

This drawing is the property of ANDES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL DESIGN CONCEPTS ARE THE PROPERTY OF ANDES ENGINEERING PTY LTD. ANY REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED. ANY REPRODUCTION OR USE OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED.

Issue Date

DOA

D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2426 Murray Bridge\Drafting\Model\MANN MODEL\AS2426 Murray Br.rvt

# MURRAYS BRIDGE OVER CONJOLA CREEK

## BRIDGE ON MURRAYS ROAD

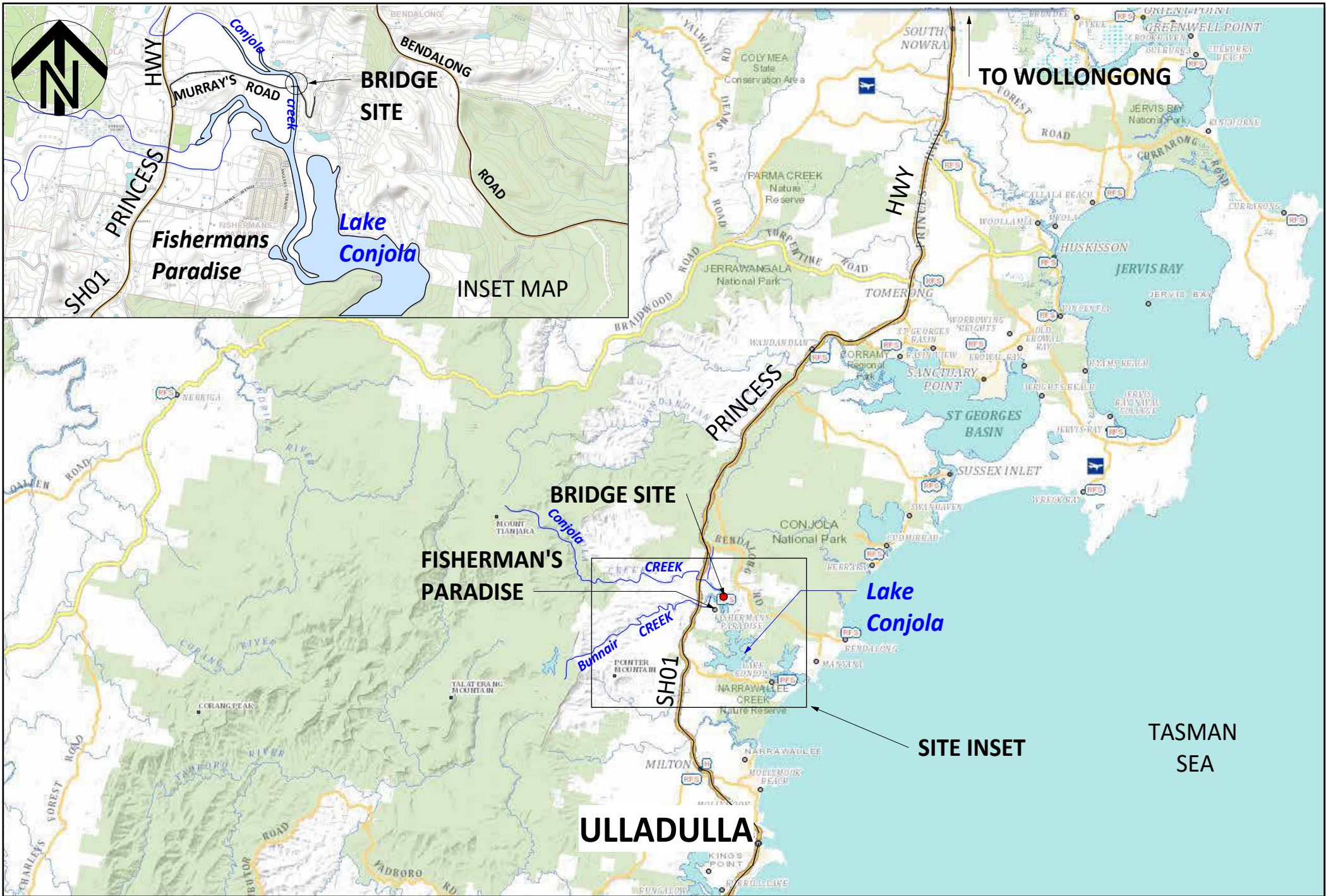
### 1.36km EAST OF INTERSECTION

### WITH PRINCESS HWY (SH01),

### 1.0KM NORTH OF FISHERMANS

### PARADISE

AUTHORITY: SHOALHAVEN COUNCIL



**1** LOCATION  
D001 N.T.S.

#### DRAWING LIST

SHEET No.	SHEET NAME	REV.
AE2426-001	COVER SHEET	A1
AE2426-002	STRUCTURAL NOTES - SHEET 1	A1
AE2426-003	STRUCTURAL NOTES - SHEET 2	A1
AE2426-004	STRUCTURAL NOTES - SHEET 3	A1
AE2426-005	GENERAL ARRANGEMENT	A1
AE2426-006	TYPICAL SECTIONS	A1
AE2426-017	PIER ARRANGEMENT	A1
AE2426-018	PIER HEADSTOCK - REINFORCED CONCRETE DETAILS	A1
AE2426-008	SETOUT AND PILING DETAILS - SHEET 1	A1
AE2426-007	SETOUT AND SITE LAYOUT	A1
AE2426-009	SETOUT AND PILING DETAILS - SHEET 2	A1
AE2426-010	WING WALL PILE AND SCOUR PROTECTION MEASURES	A1
AE2426-011	ABUTMENT A - CONCRETE DETAILS	A1
AE2426-012	ABUTMENT A - REINFORCED CONCRETE PANEL AND WING WALLS	A1
AE2426-013	ABUTMENT A - REINFORCEMENT DETAILS	A1
AE2426-014	ABUTMENT B - CONCRETE DETAILS	A1
AE2426-015	ABUTMENT B - REINFORCED CONCRETE WING WALLS	A1
AE2426-016	ABUTMENT B - REINFORCEMENT DETAILS	A1
AE2426-019	PRESTRESSED BEAM DETAILS	A1
AE2426-020	PRESTRESSED BEAM DETAILS - TYPES A & B	A1
AE2426-021	PRESTRESSED BEAM DETAILS - TYPES C1, C2 & C3	A1
AE2426-022	DECK - CONCRETE DETAILS - SHEET 1	A1
AE2426-023	DECK - CONCRETE DETAILS - SHEET 2	A1
AE2426-024	DECK - REINFORCEMENT DETAILS	A1
AE2426-025	APPROACH SLAB DETAILS - ABUTMENT A	A1
AE2426-026	APPROACH SLAB DETAILS - ABUTMENT B	A1
AE2426-027	MISCELLANEOUS DETAILS	A1
AE2426-028	BAR SHAPES DIAGRAM	A1

#### BRIDGE DESIGN:

BRIDGE DESIGN TO AS5100-2017  
TRAFFIC LOADING SM1600. DESIGN SPEED 60km/h.  
EARTHQUAKE DESIGN CLASSIFICATION BEC-2.  
ALLOWANCE FOR SUPERIMPOSED DEAD LOADS 1.7kPa (serviceability)  
TRAFFIC BARRIERS 'LOW PERFORMANCE' LEVEL.

#### WATERWAY DATA (EXCLUDING AFFLUX):

ANNUAL EXCEEDENCE PROBABILITY (%)	FLOW m <sup>3</sup> /s	VELOCITY m/s	WATER LEVEL (excl AFFLUX) RL (m)	ULTIMATE LOAD FACTOR $\gamma_{WF}$
5	515	1.08	2.68	1.0
1	1240	1.7	3.24	1.3
0.05	2080	1.7	3.94	1.3

NOT FOR CONSTRUCTION

Drawing scales true at A1

A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		
Issue	Description	Name	Initial	Date
Design not to be amended without authorisation by Certifier				



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CP Eng, MIE Aust., NER No 2176595)		

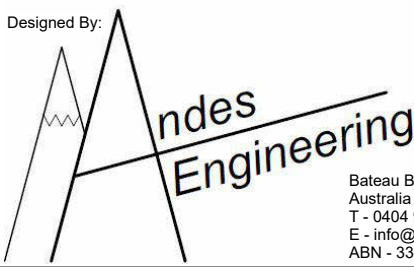
**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**COVER SHEET**



PLAN REFERENCE  
DWG 10104.16

Project Job Ref. **AE2426**

Sheet No. **001** of **028** Rev **A1**  
**APPROVAL ISSUE**



Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andesengineering.com.au  
ABN - 33 620 457 052













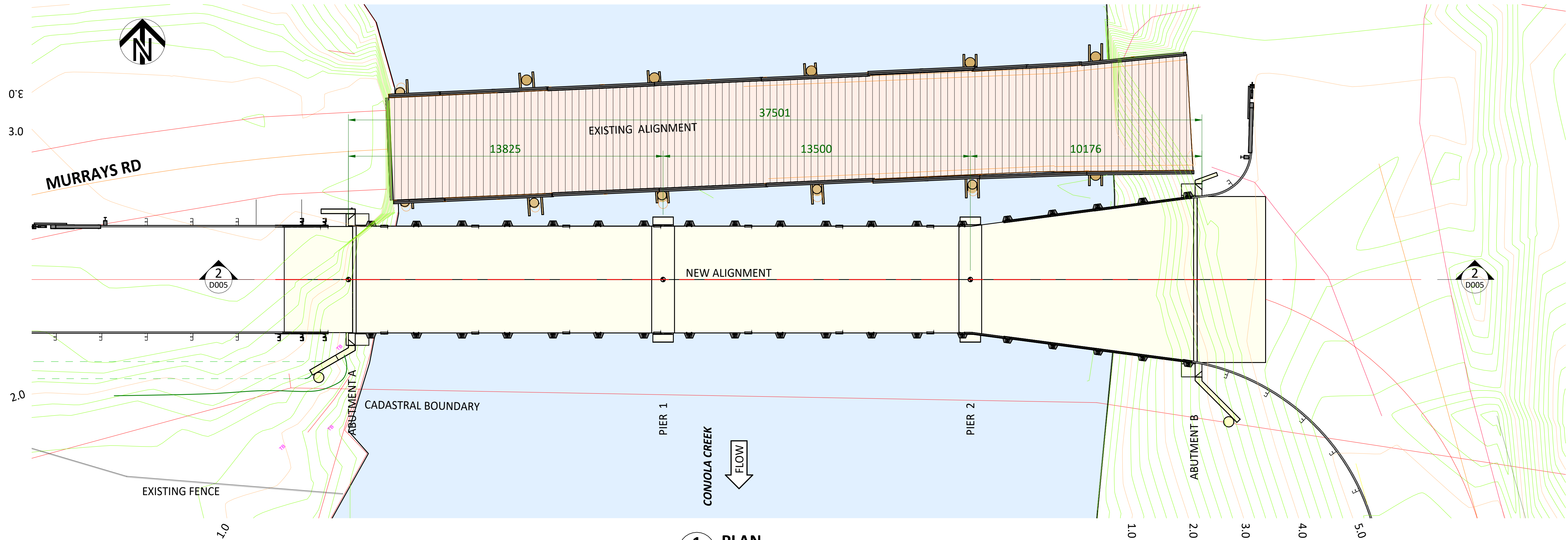


This drawing is the property of ANDRES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL CONSTRUCTION PRINTED THEREON SHALL NOT BE USED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDRES ENGINEERING PTY LTD.

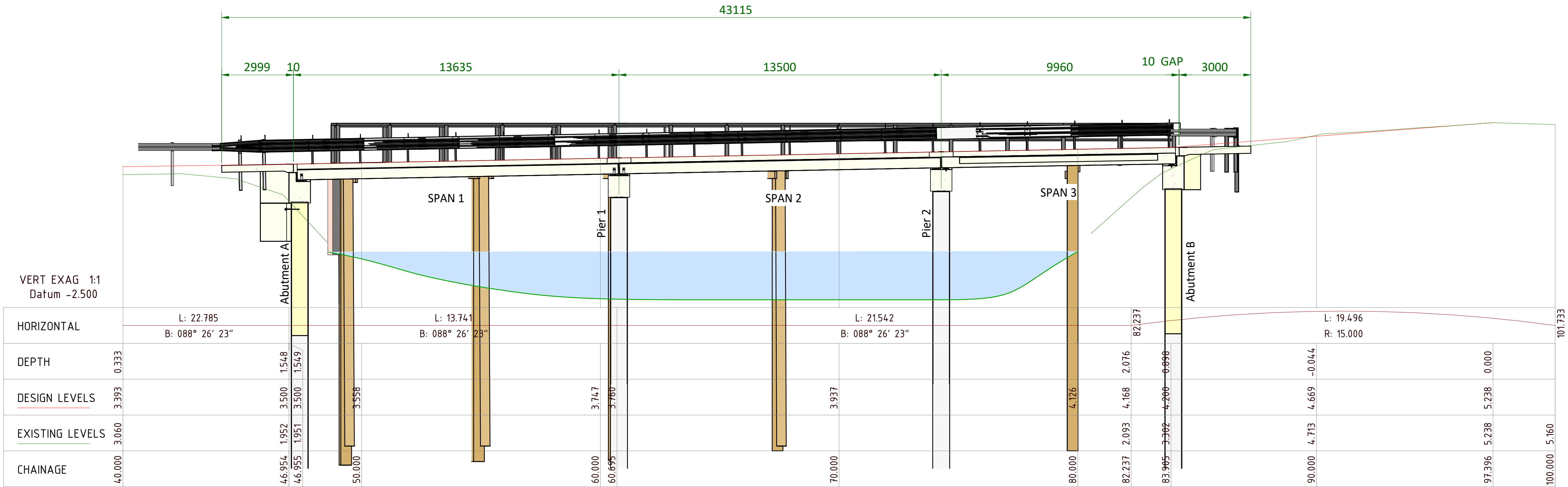
Issue Date

DOA

D:\OneDrive - andresengineering.com.au\Andres\_Engineering\AE\_Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN MODEL\AS2426 Murrays Br.rvt



1 PLAN  
1:100



2 SECTION  
1:100

**GENERAL NOTES**  
SCALES AS SHOWN.  
DIMENSIONS ARE IN MILLIMETRES.  
CHAINAGES AND REDUCED LEVELS ARE IN METRES.  
REDUCED LEVELS ARE RELATED TO AHD DATUM.

**NOT FOR CONSTRUCTION**

Issue	Description	Name	Initial	Date
A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		

**FORTEC**  
FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01).  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
GENERAL ARRANGEMENT

**Shoalhaven City Council**  
PLAN REFERENCE  
DWG 10104.20

Project Job Ref.	AE2426
Sheet No.	005 of 028
Rev	A1
APPROVAL ISSUE	

Designed By:  
**Andres Engineering**  
Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andresengineering.com.au  
ABN - 33 620 457 052

Drawing scales true at A1

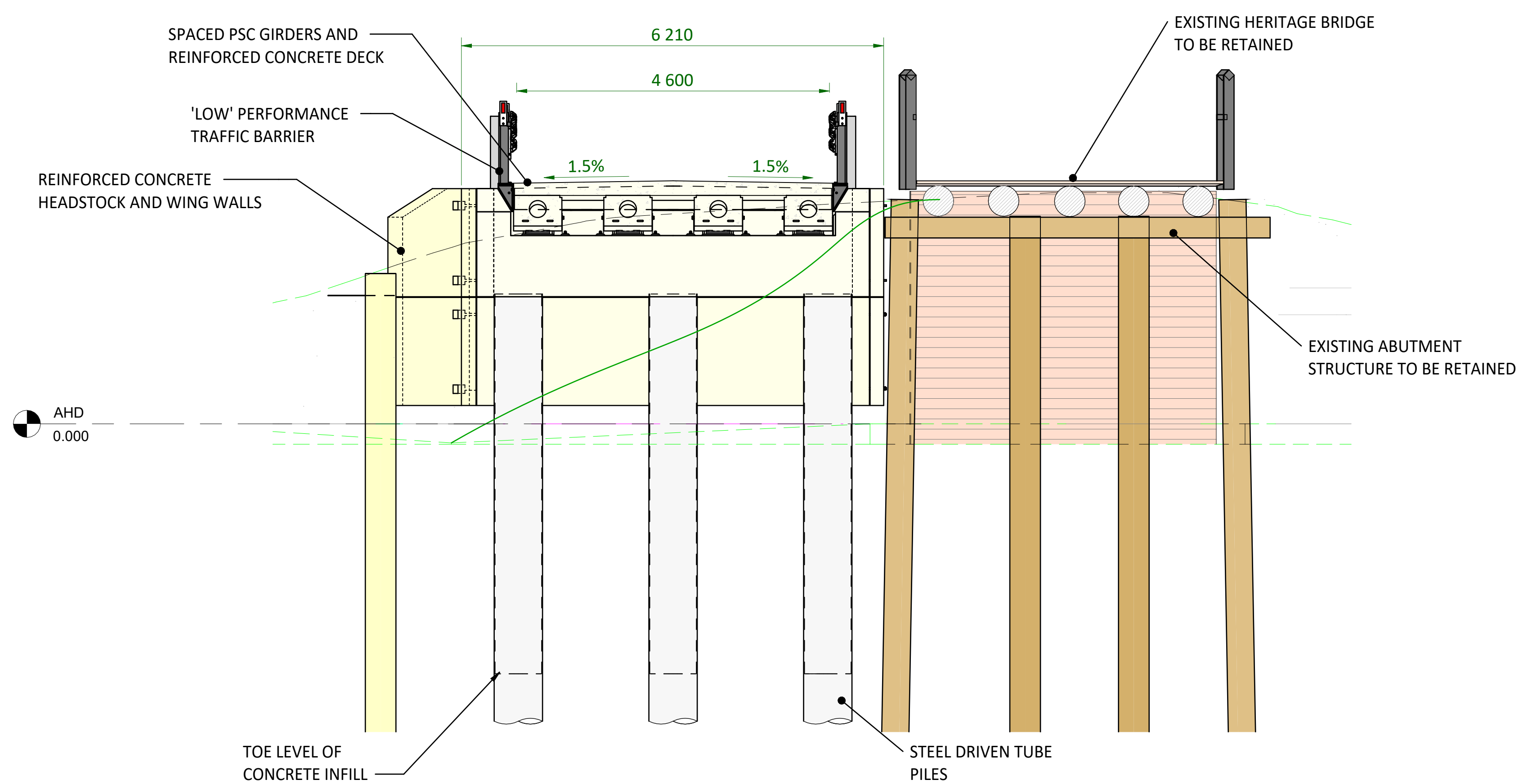


This document is the property of ANDES ENGINEERING PTY LTD. THE DRAWINGS AND THE ORIGINAL DESIGN CONCEPTS ARE NOT TO BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. THE DRAWINGS ARE TO BE USED FOR THE PURPOSES OF APPROVAL AND CONSTRUCTION OF THE WORKS DESCRIBED.

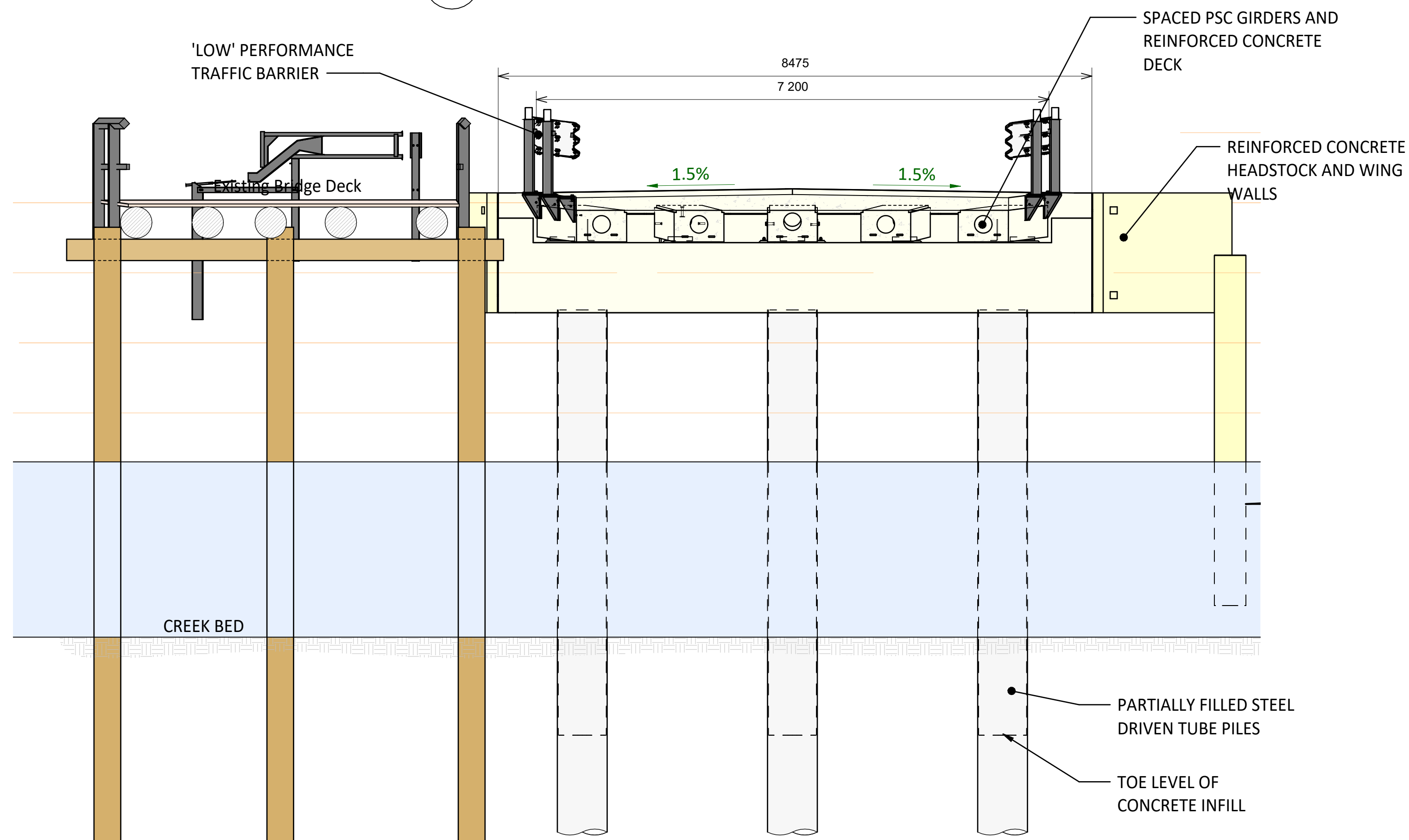
Issue Date

DOA

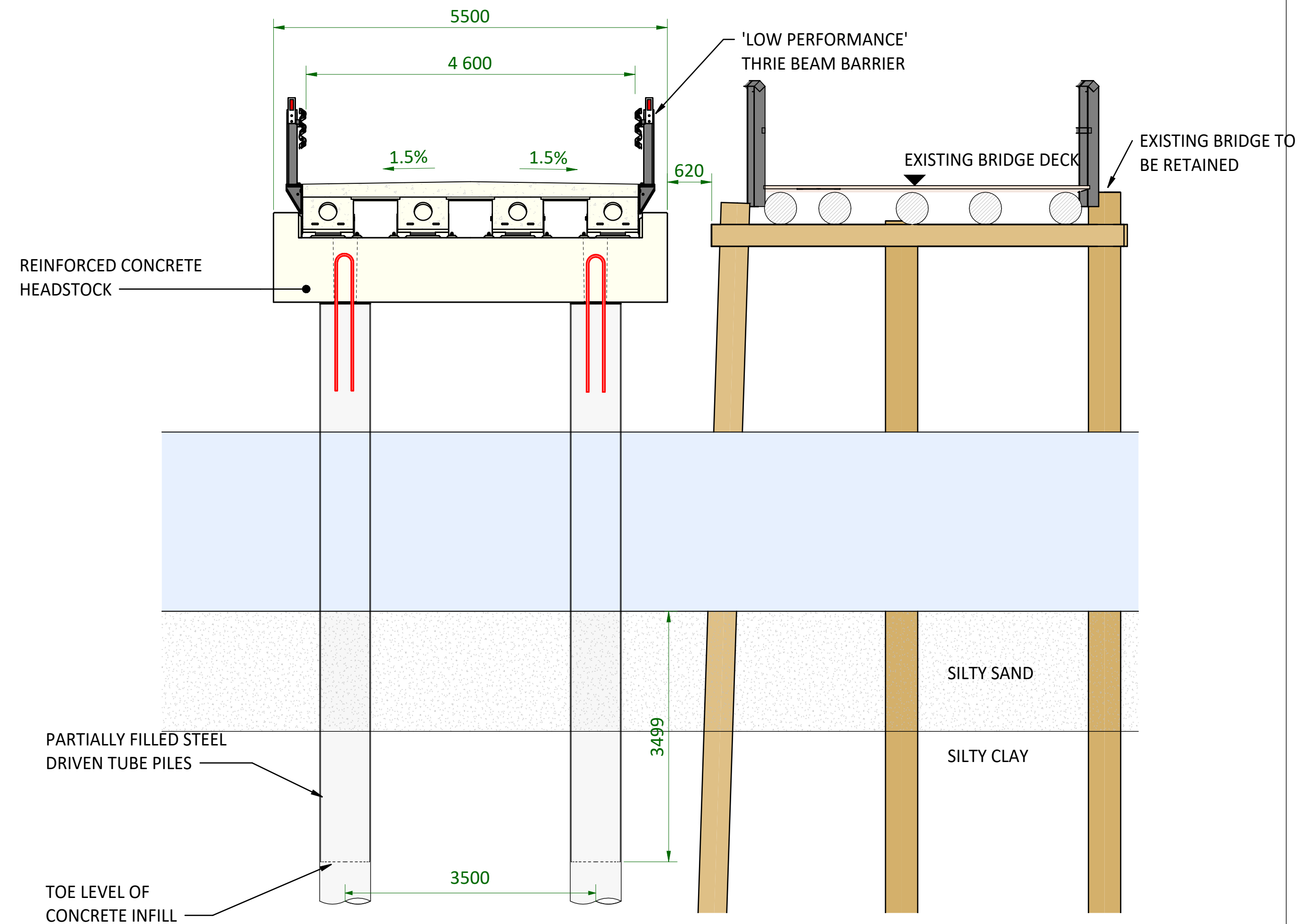
D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN MODEL\AS2426 Murrays Br.rvt



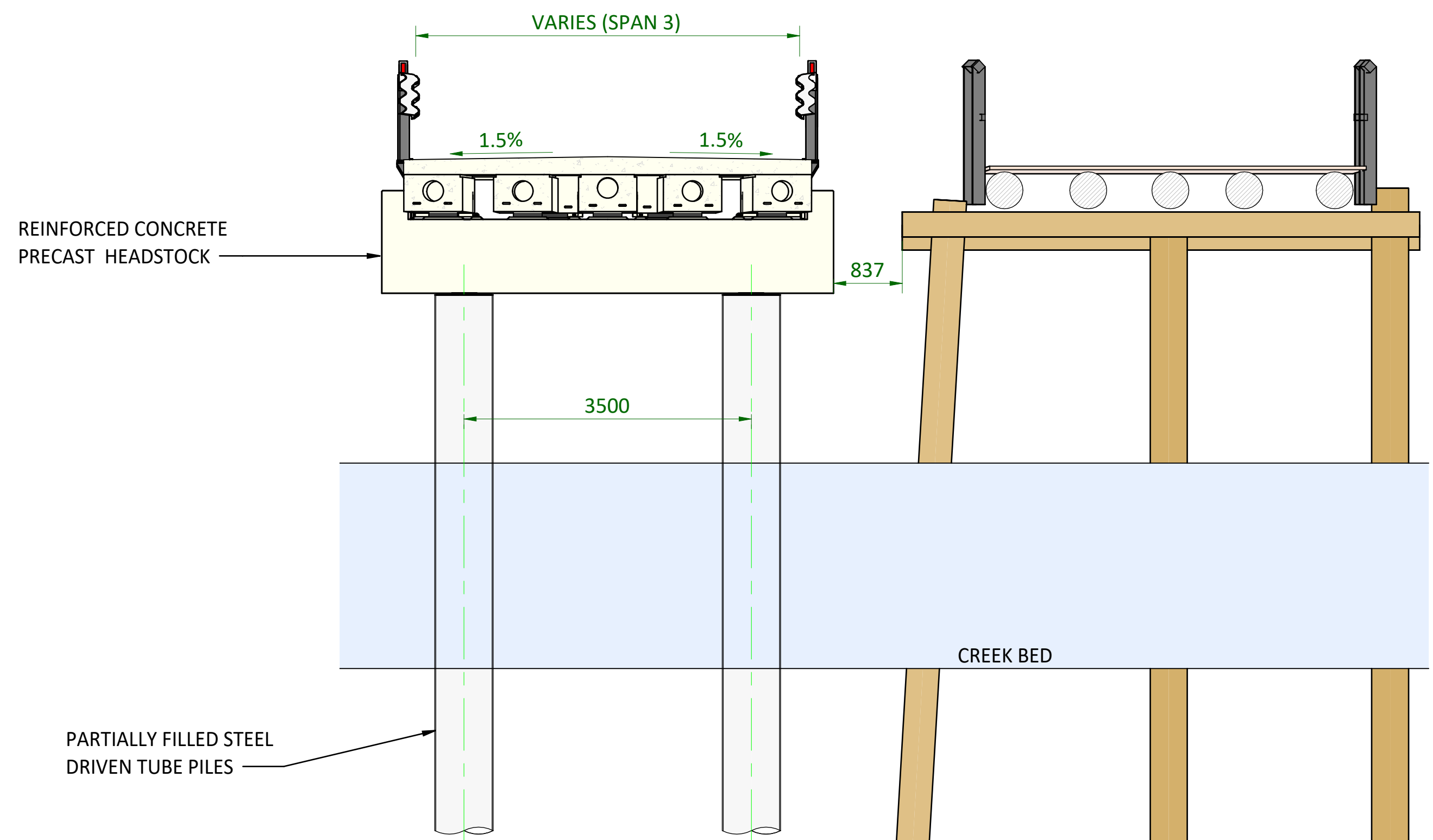
**1**  
D006  
**TYPICAL SECTION - ABUTMENT A**  
1 : 50



**2**  
D006  
**TYPICAL SECTION - ABUTMENT B**  
1 : 50



**3**  
D006  
**TYPICAL SECTION - PIER 1**  
1 : 50



**4**  
D006  
**TYPICAL SECTION - PIER 2**  
1 : 50

**NOT FOR CONSTRUCTION**

Drawing scales true at A1

Issue	Description	Name	Initial	Date
A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		

Design not to be amended without authorisation by Certifier



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**TYPICAL SECTIONS**

PLAN REFERENCE	DWG 10104.21
----------------	--------------

Project Job Ref.	AE2426
Sheet No.	006 of 028
Rev	A1
APPROVAL ISSUE	

Designed By:	Andes Engineering
PLAN REFERENCE	DWG 10104.21
Project Job Ref.	AE2426
Sheet No.	006 of 028
Rev	A1
APPROVAL ISSUE	

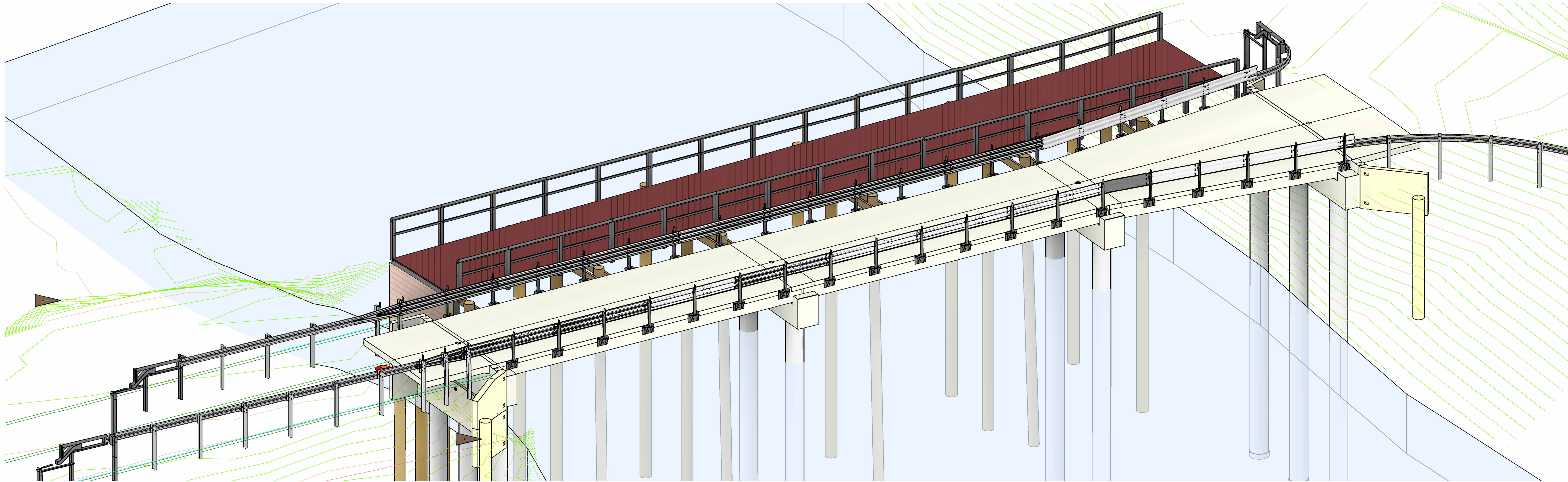


This drawing is the property of Fortec Australia Pty Ltd. The drawings and the information contained herein shall not be used or reproduced in any form without the written consent of Fortec Australia Pty Ltd. The drawings and the information contained herein shall not be used or reproduced in any form without the written consent of Fortec Australia Pty Ltd.

Issue Date

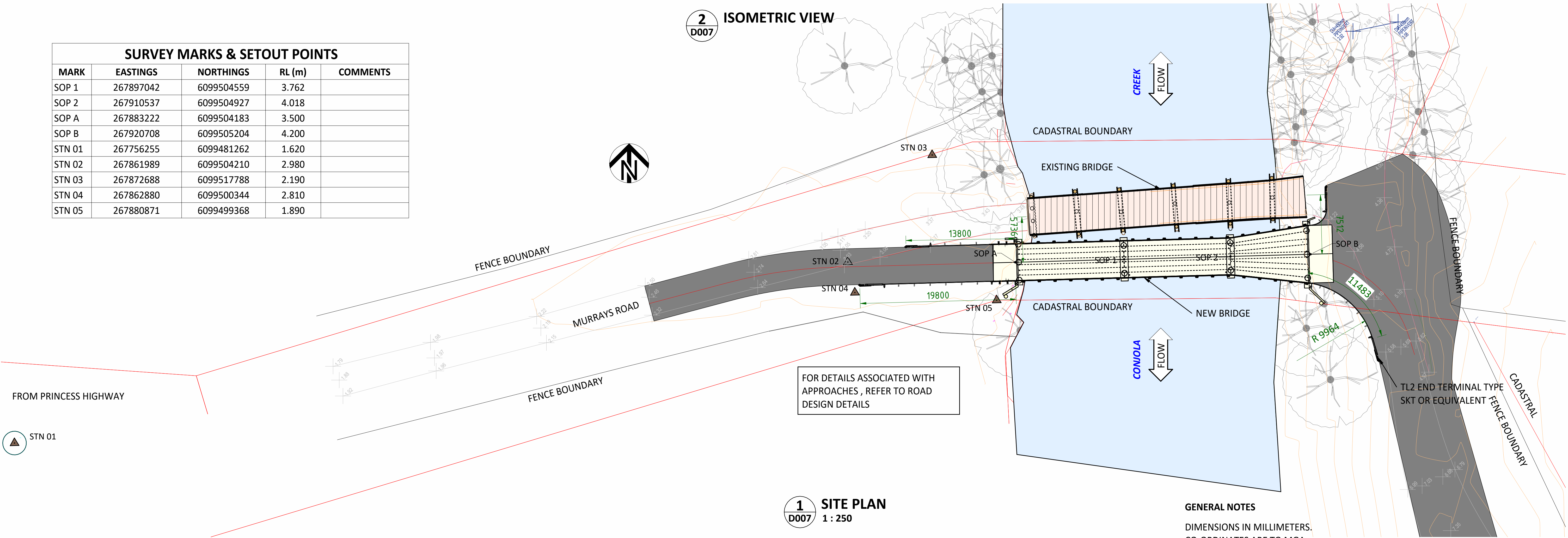
DOA

D:\OneDrive - andresengineering.com.au\Andres Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN MODEL\A2426 Murrays Br.rvt



2 ISOMETRIC VIEW  
D007

SURVEY MARKS & SETOUT POINTS				
MARK	EASTINGS	NORTHINGS	RL (m)	COMMENTS
SOP 1	267897042	6099504559	3.762	
SOP 2	267910537	6099504927	4.018	
SOP A	267883222	6099504183	3.500	
SOP B	267920708	6099505204	4.200	
STN 01	267756255	6099481262	1.620	
STN 02	267861989	6099504210	2.980	
STN 03	267872688	6099517788	2.190	
STN 04	267862880	6099500344	2.810	
STN 05	267880871	6099499368	1.890	



1 SITE PLAN  
D007 1 : 250

GENERAL NOTES  
DIMENSIONS IN MILLIMETERS.  
CO-ORDINATES ARE TO MGA.  
REDUCED LEVELS TO AHD (m).

NOT FOR CONSTRUCTION

Issue	Description	Name	Initial	Date
A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		

**FORTEC**  
FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk -
Drafter	DOA	Drafting Chk -
Approved by:		

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
SETOUT AND SITE LAYOUT

**Shoalhaven City Council**  
PLAN REFERENCE  
DWG 10104.22

Project Job Ref.	AE2426
Sheet No.	007 of 028
Rev	A1

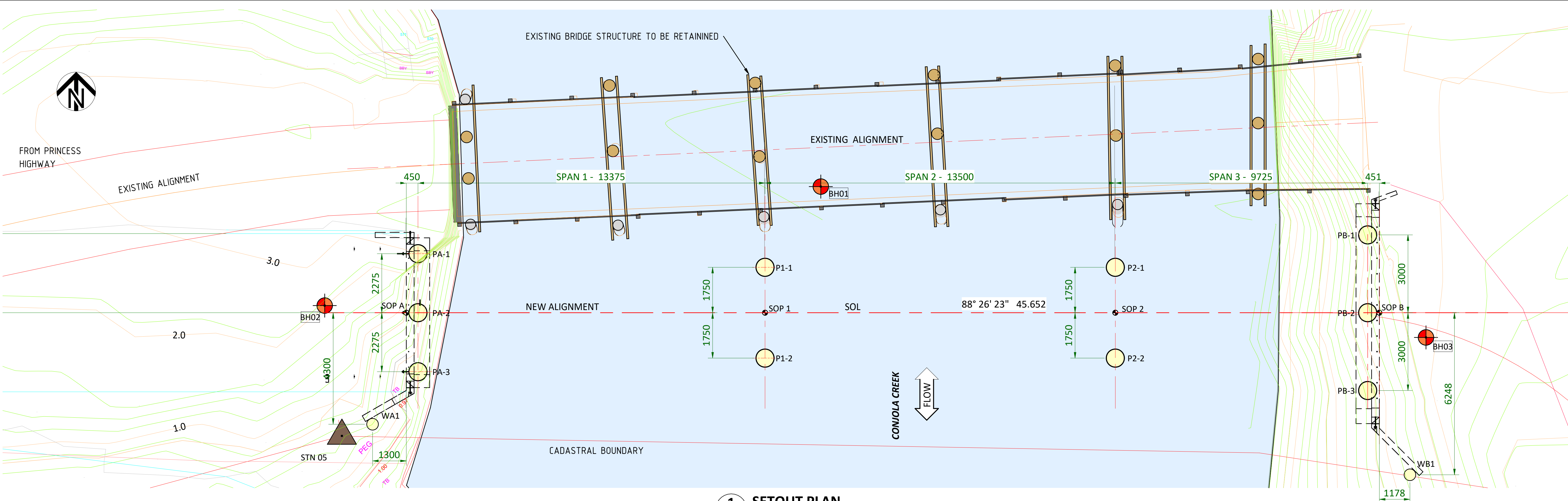
Designed By:  
**Andres Engineering**  
Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andresengineering.com.au  
ABN - 33 620 457 052



This drawing is the property of ANDRES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL DESIGN CONCEPTS ARE THE PROPERTY OF ANDRES ENGINEERING PTY LTD. ANY REPRODUCTION OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. IS PROHIBITED. THE DRAWING IS TO BE USED FOR THE PURPOSES OF INFORMATION AND CONSULTATION ONLY. IT IS NOT TO BE USED FOR CONSTRUCTION.

Issue Date

D:\ChinDine - andresengineering.com.au\Andres\_Engineering\AE\_Projects\2024\AE2426\_Murrays Bridge\Drawings\Model\MANN\_MODEL\AE2426\_Murrays\_Br.rvt



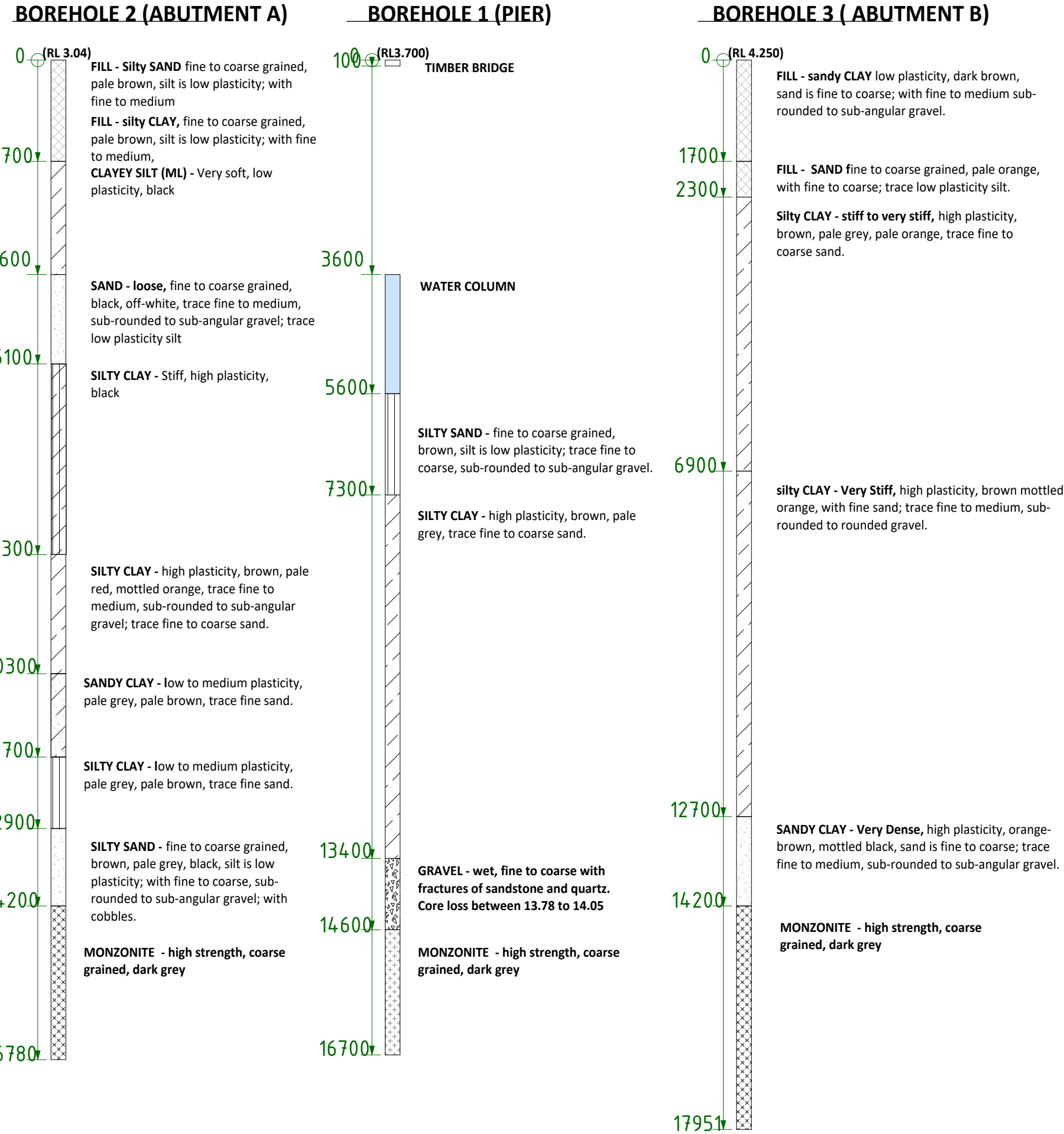
SURVEY MARKS & SETOUT POINTS				
MARK	EASTINGS	NORTHINGS	RL (m)	COMMENTS
SOP 1	267897042	6099504559	3.762	
SOP 2	267910537	6099504927	4.018	
SOP A	267883222	6099504183	3.500	
SOP B	267920708	6099505204	4.200	
STN 01	267756255	6099481262	1.620	
STN 02	267861989	6099504210	2.980	
STN 03	267872688	6099517788	2.190	
STN 04	267862880	6099500344	2.810	
STN 05	267880871	6099499368	1.890	

TABLE 2 - DRIVEN PILE DETAILS											
MARK	Eastings	Northings	TYPE	VERTICAL LOADS		LATERAL (kN)	BENDING		CUT OFF LEVEL <sup>2</sup>	DESIGN FOUNDING LEVEL	TOTAL DRIVING PILE LENGTH (m)
				MIN <sup>1</sup> (kN)	MAX <sup>1</sup> (kN)		LONGITUDINAL (kN.m)	LATERAL (kN.m)			
P1-1	267896995	6099506309	CHS TUBE PILE	270	1570	80	145	330	2.095	-10.830	12.925
P1-2	267897090	6099502810	CHS TUBE PILE	270	1570	80	145	330	2.095	-10.830	12.925
P2-1	267910490	6099506676	CHS TUBE PILE	230	1440	80	146	285	2.350	-10.701	13.051
P2-2	267910585	6099503178	CHS TUBE PILE	230	1440	80	146	285	2.350	-10.701	13.051
PA-1	267883610	6099506469	CHS TUBE PILE	-110	690	135	1135	512	1.910	-10.941	12.851
PA-2	267883672	6099504195	CHS TUBE PILE	200	710	135	1135	516	1.910	-10.941	12.851
PA-3	267883734	6099501921	CHS TUBE PILE	230	690	135	1135	512	1.910	-10.941	12.851
PB-1	267920177	6099508191	CHS TUBE PILE	180	585	130	785	520	2.470	-10.616	13.086
PB-2	267920259	6099505192	CHS TUBE PILE	180	405	130	785	520	2.470	-10.616	13.086
PB-3	267920340	6099502193	CHS TUBE PILE	180	585	130	785	520	2.470	-10.616	13.086
WA1	267881831	6099499791	BORED PILE	0	60	45	50	50	2.210	-5.590	7.800
WB1	267921920	6099498941	BORED PILE	0	50	30	50	50	3.250	-1.750	5.000

#### GENERAL NOTES

DIMENSIONS IN MILLIMETERS.  
CO-ORDINATES ARE TO MGA.  
REDUCED LEVELS TO AHD (m).

### 1 SETOUT PLAN 1 : 75



#### DRIVEN PILE NOTES

DRIVEN PILES ARE TO BE FOUNDED ON HW/SW SANDSTONE STRATA MATERIAL AS DESCRIBED IN THE GEOTECHNICAL REPORT.  
DRIVEN PILES ARE TO BE DRIVEN TO REFUSAL TO SUIT THE NOMINATED LEVELS. REFUSAL SHALL BE ACHIEVED FOR SETS OF 20mm / 10 BLOWS.  
IF APPROVED, DRIVING PILES MAY CEASE AT SETS CORRESPONDING TO  $R_{UT}$ , WHICH SHALL BE DETERMINED BY DIVIDING THE DESIGN LOAD BY AN APPROVED GEOTECHNICAL STRENGTH REDUCTION FACTOR  $\phi_G$  IN ACCORDANCE WITH AS2159. A REDUCTION FACTOR OF 0.7 MAY BE ADOPTED WHERE PDA IS UNDERTAKEN ON A MINIMUM OF 1 PER PER ABUTMENT.  
THE MINIMUM NET DRIVING ENERGY SHALL BE 15KJ THE MAXIMUM NET DRIVING ENERGY SHALL BE 30KJ.  
IF MECHANICAL SPLICES ARE USED THEY SHALL NOT BE USED ABOVE THE MAXIMUM TOE LEVEL UNLESS THEY ARE CAPABLE OF PROVIDING THE DESIGN BENDING MOMENT OF THE PILE. OTHERWISE THEY ARE NOT TO BE USED WITHIN 3M OF THE PILE CUTOFF LEVEL.

#### BORED WING WALL PILE NOTES

THE NOMINATED LOADS AND MOMENTS APPLY TO THE STRUCTURE AS DESIGNED. ANY PROPOSED CHANGES TO THE PILES AND PILE LAYOUT MAY SIGNIFICANTLY ALTER THE BEHAVIOUR OF THE STRUCTURE, AS WELL AS THE PILE LOADS AND MOMENTS, AND SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR APPROVAL.  
BORED PILES ARE DESIGNED AS LATERAL PILES AND MUST BE FOUNDED ON CLASS 3A SILTY CLAY OR BETTER ( $SPT > 15$ ).  
BORED PILES TO THE STRATA INDICATED ON PLAN.  
ASSUMED MINIMUM ULTIMATE CAPACITIES FOR FOUNDING MATERIAL AS FOLLOWS:  
UNIT - SILTY CLAY:  
300KPA END BEARING  
70 KPA SKIN FRICTION

NOT FOR CONSTRUCTION

Drawing scales true at A1

A1	APPROVAL		D.Anabalon		06/11/24
P1	Preliminary 80%		D.Anabalon		
Issue	Description	Name	Initial	Date	
Design not to be amended without authorisation by Certifier					



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAY ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01).  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CP Eng, MIEAust., NER No 2176595)		

### MURRAYS BRIDGE OVER CONJOLA CREEK SETOUT AND PILING DETAILS - SHEET 1

PLAN REFERENCE	DWG 10104.23
----------------	--------------

Project Job Ref. AE2426

Sheet No.	008	of	028	Rev	A1
-----------	-----	----	-----	-----	----

APPROVAL ISSUE

Designed By:	Andres Engineering
Bateau Bay NSW 2261 Australia T - 0434 901 672 E - info@andresengineering.com.au ABN - 33 620 457 052	





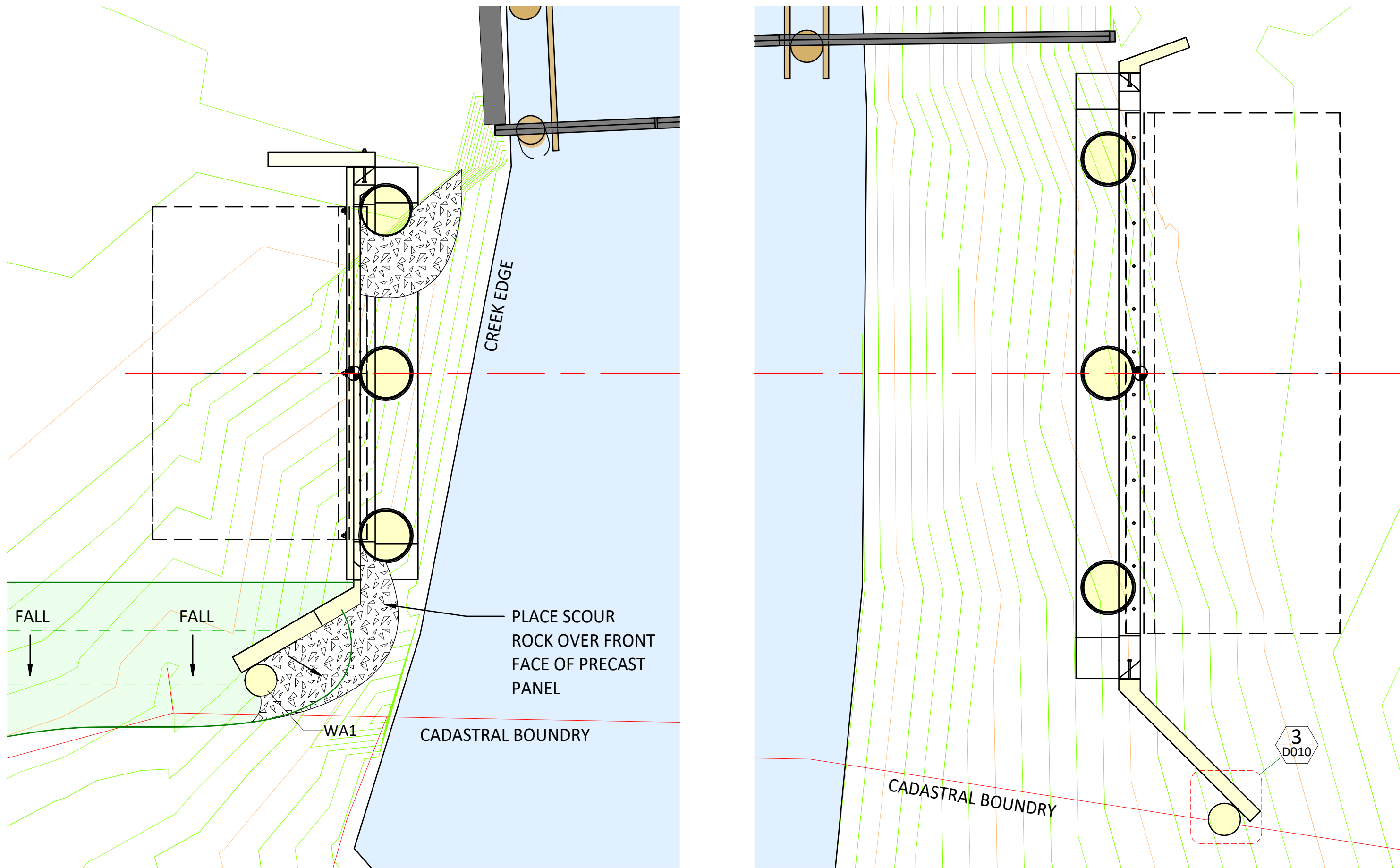


This drawing is the property of ANDES ENGINEERING PTY LTD. The drawings and the technical specifications contained herein shall not be used or reproduced in any form without the written consent of ANDES ENGINEERING PTY LTD. The drawings and the technical specifications contained herein shall not be used or reproduced in any form without the written consent of ANDES ENGINEERING PTY LTD. The drawings and the technical specifications contained herein shall not be used or reproduced in any form without the written consent of ANDES ENGINEERING PTY LTD.

