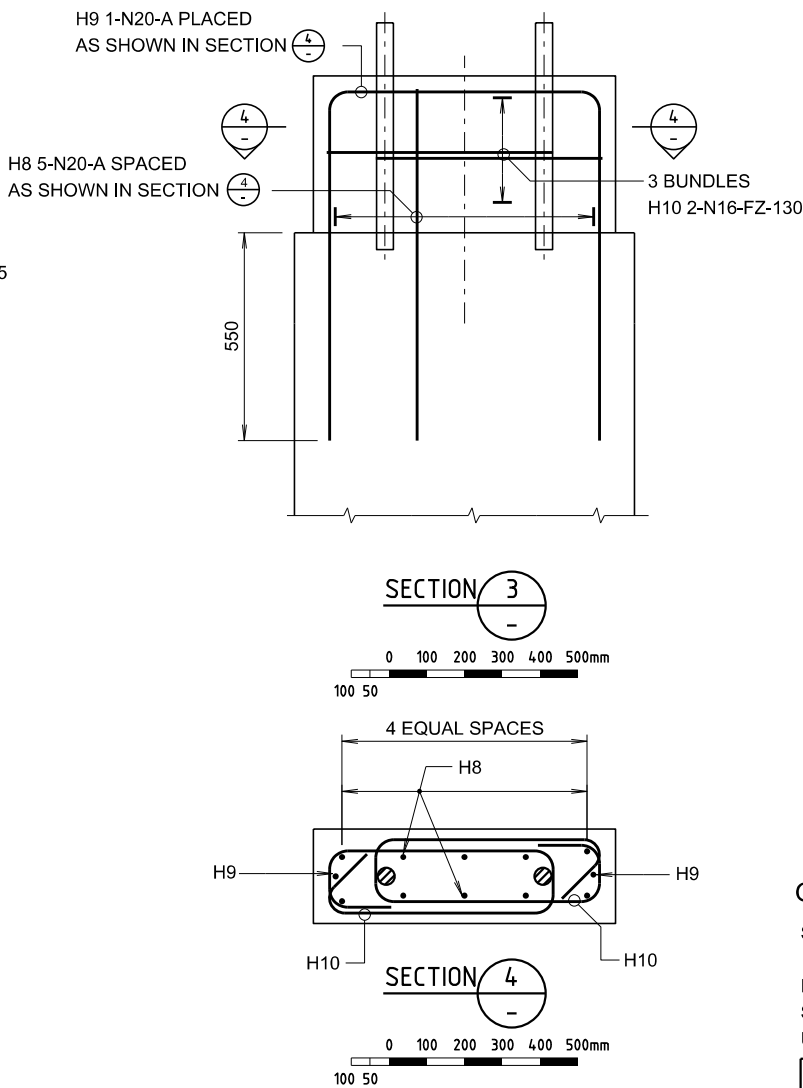
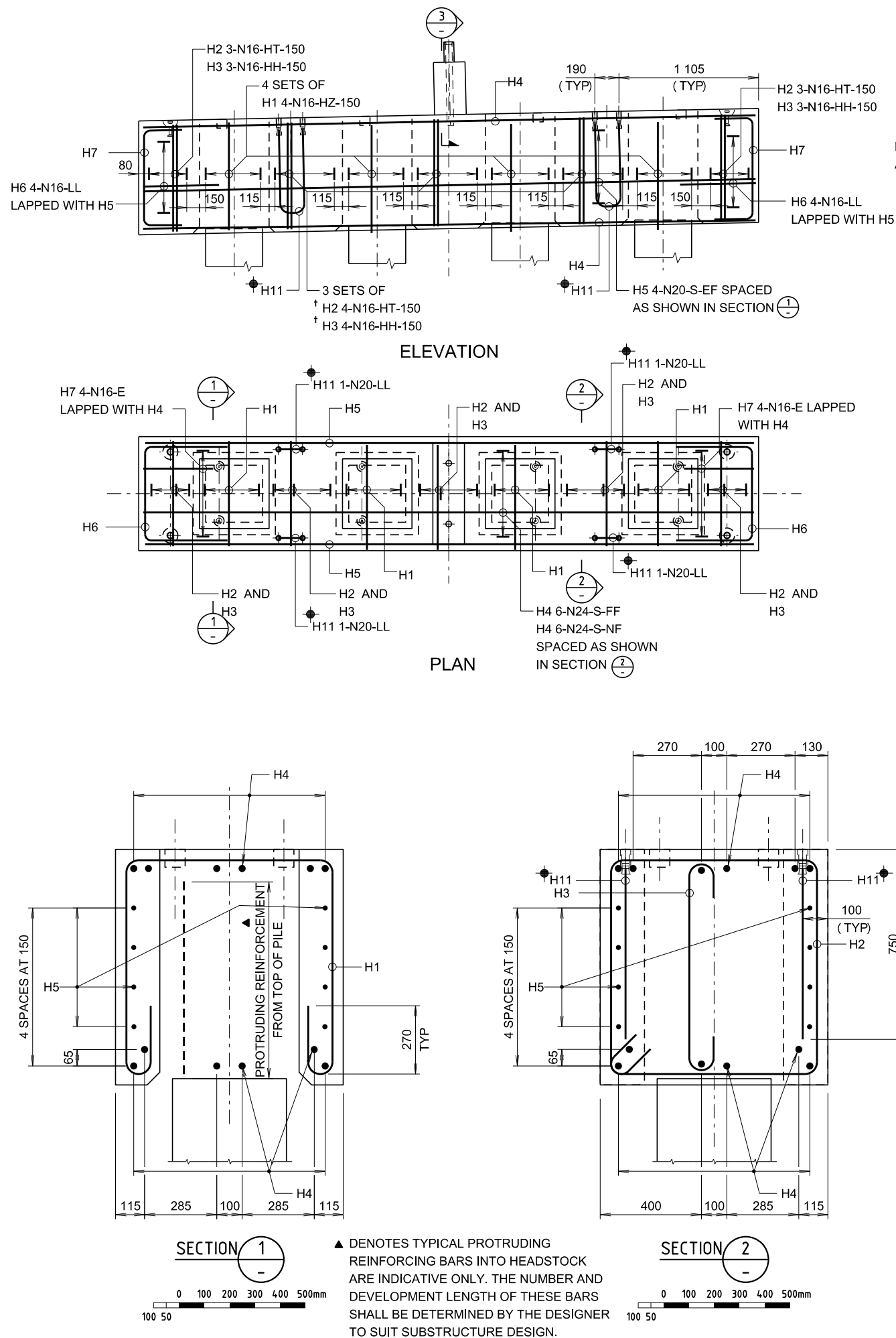
- CONCRETE EXPOSURE CLASSIFICATION: B1
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF ALL CONCRETE SHALL BE 40 MPa.
EDGES SHALL BE CHAMFERED 20x20 AND RE-ENTRANT ANGLES FILLETED 20x20 UNLESS SPECIFIED OTHERWISE.
ALL SURFACES OF VOIDS IN PRECAST HEADSTOCK IN CONTACT WITH CONCRETE STITCH POUR SHALL BE ROUGHENED DURING MANUFACTURE AS CONSTRUCTION JOINT, IN ACCORDANCE WITH RMS SPECIFICATION B80.
THE PROPOSED METHOD OF MANUFACTURE OF PRECAST HEADSTOCK SHALL BE AS SUBMITTED TO THE PRINCIPAL MIN 2 WEEKS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THESE MEMBERS.
MASS OF PRECAST HEADSTOCK IS APPROXIMATELY 7.7 TONNES BASED ON DENSITY OF CONCRETE OF 2550kg/m³
DURING STORAGE, TRANSPORT AND HANDLING, PRECAST HEADSTOCKS SHALL BE IN AN UPRIGHT POSITION AND SUPPORTED AT NOT MORE THAN 600mm FROM EACH END.
LIFTING ANCHORS SHALL BE SWIFT LIFT OR APPROVED EQUIVALENT DESIGNED BY THE PRECAST ITEM MANUFACTURE TO THE SATISFACTION OF THE PRINCIPLE.
THE LOCATIONS MAY VARY TO SUIT THIS DESIGN.
† DENOTES DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.
* DENOTES DOWELS TO CONFORM TO THE REQUIREMENTS OF RMS SPECIFICATION B240.
● DENOTES HOT DIP GALVANIZED IN ACCORDANCE WITH RMS SPECIFICATION B241

COUNTRY BRIDGE SOLUTIONS			
MODULAR BRIDGE DRAWINGS			
TYPE 2 - 1 LANE - 12m SPAN			
PIERS PRECAST HEADSTOCK - 4 PILES - CONCRETE			
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811		Transport Roads & Maritime Services www.rms.gov.au	
DESIGN D.G.C.		CHECKED A.Dey	
REGISTRATION No OF PLANS		BRIDGE No	
ISSUE STATUS		ISSUE	
No SHEETS		39	
SHEET No MB12SL18		SHEET No MB12SL18	

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07.10.2016
DATE

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GENERAL NOTES

SCALE 0 200 400 600 800 1 000mm OR AS SHOWN.
200 100

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 35 mm UNLESS SPECIFIED OTHERWISE.
UNLESS OTHERWISE SPECIFIED, THE LAP LENGTH SHALL BE AS FOLLOWS:

BAR SIZE:	N12	N16	N20	N24	N28	N32	N36
a) HORIZONTAL BARS WITH >300mm OF CONCRETE CAST BELOW THE BAR:	510	650	880	1190	1520	1870	2760
b) OTHER BARS:	430	530	690	910	1170	1440	1740

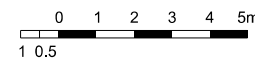
THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE.
REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR COUPLERS, DOWELS, ANCHOR BOLTS, HOLES AND RECESSES.
REINFORCEMENT FOR OPTION 2 WITH FOUR PILES IS SHOWN.
REINFORCEMENT FOR OTHER OPTIONS ARE SIMILAR EXCEPT AS NOTED OTHERWISE.

- † DENOTES NUMBER OF BARS TO BE ADJUSTED TO SUIT THE NUMBER OF VOIDS.
● DENOTES LENTON BOLT COUPLER EL20S13 AND N20 REBAR TO BE THREADED AT ENDS AND TIGHTENED INTO COUPLERS IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT.

OPTION 2 WITH FOUR PRECAST REINFORCED CONCRETE PILES

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN PIERS PRECAST HEADSTOCK - 4 PILES - REINFORCEMENT					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811		 Transport Roads & Maritime Services www.rms.gov.au			
DESIGN	SAssi	CHECKED	ADey	REGISTRATION No OF PLANS	
DRAWING	D.G.C.	ADey	BRIDGE No		
ISSUE STATUS			ISSUE		
No SHEETS			39	SHEET No MB12SL19	

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15 x 15
CHAMFER (TYP)

HEADSTOCK

140

15

18

15 MIN

15 (TYP)

18mm BGC FIBRE
CEMENT OR APPROVED
EQUIVALENT

15 NOM LEVELING ▲
CEMENT MORTAR

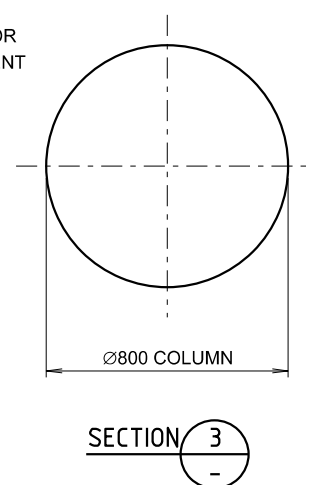
COLUMN

DETAIL B

14

SCALE OR AS SHOWN.

▲ DENOTES LEVELING MORTAR PLACED, EXCEPT FOR AREA UNDER VOIDS, IN ACCORDANCE WITH AS 1597.2 OR APPROVED ALTERNATIVE MATERIAL. THE MORTAR SHOULD BE SUFFICIENTLY STIFF TO PROVIDE A LAYER NO LESS THAN 15mm THICK AFTER THE HEADSTOCK IS PLACED IN POSITION. THE HEADSTOCK SHALL BE PLACED IN POSITION BEFORE THE MORTAR HAS SET SO THAT UNIFORM BEARING IS OBTAINED.



APPROVED FOR USE

W Ariyaratne

PRINCIPAL ENGINEER BRIDGES

07.10.2016

DATE

ISSUE	DATE	ADAMENDMENT DESCRIPTION				PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS								
MODULAR BRIDGE DRAWINGS								
TYPE 2 - 1 LANE - 12m SPAN								
PIER COLUMNS - CONCRETE								
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811					 Transport Roads & Maritime Services www.rms.gov.au			
	PREPARED	CHECKED	REGISTRATION No Of PLANS					
DESIGN	<i>S Assi</i>	<i>A Day</i>						
DRAWING	D.G.C.	<i>A Day</i>	BRIDGE No					
<i>Salah Assi 07.10.2016</i> BRIDGE ENGINEER / NEW DESIGN			ISSUE STATUS					
			ISSUE	No SHEETS	39	SHEET No MB12SL23		

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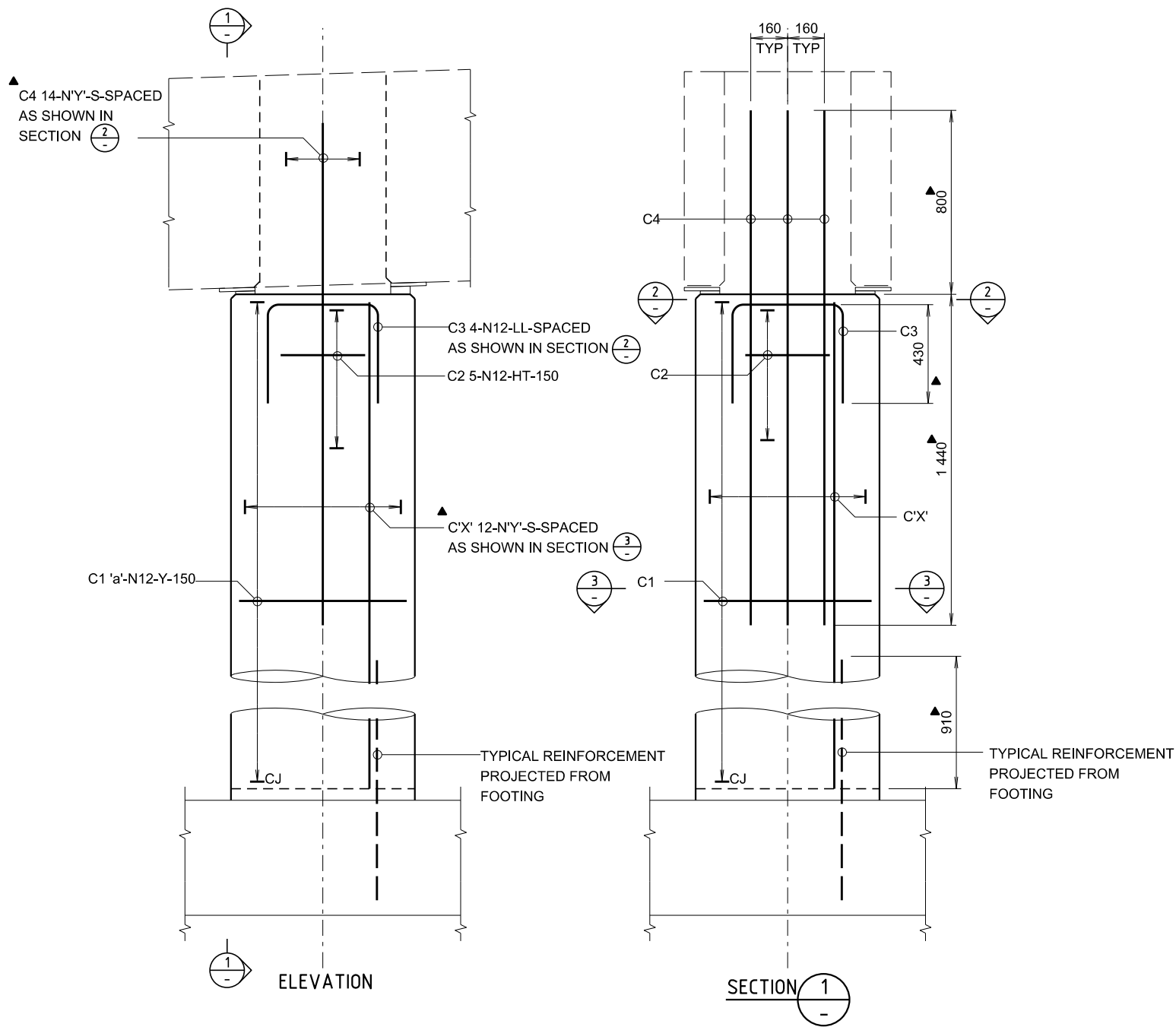
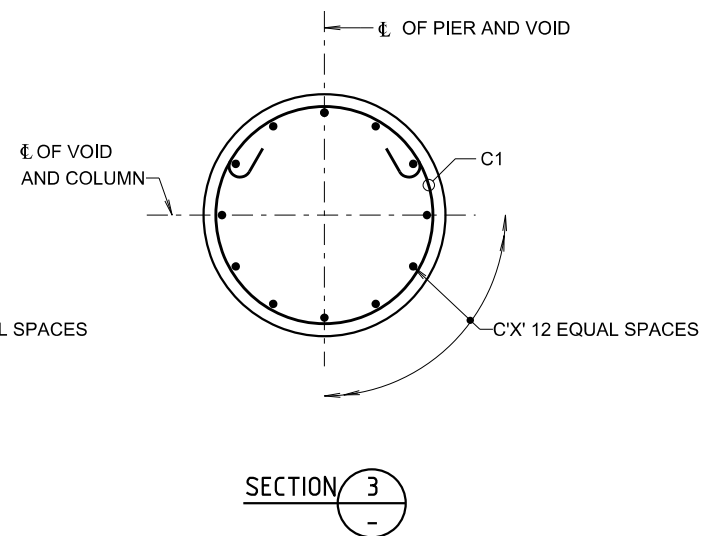
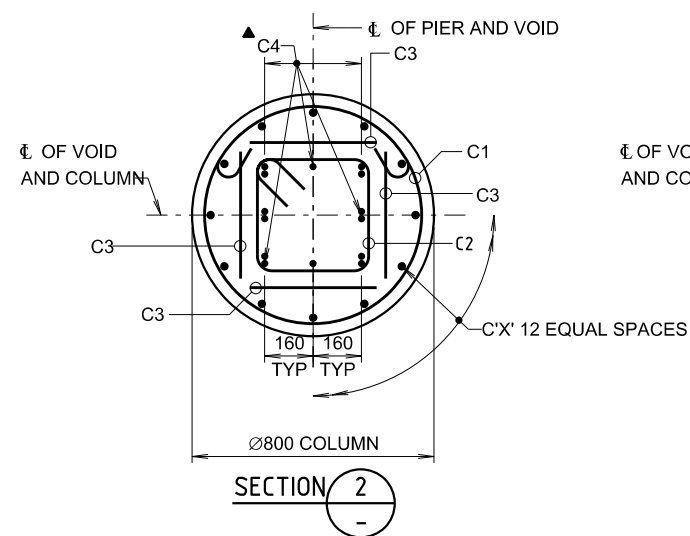


TABLE 1

COLUMN LOCATION	'X'	'Y'	'a'
PIER 1			
PIER 2			



OPTION 1 WITH TWO CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTINGS/PILE CAPS AND PILES

GENERAL NOTES

SCALE 0 250 500 750mm OR AS SHOWN.

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 40mm UNLESS SPECIFIED OTHERWISE.
UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS THE LAP LENGTHS SHALL BE AS FOLLOWS:

BAR SIZE:	N12	N16	N20	N24	N28	N32	N36
a) HORIZONTAL BARS WITH >300mm OF CONCRETE CAST BELOW THE BAR:	510	650	880	1190	1520	1870	2760
b) OTHER BARS:	430	530	690	910	1170	1440	1740

THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE.

* DENOTES VARIABLE LENGTH BAR.

REINFORCEMENT IN THE FOOTING AND HEADSTOCK MAY BE DISPLACED TO AVOID COLUMN REINFORCEMENT AND DOWELS AS NECESSARY.

