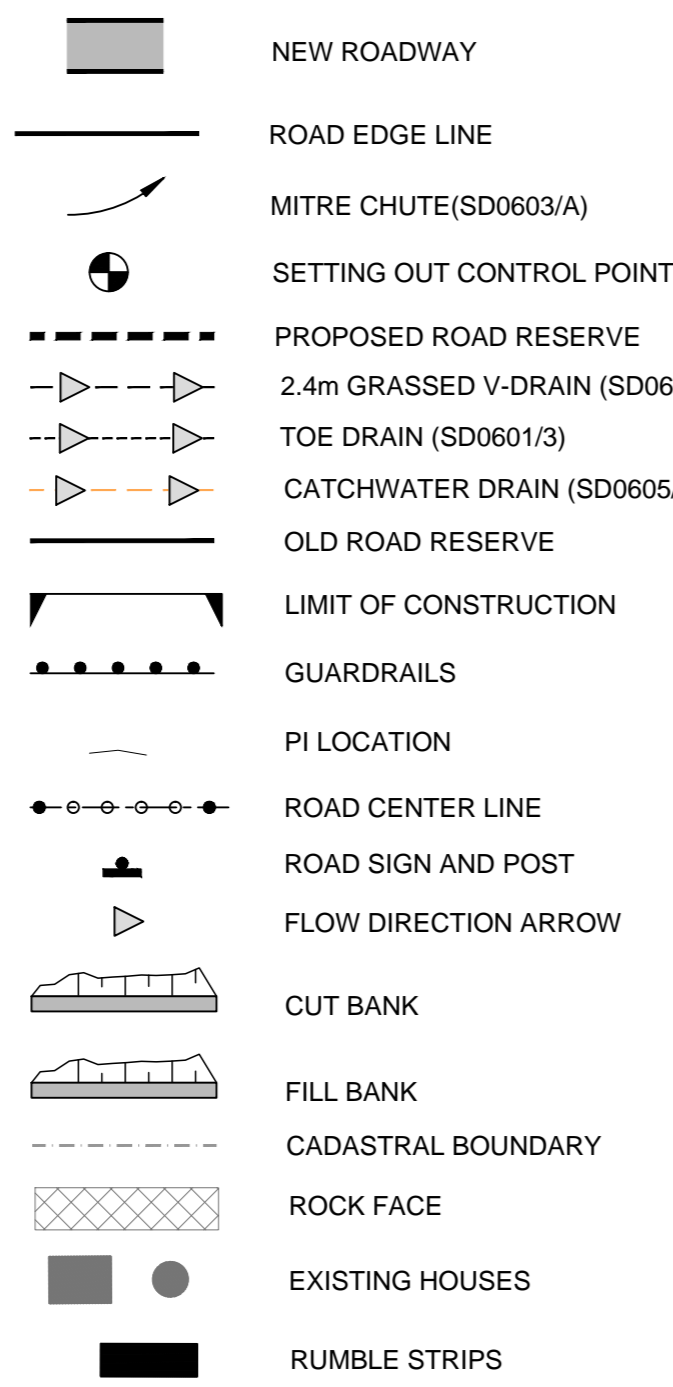


GENERAL NOTES

- All levels, dimensions and setting out details to be verified by the Consultant, Site Engineer and Contractors on site prior to construction.
- All existing drainage culverts are to be inspected, and any found in unserviceable condition are to be replaced to be confirmed by Site Engineer.
- Culvert inverts are to be decided by Engineer on site unless otherwise stated. Min. slope = 2%.
- Pipe culverts are to be laid in accordance with SDO401 with headwalls as per SD 0402, SD 0403 or SD 0405. Min dia = 600mm for major road cross drainage.
- For erosion control Reno mattresses are recommended at culvert outlets. To be confirmed by Engineer on site.
- All gabions protection works are to be as per drawings issued and to be confirmed on site by Engineer prior to construction. All gabions are to be founded onto the natural ground.
- Earth beams are to be constructed at culvert inlets to direct storm water into culverts where necessary. To be confirmed by Engineer on site.
- Road borders are to be placed across the invert of drains susceptible to erosion for every 2m vertical drop. To be confirmed by Engineer on site.
- Concrete lined V-drains as per SD 0601/2 are recommended for deep cuttings of depth greater than 5m measured at a point 6m from edge of carriageway to be confirmed by Engineer on site.
- Where surface runoff is toward the road, catch- water basins are to be provided to divert storm water to major cross drainage structures. To be confirmed by Engineer on site.
- Guardrails are to be installed in accordance with the specified details provided.
- Existing road signs, services and fencing affected by construction are to be removed/ relocated where necessary, to be confirmed by Engineer on site.
- Underground services crossings and markers are to be in accordance with S2 1001-3.
- All new road signs and road marking requirements are to conform to the South African Road Traffic Signs Manual (SARTSM).
- All work to be carried out in accordance with COTD Specifications for Road and Bridge Works for State Road Authorities.
- All survey and setting out data provided is based on WGS 84.
- New fills and exposed cuttings are to be top-soiled and vegetated immediately after construction to prevent erosion. To be confirmed by Engineer on site.
- Land acquisition documentation submitted to KZN DOT in 2017.
- Environmental requirements to be followed as per general authorization.

LEGEND



CURVE SETTING OUT DATA (WGS 84)

Position	Chainage	Y Co-ordinate	X Co-ordinate	Radius (m)	Curve	Tangent Length (m)	Deflection
START	3+612	-79735.06	3193758.59	0.00	0	0.00	0°00'00"
BCC1	3+626	-79748.75	3193757.30				
P1	3+661	-79784.17	3193753.95	600.00	1	35.57	6°47'10"
ECC1	3+697	-79818.94	3193746.45				
BCC2	3+769	-79889.23	3193731.27				
P2	3+817	-79936.64	3193721.04	600.00	2	48.50	9°14'37"
ECC2	3+866	-79985.08	3193718.55				
BCC3	4+040	-80159.02	3193709.62				
P3	4+143	-80269.90	3193703.93	125.00	3	111.03	52°31'47"
ECC3	4+246	-80341.88	3193788.48				
END	4+291	-80371.14	3193822.85	0.00	0	0.00	0°00'00"

SETTING OUT CONTROL POINTS (WGS 84)

POINT NAME	X CO-ORDINATE	Y CO-ORDINATE	ELEVATION
CA01	3193767.051	-79792.322	990.421
BPA	3193749.057	-79990.044	980.813
BPB	3193690.947	-80005.277	982.682
BPC	3193692.448	-80107.884	982.861
BPD	3193751.059	-80083.465	988.280
CA02	3193879.696	-80393.852	987.913

BOREHOLE POSITION

POINTS	X	Y
BH1	3193717.927	-80018.592
BH2	3193717.099	-80031.964
BH3	3193716.338	-80061.381
BH4	3193715.790	-80074.332
BH5	3193715.353	-80088.295
BH6	3193718.372	-80094.768

MITRE DRAIN SCHEDULE TO SD 0603/2

LEFT HAND SIDE	RIGHT HAND SIDE		
No.	Ch Position	No.	Ch Position
1	3840	1	3830
2	4040	2	4030

SIDE DRAIN SCHEDULE

LEFT HAND SIDE				RIGHT HAND SIDE			
FROM CH	TO CH	LENGTH (m)	TYPE	FROM CH	TO CH	LENGTH (m)	TYPE
3612	3840	228.00	2.4m GRASSED V-DRAIN (SD0601/3)	3612	3800	188.00	2.4m GRASSED V-DRAIN (SD0601/3)
3850	3880	30.00	2.4m GRASSED V-DRAIN (SD0601/3)	3810	3870	60.00	2.4m GRASSED V-DRAIN (SD0601/3)
3970	4030	60.00	2.4m GRASSED V-DRAIN (SD0601/3)	3970	4020	50.00	2.4m GRASSED V-DRAIN (SD0601/3)
4035	4170	135.00	2.4m GRASSED V-DRAIN (SD0601/3)	4030	4291	261.00	2.4m GRASSED V-DRAIN (SD0601/3)

CATCHWATER DRAIN SCHEDULE TO SD0605/A

LEFT HAND SIDE		RIGHT HAND SIDE	
FROM CH	TO CH	FROM CH	TO CH
-	-	4040	4120
-	-	-	80.00

MITRE DRAIN SCHEDULE TO SD 0603/1

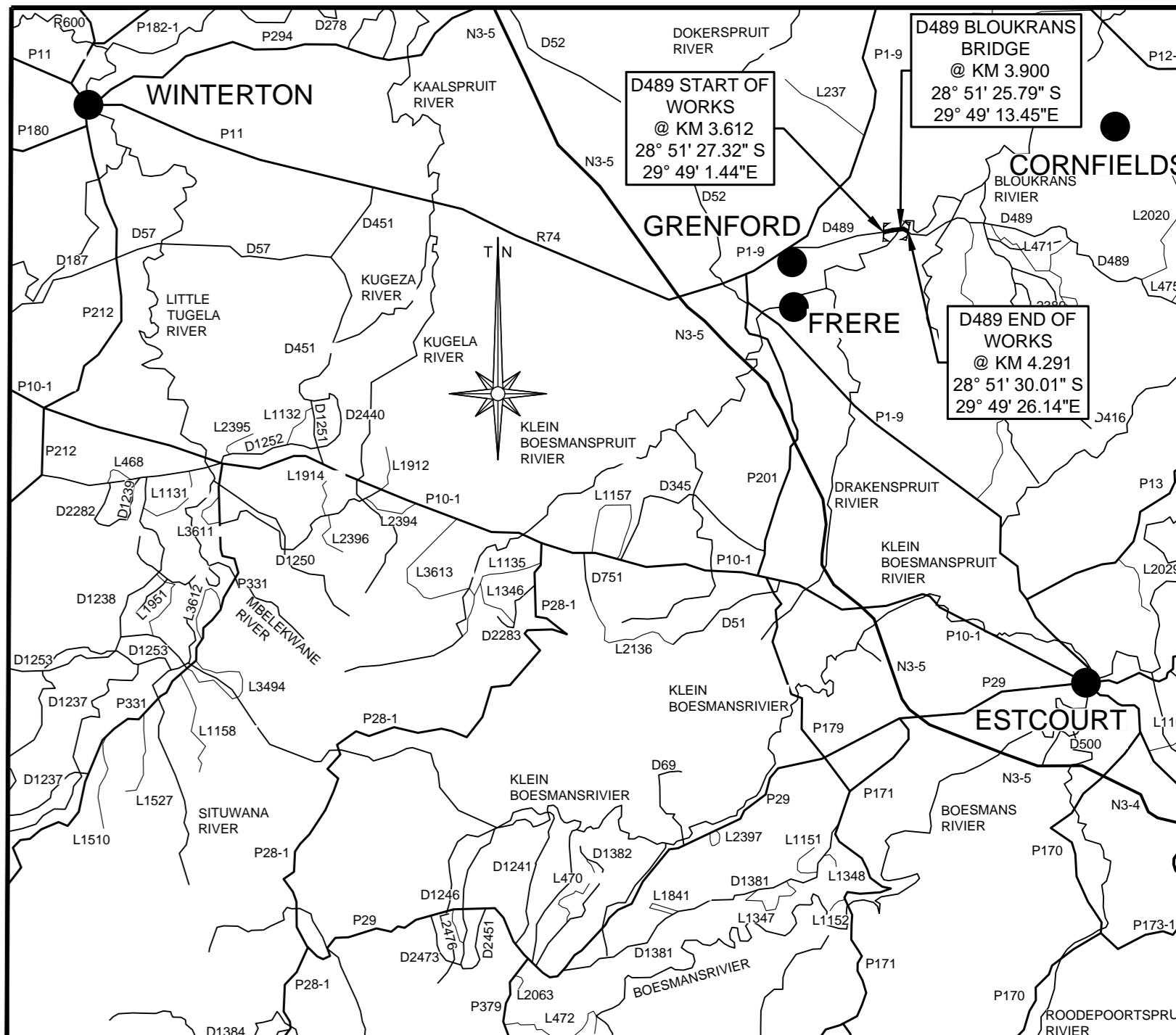
LEFT HAND SIDE	RIGHT HAND SIDE		
No.	Ch Position	No.	Ch Position
1	3840	1	3870
2	3970	2	3970
3	-	3	4291

ROAD MARKING SCHEDULE

FROM CH	TO CH	LENGTH (m)	TYPE
3612	4291	679.00	RM4.1
3612	3790	178.00	RM1
3798	3805	7.00	RTM1
3800	-	-	GM7
3790	3805	15.00	WM3
3805	4150	345.00	RM1
4160	4167	7.00	RTM1
4163	-	-	GM7
4150	4165	15.00	WM3
4165	4291	126.00	RM1
3612	4291	679.00	RM4.1

- Notes:
- All Lane Markings are to be as per SARTSM.
 - RM4.1 continuous yellow shoulder line to be implemented on both sides and to be a minimum of 100mm thick.
 - WM3 line consists of a 150mm thick, broken white line to a line-to-gap ratio of 1 to 1.