Issue Date

DOA

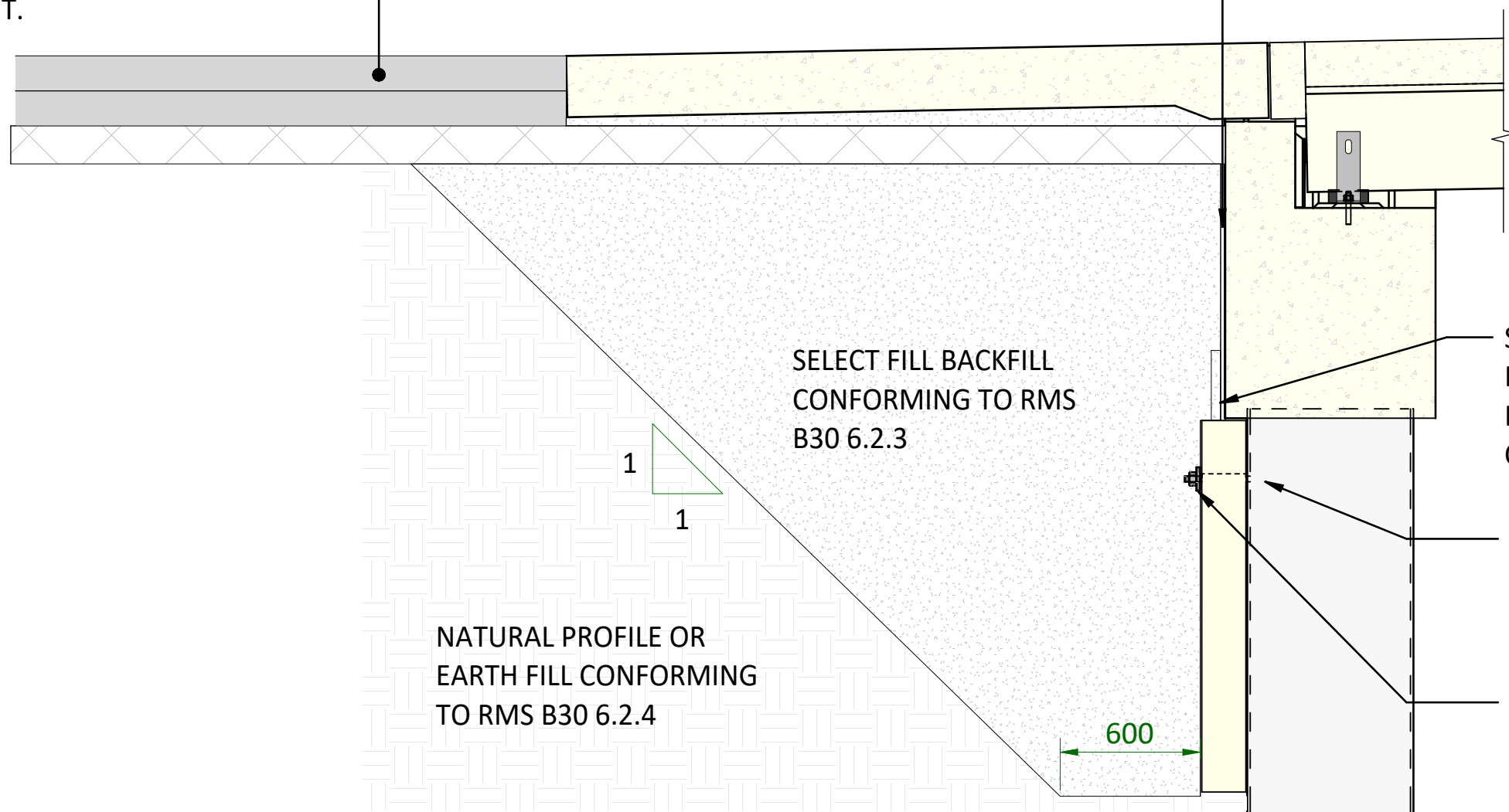
D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drafting\Model\MANN MODEL\AE2426 Murrays Br.mxd



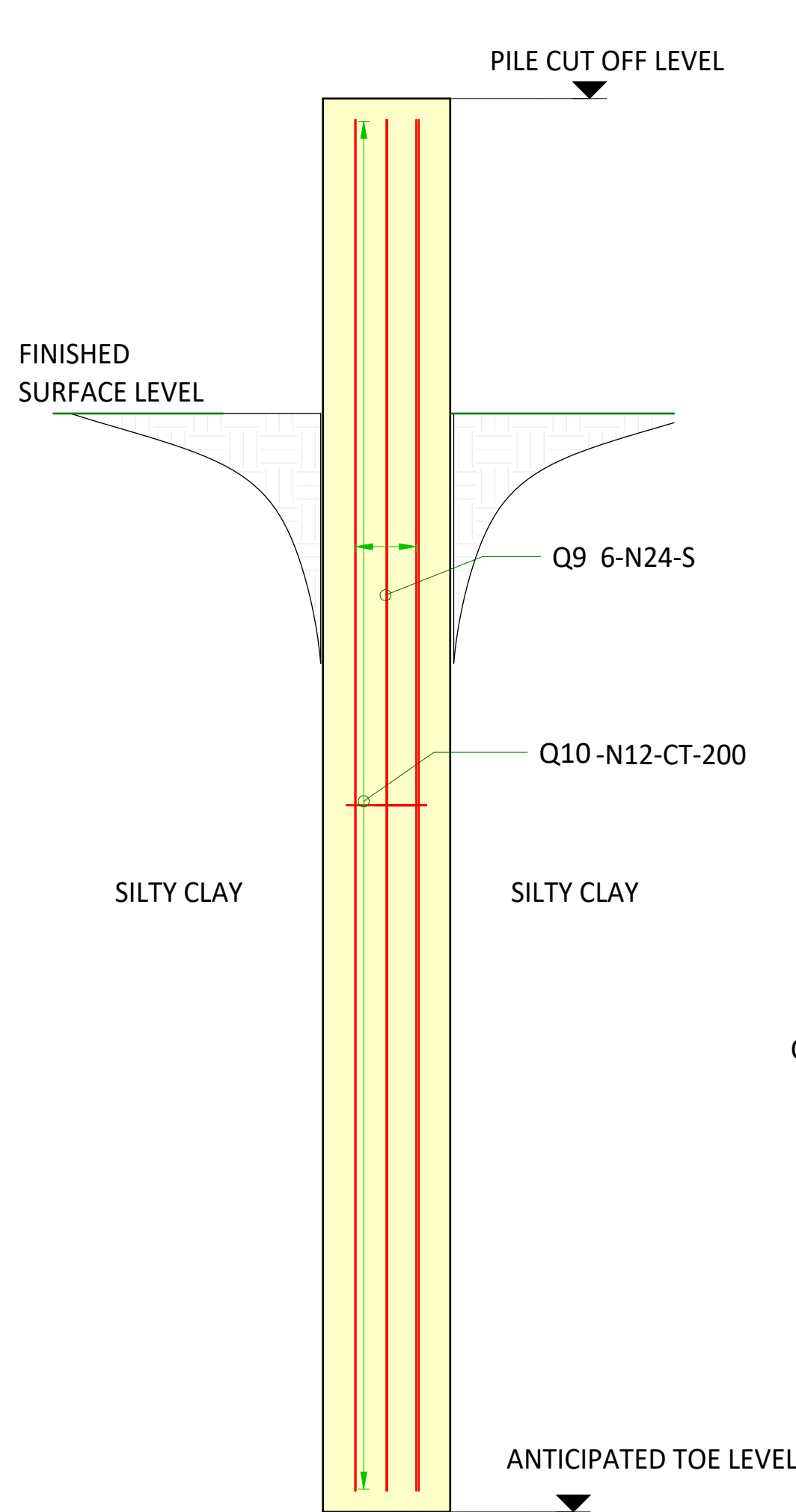
**1 ABUTMENT SCOUR PROTECTION MEASURES PLAN**  
1 : 50

NOMINAL 300 THICK PAVEMENT .  
REFER ROADWORKS SHEETS.  
PAVEMENT LAYERS TO CONTINUE  
THROUGH TO FACE OF  
ABUTMENT.

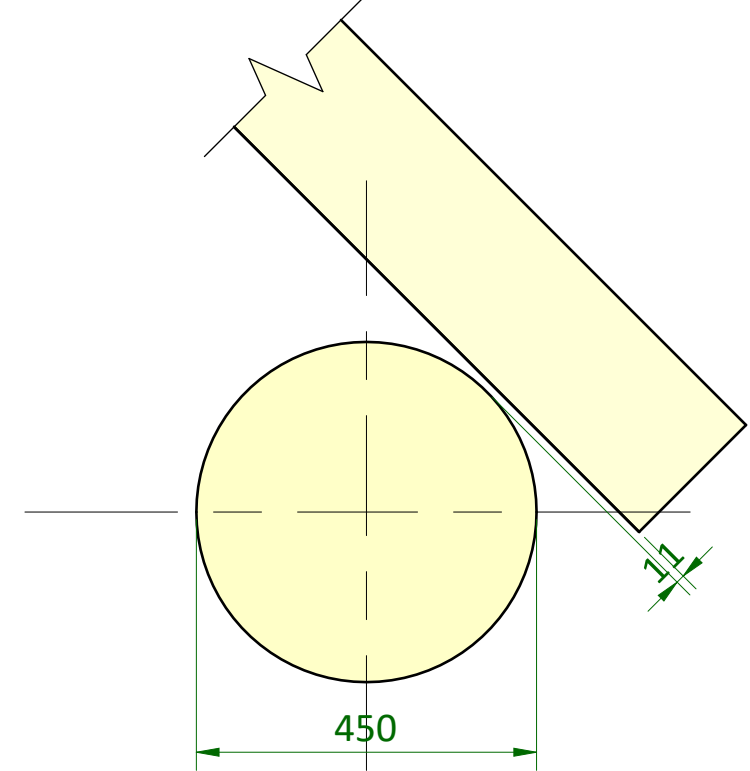
SHEET DRAIN TO BACK FACE OF  
ABUTMENT.  
(GEOFABRICS GEOSHEET CS20F OR  
EQUIVALENT)



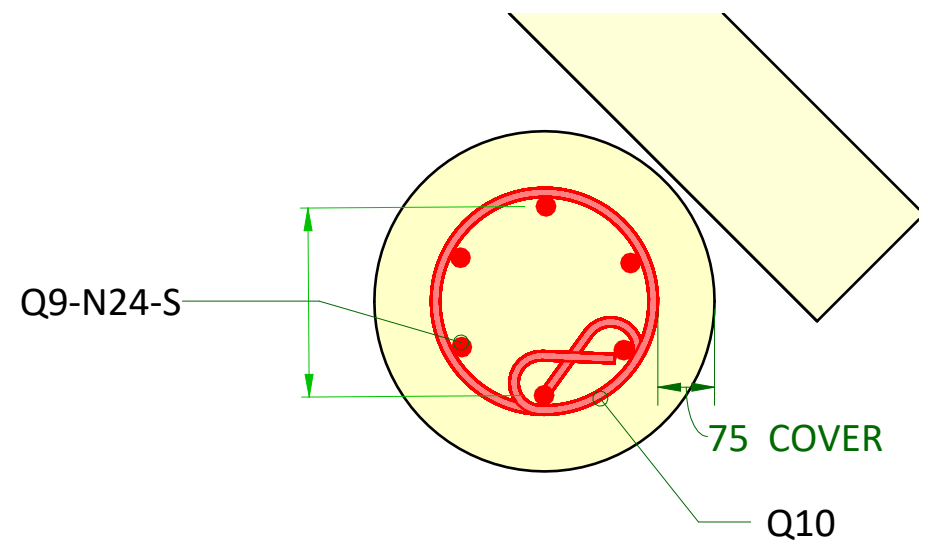
**2 ABUTMENT BACKFILL SECTION**  
1 : 25



**6 WING WALL PILES**  
ELEVATION | 1 : 20



**3 WING WALL PILES**  
CONCRETE | 1 : 10



**4 WINGWALL PILES**  
REINFORCEMENT | 1 : 10

#### ROCK FACING

ROCK GRADING		
	MIN	MAX
D15	185	267
D50	292	356
D85	394	470
D100		610

#### BACKFILLING BEHIND ABUTMENTS

BACKFILL MATERIAL BEHIND HEADSTOCKS, WINGWALLS AND RETAINING WALLS SHALL BE: FREE-DRAINING GRANULAR MATERIAL COMPLYING WITH TfNSW B30 cl 6.2. PLACE AND COMPACT AS PER TfNSW B30 cl 6.4.2.

BACKFILLING BEHIND HEADSTOCKS AND WINGWALLS SHALL NOT COMMENCE UNTIL GIRDER INSTALLATION IS COMPLETED AND BEARING STRIPS/GROUT AT GIRDER ENDS HAS BEEN INSTALLED. (ALTERNATE OF TEMPORARY WEDGING GIRDER ENDS AGAINST ABUTMENT IS PERMITTED BUT WEDGES SHALL NOT BE REMOVED UNTIL PERMANENT BEARING STRIPS/GROUT HAS BEEN INSTALLED)

BACKFILL MATERIAL SHALL BE PLACED IN ACCORDANCE WITH THE FOLLOWING:

- WITHIN 1M OF WALLS AND HEADSTOCKS: PLACE IN LAYERS NOT EXCEEDING 100 AND COMPACT TO 95% RELATIVE COMPACTION (70% MINIMUM DENSITY INDEX IN SAND) USING A HEANDHELD VIBRATING PLATE COMPACTOR OR EQUAL. LARGE COMPACTION EQUIPMENT IS NOT PERMITTED IN THESE ZONES.

ROCK SHALL BE WELL GRADED WITH NOT LESS THAN 50% LARGER THAN A SIZE TWICE THE MINIMUM SIZE SPECIFIED. ROCK SHALL BE CLEAN, HARD, DENSE AND DURABLE IGNEOUS OR METAMORPHIC ROCKS.

ROCK SHALL BE RESISTANT TO WEATHERING, FREE FROM OVERBURDEN, SPOIL, SHALE AND ORGANIC MATTER. ROCK THAT IS LAMINATED, FRACTURED, POROUS, WITH DISCONTINUITIES OR OTHERWISE PHYSICALLY WEAK SHALL NOT BE USED.

THE BREADTH OF THICKNESS OF A SINGLE STONE SHALL NOT BE LESS THAT ONE-THIRD ITS LENGTH.

ROCK PROTECTION SHALL BE CONSTRUCTED IN THE LOCATIONS AND IN ACCORDANCE WITH THE DRAWINGS.

ROCK PROTECTION SHALL HAVE A UNIFORM APPEARANCE OVERALL AND SHALL NOT HAVE NOTICEABLE OVERALL IRREGULARITIES IN HORIZONTAL AND VERTICAL ALIGNMENTS. ROCK PROTECTION SHALL BE PLACED IN A MANNER WHICH ENSURES THAT THE LARGER ROCKS ARE UNIFORMLY DISTRIBUTED THROUGHOUT THE PROTECTION WORK AND THAT THE SMALLER ROCKS EFFECTIVELY FILL THE SPACES BETWEEN THE LARGE ROCKS WITHOUT LEAVING ANY LARGE VOIDS. THE LAYERS OF PLACED ROCK SHALL BE OF EVEN THICKNESS AND OF EVEN GRADING.

**NOT FOR CONSTRUCTION**

Drawing scales true at A1

Issue	Description	Name	Initial	Date
A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		

Design not to be amended without authorisation by Certifier



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01).  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk -
Drafter	DOA	Drafting Chk DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)	

#### MURRAYS BRIDGE OVER CONJOLA CREEK

##### WING WALL PILE AND SCOUR PROTECTION MEASURES

PLAN REFERENCE
DWG 10104.25

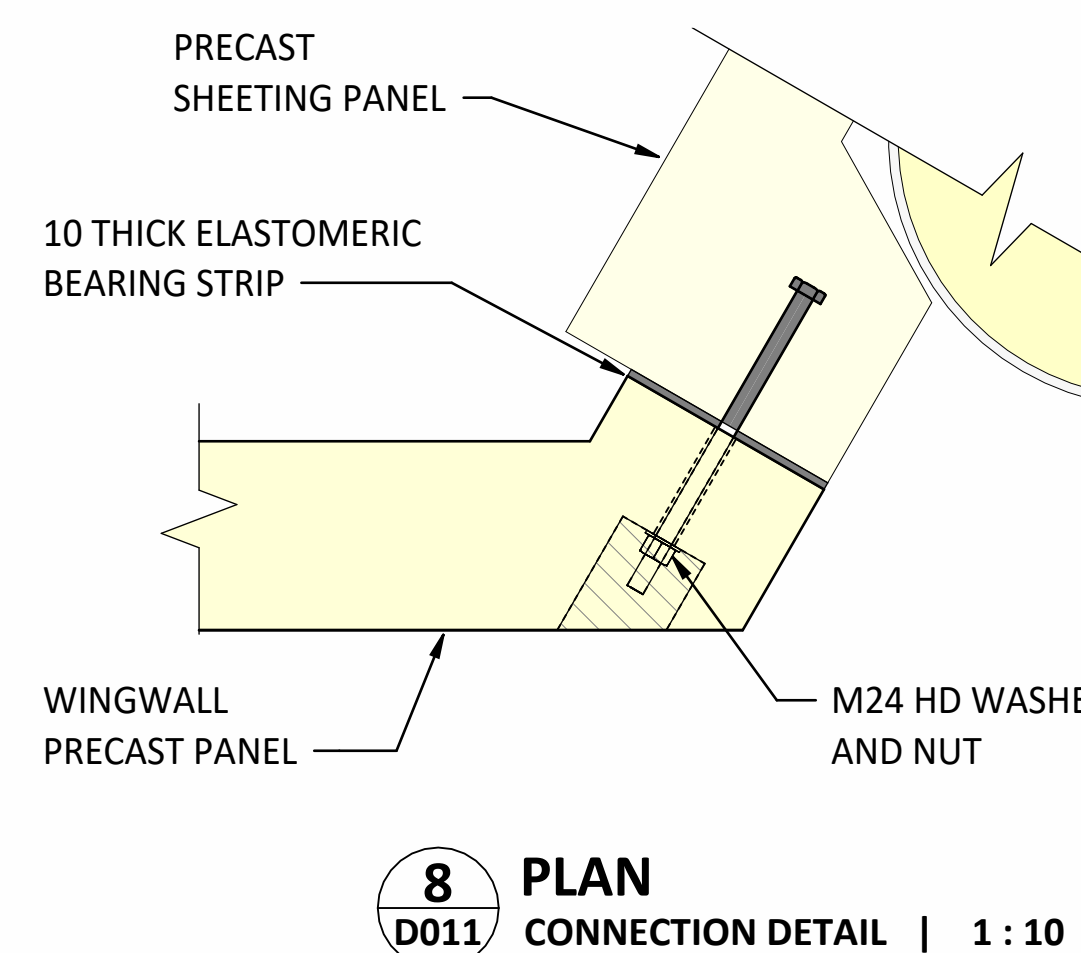
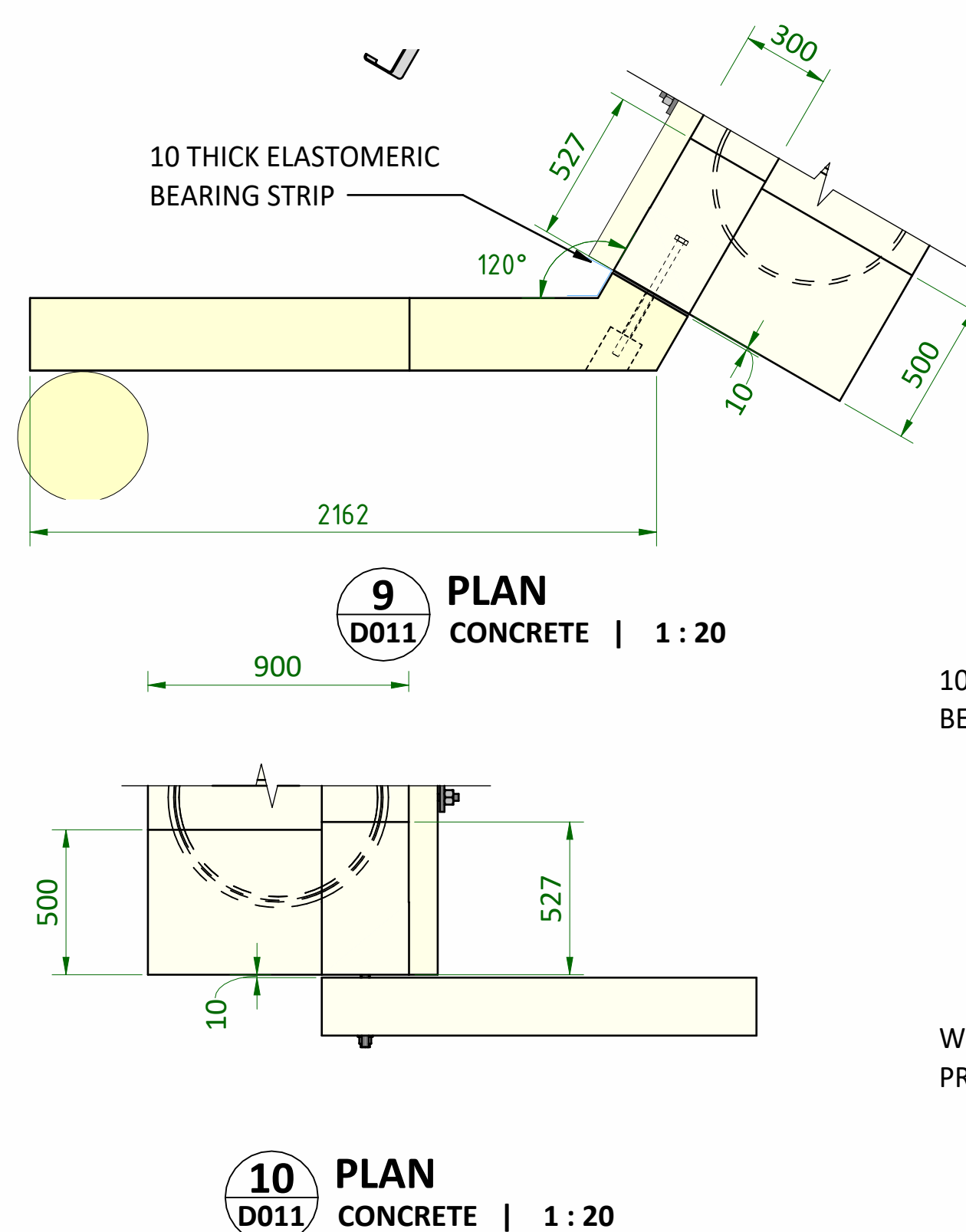
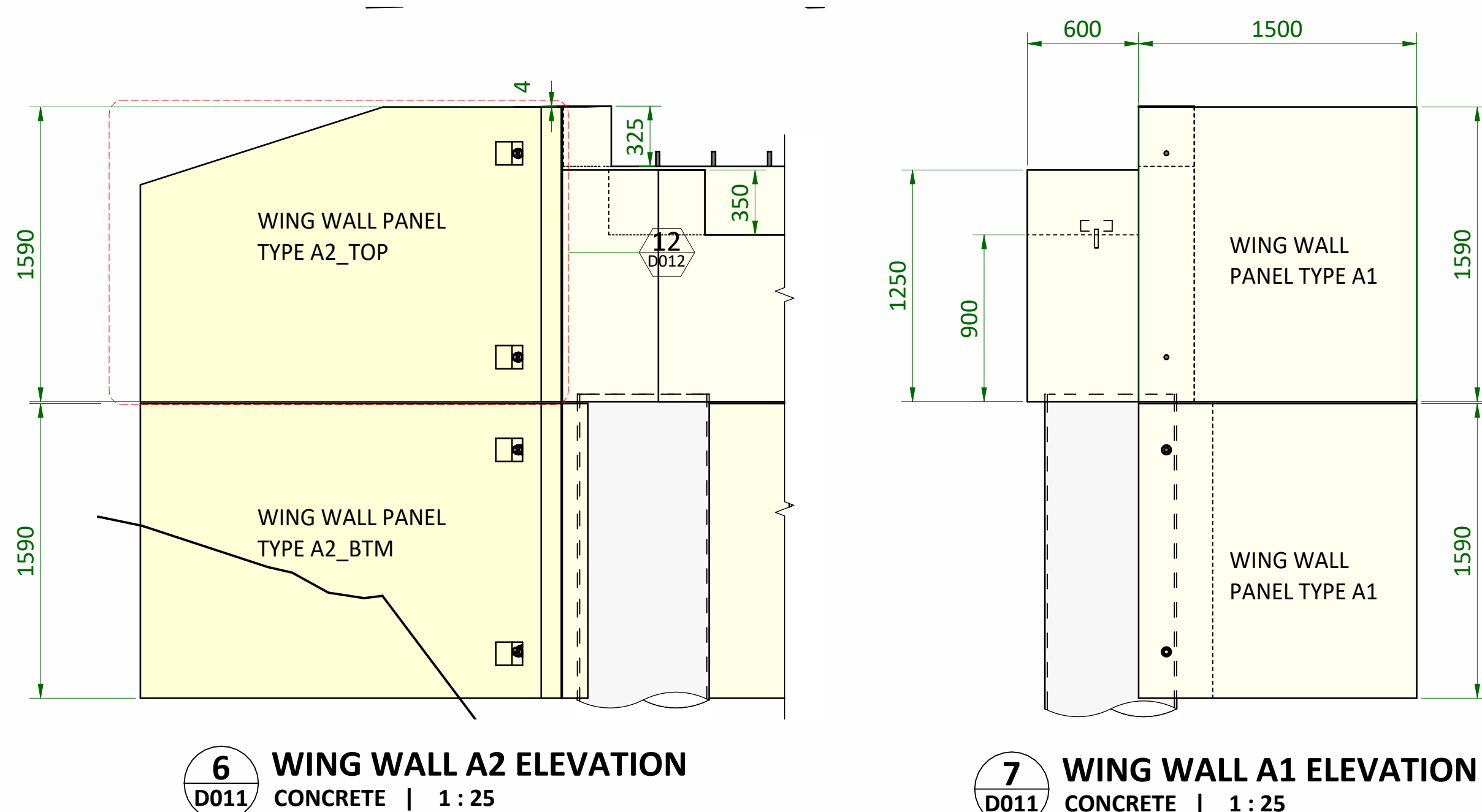
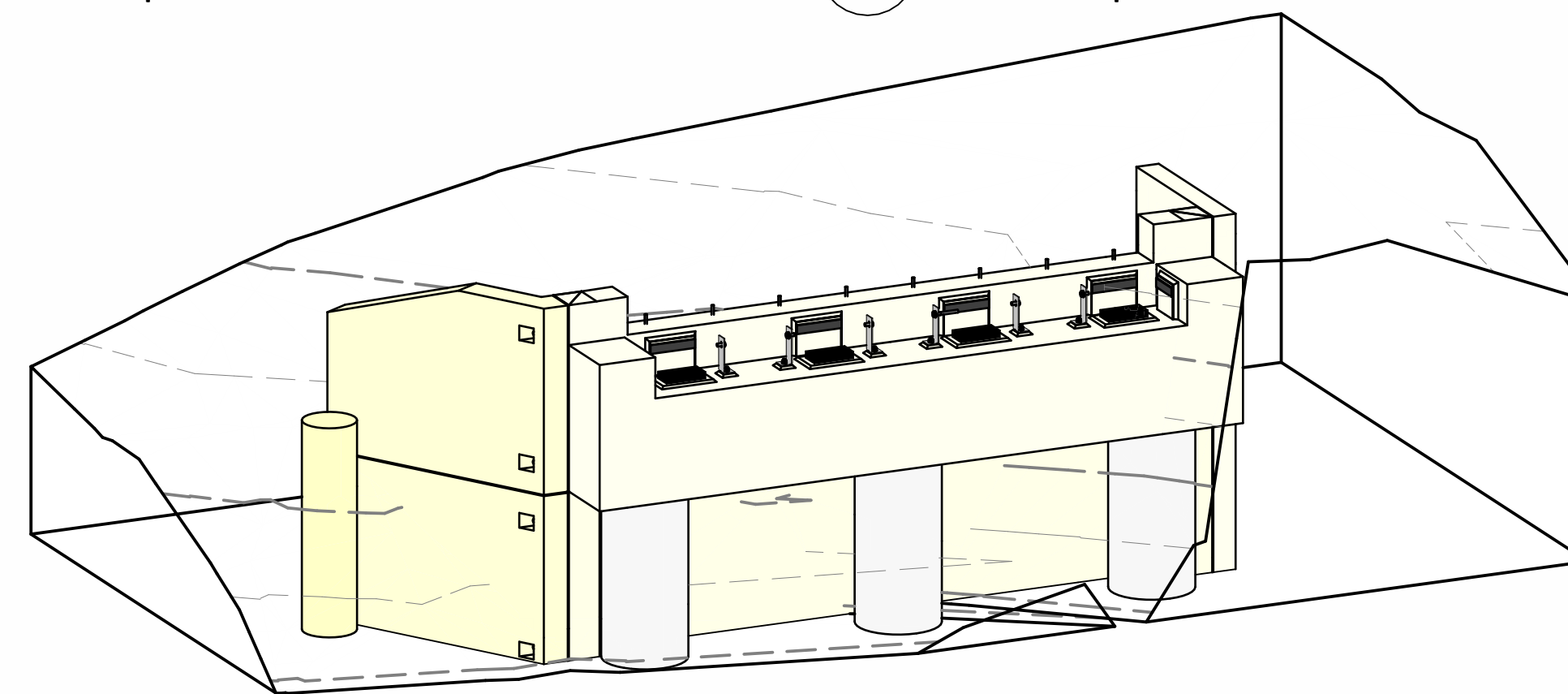
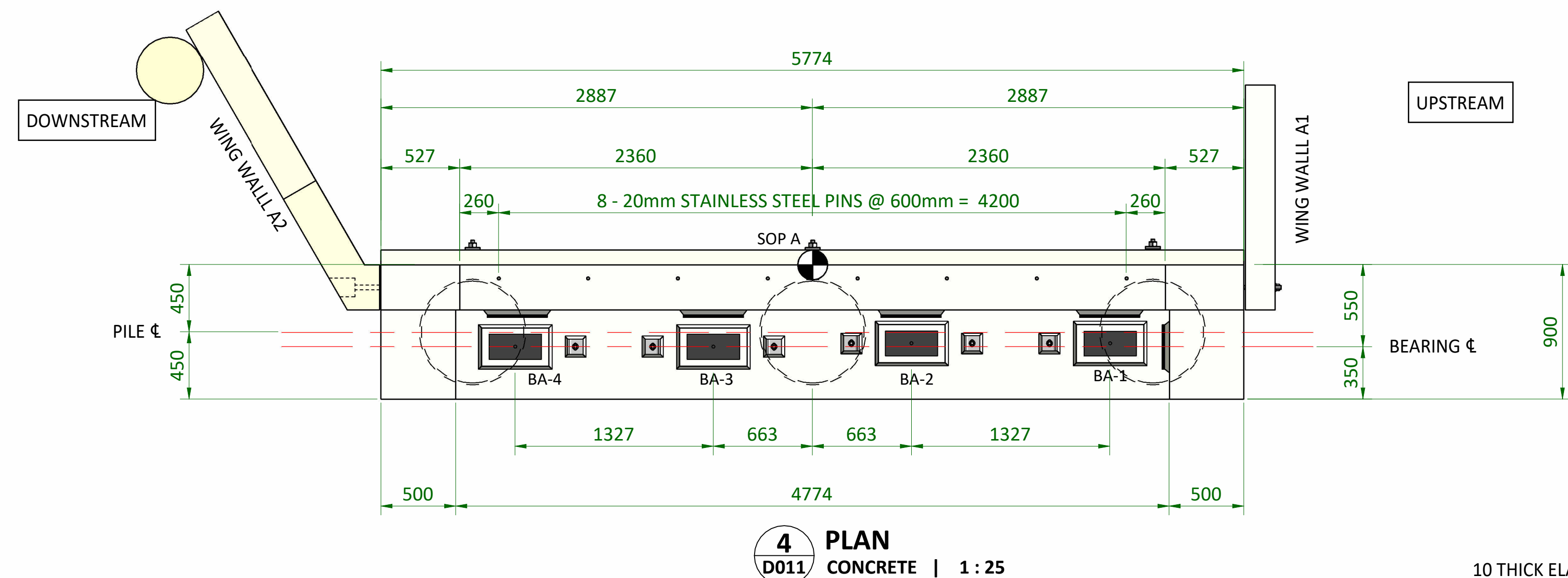
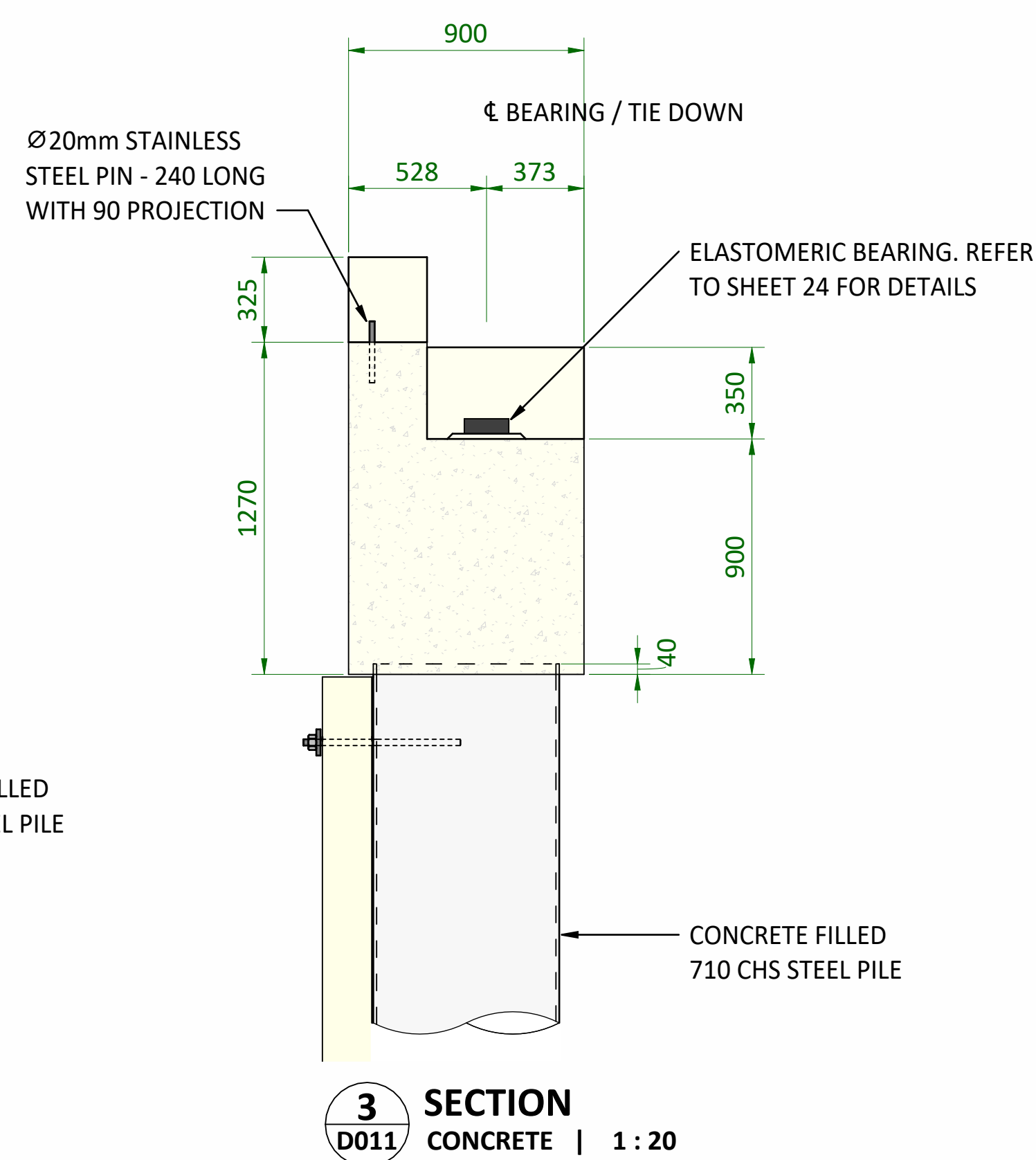
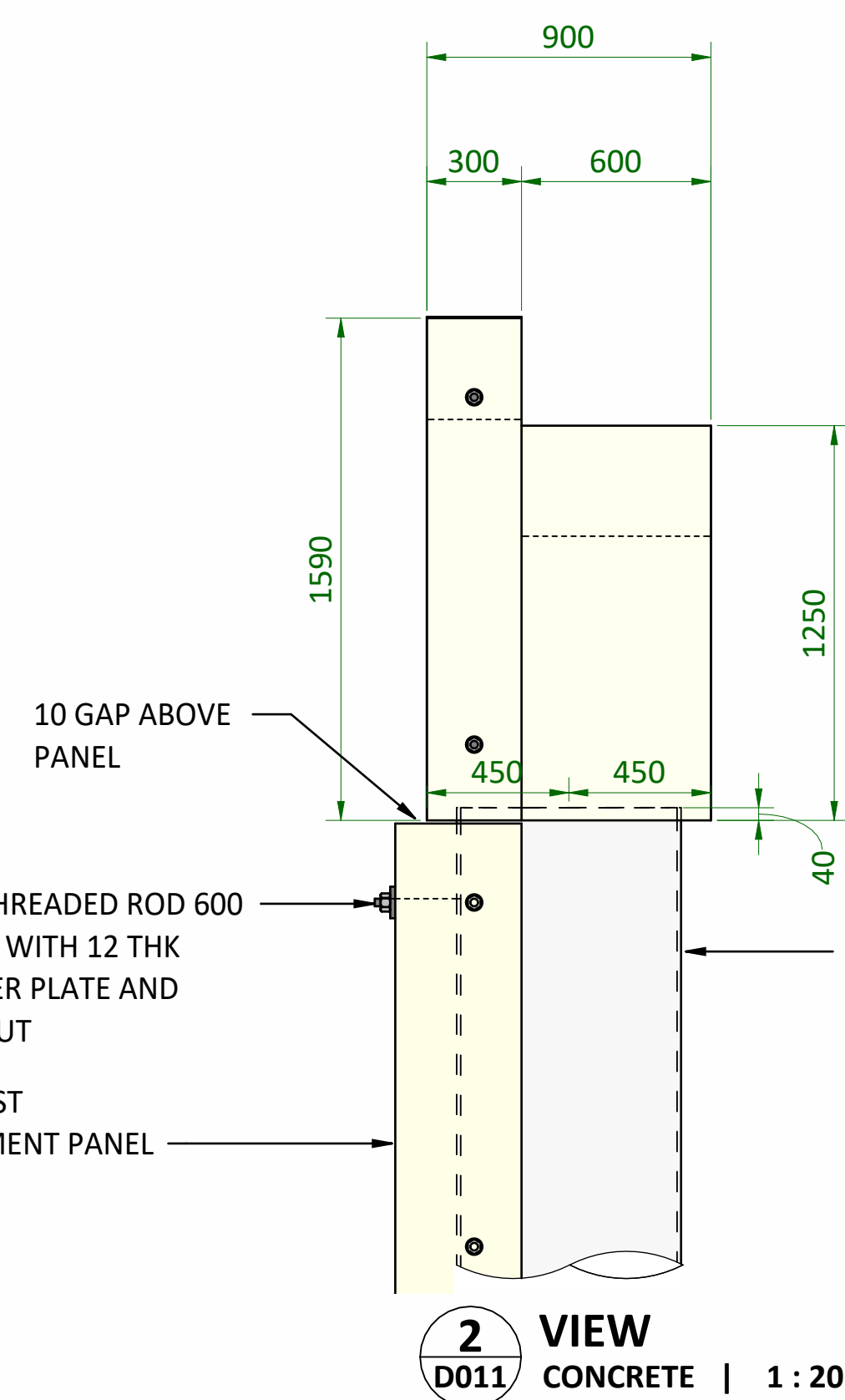
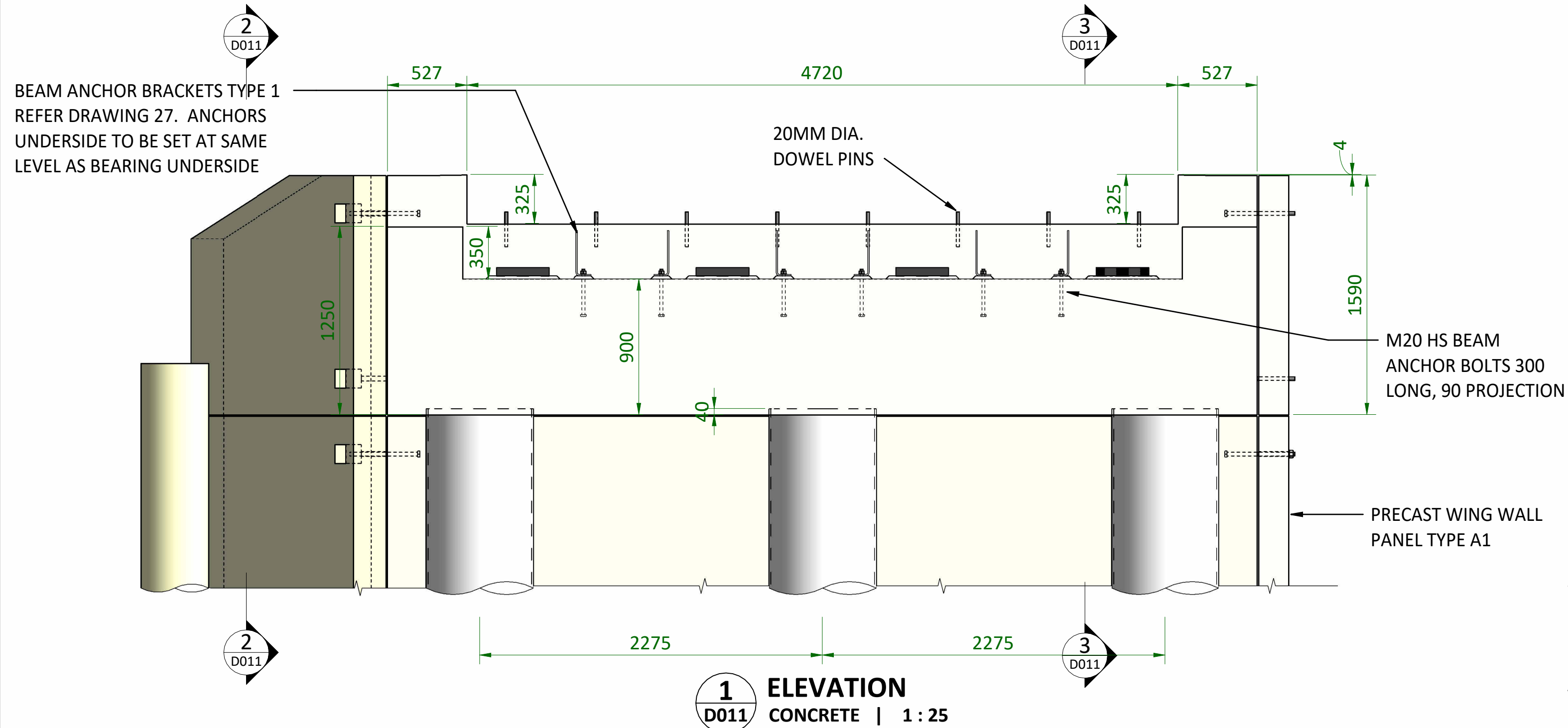
Project Job Ref. **AE2426**

Sheet No.	010	of	028	Rev	A1
APPROVAL ISSUE					

Designed By:	Andes Engineering
Bateau Bay NSW 2261 Australia T - 0434 901 672 E - info@andesengineering.com.au ABN - 33 620 457 052	



D:\OneDrive - andresengineering.com.au\Andres Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drafting\Model\MAIN MODEL\AE2426 Murrays Br.mxd



ABUTMENT A		
BEARING MARK.	TOP OF BEARING RL <sup>1</sup>	CROSSFALL (mm)
BA-1	2.847	0
BA-2	2.847	0
BA-3	2.847	0
BA-4	2.847	0

<sup>1</sup> BEARING LEVELS ARE SET FOR A DECK THICKNESS OF 202mm AT THE BEARING POSITIONS.

**TABLE 1**  
**BEARING LEVELS**

**CONCRETE NOTES**  
DIMENSIONS IN MILLIMETERS.  
CONCRETE EXPOSURE CLASSIFICATION:  
ALL ABUTMENT ELEMENTS - B1.  
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE  
40 MPa.  
CHAMFER EDGES 20X20 AND FILLET RE-ENTRANT ANGLES  
20X20 USO.  
NCF DENOTES NO CHAMFER OR FILLET.

NOT FOR CONSTRUCTION

Drawing scales true at A1

A1	APPROVAL	D.Anabalon		06/11/20
P1	Preliminary 80%	D.Anabalon		
Issue	Description	Name	Initial	Date
Design not to be amended without authorisation by Certifier				



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

**SITE LOCATION**  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer - DOA	Design Chk -
Drafter DOA	Drafting Chk DOA
Approved by:  _____ Douglas Anabalón, Manager (BEng, ME, CPEng, MIEAust., NER No.2176595)	

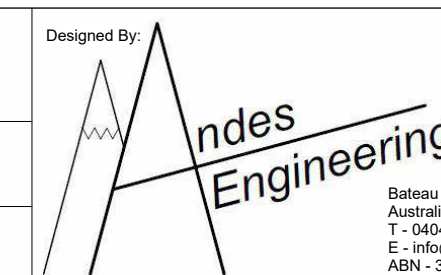
## MURRAYS BRIDGE OVER CONJOLA CREEK

### ABUTMENT A - CONCRETE DETAILS



PLAN REFERENCE
DWG 10104.26

Project Job Ref.	<b>AE2426</b>		
Sheet No.	<b>011</b>	of	<b>028</b>
		Rev	<b>A1</b>
<b>APPROVAL ISSUE</b>			