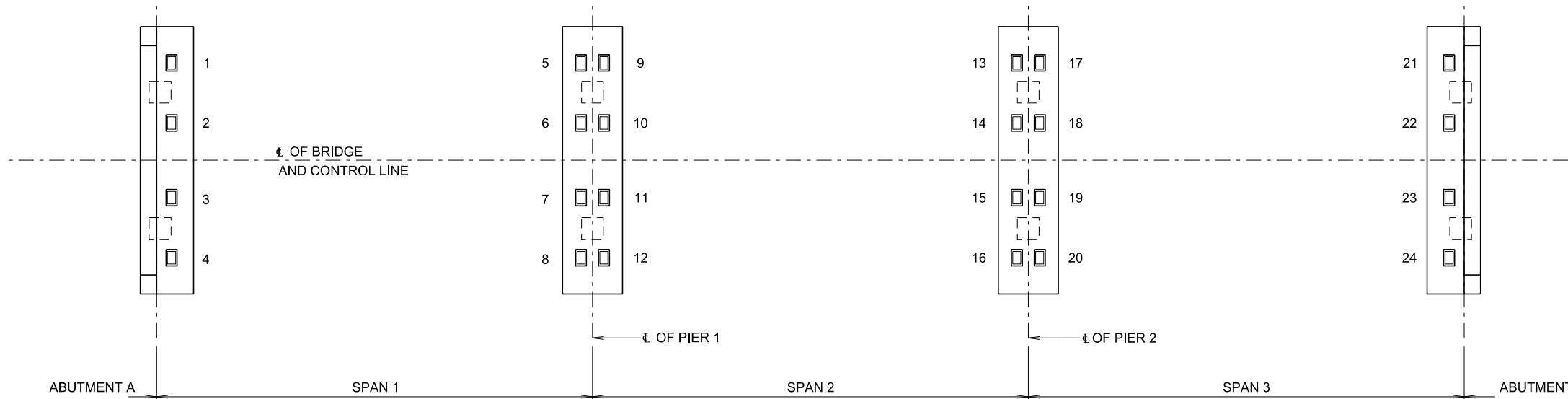
▲ DENOTES NUMBER AND DIAMETER OF BARS, EMBEDMENT LENGTHS INTO HEADSTOCK AND COLUMNS AND LAP LENGTHS ARE INDICATIVE ONLY AND SHALL BE DETERMINED BY THE DESIGNER TO SUIT SUBSTRUCTURE DESIGN OF SPECIFIC BRIDGE SITE.

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN PIER COLUMNS - REINFORCEMENT					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	CHECKED	ADey	REGISTRATION No OF PLANS	
DRAWING	D.G.C.	CHECKED	ADey	BRIDGE No	
DATE 07.10.2016			ISSUE STATUS Salah Assi 07.10.2016		
APPROVED FOR USE W. Ariyaratne PRINCIPAL ENGINEER BRIDGES			ISSUE No SHEETS 39 SHEET No MB12SL24		
DATE 07.10.2016			BRIDGE ENGINEER (NEW DESIGN)		

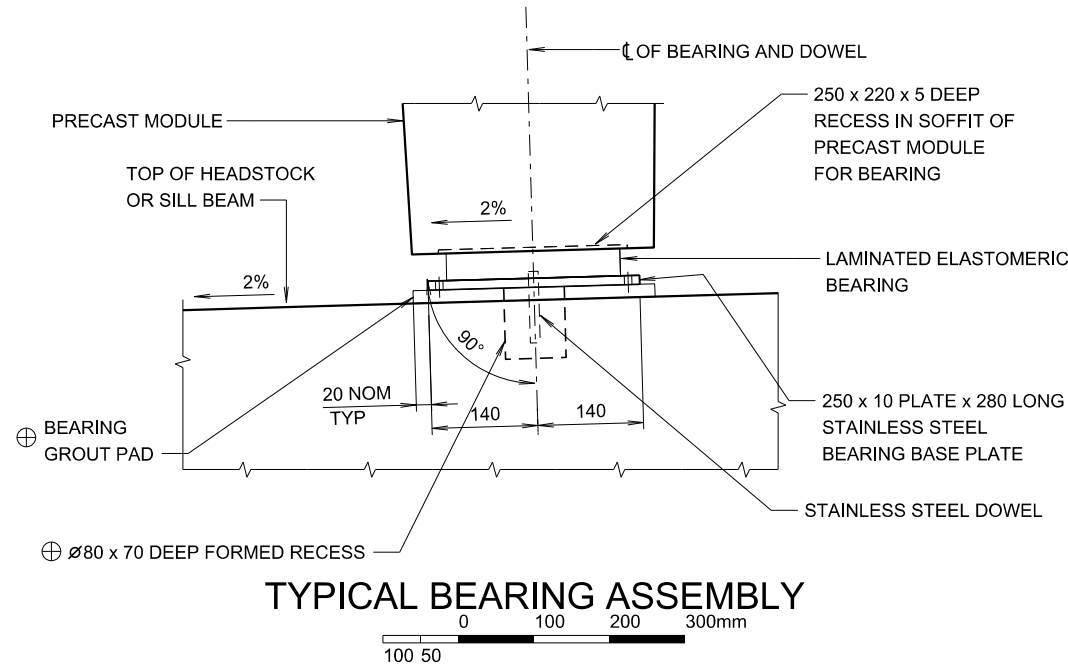
CAD No 12MPCR_SL.dgn

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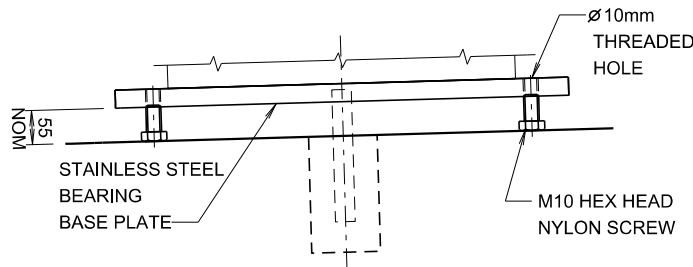
BEARING LAYOUT
NOT TO SCALE



TYPICAL BEARING ASSEMBLY

BEARING INSTALLATION PROCEDURE

1. INSERT NYLON SCREWS TO PLATE WITH HEADS DOWNWARDS AND PROTRUDING 15mm.
2. PLACE BEARING PLATE ON HEADSTOCK/ABUTMENT SILL BEAM WITH DOWEL PLACED INTO FORMED HOLE.
3. PLACE BEARINGS ON PLATES.
4. HOIST PRECAST MODULE INTO POSITION, RESTING ON TEMPORARY SUPPORTS.
5. THE TEMPORARY SUPPORT MUST BE STABLE AND ACCURATELY PLACED (REFER CONSTRUCTION GUIDE) . THE TEMPORARY SUPPORT MAY BE HYDRAULIC JACKS, SCREW JACKS OR TEMPORARY PACKERS; HOWEVER THE METHODOLOGY USED MUST ENSURE THAT THE DECK MODULES ARE STABLE AND PLACED ACCURATELY.
6. ADJUST AND SUPPORT PRECAST MODULE IN PERMANENT POSITION OVER TEMPORARY SUPPORTS.
7. ADJUST NYLON SCREWS UNDER EACH BEARING PLATE SO THAT BEARING IS PRESSED FIRMLY AND EVENLY UP INTO THE RECESS IN SOFFIT OF MODULE AND BEARING PLATE AND SOFFIT OF MODULE ARE PARALLEL.
8. FORM AND GROUT UNDER BEARING PLATE.
9. ONCE GROUT HAS REACHED MINIMUM STRENGTH OF 30 MPa AND IT IS AT LEAST 7 DAYS OLD TRANSFER LOAD TO PERMANENT BEARINGS AND REMOVE TEMPORARY SUPPORTS.



GENERAL NOTES

SCALE AS SHOWN
FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 51.

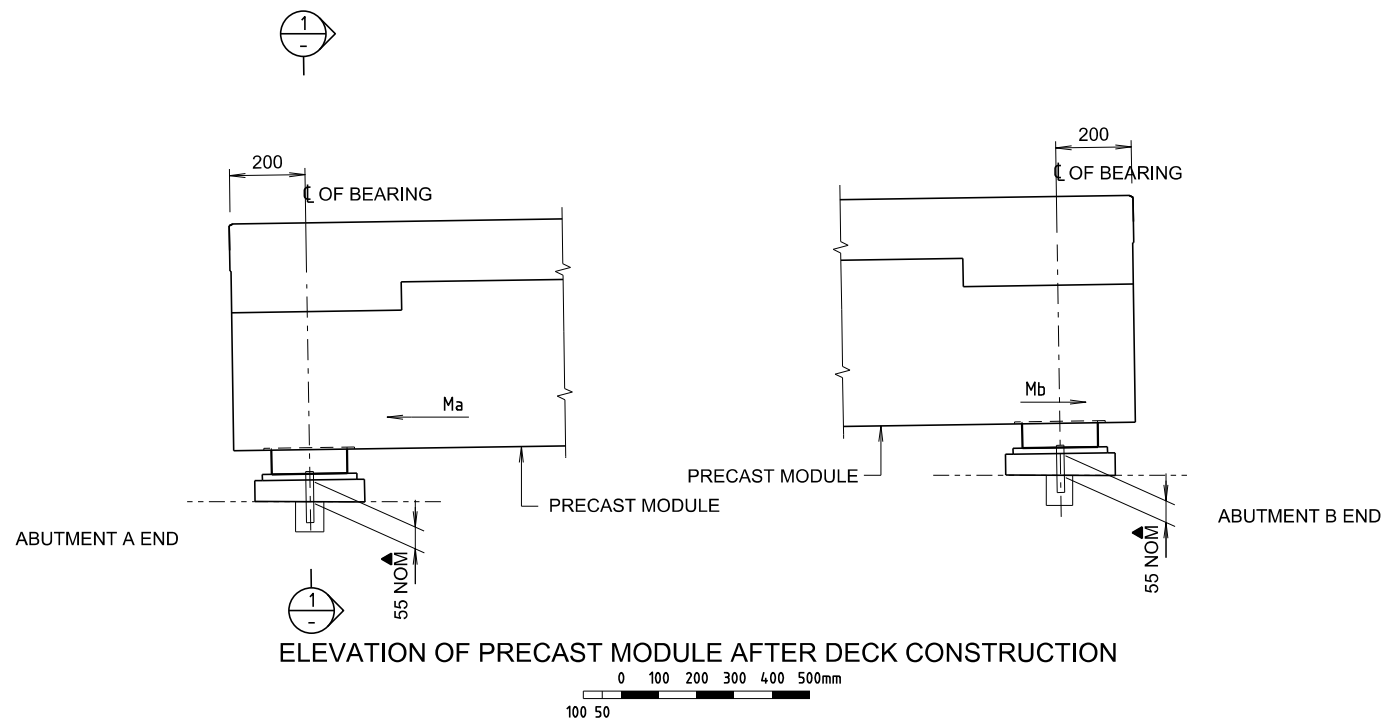
TABLE 1

LOCATION	BEARING No.	TOP OF BEARING RL "X"	LOCATION	BEARING No.	TOP OF BEARING RL "X"	LOCATION	BEARING No.	TOP OF BEARING RL "X"
ABUTMENT A	1		PIER 1	9		PIER 2	17	
	2			10			18	
	3			11			19	
	4			12			20	
PIER 1	5		PIER 2	13		ABUTMENT B	21	
	6			14			22	
	7			15			23	
	8			16			24	

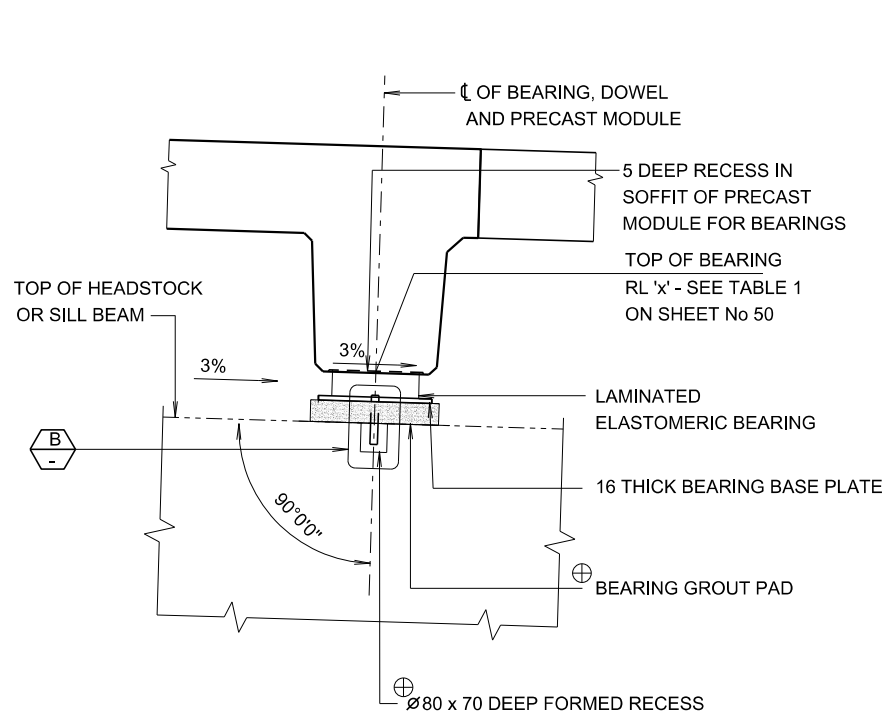
ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS					
MODULAR BRIDGE DRAWINGS					
TYPE 2 - 1 LANE - 12m SPAN					
BEARINGS - SHEET A					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		

APPROVED FOR USE
 PRINCIPAL ENGINEER BRIDGES
07.10.2016 DATE

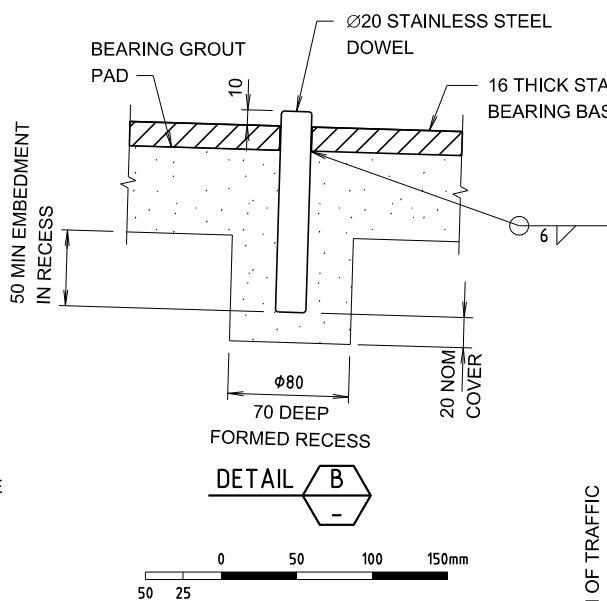
DESIGN	SAssi	CHECKED	ADey	REGISTRATION	No OF PLANS
DRAWING	D.G.C.		ADey	BRIDGE No	
Salah Assi 07.10.2016 BRIDGE ENGINEER (NEW DESIGN)				ISSUE STATUS	
ISSUE	No SHEETS	39	SHEET No	MB12SL50	



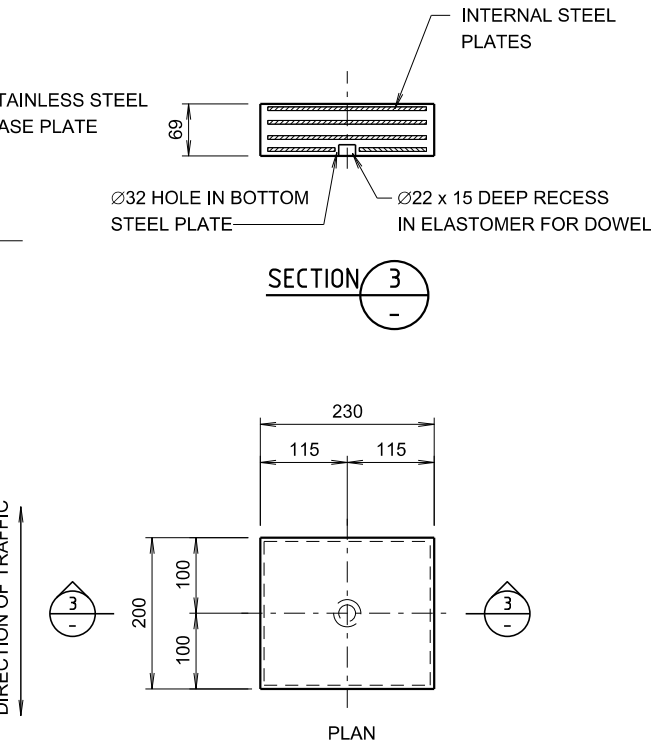
ELEVATION OF PRECAST MODULE AFTER DECK CONSTRUCTION



SECTION 1



DETAIL B



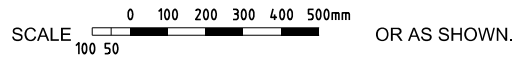
LAMINATED ELASTOMERIC BEARING

AS PART No 020904R-5

48 REQUIRED - MODIFIED AS SHOWN

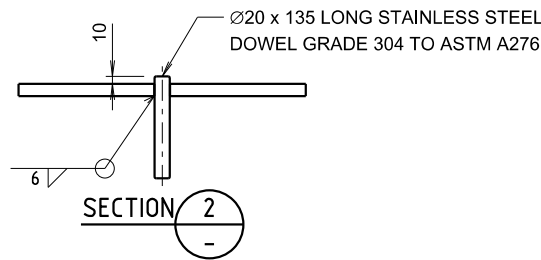


GENERAL NOTES

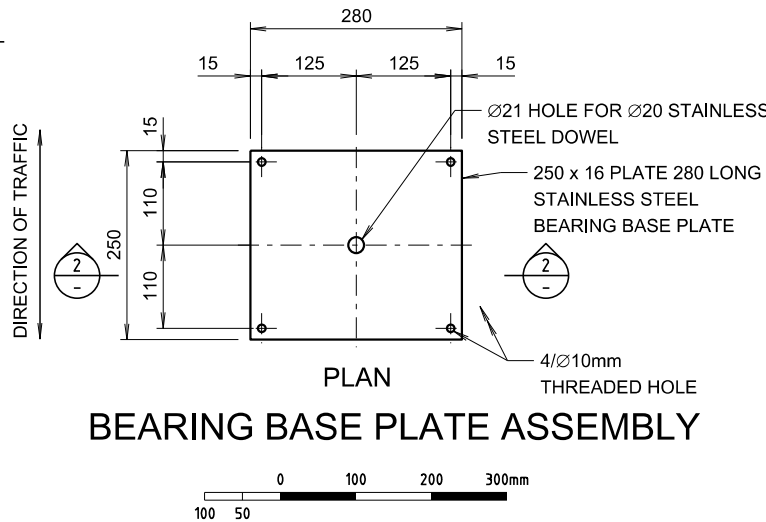


THE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF GROUT SHALL BE 40MPa.
STEEL PLATE SHALL BE STAINLESS STEEL GRADE 304 TO ASTM A276.
THE WELD CATEGORY SHALL BE 1C,III IN ACCORDANCE WITH AS/NZS 1554.6.
WELDNG SYMBOLS COMPLY WITH AS 1101.3.
▲ DENOTES THE MINIMUM AND MAXIMUM THICKNESS OF GROUT SHALL BE 15mm AND 70mm AT ANY LOCATION.

⊕ DENOTES THE GROUT USED TO FILL FORMED RECESSES AND CONSTRUCT GROUT PADS AND SHALL BE SHRINKAGE COMPENSATED HIGH FLOW CEMENTITIOUS GROUT EPIREZ SUPERFLOW HF OR CONBEXTRA HS OR APPROVED EQUIVALENT.
MINIMUM COMPRESSIVE STRENGTH OF GROUT SHALL BE 40MPa.
GROUTING SHALL BE CARRIED OUT TO ENSURE THAT THE FORMED RECESSES ARE COMPLETELY FILLED AND THAT THERE ARE NO VOIDS UNDER THE BASE PLATES.
SIDE FACES OF GROUT PADS SHALL BE VERTICAL.
THE FORMWORK FOR THE GROUT PADS MUST REMAIN IN PLACE FOR A MINIMUM OF 3 DAYS AND CURING COMPOUNDS SHALL BE APPLIED TO THE SIDES OF THE GROUT PADS AFTER THE REMOVAL OF FORMWORK.