LOCALITY KEY PLAN



D489 LOCALITY

SCALE: 1:50000

EXPROPRIATION SCHEDULE

Approx. Co-ordinates to be as per WGS 84

POINT NAME	X CO-ORDINATE	Y CO-ORDINATE
1	3193747.63	-79734.01
2	3193768.96	-79736.06
3	3193768.78	-79785.01
4	3193725.34	-79844.57
5	3193747.65	-79873.60
6	3193716.64	-79887.55
7	3193732.74	-79944.47
8	3193707.87	-79953.74
9	3193710.09	-79961.65
10	3193730.62	-79994.55
11	3193727.77	-79998.33
12	3193706.19	-79993.80
13	3193704.91	-80002.01
14	3193707.53	-8004.67
15	3193723.30	-80087.39
16	3193726.14	-80089.04
17	3193703.07	-80091.43
18	3193701.84	-80092.54

EXPROPRIATION SCHEDULE

Approx. Co-ordinates to be as per WGS 84

POINT NAME	X CO-ORDINATE	Y CO-ORDINATE
19	3193701.28	-80104.54
20	3193700.87	-80148.69
21	3193695.74	-80152.21
22	3193720.12	-80148.92
23	3193731.45	-80149.61
24	3193697.88	-80201.00
25	3193732.52	-80215.36
26	3193737.38	-80233.24
27	3193735.89	-80233.39
28	3193723.44	-80277.99
29	3193744.50	-80312.10
30	3193749.38	-80314.92
31	3193763.27	-80297.69
32	3193775.87	-80347.54
33	3193788.93	-80355.40
34	3193829.54	-80363.05

GUARDRAIL SCHEDULE TO SD 1101/A

LEFT HAND SIDE		RIGHT HAND SIDE	
FROM CH	TO CH	FROM CH	TO CH
3851	3881	3840	3870
3977	4007	3973	4003

NOTATION

- BCC - Beginning of circular curve
- ECC - End of circular curve
- PI - Point of intersection
- R - Radius of circular curve
- Δ - Deflection angle of circular curve
- L - Length of circular curve
- T - Length of tangent

SIGN POSTING SCHEDULE TO SD 1302/A

LEFT HAND SIDE			RIGHT HAND SIDE		
CH	SIGN	SIZE (mm)	CH	SIGN	SIZE (mm)
3612	R201-60	900.00	3875	W402	600 X 150
3808	R1	900.00	3970	W401	600 X 150
3840	WLS-1	940 X 640	4020	GLS-1	940 X 640
3880	W401	600 X 150	4260	W203	900.00
3977	W402	600 X 150	4261	R201-60	900.00
4020	W202	900.00	-	-	-
4168	R1	900.00	-	-	-

PIPE CROSSING SCHEDULE TO SD 0602/B (D489)

Ch Position	Size (mm)	Class	Type	Bedding Class	Est. Length (m)	Skew	Slope	Invert Level (m)	Outlet Level (m)	Flow (m³/s)	Velocity (m/s)	Capacity (%)	Catchment Area (ha)
3798	450	1000	PC	C	5.00	0°	4.44%	984.226	984.005	0.15	0.94	66.89%	1.34
4159	450	1000	PC	C	5.00	180°	2.54%	987.964	987.837	0.19	1.20	73.23%	1.70

PIPE CROSSING SCHEDULE TO SD 0602/B (ACCESS 1 @ CH 3+798 ON D489)

Ch Position	Size (mm)	Class	Type	Bedding Class	Est. Length (m)	Skew	Slope	Invert Level (m)	Outlet Level (m)	Flow (m³/s)	Velocity (m/s)	Capacity (%)	Catchment Area (ha)
10	450	1000	PC	C	9.72	0°	2.00%	984.075	983.880	0.21	1.32	76.07%	1.88
18	450	1000	PC	C	8.00	0°	2.05%	984.464	984.300	0.20	1.23	73.95%	1.75

PIPE CROSSING SCHEDULE TO SD 0602/B (ACCESS 2 @ CH 4+159 ON D489)

Ch Position	Size (mm)	Class	Type	Bedding Class	Est. Length (m)	Skew	Slope	Invert Level (m)	Outlet Level (m)	Flow (m³/s)	Velocity (m/s)	Capacity (%)	Catchment Area (ha)
42	450	1000	PC	C	8.57	0°	2.00%	986.641	986.470	0.21	1.31	75.73%	1.86

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FARM PORTION : 5/929
SGN No.:NGS000000009290005

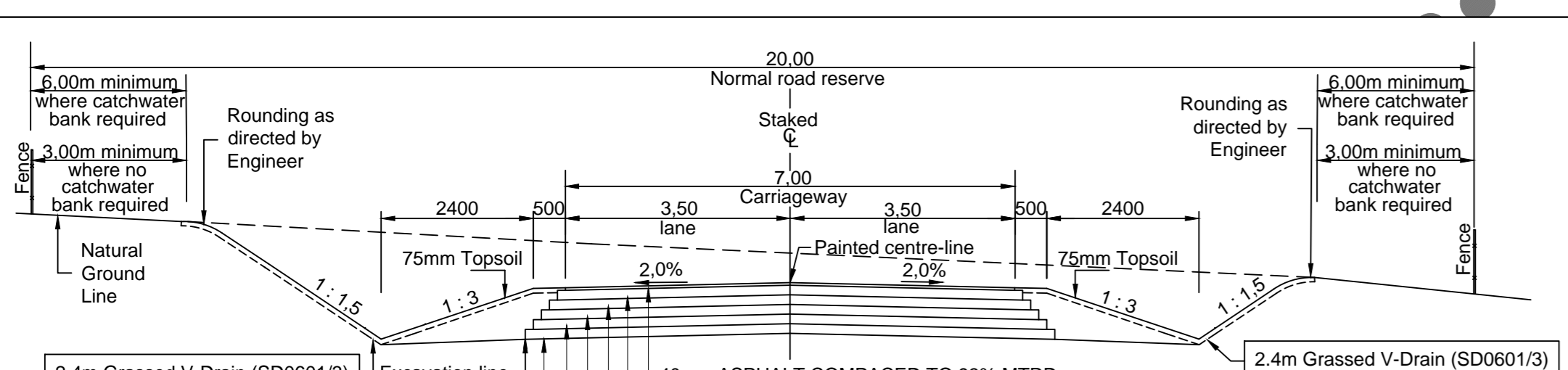
DESIGN SPEED : 60 Km/H

TO GRENFORD

FARM PARENT: RAMA 929
FARM PORTION : 5/929
SGN No.:NGS000000009290005

FARM PARENT: RAMA 929
FARM PORTION : 28/929
SGN No.:NGS0000000092900028

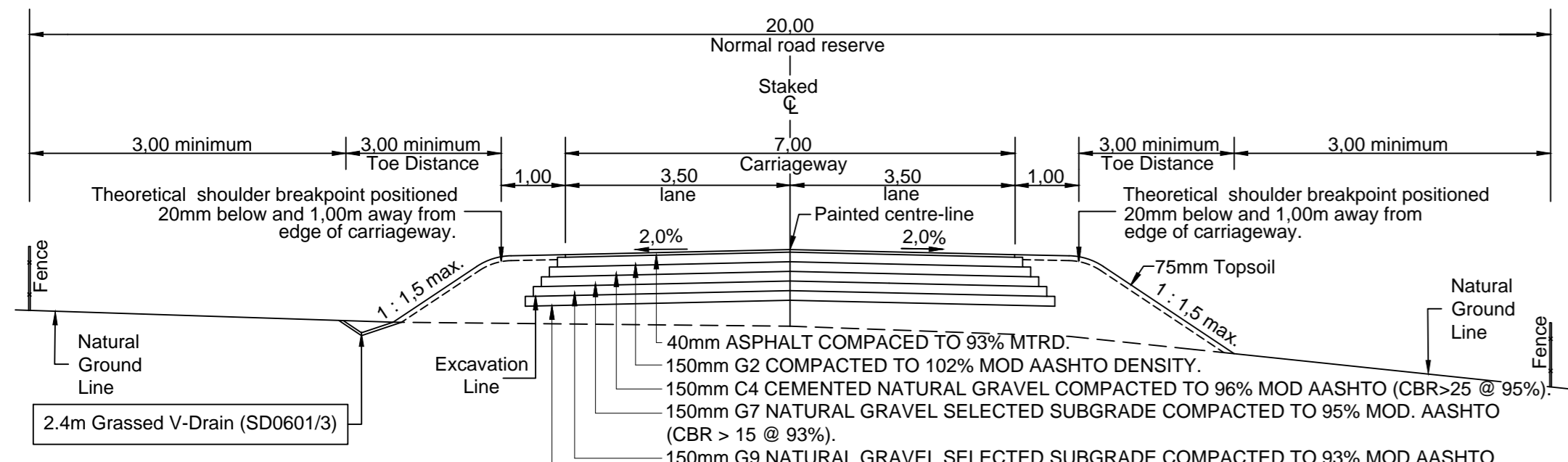
TO CORNFIELDS



TYPE 4 LOW STANDARD SECONDARY OR TERTIARY (CUT CONDITION) ROAD TYPICAL SECTION (SD0208/B)

PDC No. : 1276

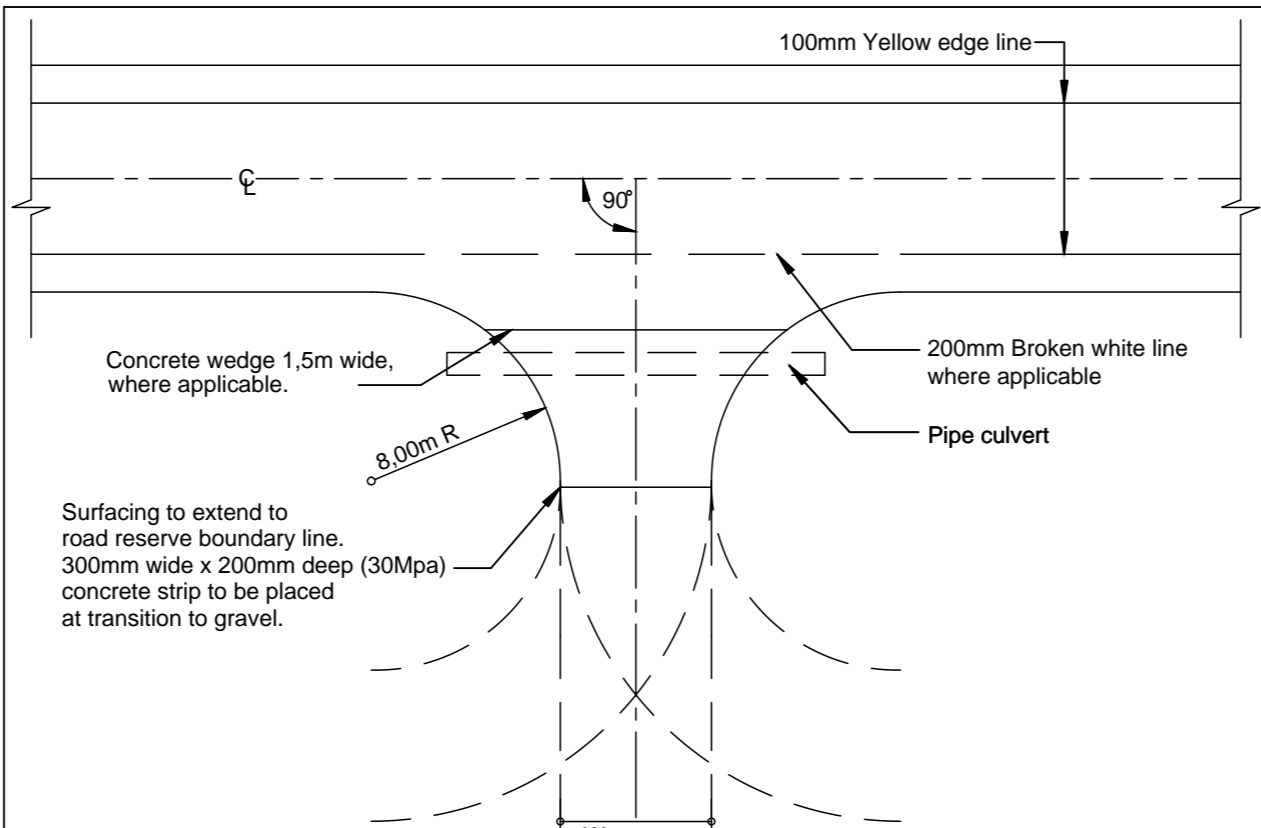
SCALE : 1 : 50



TYPE 4 LOW STANDARD SECONDARY OR TERTIARY (FILL CONDITION) ROAD TYPICAL SECTION (SD0208/B)

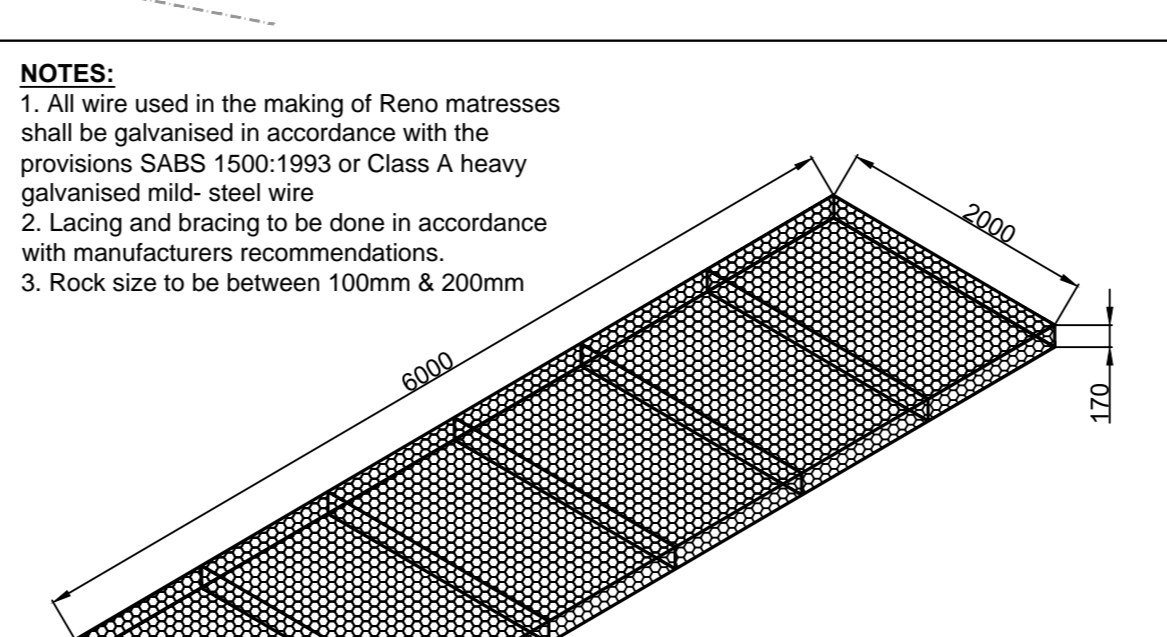
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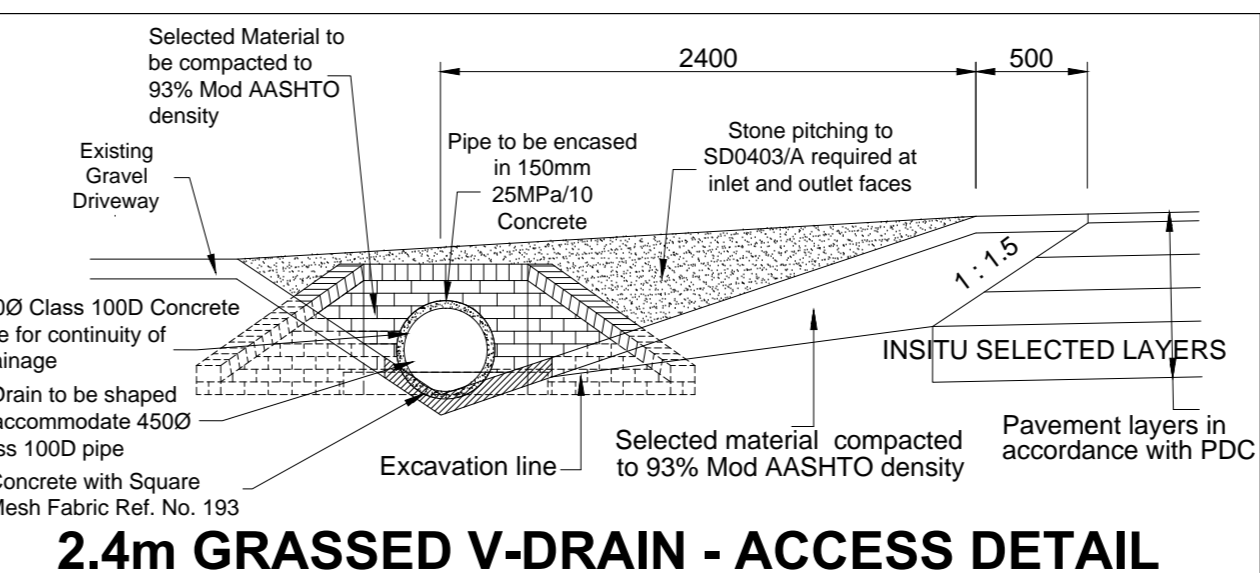
SD 0303/C : TYPE B3 ACCESS(SD0303/C)