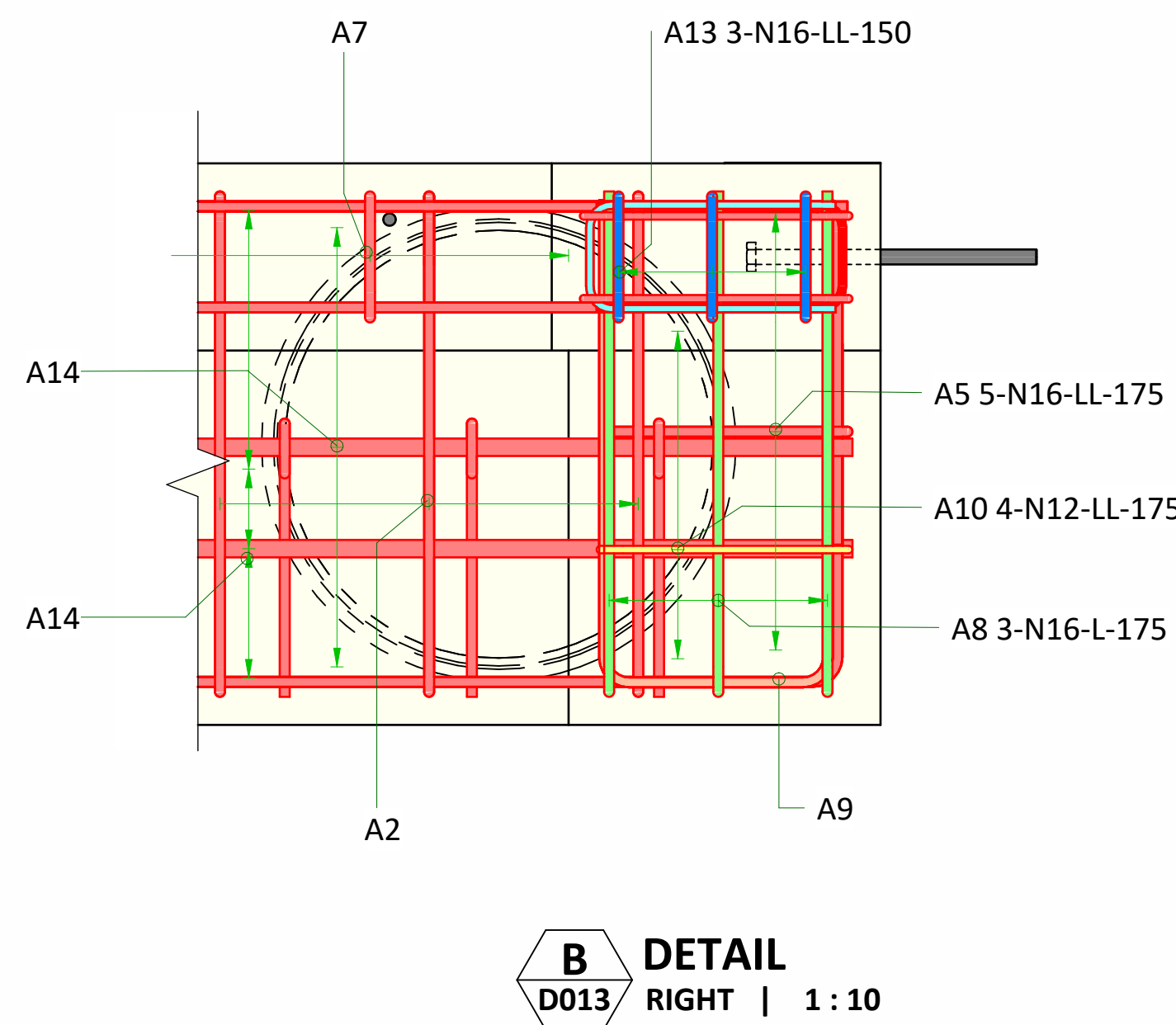
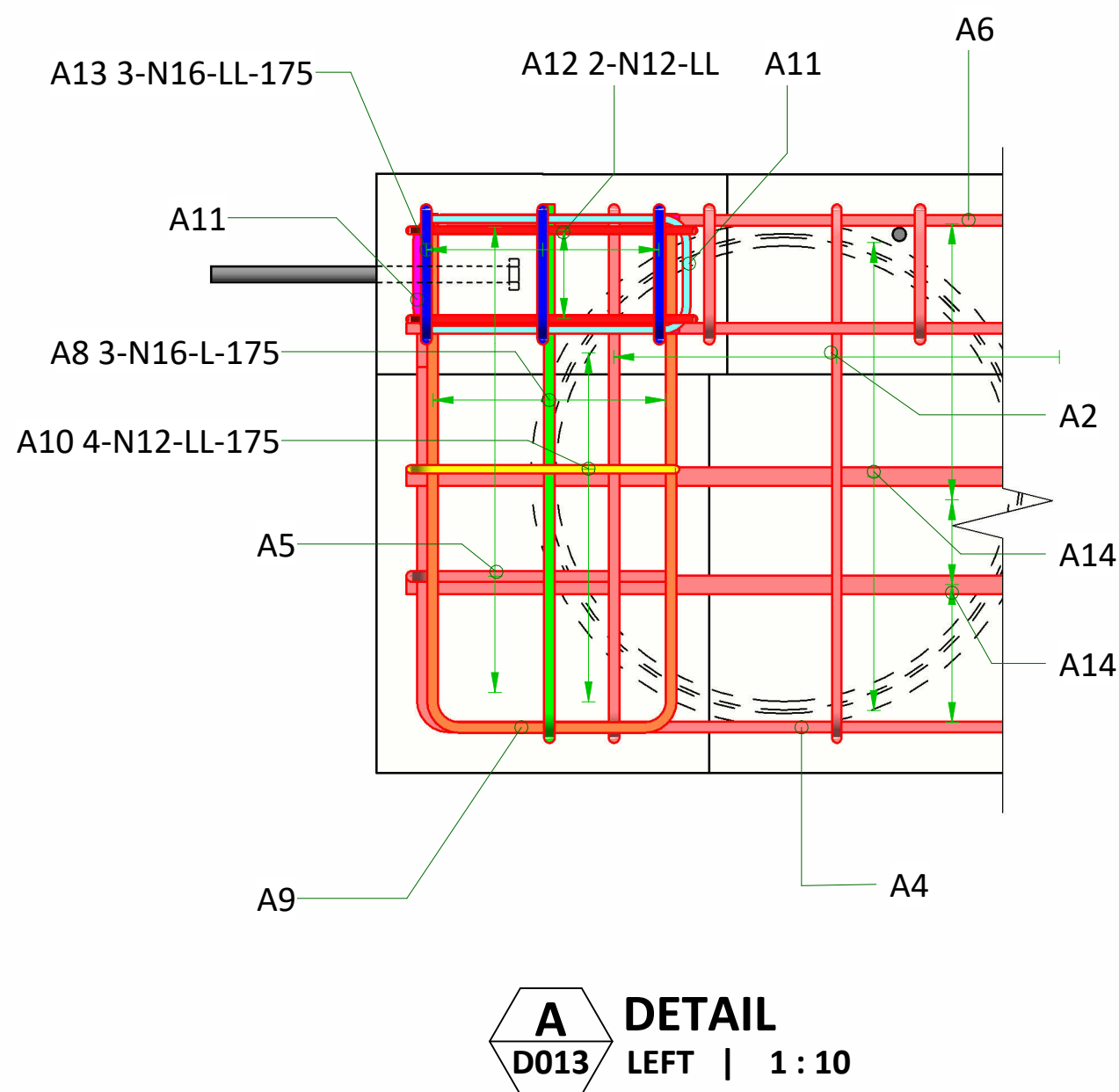
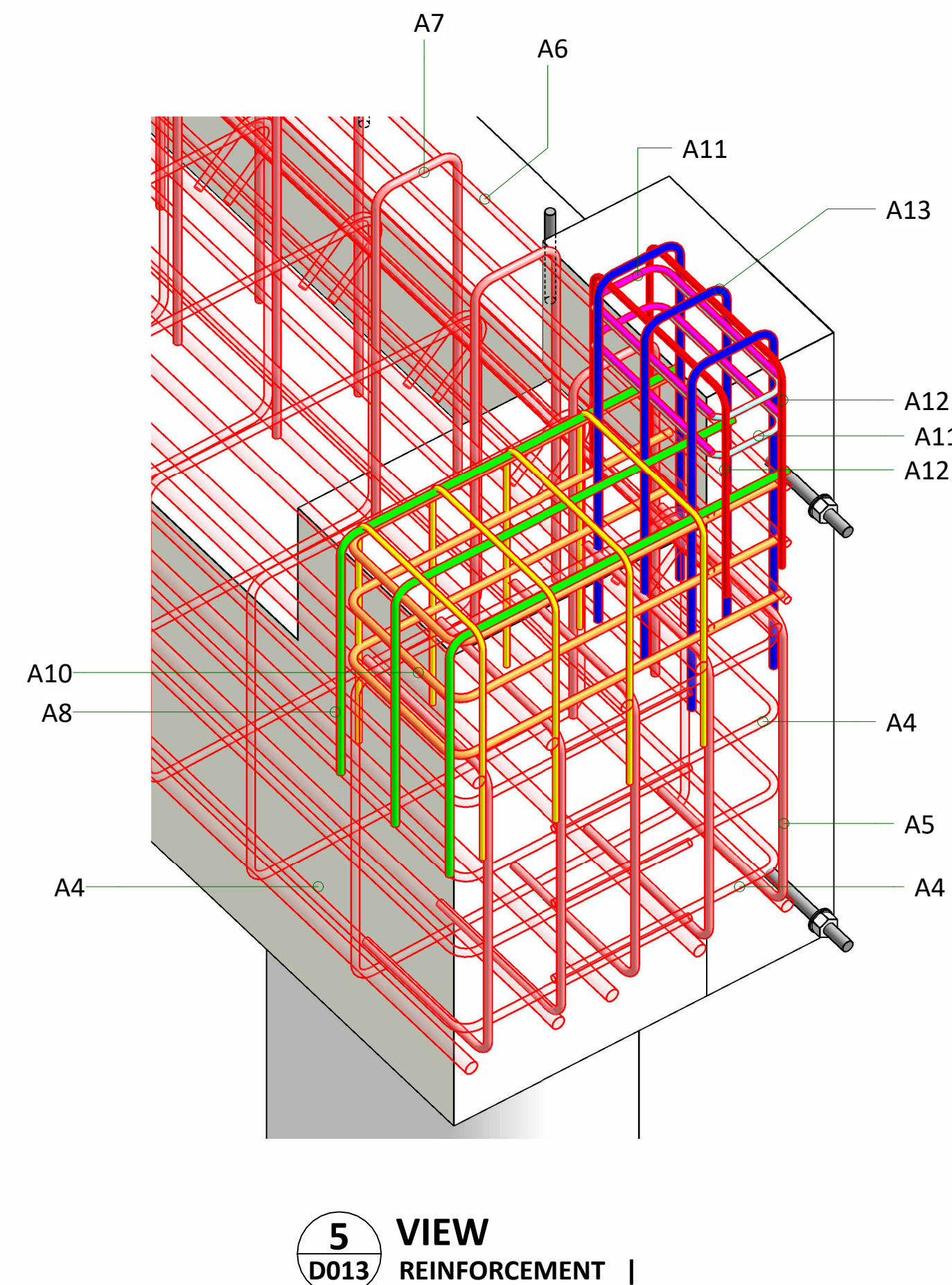
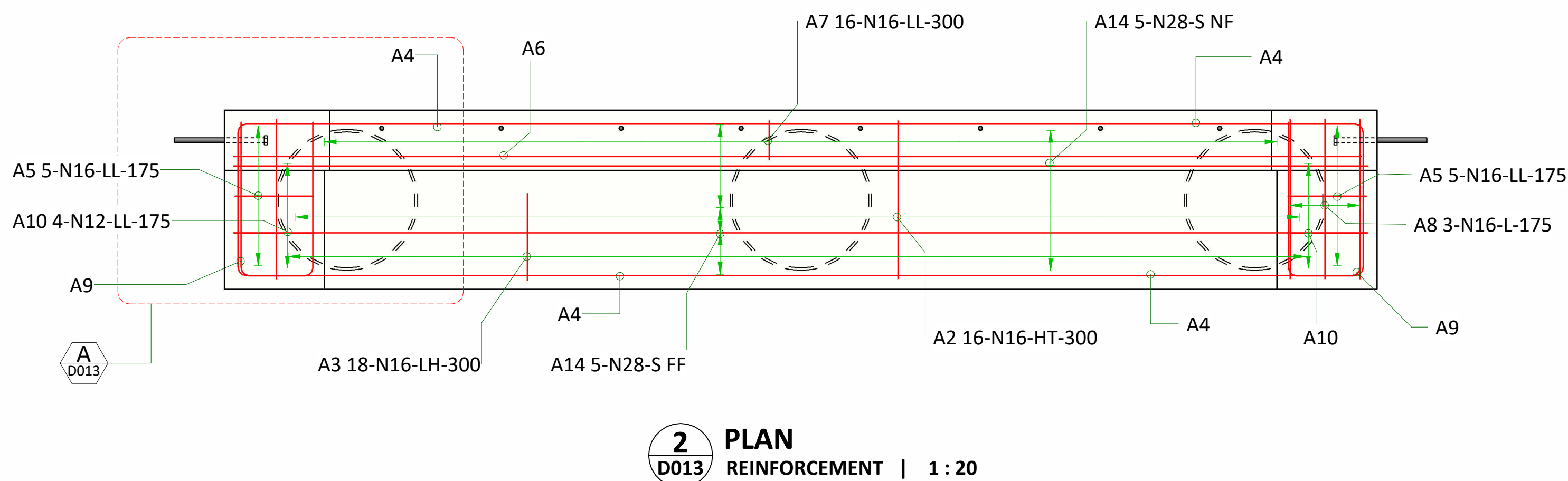
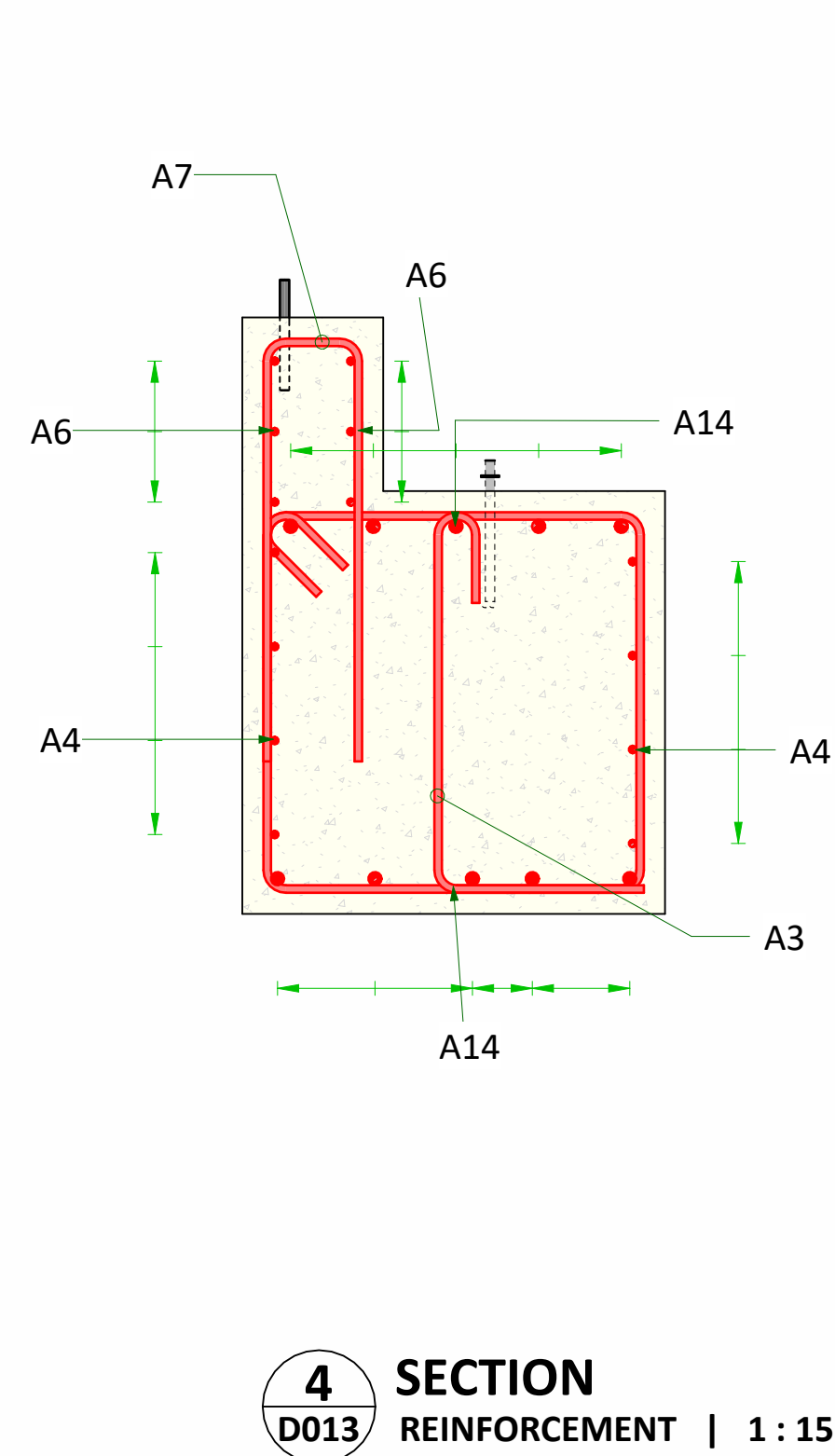
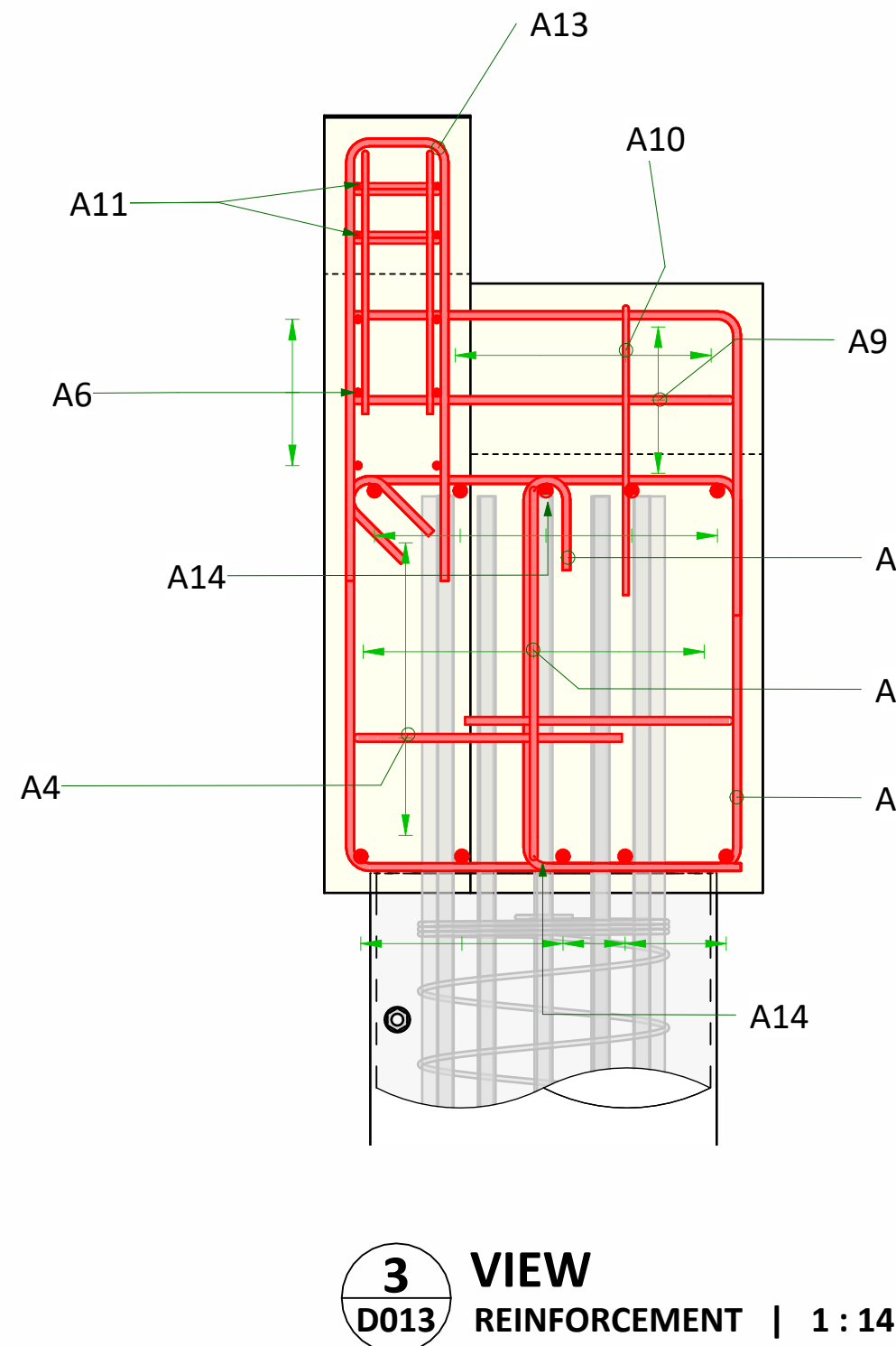
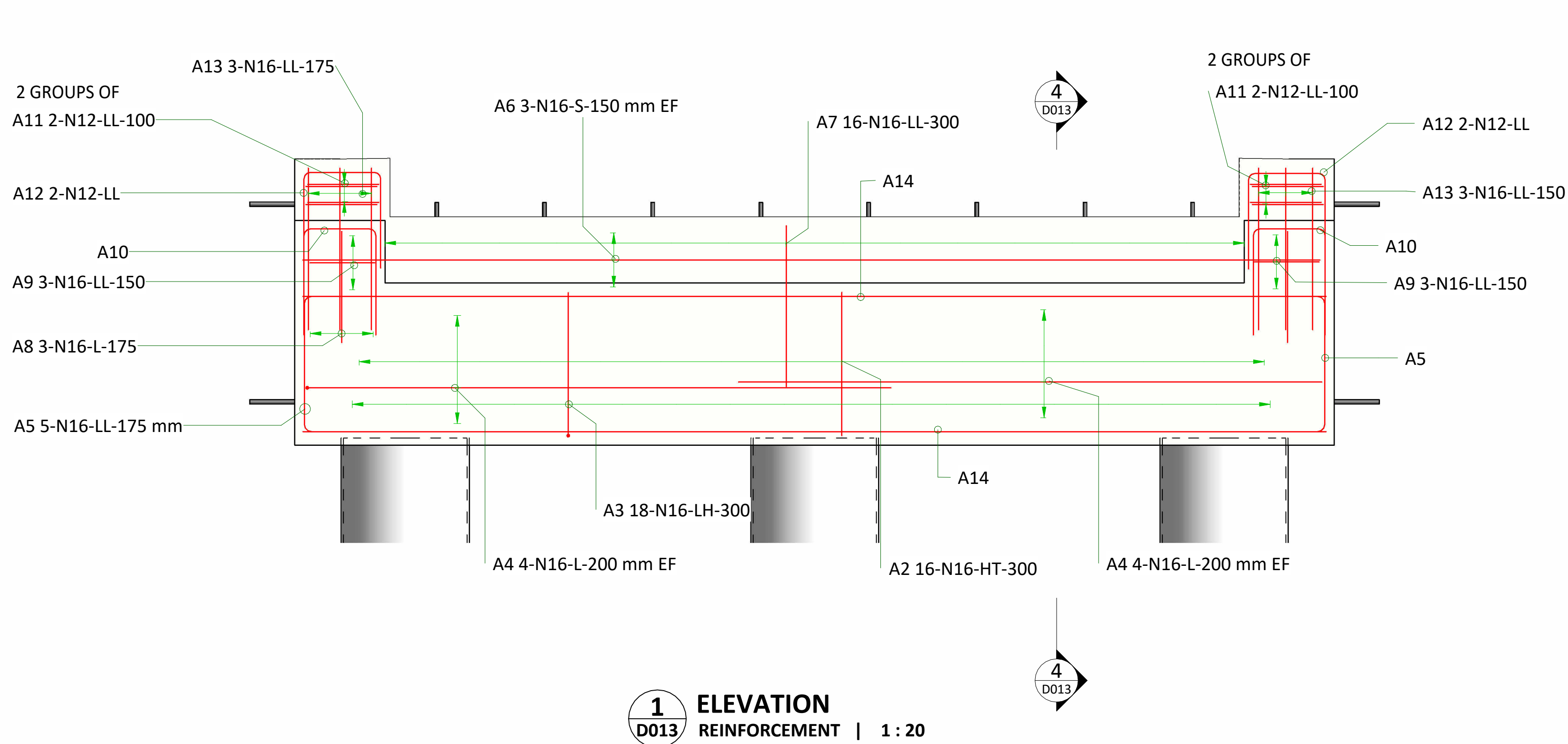


This document is the property of ANDRES ENGINEERING PTY LTD. THE DRAWINGS AND THE CONTENTS HEREIN ARE NOT BE LOANED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. THE DRAWINGS ARE NOT BE LOANED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD.

Issue Date

DOA

D:\OneDrive - andresengineering.com.au\Andres\_Engineering\AE\_Projects\2024\AE2428\_Murrays\_Bridge\Drawings\Model\MANN\_MODEL\A2428\_Murrays\_Br.docx



**REINFORCEMENT NOTES**  
SCALES AS SHOWN  
CLEAR COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE 45 mm USO.  
REINFORCEMENT PLACEMENT ABBREVIATIONS AS FOLLOWS:  
FF FAR FACE NF NEAR FACE  
EF EACH FACE + LENGTH VARIES  
USO UNLESS SPECIFIED OTHERWISE.  
NSOP NOT SHOWN ON PLAN.  
THE MINIMUM LENGTHS OF LAPS SHALL BE AS FOLLOWS  
USO:

BAR SIZE	N12	N16	N20	N24	N28	N32	N36	N40
HORIZONTAL BARS WITH ≥ 300 mm OF CONCRETE CAST BELOW THE BAR	460	650	940	1250	1580	1940	2320	2750
ALL OTHER BARS	350	500	720	960	1210	1490	1790	2110

REINFORCEMENT MAY BE DISPLACED SLIGHTLY TO CLEAR EMBEDDED OBJECTS, HOLES AND RECESSES.  
TACK WELDING OF REINFORCEMENT FOR LOCATION PURPOSES IS TO BE IN ACCORDANCE WITH AS1554.3 CLAUSE 3.3.

**NOT FOR CONSTRUCTION**

Issue	Description	Name	Initial	Date
A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		

<b>FORTEC</b>	FORTEC AUSTRALIA Unit 12/55-57 Newton Road WEATHERILL PARK NSW 2450
---------------	---

SITE LOCATION BRIDGE ON MURRAYS ROAD 1.38km EAST OF INTERSECTION WITH PRINCESS HWY (SH01), 1.0KM NORTH OF FISHERMANS PARADISE
---

Designer - DOA	Design Chk -
Drafter DOA	Drafting Chk DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)

MURRAYS BRIDGE OVER CONJOLA CREEK
ABUTMENT A - REINFORCEMENT DETAILS

Project Job Ref. AE2426
Sheet No. 013 of 028
Rev A1

PLAN REFERENCE
DWG 10104.28

Project Job Ref. AE2426
Sheet No. 013 of 028
Rev A1

Designed By: Andes Engineering
Bateau Bay NSW 2261 Australia T - 0434 901 672 E - info@andesengineering.com.au ABN - 33 620 457 052



This drawing is the property of ANDRES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL DESIGN CONCEPTS ARE THE PROPERTY OF ANDRES ENGINEERING PTY LTD. ANY REUSE OR REPRODUCTION OF ANY FORM OR PART THEREOF WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED. ANY REUSE OR REPRODUCTION OF ANY FORM OR PART THEREOF WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED.

Issue Date

D:\OneDrive - andresengineering.com.au\Andres\_Engineering\AE\_Projects\2024\AE2428 Murrays Bridge\Drawings\Model\MANN MODEL\AE2428 Murrays Br.rvt

A1	APPROVAL		D.Anabalon		06/11/24
P1	Preliminary 80%		D.Anabalon		
Issue	Description	Name	Initial	Date	
Design not to be amended without authorisation by Certifier					



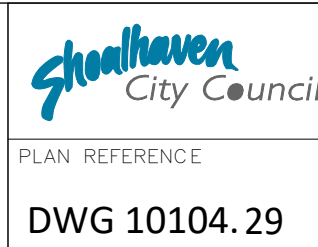
FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

## MURRAYS BRIDGE OVER CONJOLA CREEK

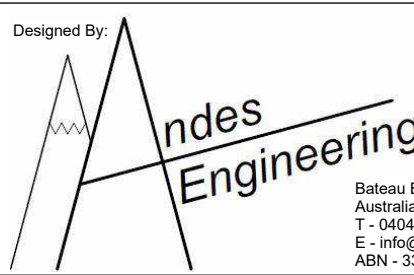
### ABUTMENT B - CONCRETE DETAILS



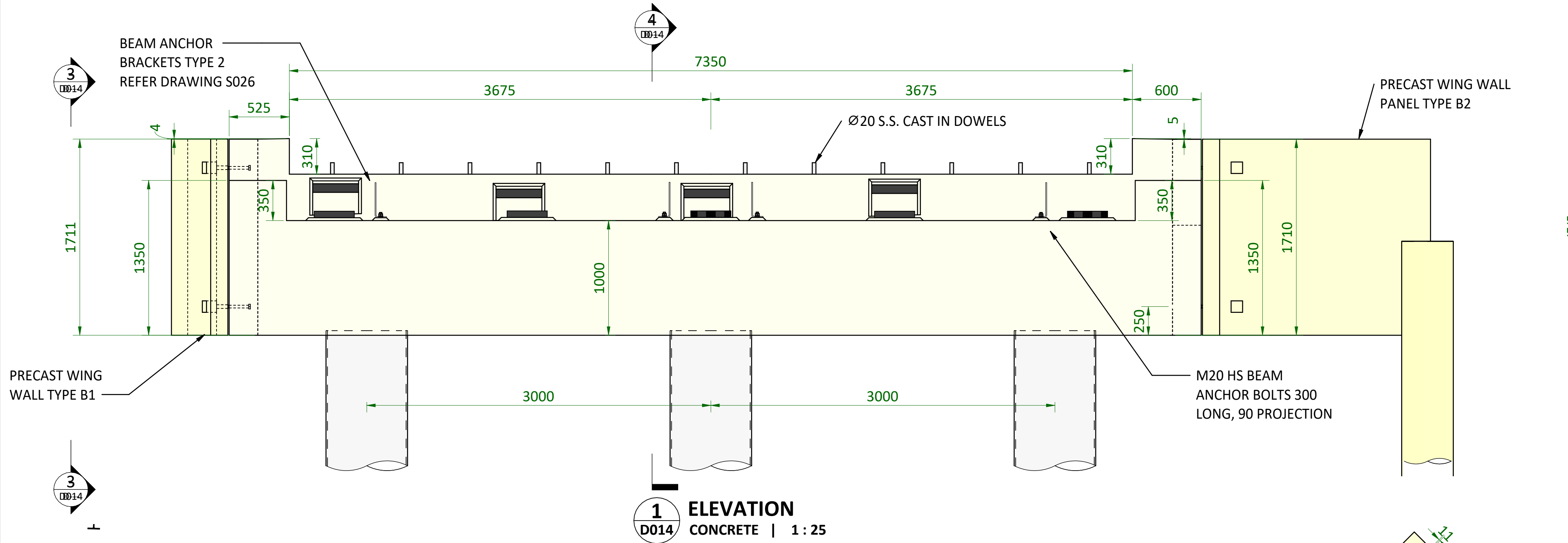
PLAN REFERENCE  
DWG 10104.29

Project Job Ref. **AE2426**

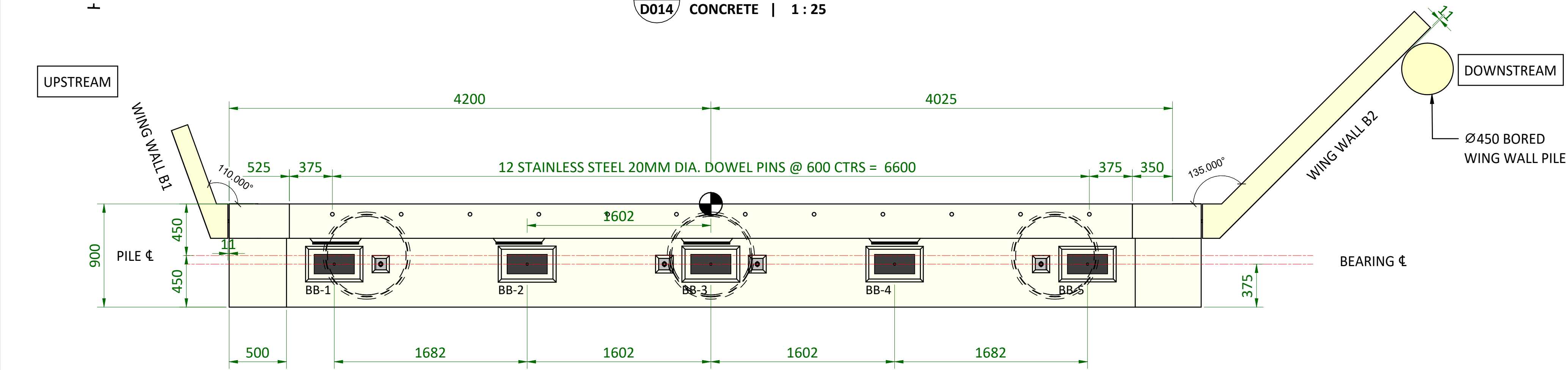
Sheet No. **014** of **028** Rev **A1**  
**APPROVAL ISSUE**



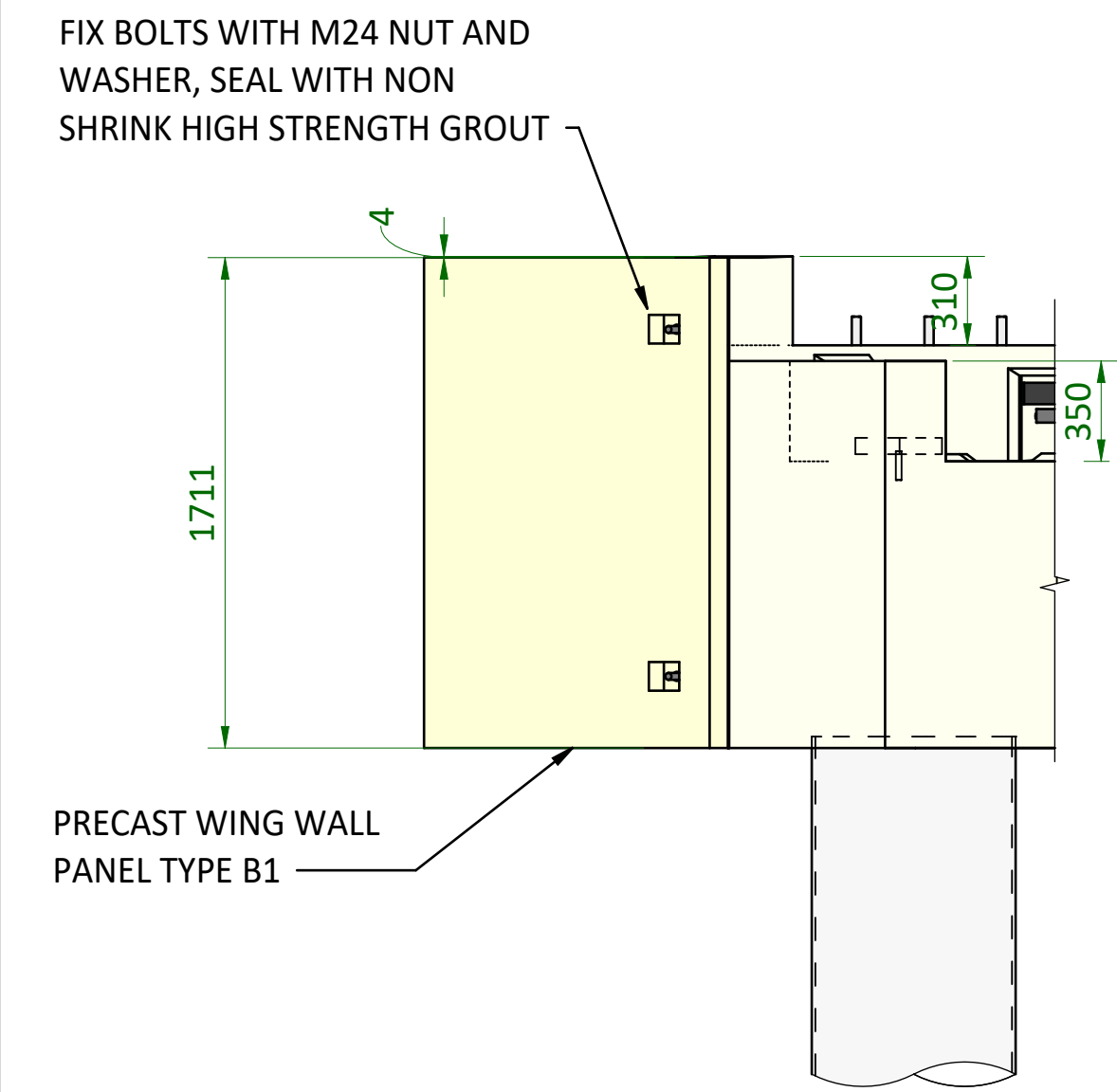
Drawing scales true at A1



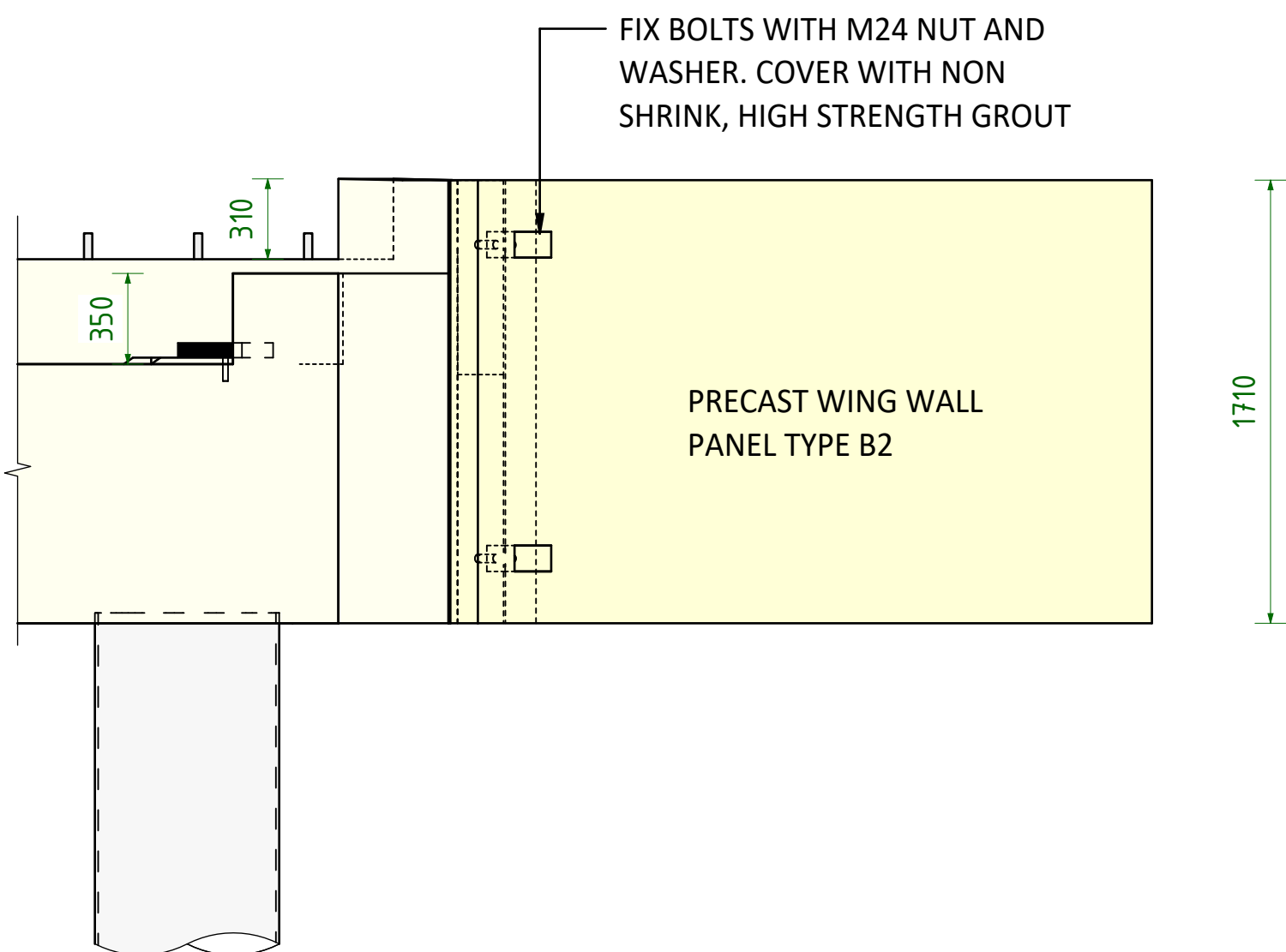
**1 ELEVATION**  
D014 CONCRETE | 1 : 25



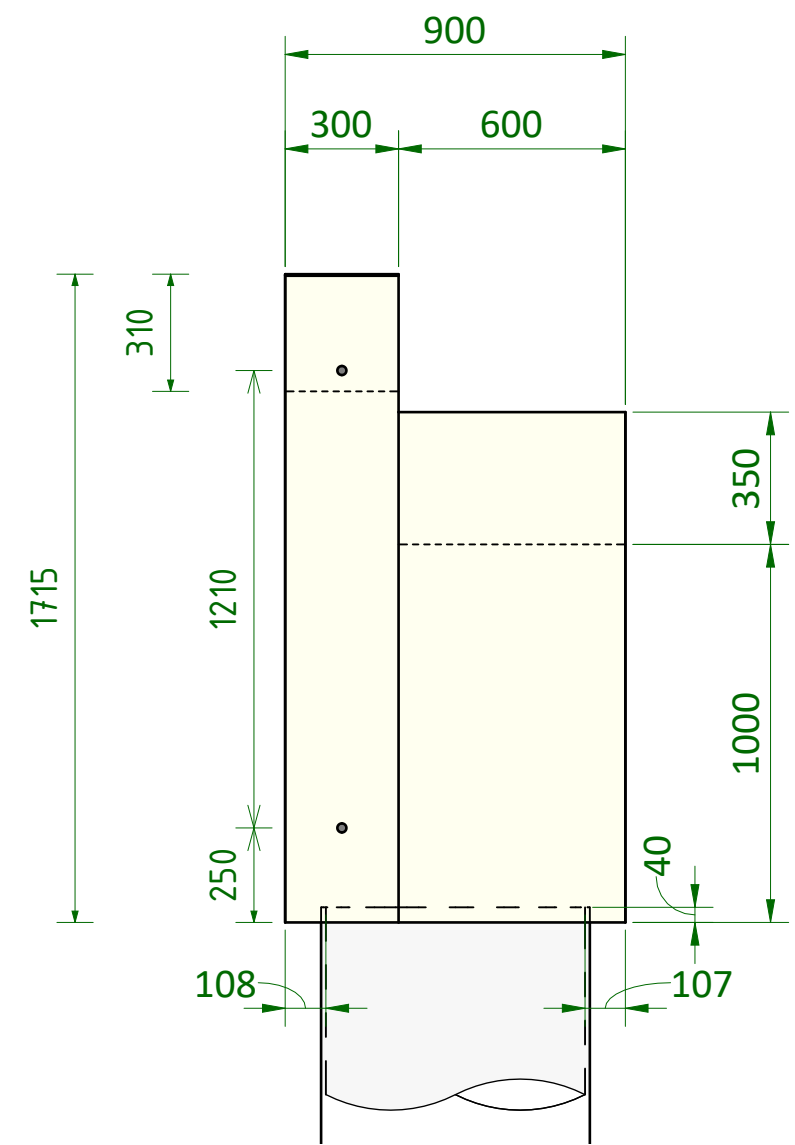
**2 PLAN**  
D014 CONCRETE | 1 : 25



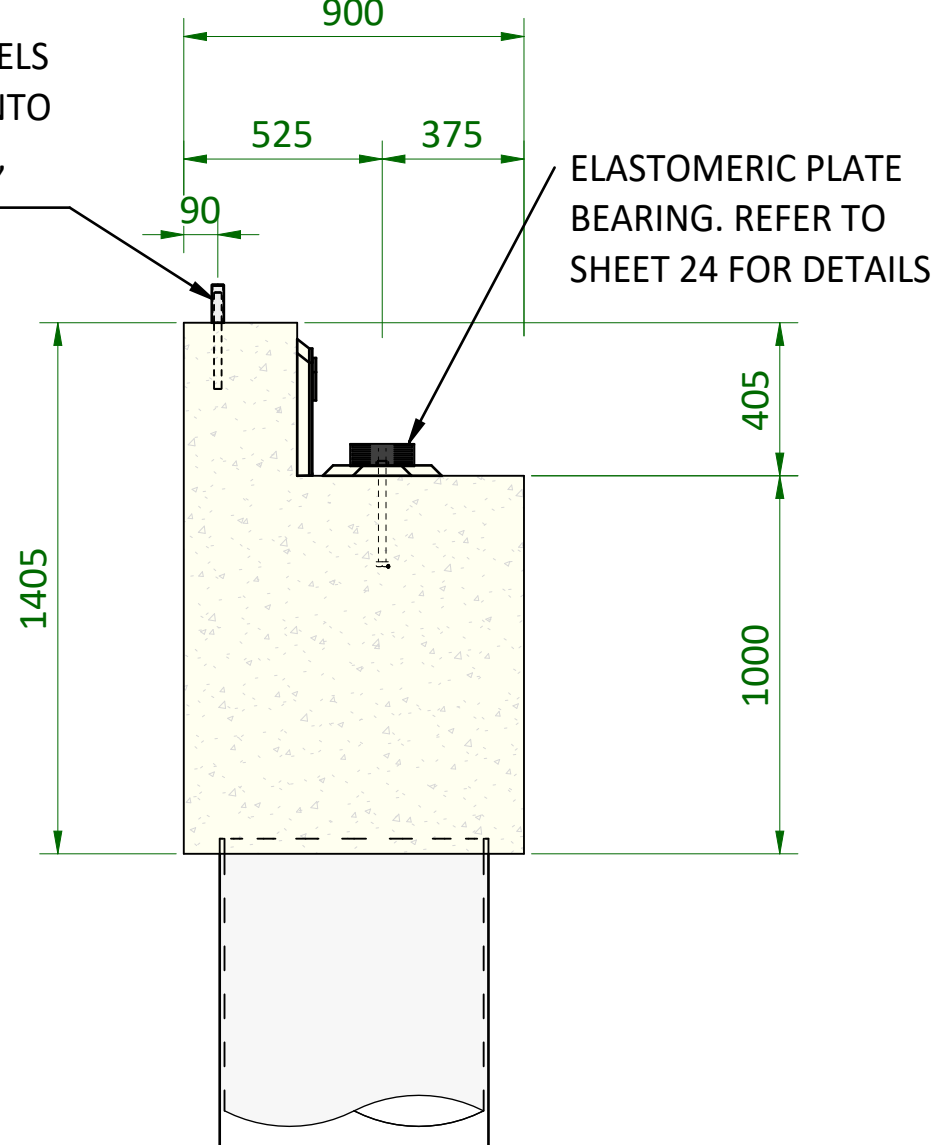
**7 WING WALL B1 ELEVATION**  
D014 CONCRETE | 1 : 25



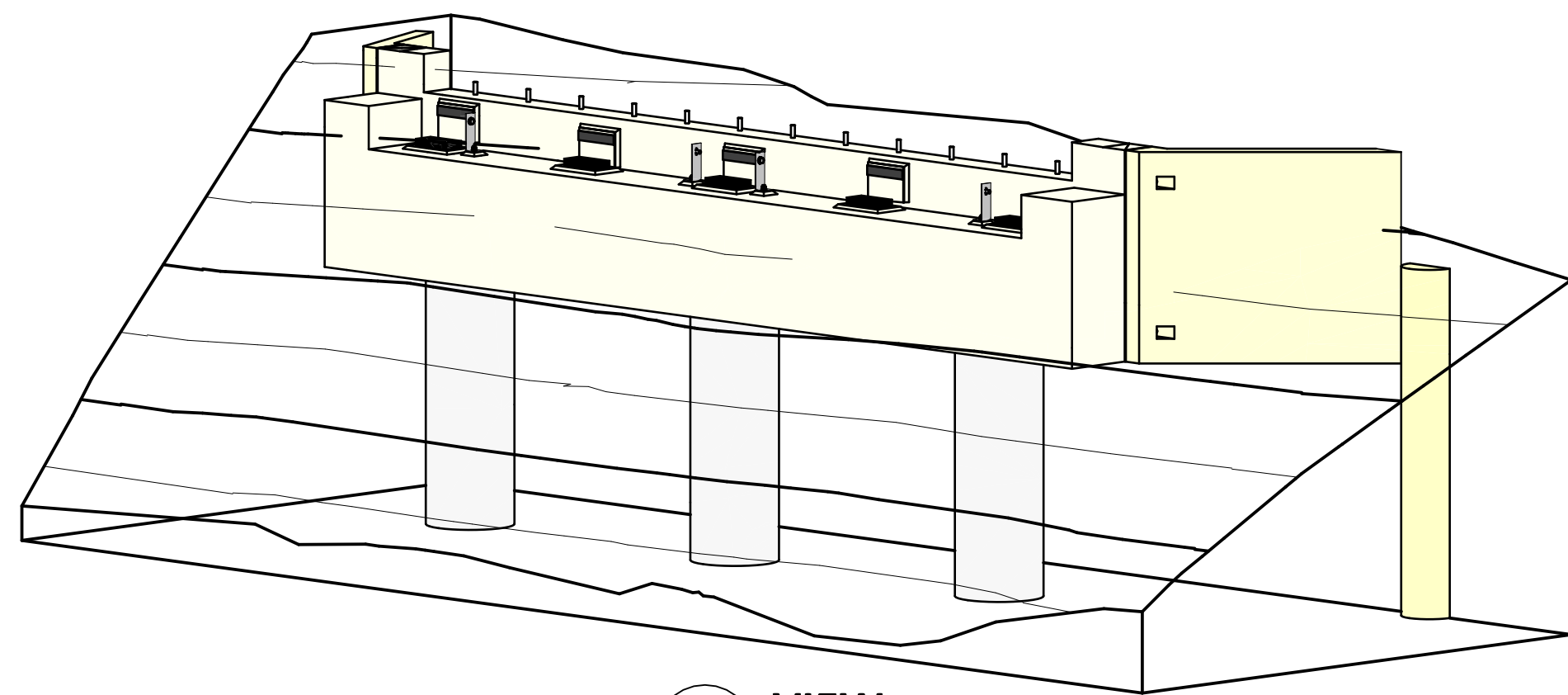
**8 WING WALL B2 ELEVATION**  
D014 CONCRETE | 1 : 25



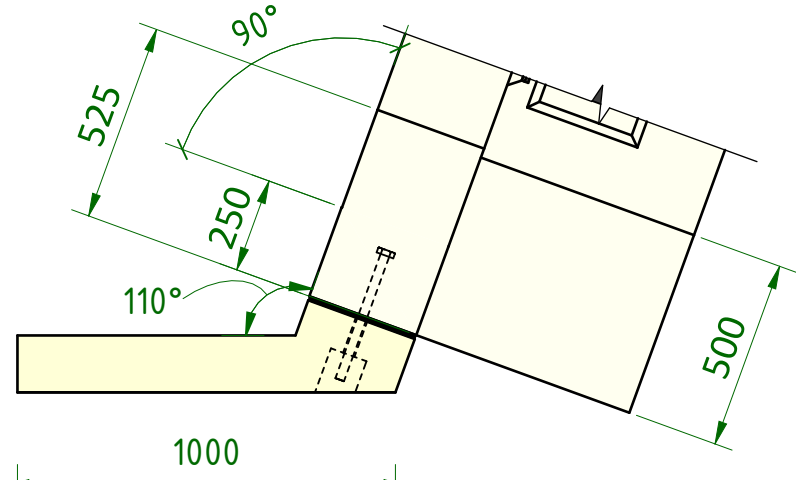
**3 VIEW**  
D014 CONCRETE | 1 : 20



**4 SECTION**  
D014 CONCRETE | 1 : 20

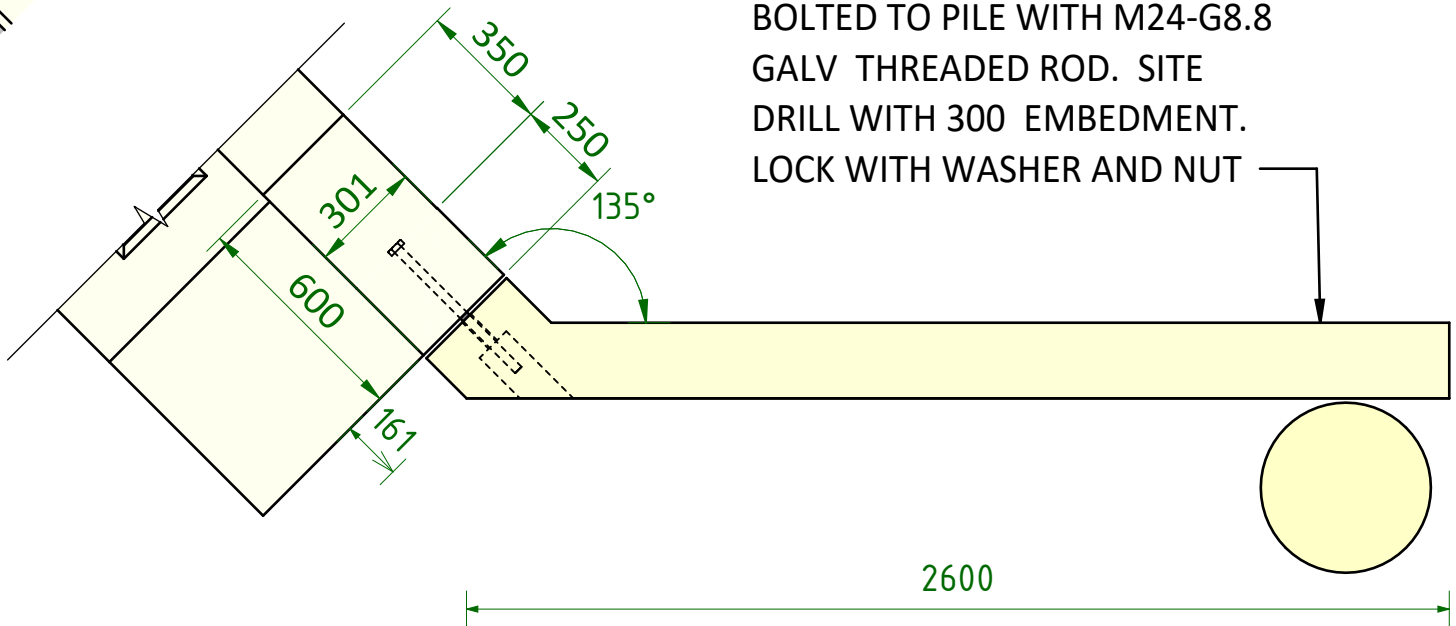


**9 VIEW**  
D014 CONCRETE |



**6 PLAN**  
D014 WING WALL B1 | 1 : 20

PRECAST WING WALL PANEL  
BOLTED TO PILE WITH M24-G8.8  
GALV THREADED ROD. SITE  
DRILL WITH 300 EMBEDMENT.  
LOCK WITH WASHER AND NUT



**5 PLAN**  
D014 WING WALL B2 | 1 : 20

ABUTMENT B		
BEARING MARK	TOP OF BEARING RL <sup>1</sup>	CROSSFALL (mm)
BA-1	2.847	0
BA-2	2.847	0
BA-3	2.847	0
BA-4	2.847	0
BB-1	3.512	0
BB-2	3.515	0
BB-3	3.515	0
BB-4	3.512	0
BB-5	3.512	0

<sup>1</sup> BEARING LEVELS ARE SET FOR A DECK THICKNESS OF 202mm AT THE BEARING POSITIONS.

**TABLE 1**  
**BEARING LEVELS**

**CONCRETE NOTES**  
DIMENSIONS IN MILLIMETERS.  
CONCRETE EXPOSURE CLASSIFICATION:  
ALL ABUTMENT ELEMENTS - B1.  
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE 40 MPa.  
CHAMFER EDGES 20X20 AND FILLET RE-ENTRANT ANGLES 20X20 USO.  
NCF DENOTES NO CHAMFER OR FILLET.

**NOT FOR CONSTRUCTION**

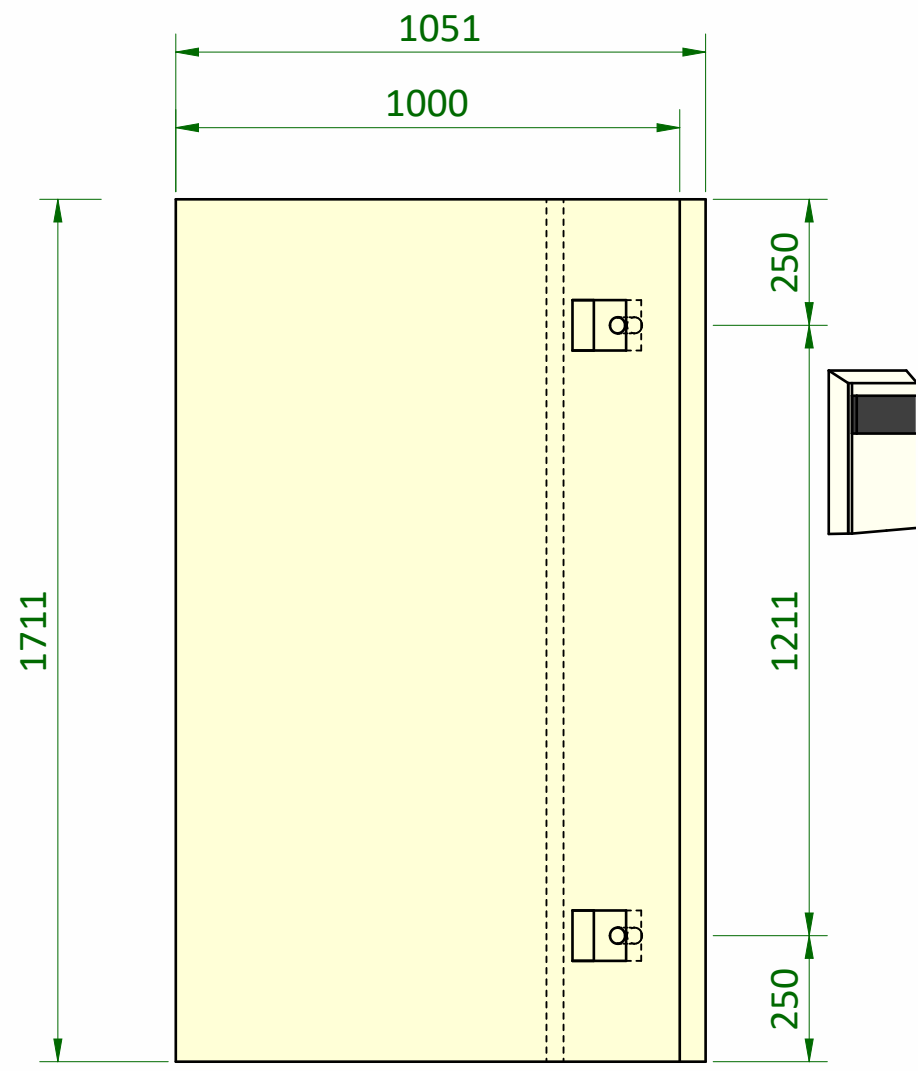


This document is the property of ANDES ENGINEERING PTY LTD. THE DRAWINGS AND THE ORIGINAL DESIGN CONCEPTS ARE THE PROPERTY OF ANDES ENGINEERING PTY LTD. ANY REPRODUCTION OR MODIFICATION OF THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED. ANY REPRODUCTION OR MODIFICATION OF THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED.