SECTION 2

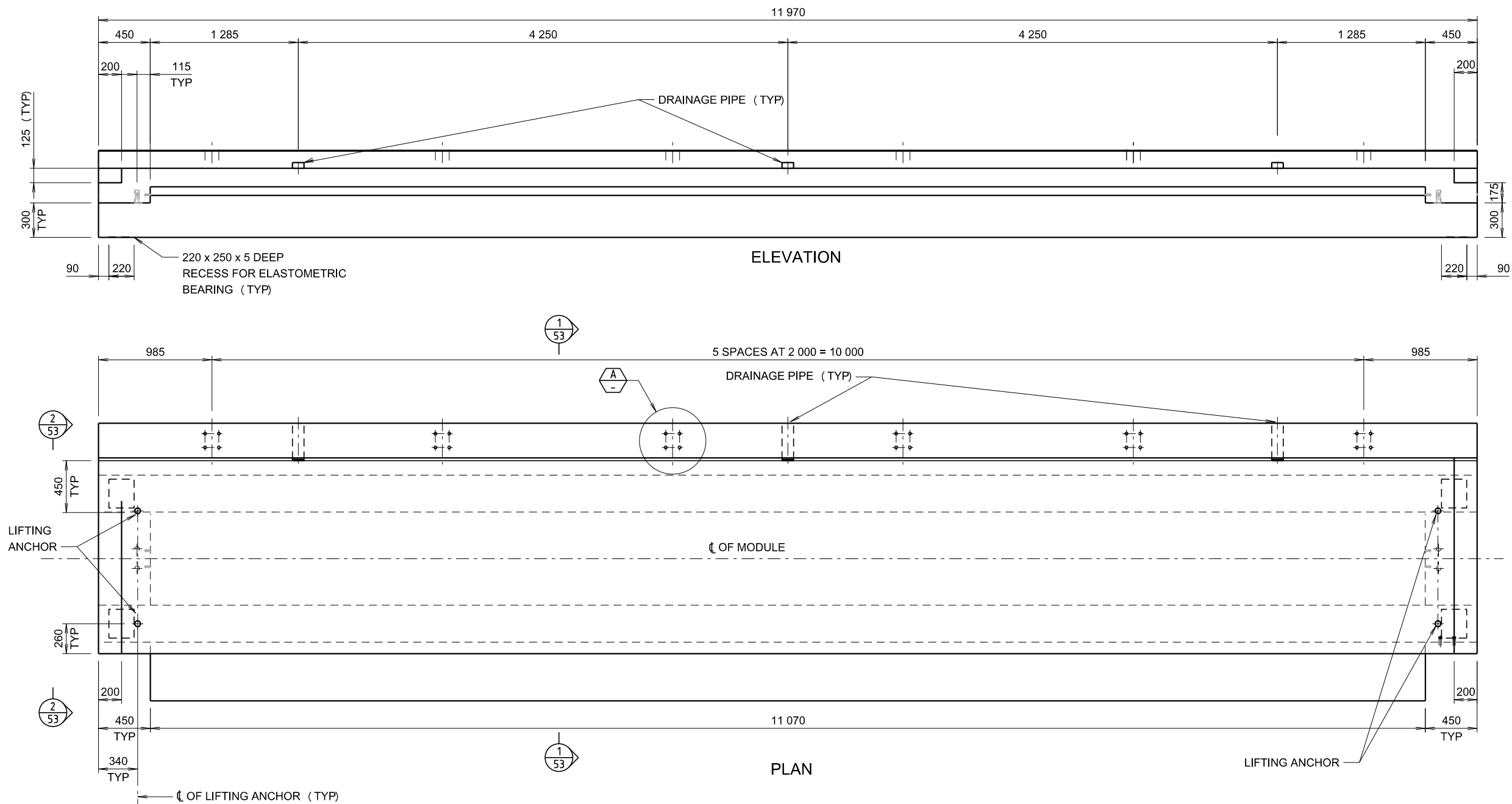


BEARING BASE PLATE ASSEMBLY

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN BEARINGS - SHEET B					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
ISSUE STATUS			ISSUE		
No SHEETS			39	SHEET No MB12SL51	

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07.10.2016 DATE

K:\BridgeStandards_2015\Standards in Development\B1000_MODULAR BRIDGE\Single Lane\12M_SL_T2\12MC1B_SL.dgn 7/10/2016 1:58:25 PM



PRECAST MODULE CONCRETE

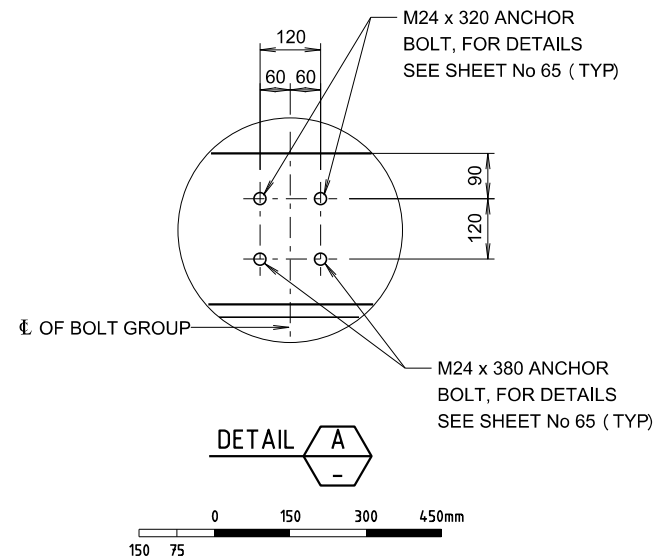
6 REQUIRED

GENERAL NOTES

SCALE 0 200 400 600 800 1 000mm OR AS SHOWN
200 100

CONCRETE EXPOSURE CLASSIFICATION: B1
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 50 MPa.
MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT TRANSFER OF PRESTRESS SHALL BE 35 MPa.
STRANDS SHALL BE 7-WIRE, ORDINARY, DIAMETER 12.7mm, TENSILE STRENGTH 1870 MPa, RELAX 2, TO AS/NZS 4672.1 WITH MINIMUM BREAKING FORCE OF 184 kN.
THE FORCE IN EACH 12.7mm DIA STRAND AT THE MID-SPAN OF THE MODULE IMMEDIATELY AFTER THE RELEASE OF THE TENSIONING JACK SHALL BE 138 kN.
AFTER TRANSFER OF PRESTRESS, STRANDS SHALL BE CUT FLUSH WITH THE END OF MODULE AND EXPOSED STRANDS SEALED AGAINST CORROSION BY THE APPLICATION OF EPOXY RESIN. THE SEQUENCE OF RELEASE OF PRESTRESS STRANDS SHALL BE SYMMETRICAL ABOUT THE CENTRELINE OF THE PRECAST MODULE.
CALCULATED HOG OF MODULE AT TRANSFER IS 7mm
AND IS 12mm AT 28 DAYS, ASSUMING:
- DENSITY = 2550 kg/m³
- ELASTIC MODULUS AT TRANSFER = 32 800 MPa
- STEAM CURING AT 70 deg C FOR 8 HOURS AFTER CASTING
- STORAGE IN OPEN AIR, AFTER STEAM CURING, AT 20 deg C AVERAGE TEMPERATURE AND RELATIVE HUMIDITY IN RANGE 50% - 75%
- NO LOADS EXCEPT MODULE SELF WEIGHT

MASS OF PRECAST CONCRETE MODULE IS APPROXIMATELY 22.7 TONNES.
DURING STORAGE, TRANSPORT AND HANDLING, MODULE SHALL BE IN AN UPRIGHT POSITION AND SUPPORTED AT NOT MORE THAN 600mm FROM EACH END.
SCUPPERS TO BE CUT FROM 125 x 75 x 4 RHS, HOT DIP GALVANISED AFTER FABRICATION.
LIFTING ANCHORS SHALL BE SWIFT LIFT OR APPROVED EQUIVALENT DESIGNED BY THE PRECAST MODULE MANUFACTURE TO THE SATISFACTION OF THE PRINCIPLE.
THE LOCATIONS MAY VARY TO SUIT THIS DESIGN.
THE PROPOSED METHOD FOR MANUFACTURE OF THE PRECAST MODULE AND RELEASE OF PRESTRESS STRANDS SHALL BE SUBMITTED TO THE PRINCIPLE, MINIMUM 2 WEEKS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PRECAST MODULE.

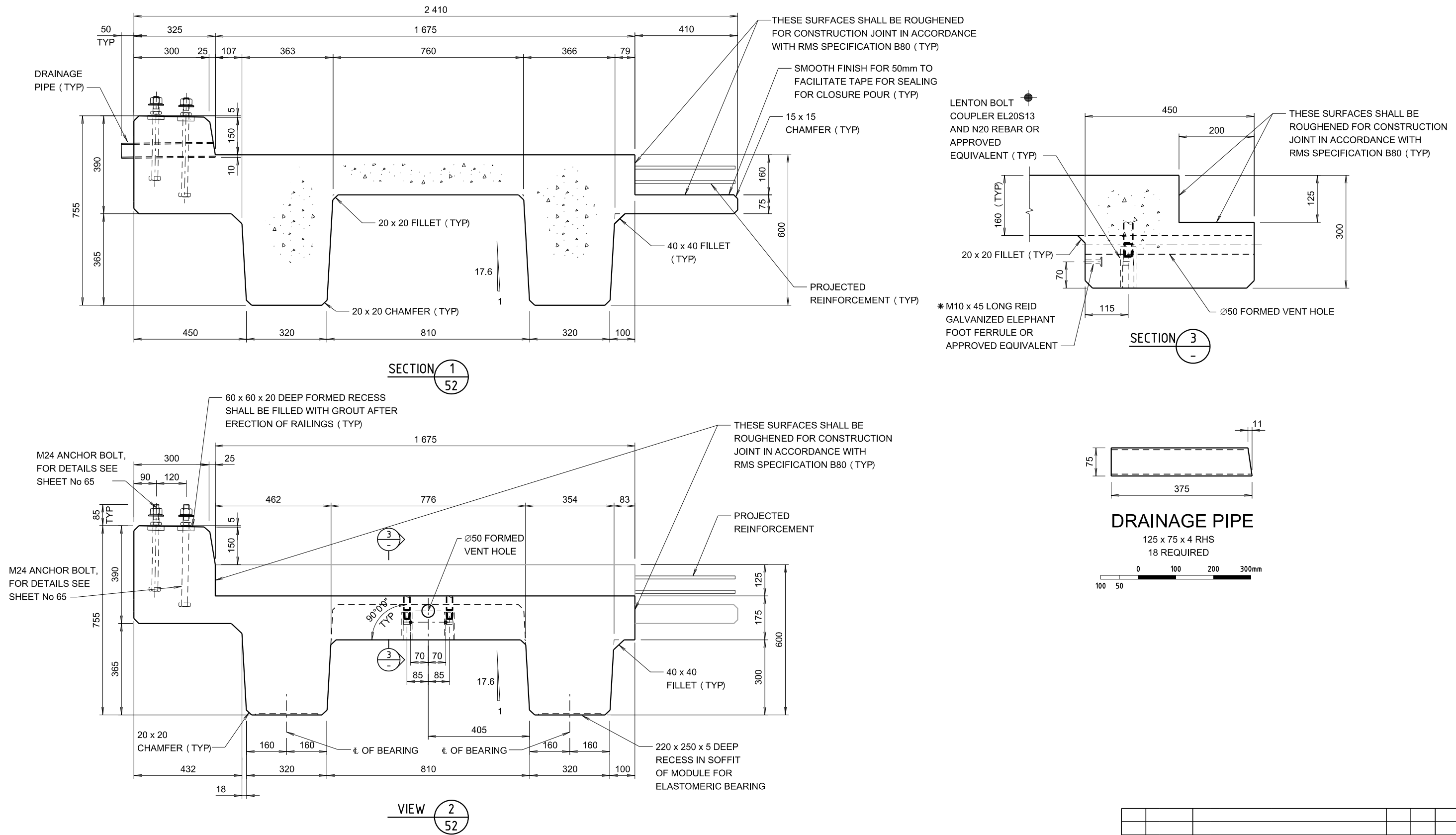


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07.10.2016
DATE

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN PRECAST MODULE CONCRETE - SHEET A					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	A Dey	S Assi	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	A Dey	BRIDGE No		
Salah Assi 07.10.2016			ISSUE STATUS		
BRIDGE ENGINEER (NEW DESIGN)			ISSUE	No SHEETS	39 SHEET No MB12SL52

CAD No 12MC1B_SL.dgn

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ISSUE		DATE		ADMENDMENT DESCRIPTION				PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS										
MODULAR BRIDGE DRAWINGS										
TYPE 2 - 1 LANE - 12m SPAN										
PRECAST MODULE CONCRETE - SHEET B										
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811								Transport Roads & Maritime Services www.rms.gov.au		
		PREPARED		CHECKED		REGISTRATION				
DESIGN		A Dey		S Assi		No OF PLANS				
DRAWING		D. G. C.		A Dey		BRIDGE No				
		Salah Assi 07.10.2016				ISSUE STATUS				
		BRIDGE ENGINEER (NEW DESIGN)				ISSUE				
						No SHEETS		39		SHEET No MB12SL53

AS SHOWN

IGHTLY TO CLEAR

QUIRED COVER

DOWN BRACKET IN CASTING

WITH RMS SPECIFICATION B241.

SHEET, SEE SHEET No 52.

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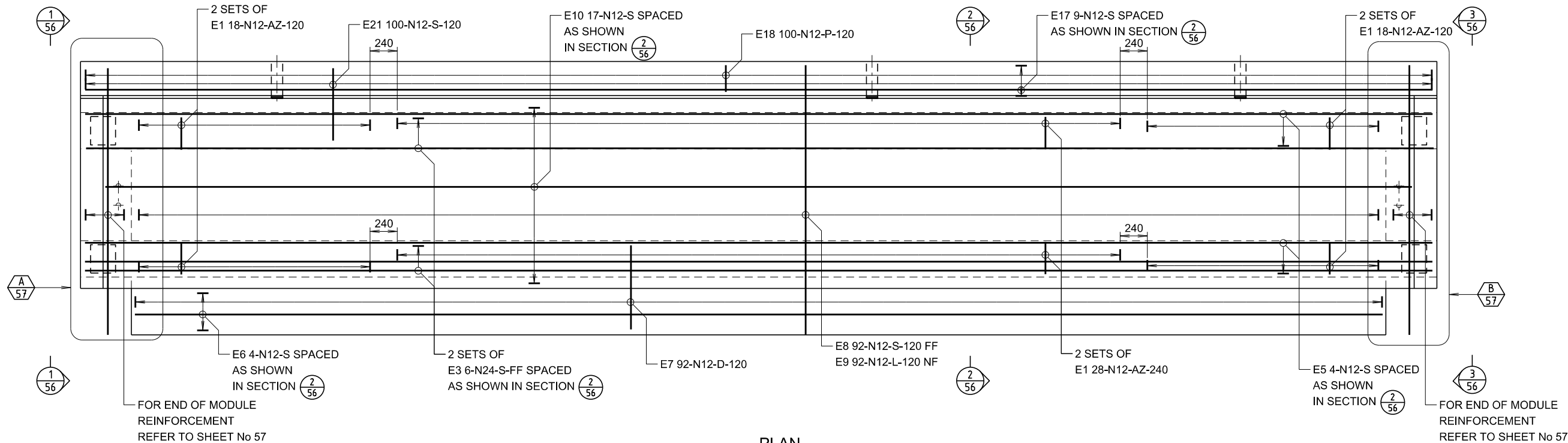
07.10.2016

DATE

CAD No

12MC1C_SL.dgn

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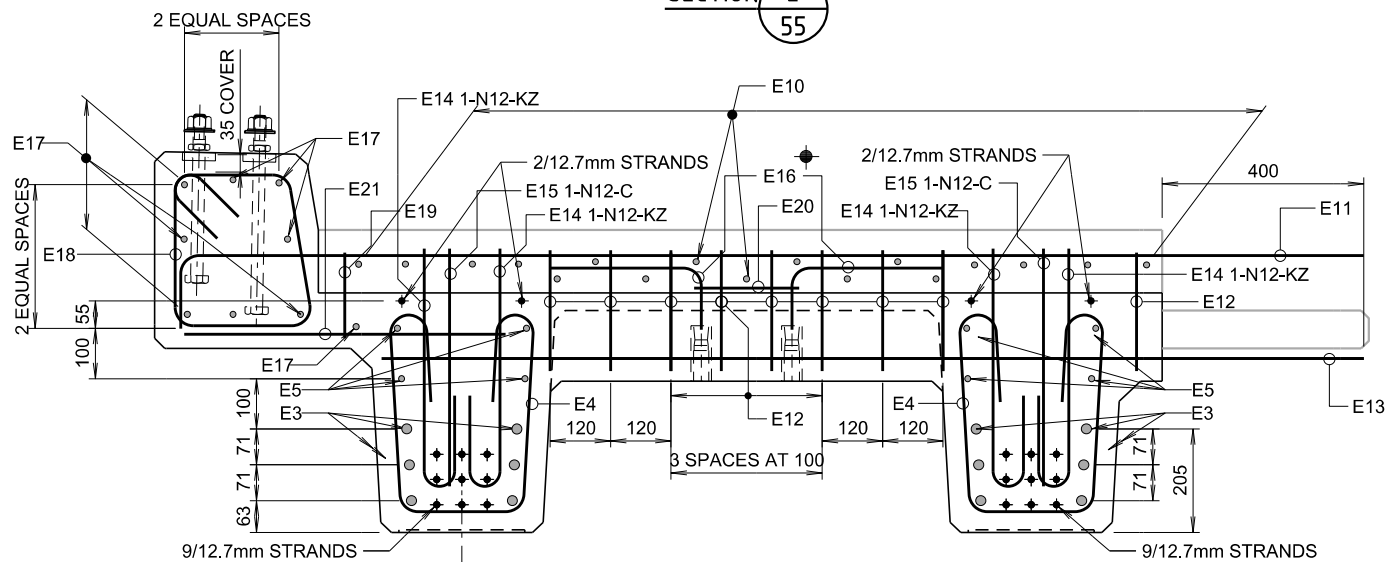
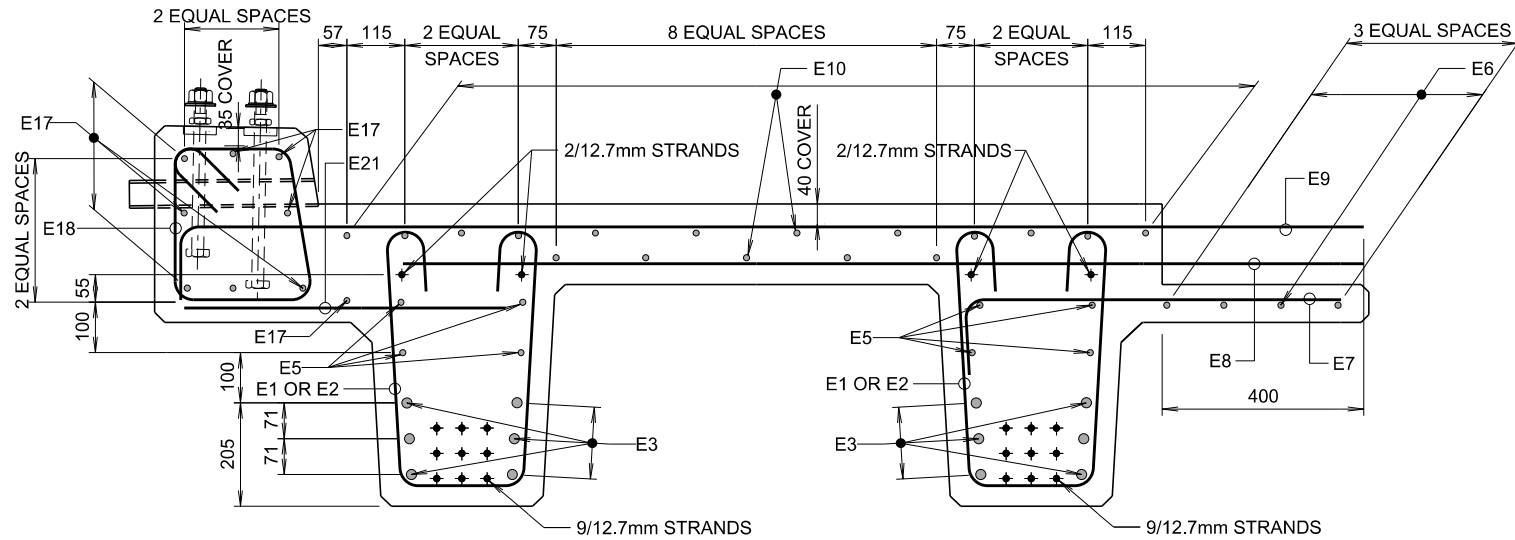
PLAN
PRECAST MODULE REINFORCEMENT
STRANDS NOT SHOWN
REINFORCEMENT AT END OF MODULE NOT SHOWN FOR CLARITY

GENERAL NOTES

SCALE 0 200 400 600 800 1 000mm OR AS SHOWN
200 100

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No. 57.