SCALE : 1:50



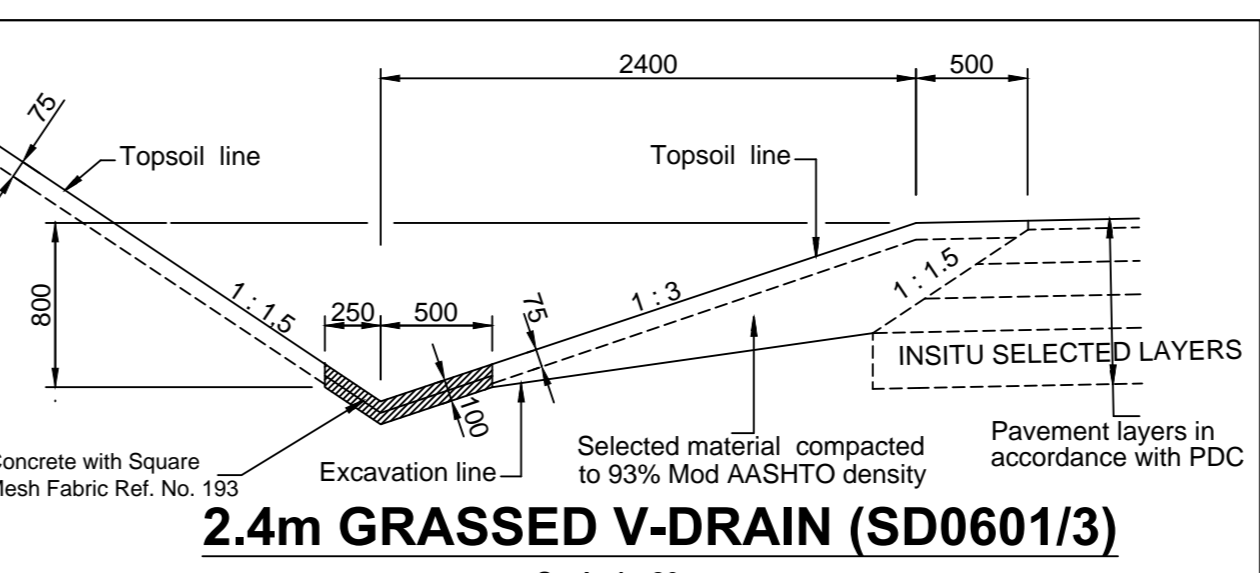
RENO MATTRESS DETAIL

SCALE: 1:100



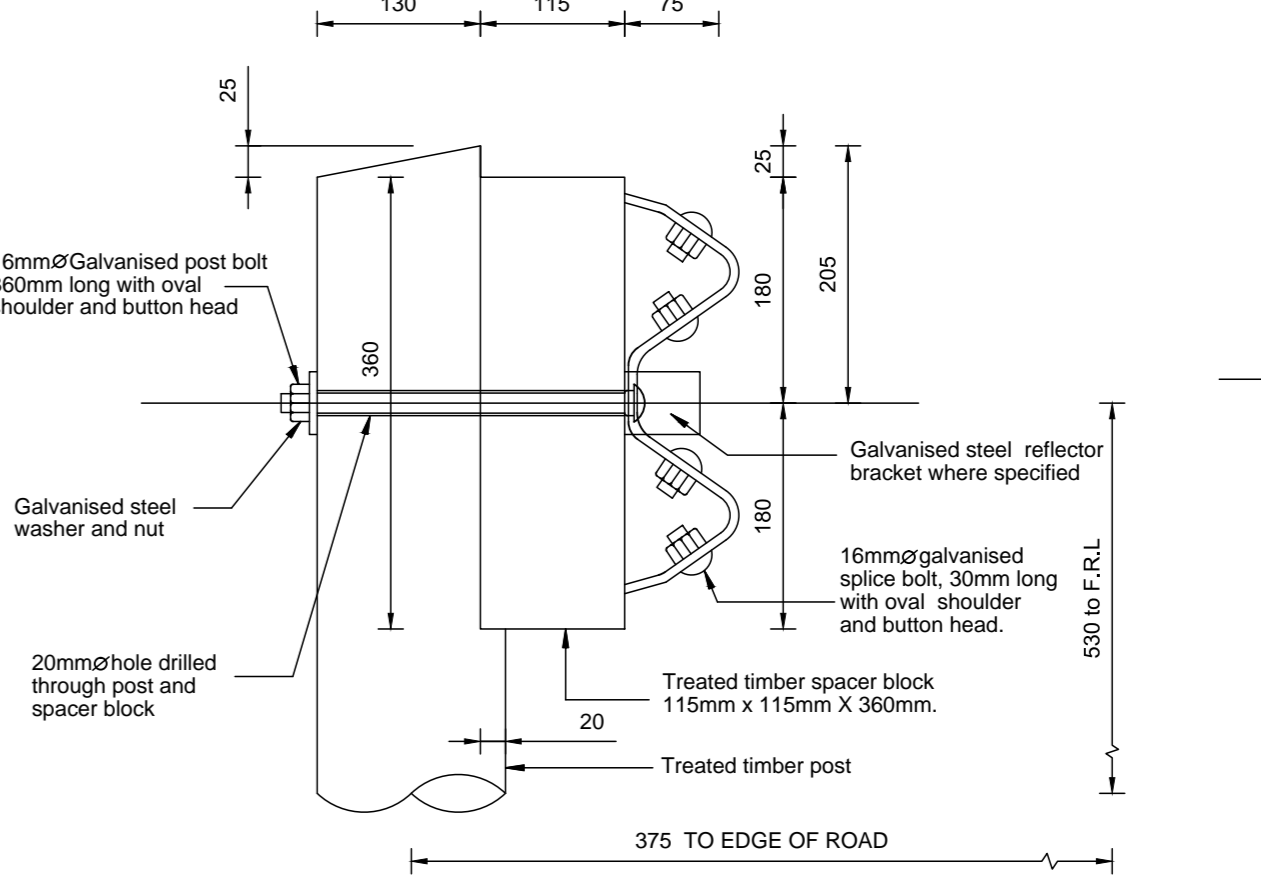
2.4m GRASSED V-DRAIN - ACCESS DETAIL

SCALE 1 : 20



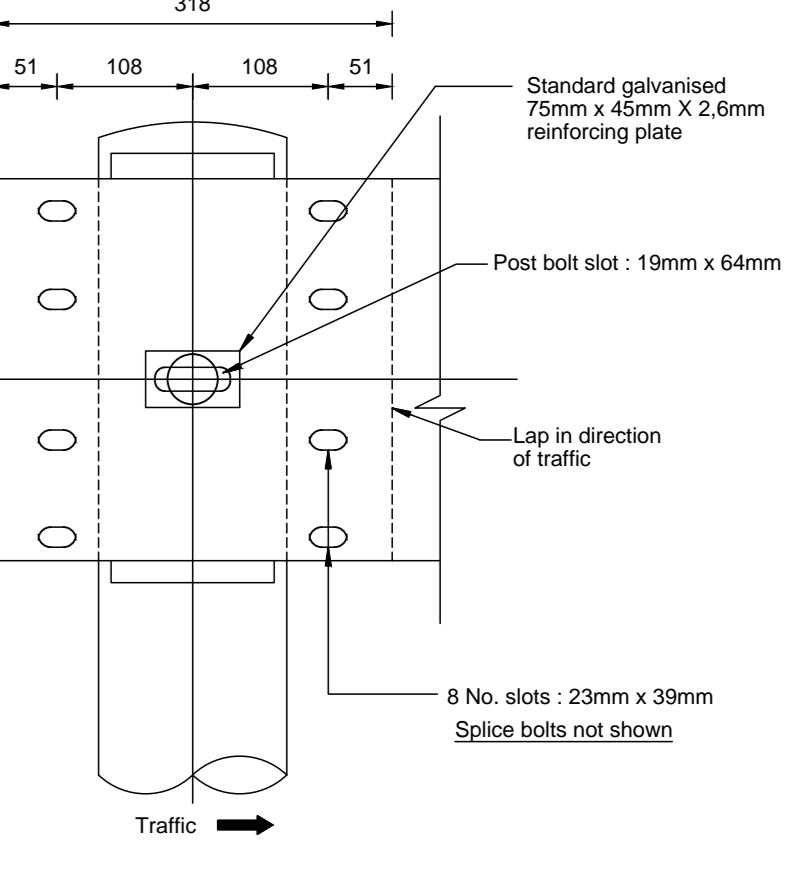
2.4m GRASSED V-DRAIN (SD0601/3)