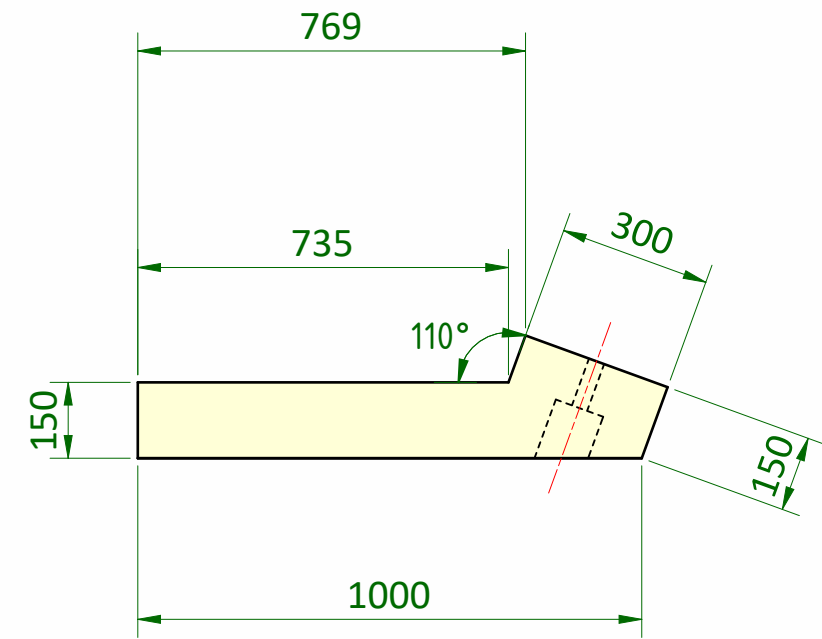
Issue Date

DOA

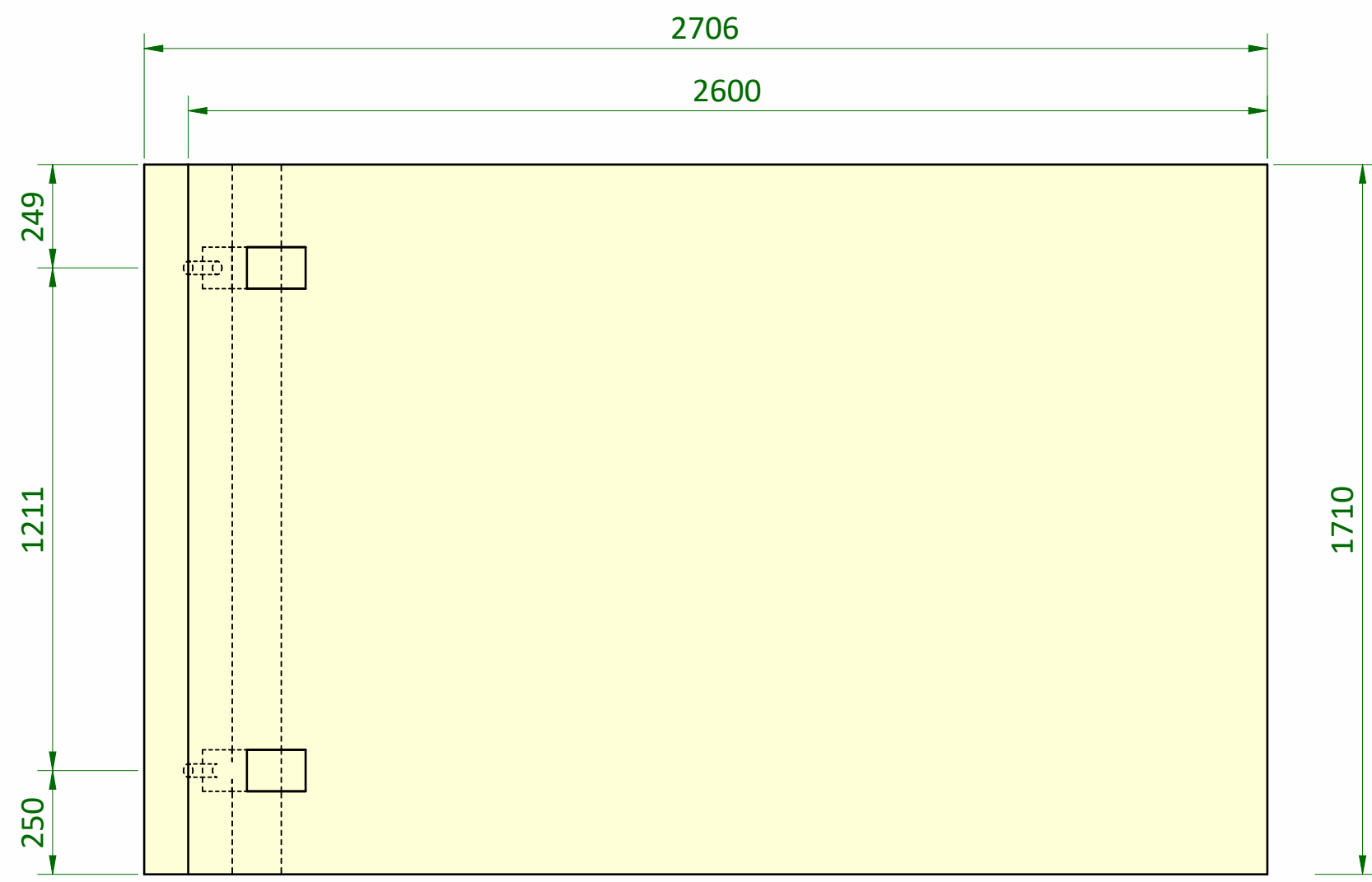
D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN MODEL\AS2426 Murrays Br.rvt



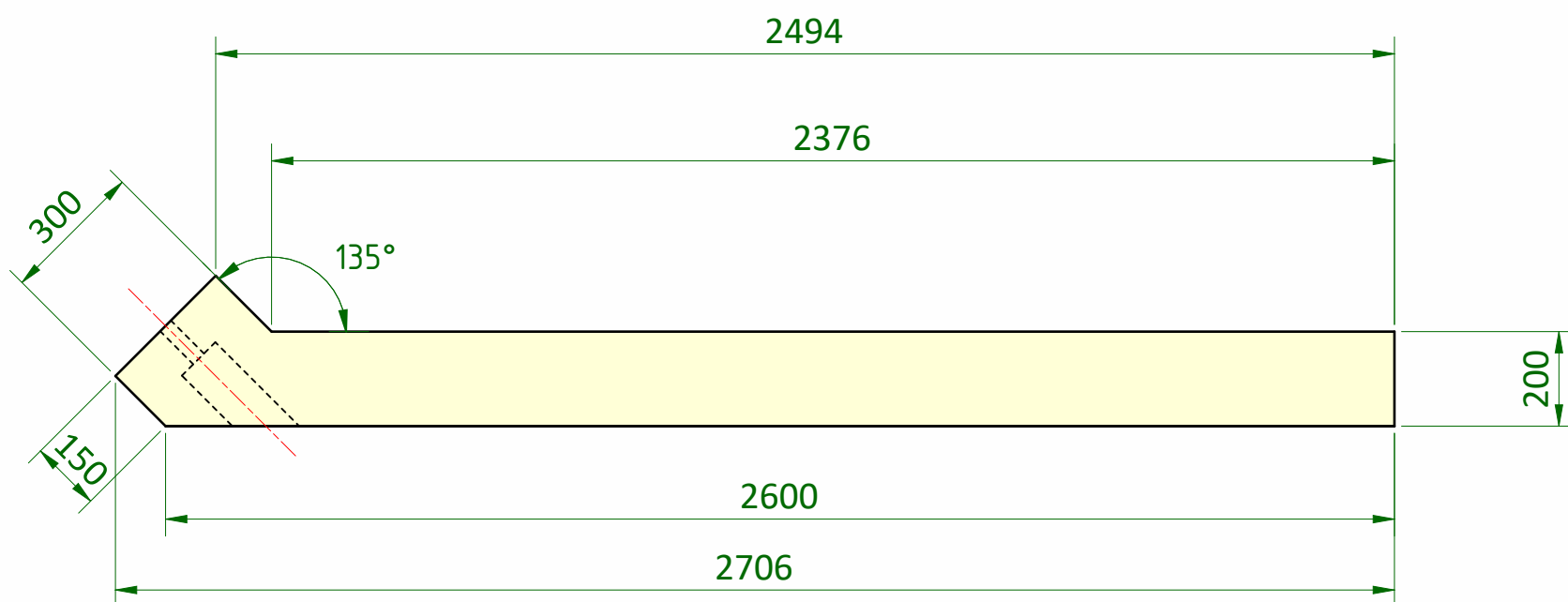
1 WING WALL B1 ELEVATION  
D015 CONCRETE | 1 : 15



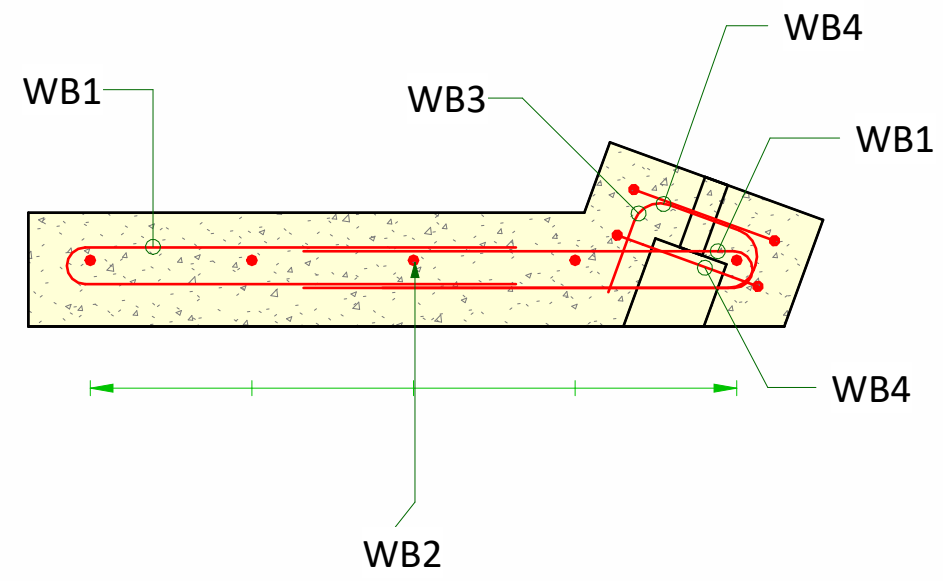
6 PLAN  
D015 WING WALL B1 | 1 : 15



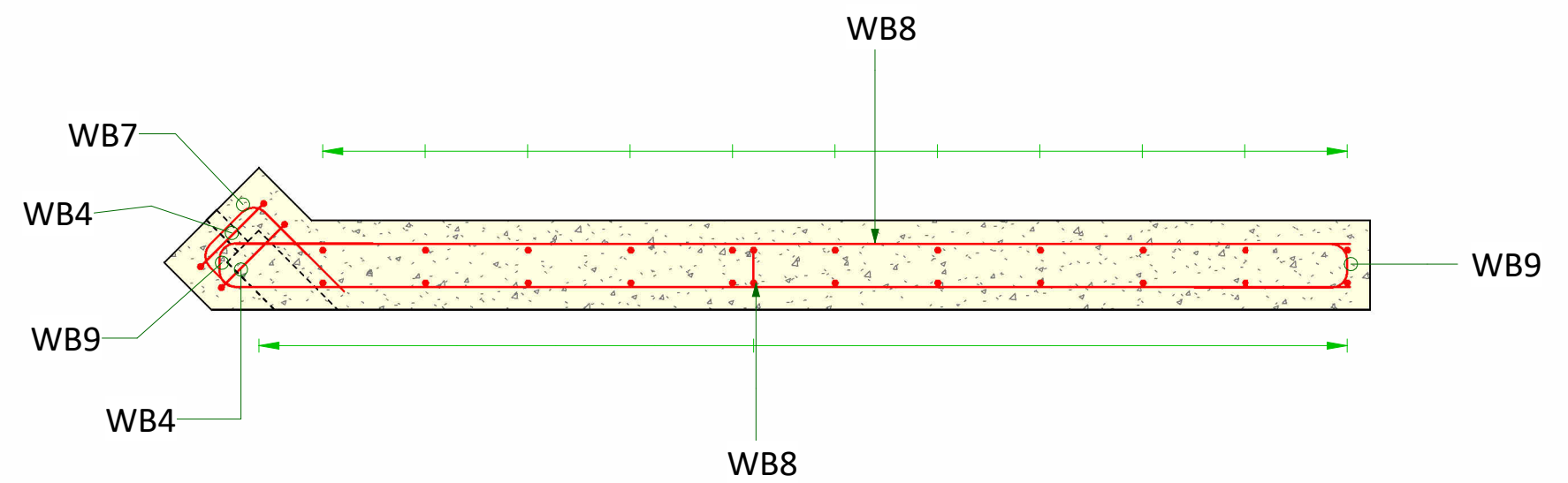
8 WING WALL B2 ELEVATION  
D015 CONCRETE | 1 : 15



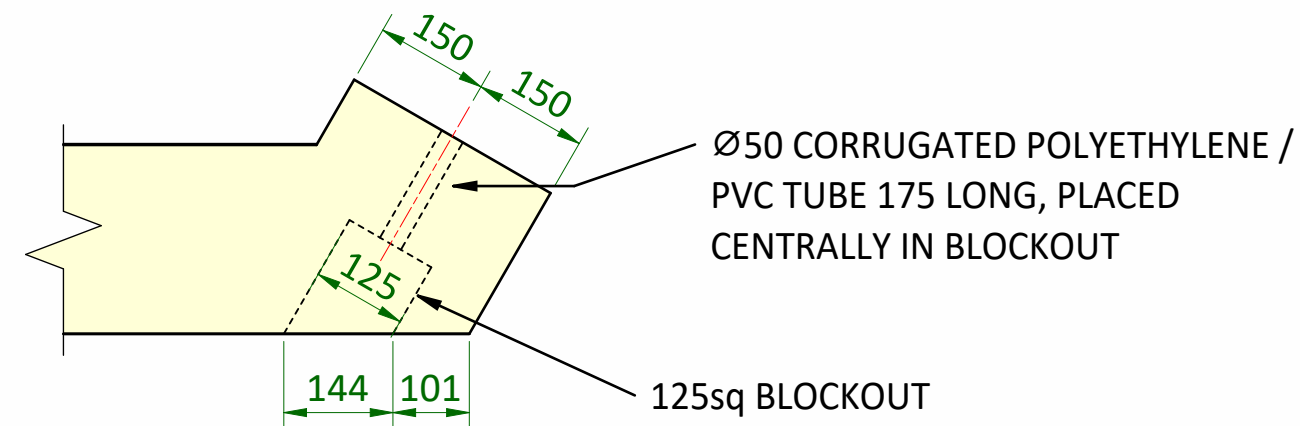
5 PLAN  
D015 WING WALL B2 | 1 : 15



3 PLAN  
D015 WING WALL B1 | 1 : 10



2 PLAN  
D015 WING WALL B2 | 1 : 15



9 DETAIL  
D015 CONCRETE | 1 : 10

**CONCRETE NOTES**  
DIMENSIONS IN MILLIMETERS.  
CONCRETE EXPOSURE CLASSIFICATION:  
ALL WING WALLS ELEMENTS - B1.  
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE 40 MPa.  
CHAMFER EDGES 20X20 AND FILLET RE-ENTRANT ANGLES 20X20 USO.  
NCF DENOTES NO CHAMFER OR FILLET.

**REINFORCEMENT NOTES**  
SCALES AS SHOWN  
CLEAR COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE 45 mm USO.  
REINFORCEMENT PLACEMENT ABBREVIATIONS AS FOLLOWS:  
FF FAR FACE NF NEAR FACE  
EF EACH FACE + LENGTH VARIES  
USO UNLESS SPECIFIED OTHERWISE.  
NSOP NOT SHOWN ON PLAN.  
THE MINIMUM LENGTHS OF LAPS SHALL BE AS FOLLOWS  
USO:

BAR SIZE	N12	N16	N20	N24	N28	N32	N36	N40
HORIZONTAL BARS WITH ≥ 300 mm OF CONCRETE CAST BELOW THE BAR	460	650	940	1250	1580	1940	2320	2750
ALL OTHER BARS	350	500	720	960	1210	1490	1790	2110

REINFORCEMENT MAY BE DISPLACED SLIGHTLY TO CLEAR EMBEDDED OBJECTS, HOLES AND RECESSES.  
TACK WELDING OF REINFORCEMENT FOR LOCATION PURPOSES IS TO BE IN ACCORDANCE WITH AS1554.3  
CLAUSE 3.3.

NOT FOR CONSTRUCTION

Drawing scales true at A1

A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		
Issue	Description	Name	Initial	Date
	Design not to be amended without authorisation by Certifier			



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**ABUTMENT B - REINFORCED CONCRETE WING WALLS**

PLAN REFERENCE
DWG 10104.30

Project Job Ref.	AE2426		
Sheet No.	015	of	028
		Rev	A1
APPROVAL ISSUE			

Designed By:	Andes Engineering
Project	Bateau Bay NSW 2261
Phone	T - 0434 901 672
Email	E - info@andesengineering.com.au
ABN	ABN - 33 620 457 052

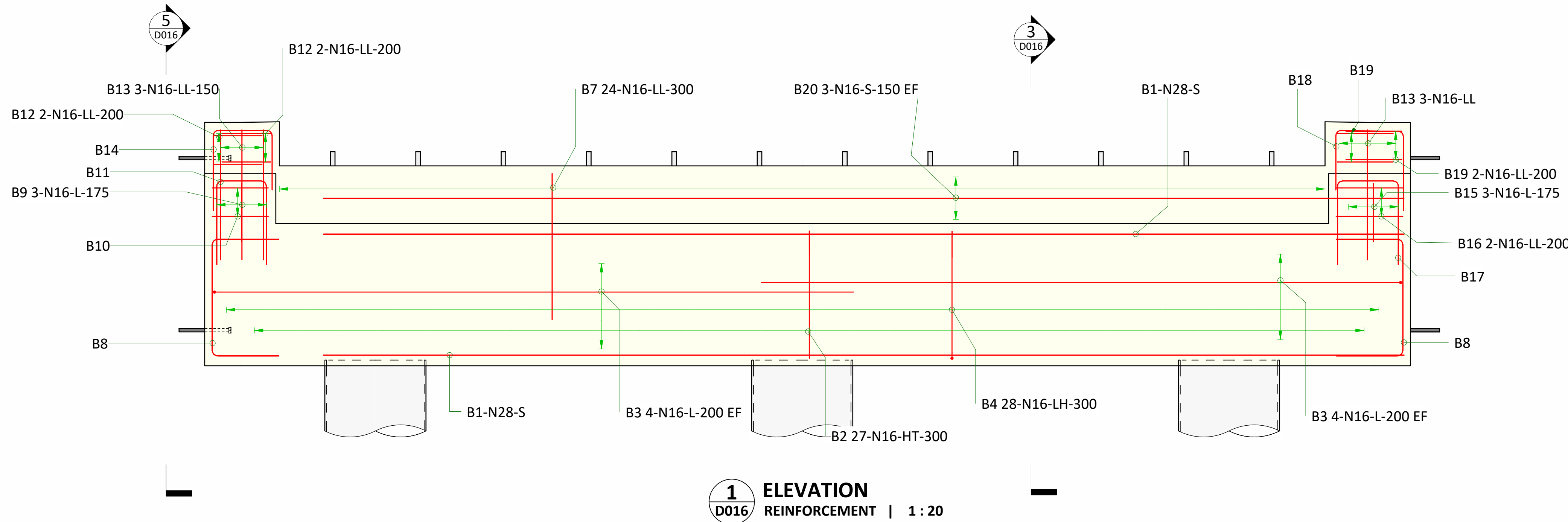


This document is the property of Andes Engineering Pty Ltd. The drawings and the contents of this document are not to be used or reproduced in any form without the written consent of Andes Engineering Pty Ltd. The drawings and the contents of this document are not to be used or reproduced in any form without the written consent of Andes Engineering Pty Ltd. The drawings and the contents of this document are not to be used or reproduced in any form without the written consent of Andes Engineering Pty Ltd.

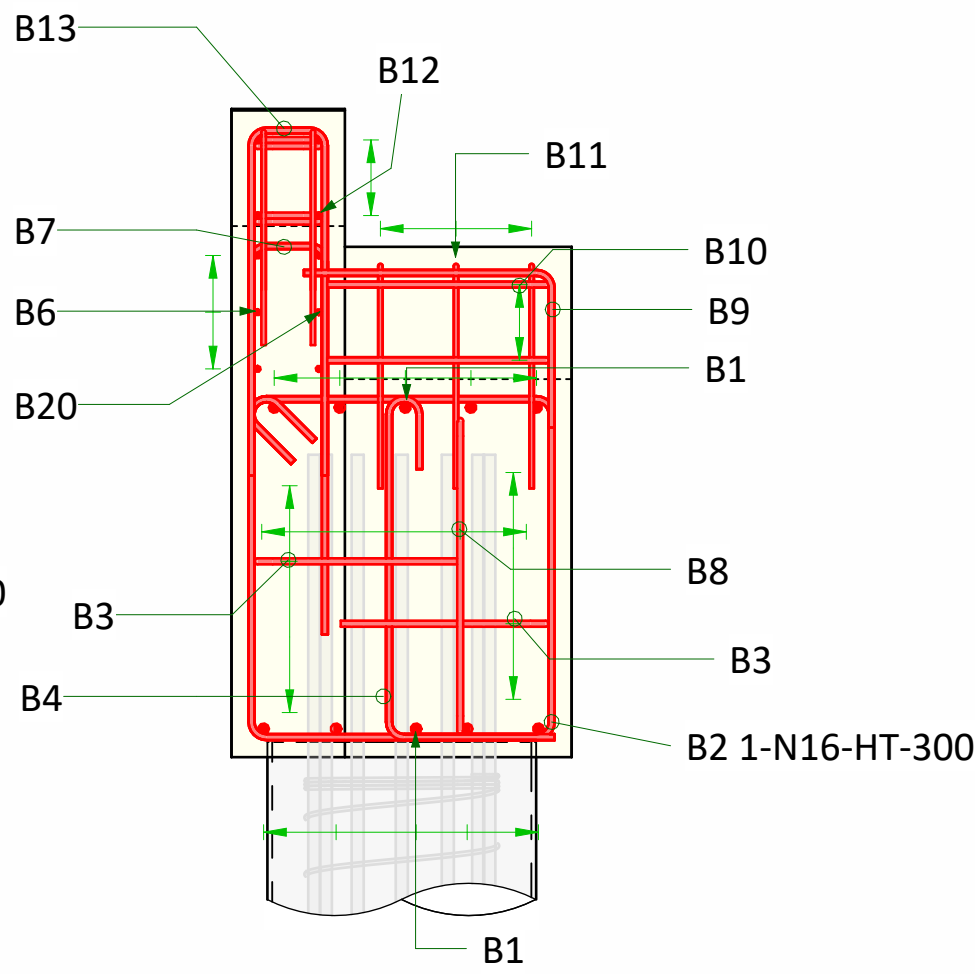
Issue Date

DOA

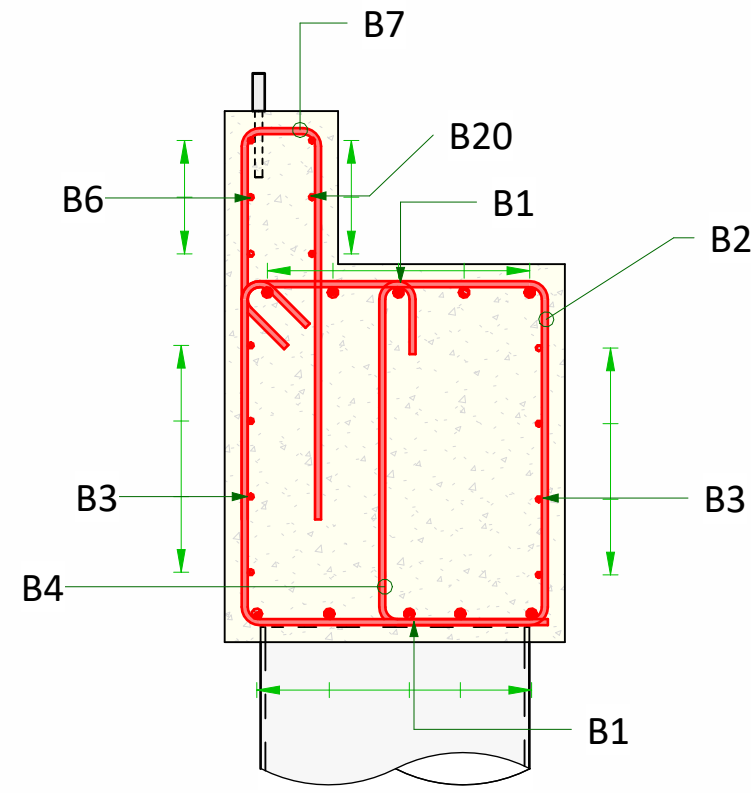
D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2428 Murrays Bridge\Drawings\Model\MANN MODEL\AS2428 Murrays Br.rvt



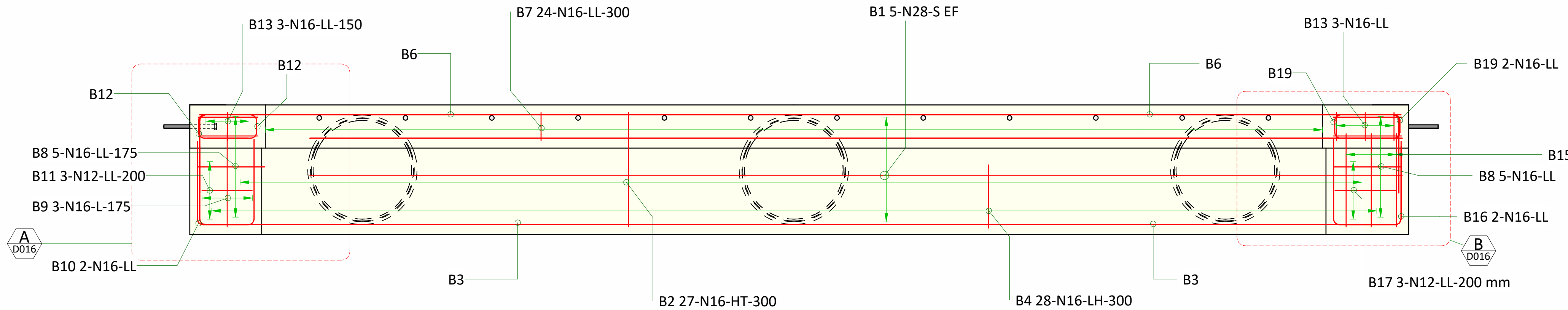
**1 ELEVATION**  
**D016** REINFORCEMENT | 1 : 20



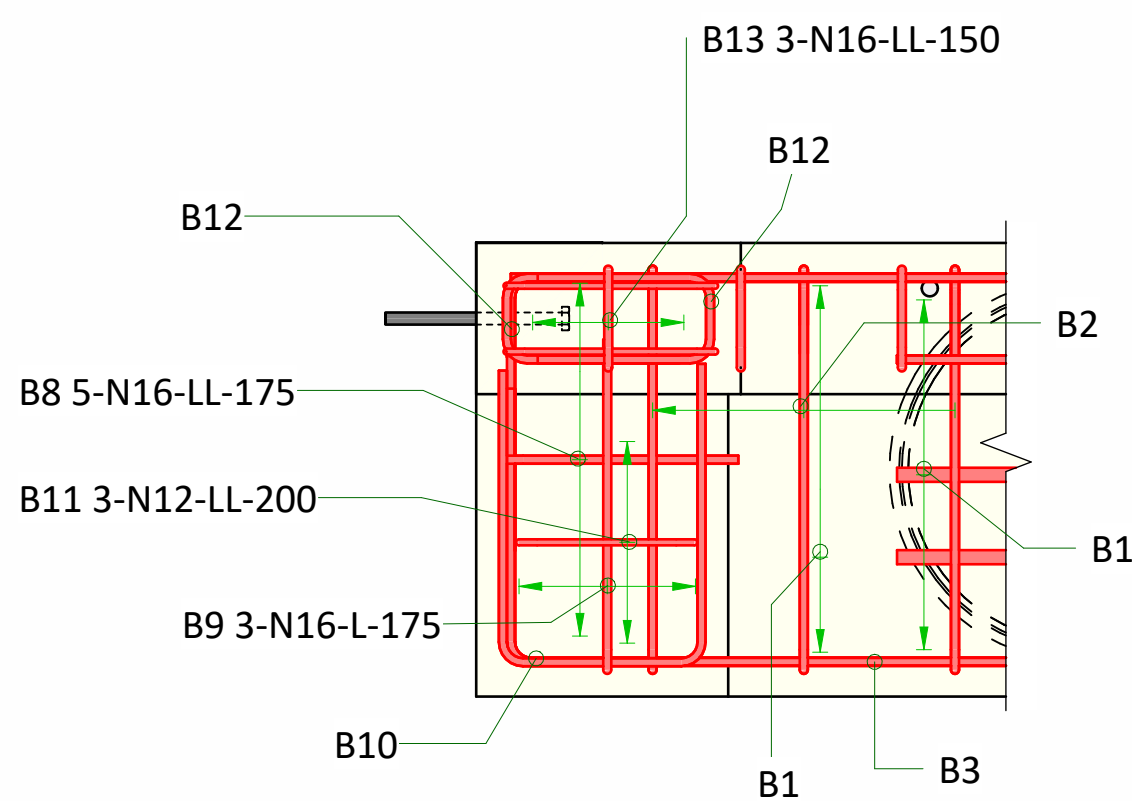
**5 VIEW**  
**D016** REINFORCEMENT | 1 : 20



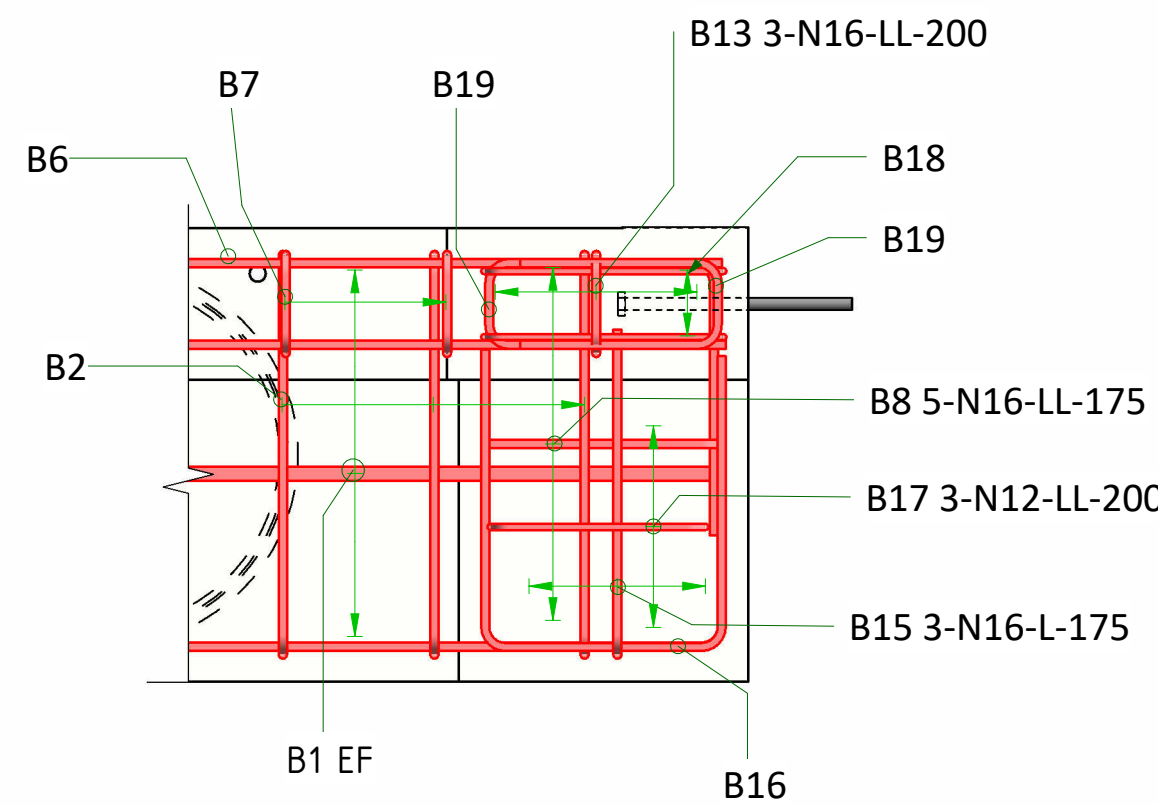
**3 VIEW**  
**D016** REINFORCEMENT | 1 : 20



**2 PLAN**  
**D016** REINFORCEMENT | 1 : 20



**A DETAIL**  
**D016** REINFORCEMENT | 1 : 15



**B DETAIL**  
**D016** REINFORCEMENT | 1 : 15

#### REINFORCEMENT NOTES

SCALES AS SHOWN  
CLEAR COVER TO REINFORCEMENT NEAREST TO THE  
CONCRETE SURFACE 45 mm USO.  
REINFORCEMENT PLACEMENT ABBREVIATIONS AS FOLLOWS:  
FF FAR FACE NF NEAR FACE  
EF EACH FACE + LENGTH VARIES  
USO UNLESS SPECIFIED OTHERWISE.  
NSOP NOT SHOWN ON PLAN.  
THE MINIMUM LENGTHS OF LAPS SHALL BE AS FOLLOWS  
USO:

BAR SIZE	N12	N16	N20	N24	N28	N32	N36	N40
HORIZONTAL BARS WITH ≥ 300 mm OF CONCRETE CAST BELOW THE BAR	460	650	940	1250	1580	1940	2320	2750
ALL OTHER BARS	350	500	720	960	1210	1490	1790	2110

REINFORCEMENT MAY BE DISPLACED SLIGHTLY TO CLEAR  
EMBEDDED OBJECTS, HOLES AND RECESSES.  
TACK WELDING OF REINFORCEMENT FOR LOCATION  
PURPOSES IS TO BE IN ACCORDANCE WITH AS1554.3  
CLAUSE 3.3.

**NOT FOR CONSTRUCTION**

Drawing scales true at A1

Issue	Description	Name	Initial	Date
A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		

<b>FORTEC</b>
FORTEC AUSTRALIA Unit 12/55-57 Newton Road WEATHERILL PARK NSW 2450

SITE LOCATION BRIDGE ON MURRAY ROAD 1.38km EAST OF INTERSECTION WITH PRINCESS HWY (SH01), 1.0KM NORTH OF FISHERMANS PARADISE
--

DESIGNER - DOA	DESIGN CHK - DOA
DRAFTER - DOA	DRAFTING CHK - DOA
APPROVED BY: Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)	

DESIGNER - DOA	DESIGN CHK - DOA
DRAFTER - DOA	DRAFTING CHK - DOA
APPROVED BY: Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)	

<b>MURRAY'S BRIDGE OVER CONJOLA CREEK</b>
<b>ABUTMENT B - REINFORCEMENT DETAILS</b>

PLAN REFERENCE DWG 10104.31
--------------------------------

Project Job Ref. <b>AE2426</b>
Sheet No. <b>016</b> of <b>028</b> Rev <b>A1</b>
<b>APPROVAL ISSUE</b>

Designed By: <b>Andes Engineering</b> Bateau Bay NSW 2261 Australia T - 0434 901 672 E - info@andesengineering.com.au ABN - 33 620 457 052
--



This document is the property of ANDRES ENGINEERING PTY LTD. The drawings and the contents of this document are the property of ANDRES ENGINEERING PTY LTD. No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage or retrieval system, without the prior written permission of ANDRES ENGINEERING PTY LTD.

Issue Date

DOA

D:\OnSite - murraybridge\AE\Project\2024\AE2428 Murray Bridge\Drawings\Model\MANN MODEL\AS2428 Murray Br.rvt

A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		
Issue	Description	Name	Initial	Date
Design not to be amended without authorisation by Certifier				



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

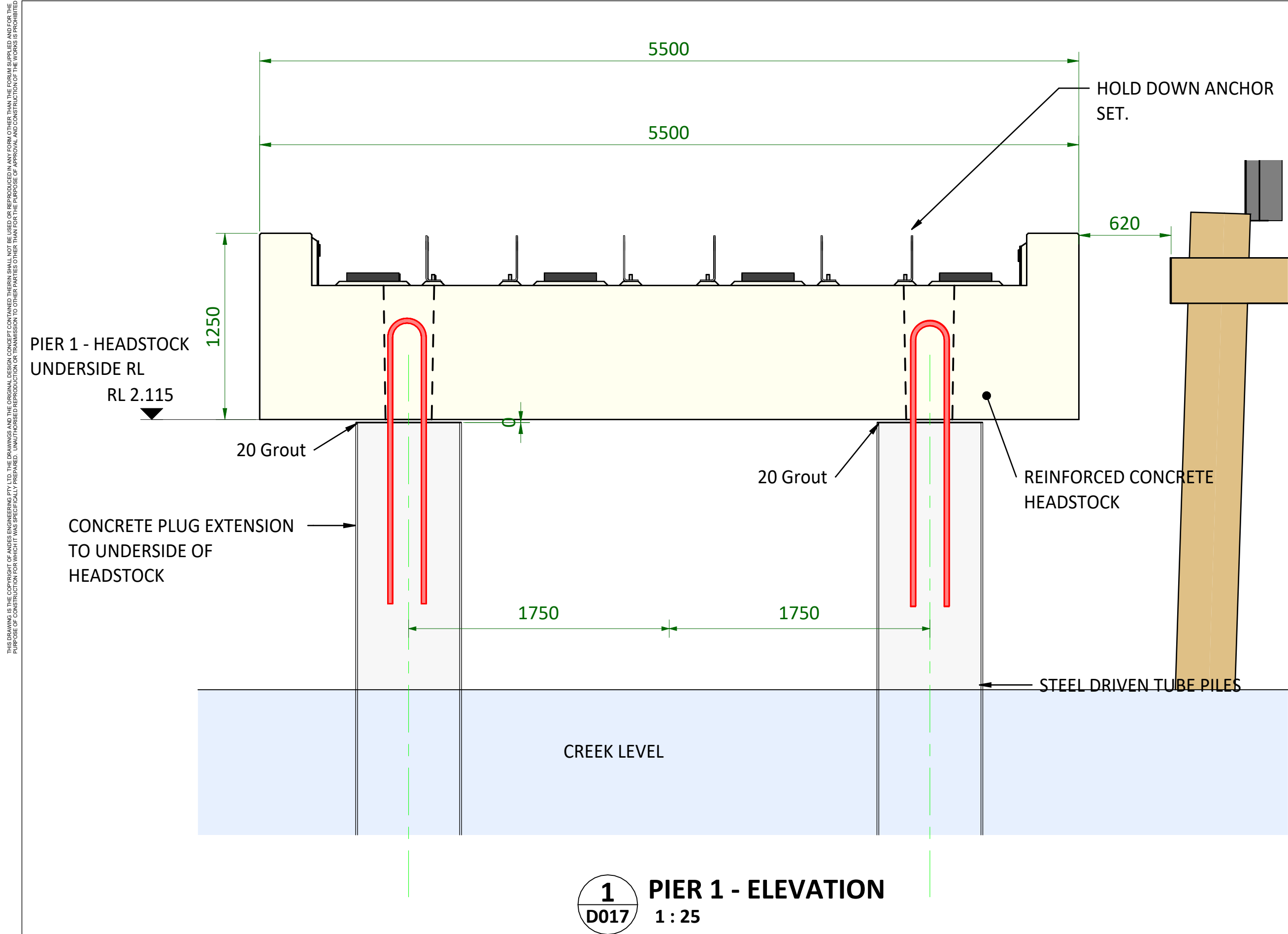
## MURRAYS BRIDGE OVER CONJOLA CREEK

### PIER ARRANGEMENT

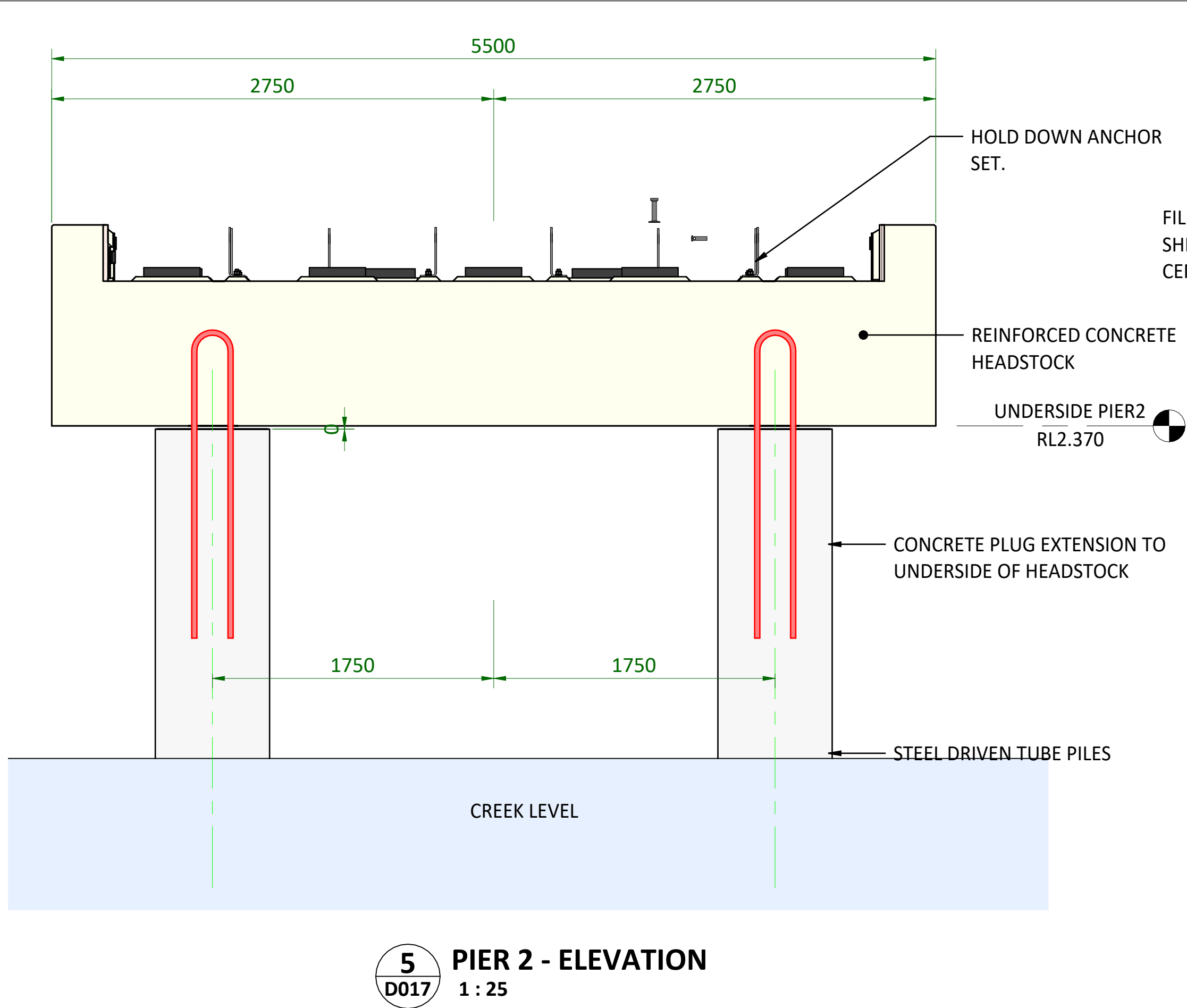
PLAN REFERENCE	DWG 10104.32
----------------	--------------

Project Job Ref.	AE2426
Sheet No.	017 of 028
Rev	A1
APPROVAL ISSUE	

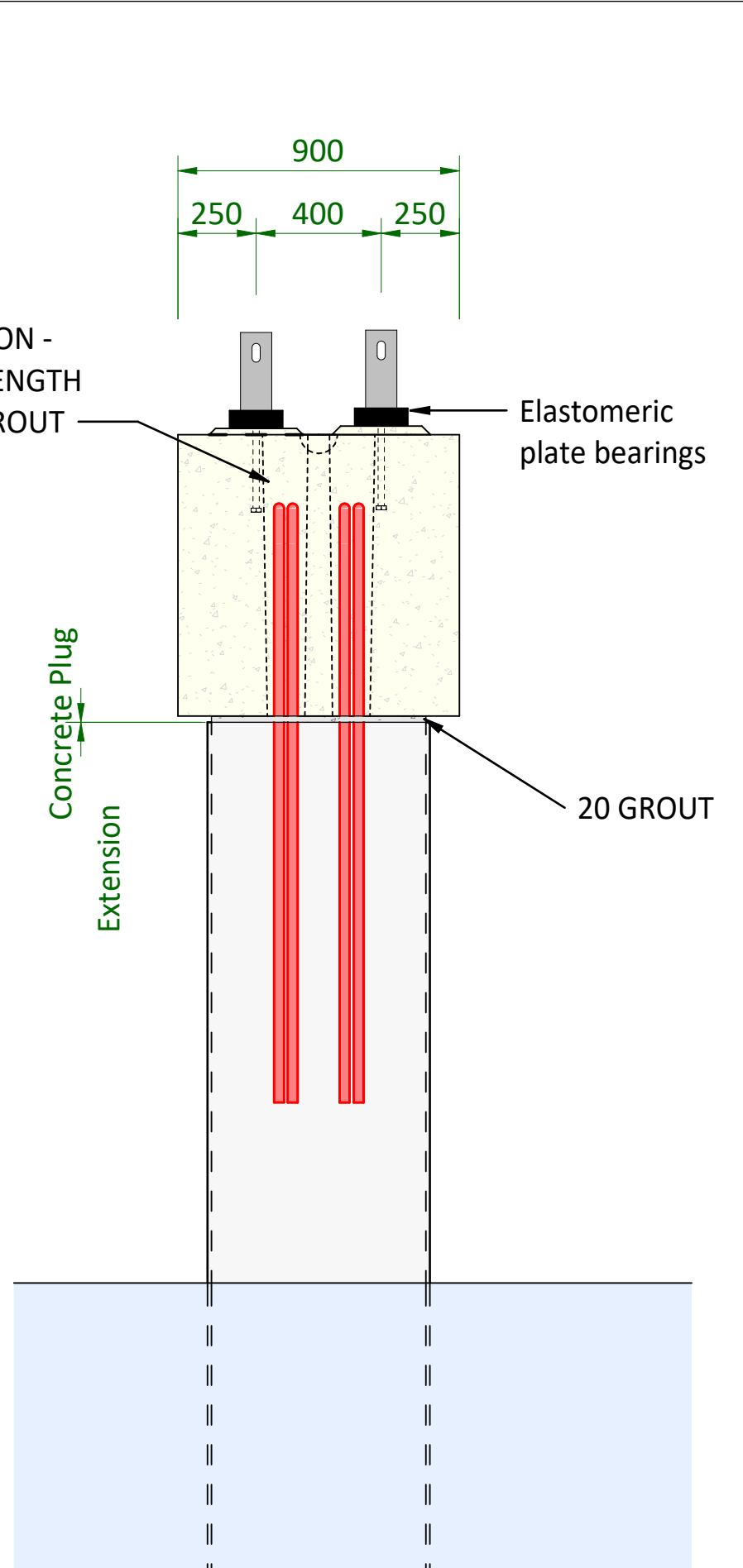
Designed By:	Andres Engineering
Bateau Bay NSW 2261 Australia T - 0434 901 672 E - info@andresengineering.com.au ABN - 33 620 457 052	



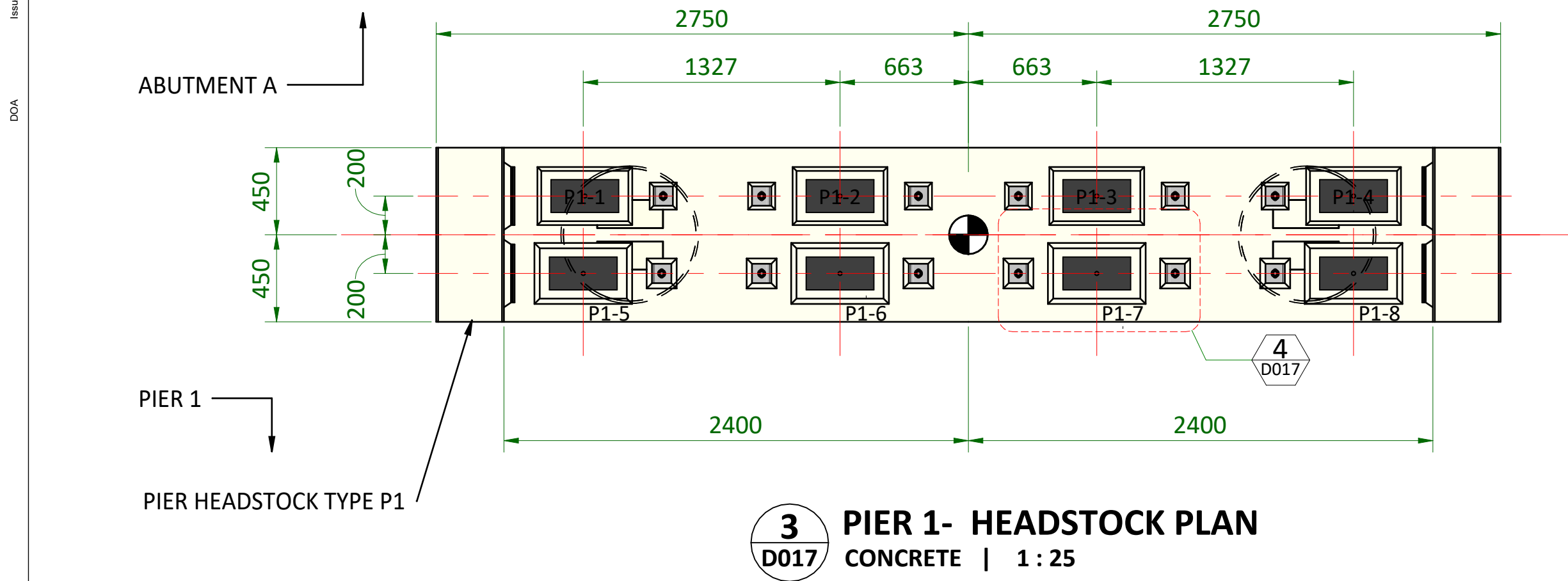
**1 PIER 1 - ELEVATION**  
1 : 25



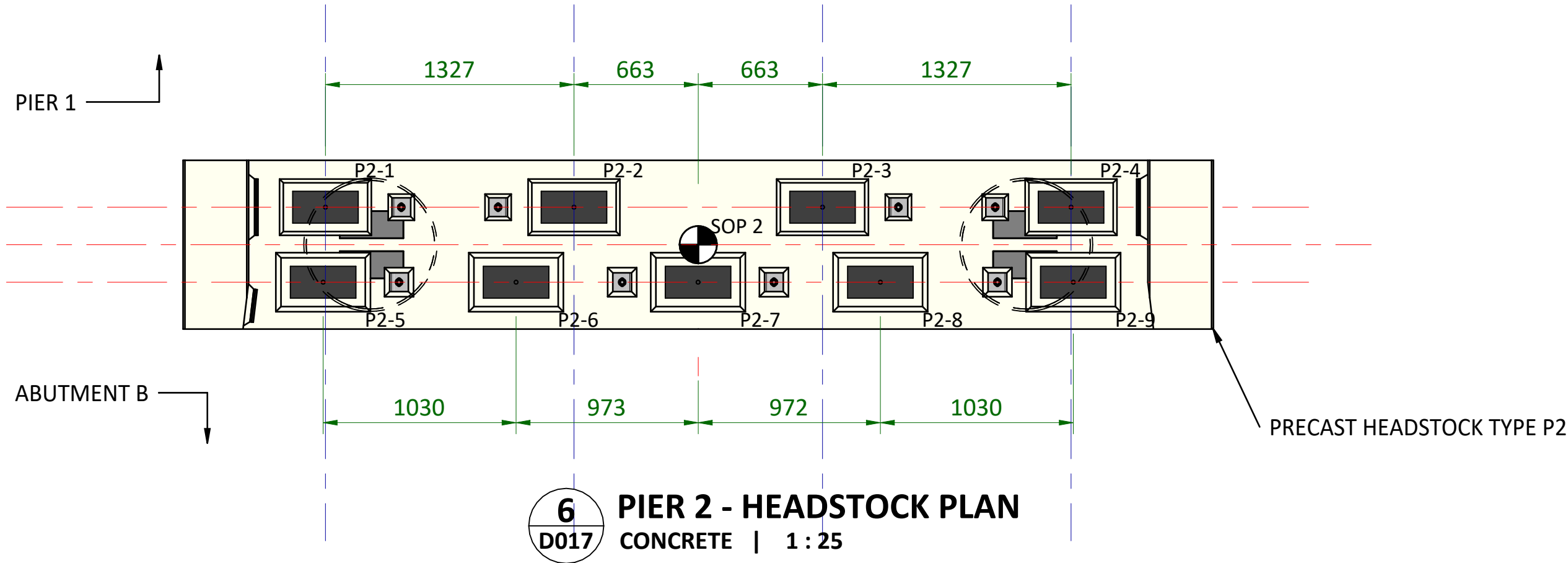
**5 PIER 2 - ELEVATION**  
1 : 25



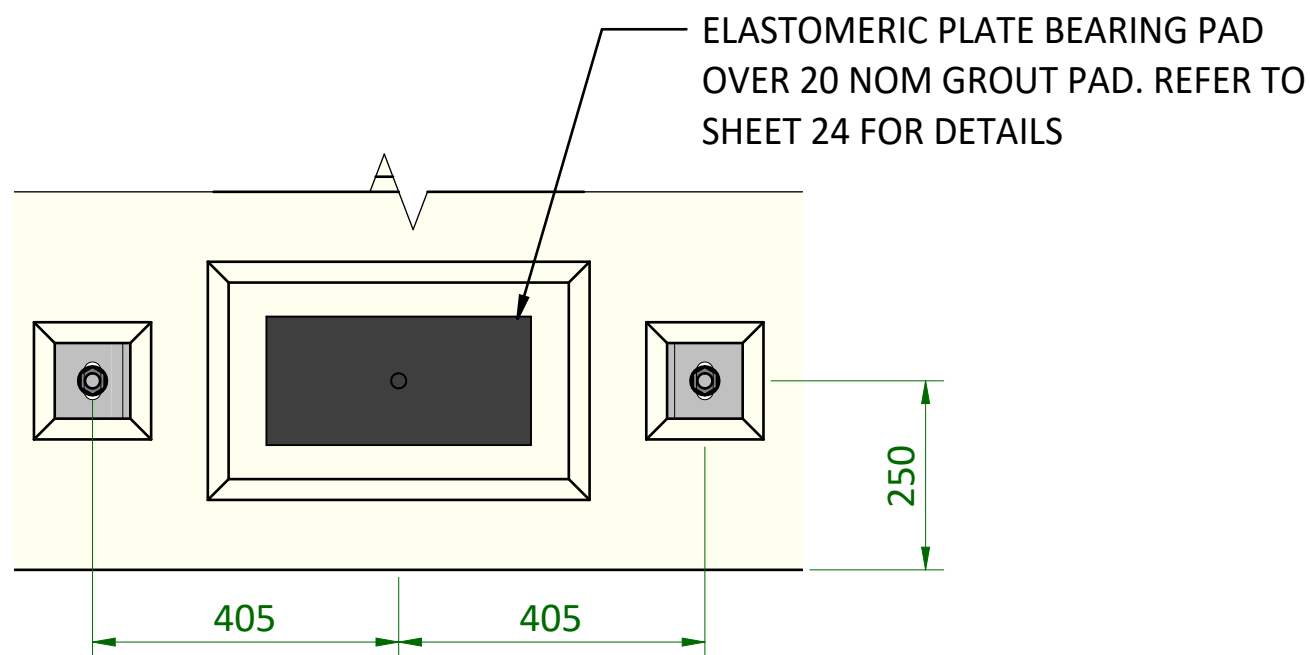
**2 TYPICAL SECTION**  
CONCRETE | 1 : 20



**3 PIER 1- HEADSTOCK PLAN**  
CONCRETE | 1 : 25



**6 PIER 2 - HEADSTOCK PLAN**  
CONCRETE | 1 : 25



**4 PLATE BEARING SETOUT**  
CONCRETE | 1 : 10

PIER BEARINGS		
BEARING MARK	TOP OF BEARING RL <sup>1</sup>	CROSSFALL (mm)
P1-1	3.092	0
P1-2	3.092	0
P1-3	3.092	0
P1-4	3.092	0
P1-5	3.100	0
P1-6	3.100	0
P1-7	3.100	0
P1-8	3.100	0
P2-1	3.347	0
P2-2	3.347	0
P2-3	3.347	0
P2-4	3.347	0
P2-5	3.355	0
P2-6	3.355	0
P2-7	3.355	0
P2-8	3.355	0
P2-9	3.355	0

**CONCRETE NOTES**  
DIMENSIONS IN MILLIMETERS.  
CONCRETE EXPOSURE CLASSIFICATION:  
ALL PIER HEADSTOCK ELEMENTS - B1.  
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE 40 MPa.  
CHAMFER EDGES 20X20 AND FILLET RE-ENTRANT ANGLES 20X20 USO.  
NCF DENOTES NO CHAMFER OR FILLET.

**NOT FOR CONSTRUCTION**

Drawing scales true at A1

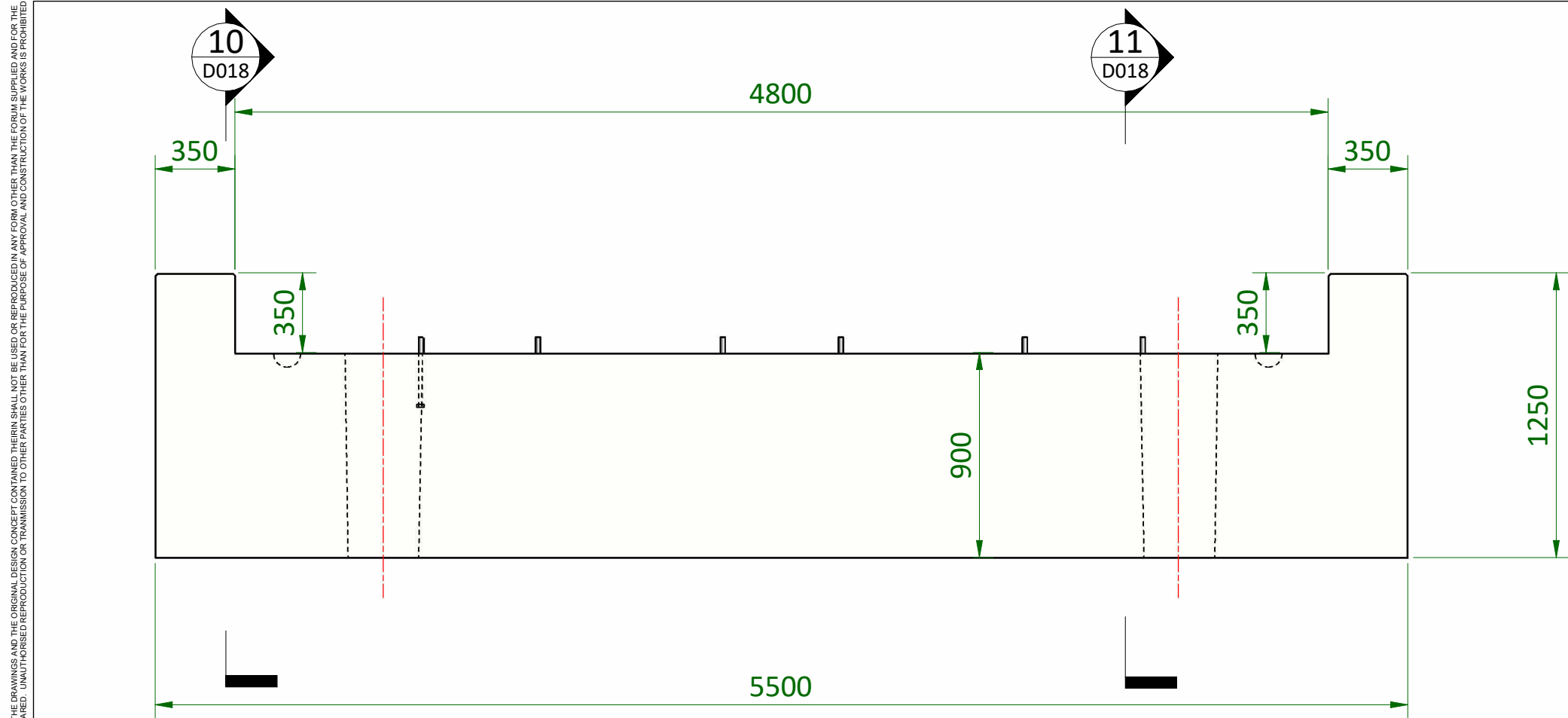


This document is the property of Andes Engineering Pty Ltd. The drawings and the technical specifications contained herein shall not be used or reproduced in any form or by any means without the written consent of Andes Engineering Pty Ltd. The drawings and the technical specifications shall be used in accordance with the conditions of use set out in the contract documents. The drawings and the technical specifications shall be used in accordance with the conditions of use set out in the contract documents.