ISSUE		DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN PRECAST MODULE REINFORCEMENT - SHEET A						
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811				 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN		PREPARED	CHECKED	REGISTRATION		
DRAWING		D.G.C.		No OF PLANS		
DATE		07.10.2016		BRIDGE No		
APPROVED FOR USE		Salah Assi 07.10.2016		ISSUE STATUS		
BRIDGE ENGINEER (NEW DESIGN)		No SHEETS		39 SHEET No MB12SL55		



VIEW 3/55 SIMILAR BUT OPPOSITE HAND

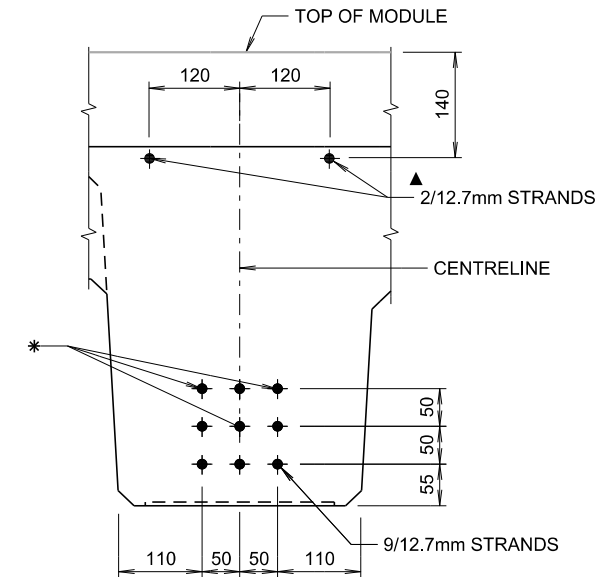
STANDARD BAR SHAPES DIAGRAM					
S		HT		P	
L		LL		AZ	
D		Q		CZ	
KZ		C			

BAR MARKING LEGEND

THE METHOD USED TO LABEL REINFORCEMENT ON THE DRAWINGS IS AS FOLLOWS:
E1 10-N16-S-300EF

↑ INFORMATION FOR PLACING
↑ SPACING ALONG LIMIT LINE
↑ BAR SHAPE CODE
↑ BAR SIZE IN MILLIMETRES
↑ BAR STRUCTURAL PROPERTIES
↑ NUMBER OF BARS IN THE SET
↑ BAR NUMBER IN SEQUENCE
↑ STRUCTURE ELEMENT DENOTATION

WHERE THE BAR SPACING IS APPROXIMATE ONLY, THE FOLLOWING FORMAT SHALL BE USED:
E1 10-N16-S-300EF APPROX



TYPICAL STRAND LAYOUT



GENERAL NOTES

SCALE 0 150 300 450mm OR AS SHOWN

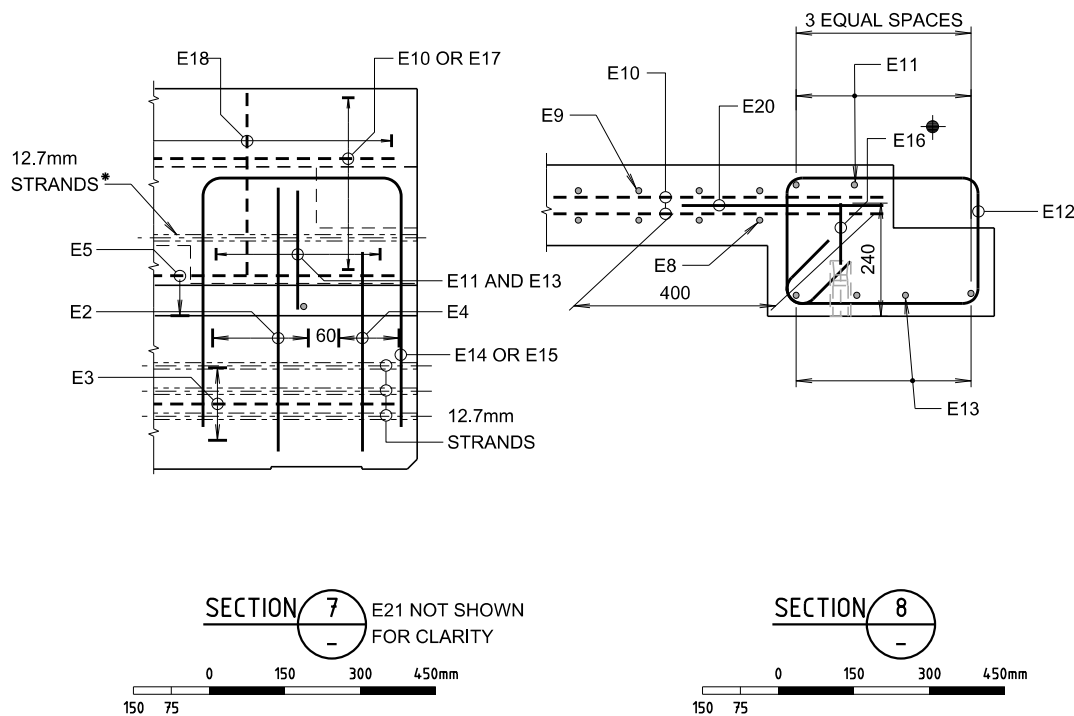
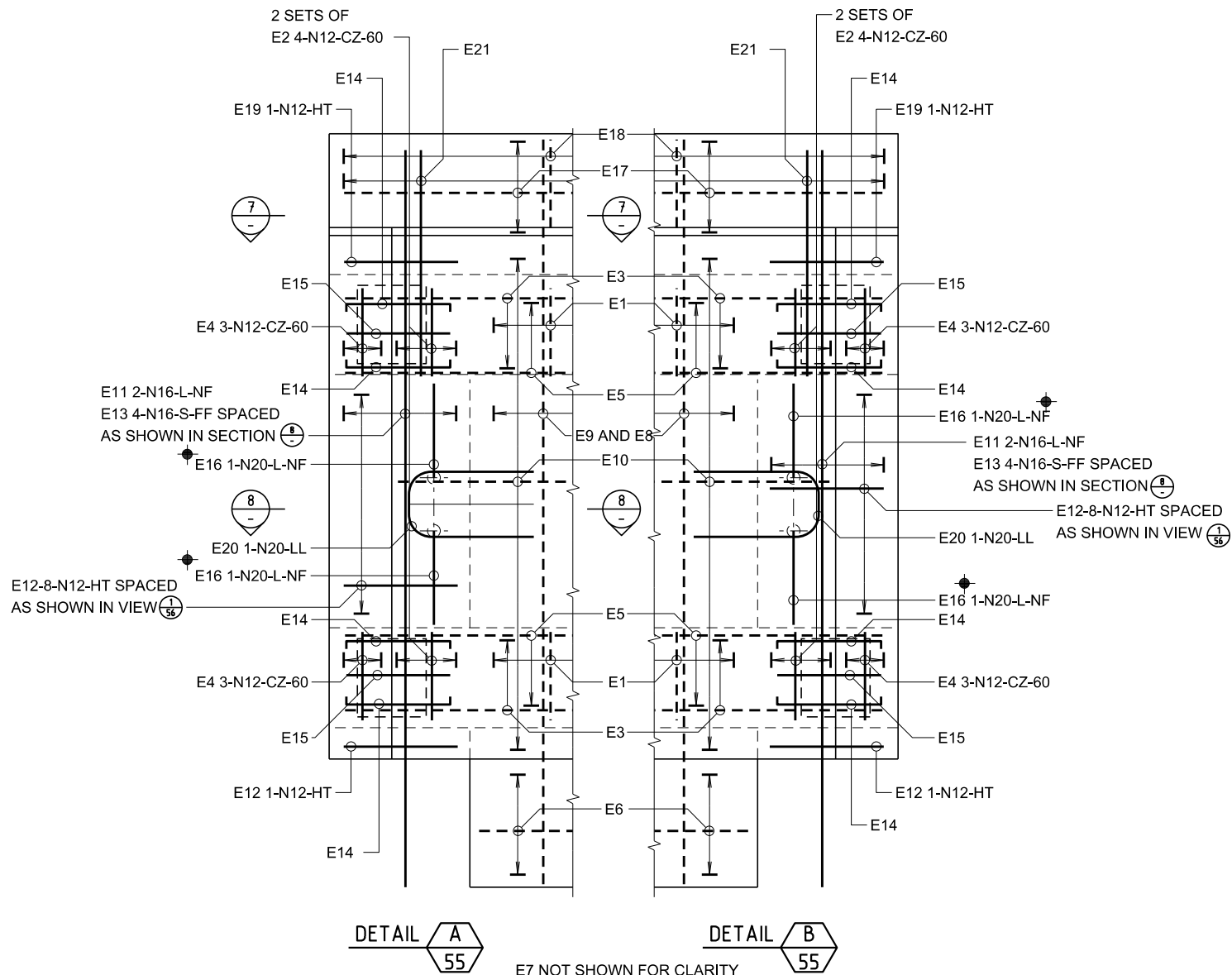
- ▲ DENOTES STRANDS SHALL BE DEBONDED FOR A LENGTH OF 450mm AT EACH END OF PRECAST MODULE.
- * DENOTES STRANDS SHALL BE DEBONDED FOR A LENGTH OF 1000mm AT EACH END OF PRECAST MODULE.
- FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 57

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07.10.2016
DATE

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS					
MODULAR BRIDGE DRAWINGS					
TYPE 2 - 1 LANE - 12m SPAN					
PRECAST MODULE REINFORCEMENT - SHEET B					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	A. Dey	S. Assi	REGISTRATION No OF PLANS		
DRAWING	D. G. C.	A. Dey	BRIDGE No		
Salah Assi 07.10.2016			ISSUE STATUS		
BRIDGE ENGINEER (NEW DESIGN)			ISSUE	No SHEETS	39 SHEET No MB12SL56



GENERAL NOTES

SCALE 0 100 200 300 400 500mm
100 50 OR AS SHOWN.

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 35 mm UNLESS SPECIFIED OTHERWISE. THE COVER SPECIFIED IS BASED ON THE MODULE BEING CAST IN A RIGID STEEL FORMWORK MOULD WITH INTENSE COMPACTION USING A VIBRATING TABLE OR FORM VIBRATORS. REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR FORMED HOLES, RECESSES, COUPLERS AND BOLTS. UNLESS OTHERWISE SPECIFIED, THE MINIMUM LENGTHS OF LAPS SHALL BE AS FOLLOWS:

BAR SIZE:	N12	N16	N20	N24	N28	N32	N36
a) HORIZONTAL BARS WITH >300mm OF CONCRETE CAST BELOW THE BAR:	460	620	820	...	...	...	...
b) OTHER BARS:	350	470	630	...	...	...	...

THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED IN THE TABLE UNLESS NOTED OTHERWISE. STRUCTURE ELEMENT DENOTATIONS IS:
E FOR EXTERNAL MODULE
♦ DENOTES LENTON BOLT COUPLER EL20S13 AND N20 REBAR TO BE THREADED AT ENDS AND TIGHTENED INTO COUPLERS IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT.

REINFORCEMENT NOTES

- AUSTRALIAN STANDARD BAR SHAPES ARE IN ACCORDANCE WITH AS 1100.501.
- BAR SIZE IS THE NOMINAL DIAMETER IN MILLIMETRES, OR THE AS/NZS 4671 FABRIC NUMBER.
- THE GRADE OF REINFORCEMENT, IF NOT STATED ON THE DRAWINGS, SHALL BE D500N TO AS/NZS 4671.
- WHERE SHOWN ON THE DRAWINGS, "W" SHALL DENOTE PLAIN ROUND REINFORCING BARS EQUIVALENT TO GRADE R500L TO AS/NZS 4671.
- WHERE SHOWN ON THE DRAWINGS, RL AND SL SHALL DENOTE WELDED REINFORCING FABRIC (RECTANGULAR AND SQUARE), RESPECTIVELY.
- DIMENSIONS SHOWN ON BAR SHAPES DIAGRAMS ARE MEASURED FROM THE OUTSIDE FACES OF THE BARS AND ARE IN MILLIMETRES.
- THE INCLUDED ANGLE OF ANY BEND SHALL BE A RIGHT ANGLE IF NO DIMENSION SHOWN.
- BARS OF DIAMETER GREATER THAN 24mm SHALL NOT BE REBENT.
- BAR BENDING AND HOOK DETAILS SHALL BE IN ACCORDANCE WITH SECTION 5.13 OF AS 5100-BRIDGE DESIGN.

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN PRECAST MODULE REINFORCEMENT - SHEET C					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	ADey	CHECKED	SAssi	REGISTRATION No OF PLANS	
DRAWING	D.G.C.	CHECKED	ADey	BRIDGE No	
ISSUE STATUS			ISSUE		
No SHEETS			39	SHEET No MB12SL57	
BRIDGE ENGINEER (NEW DESIGN)			SHEET No MB12SL57		

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07.10.2016 DATE



SCALE OR AS SHOWN.

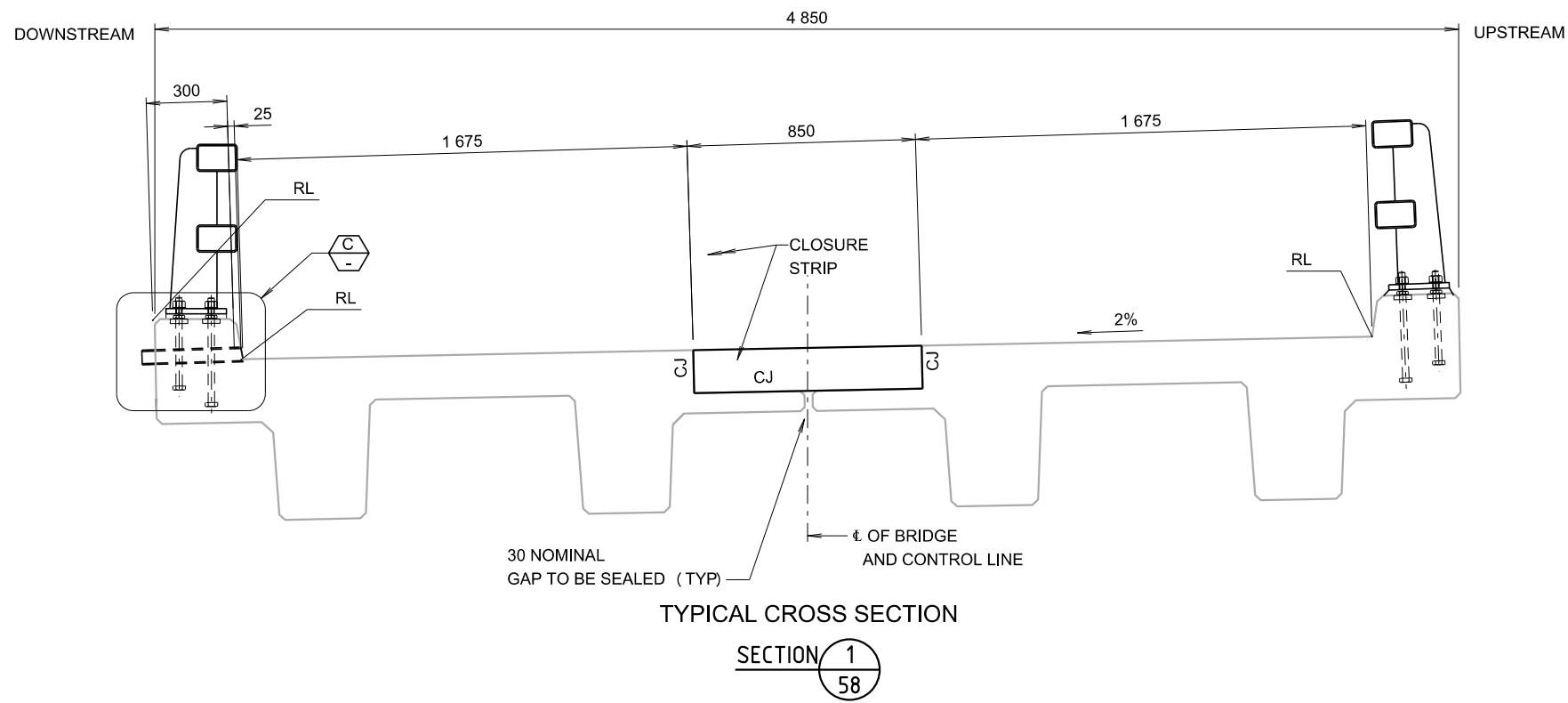
CONCRETE EXPOSURE CLASSIFICATION: B1
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF ALL CONCRETE
SHALL BE 40 MPa.
EDGES SHALL BE CHAMFERED 20x20 AND RE-ENTRANT ANGLES
FILLETED 20x20 UNLESS SPECIFIED OTHERWISE.
NCF DENOTES NO CHAMFER OR FILLET.
FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 59.