SCALE 1 : 20



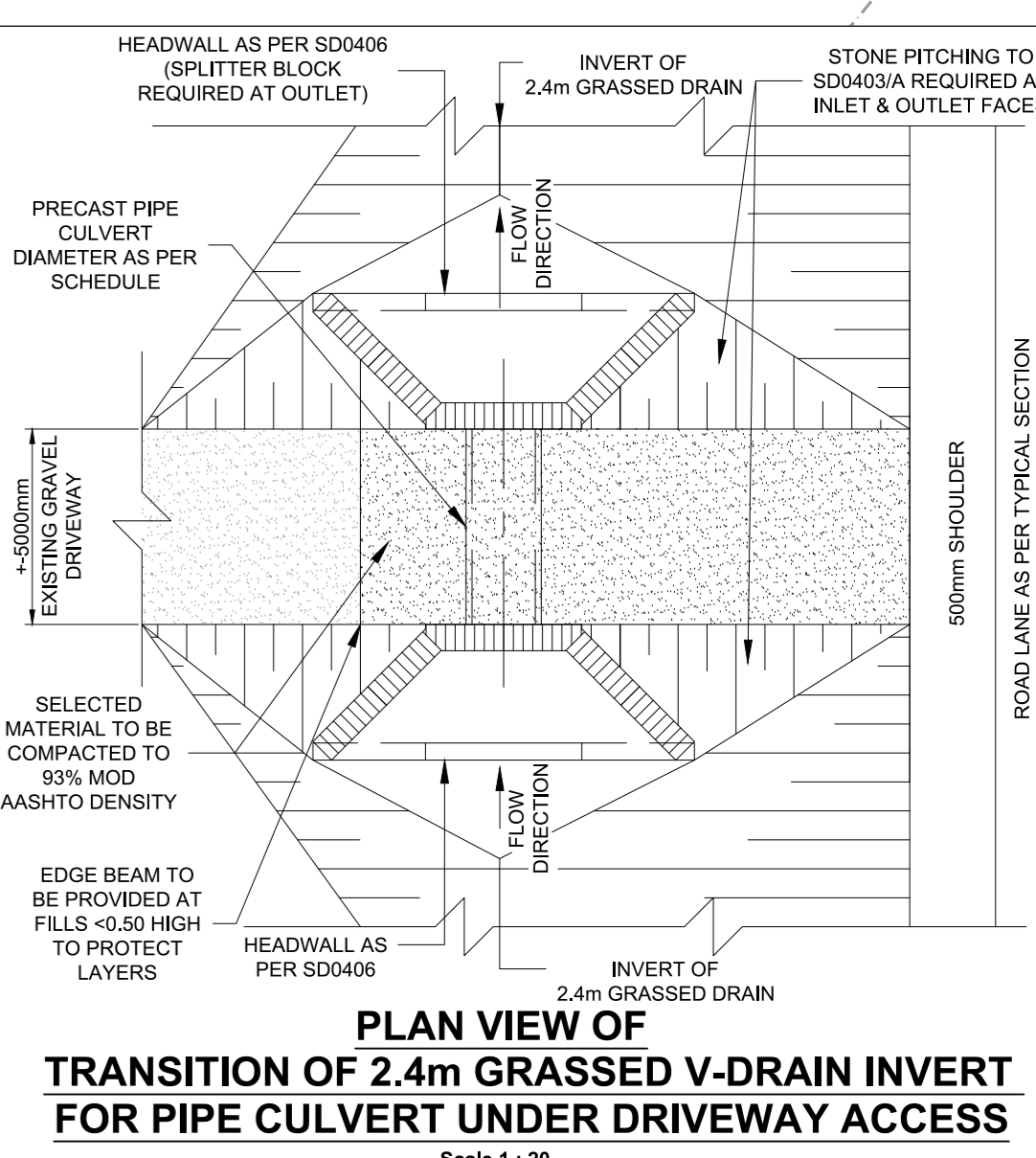
GUARDRAIL ERECTION SIDE ELEVATION

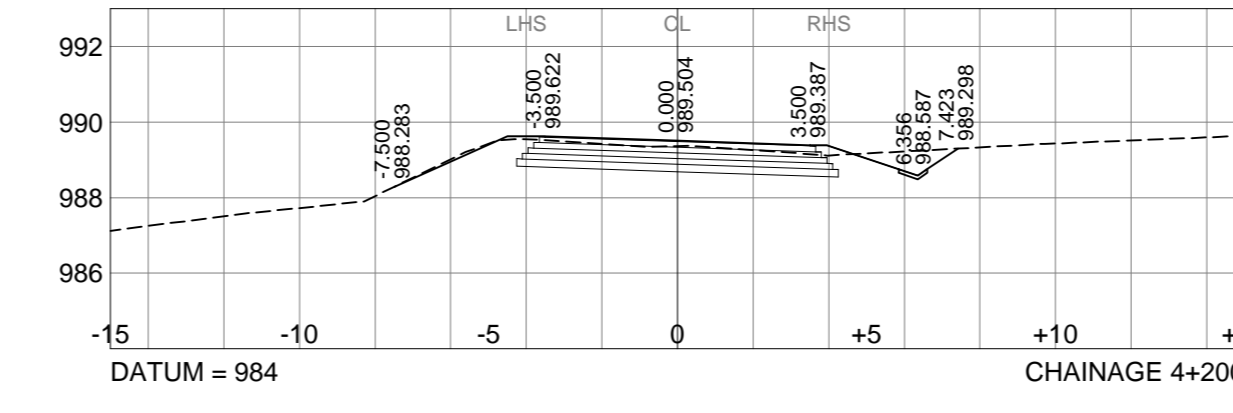
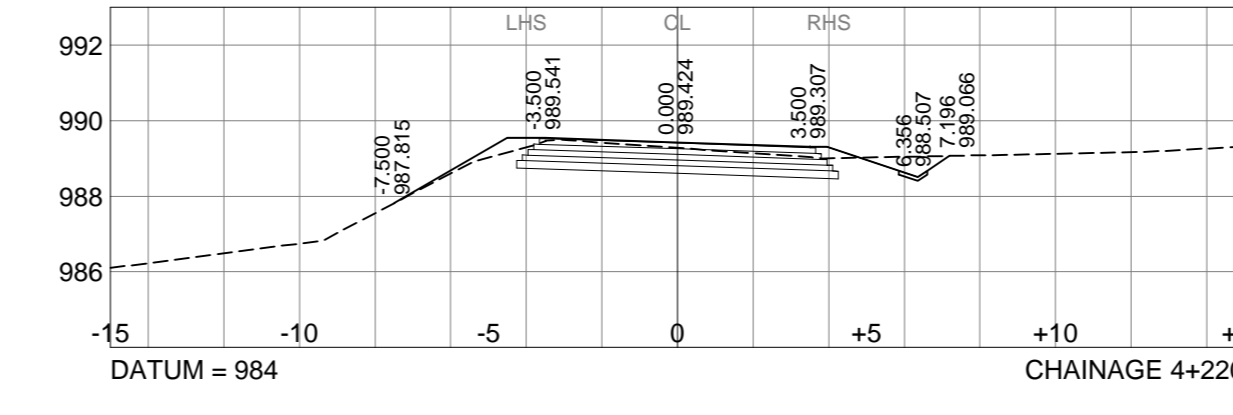
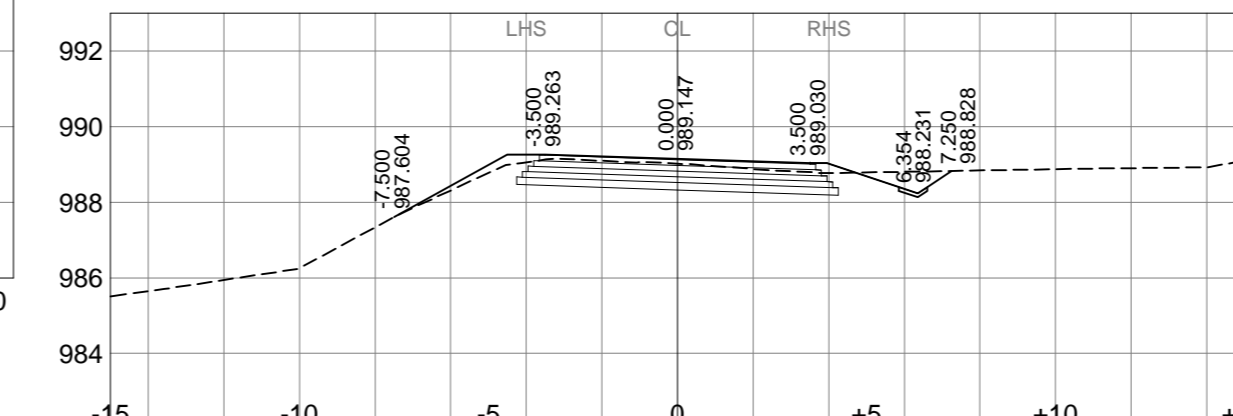
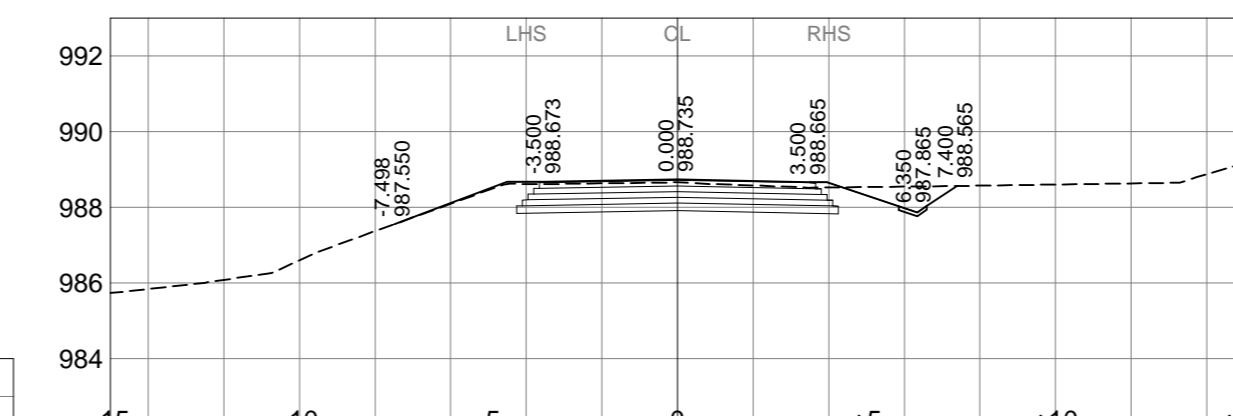
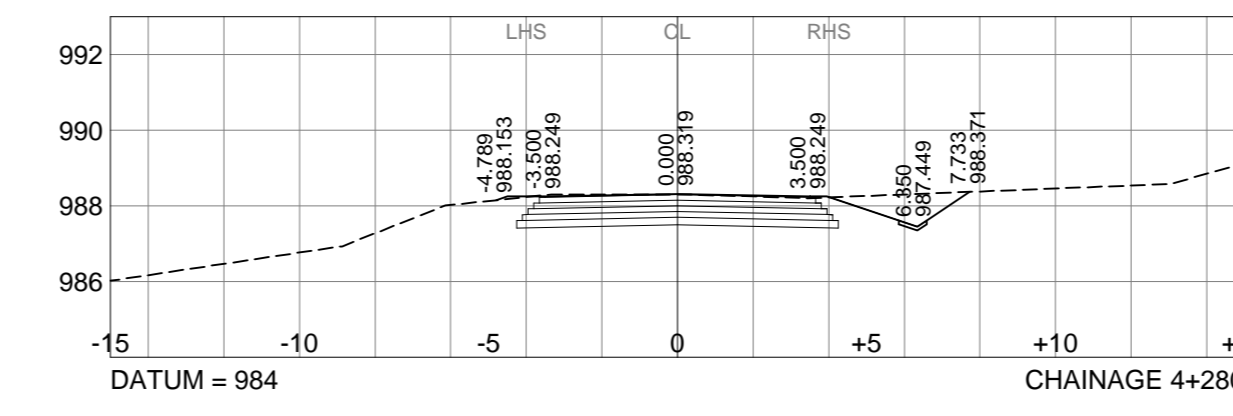
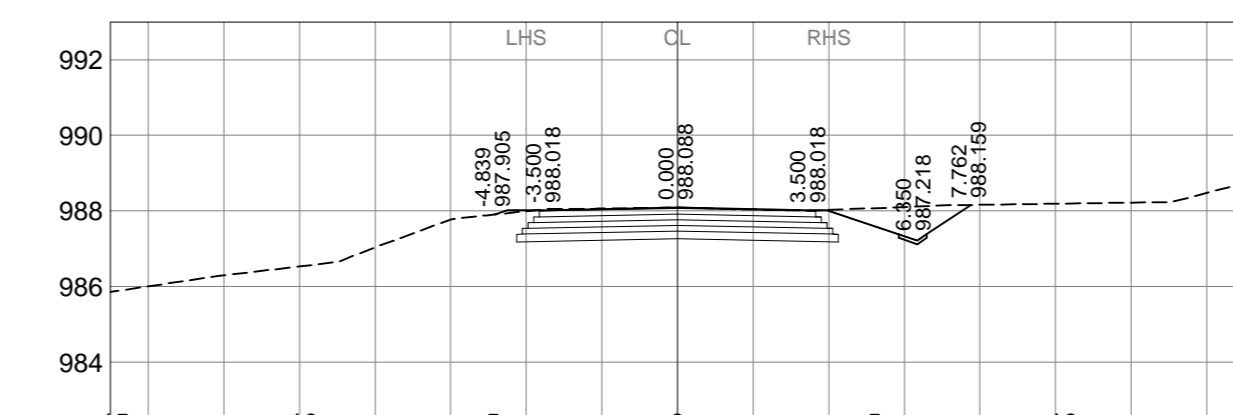
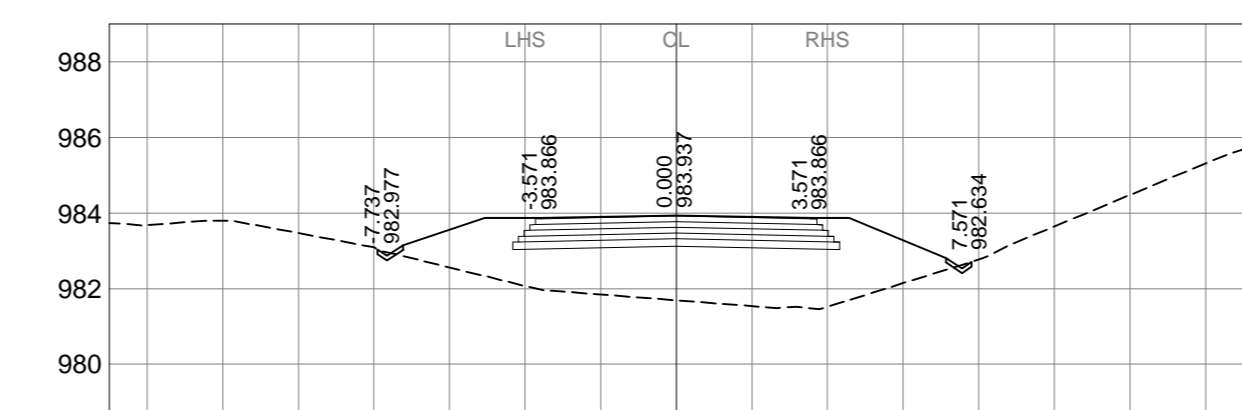