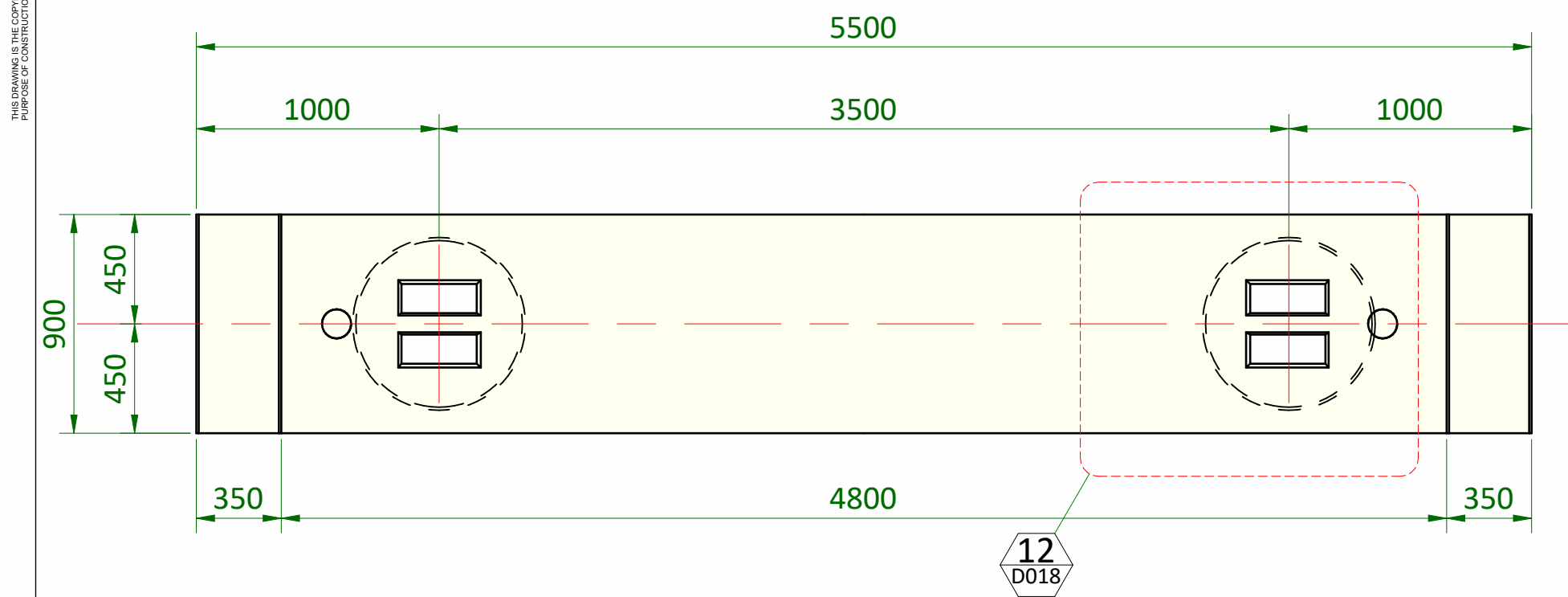
Head Date

DOA

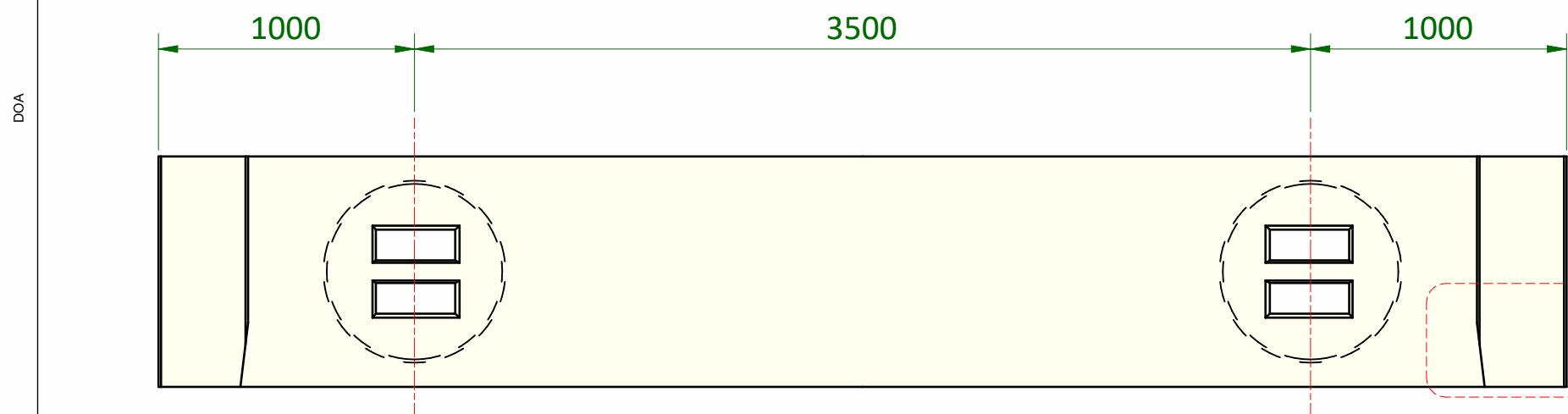
D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN MODEL\AE2426 Murrays Br.rvt



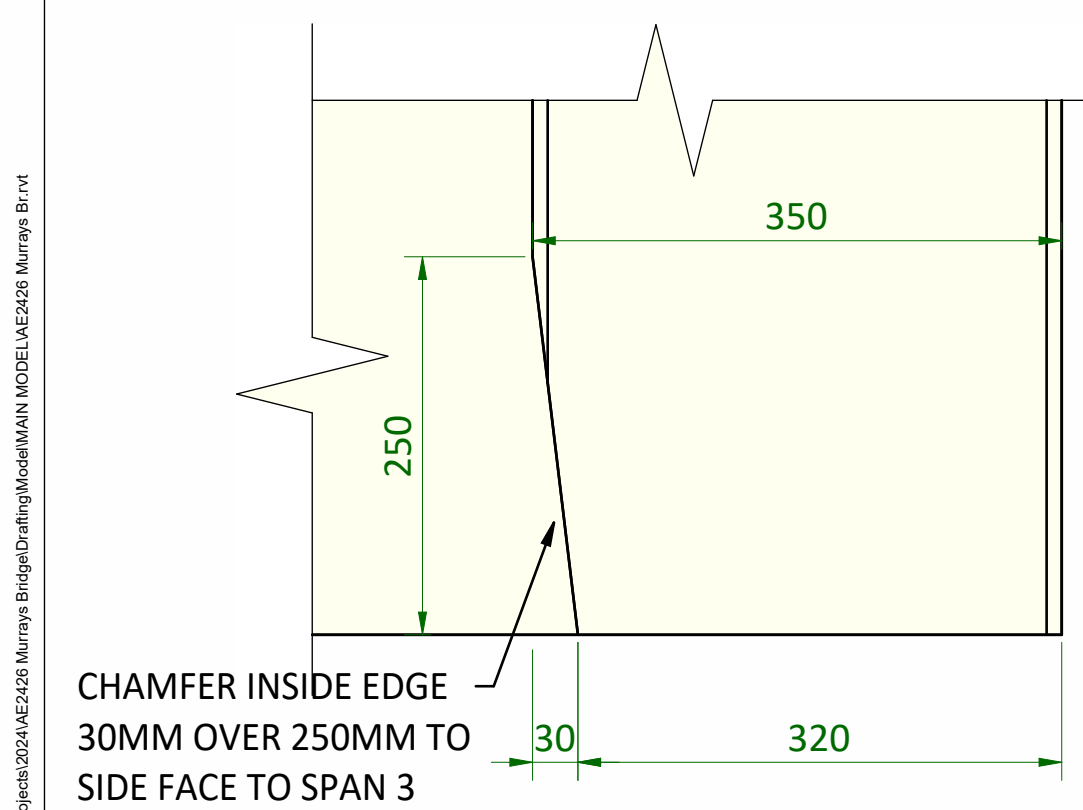
**1**  
D018  
**PIER 1 - ELEVATION**  
CONCRETE | 1:25



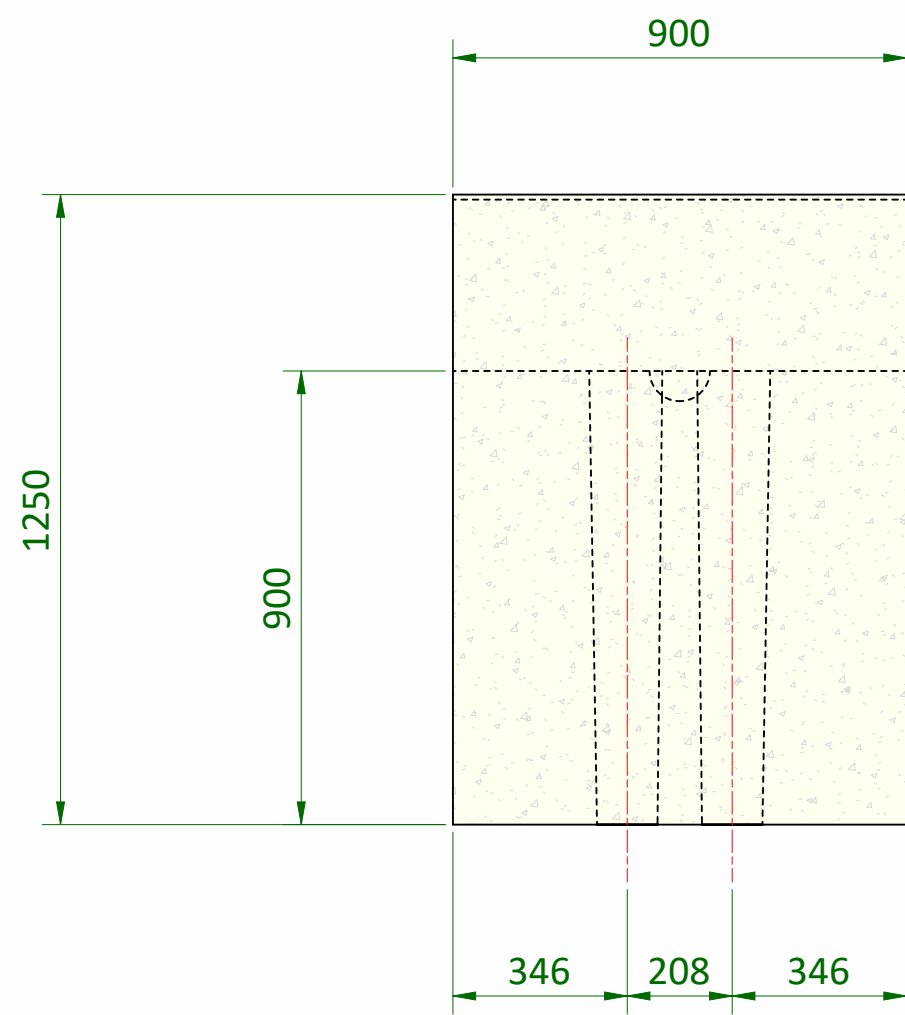
**2**  
D018  
**PIER 1 - HEADSTOCK PLAN**  
CONCRETE | 1:25



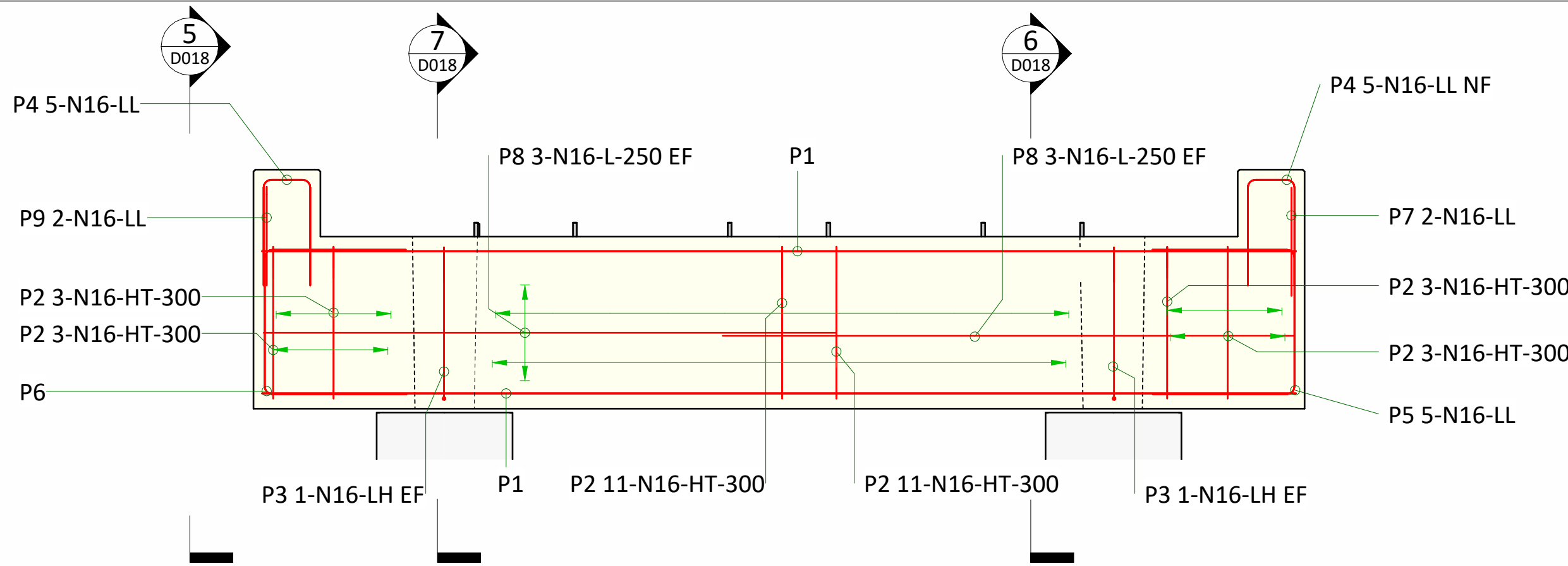
**8**  
D018  
**PIER 2 - HEADSTOCK PLAN**  
CONCRETE | 1:25



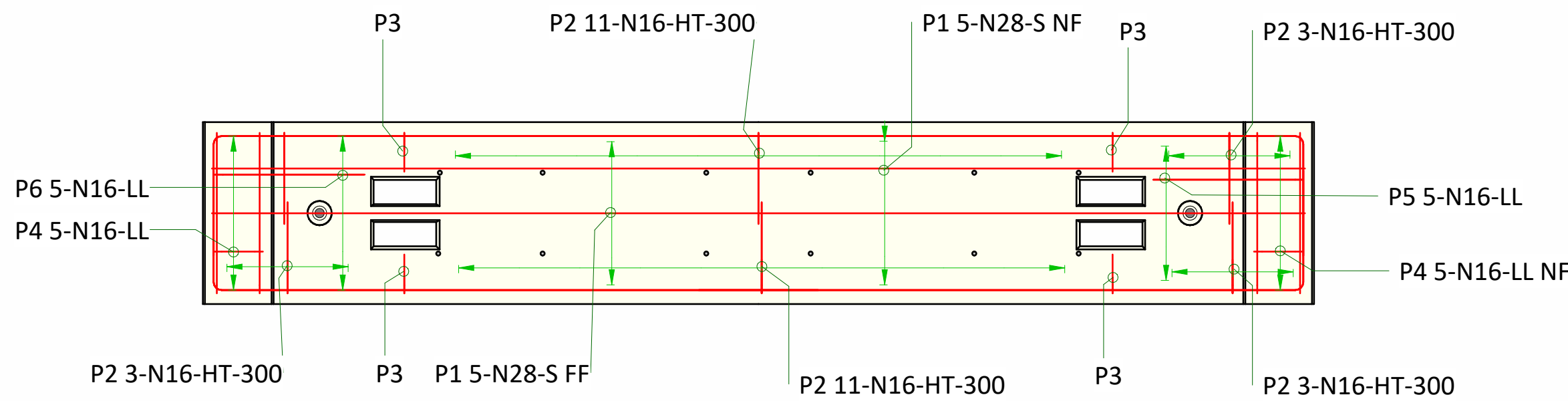
**9**  
D018  
**SHEAR KEY TAPER**  
CONCRETE | 1:5



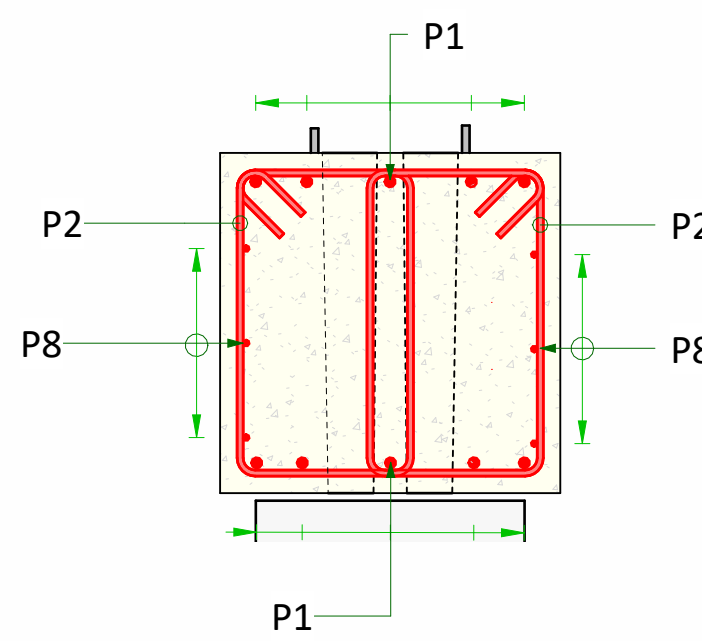
**10**  
D018  
**SECTION**  
CONCRETE | 1:15



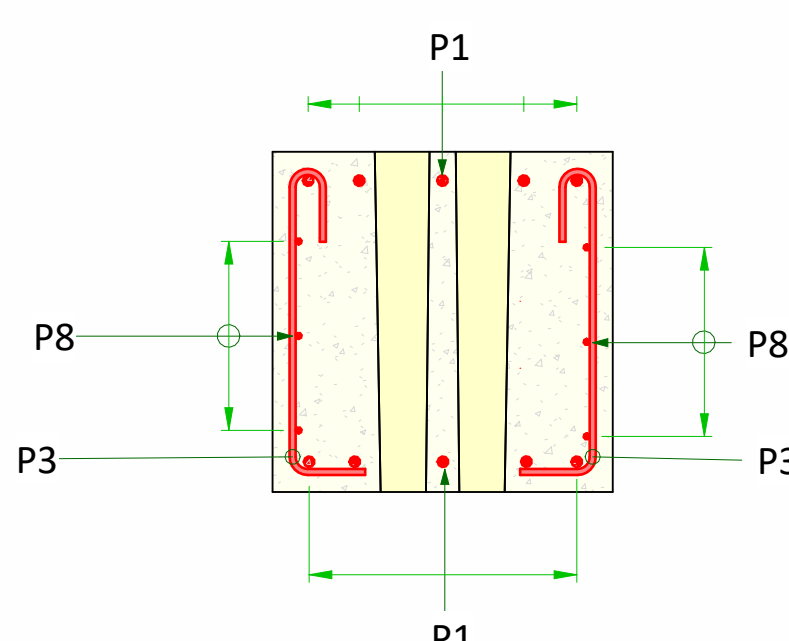
**3**  
D018  
**PIER 1 - ELEVATION**  
REINFORCEMENT | 1:25



**4**  
D018  
**PIER 1 - HEADSTOCK PLAN**  
REINFORCEMENT | 1:25



**6**  
D018  
**SECTION**  
REINFORCEMENT | 1:20



**7**  
D018  
**SECTION**  
REINFORCEMENT | 1:20

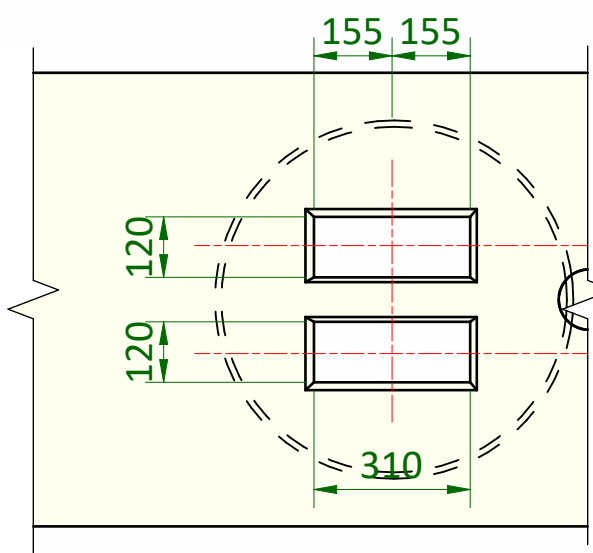
**CONCRETE NOTES**  
DIMENSIONS IN MILLIMETERS.  
CONCRETE EXPOSURE CLASSIFICATION:  
ALL PIER HEADSTOCK ELEMENTS - B1.  
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE 40 MPa.  
CHAMFER EDGES 20X20 AND FILLET RE-ENTRANT ANGLES 20X20 USO.  
NCF DENOTES NO CHAMFER OR FILLET.  
ESTIMATED UNIT MASS : 11.55 TONNES

**REINFORCEMENT NOTES**  
SCALES AS SHOWN  
CLEAR COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE 45 mm USO.  
REINFORCEMENT PLACEMENT ABBREVIATIONS AS FOLLOWS:  
FF FAR FACE NF NEAR FACE  
EF EACH FACE + LENGTH VARIES  
USO UNLESS SPECIFIED OTHERWISE.  
NSOP NOT SHOWN ON PLAN.

THE MINIMUM LENGTHS OF LAPS SHALL BE AS FOLLOWS  
USO:

BAR SIZE	N12	N16	N20	N24	N28	N32	N36	N40
HORIZONTAL BARS WITH ≥ 300 mm OF CONCRETE CAST BELOW THE BAR	460	650	940	1250	1580	1940	2320	2750
ALL OTHER BARS	350	500	720	960	1210	1490	1790	2110

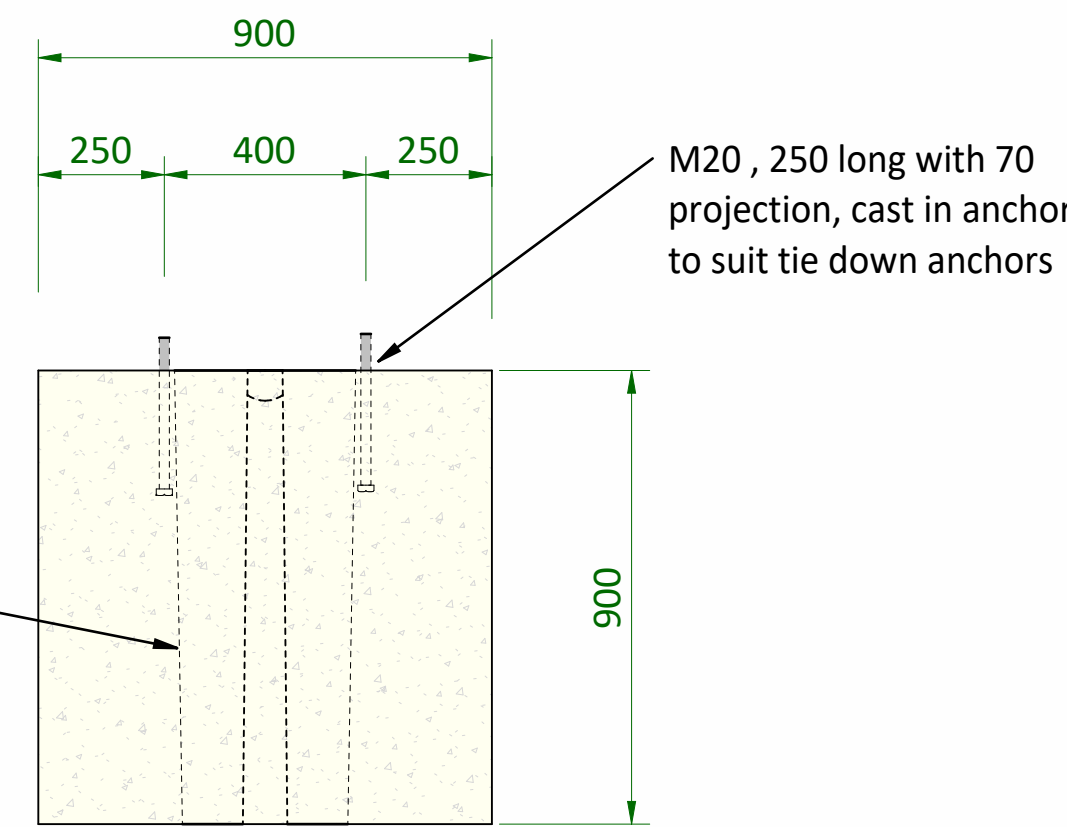
REINFORCEMENT MAY BE DISPLACED SLIGHTLY TO CLEAR EMBEDDED OBJECTS, HOLES AND RECESSES.  
TACK WELDING OF REINFORCEMENT FOR LOCATION PURPOSES IS TO BE IN ACCORDANCE WITH AS1554.3 CLAUSE 3.3.



\* DIMENSIONS ARE FOR LEVEL AR SOFFIT

**12**  
D018  
**VOID FORMER**  
CONCRETE | 1:15

FORM SLOPE FACE FOR VOID FORMERS TO SUIT 1: 10 SLOPE TOWARDS THE BOTTOM LEVEL



**11**  
D018  
**SECTION**  
CONCRETE | 1:15

A1	APPROVAL	D.Anabalon	06/11/24
P1	Preliminary 80%	D.Anabalon	
Issue	Description	Name	Initial Date
	Design not to be amended without authorisation by Certifier		



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01).  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk -
Drafter	DOA	Drafting Chk DOA
Approved by:		
	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)	

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**PIER HEADSTOCK - REINFORCED CONCRETE DETAILS**

PLAN REFERENCE
DWG 10104.33

Project Job Ref.	AE2426
Sheet No.	018 of 028
Rev	A1
APPROVAL ISSUE	

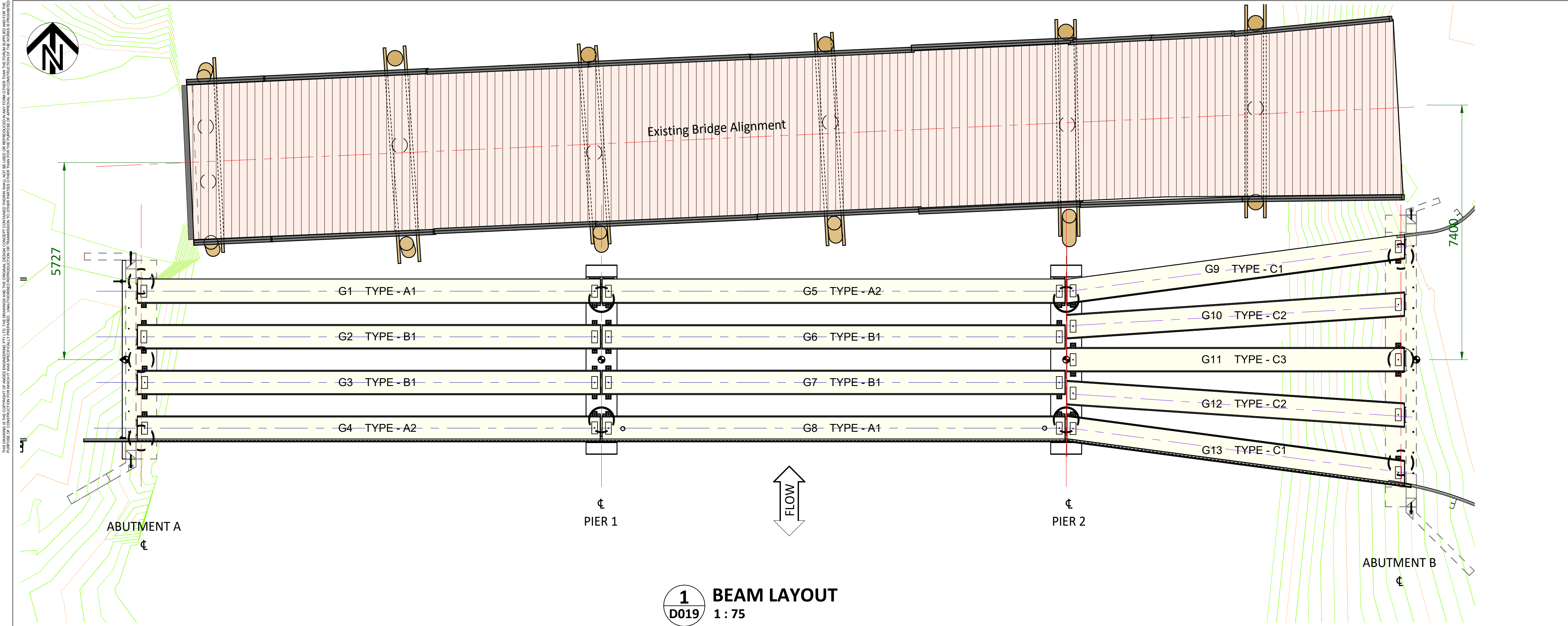
Designed By:	Andes Engineering
	Bateau Bay NSW 2261 Australia T - 0434 901 672 E - info@andesengineering.com.au ABN - 33 620 457 052

**NOT FOR CONSTRUCTION**

Drawing scales true at A1



DOA  
Head Date  
D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drafting\Model\MANN MODEL\AE2426 Murrays Br.rvt



1  
D019  
BEAM LAYOUT  
1 : 75

PRECAST UNIT SCHEDULE						
Type	Type Mark	CAST LENGTH	VOLUME	WEIGHT (T)	PRESTRESSING FORCE (KN)	COUNT
Type A1	G1 & G8	13455	3.65 m³	9.3	175	2
Type A2	G4 & G5	13455	3.65 m³	9.3	175	2
Type B1	G2 & G3 , G6 & G7	13455	3.64 m³	9.3	175	4
Type C1	G9 & G13	9906	2.71 m³	6.9	175	2
Type C2	G10 & G12	9841	2.68 m³	6.8	175	2
Type C3	G11	9806	2.67 m³	5.6	175	1

PRECAST UNIT HOG TABLE			
TYPE	AT TRANSFER (mm)	AT 30 DAYS (mm)	CALCULATED DEFLECTION DUE TO DECK CAST (mm)
G1 & G8	15	18	6
G2 & G3 , G6 & G7	18	15	6
G4 & G5	18	15	6
G9 & G13	14	16	4
G10 & G12	14	16	4
G11	14	16	4

GENERAL NOTES  
GENERAL NOTES REFER DWG NO. 002 - DWG NO. 004  
DIMENSIONS IN MILLIMETRES.

POST-TENSIONING  
THE DESIGN IS BASED ON THE USE OF FORTEC MONOSTRAND FLAT SLAB POST TENSIONING ANCHORAGE SYSTEM:  
LIVE END: FMA505 OR EQUIVALENT  
DEAD END: SWAGED END ANCHORAGE FSS505 OR END ANCHOR FMA505 OR EQUIVALENT  
TENDONS SHALL CONSIST OF A TOTAL NO. OF 10 - No. 15.2mm DIAMETER LOW RELAXATION, STRESS RELIEVED, SUPERGRADE 7 WIRE STRANDS TO AS/NZS 4672.1 (MINIMUM BREAKING LOAD OF 250kN). DUCTS FOR TENDONS SHALL BE CONSISTENT WITH FORTEC SUPPLIED GALVANISED CORRUGATED STEEL DUCT SYSTEM OF SIZE 90mm X 19mm.  
SINGLE END STRESSING TO BE UNDERTAKEN FROM LIVE END ONLY. DUCTS SHALL BE RIGIDLY SUPPORTED DURING CONCRETING AND FIXED TO A SMOOTH PROFILE OF THE SPECIFIED POINTS SHOWN ON THE VERTICAL DUCT PROFILE USING A METHOD APPROVED BY THE DESIGN ENGINEER. GROUT VENTS SHALL BE PROVIDED AT ALL ANCHORAGES, MIDSPAN AND SAG POINTS OF ALL DUCTS.

ALL TENDON LOCATIONS ARE MEASURED FROM THE CENTERLINE OF THE DUCT TO THE SOFFIT VERTICALLY. THE TENDONS SHALL BE STRESSED FROM THE LIVE END ONLY LOCATED ON ABUTMENT A. ALL TENDONS SHALL BE STRESSED BEFORE PLACEMENT OF GIRDERS.

CALCULATION OF FRICTION AND DRAW IN LOSSES HAS BEEN BASED ON THE FOLLOWING ASSUMPTIONS:  
FRICTION CURVATURE COEFFICIENT  $\mu = 0.2$   
WOBBLE COEFFICIENT  $\beta = 0.016$  rad/m  
DRAW IN AT LOCK OFF = 6mm  
ELASTIC MODULUS OF TENDONS  $E_s = 195000$  Mpa  
TENDON DUCTS SHALL BE GROUTED AS SOON AS POSSIBLE AFTER STRESSING. CALCULATED  
TENDONS SHALL HAVE A JACKING FORCE OF 175KN (70% UTS)  
THEORETICAL ELONGATION OF TENDON AT JACKING IS 78mm

LIFTING AND HANDLING  
PRECAST UNITS TO BE LIFTED BY PROVIDED LIFTING ANCHORS ONLY  
CALCULATED MASS OF PRECAST UNITS REFER TABLE. THE MASS CALCULATION ASSUMES A CONCRETE DENSITY OF 2550 kg/m³.  
OWING TO THE FABRICATION METHODS AND TOLERANCES, THE MASS OF THE DECK UNIT MAY VARY FROM THAT CALCULATED. THE MANUFACTURER SHOULD VERIFY THE ACTUAL MASS AND MARK ON THE SIDE OF THE DECK UNIT.  
DURING STORAGE, TRANSPORT AND HANDLING BEAMS SHALL BE KEPT IN AN UPRIGHT POSITION AND SUPPORTED NOT MORE THAN 750mm FROM EACH END.  
LIFTING ANCHORS TO BE NOT FURTHER THAN 750mm FROM EACH END OF BEAM. IF ALTERNATE LIFTING METHOD IS ADOPTED, CERTIFICATION IS TO BE PROVIDED BY THE PRECAST SUPPLIER.  
PRECAST UNITS TO BE BRACED AGAINST OVERTURNING UNTIL DECK POUR COMPLETED.

NOT FOR CONSTRUCTION

A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		
Issue	Description	Name	Initial	Date
Design not to be amended without authorisation by Certifier				



SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

MURRAYS BRIDGE OVER CONJOLA CREEK  
PRESTRESSED BEAM DETAILS

PLAN REFERENCE
DWG 10104. 34

Project Job Ref.	AE2426
Sheet No.	019 of 028
Rev	A1
APPROVAL ISSUE	

Designed By:	Andes Engineering
Bateau Bay NSW 2261 Australia T - 0434 901 672 E - info@andesengineering.com.au ABN - 33 620 457 052	

Drawing scales true at A1

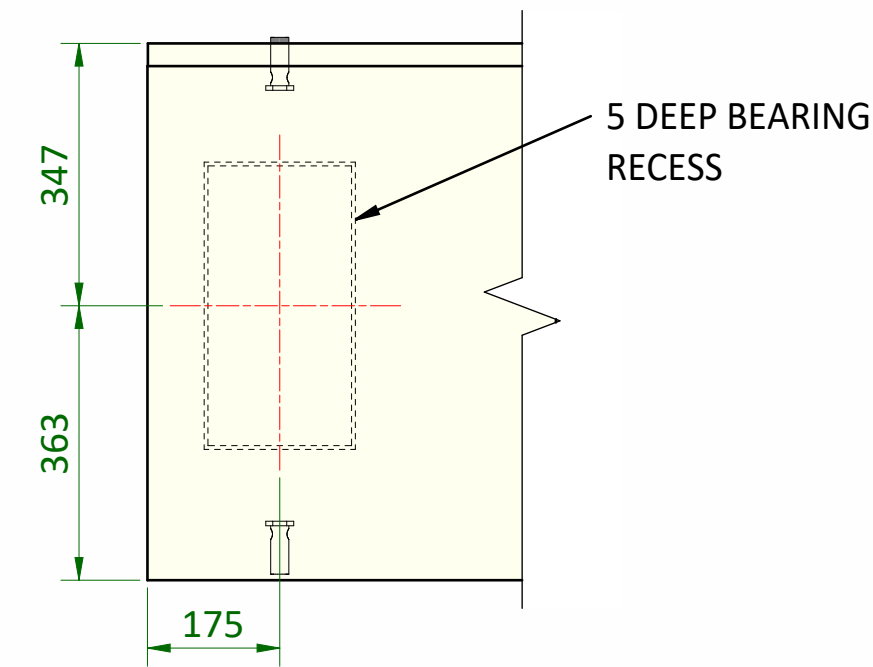
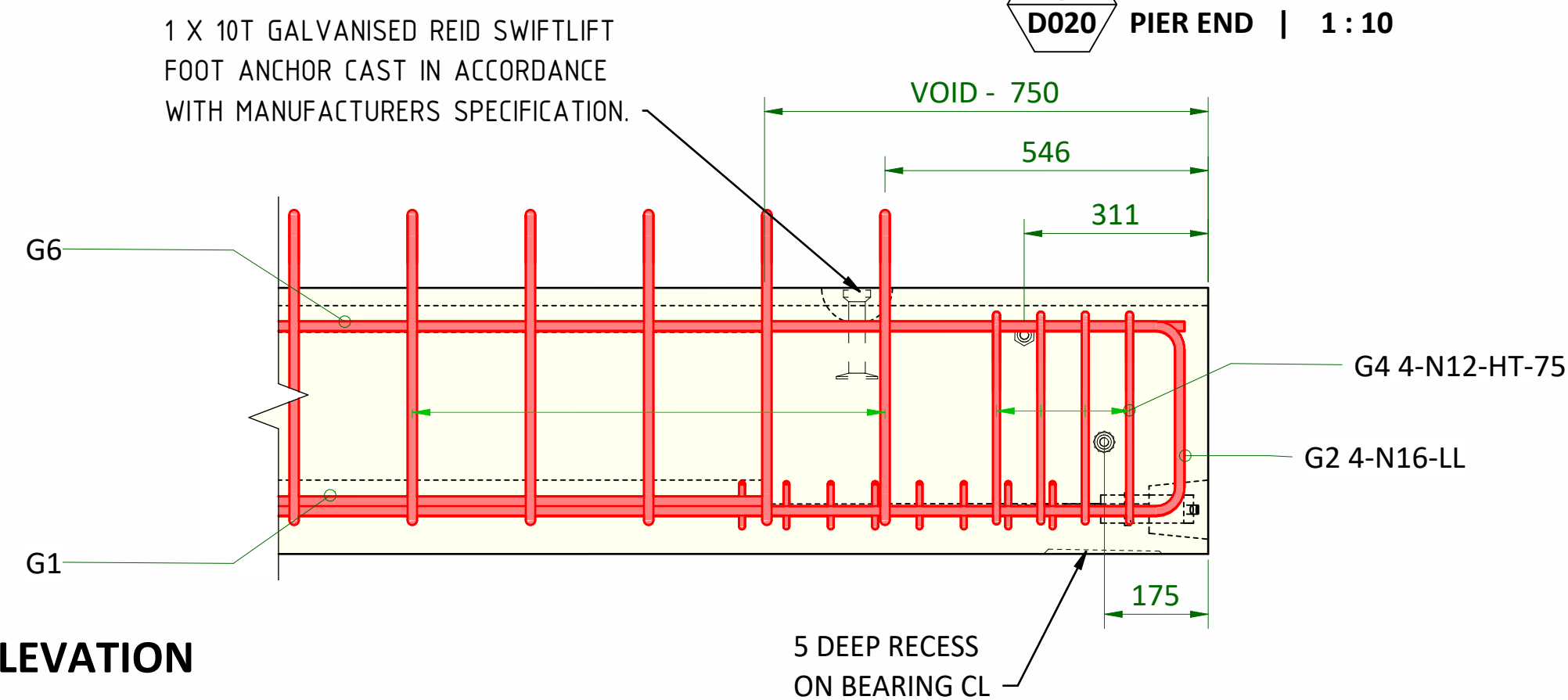
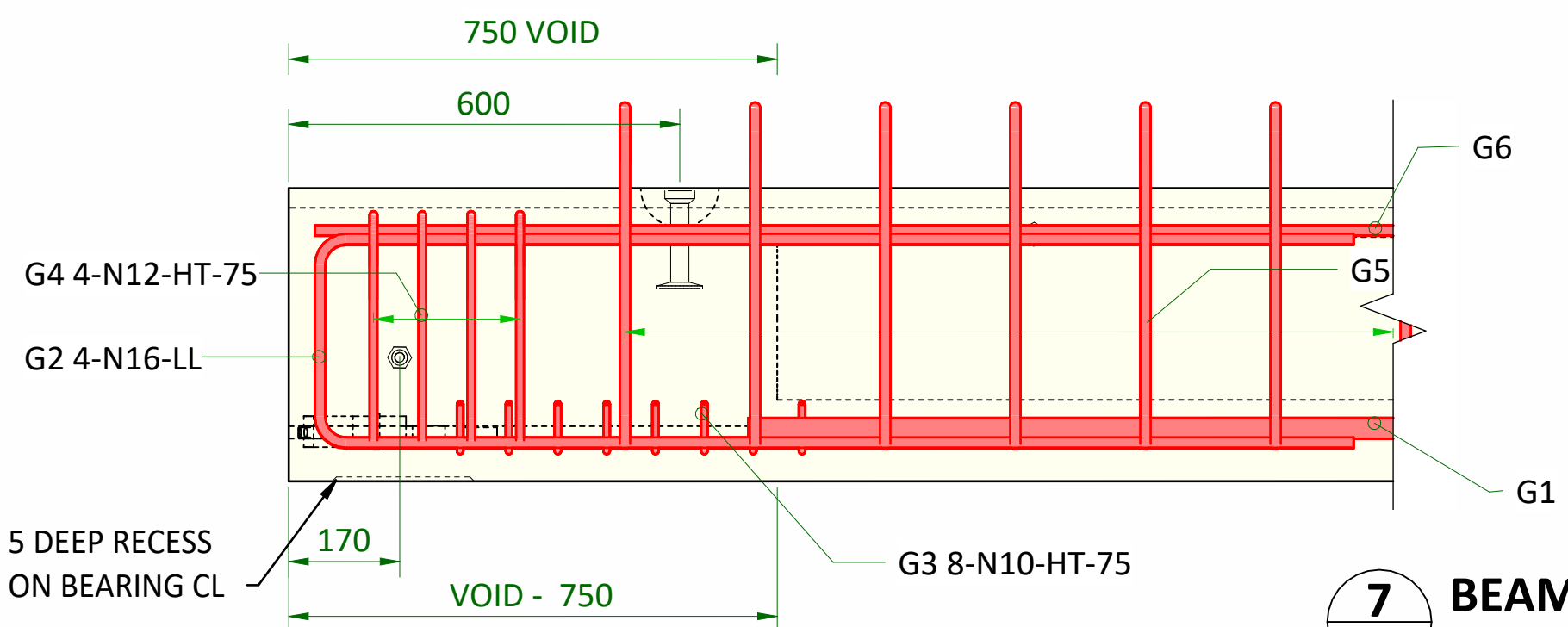
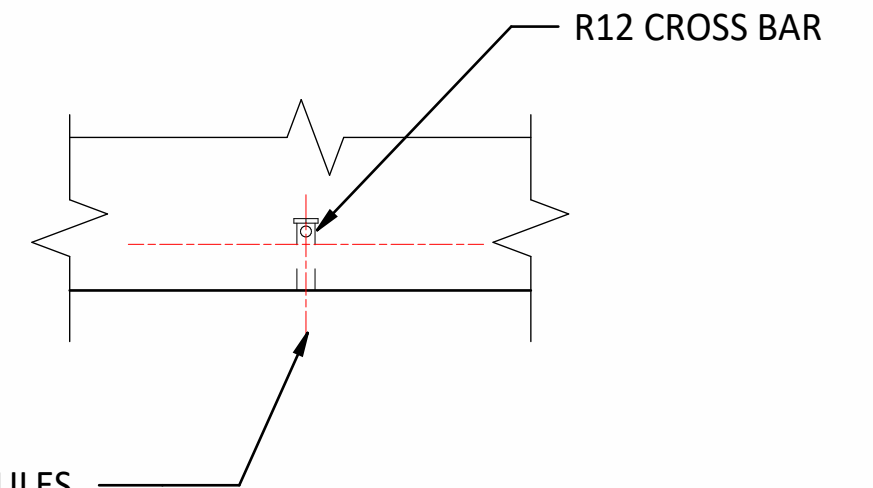
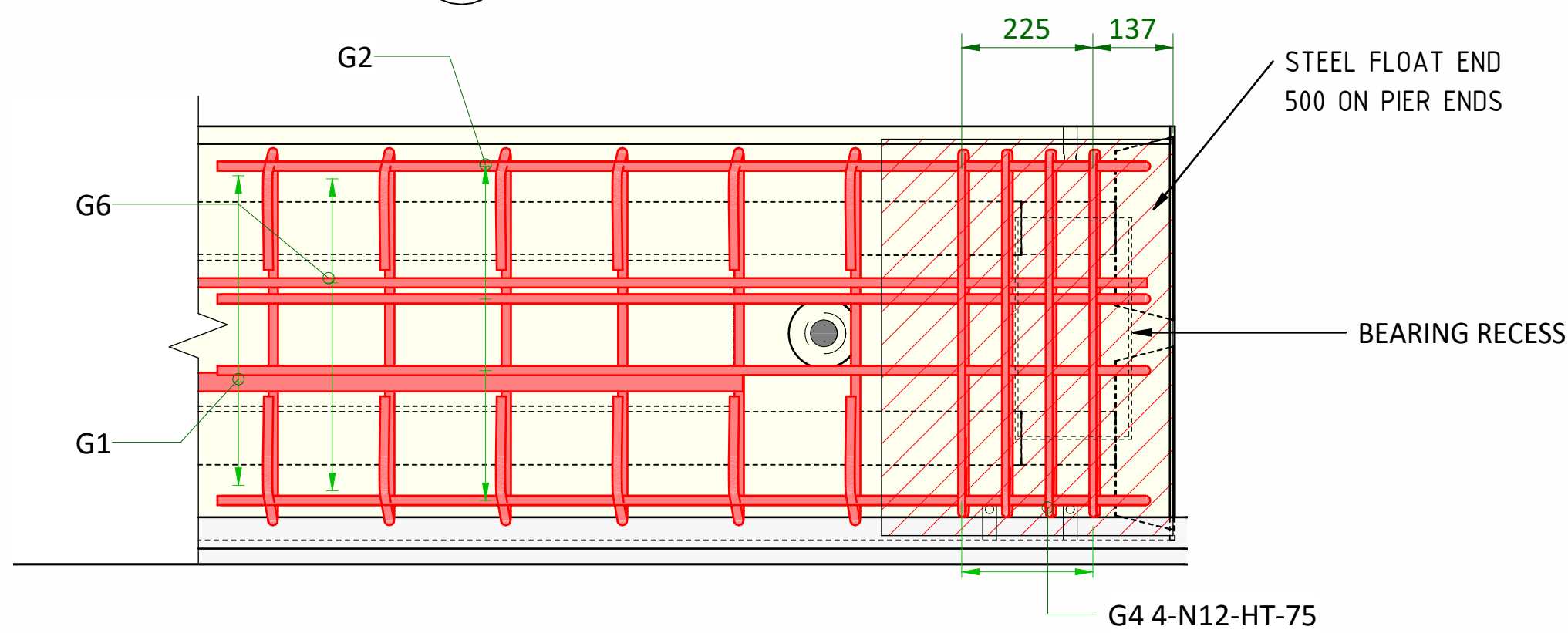
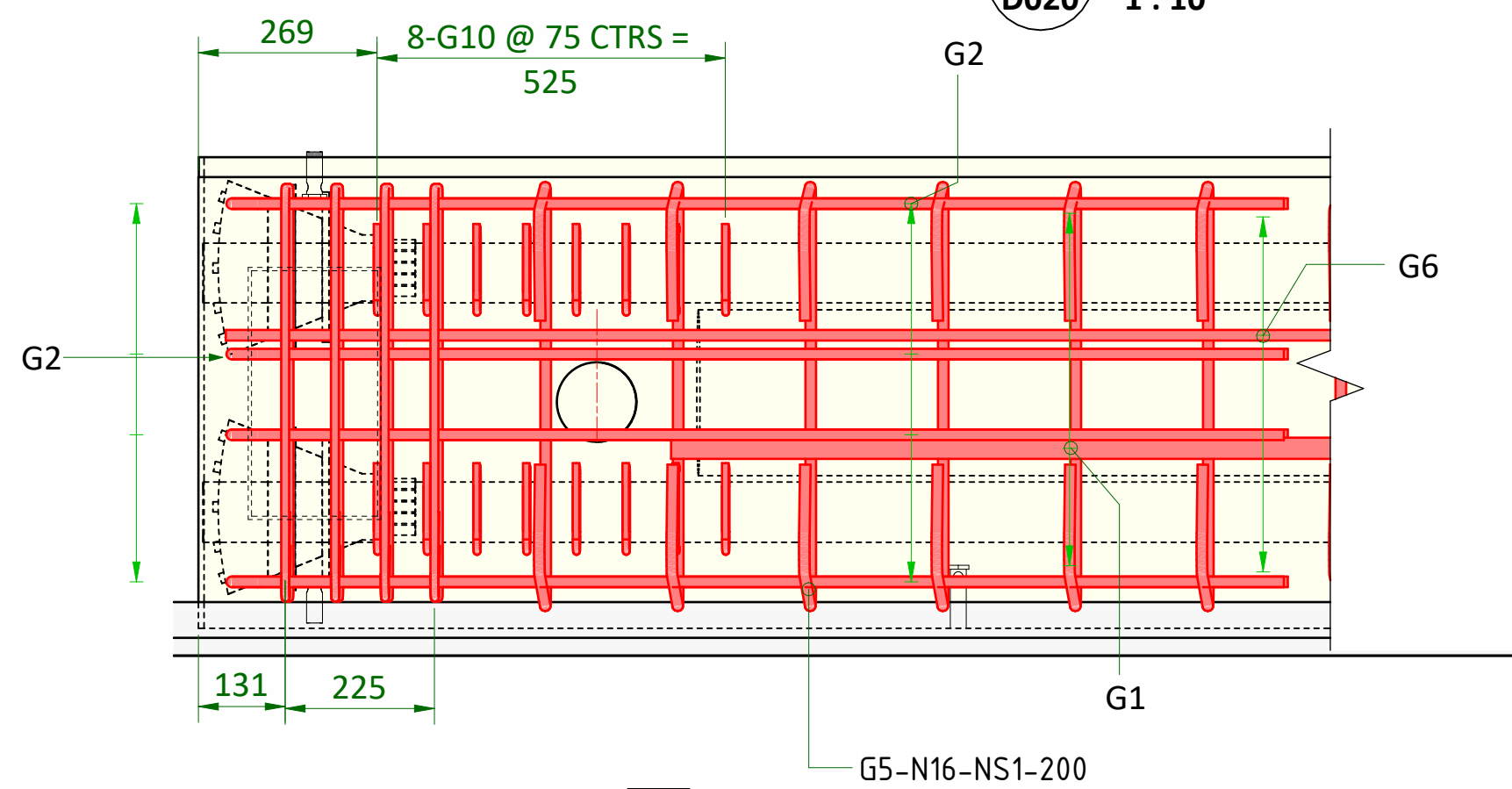
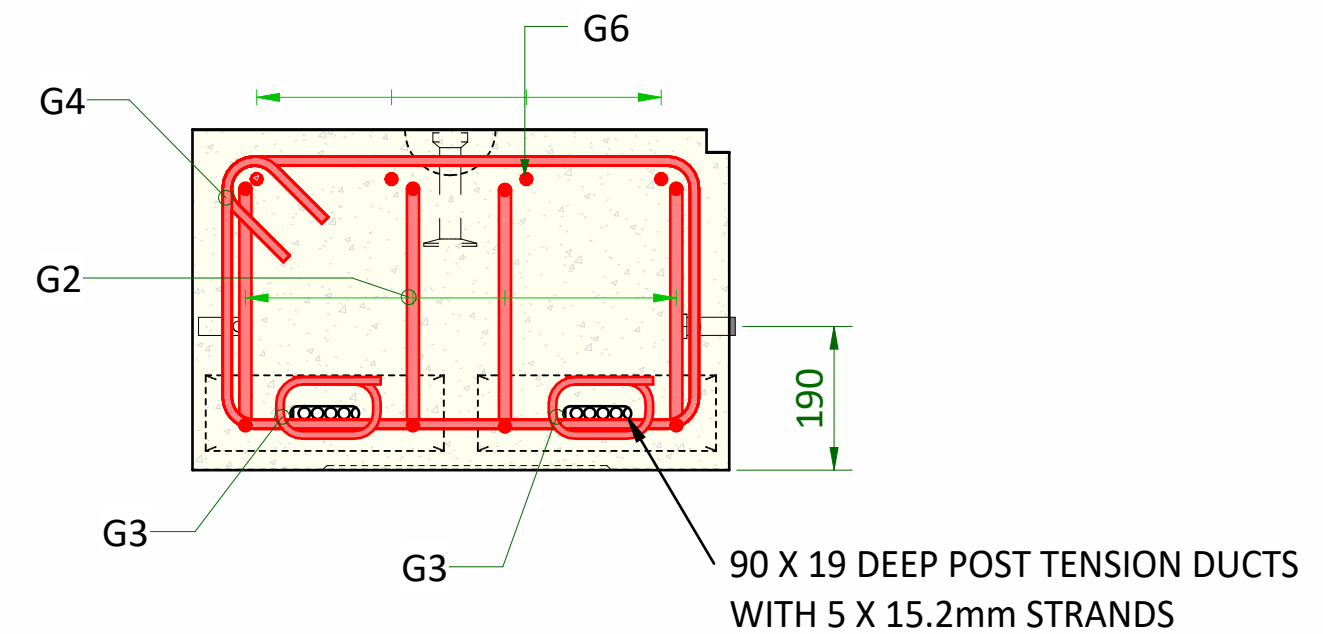
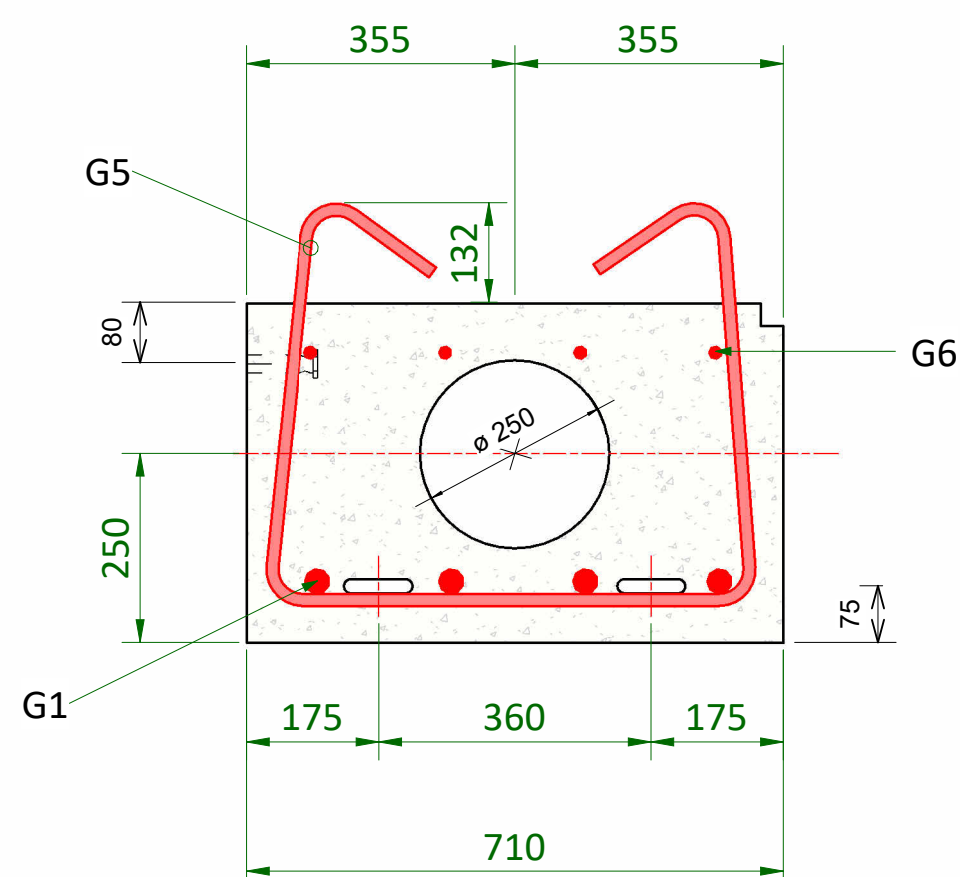
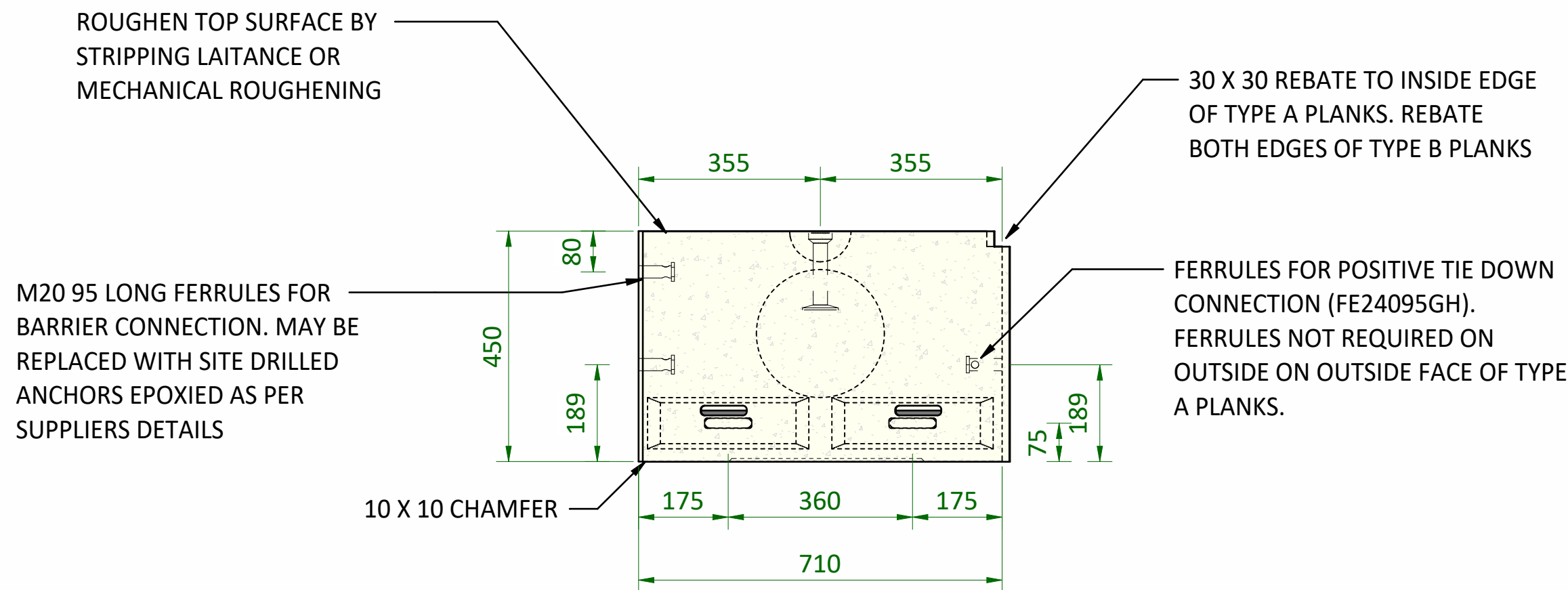
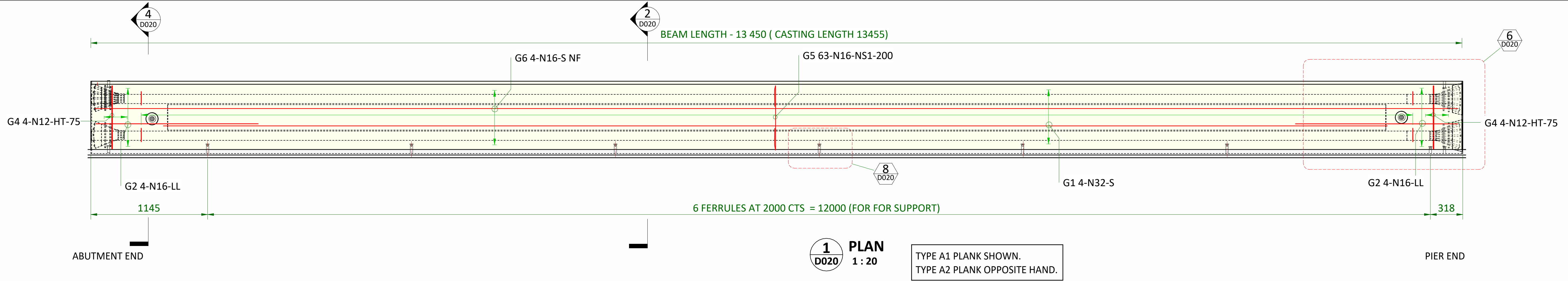


This drawing is the property of ANDRES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL DESIGN OR INVENTION ARE NOT BE LOANED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDRES ENGINEERING PTY LTD.