[illegible]

CAD No 12MDCA_SL.dgn © COPYRIGHT ROADS AND MARITIME SERVICES 2015

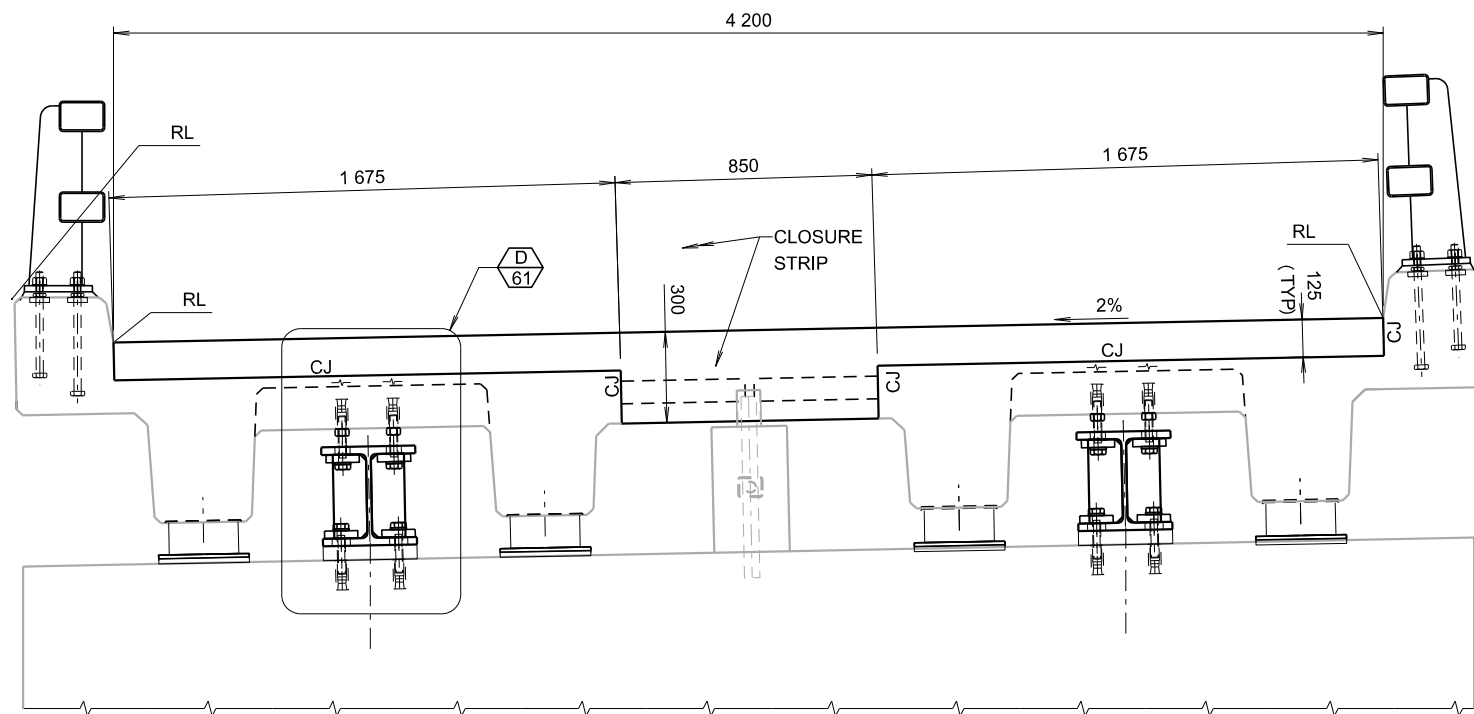
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K:\BridgeStandards_2015\Standards in Development\B1000_MODULAR BRIDGE\Single Lane\12m_SL_T2\STD DRAWINGS\12MDCB_SL.dgn 1:56:30 PM 7/10/2016

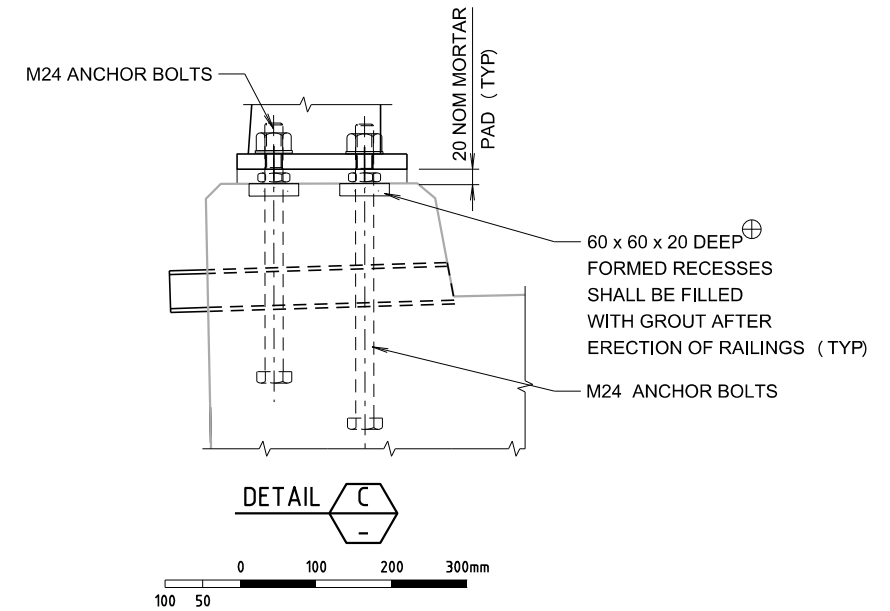


TYPICAL CROSS SECTION

SECTION 1
58



TYPICAL CROSS SECTION
AT ABUTMENTS AND PIERS

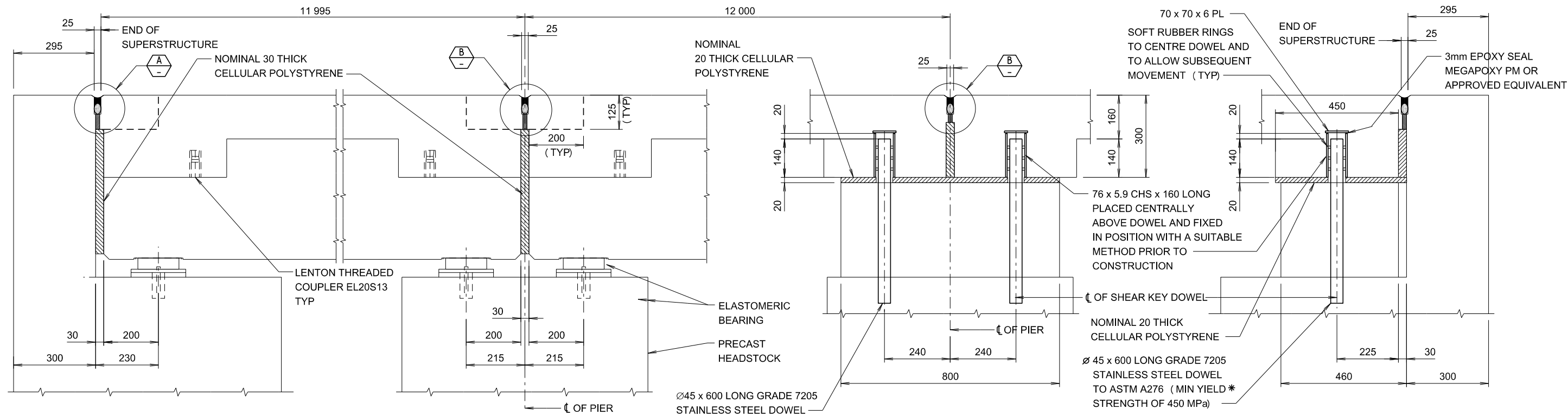


GENERAL NOTES

SCALE 0 250 500 750mm OR AS SHOWN
250 125

- REINFORCEMENT PROJECTED FROM PRECAST MODULE ARE NOT SHOWN FOR CLARITY.
- ⊕ DENOTES THE GROUT USED TO CONSTRUCT MORTAR PADS AND FILL FORMED RECESSES SHALL BE SHRINKAGE COMPENSATED HIGH FLOW CEMENTITIOUS GROUT EPIREZ SUPERFLOW HF OR CONBEXTRA HS OR APPROVE EQUIVALENT. MINIMUM COMPRESSIVE STRENGTH OF GROUT SHALL BE 40MPa. GROUTING SHALL BE CARRIED OUT TO ENSURE THAT THE FORMED RECESSES ARE COMPLETELY FILLED AND THAT THERE ARE NO VOIDS UNDER THE BASE PLATES. SIDE FACES OF GROUT PADS SHALL BE VERTICAL AND FLUSH WITH EDGES OF BASE PLATES. THE FORMWORK FOR THE GROUT PADS SHALL REMAIN IN PLACE FOR A MINIMUM OF 3 DAYS AND CURING COMPOUNDS SHALL BE APPLIED TO THE SIDES OF THE GROUT PADS AFTER THE REMOVAL OF FORMWORK. THE UNDERSIDE OF THE BASE PLATES AND SIDE FACES OF SLOTTED HOLES SHALL BE PAINTED WITH TWO PACK SURFACE TOLERANT EPOXY PAINT WITH A MINIMUM DRY FILM THICKNESS OF 100μm. FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 58.

ISSUE		DATE		ADMENDMENT DESCRIPTION		PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN DECK CONCRETE - SHEET B								
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811						 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN		CHECKED		REGISTRATION				
DRAWING		D.G.C.		No OF PLANS				
DATE		07.10.2016		BRIDGE No				
APPROVED FOR USE		Salah Assi 07.10.2016		ISSUE STATUS				
DATE		07.10.2016		ISSUE				
No SHEETS		39		SHEET No MB12SL59				
BRIDGE ENGINEER (NEW DESIGN)		SHEET No MB12SL59		THIS DRAWING IS CONFIDENTIAL AND SHALL ONLY BE USED FOR THE PURPOSE OF THE NOMINATED PROJECT.				



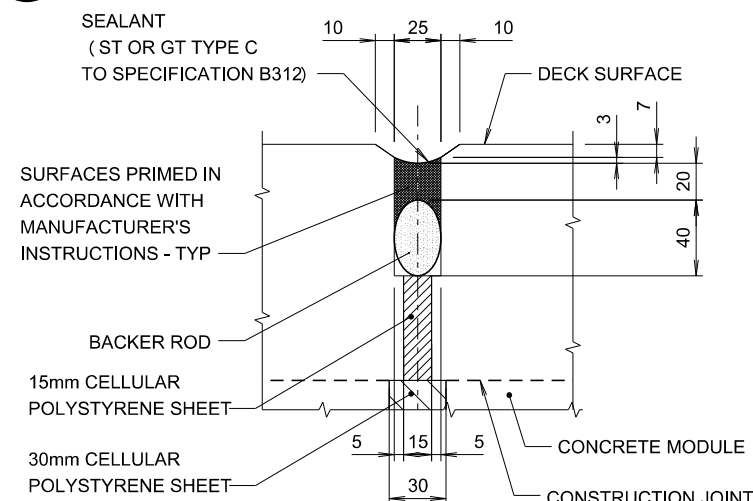
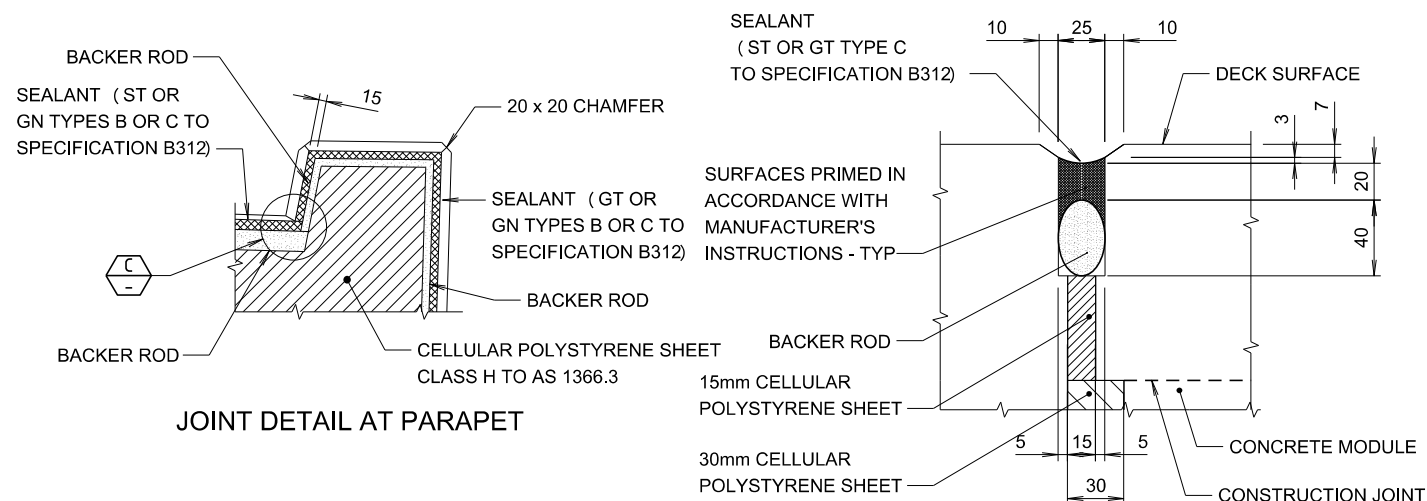
JOINT DETAIL AT ABUTMENTS

JOINT DETAIL AT PIERS

SHEAR KEY DETAILS AT PIERS

SHEAR KEY DETAILS AT ABUTMENTS

SECTION 2
58



GENERAL NOTES

SCALE 0 150 300 450mm OR AS SHOWN.

MAXIMUM JOINT MOVEMENT ± 10 mm.

ALL SEALANTS SHALL CONFORM TO ROADS AND MARITIME SERVICES QA SPECIFICATION B312.

SINGLE COMPONENT SEALANTS SHALL NOT BE USED IN ARID OR SEMI-ARID REGIONS WEST OF THE GREAT DIVIDING RANGE. UNLESS COMPLETE CURING IS GUARANTEED BEFORE OPENING TRAFFIC.

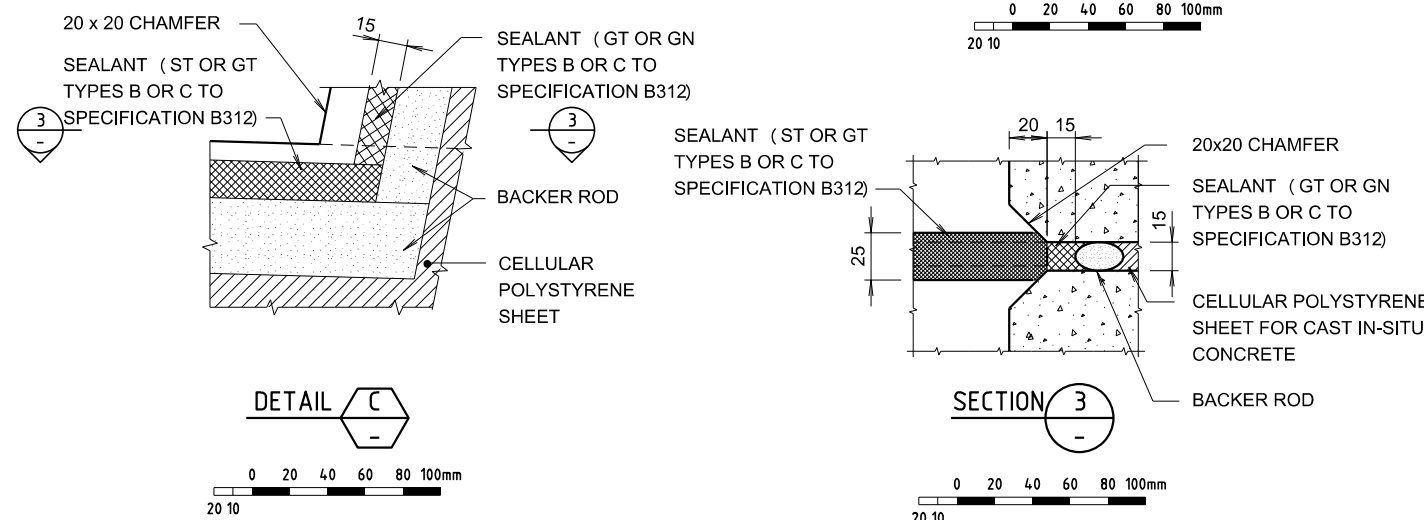
PLATES AND CHS SHALL BE STAINLESS STEEL GRADE 304, TO ASTM A276.

BACKER RODS SHALL BE NON ABSORBENT, CLOSED CELL POLYETHYLENE OR NEOPRENE (PARBURY'S EXPANDAFOAM BACKER ROD OR APPROVED EQUIVALENT) INSTALLED WITH 25% COMPRESSION.

THE SEALANT SHALL BE APPLIED BETWEEN 7:00am AND 11:00am, AT TEMPERATURES NOT LESS THAN 10 deg C OR NOT MORE THAN 35 deg C.

JOINT MOVEMENT FROM INSTALLATION SHALL NOT INDUCE STRAIN MORE THAN THE ALLOWABLE STRAIN SPECIFIED IN RMS AS SPECIFICATION B312.

* DENOTES DOWELS TO CONFORM TO THE REQUIREMENTS OF RMS QA SPECIFICATIONS B240.



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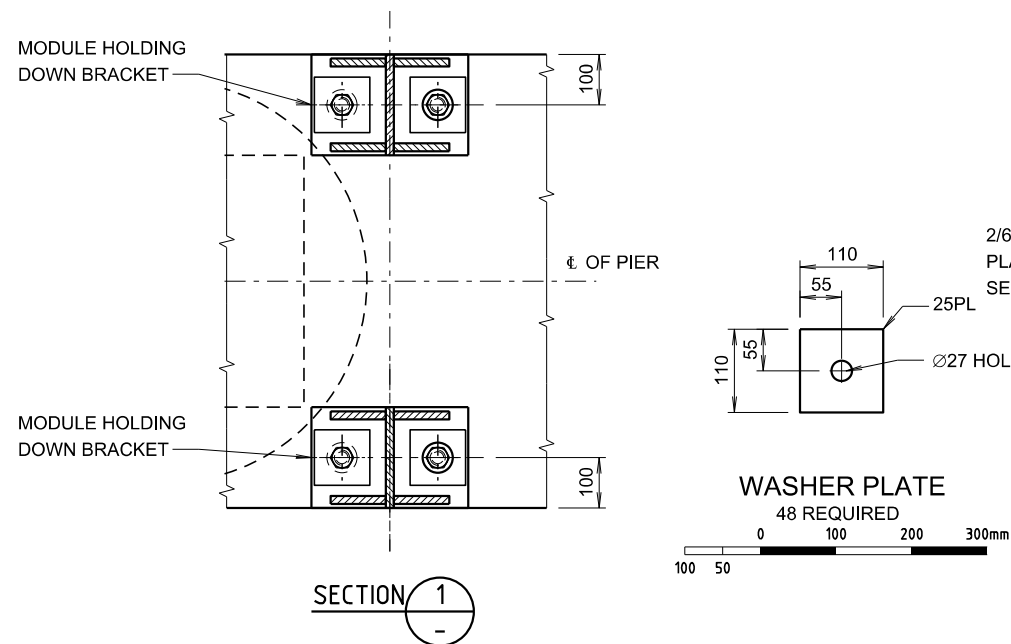
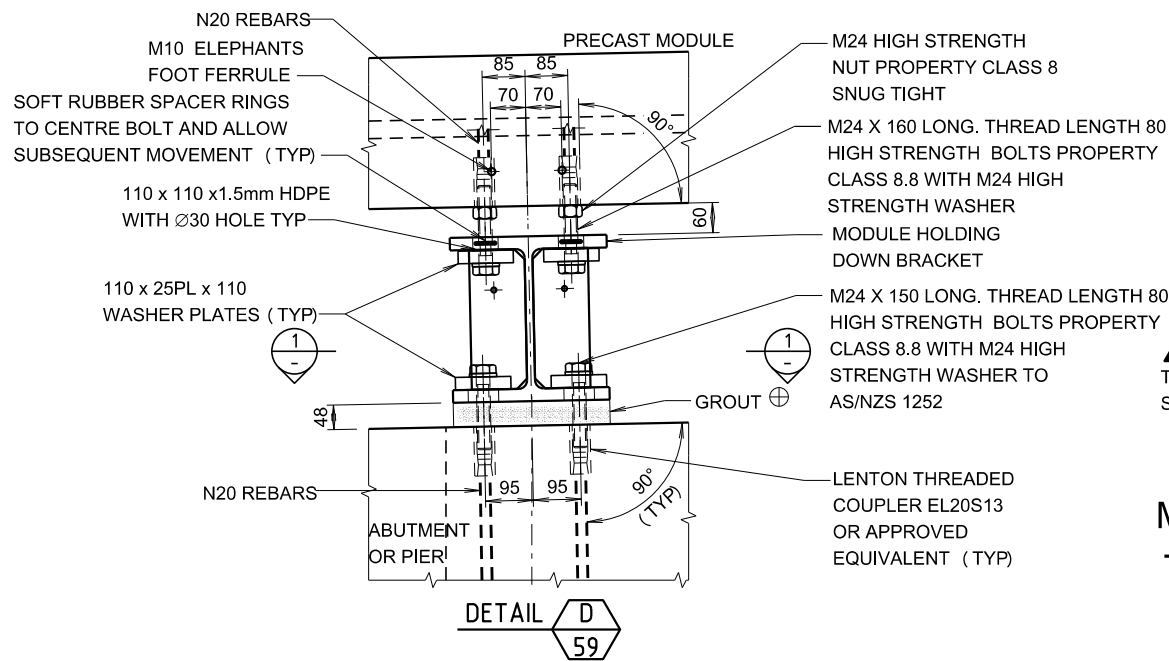
W Ariyaratne