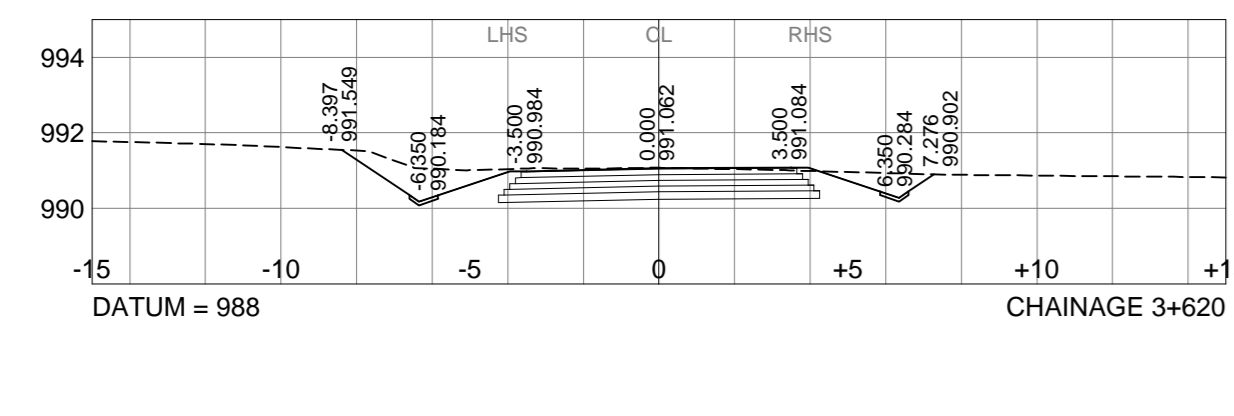
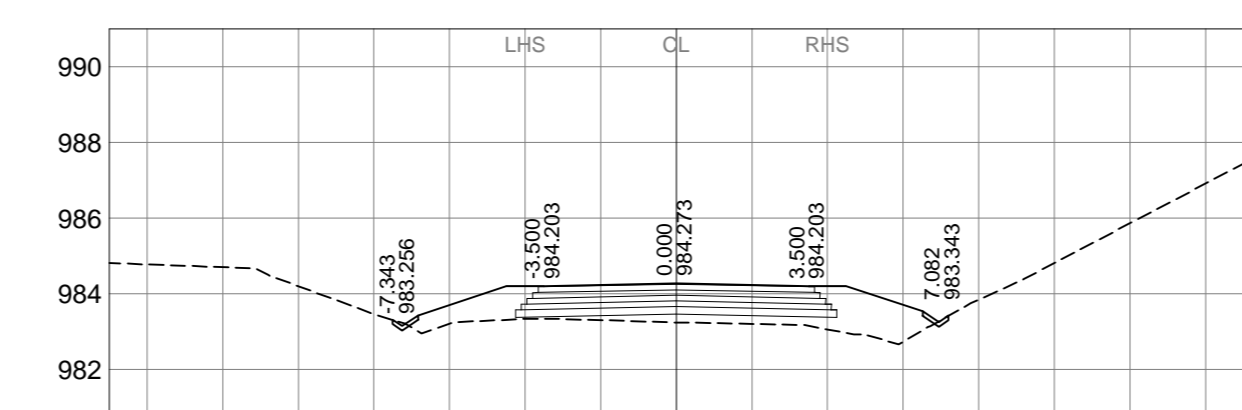
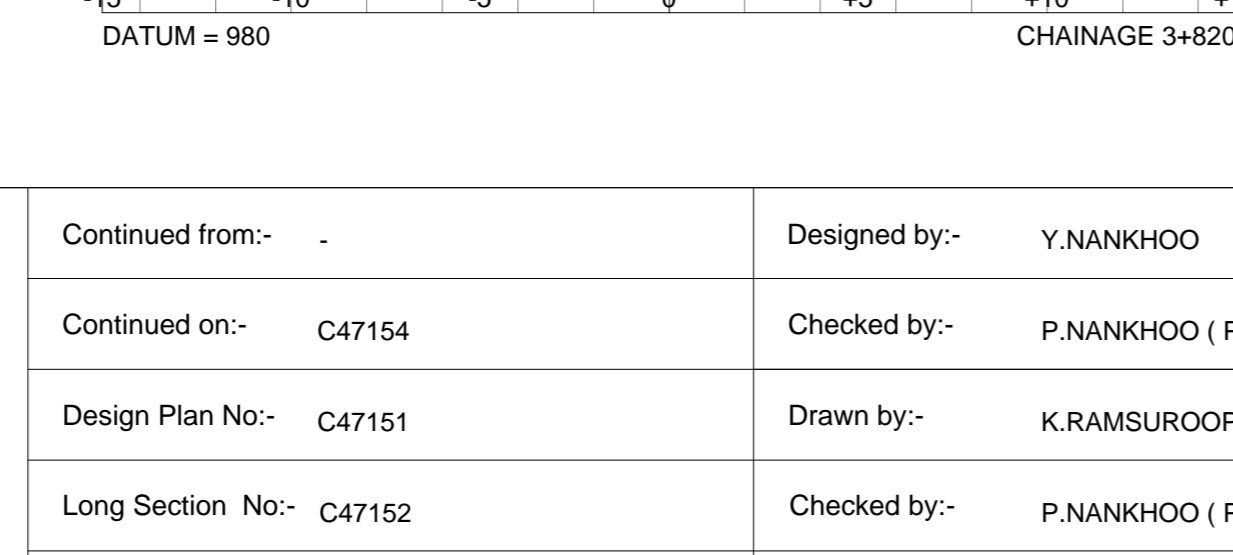
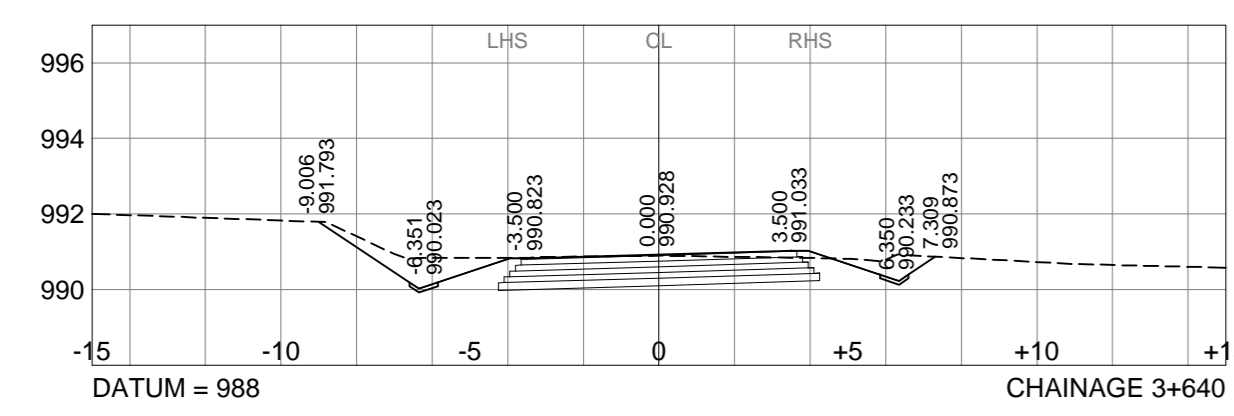
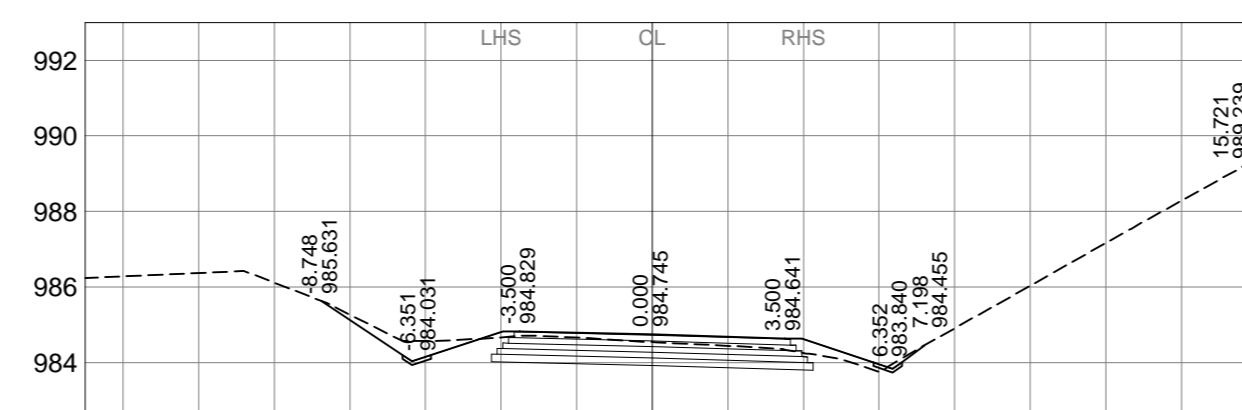
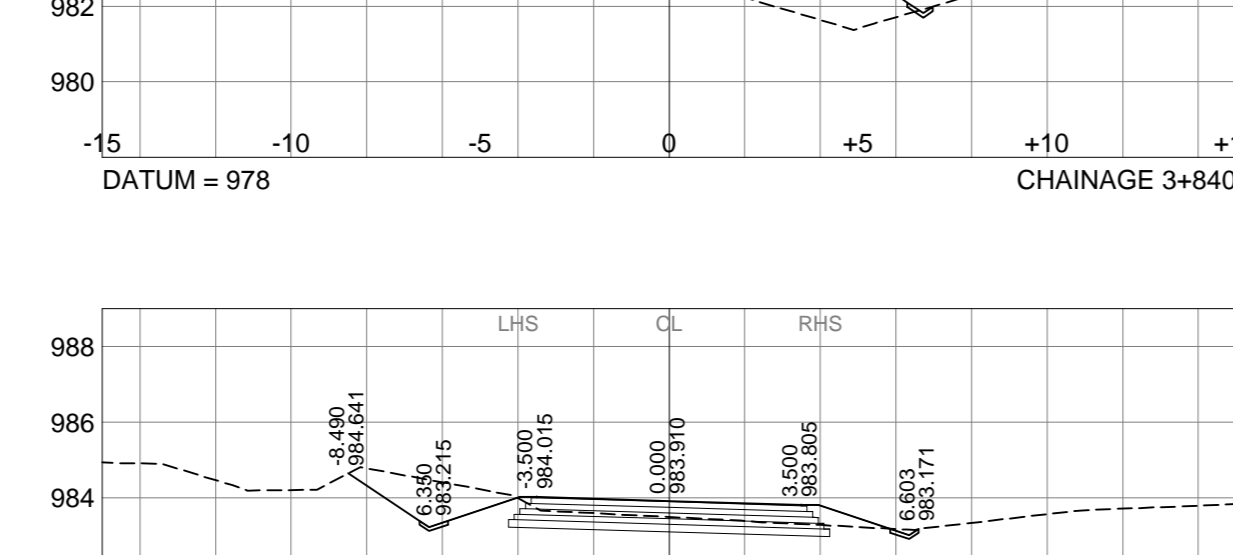
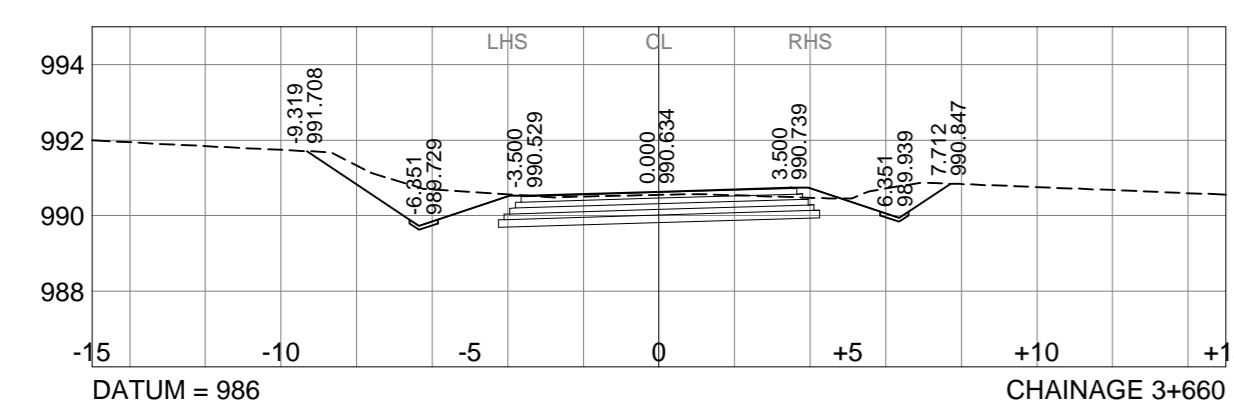
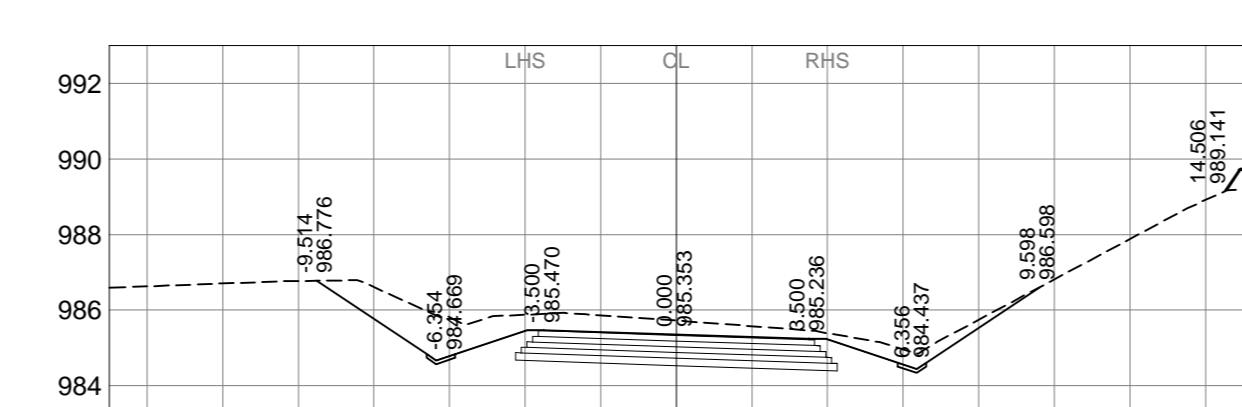
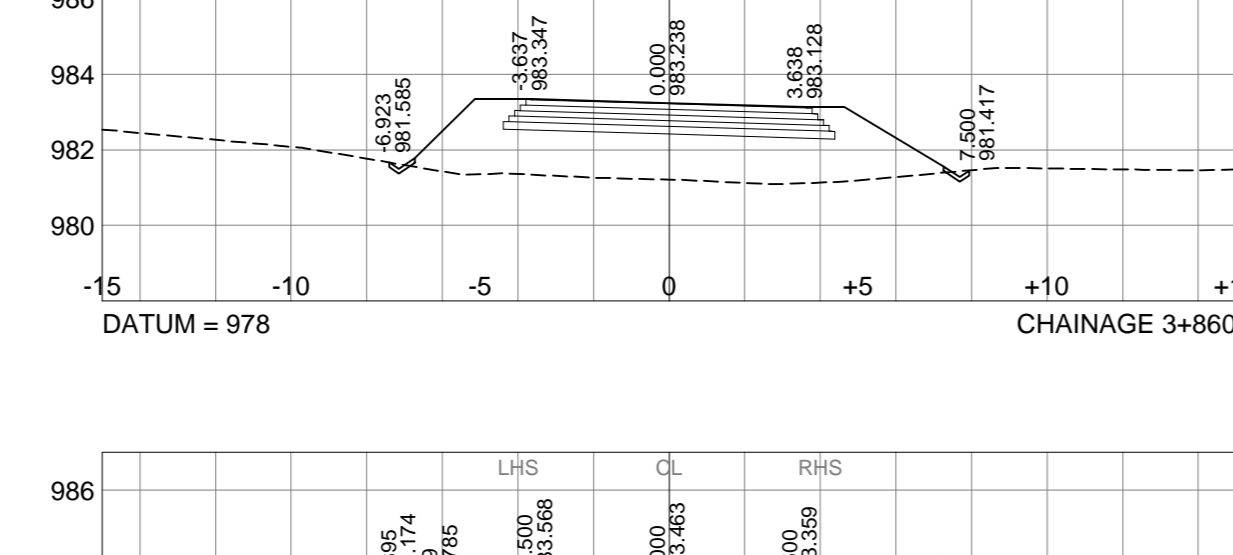
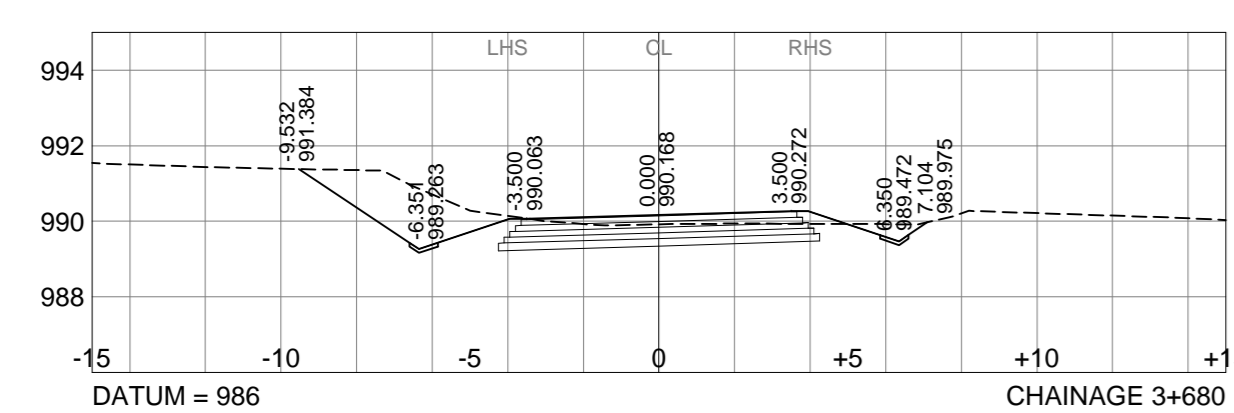