Issue Date

DOA

D:\OneDrive - andresengineering.com.au\Andres\_Engineering\AE\_Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN MODEL\AE2426 Murrays Br.rvt



**NOTES**  
GENERAL NOTES REFER DWG NO 002 - DWG NO. 005  
PRECAST CONCRETE NOTES REFER DWG NO. 019  
LIFTING AND HANDLING NOTES REFER DWG NO. 019

**PRESTRESSING NOTES**  
REFER PRECAST UNITS SCHEDULE DWG NO. 019  
FOR THE FORCE REMAINING IN EACH STRAND.

**NOT FOR CONSTRUCTION**

A1	APPROVAL	D.Anabalon			06/11/24
P1	Preliminary 80%	D.Anabalon			
Issue	Description	Name	Initial	Date	
Design not to be amended without authorisation by Certifier					

**FORTEC**  
FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk -	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**PRESTRESSED BEAM DETAILS - TYPES A & B**

**Shoalhaven City Council**  
PLAN REFERENCE  
DWG 10104.35

Project Job Ref.	AE2426		
Sheet No.	020	of	028
Rev	A1		

Designed By:  
**Andres Engineering**  
Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andresengineering.com.au  
ABN - 33 620 457 052

Drawing scales true at A1

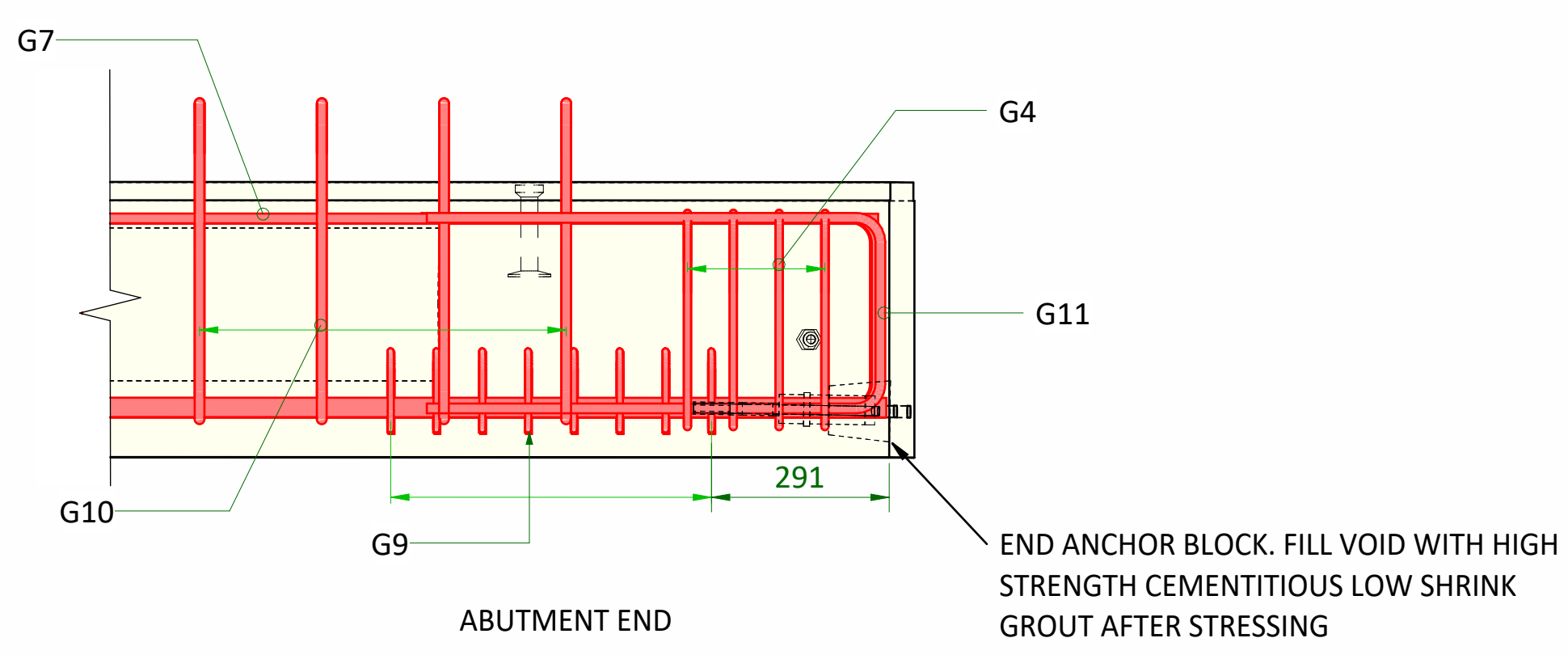
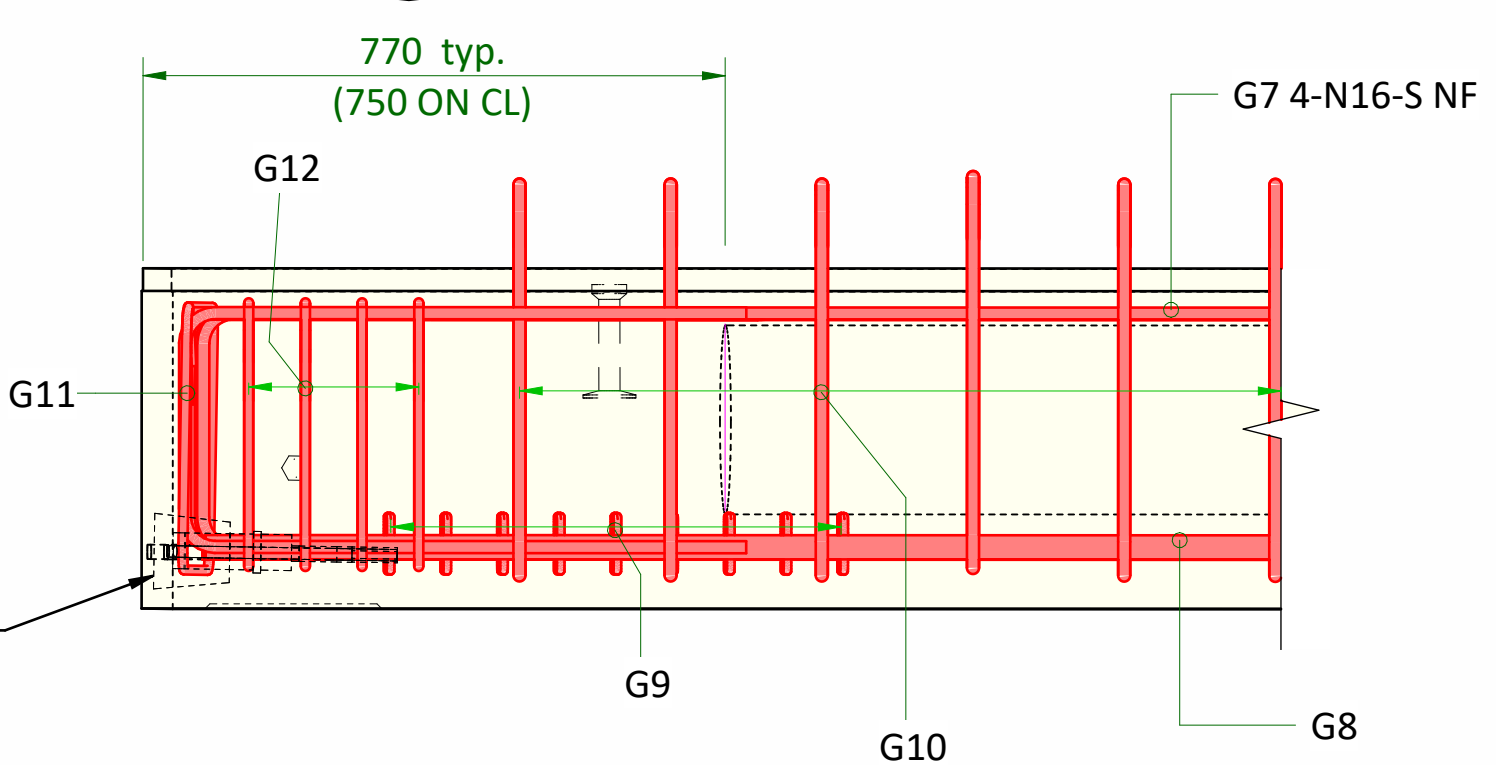
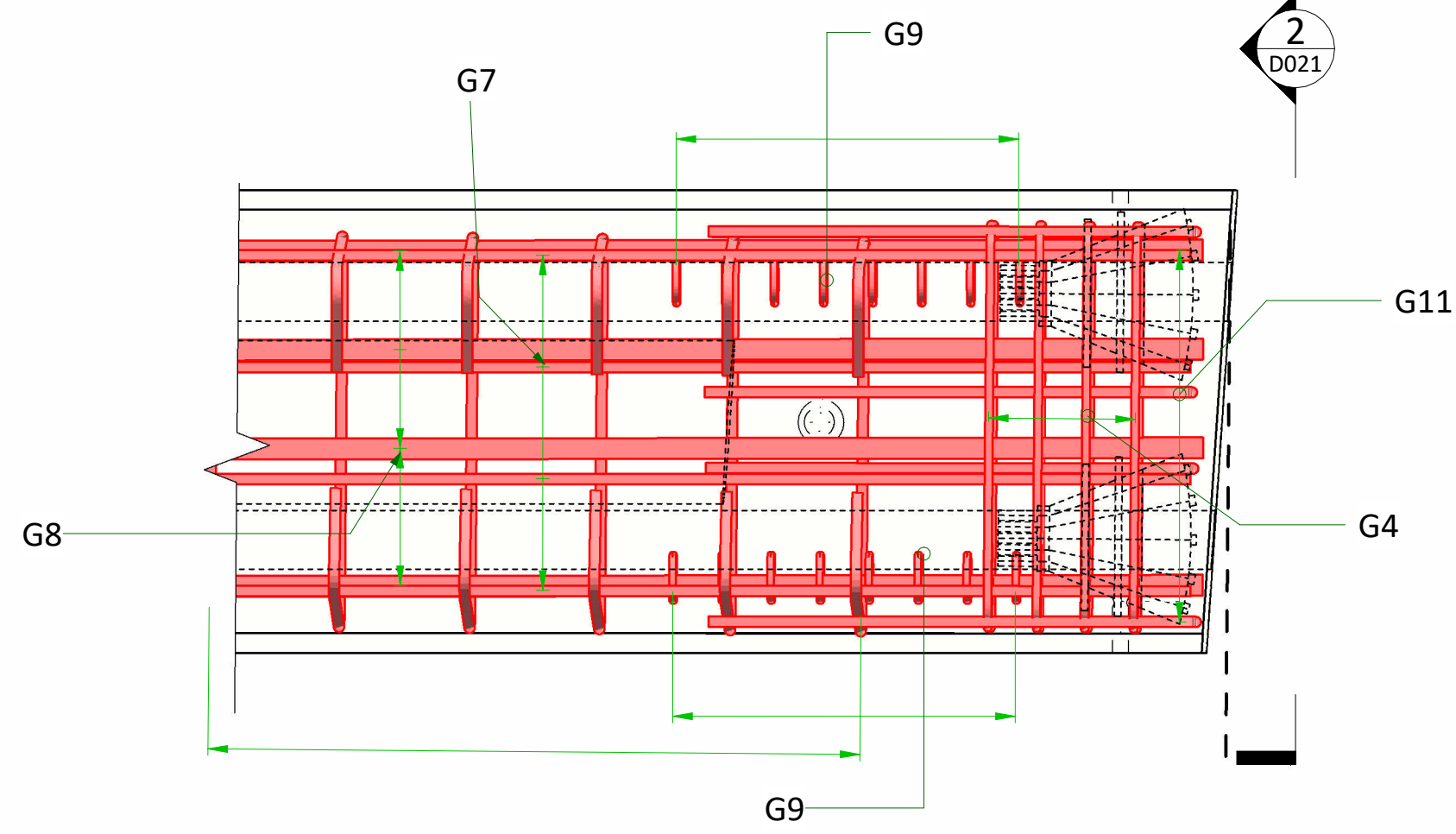
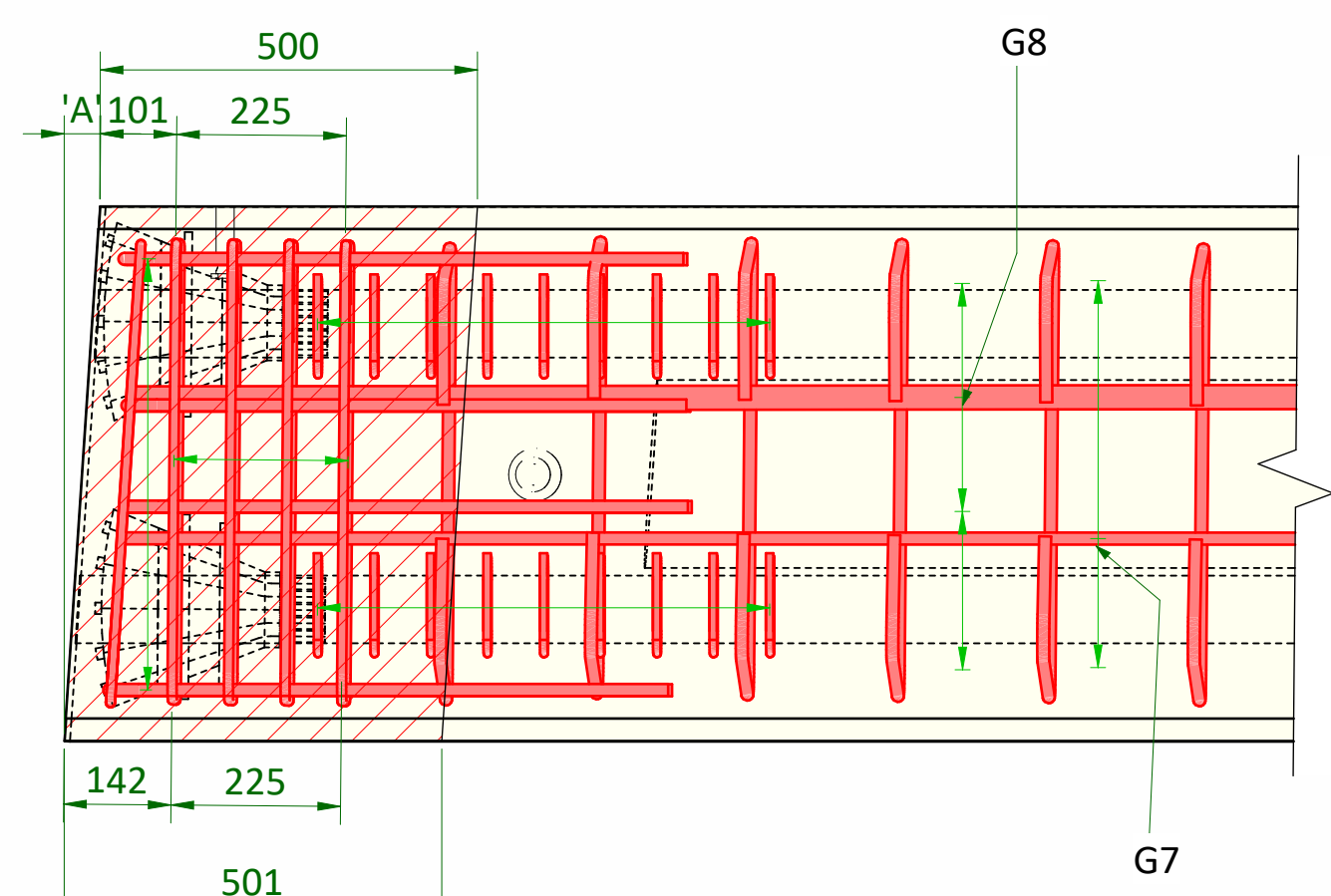
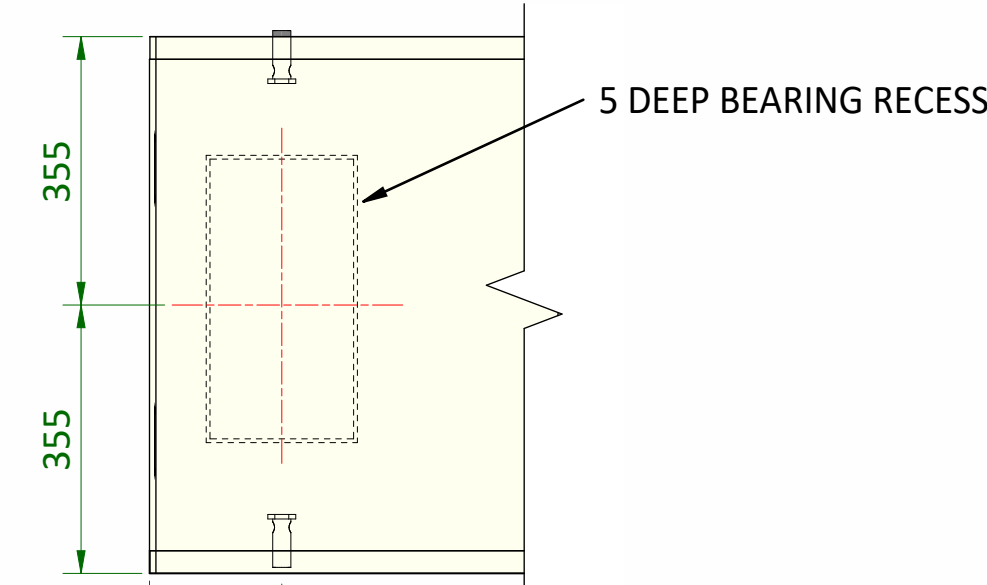
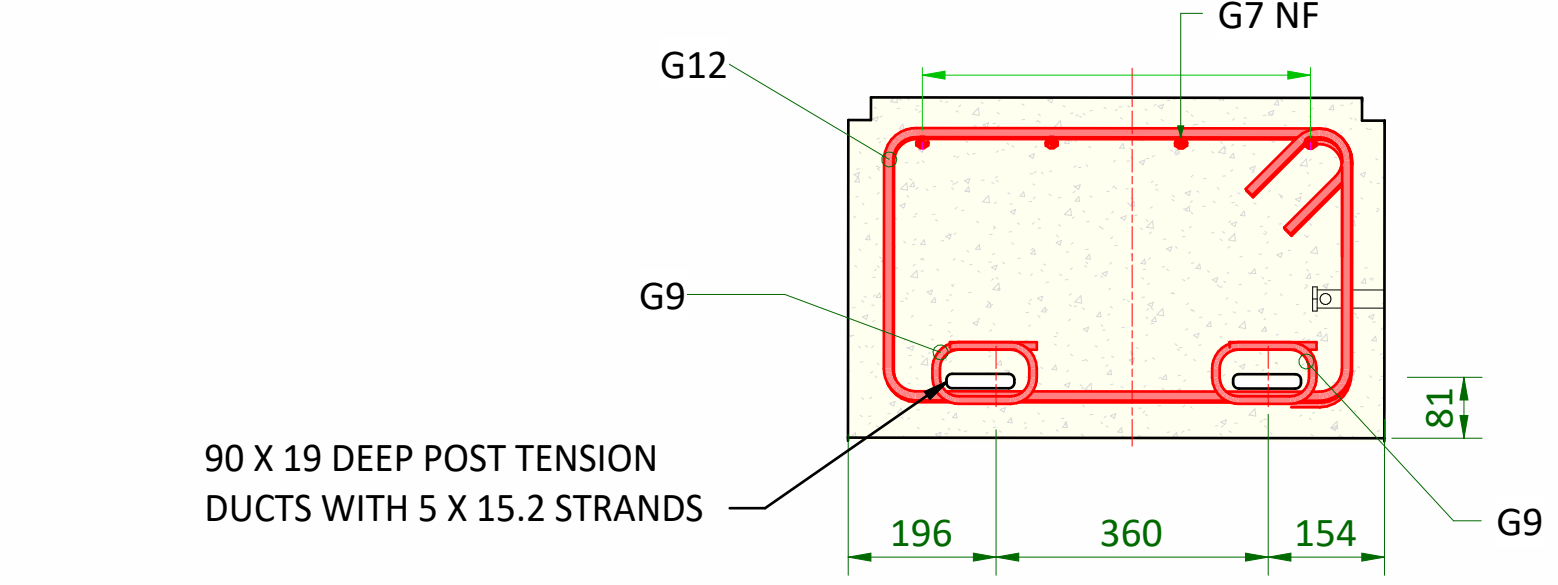
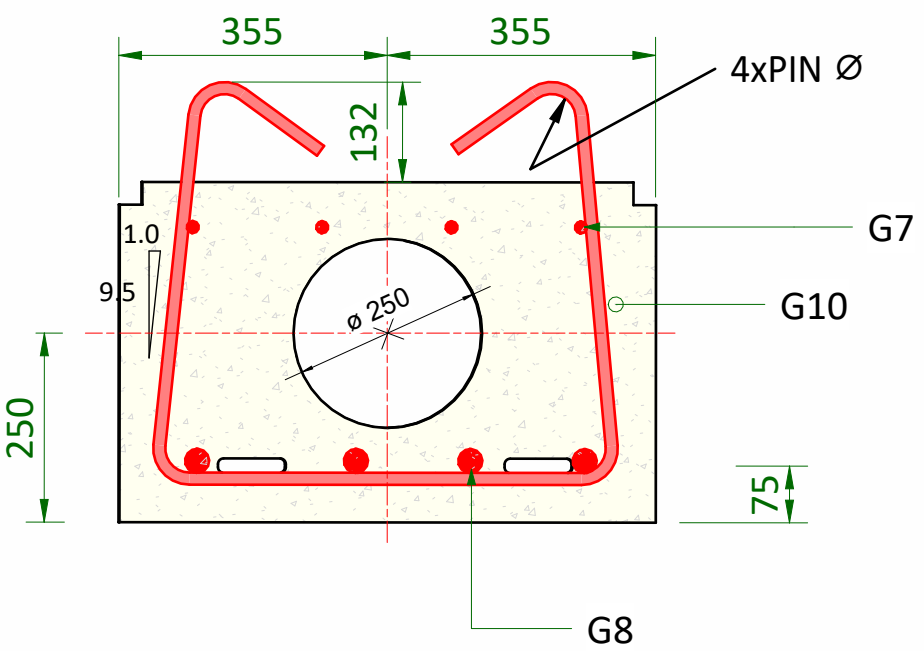
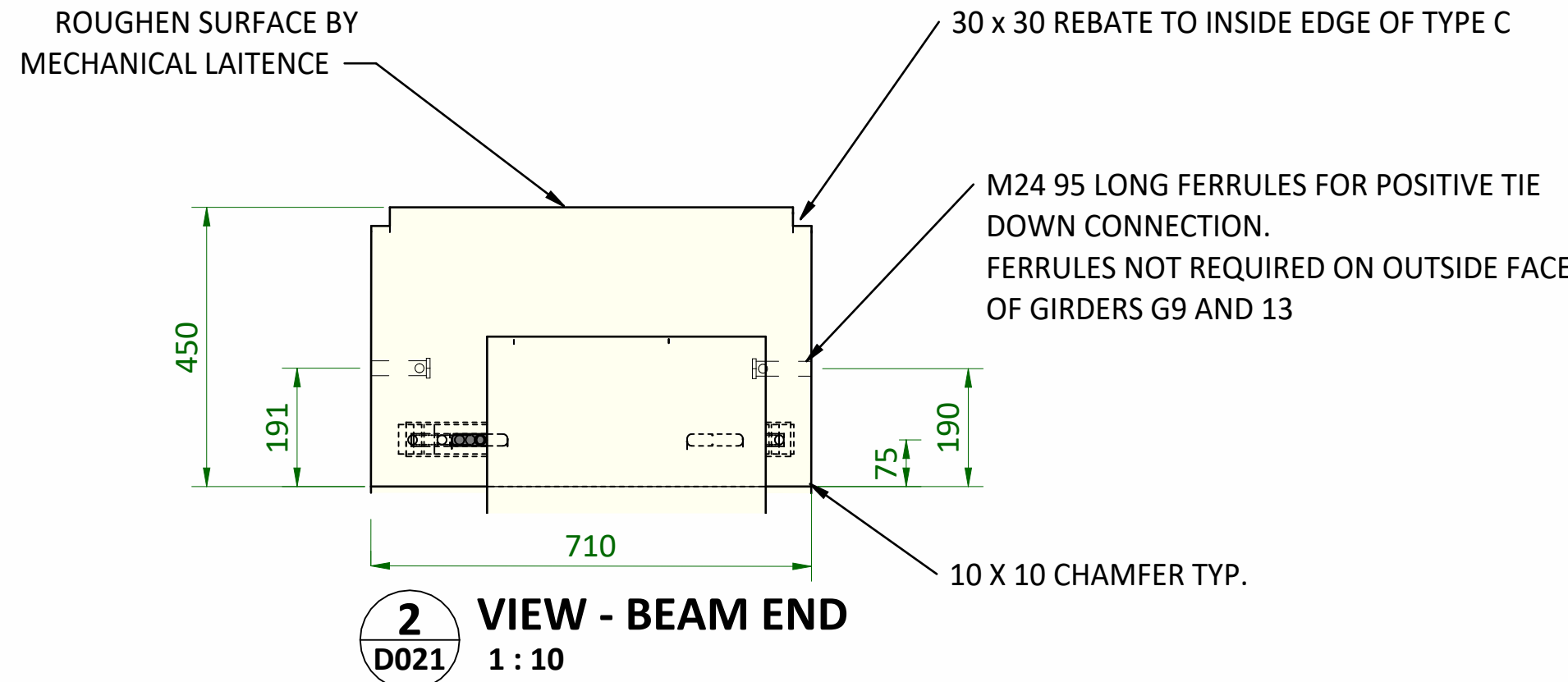
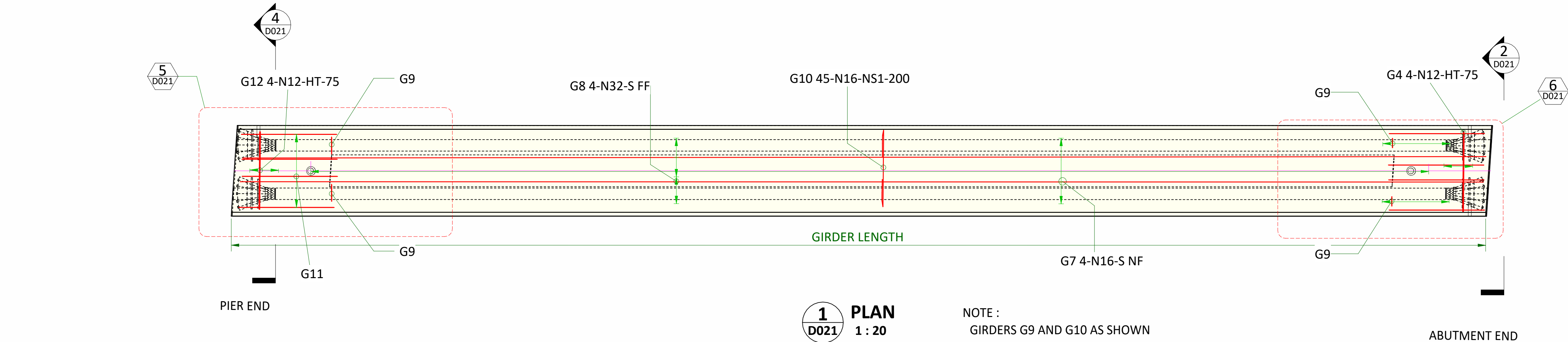


This drawing is the property of ANDRES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL CONSTRUCTION DETAILS THEREIN SHALL NOT BE USED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. THE INFORMATION CONTAINED HEREIN IS FOR THE EXCLUSIVE USE OF THE CLIENT AND IS NOT TO BE USED FOR ANY OTHER PURPOSE. ANY REUSE OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED.

Issue Date

DOA

D:\OneDrive - andresengineering.com.au\Andres\_Engineering\AE\_Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN\_MODEL\AE2426 Murrays Bridge Br.rvt



**NOTES**  
GENERAL NOTES REFER DWG NO 002 - DWG NO. 005  
PRECAST CONCRETE NOTES REFER DWG NO. 019  
LIFTING AND HANDLING NOTES REFER DWG NO. 019

**PRESTRESSING NOTES**  
REFER PRECAST UNITS SCHEDULE DWG NO. 019  
FOR THE FORCE REMAINING IN EACH STRAND.

ENDS OF GIRDERS SHALL BE TAPERED TO ACCOMMODATE THE SKEW LAYOUT OF GIRDERS. SKEW ANGLE OF TAPERED ENDS SHALL BE:

BEAM TYPE	SKEW ANGLE ('A') DEGREES	OFFSET ('B') mm
G9 & G13	7.50	93.5
G10 & G12	3.81	47.0
G11	0.0	0.0

**NOT FOR CONSTRUCTION**

Issue	Description	Name	Initial	Date
A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		

Design not to be amended without authorisation by Certifier

**FORTEC**

FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer - DOA	Design Chk -
Drafter DOA	Drafting Chk DOA
Approved by: Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)	

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**PRESTRESSED BEAM DETAILS - TYPES C1, C2 & C3**

**Shoalhaven City Council**

PLAN REFERENCE  
DWG 10104.36

Project Job Ref. AE2426	Rev A1
Sheet No. 021 of 028	APPROVAL ISSUE

Designed By: **Andres Engineering**

Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andresengineering.com.au  
ABN - 33 620 457 052

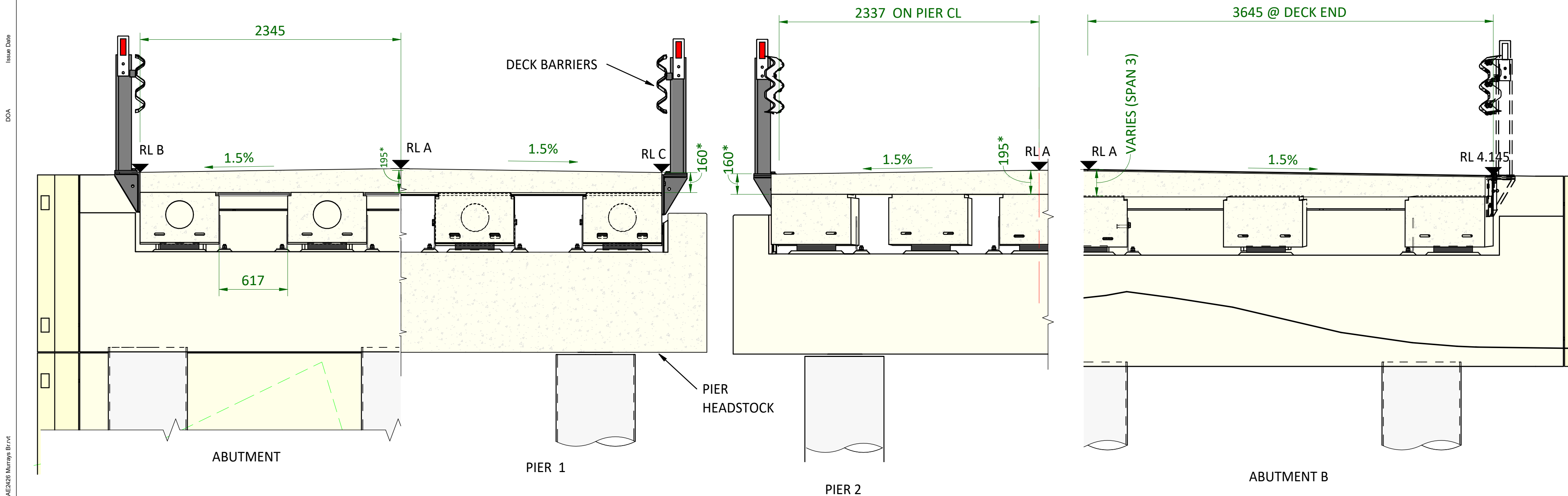
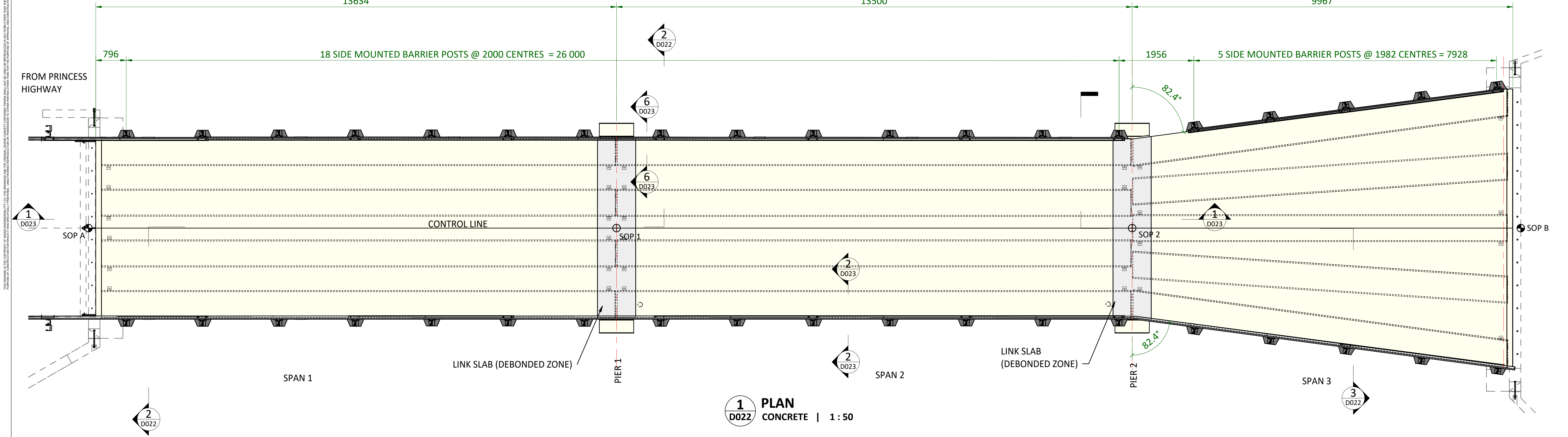


This drawing is the property of ANDRES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL DESIGN CONCEPTS ARE THE PROPERTY OF ANDRES ENGINEERING PTY LTD. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS TO BE USED FOR THE PURPOSES OF INFORMATION AND CONSULTATION ONLY. THE WORKS SHOWN ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT AND THE DESIGNER'S INTENT.

Issue Date

DOA

D:\OneDrive - andresengineering.com.au\Andres\_Engineering\AE\_Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN\_MODEL\A2426 Murrays Br.rvt



\* DIMENSIONS ARE AT MIDSPAN.  
DECK THICKNESS SHALL BE INCREASED TO ACCOMMODATE AT EACH END OF BEAM TO ACCOMMODATE BEAM HOGS.

\*DECK THICKNESS AT MIDSPAN, INCREASED AT  
ABUTMENTS TO ACCOMMODATE BEAM HOGS.

LOCATION	CHAINAGE (m)	SURFACE LEVELS (m)		
		RL A	RL B	RL C
Abut A - Deck End	0	3.465	3.5	3.465
	3.407	3.529	3.564	3.529
	6.815	3.594	3.629	3.594
	10.222	3.658	3.693	3.658
Pier 1	13.629	3.722	3.757	3.722
	16.329	3.773	3.808	3.773
	19.029	3.824	3.859	3.824
	21.729	3.875	3.910	3.875
Pier 2	24.429	3.926	3.961	3.926
	27.129	3.977	4.012	3.977
	27.154	3.977	4.012	3.977
	29.621	4.019	4.059	4.019
Abut B - Deck End	32.113	4.061	4.106	4.061
	34.604	4.103	4.153	4.103
	37.096	4.145	4.200	4.145

**CONCRETE NOTES**  
DIMENSIONS IN MILLIMETERS.  
CONCRETE EXPOSURE CLASSIFICATION:  
ALL CONCRETE ELEMENTS - B1.  
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE  
40 MPa.  
CHAMFER EDGES 20X20 AND FILLET RE-ENTRANT ANGLES  
20X20 USO.  
NCF DENOTES NO CHAMFER OR FILLET.

**NOT FOR CONSTRUCTION**

Issue	Description	Name	Initial	Date
A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		

**FORTEC**  
FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAY'S ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk -	
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAY'S BRIDGE OVER CONJOLA CREEK**  
DECK - CONCRETE DETAILS - SHEET 1