PRINCIPAL ENGINEER BRIDGES

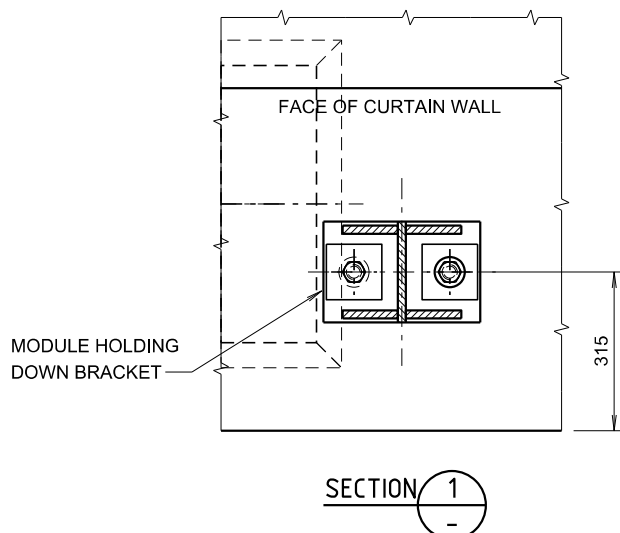
07.10.2016

DATE

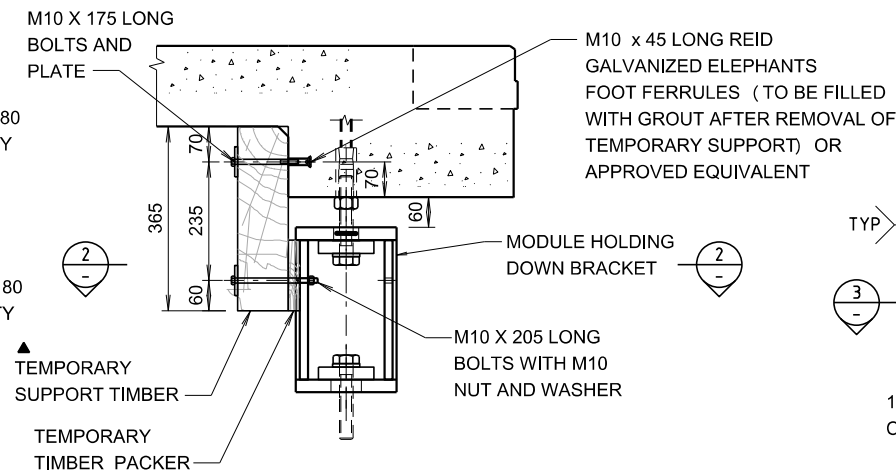
ISSUE	DATE	ADDMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS					
MODULAR BRIDGE DRAWINGS					
TYPE 2 - 1 LANE - 12m SPAN					
DECK CONCRETE - SHEET C					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
Salah Assi 07.10.2016			ISSUE STATUS		
BRIDGE ENGINEER (NEW DESIGN)			ISSUE	No SHEETS	39 SHEET No MB12SL60



MODULE HOLDING DOWN BRACKET LAYOUT AT PIERS

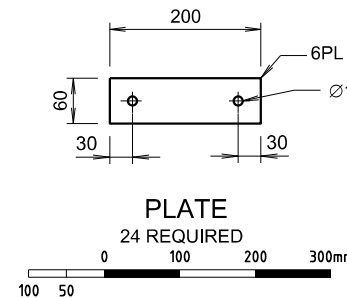
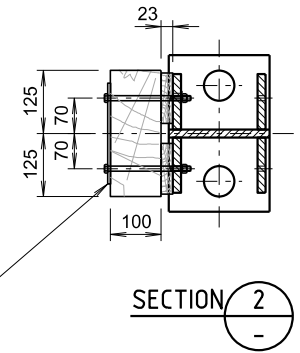


MODULE HOLDING DOWN BRACKET LAYOUT AT ABUTMENTS



MODULE HOLDING DOWN BRACKET TEMPORARY SUPPORT ASSEMBLY

TO BE FIXED TO THE MODULE IN THE CASTING YARD AND SHALL NOT BE USED FOR TEMPORARY SUPPORT OF PRECAST MODULE.
▲ DENOTES OR SUITABLE ALTERNATIVE TEMPORARY SUPPORT AND TO BE REMOVED AFTER GROUTING AND FIXING BRACKET ON SITE

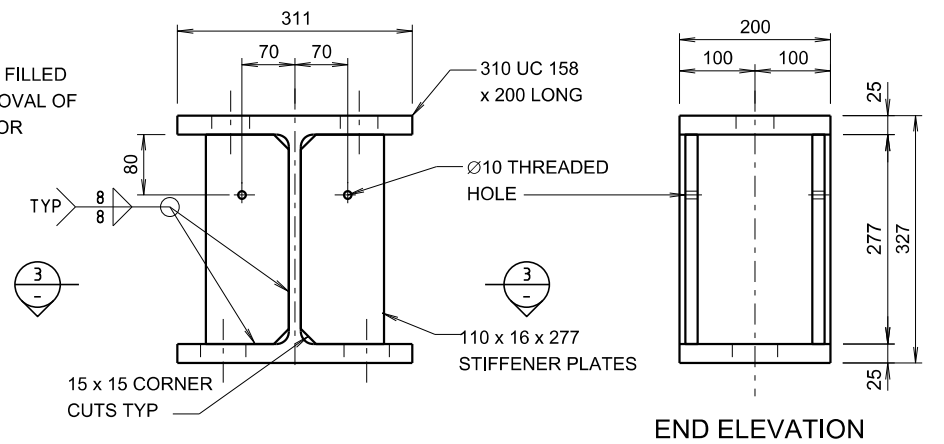


GENERAL NOTES

SCALE 0 150 300 450mm OR AS SHOWN

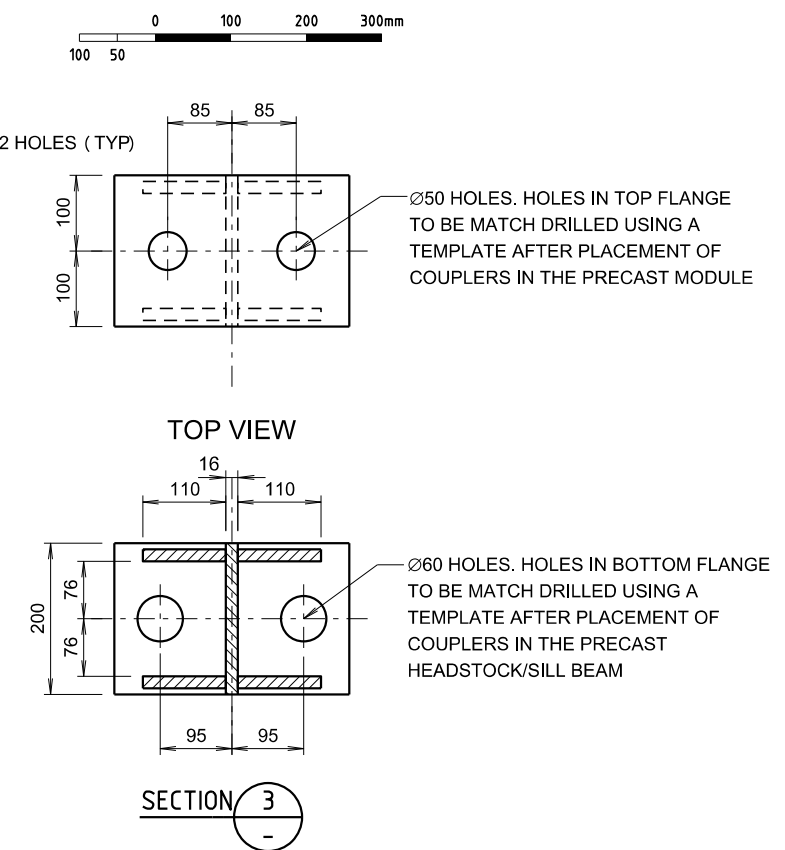
STEEL PLATES SHALL CONFORM TO AS/NZS 3678-250.
STEEL SECTIONS SHALL CONFORM TO AS/NZS 3679.1-300.
BOLTING CATEGORY FOR HIGH STRENGTH STEEL BOLTS SHALL BE 8.8/S IN ACCORDANCE WITH AS 5100.6.
HIGH STRENGTH STEEL NUTS FOR STRUCTURAL BOLTING SHALL BE PROPERTY CLASS 8 TO AS/NZS 1252.
THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1
ALL WELDING SHALL CONFORM TO AS/NZS 1554.1 WITH ADDITIONAL REQUIREMENTS AS GIVEN IN ROADS AND MARITIME SERVICES SPECIFICATION B204.
AREA OF ANCHOR BOLT TO BE IN CONTACT WITH GROUT SHALL BE WRAPPED WITH DENSO TAPE.
ALL FASTENERS TO COMPLY WITH THE REQUIREMENTS OF RMS SPECIFICATION B240.
EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RADIUS OF 1.5mm UNLESS SPECIFIED OTHERWISE.
AFTER ASSEMBLY DAMAGED GALVANISED SURFACES SHALL BE RENOVATED WITH TWO PACK ORGANIC ZINC-RICH PRIMER.
ALL STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ROADS AND MARITIME SERVICES SPECIFICATION B241.
BOLTS NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH AS 1214.

▲ DENOTES THE GROUT USED SHALL BE SHRINKAGE COMPENSATED HIGH FLOW CEMENTITIOUS GROUT EPIREZ SUPERFLOW HF OR CONBEXTRA HS OR APPROVED EQUIVALENT.
FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 59.

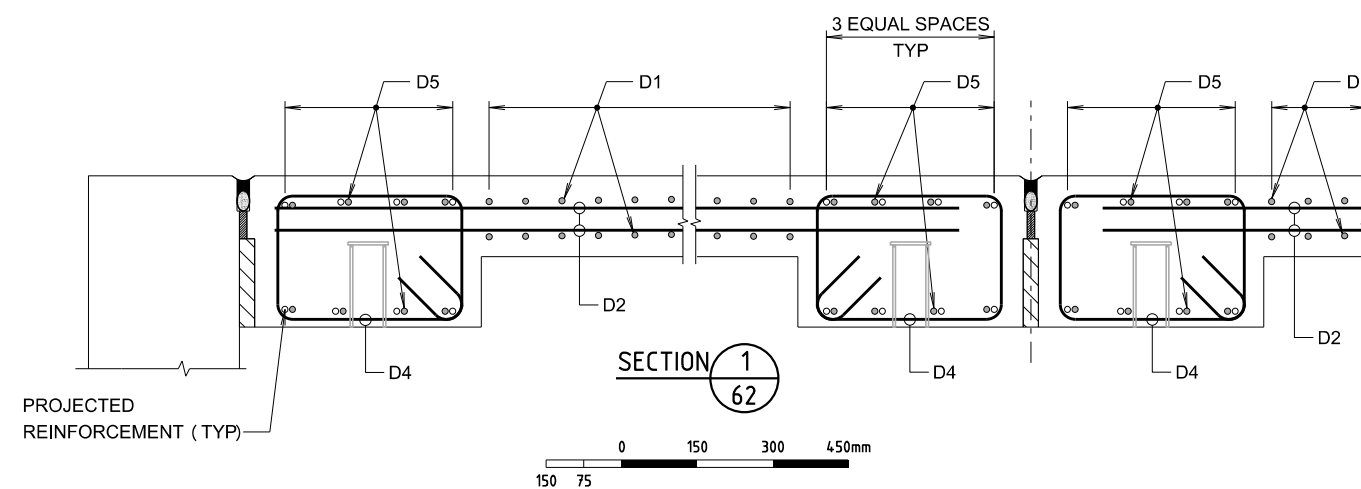


MODULE HOLDING DOWN BRACKET

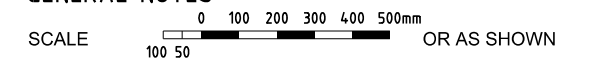
TO BE FIXED TO THE MODULE IN THE CASTING YARD AND SHALL NOT BE USED FOR TEMPORARY SUPPORT
12 REQUIRED



ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN HOLDING DOWN BRACKET DETAILS					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION		
DRAWING	D.G.C.	ADey	No OF PLANS		
07.10.2016 DATE			BRIDGE No		
APPROVED FOR USE W. Ariyaratne PRINCIPAL ENGINEER BRIDGES			ISSUE STATUS		
07.10.2016 DATE			ISSUE No SHEETS 39 SHEET No MB10SL61		



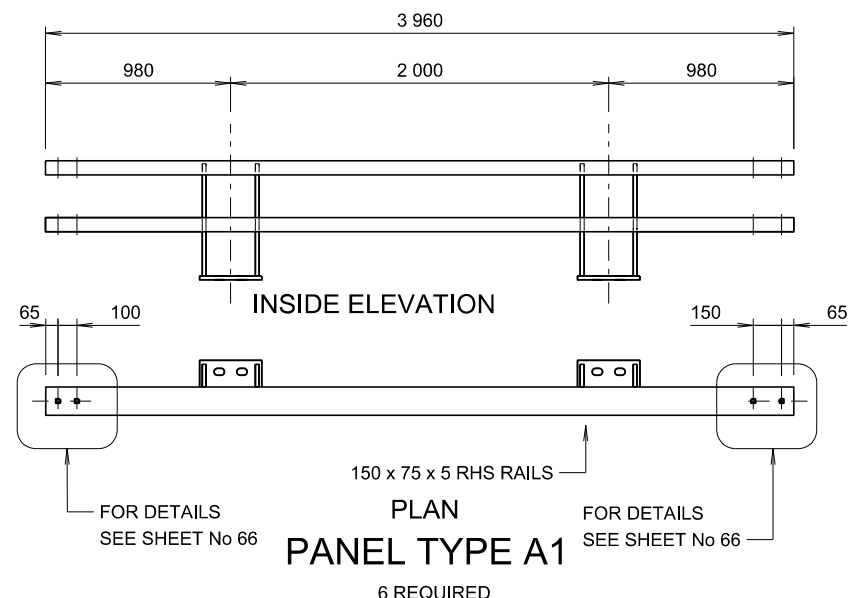
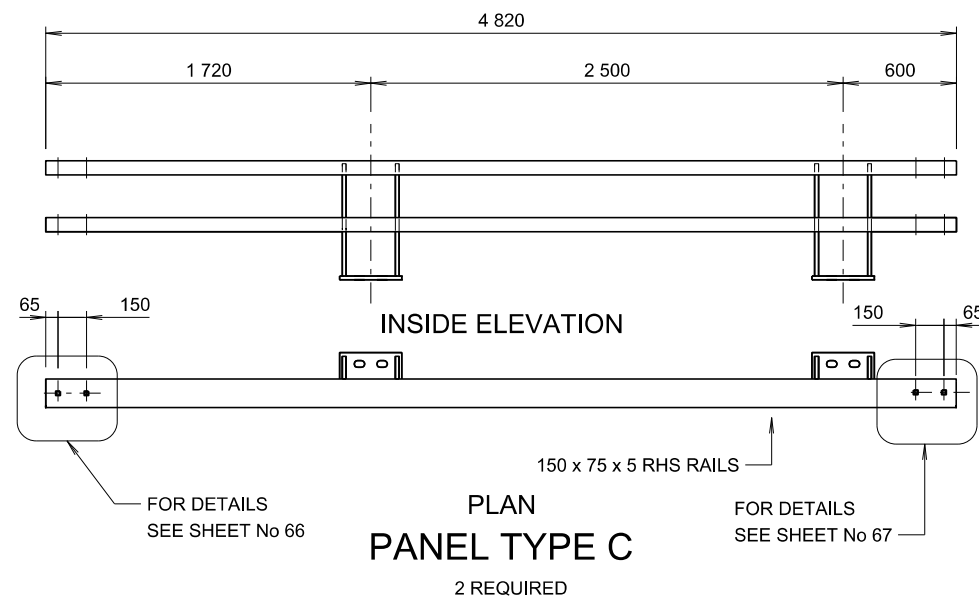
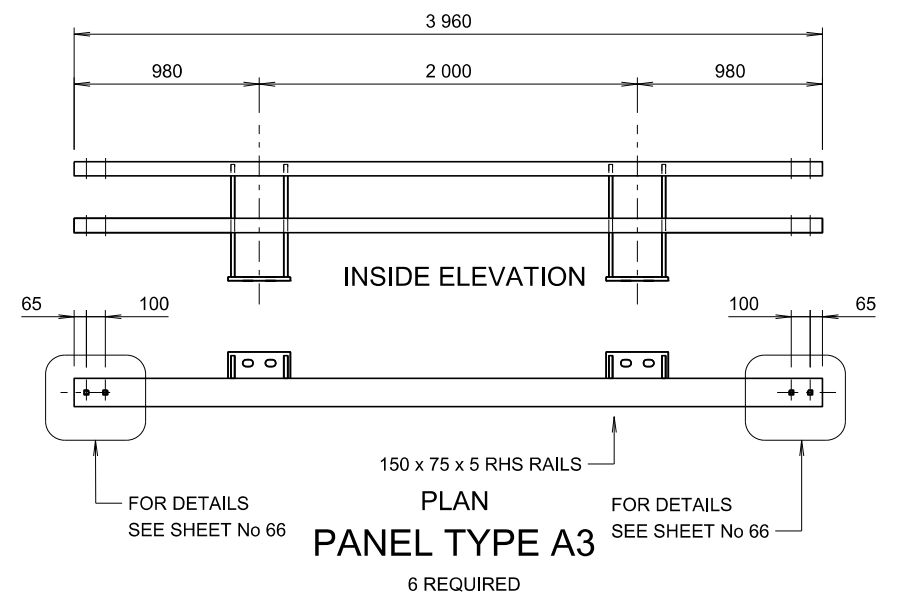
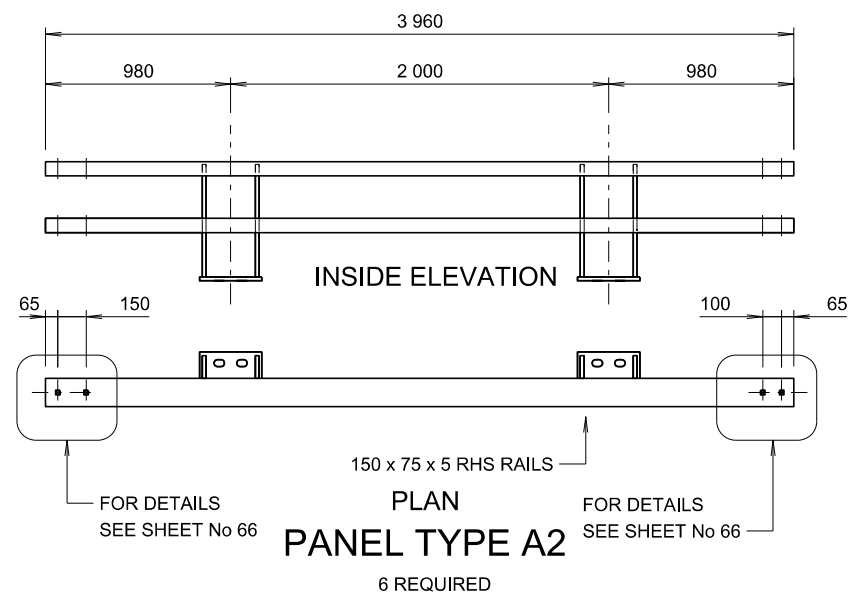
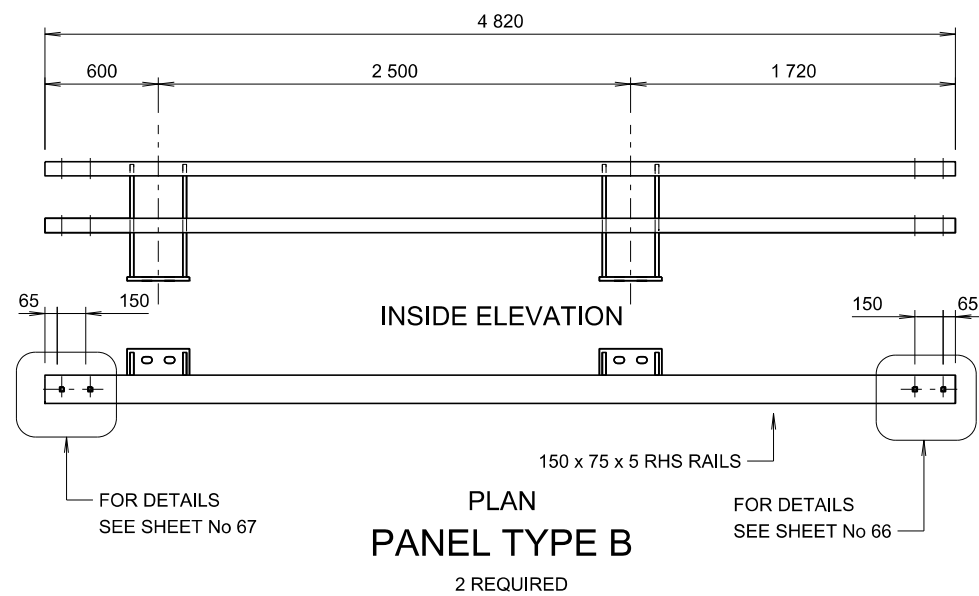
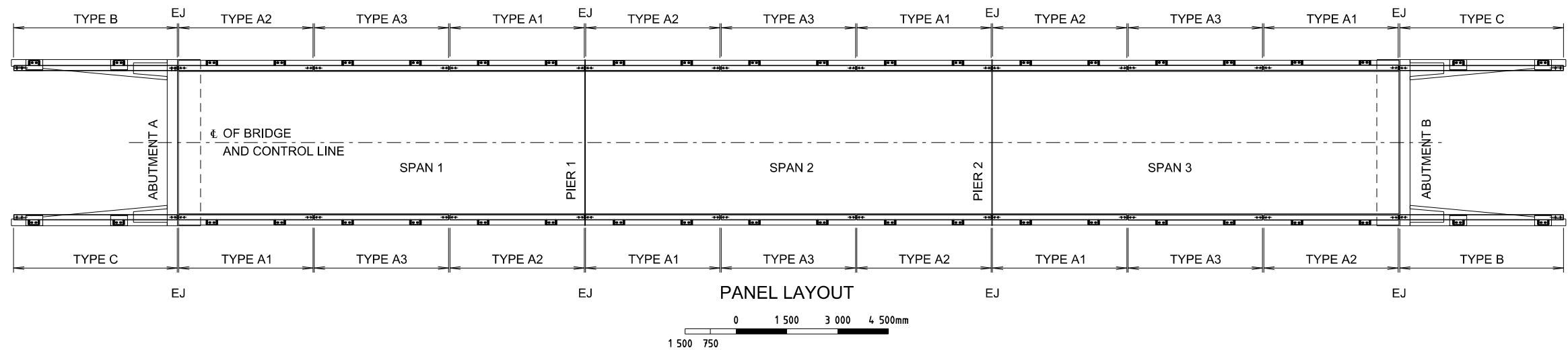
GENERAL NOTES



FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 62.