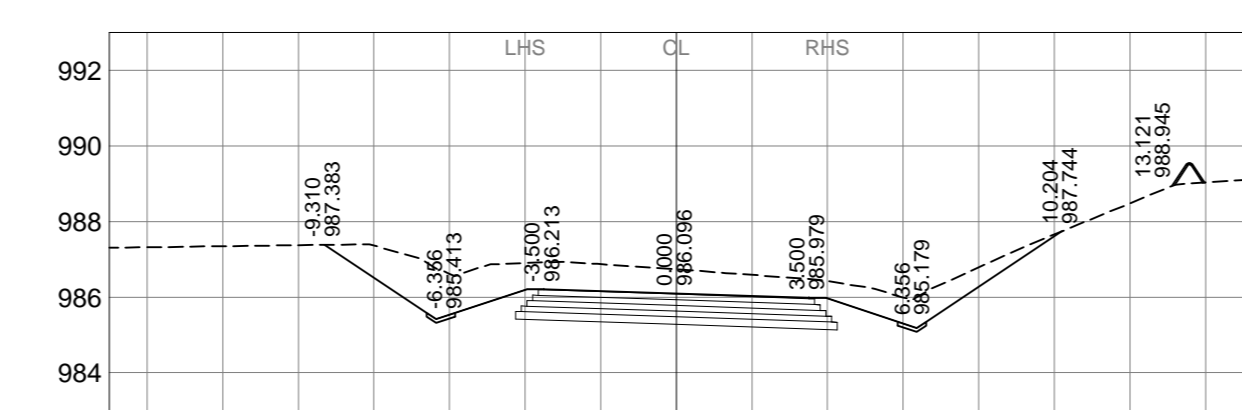
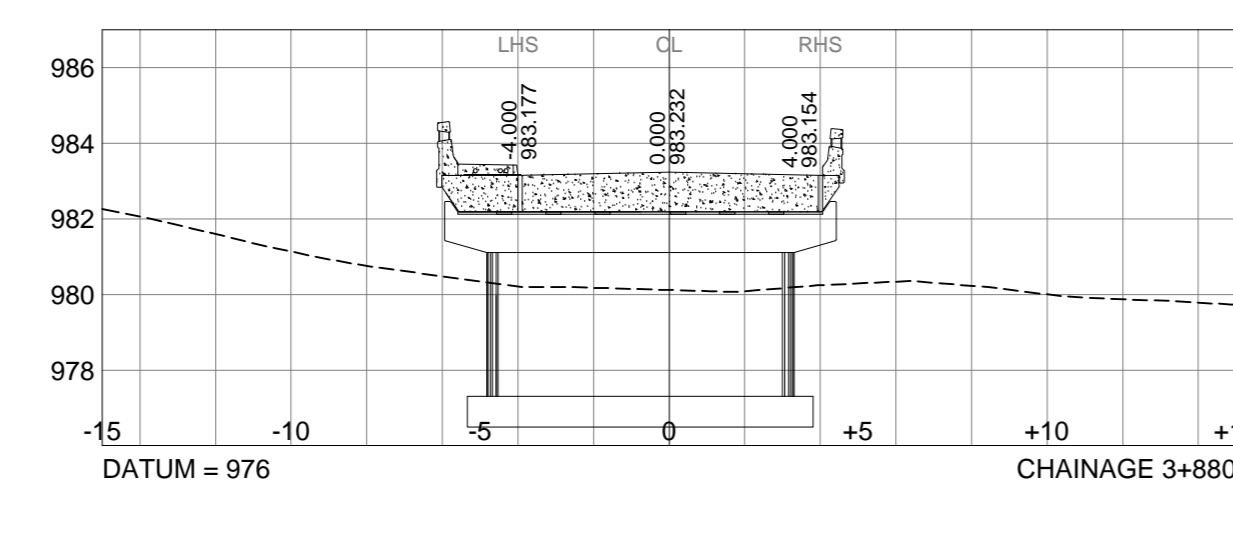
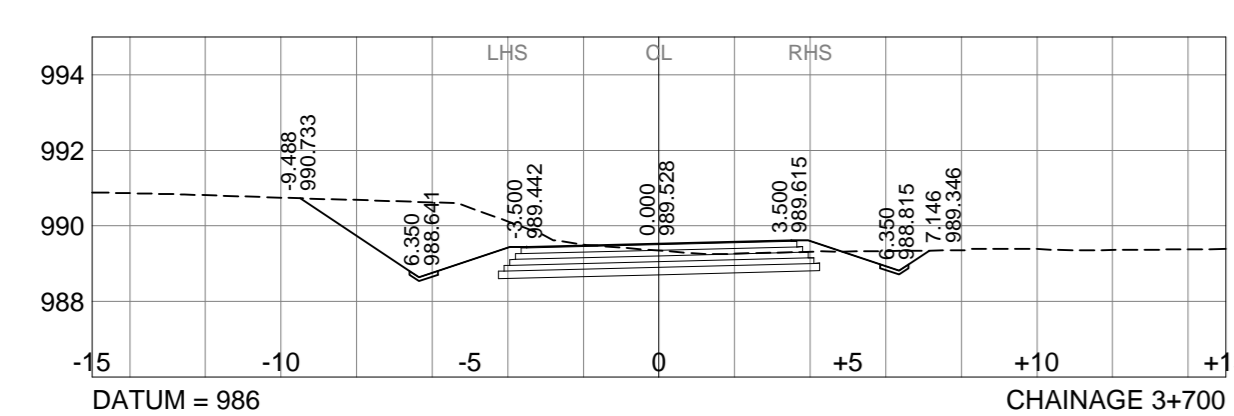
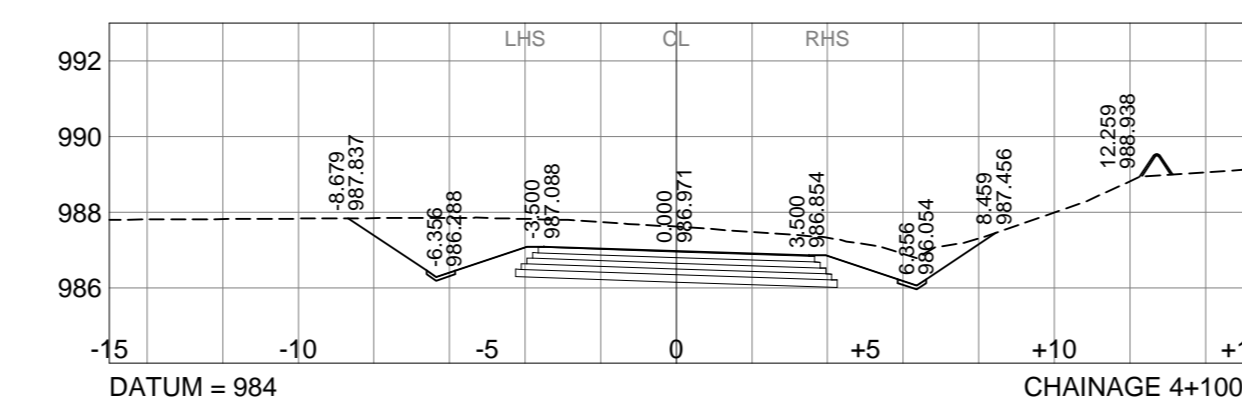
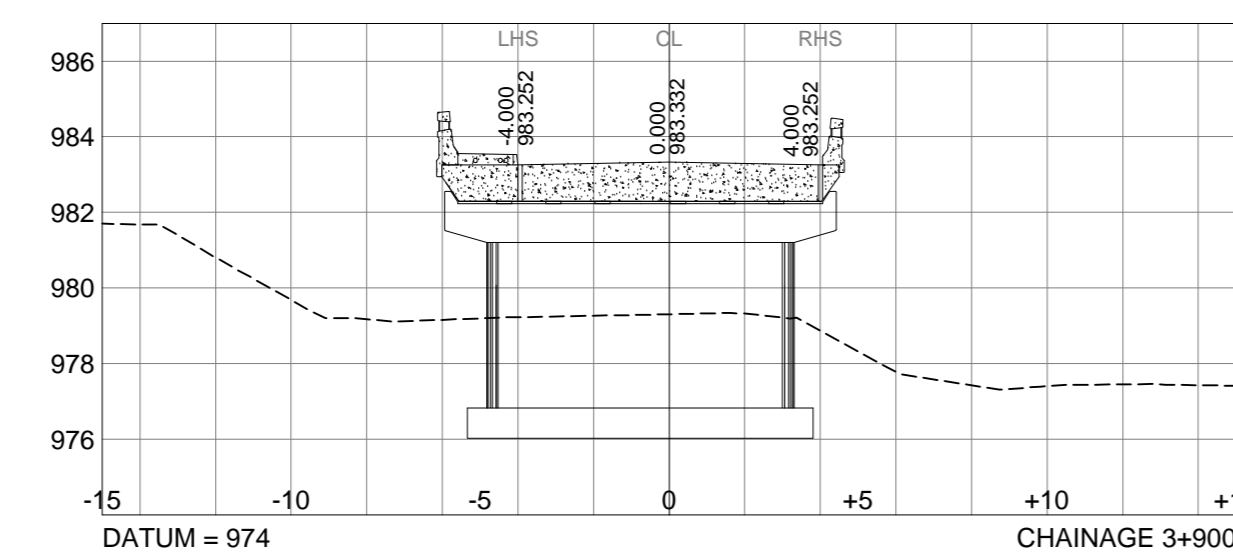
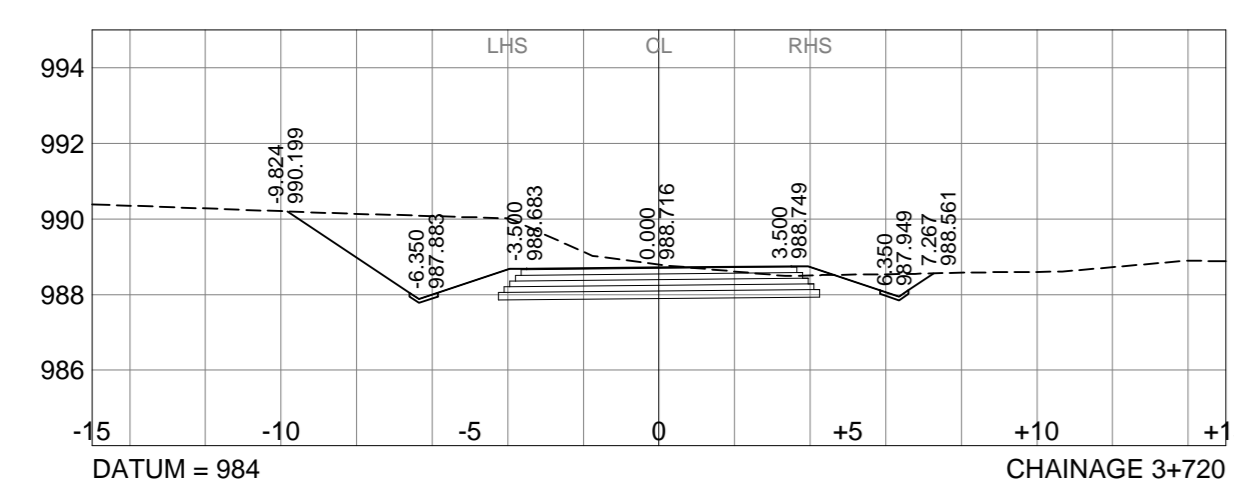
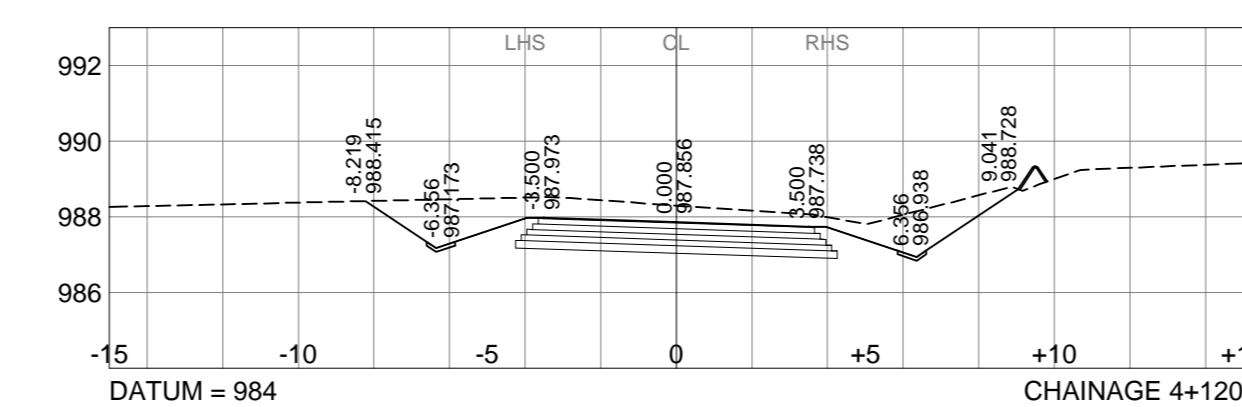
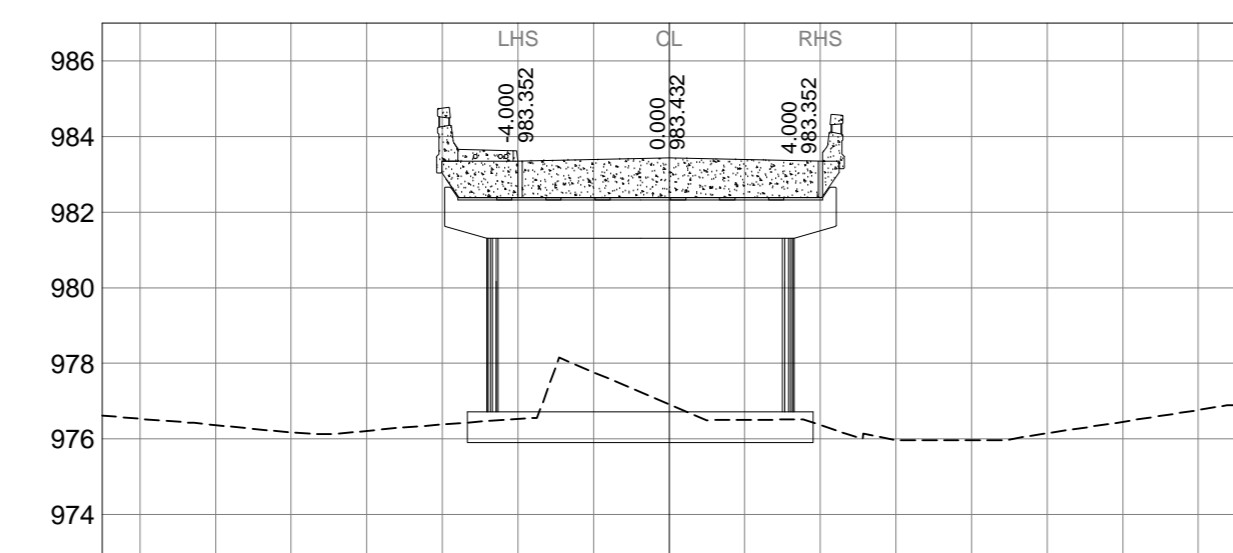
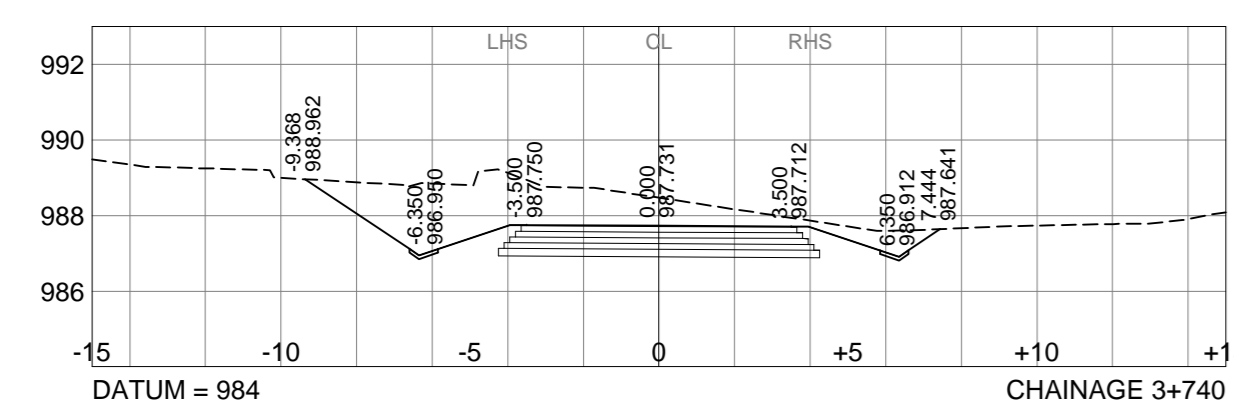