**Shoalhaven City Council**  
PLAN REFERENCE  
DWG 10104.37

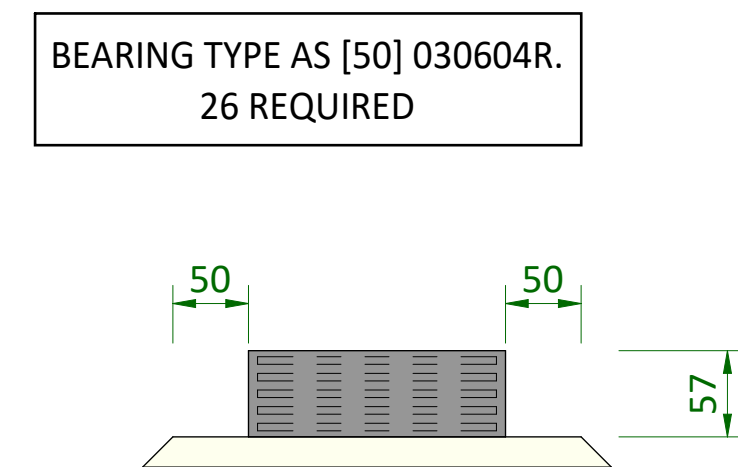
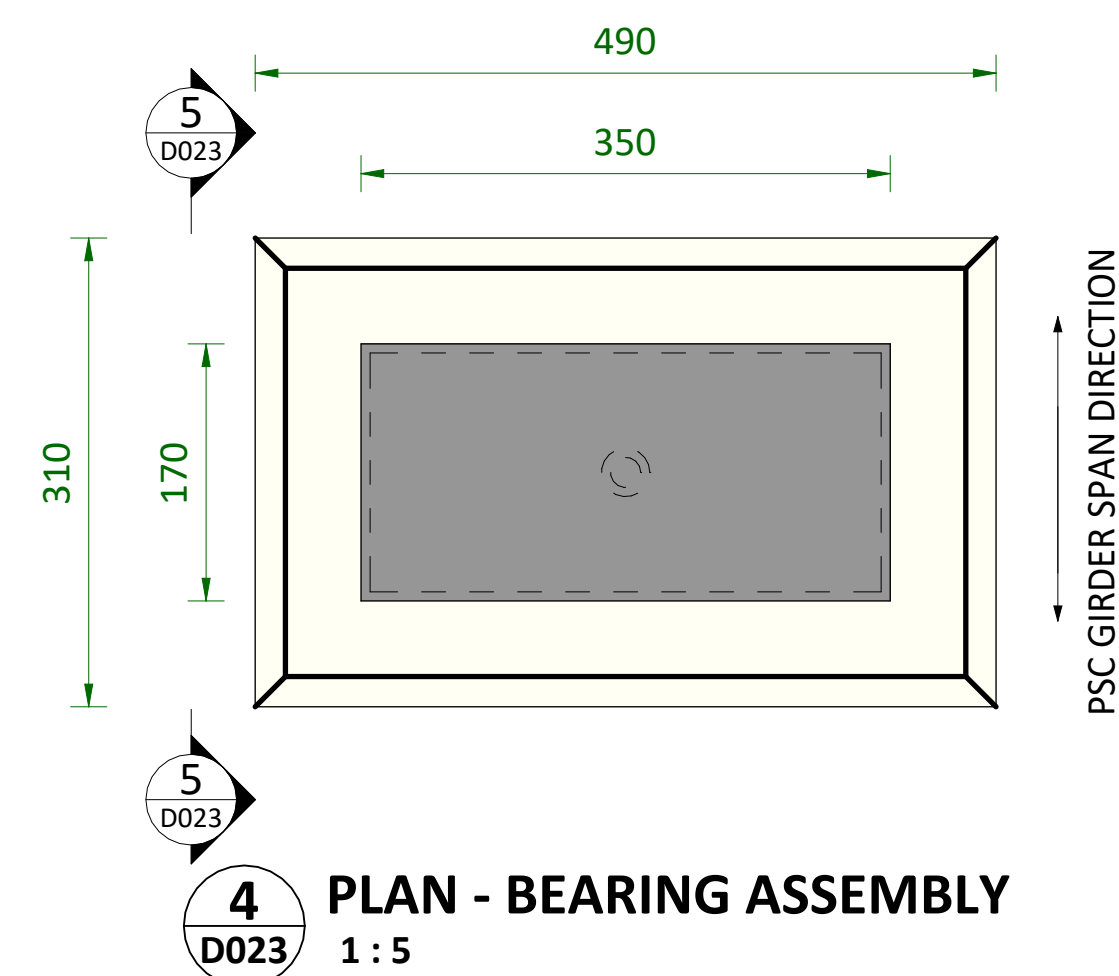
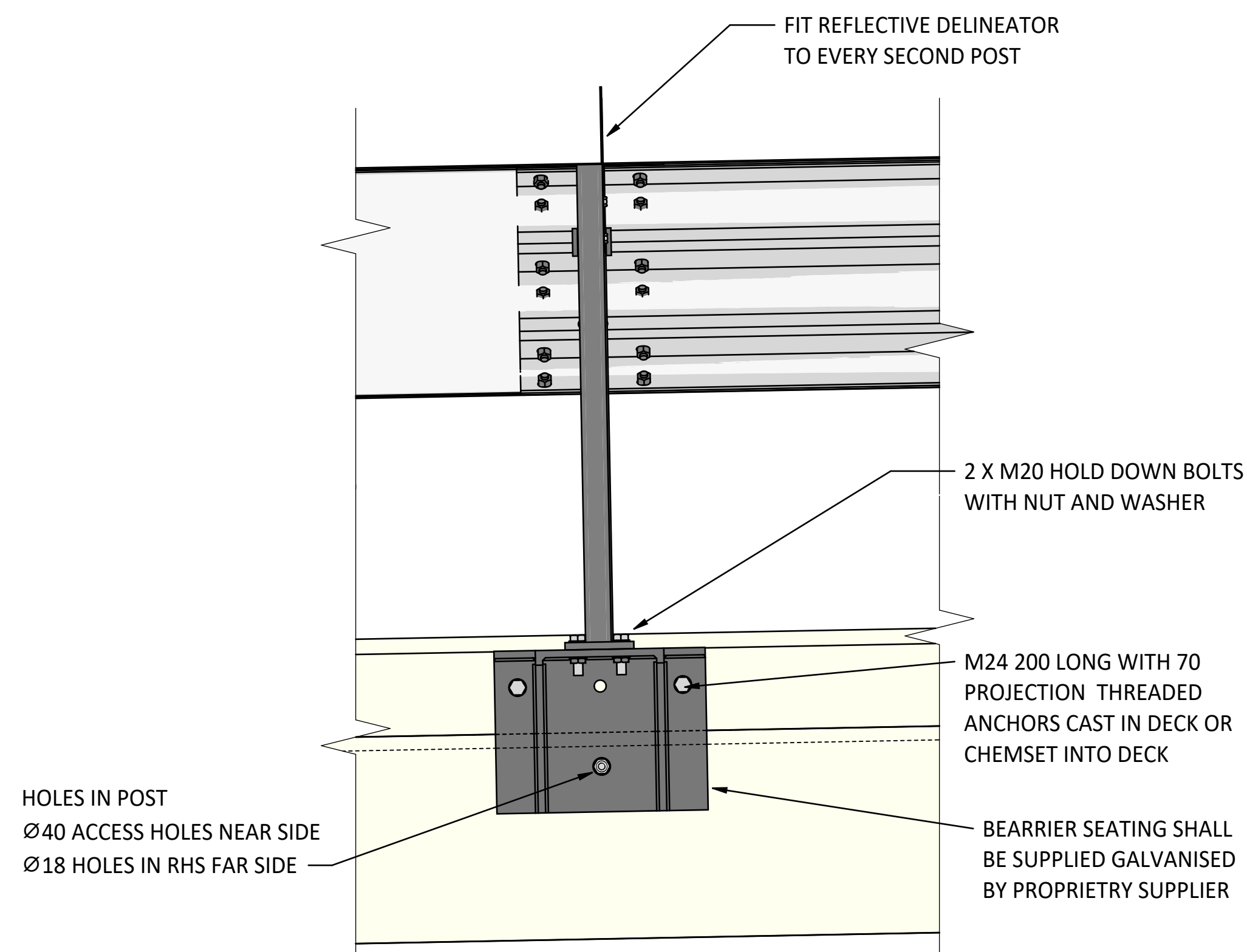
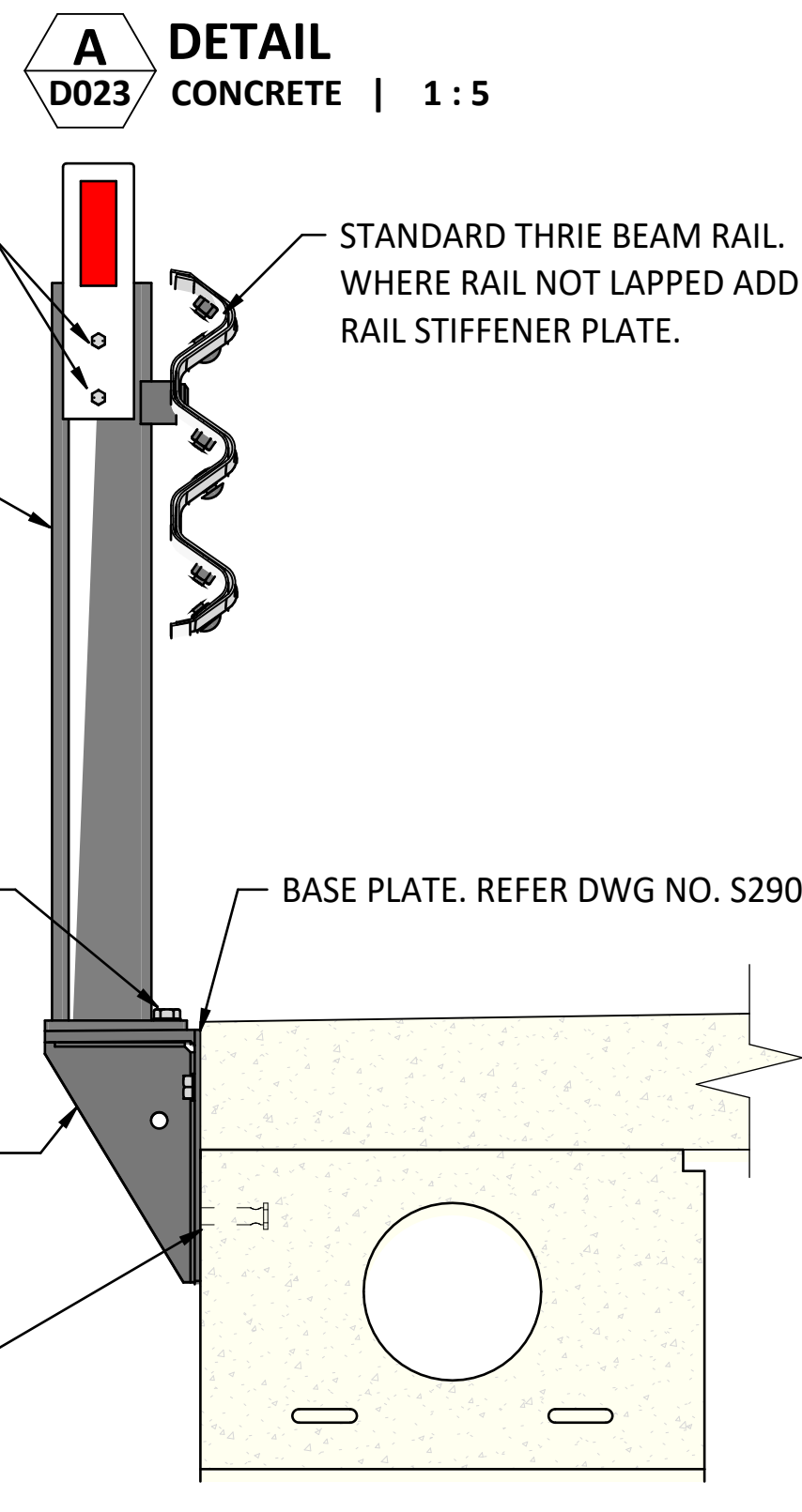
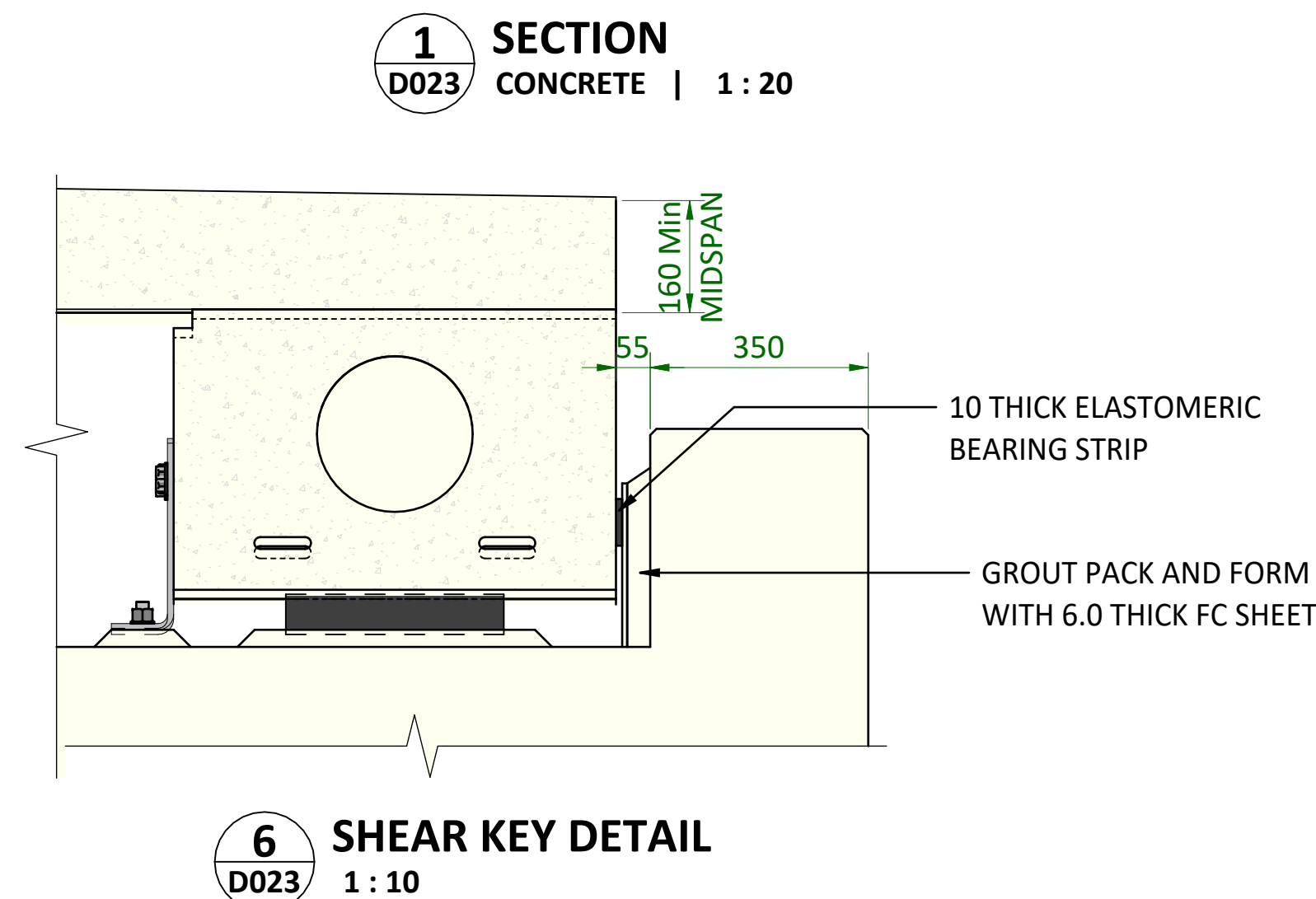
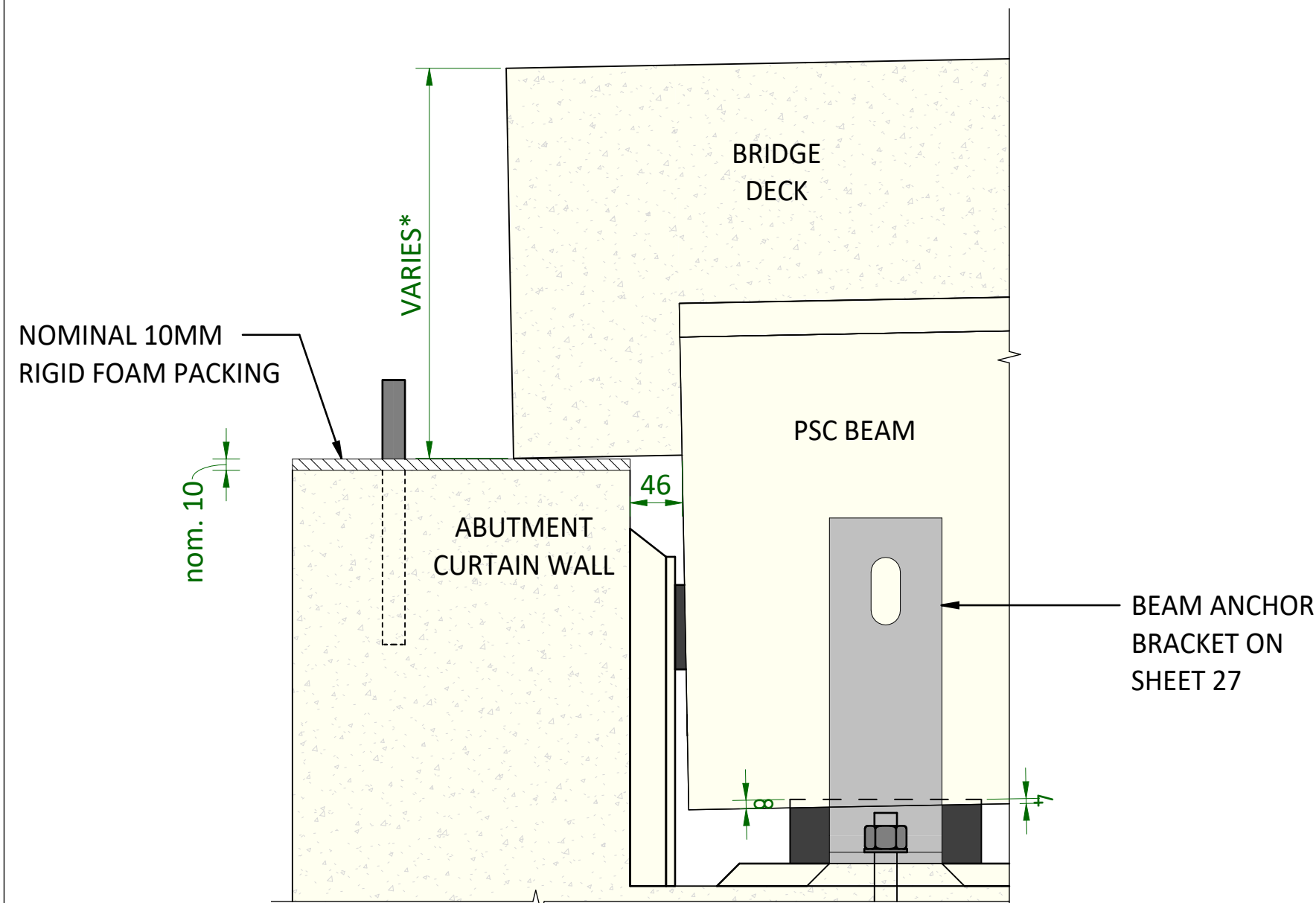
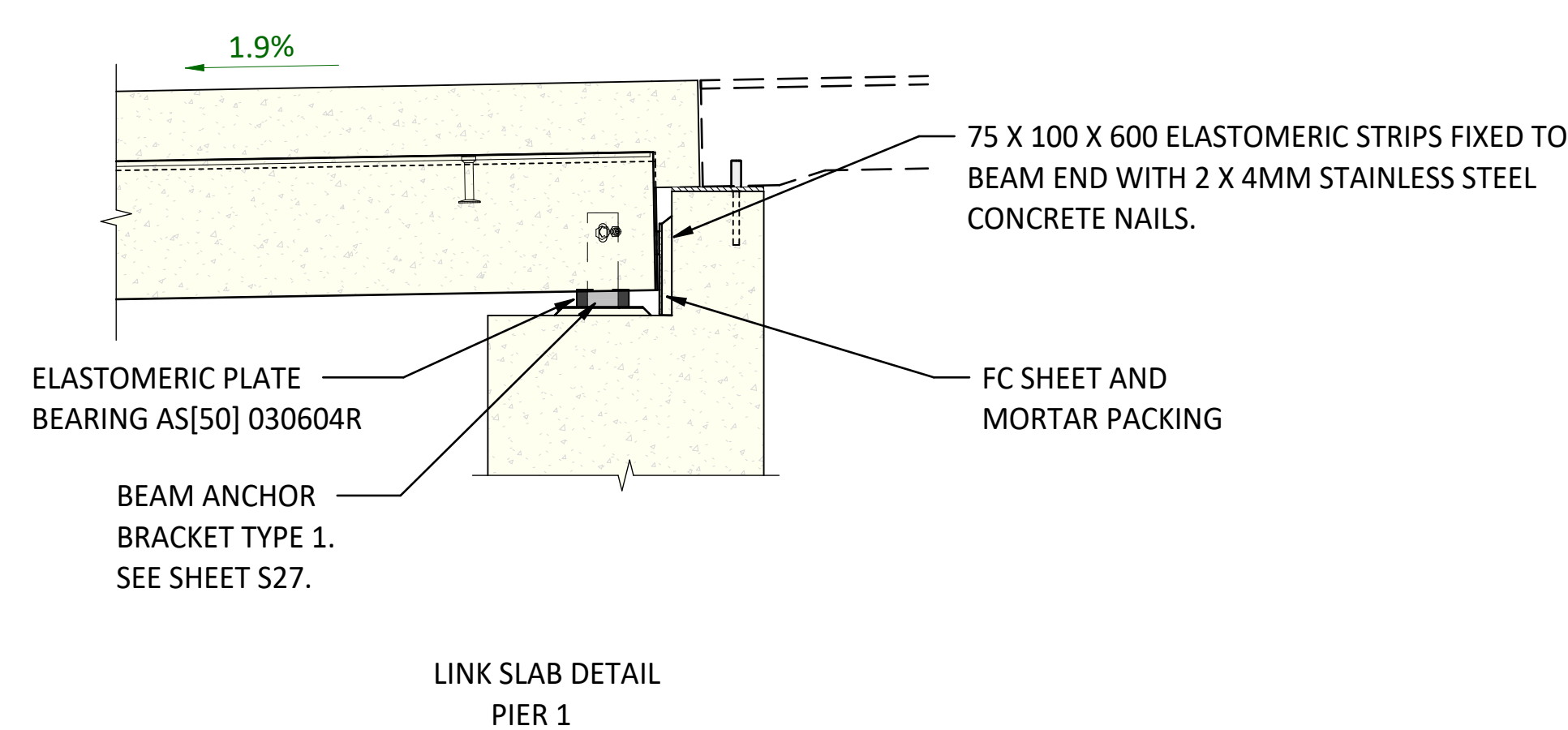
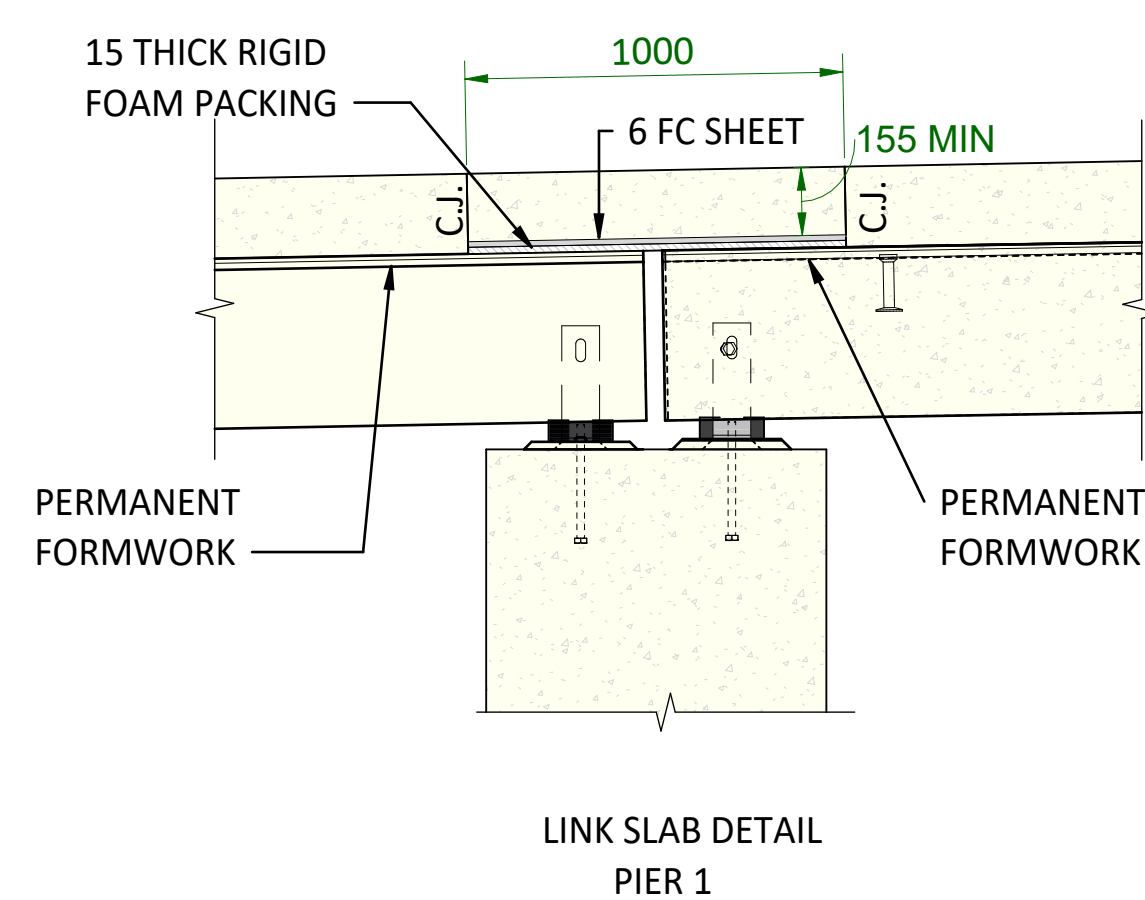
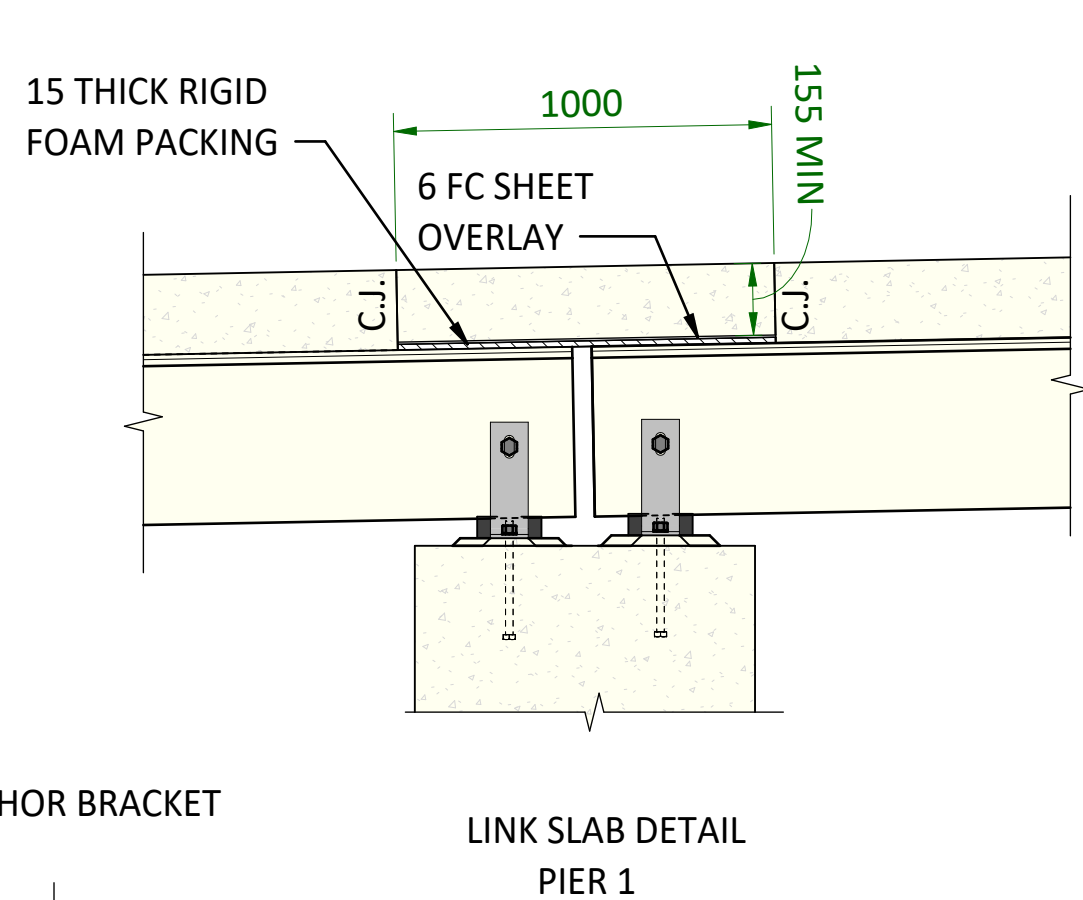
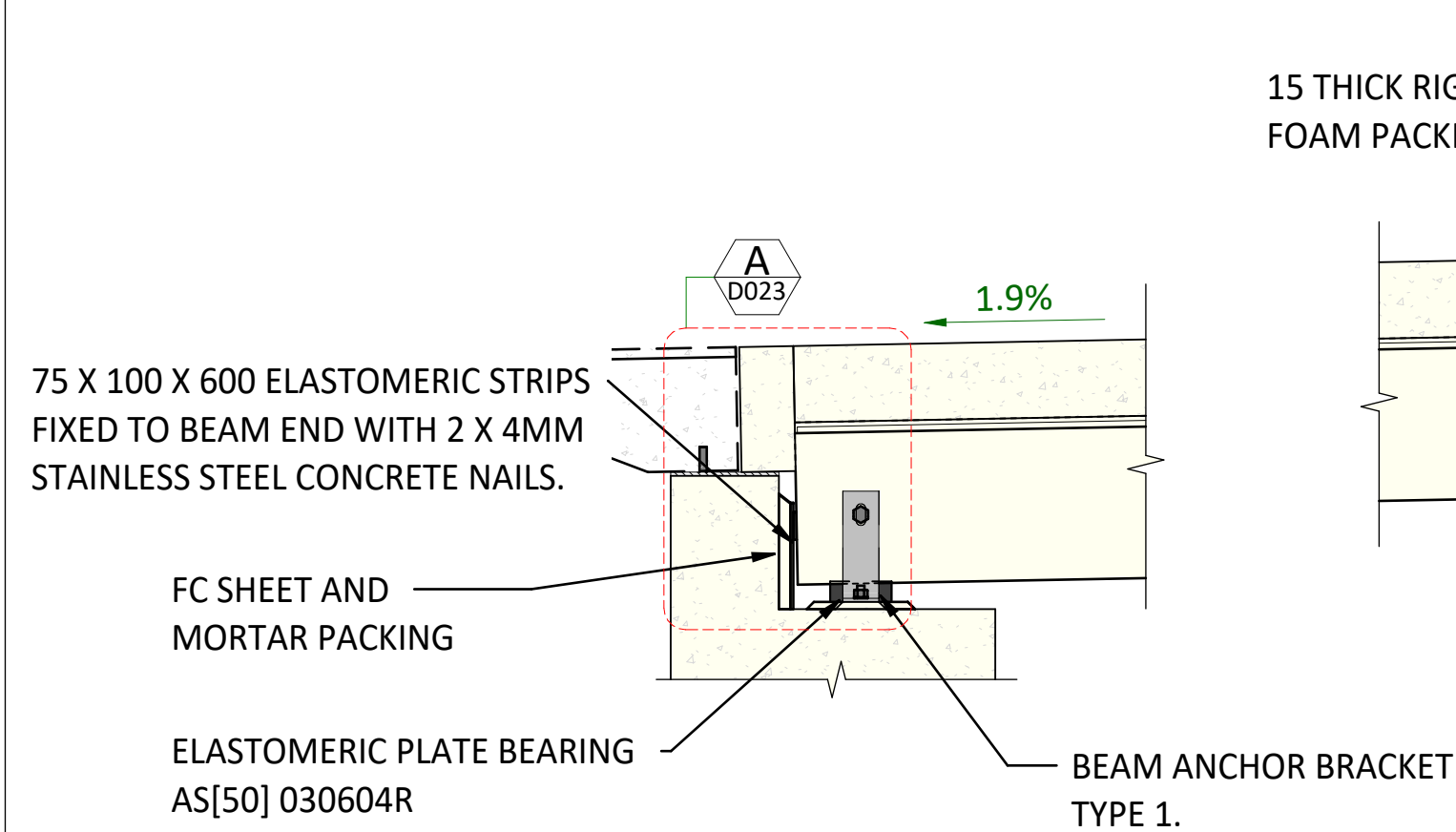
Project Job Ref. **AE2426**  
Sheet No. **022** of **028** Rev **A1**  
**APPROVAL ISSUE**

Designed By: **Andres Engineering**  
Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andresengineering.com.au  
ABN - 33 620 457 052

Drawing scales true at A1



D:\OneDrive - andersonengineering.com.au\Andres Engineering\AE Projects\2024\AE2426 Murruys Bridge\Drafting\Model\MAIN MODEL\AE2426 Murruys Br



- ### BEARING INSTALLATION NOTES
1. PREPARE BEARING GROUT PAD TO LEVEL SPECIFIED (BEARING RL MINUS THICKNESS).
  2. IF BEARING PIN IS NOT CAST INTO HEADSTOCK THEN DRILL AND  
CHEMSET BEARING RESTRAINT PIN INTO POSITION. (TOP OF PIN TO BE INSTALLED 12MM ABOVE LEVEL OF GROUT PAD).
  3. INSTALL BEARING ON TOP OF PREPARED GROUT PAD, ENSURE BEARING CONTACT WITH GROUT PAD.
  4. IMMEDIATELY PRIOR TO PLACEMENT OF GIRDER PLACE NOMINAL  
5mm LAYER OF MEGAPOXY PM OVER TOP SURFACE OF BEARING.
  5. LOWER PSC GIRDER INTO POSITION OVER BEARING UNTIL GIRDER  
CONTACTS THE TOP SURFACE OF THE BEARING.  
(CONTACT DOES NOT HAVE TO OCCUR ON ALL EDGES OF THE BEARING BUT JUST THE FIRST POINT OF CONTACT).
  6. SUSPEND GIRDER IN THIS POSITION WITH TIMBER WEDGES. WEDGE TO REMAIN IN POSITION UNTIL MEGAPOXY PM HAS CURED (NOMINAL 24HRS AT 25°C).
  7. REMOVE WEDGES AND INSTALL ANY PERMANENT GIRDER FIXINGS.

**STEELWORK - MISCELLANEOUS**

DIMENSIONS IN MILLIMETERS.

STEEL SECTIONS GRADE 300 TO AS3679.1.

STEEL PLATE MINIMUM GRADE 250 TO AS3678.

COLD ROLLED HOLLOW SECTIONS GRADE 350LO TO AS1163

USO

BOLTING CATEGORY 8.8/TB TO AS5100.6 USO.

WELDING ELECTRODES E48XX OR W50X.

WELDING SYMBOLS TO AS1101.3.

SURFACE PROTECTION - HOT DIP GALVANIZING.

HOT DIP BOLTS ETC. TO AS1214.

IF NOT SPECIFIED ON THE DRAWING:

- BOLTS ARE TO BE M20.
- EDGE DISTANCE FOR BOLT HOLES TO BE 30 MIN.
- WELDING TO BE 5 FILLET, CONTINUOUS.

USO - UNLESS SPECIFIED OTHERWISE.

(NOT FOR CONSTRUCTION)


Drawing scales true at A

A1	APPROVAL		D.Anabalon		06/11/20
P1	Preliminary 80%		D.Anabalon		
Issue	Description		Name	Initial	Date
Design not to be amended without authorisation by Certifier					



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2451

**SITE LOCATION**  
BRIDGE ON MURRAY'S ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer - DOA	Design Chk -
Drafter DOA	Drafting Chk DOA
Approved by:  <div style="text-align: right;">             Douglas Anabalan, Manager            (BEng, ME, CPEng, MIEAust., NER No.2178595)         </div>	

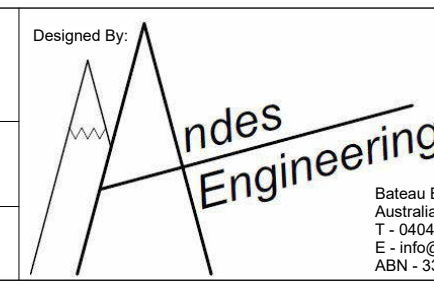
**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**DECK - CONCRETE DETAILS - SHEET 2**



PLAN REFERENCE

DWG 10104.38

Project Job Ref.	<b>AE2426</b>		
Sheet No.	<b>023</b>	of	<b>028</b>
		Rev	<b>A1</b>
<b>APPROVAL ISSUE</b>			



Bateau Bay NSW 228  
Australia  
T - 0404 801 672  
E - info@andesengine  
ABN - 33 620 457 052

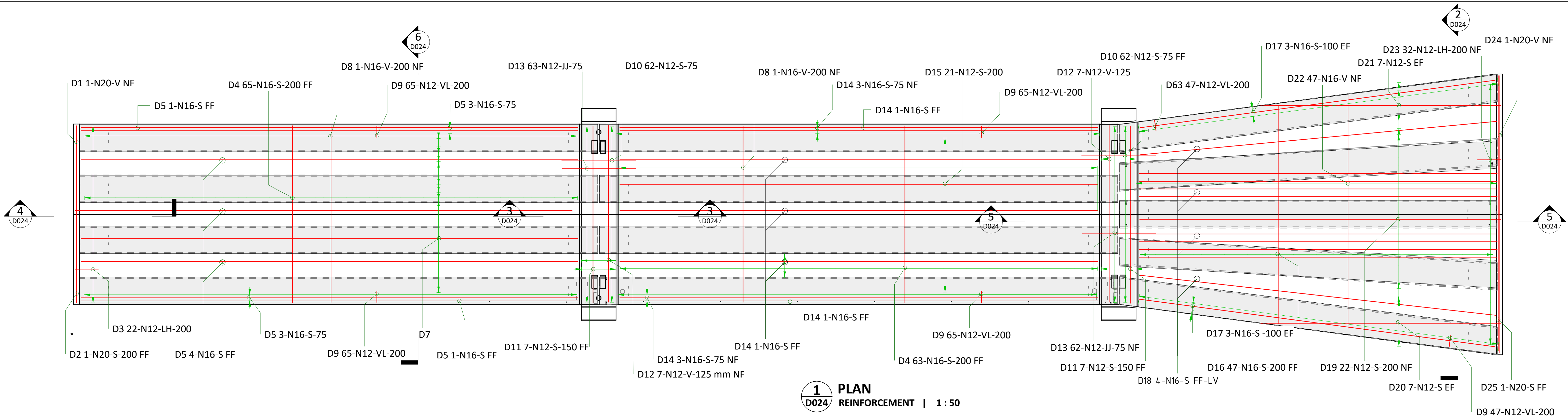


This drawing is the property of ANDES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL DESIGN CONCEPTS ARE THE PROPERTY OF ANDES ENGINEERING PTY LTD. ANY REUSE OR REPRODUCTION OF ANY PART OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED. ANY REUSE OR REPRODUCTION OF ANY PART OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. IS STRICTLY PROHIBITED.

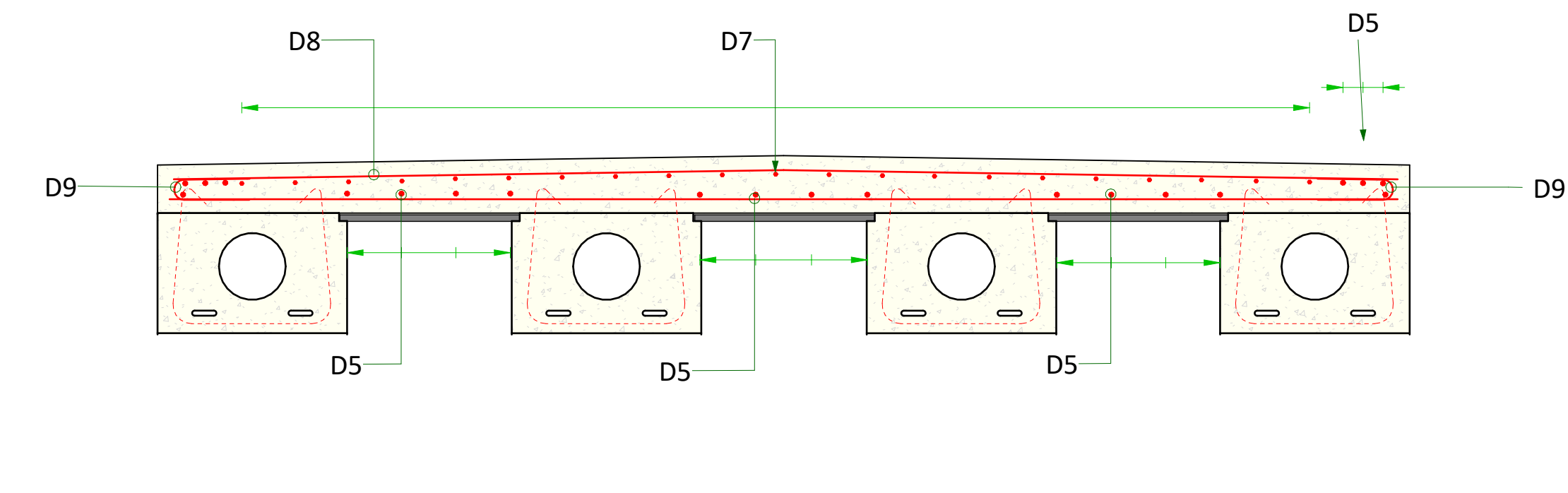
Issue Date

DOA

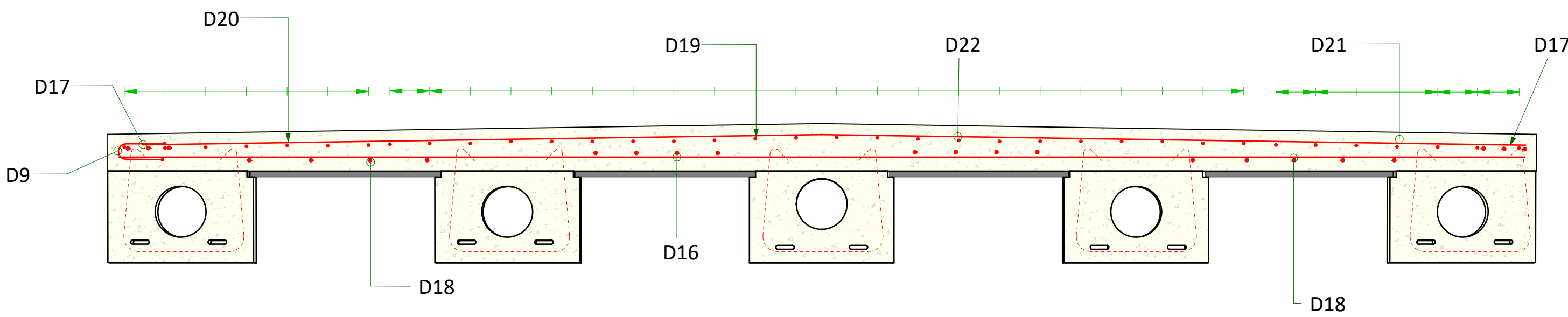
D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN MODEL\AS2426 Murrays Br.rvt



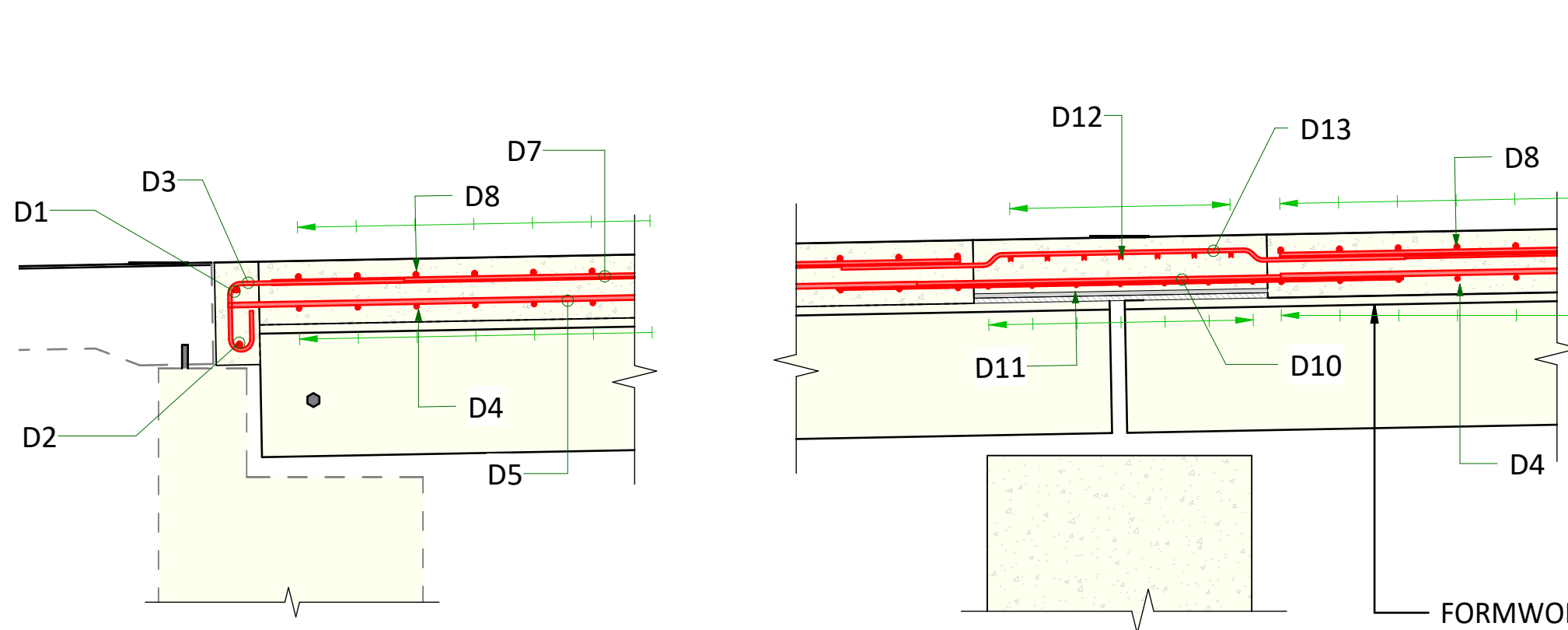
**1 PLAN**  
**D024 REINFORCEMENT | 1 : 50**



**6 SECTION**  
**D024 SPAN 1 | 1 : 20**



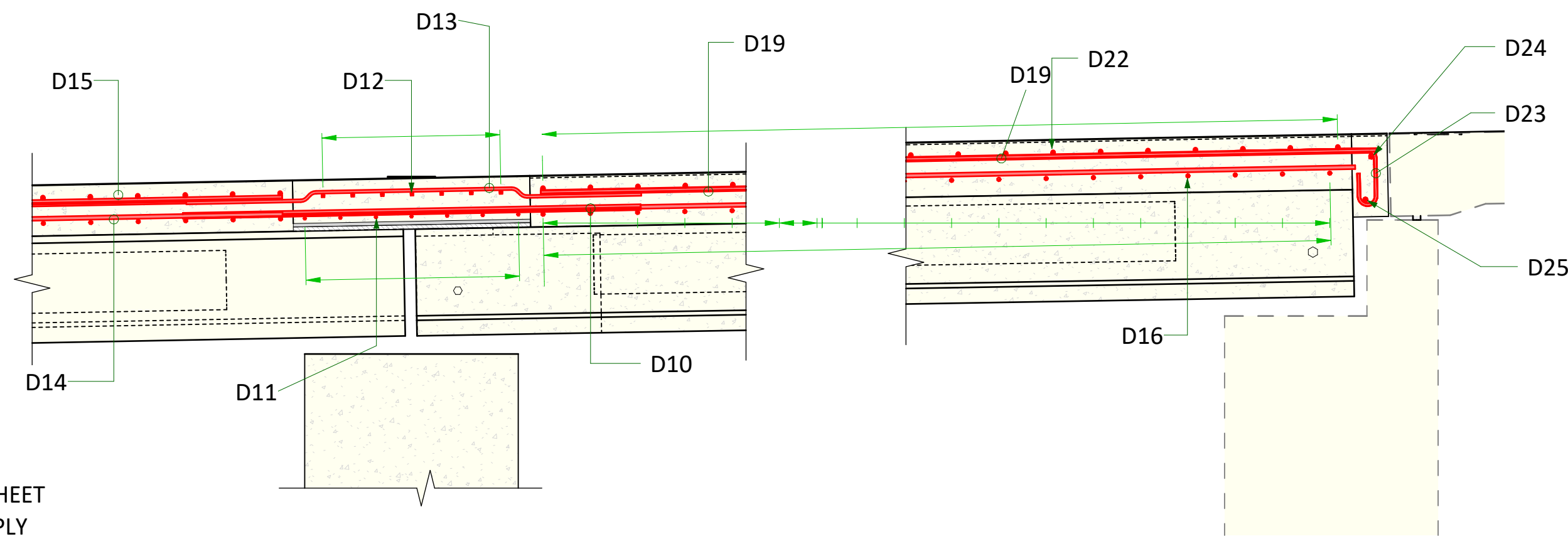
**2 SECTION**  
**D024 SPAN 1 | 1 : 20**



PIER 1

**4 SECTION**  
**D024 REINFORCEMENT | 1 : 20**

FORMWORK 18 FC SHEET  
OR 25 STRUCTURAL PLY



**REINFORCEMENT NOTES**  
SCALES AS SHOWN  
CLEAR COVER TO REINFORCEMENT NEAREST TO THE  
CONCRETE SURFACE 45 mm USO.  
REINFORCEMENT PLACEMENT ABBREVIATIONS AS FOLLOWS:  
FF FAR FACE NF NEAR FACE  
EF EACH FACE + LENGTH VARIES  
USO UNLESS SPECIFIED OTHERWISE.  
NSOP NOT SHOWN ON PLAN.  
THE MINIMUM LENGTHS OF LAPS SHALL BE AS FOLLOWS  
USO:

BAR SIZE	N12	N16	N20	N24	N28	N32	N36	N40
HORIZONTAL BARS WITH ≥ 300 mm OF CONCRETE CAST BELOW THE BAR	460	730	1020	1330	1670	2030	2420	2850
ALL OTHER BARS	360	570	790	1030	1290	1560	1870	2190

REINFORCEMENT MAY BE DISPLACED SLIGHTLY TO CLEAR  
EMBEDDED OBJECTS, HOLES AND RECESSES.  
TACK WELDING OF REINFORCEMENT FOR LOCATION  
PURPOSES IS TO BE IN ACCORDANCE WITH AS1554.3  
CLAUSE 3.3.

**NOT FOR CONSTRUCTION**

A1	APPROVAL	D.Anabalon	06/11/24
P1	Preliminary 80%	D.Anabalon	
Issue	Description	Name	Initial Date
Design not to be amended without authorisation by Certifier			

**FORTEC**  
FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAY'S ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01).  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk -	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAY'S BRIDGE OVER CONJOLA CREEK**  
**DECK - REINFORCEMENT DETAILS**

**Shoalhaven City Council**  
PLAN REFERENCE  
DWG 10104.39

Project Job Ref.	<b>AE2426</b>		
Sheet No.	<b>024</b>	of	<b>028</b>
	Rev		<b>A1</b>
<b>APPROVAL ISSUE</b>			

Designed By:  
**Andes Engineering**  
Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andesengineering.com.au  
ABN - 33 620 457 052

Drawing scales true at A1

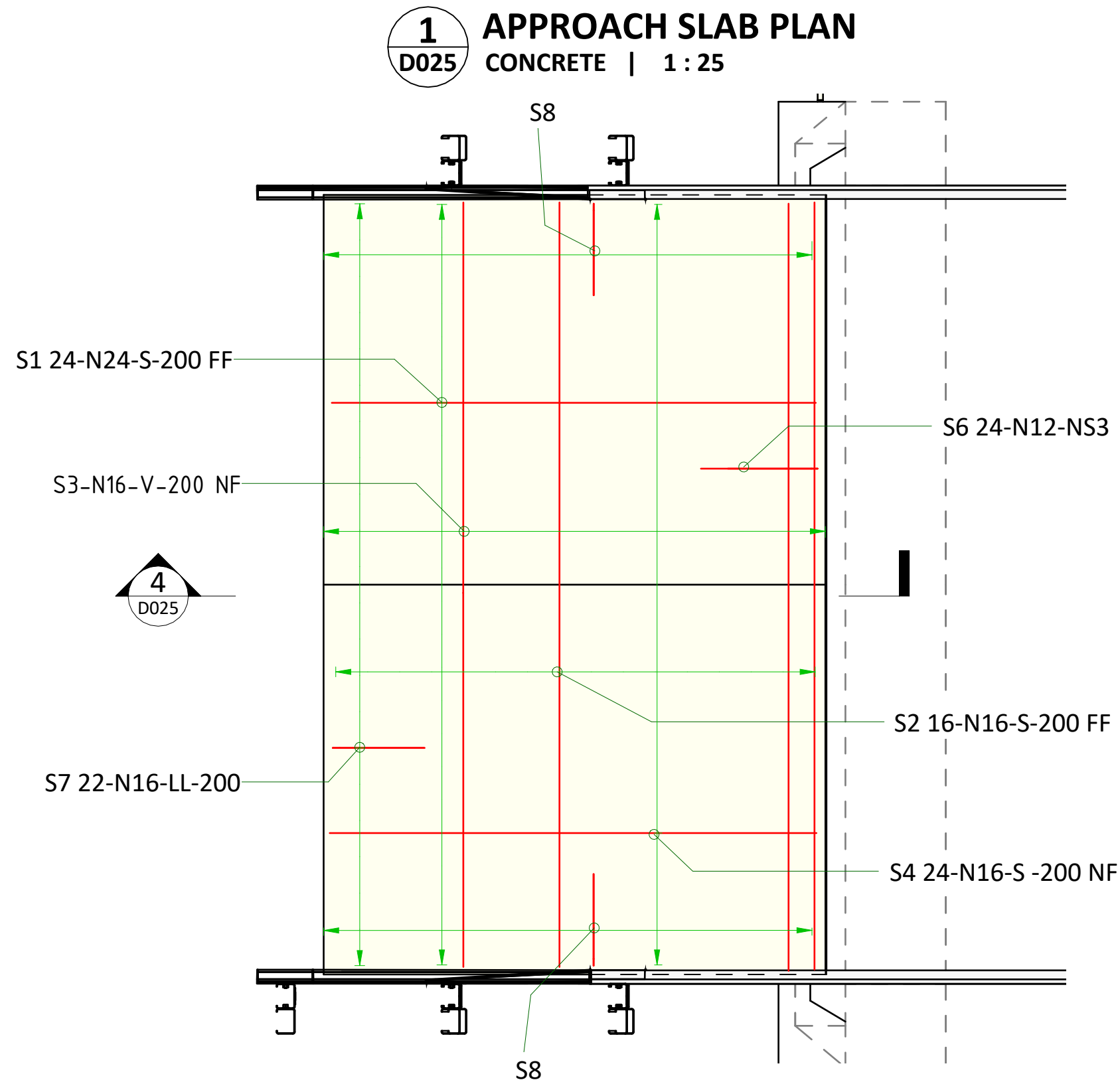
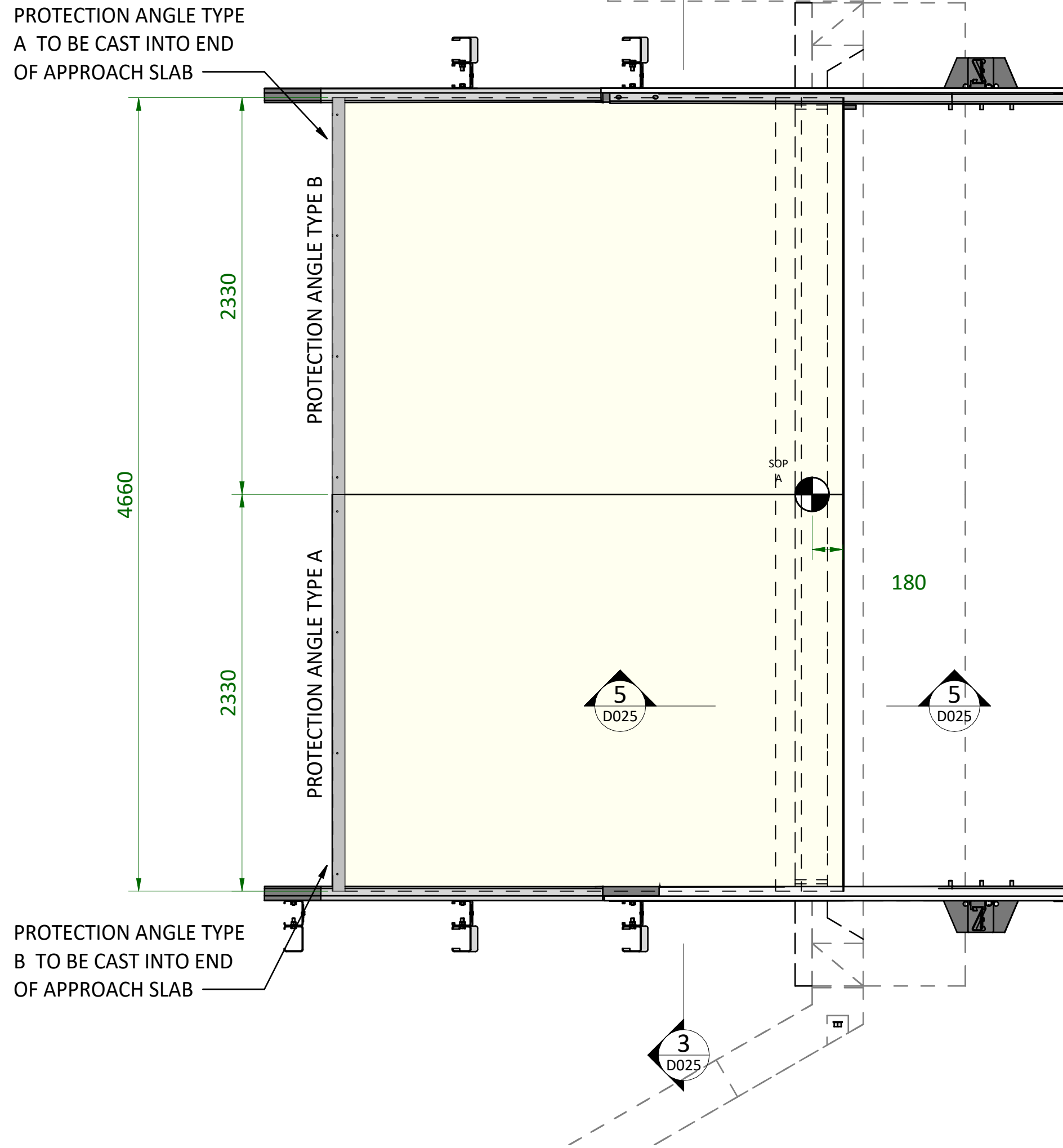


This drawing is the property of ANDES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL CONSTRUCTION DETAILS THEREIN ARE NOT BE LOANED OR REPRODUCED IN ANY FORM OR MANNER WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDES ENGINEERING PTY LTD.