ISSUE	DATE	ADMENDMENT DESCRIPTION				PREP	CHECK	AUTH	
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN DECK REINFORCEMENT - SHEET B									
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811					 Transport Roads & Maritime Services www.rms.gov.au				
	PREPARED	CHECKED	REGISTRATION						
DESIGN	<i>SAssi</i>	<i>ADey</i>	No OF PLANS						
DRAWING	D. G. C.	<i>ADey</i>	BRIDGE No						
<i>Salah Assi 07.10.2016</i> BRIDGE ENGINEER (NEW DESIGN)			ISSUE STATUS						
			ISSUE	No SHEETS		39	SHEET No MB12SL63		

K:\BridgeStandards_2015\Standards in Development\B1000_MODULAR BRIDGE\Single Lane\12M_SL_T2\12MBRA_SL.dgn 7/10/2016 1:56:34 PM



GENERAL NOTES

SCALE 0 200 400 600 800 1 000mm OR AS SHOWN

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 65.

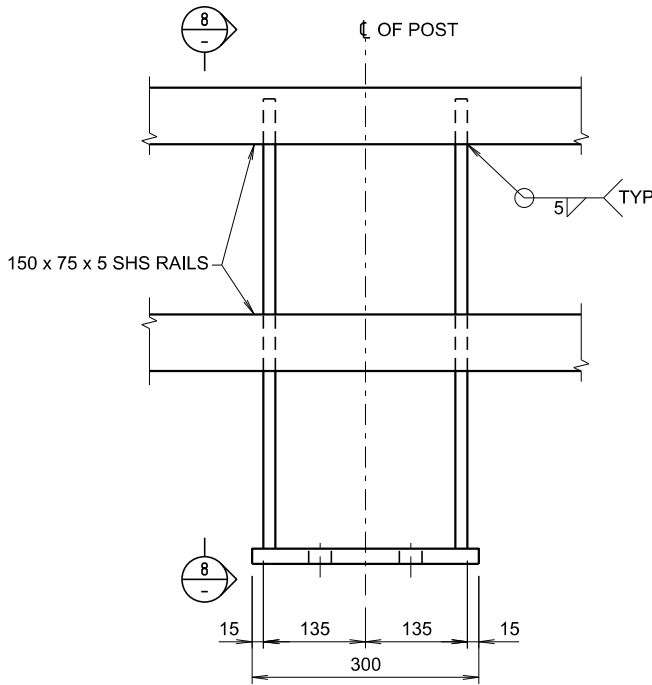
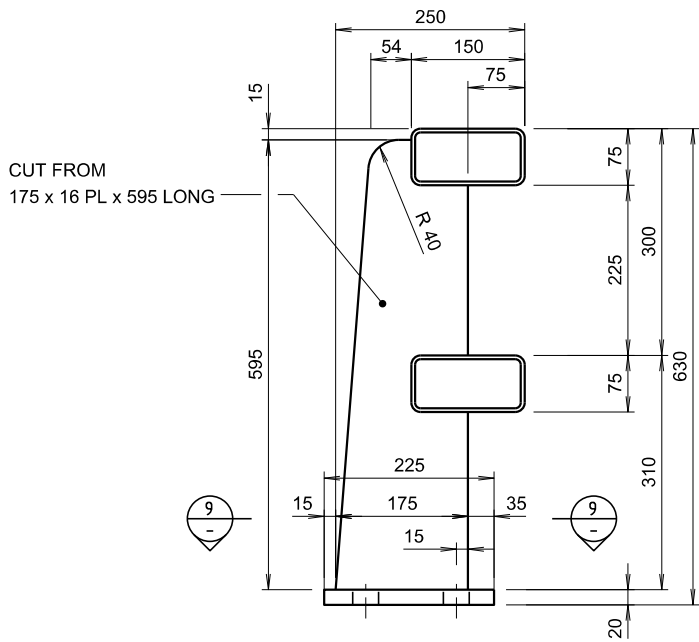
ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS					
MODULAR BRIDGE DRAWINGS					
TYPE 2 - 1 LANE - 12m SPAN					
TRAFFIC BARRIER RAILING - SHEET A					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	CHECKED	ADey	REGISTRATION No OF PLANS	
DRAWING	D.G.C.	CHECKED	ADey	BRIDGE No	
ISSUE STATUS			ISSUE		
No SHEETS			39	SHEET No MB12SL64	

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PRINCIPAL ENGINEER BRIDGES

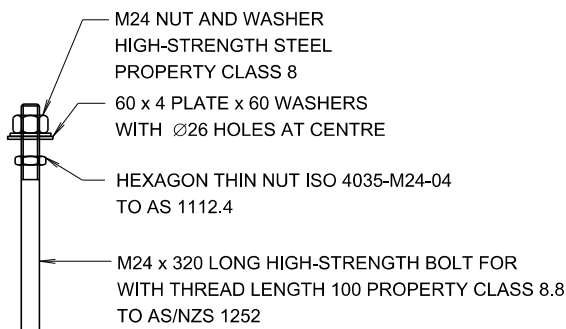
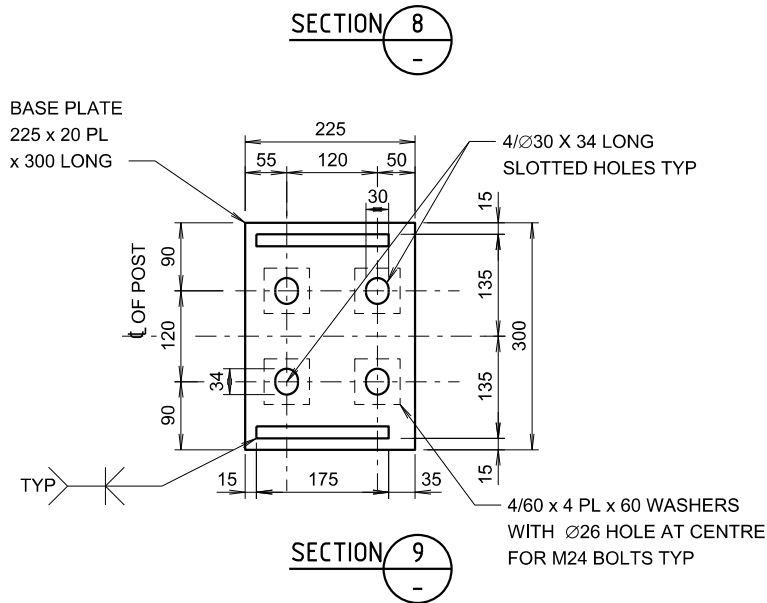
07.10.2016
DATE

CAD No 12MBRA_SL.dgn © COPYRIGHT ROADS AND MARITIME SERVICES 2015

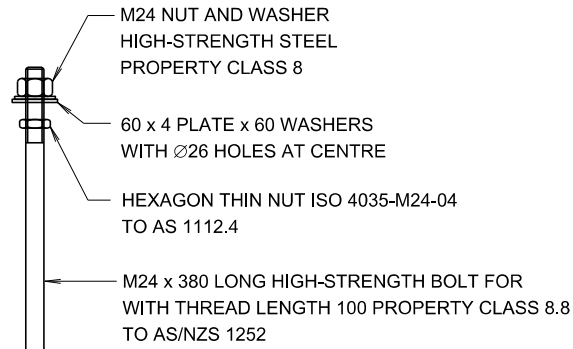
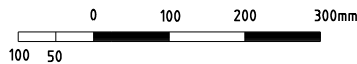


INSIDE ELEVATION

POST SHALL BE PERPENDICULAR TO BASE PLATE



M24 ANCHOR BOLT ASSEMBLY
88 REQUIRED



M24 ANCHOR BOLT ASSEMBLY
88 REQUIRED



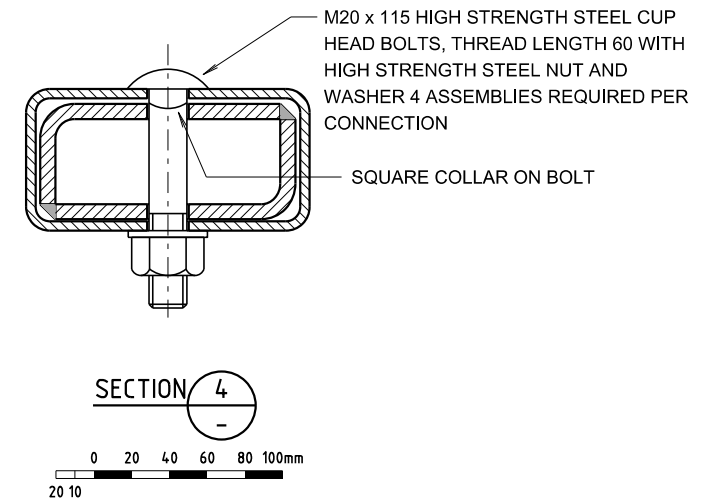
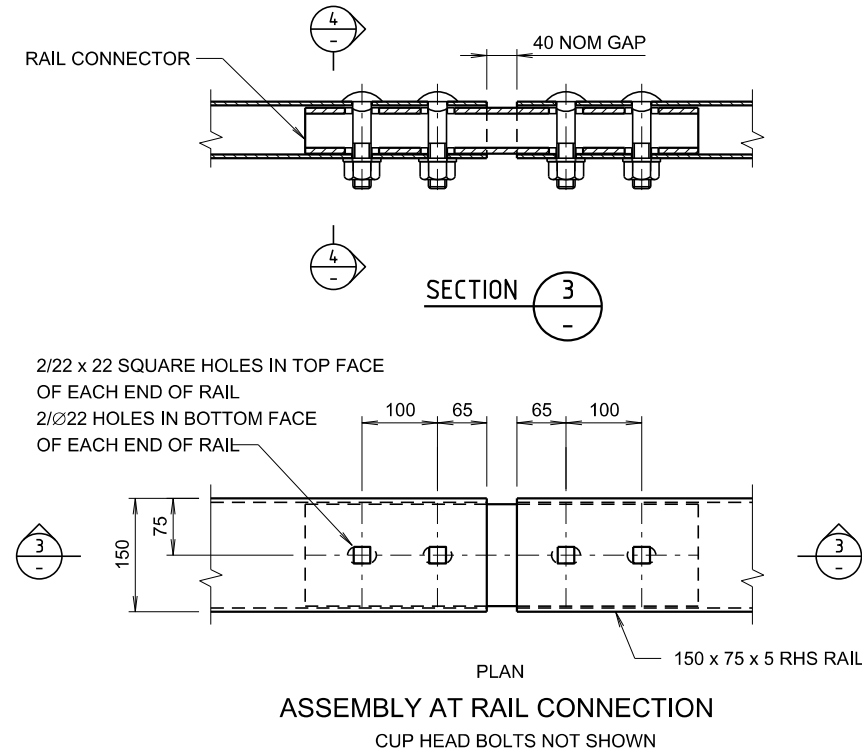
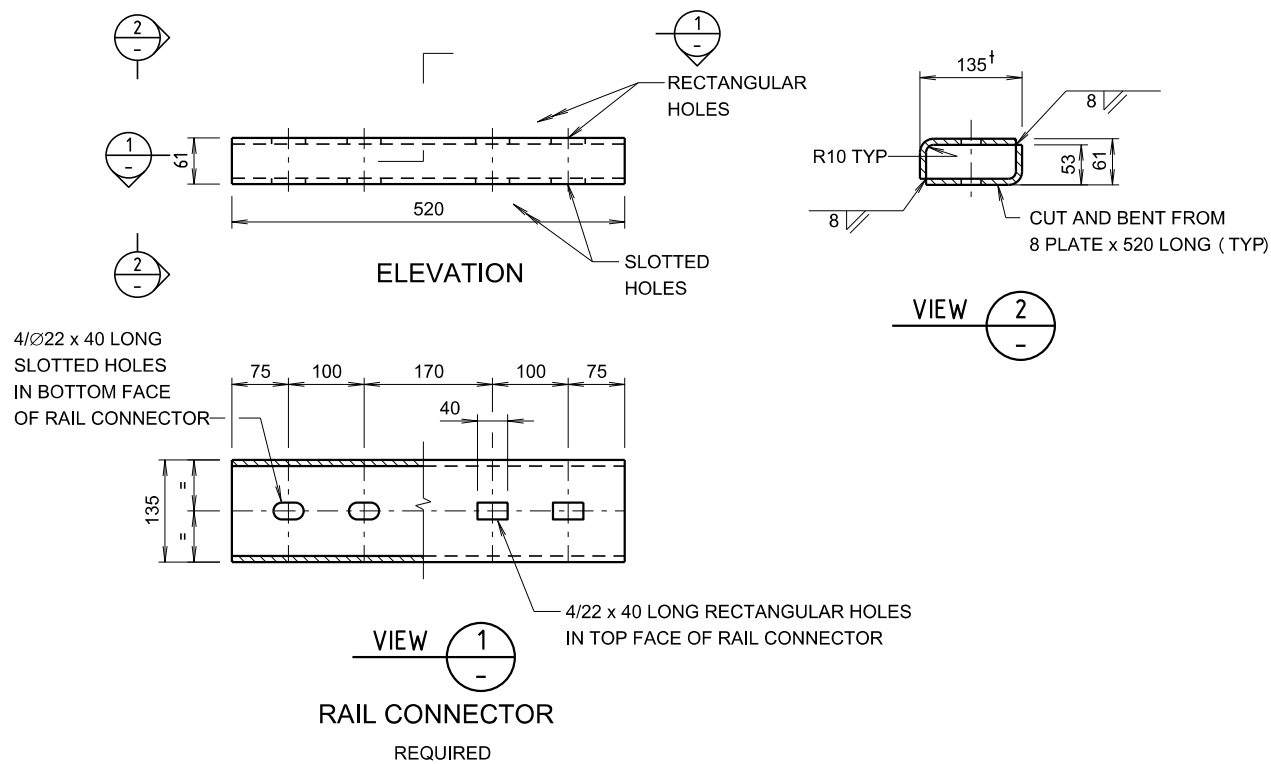
GENERAL NOTES

SCALE 0 100 200 300mm OR AS SHOWN

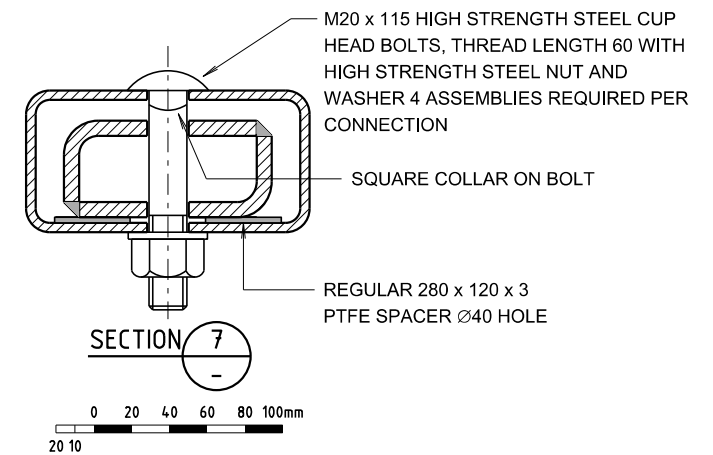
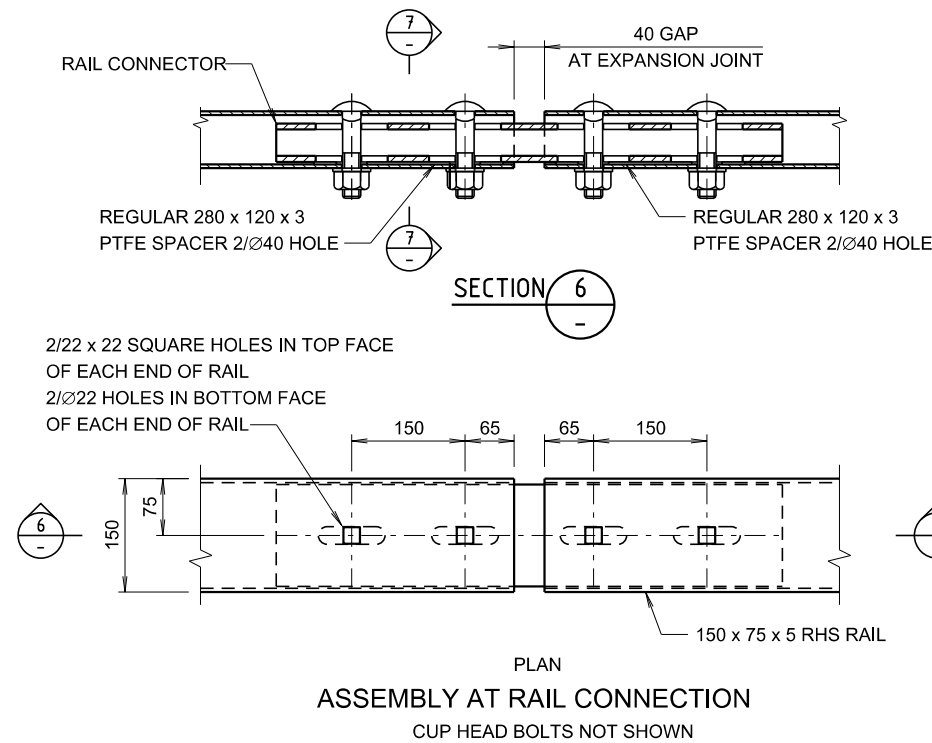
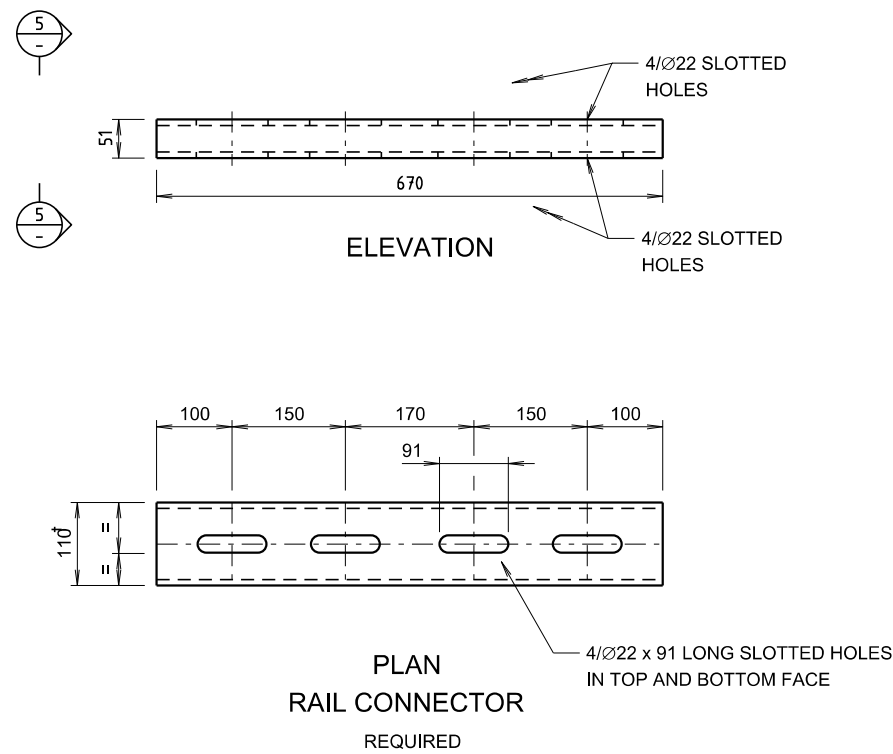
ALL STEEL PLATE SHALL CONFORM TO AS/NZS 3678-250.
RECTANGULAR HOLLOW SECTIONS SHALL CONFORM TO AS/NZS 1163-C350LO.
ALL FASTENERS MUST CONFORM TO THE REQUIREMENTS OF ROADS AND MARITIME SERVICES QA SPECIFICATION B240.
DIMENSIONS AND SHAPE FOR CUP HEAD BOLTS SHALL BE IN ACCORDANCE WITH AS/NZS 1390.
HIGH STRENGTH STEEL CUP HEAD BOLTS SHALL BE PROPERTY CLASS 8.8 WITH MATERIAL AND MECHANICAL PROPERTIES IN ACCORDANCE WITH AS/NZS 1252 AND SHALL BE MARKED DURING MANUFACTURE TO DESIGNATE THEM AS HIGH STRENGTH STEEL BOLTS.
HIGH STRENGTH STEEL NUTS FOR STRUCTURAL BOLTING SHALL BE PROPERTY CLASS 8 TO AS/NZS 1252.
BOLTING CATEGORY FOR HIGH STRENGTH STEEL CUP HEAD BOLTS AND FOR HIGH STRENGTH STEEL BOLTS SHALL BE 8.8/S IN ACCORDANCE WITH AS 5100.6.
THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1
ALL WELDING SHALL CONFORM TO AS/NZS 1554.1 WITH ADDITIONAL REQUIREMENTS AS GIVEN IN ROADS AND MARITIME SERVICES SPECIFICATION B204.
WELDING SYMBOLS COMPLY WITH AS 1101.3.
RAILINGS AND CONNECTORS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
PTFE SPACER SHALL BE 100% VIRGIN POLYTETRAFLUOROETHYLENE CONFORMING TO ISO 13000-1 GRADE 1 AND SHALL BE UNFILLED, NOT LUBRICATED AND NOT DIMPLD.
SEAM WELD INSIDE RHS TO BE GROUND OFF FOR 250mm MINIMUM FROM END OF RAIL.
CONNECTORS TO BE TRIAL FITTED BEFORE GALVANIZING TO ENSURE LOOSE FIT.
THE LONGITUDINAL SEAM IN RHS MEMBERS SHALL BE ON THE UNDERSIDE OF THE RAILS.
STEEL WASHER SHALL CONFORM TO AS 1237.1 PRODUCT GRADE A.
SUPPLY OF BOLTS, NUTS AND WASHERS SHALL BE IN ACCORDANCE WITH ROADS AND MARITIME SERVICES SPECIFICATION B240.
EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RADIUS OF 1.5mm UNLESS SPECIFIED OTHERWISE.
AFTER ASSEMBLY DAMAGED GALVANISED SURFACES SHALL BE RENOVATED WITH TWO PACK ORGANIC ZINC-RICH PRIMER.
ALL STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ROADS AND MARITIME SERVICES SPECIFICATION B241.
BOLTS NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH AS 1214.