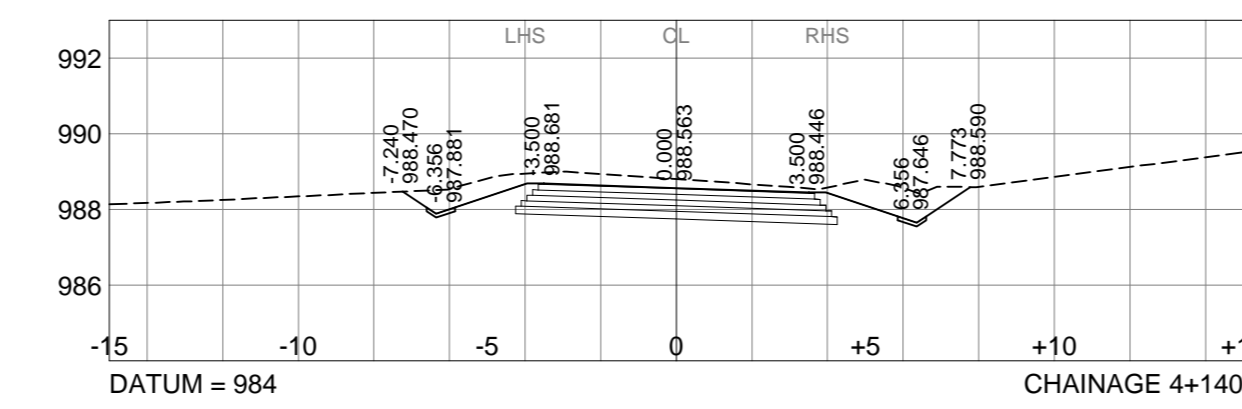
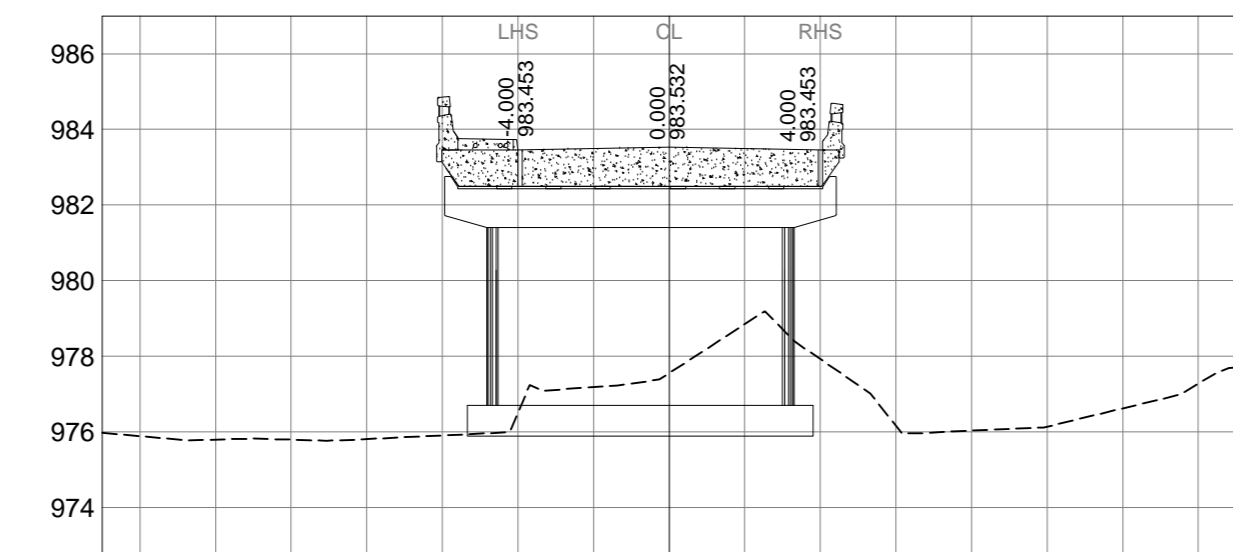
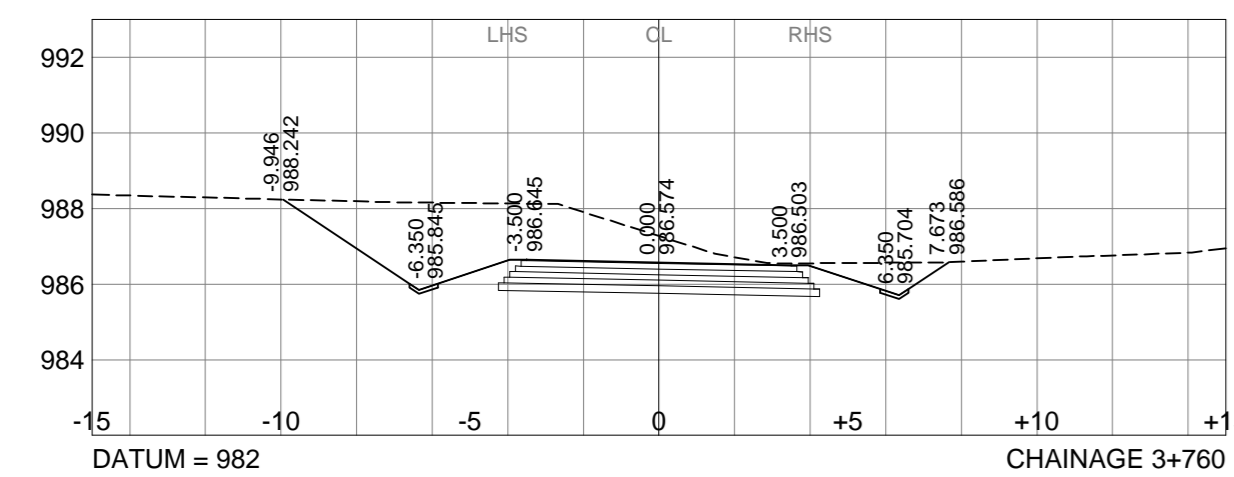
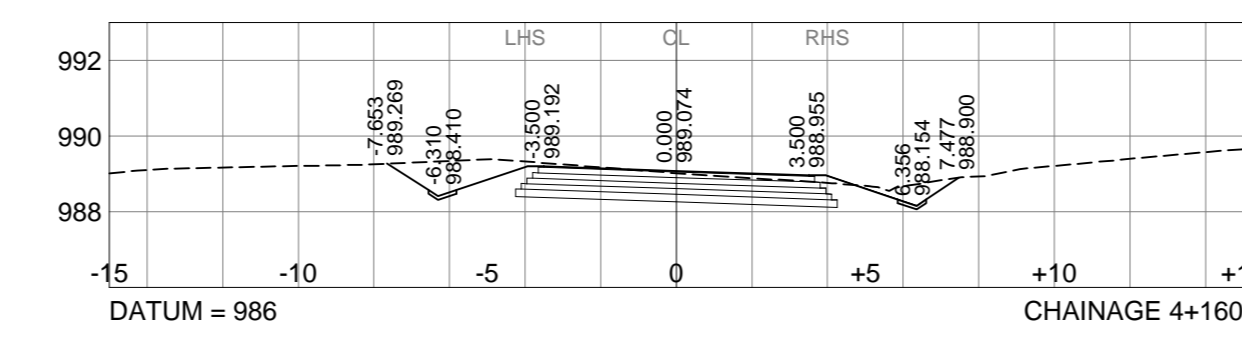
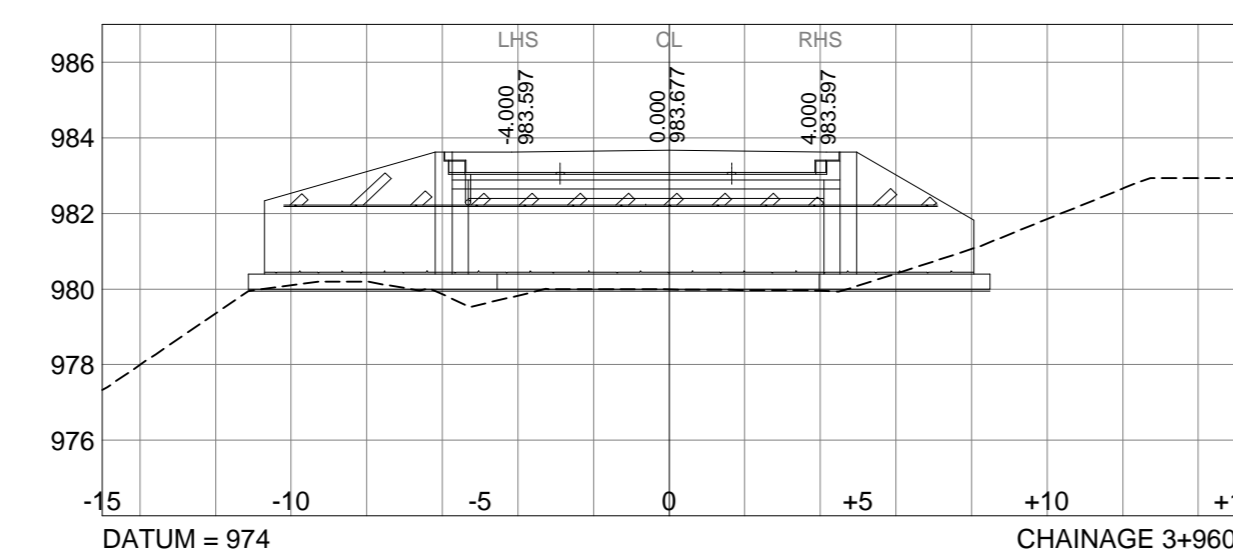
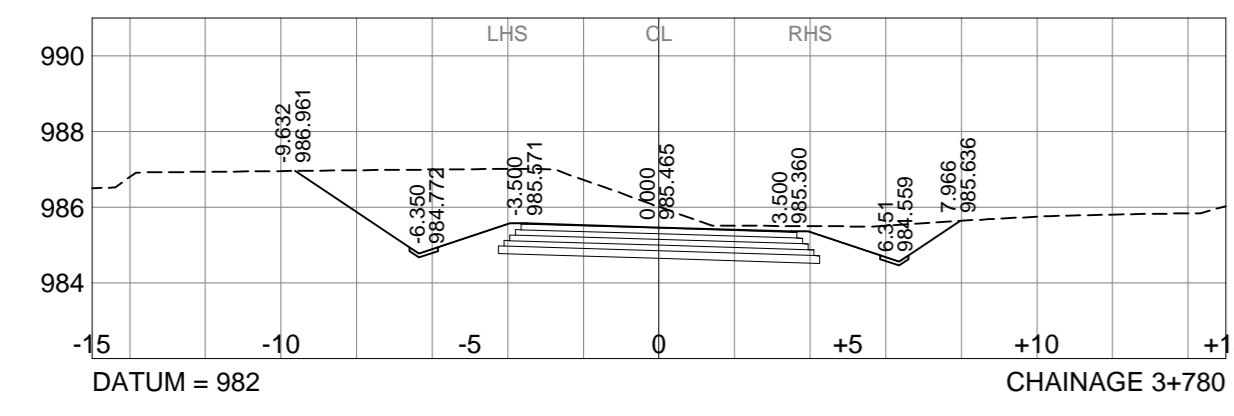
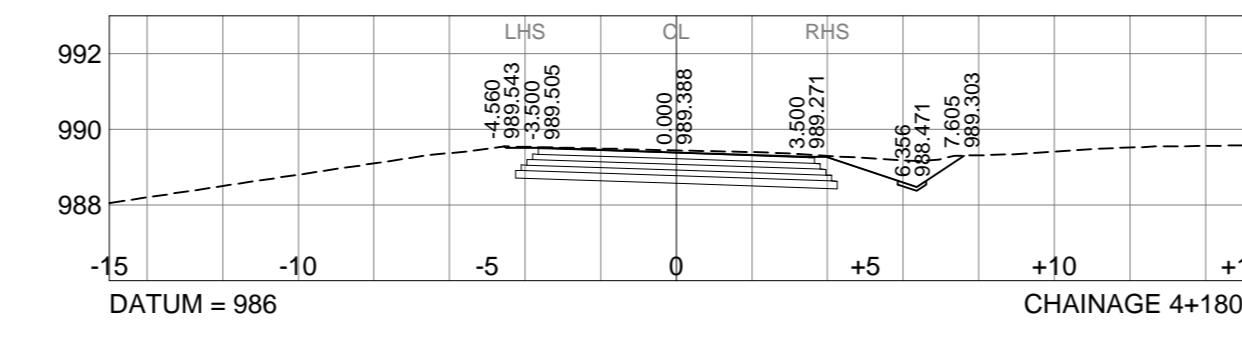
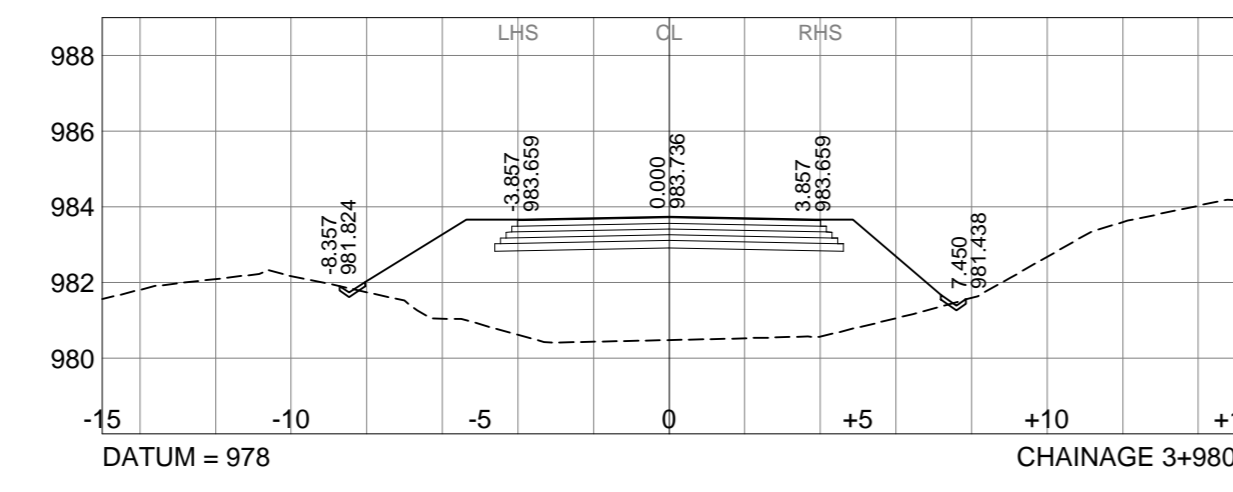
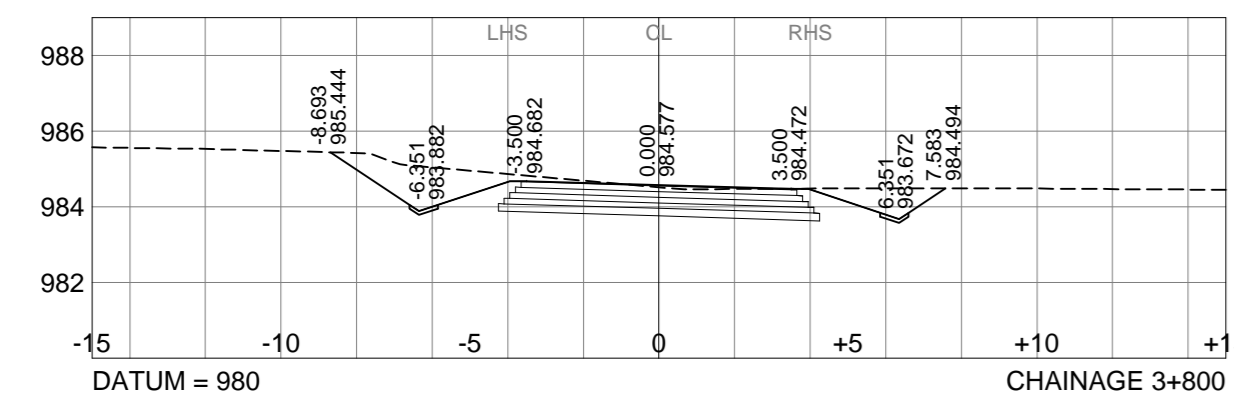
SCALE 1 : 5