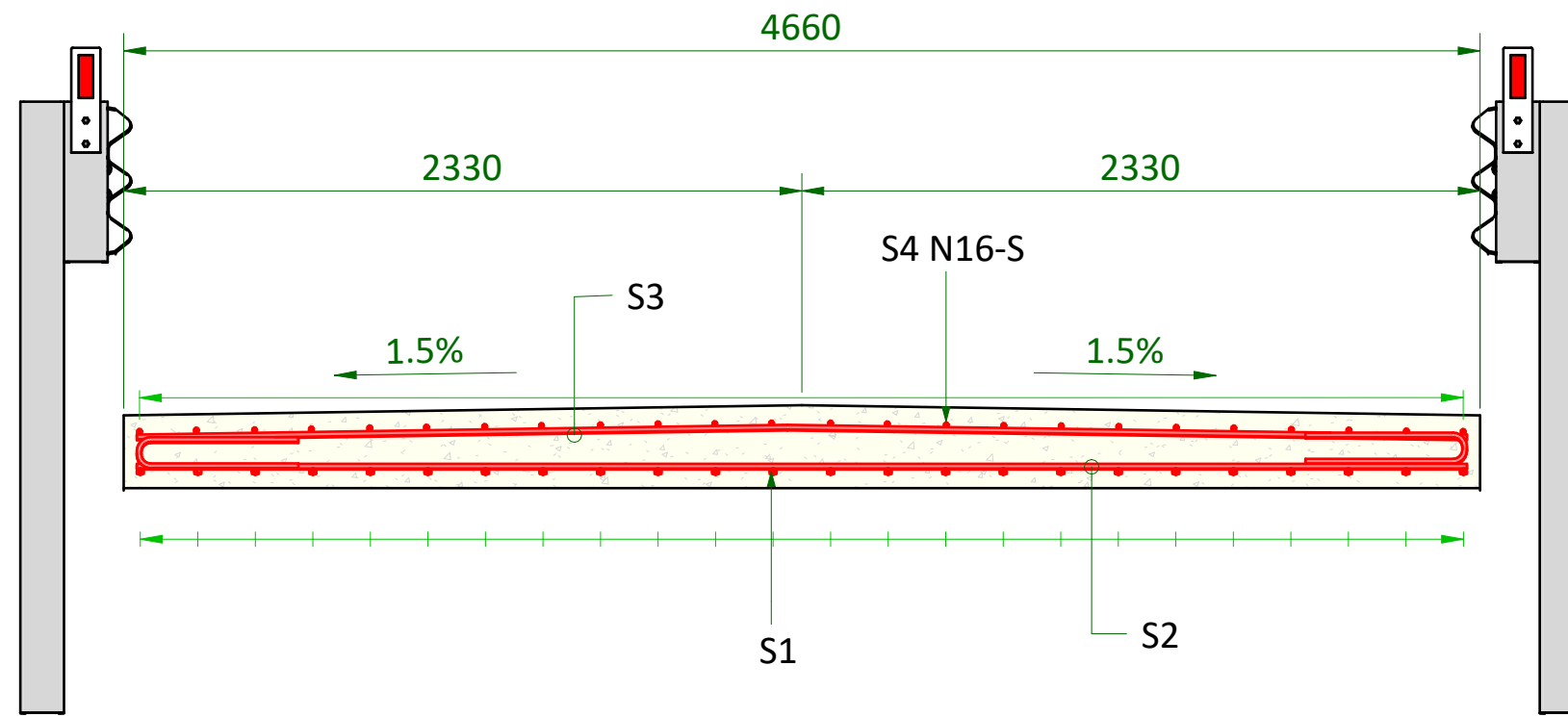
Issue Date

DOA

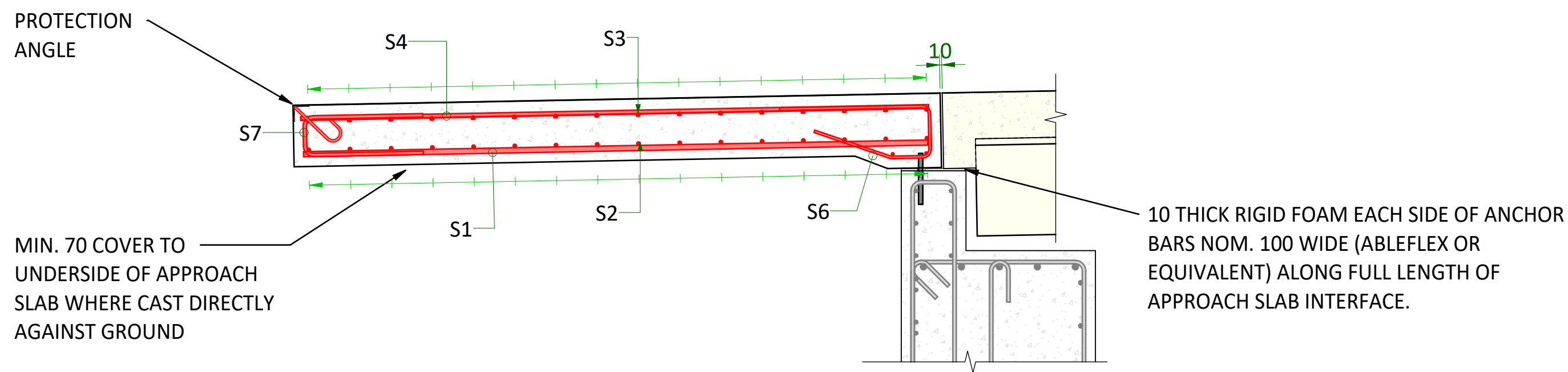
D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2428 Murrays Bridge\DrawingModel\MANN MODEL\AS2428 Murrays Br.rvt



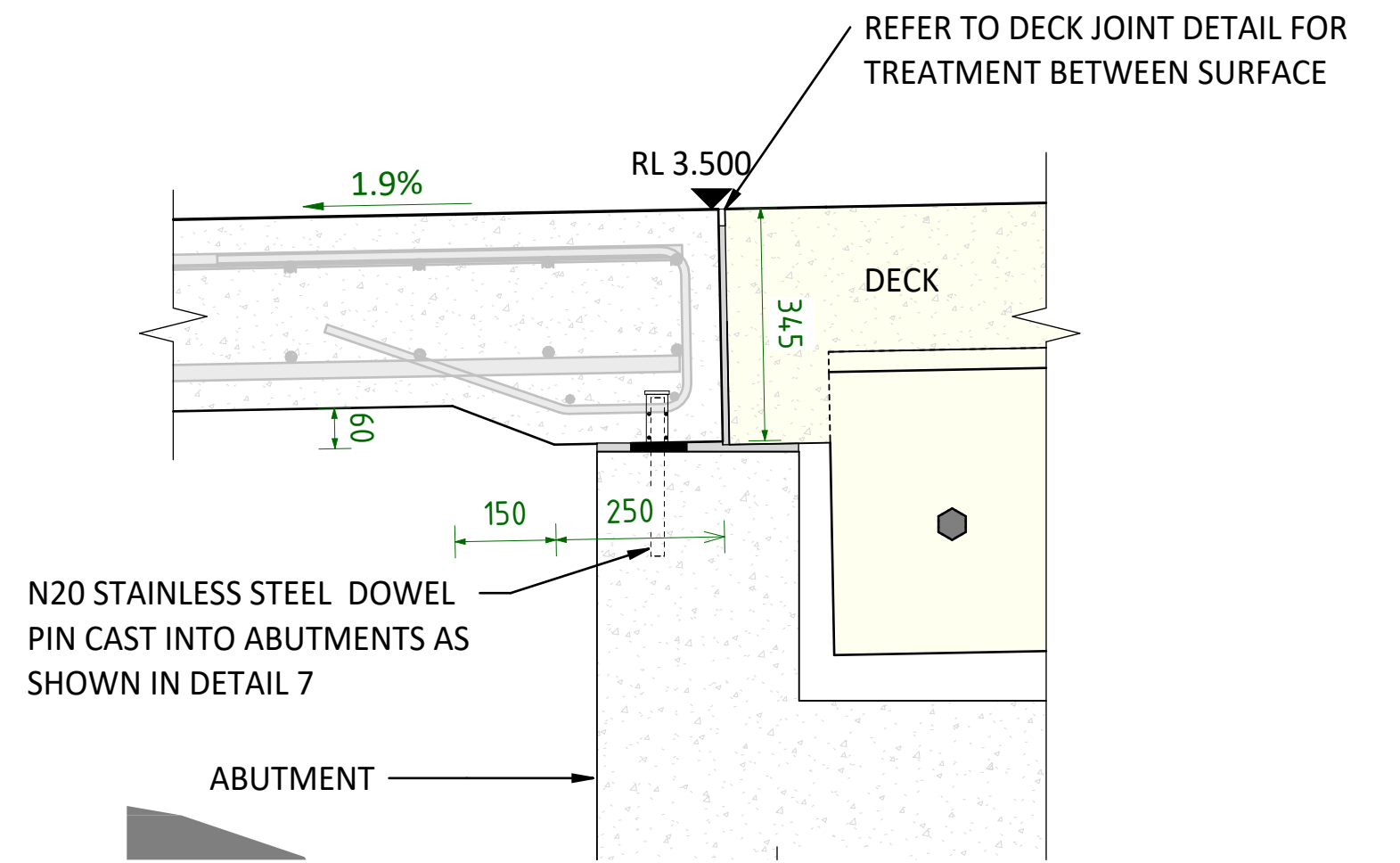
2 APPROACH SLAB PLAN  
REINFORCEMENT | 1:30



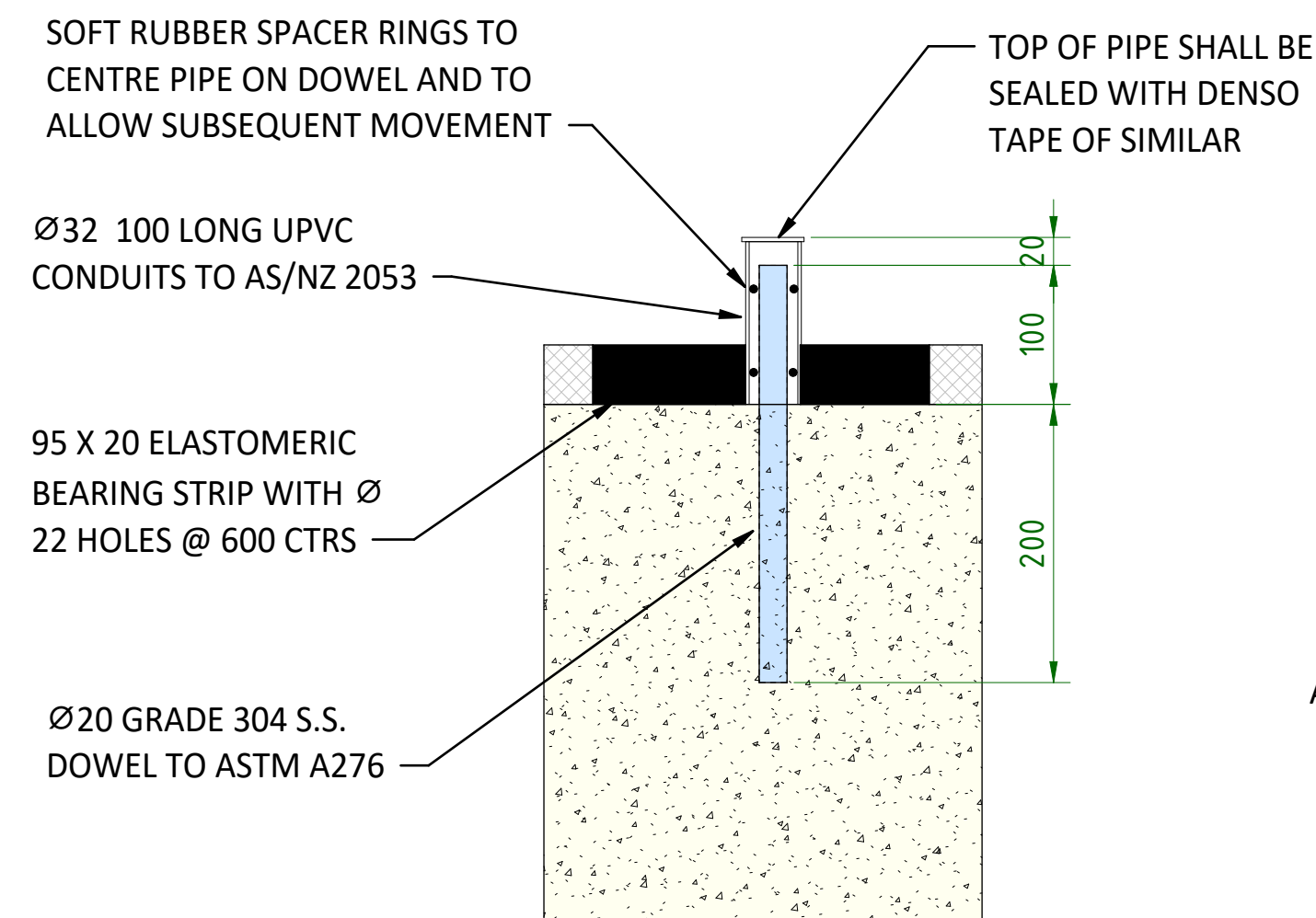
3 SECTION  
REINFORCED CONCRETE | 1:25



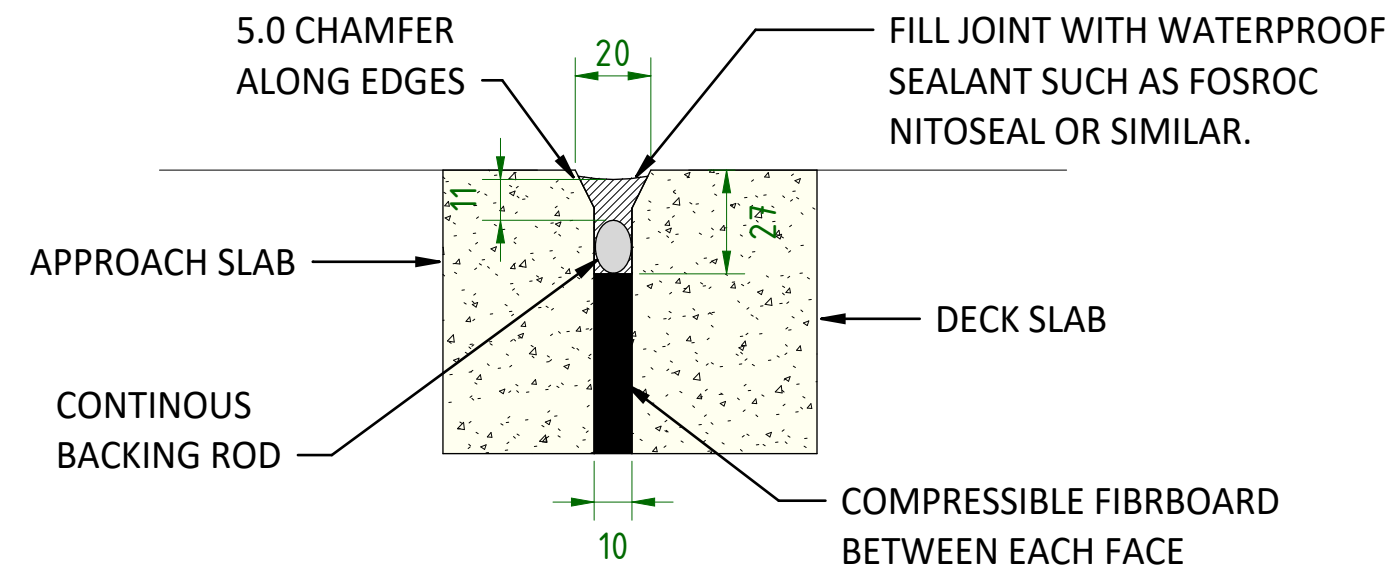
4 SECTION  
REINFORCEMENT | 1:20



5 SECTION  
EDGE THICKENING | 1:10



6 DOWEL ASSEMBLY  
1:5



7 DECK JOINT  
1:2

**CONCRETE NOTES**  
DIMENSIONS IN MILLIMETERS.  
CONCRETE EXPOSURE CLASSIFICATION:  
ALL APPROACH SLAB ELEMENTS - B1.  
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE 40 MPa.  
CHAMFER EDGES 20X20 AND FILLET RE-ENTRANT ANGLES 20X20 USO.  
NCF DENOTES NO CHAMFER OR FILLET.

**REINFORCEMENT NOTES**  
SCALES AS SHOWN  
CLEAR COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE 45 mm USO.  
REINFORCEMENT PLACEMENT ABBREVIATIONS AS FOLLOWS:  
FF FAR FACE  
NF NEAR FACE  
EF EACH FACE + LENGTH VARIES  
USO UNLESS SPECIFIED OTHERWISE.  
NSOP NOT SHOWN ON PLAN.  
THE MINIMUM LENGTHS OF LAPS SHALL BE AS FOLLOWS USO:

BAR SIZE	N12	N16	N20	N24	N28	N32	N36	N40
HORIZONTAL BARS WITH ≥ 300 mm OF CONCRETE CAST BELOW THE BAR	460	730	1020	1330	1670	2030	2420	2850
ALL OTHER BARS	360	570	790	1030	1290	1560	1870	2190

REINFORCEMENT MAY BE DISPLACED SLIGHTLY TO CLEAR EMBEDDED OBJECTS, HOLES AND RECESSES.  
TACK WELDING OF REINFORCEMENT FOR LOCATION PURPOSES IS TO BE IN ACCORDANCE WITH AS1554.3 CLAUSE 3.3.

NOT FOR CONSTRUCTION

Drawing scales true at A1

A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		
Issue	Description	Name	Initial	Date
Design not to be amended without authorisation by Certifier				

**FORTEC**

FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01).  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk -	
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**APPROACH SLAB DETAILS - ABUTMENT A**

**Sheathaven**  
City Council

PLAN REFERENCE  
DWG 10104.40

Project Job Ref.	AE2426		
Sheet No.	025	of	028
Rev	A1		
APPROVAL ISSUE			

Designed By:  
**Andes Engineering**

Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andesengineering.com.au  
ABN - 33 620 457 052

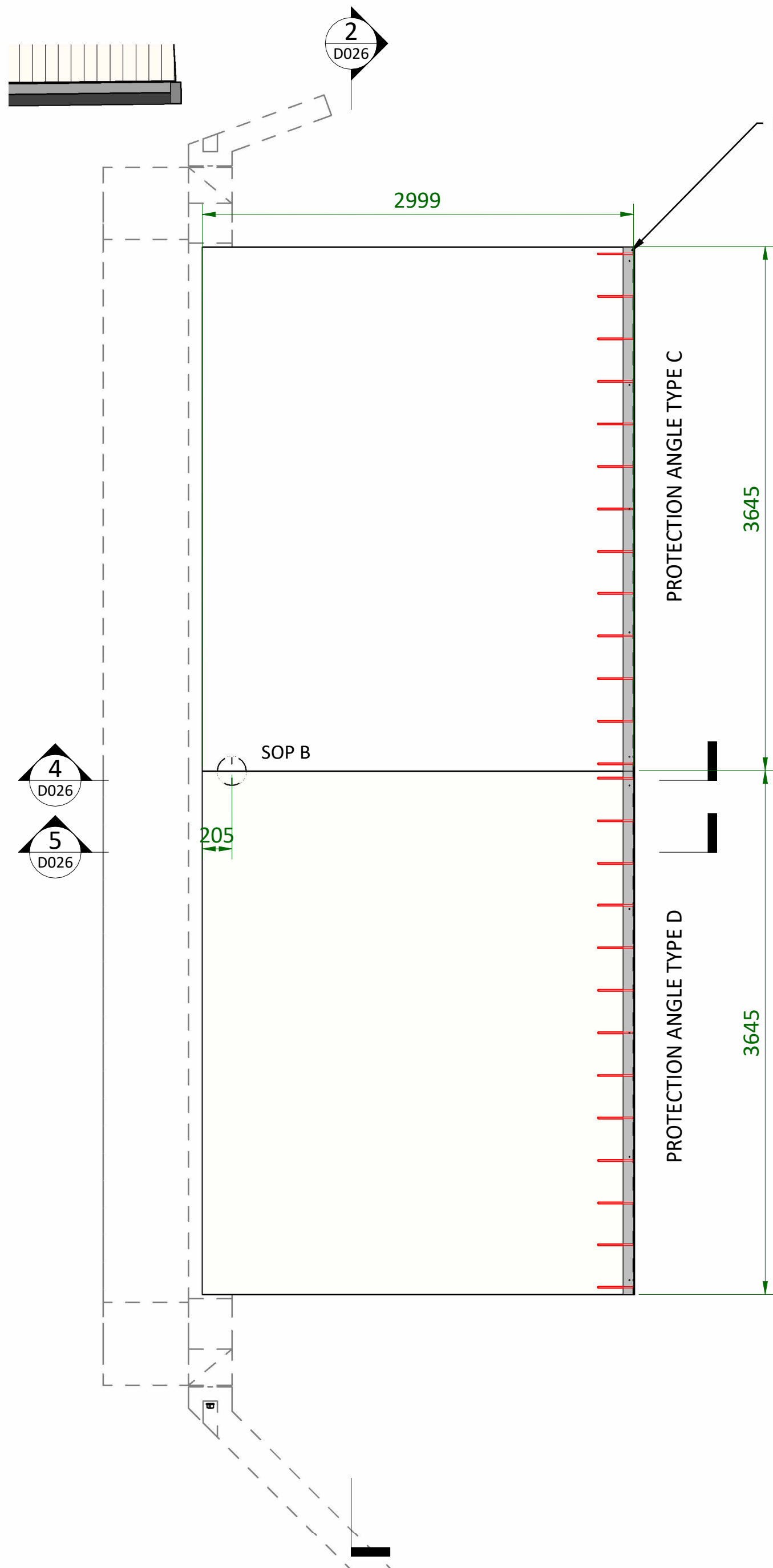


This drawing is the property of ANDRES ENGINEERING PTY LTD. THE DRAWING AND THE ORIGINAL CONSTRUCTION DETAILS THEREIN ARE NOT BE LOANED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDRES ENGINEERING PTY LTD. THE DRAWING IS THE PROPERTY OF ANDRES ENGINEERING PTY LTD.

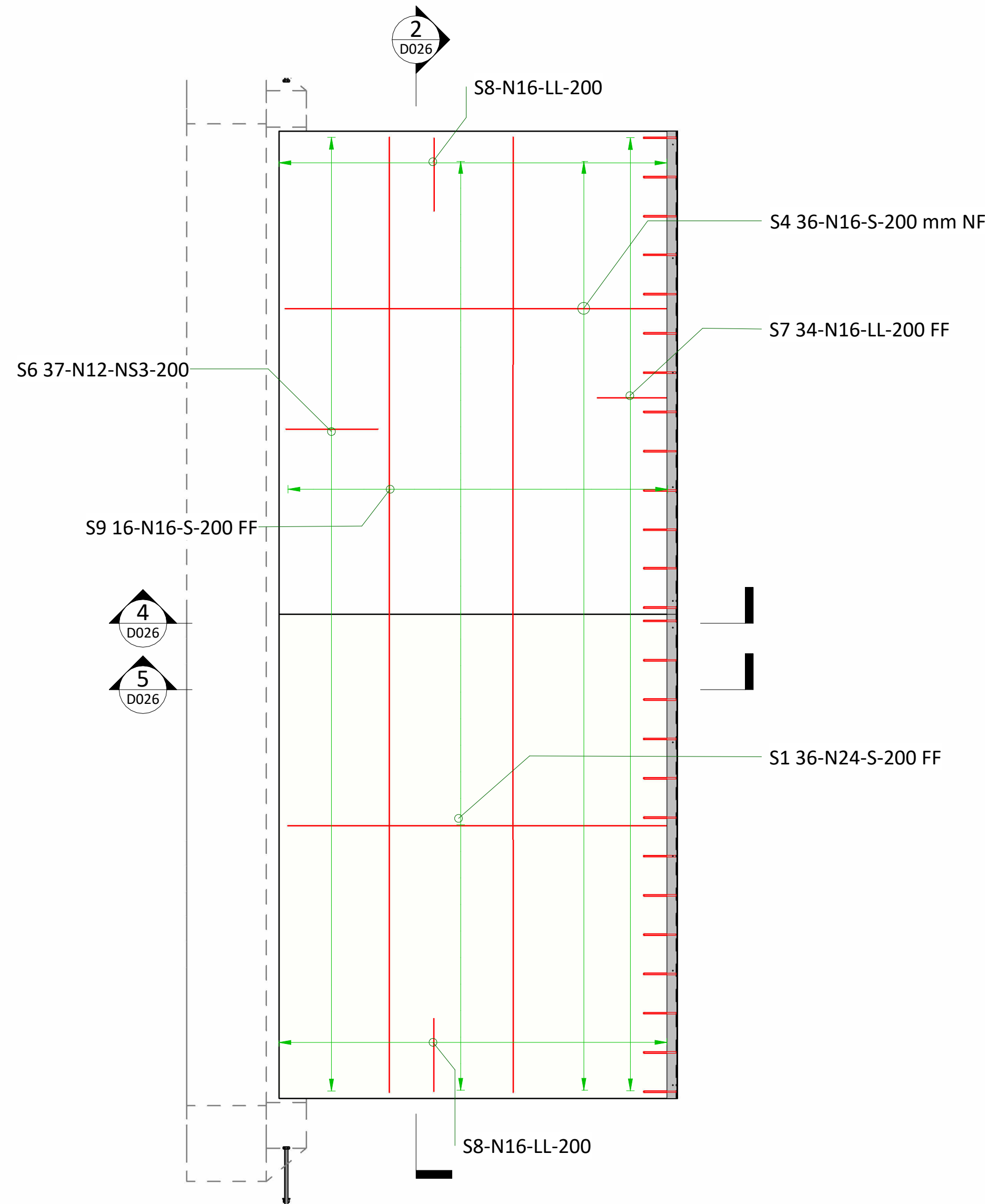
Issue Date

DOA

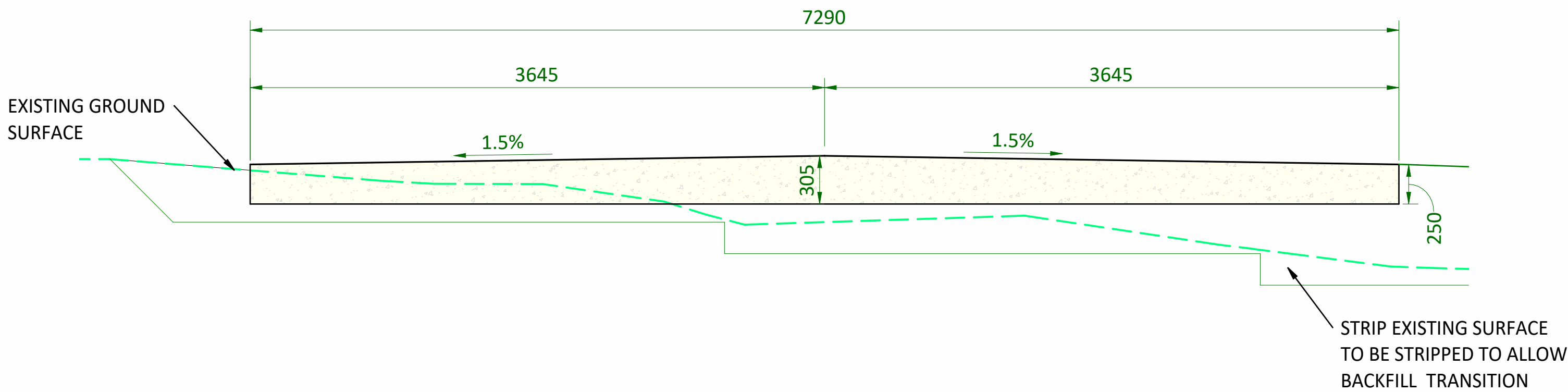
D:\OneDrive - andresengineering.com.au\Andres\_Engineering\AE\_Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MANN\_MODEL\AE2426 Murrays Br.rvt



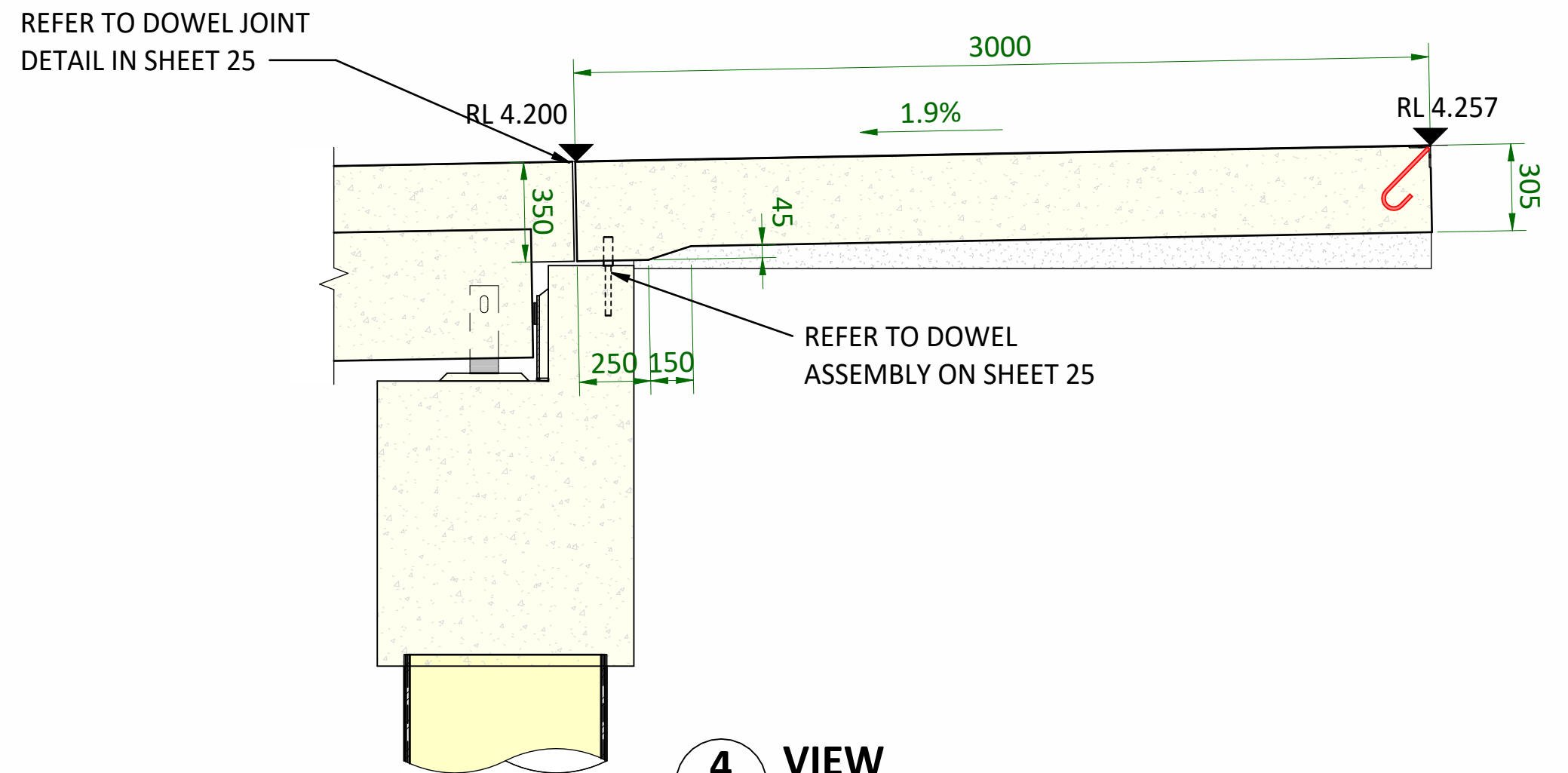
**1 APPROACH SLAB PLAN**  
CONCRETE | 1 : 30



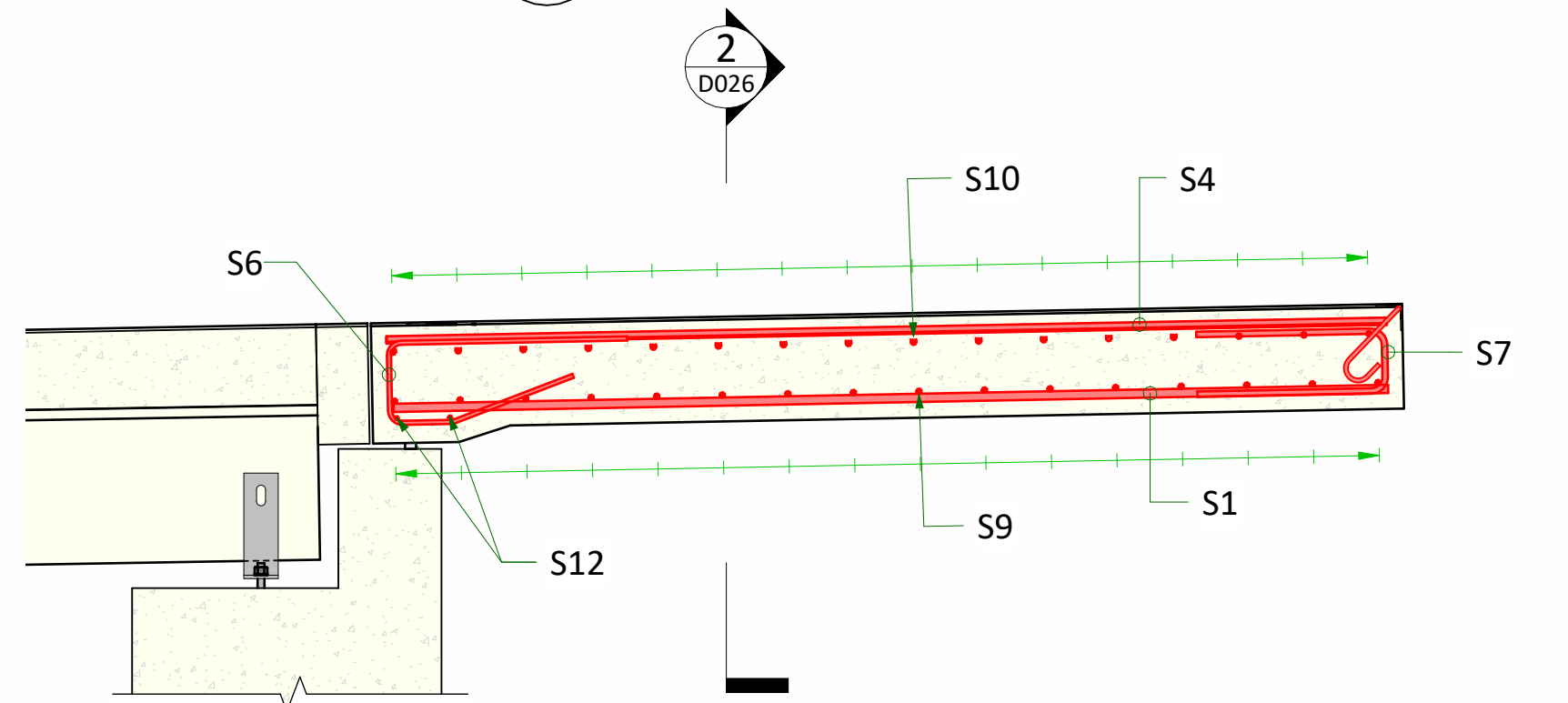
**3 APPROACH SLAB PLAN**  
REINFORCEMENT | 1 : 30



**2 TYPICAL SECTION - ABUTMENT B**  
1 : 25



**4 VIEW**  
CONCRETE | 1 : 20



**5 VIEW**  
REINFORCEMENT | 1 : 20

**CONCRETE NOTES**  
DIMENSIONS IN MILLIMETERS.  
CONCRETE EXPOSURE CLASSIFICATION:  
ALL APPROACH SLAB ELEMENTS - B1.  
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE  
40 MPa.  
CHAMFER EDGES 20X20 AND FILLET RE-ENTRANT ANGLES  
20X20 USO.  
NCF DENOTES NO CHAMFER OR FILLET.

**REINFORCEMENT NOTES**  
SCALES AS SHOWN  
CLEAR COVER TO REINFORCEMENT NEAREST TO THE  
CONCRETE SURFACE 45 mm USO.  
REINFORCEMENT PLACEMENT ABBREVIATIONS AS FOLLOWS:  
FF FAR FACE NF NEAR FACE  
EF EACH FACE + LENGTH VARIES  
USO UNLESS SPECIFIED OTHERWISE.  
NSOP NOT SHOWN ON PLAN.  
THE MINIMUM LENGTHS OF LAPS SHALL BE AS FOLLOWS  
USO:

BAR SIZE	N12	N16	N20	N24	N28	N32	N36	N40
HORIZONTAL BARS WITH ≥ 300 mm OF CONCRETE CAST BELOW THE BAR	460	730	1020	1330	1670	2030	2420	2850
ALL OTHER BARS	360	570	790	1030	1290	1560	1870	2190

REINFORCEMENT MAY BE DISPLACED SLIGHTLY TO CLEAR  
EMBEDDED OBJECTS, HOLES AND RECESSES.  
TACK WELDING OF REINFORCEMENT FOR LOCATION  
PURPOSES IS TO BE IN ACCORDANCE WITH AS1554.3  
CLAUSE 3.3.

**NOT FOR CONSTRUCTION**

Issue	Description	Name	Initial	Date
A1	APPROVAL	D. Anabalon		06/11/24
P1	Preliminary 80%	D. Anabalon		

**FORTEC**  
FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.38km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk -	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**APPROACH SLAB DETAILS - ABUTMENT B**

**Shoalhaven City Council**  
PLAN REFERENCE  
DWG 10104.41

Project Job Ref.	<b>AE2426</b>		
Sheet No.	<b>026</b>	of	<b>028</b>
Rev	<b>A1</b>		

Designed By:  
**Andres Engineering**  
Bateau Bay NSW 2261  
Australia  
T - 0434 901 672  
E - info@andresengineering.com.au  
ABN - 33 620 457 052

Drawing scales true at A1

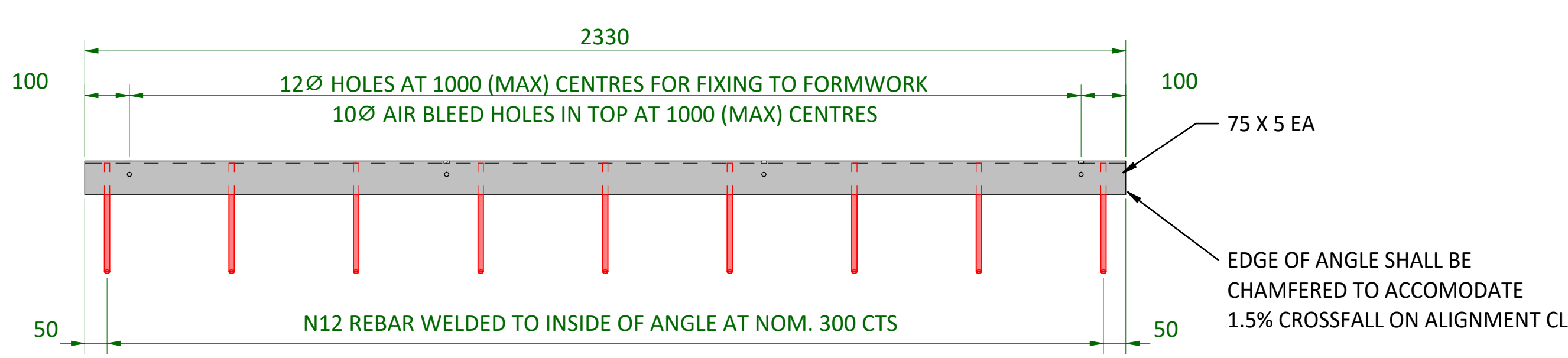


This document is the property of ANDES ENGINEERING PTY LTD. THE DRAWINGS AND THE ORIGINAL DESIGN CONCEPTS ARE THE PROPERTY OF ANDES ENGINEERING PTY LTD. ANY REPRODUCTION OR MODIFICATION OF ANY PART OF THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. IS PROHIBITED. ANY REPRODUCTION OR MODIFICATION OF ANY PART OF THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF ANDES ENGINEERING PTY LTD. IS PROHIBITED.

Issue Date

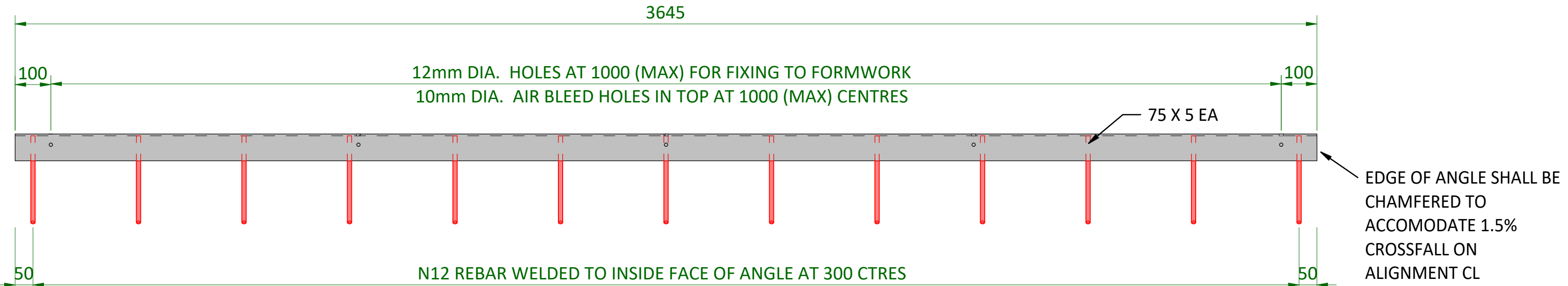
DOA

D:\OneDrive - andesengineering.com.au\Andes Engineering\AE Projects\2024\AE2426 Murrays Bridge\Drawings\Model\MAN Model\AE2426 Murrays Br.mxd



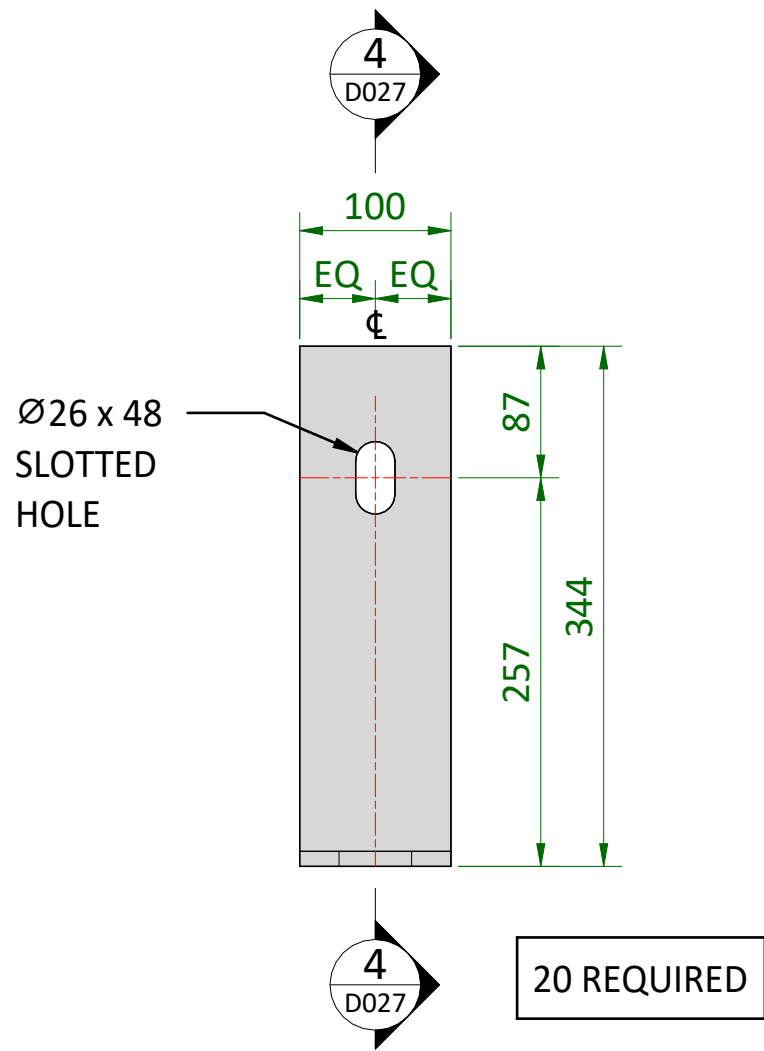
TYPE A: AS SHOWN  
TYPE B: MIRRORED

**1 PROTECTION ANGLE PLAN**  
1 : 10



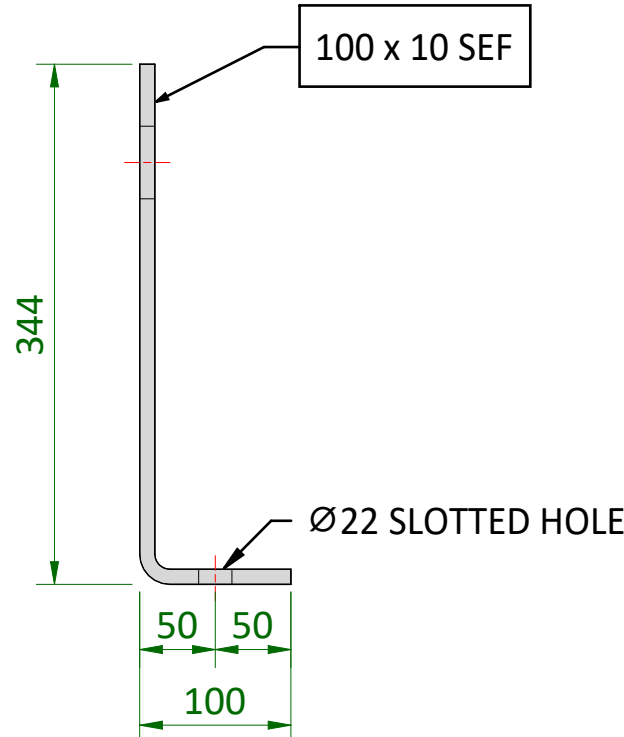
TYPE C AS SHOWN  
TYPE D MIRRORED

**2 PROTECTION ANGLE PLAN**  
1 : 10

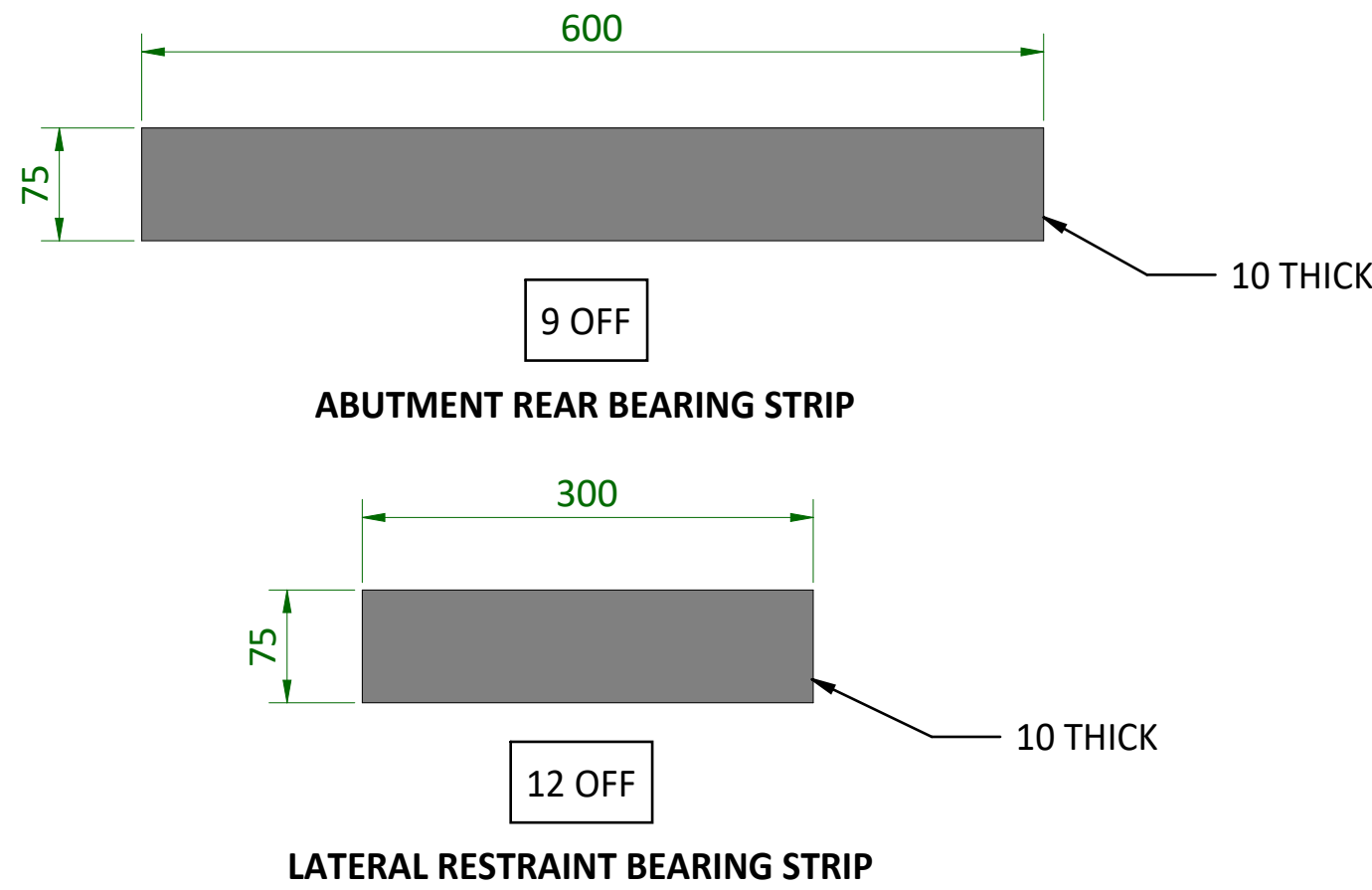


20 REQUIRED

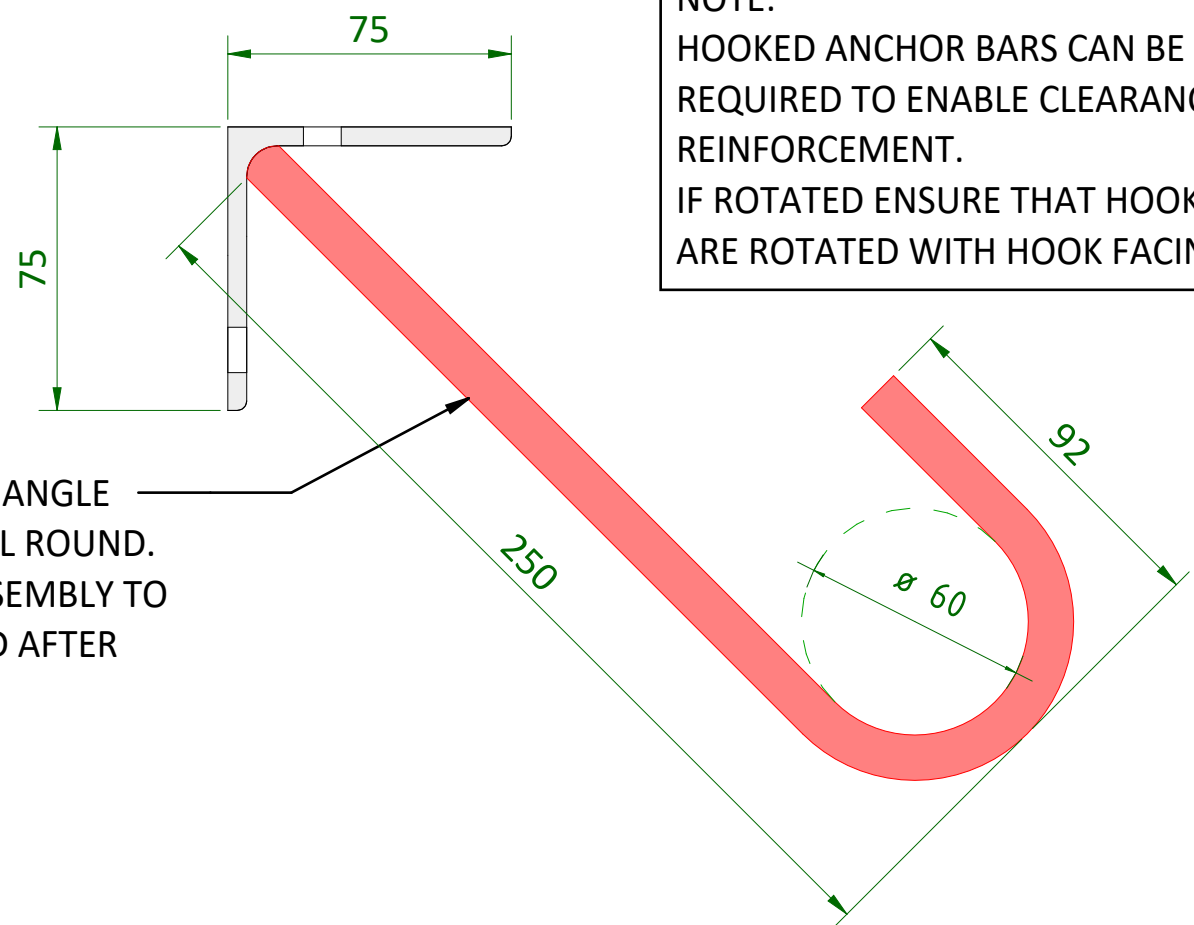
**3 BEAM ANCHOR - TYPE 1**  
ELEVATION | 1 : 5



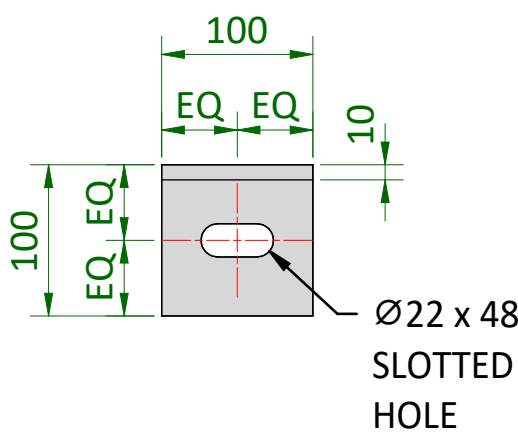
**4 SECTION - TYPE 1**  
1 : 5



**6 BEARING STRIP DETAILS**  
1 : 5



**7 SECTION**  
1 : 2



**5 BEAM ANCHOR - TYPE 1 & 2**  
PLAN | 1 : 5

**STEELWORK - MISCELLANEOUS**  
DIMENSIONS IN MILLIMETERS.  
STEEL SECTIONS GRADE 300 TO AS3679.1.  
STEEL PLATE MINIMUM GRADE 250 TO AS3678.  
COLD ROLLED HOLLOW SECTIONS GRADE 350LO TO AS1163 USO.  
BOLTING CATEGORY 8.8/TB TO AS5100.6 USO.  
WELDING ELECTRODES E48XX OR W50X.  
WELDING SYMBOLS TO AS1101.3.  
SURFACE PROTECTION - HOT DIP GALVANIZING.  
HOT DIP BOLTS ETC. TO AS1214.  
IF NOT SPECIFIED ON THE DRAWING:  
- BOLTS ARE TO BE M20.  
- EDGE DISTANCE FOR BOLT HOLES TO BE 30 MIN.  
- WELDING TO BE 5 FILLET, CONTINUOUS.  
USO - UNLESS SPECIFIED OTHERWISE.

**NOT FOR CONSTRUCTION**

A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		
Issue	Description	Name	Initial	Date
Design not to be amended without authorisation by Certifier				



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

SITE LOCATION  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer -	DOA	Design Chk	-
Drafter	DOA	Drafting Chk	DOA
Approved by:	Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No 2176595)		

**MURRAYS BRIDGE OVER CONJOLA CREEK**  
**MISCELLANEOUS DETAILS**

PLAN REFERENCE
DWG 10104.42

Project Job Ref.	AE2426		
Sheet No.	027	of	028
Rev	A1		
APPROVAL ISSUE			

Designed By:	Andes Engineering
Bateau Bay NSW 2261 Australia T - 0434 901 672 E - info@andesengineering.com.au ABN - 33 620 457 052	

Drawing scales true at A1



SHAPE CODE	AUSTRALIAN STANDARD BAR SHAPE	SHAPE CODE	AUSTRALIAN STANDARD BAR SHAPE	SHAPE CODE	AUSTRALIAN STANDARD BAR SHAPE	SHAPE CODE	NON STANDARD BAR SHAPE	SHAPE CODE	NON STANDARD BAR SHAPE	SHAPE CODE	NON STANDARD BAR SHAPE
S		T		JJ		B		Q			
L		SH		A		C		W			
LL		CC		R		E		Y			
H		RC		HT		G		NS1			
HH		VL		XT		K		NS2			
F		VV		CT		M		NS3			
V		J		LH		N		NS4			
U		LJ		SP		P		NS5			

## GENERAL NOTES

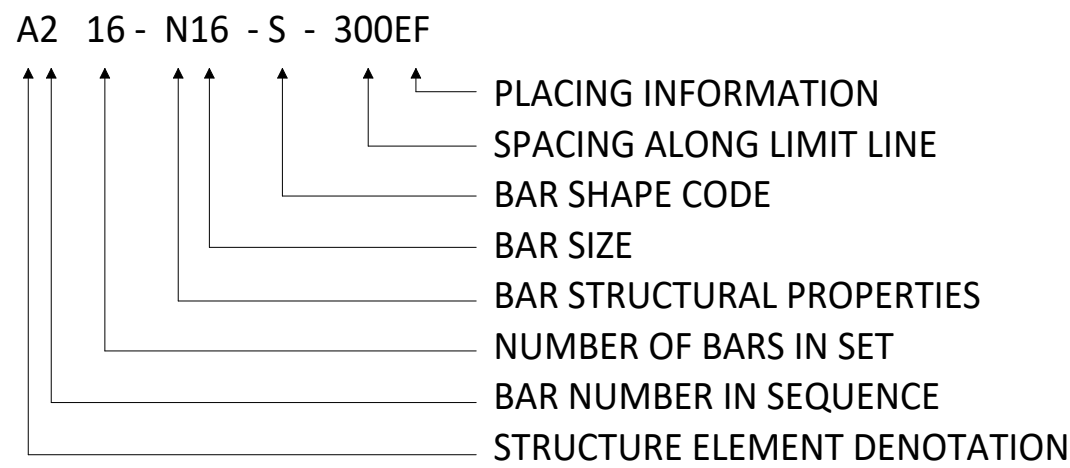
AUSTRALIAN STANDARD BAR SHAPES ARE IN ACCORDANCE WITH AS1100.501.  
BAR SIZE IS THE NOMINAL DIAMETER IN MILLIMETRES OR THE AS4671 FABRIC SIZE.  
BARS SHALL BE DEFORMED BAR GRADE D500N TO AS4671 USO.  
W DENOTES PLAIN BAR GRADE D500L TO AS4671.  
RL AND SL DENOTES WELDED REINFORCING FABRIC, RECTANGULAR AND SQUARE RESPECTIVELY.  
BAR BENDING INCLUDING STANDARD BENDS, HOOKS AND COGS SHALL BE IN ACCORDANCE WITH SECTION 5.13 OF AS5100.  
BARS OF DIAMETER GREATER THAN 16mm SHALL NOT BE REBENT.  
A WELDED LAP MAY BE USED IN LIEU OF STIRRUP HOOKS. SEE TABLE 1 FOR SIZE AND LENGTH OF WELD. WELDING PROCEDURES TO AS1554.3

BAR SIZE	SINGLE LAP WELD	DOUBLE LAP WELD
6	40	25
8	50	25
10	65	35
12	75	40
16	100	50

TABLE 1  
LAP SPLICE WELDS FOR  
REINFORCEMENT

**BAR MARKING:**

THE REINFORCEMENT ON THE DRAWINGS IS DESCRIBED BY THE FOLLOWING NOTATION



**STRUCTURE ELEMENT NOTATIONS:**

A - ABUTMENT  
AP - ABUTMENT PANEL  
P - PIER HEADSTOCKS  
Q - PIER PILECAPS  
G - GIRDER  
D - DECK  
W - WING WALL  
K - KERB  
S - APPROACH SLABS

A1	APPROVAL	D.Anabalon		06/11/24
P1	Preliminary 80%	D.Anabalon		
Issue	Description	Name	Initial	Date
Design not to be amended without authorisation by Certifier				



FORTEC AUSTRALIA  
Unit 12/55-57 Newton Road  
WEATHERILL PARK NSW 2450

**SITE LOCATION**  
BRIDGE ON MURRAYS ROAD  
1.36km EAST OF  
INTERSECTION  
WITH PRINCESS HWY (SH01),  
1.0KM NORTH OF  
FISHERMANS PARADISE

Designer - DOA	Design Chk -
Drafter DOA	Drafting Chk DOA
Approved by:  _____ Douglas Anabalon, Manager (BEng, ME, CPEng, MIEAust., NER No.2176595)	

## MURRAYS BRIDGE OVER CONJOLA CREEK

### BAR SHAPES DIAGRAM




PLAN REFERENCE

DWG 10104.43

Project Job Ref **AE2426**

Sheet No. <b>028</b> of <b>028</b>	Rev <b>A1</b>
<b>APPROVAL ISSUE</b>	

Designed By:  **Andes Engineering**

Bateau 1  
Australia  
T - 0404  
E - info@  
ABN - 3

NOT FOR CONSTRUCTION

Drawing scales true at A1