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS					
MODULAR BRIDGE DRAWINGS					
TYPE 2 - 1 LANE - 12m SPAN					
TRAFFIC BARRIER RAILING - SHEET B					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			 Transport Roads & Maritime Services www.rms.gov.au		
	PREPARED	CHECKED	REGISTRATION		
DESIGN	S Assi	A Dey	No OF PLANS		
DRAWING	D. G. C.	A Dey	BRIDGE No		
			ISSUE STATUS		
			ISSUE	No SHEETS	39
			SHEET No MB12SL65		

APPROVED FOR USE
 PRINCIPAL ENGINEER BRIDGES
07.10.2016 DATE



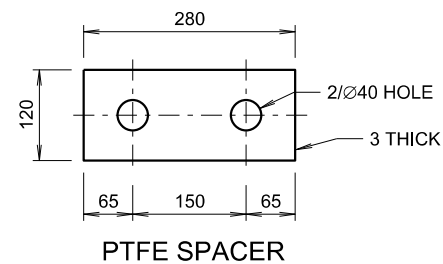
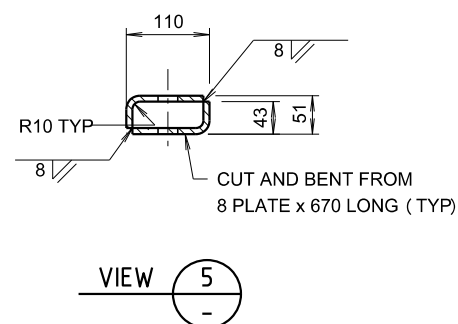
JOINT DETAILS - TYPICAL JOINT



GENERAL NOTES

SCALE 0 100 200 300mm OR AS SHOWN

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 65.

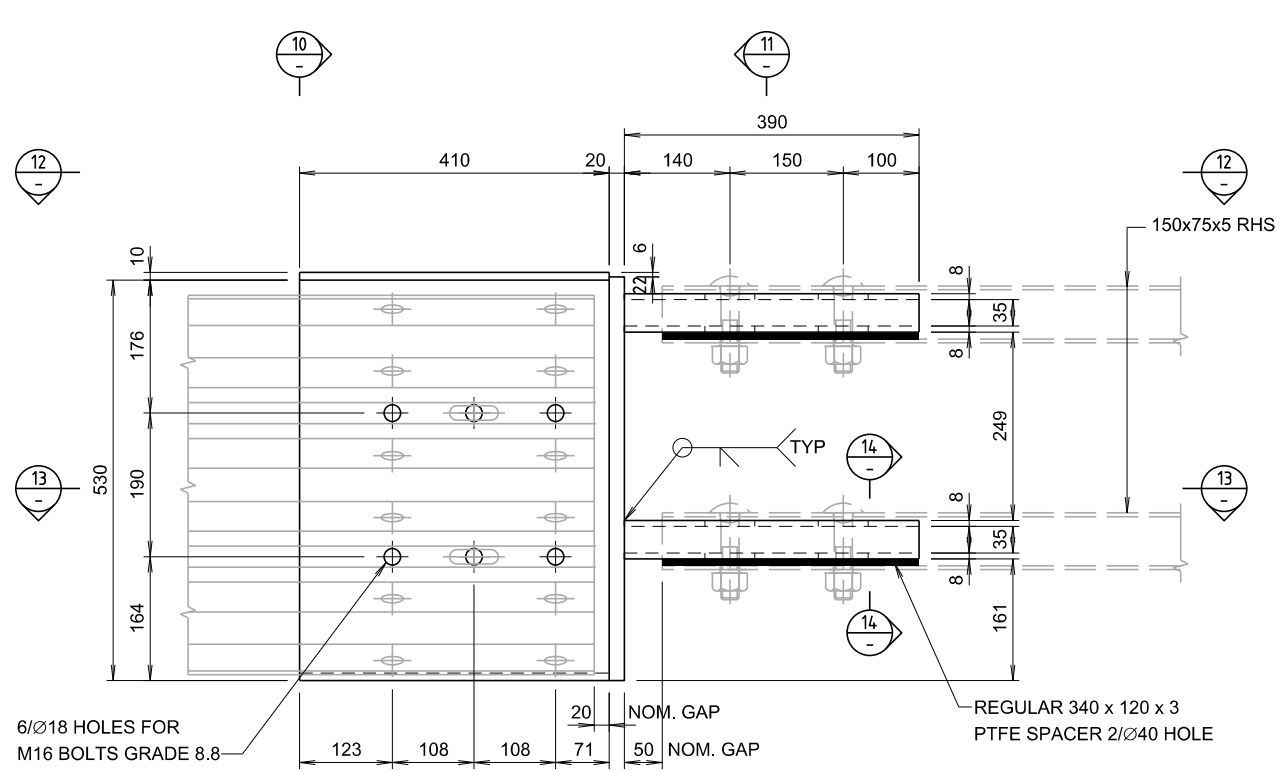


JOINT DETAILS - EXPANSION JOINT

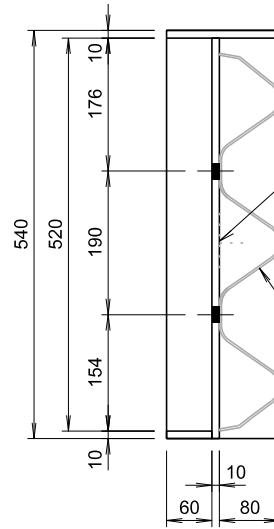
ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS					
MODULAR BRIDGE DRAWINGS					
TYPE 2 - 1 LANE - 12m SPAN					
TRAFFIC BARRIER RAILING - SHEET C					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
07.10.2016			ISSUE STATUS		
BRIDGE ENGINEER (NEW DESIGN)			ISSUE	No SHEETS	39 SHEET No MB12SL66

APPROVED FOR USE
W. Ariyaratne
PRINCIPAL ENGINEER BRIDGES
07.10.2016
DATE

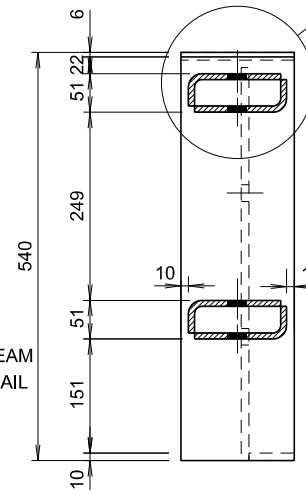
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ELEVATION

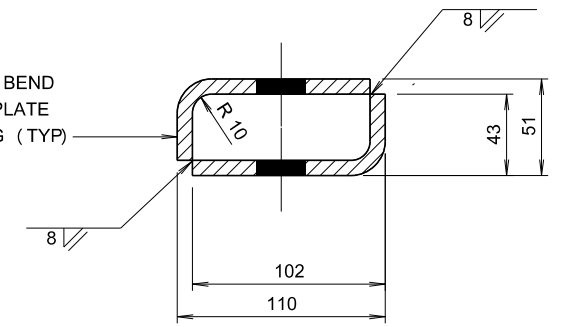


SECTION 10

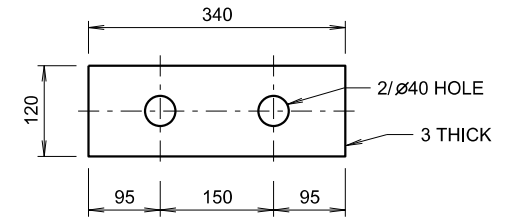
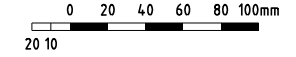


SECTION 11

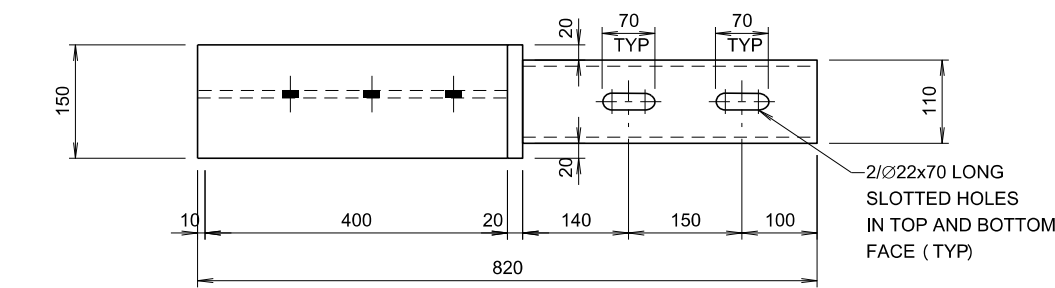
CUT AND BEND
FROM 8 PLATE
390 LONG (TYP)



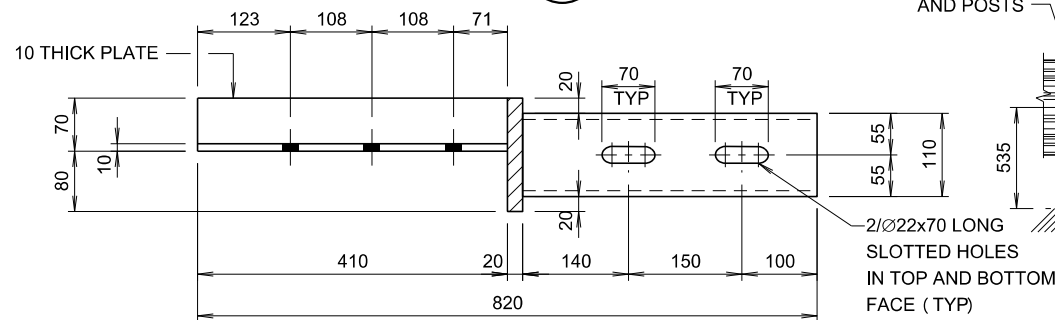
DETAIL A



PTFE SPACER



VIEW 12



SECTION 13

THRIE BEAM TERMINAL
CONNECTOR (B006)
NOT USED

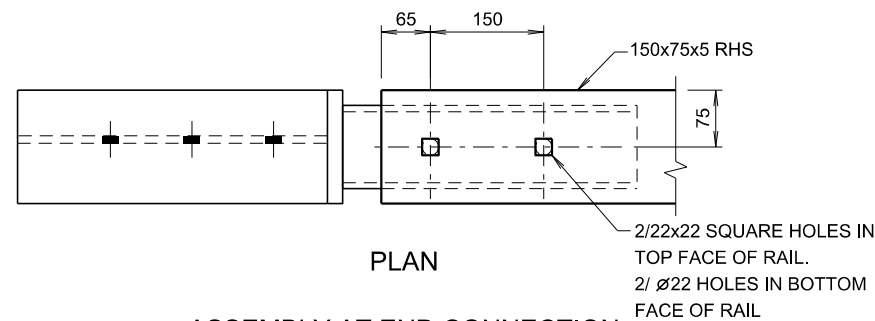
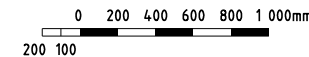
THRIE BEAM
AND POSTS

CONNECTION BRACKET

TOP OF ABUTMENT
WINGWALL

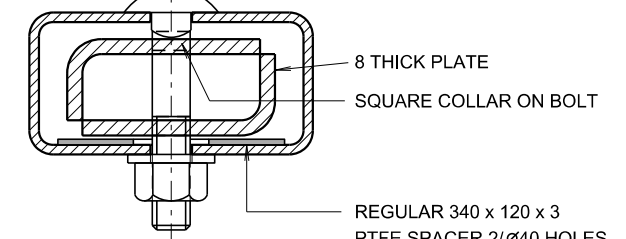
LOW PERFORMANCE
TRAFFIC BARRIER

TYPICAL END CONNECTION AT APPROACHES

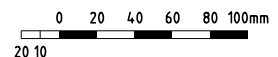


PLAN
ASSEMBLY AT END CONNECTION

M20 x 115 HIGH STRENGTH STEEL CUP HEAD
BOLTS, THREAD LENGTH 60 WITH HIGH
STRENGTH STEEL NUT AND WASHER
2 ASSEMBLIES REQUIRED PER CONNECTION



SECTION 14



GENERAL NOTES

SCALE 0 100 200 300mm OR AS SHOWN

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 65.

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN TRAFFIC BARRIER RAILING - SHEET D					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
07.10.2016			ISSUE STATUS		
BRIDGE ENGINEER (NEW DESIGN)			ISSUE		
			No SHEETS	39	SHEET No MB12SL67

APPROVED FOR USE
W. Ariyaratne
PRINCIPAL ENGINEER BRIDGES
07.10.2016
DATE

SHAPE CODE	AUSTRALIAN STANDARD SHAPE	SHAPE CODE	AUSTRALIAN STANDARD SHAPE	SHAPE CODE	AUSTRALIAN STANDARD SHAPE
S		LL		VL	
H		SH		XT	
HH		VV		CT	
V		J		HT	
L		JJ		R	
LH		SP		RC	
U		F		T	

SHAPE CODE	NON STANDARD SHAPE	SHAPE CODE	NON STANDARD SHAPE
AZ		HZ	
CZ		KZ	
DZ			
FZ			

BAR MARKING LEGEND

THE METHOD USED TO LABEL REINFORCEMENT ON THE DRAWINGS IS AS FOLLOWS:

A1 10-N16-S-300EF

INFORMATION FOR PLACING SPACING ALONG LIMIT LINE
BAR SHAPE CODE
BAR SIZE IN MILLIMETRES
BAR STRUCTURAL PROPERTIES
NUMBER OF BARS IN THE SET
BAR NUMBER IN SEQUENCE
STRUCTURE ELEMENT DENOTATION

WHERE THE BAR SPACING IS APPROXIMATE ONLY, THE FOLLOWING FORMAT SHALL BE USED:
A1 10-N16-S-300EF APPROX

STRUCTURE ELEMENT DENOTATIONS USED FOR PRECAST MODULES ARE:
E FOR EXTERNAL PRECAST MODULE
T FOR INTERNAL PRECAST MODULE

STRUCTURE ELEMENT DENOTATIONS USED ELSEWHERE ARE :
A FOR ABUTMENT A FOOTINGS INCLUDING STITCH POUR
B FOR ABUTMENT B FOOTINGS INCLUDING STITCH POUR
R FOR ABUTMENT B RETAINING WALLS
F FOR FOOTING AT PIERS
C FOR COLUMNS AT PIERS
W FOR WINGWALLS INCLUDING STITCH POUR
H FOR PIER HEADSTOCK
S FOR ABUTMENT SILL BEAMS
D FOR DECK

REINFORCEMENT NOTES

- 1 AUSTRALIAN STANDARD BAR SHAPES ARE IN ACCORDANCE WITH AS 1100.501.
- 2 BAR SIZE IS THE NOMINAL DIAMETER IN MILLIMETRES, OR THE AS/NZS 4671 FABRIC NUMBER.
- 3 THE GRADE OF REINFORCEMENT, IF NOT STATED ON THE DRAWINGS, SHALL BE D500N TO AS/NZS 4671.
- 4 WHERE SHOWN ON THE DRAWINGS, "W" SHALL DENOTE PLAIN ROUND REINFORCING BARS EQUIVALENT TO GRADE R500L TO AS/NZS 4671.
- 5 WHERE SHOWN ON THE DRAWINGS, RL AND SL SHALL DENOTE WELDED REINFORCING FABRIC (RECTANGULAR AND SQUARE) , RESPECTIVELY.
- 6 DIMENSIONS SHOWN ON BAR SHAPES DIAGRAMS ARE MEASURED FROM THE OUTSIDE FACES OF THE BARS AND ARE IN MILLIMETRES.
- 7 THE INCLUDED ANGLE OF ANY BEND SHALL BE A RIGHT ANGLE IF NO DIMENSION SHOWN.
- 8 BARS OF DIAMETER GREATER THAN 24mm SHALL NOT BE REBENT.
- 9 BAR BENDING AND HOOK DETAILS SHALL BE IN ACCORDANCE WITH SECTION 5.13 OF AS 5100-BRIDGE DESIGN.

SHAPE CODE	ROADS AND MARITIME SERVICES STANDARD SHAPE	SHAPE CODE	ROADS AND MARITIME SERVICES STANDARD SHAPE	SHAPE CODE	ROADS AND MARITIME SERVICES STANDARD SHAPE	SHAPE CODE	ROADS AND MARITIME SERVICES STANDARD SHAPE
A		E		N		XH	
B		G		P		Y	
C		K		Q			
D		M		W			

APPROVED FOR USE

W Ariyaratne
PRINCIPAL ENGINEER BRIDGES

07.10.2016
DATE

ISSUE	DATE	ADMENDMENT DESCRIPTION	PREP	CHECK	AUTH
COUNTRY BRIDGE SOLUTIONS MODULAR BRIDGE DRAWINGS TYPE 2 - 1 LANE - 12m SPAN BAR SHAPES DIAGRAM					
PREPARED BY BRIDGE ENGINEERING SECTION PHONE (02) 8837-0811			Transport Roads & Maritime Services www.rms.gov.au		
DESIGN	SAssi	ADey	REGISTRATION No OF PLANS		
DRAWING	D.G.C.	ADey	BRIDGE No		
Salah Assi 07.10.2016 BRIDGE ENGINEER (NEW DESIGN)			ISSUE STATUS		
No SHEETS			39 SHEET No MB12SL68		