GUARDRAIL ERECTION FRONT ELEVATION

SCALE 1 : 5





Symbol	Date	Description	Checked	Signed
AMENDMENTS				

AS BUILT

Supervising Engineer: _____ Date: _____

Supervising Authority: _____

Continued from: -

Continued on: C47154

Design Plan No.: C47151

Long Section No.: C47152

Cross Section No.: C47153 - C47154

Designed by: Y.NANKHOOD

Checked by: P.NANKHOOD (Pr.Eng : 910350)

Drawn by: K.RAMSUROOP

Checked by: P.NANKHOOD (Pr.Eng : 910350)

Date of Approval: 11 APRIL 2022



NANKHOOD
Consulting Engineers
www.nankhoo.co.za

CLARENCE DRIVE, PARK BLVD, KENILDA, TEL: 021 010 1010
140016 CLARENCE DRIVE, KENILDA, FAX: 021 010 1010
REG. ENGINEER (No. 10000) CIVIL ENGINEER (No. 10000)



PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Transportation Engineering : Chief Engineer

Head: Transport

SIGNATURE: _____ DATE: _____

**DISTRICT ROAD D489 : GRENFORD - CORNFIELDS
BLOUKRANS (RAMA) RIVER BRIDGE**

PORTION
DISTRICT ROAD 489 BRIDGE APPROACHES
(Km 3.612 to Km 4.291)
CROSS SECTIONS

FOR TENDER PURPOSES	
Staked km distance Km 3.612 to Km 4.291	Sheet 01 of 01
Scale AS SHOWN	Plan No.: C47153

C47153

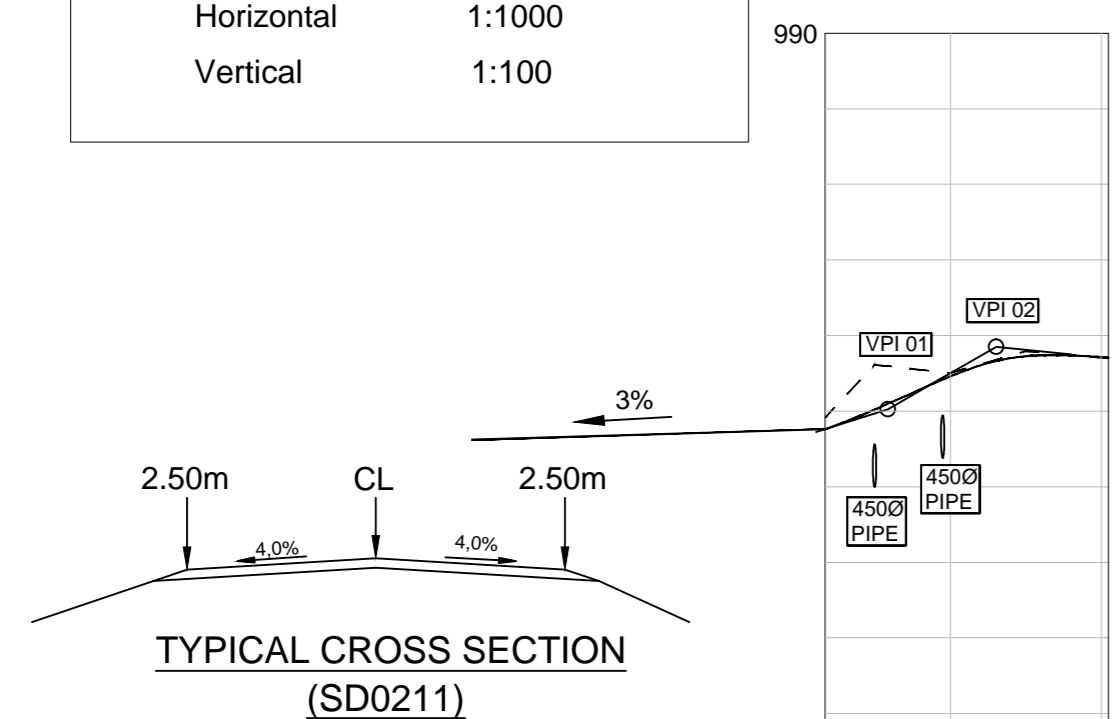
NOTE:
Schedule including Surfacing Type and Chainages.

Chainage (km)	Surfacing Type
0.000 - 0.041	150mm Gravel Wearing Course to TRH 20

PAVEMENT DESIGN
150mm Gravel Wearing Course to TRH 20

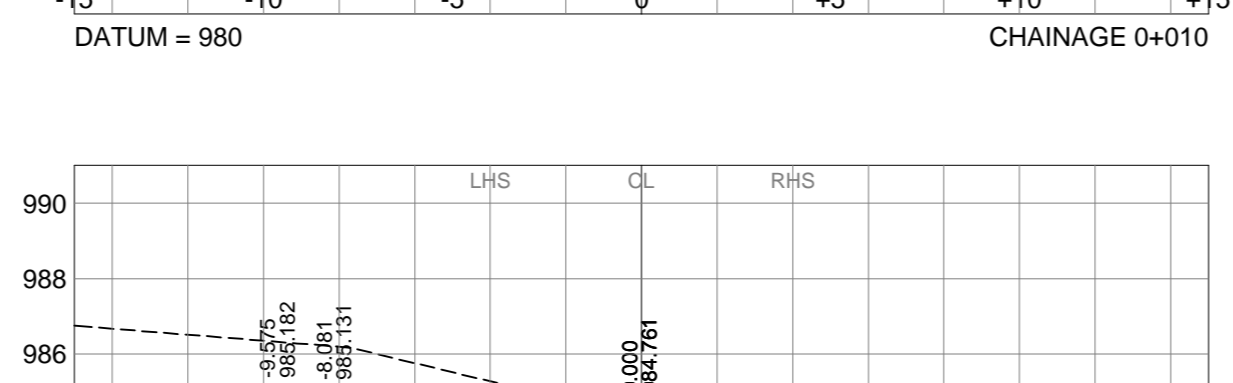
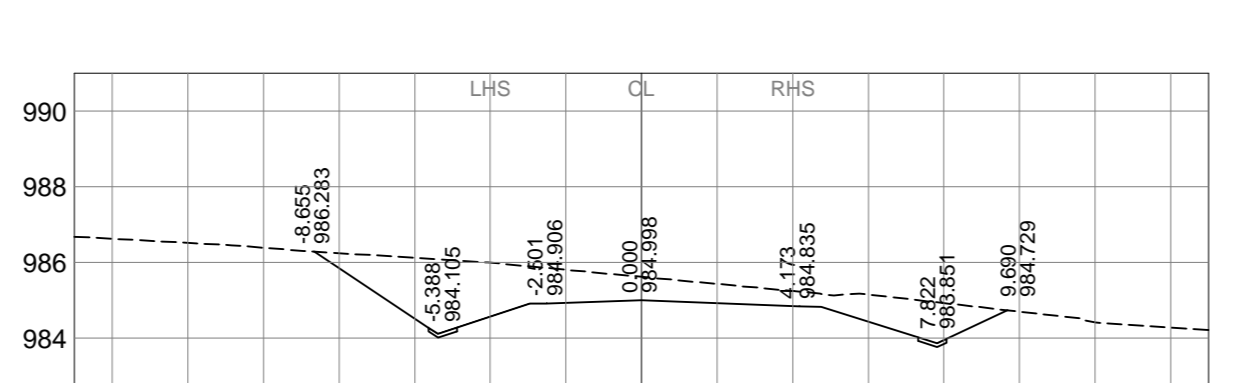
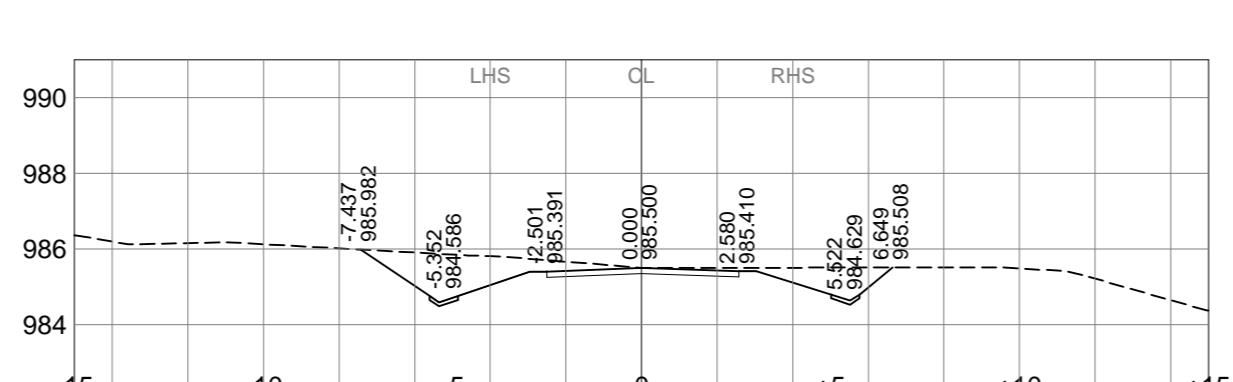
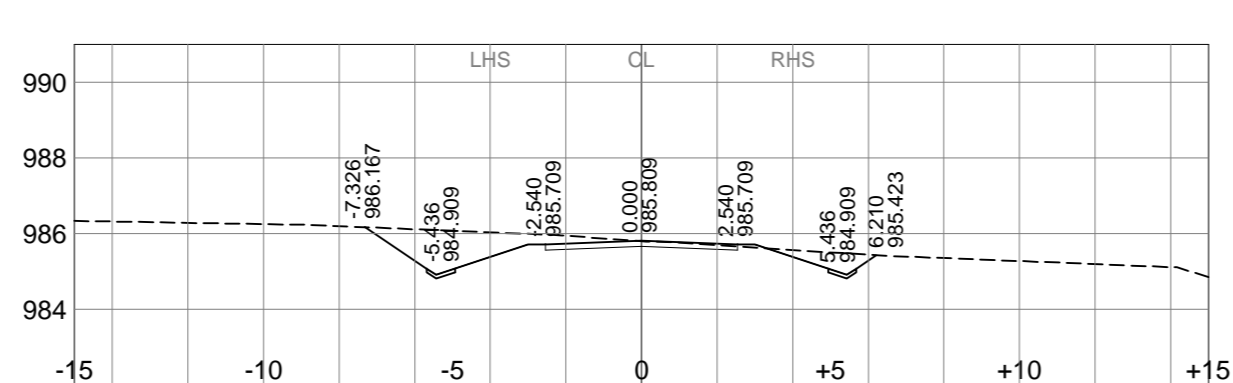
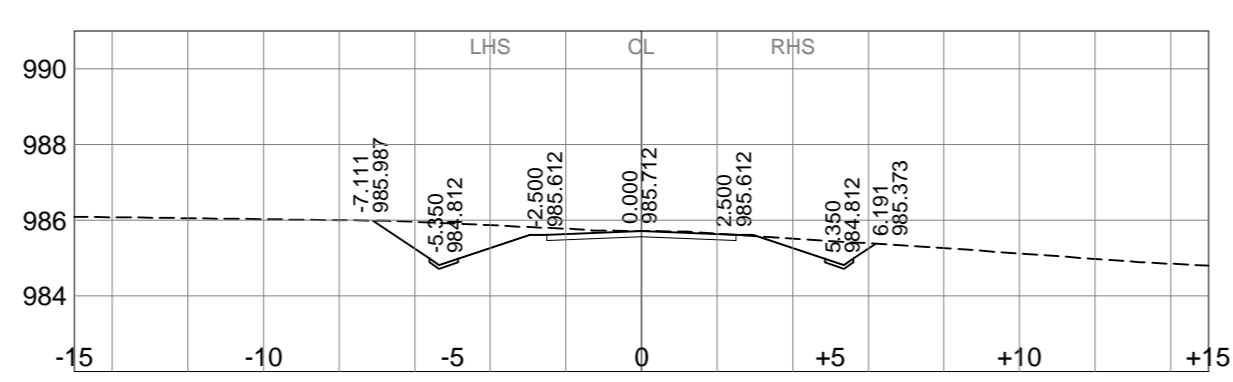
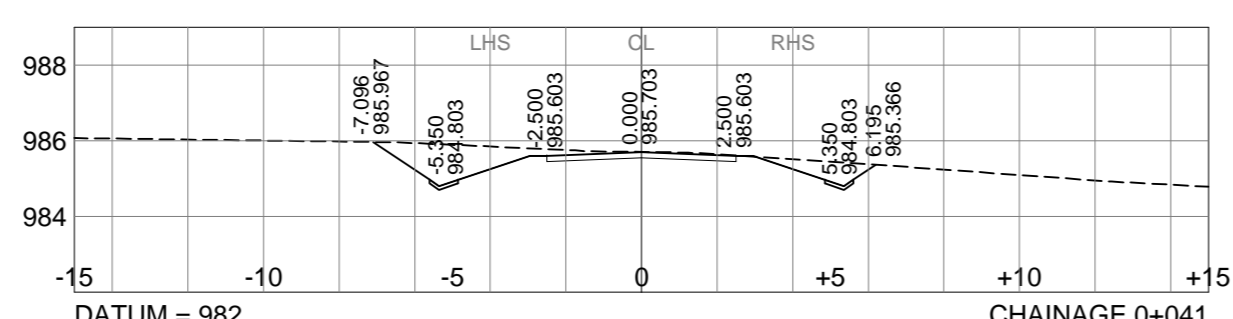
KEY PLAN
Natural Ground Line - - - - -
Finished Road Level _____

SCALE
Horizontal 1:1000
Vertical 1:100



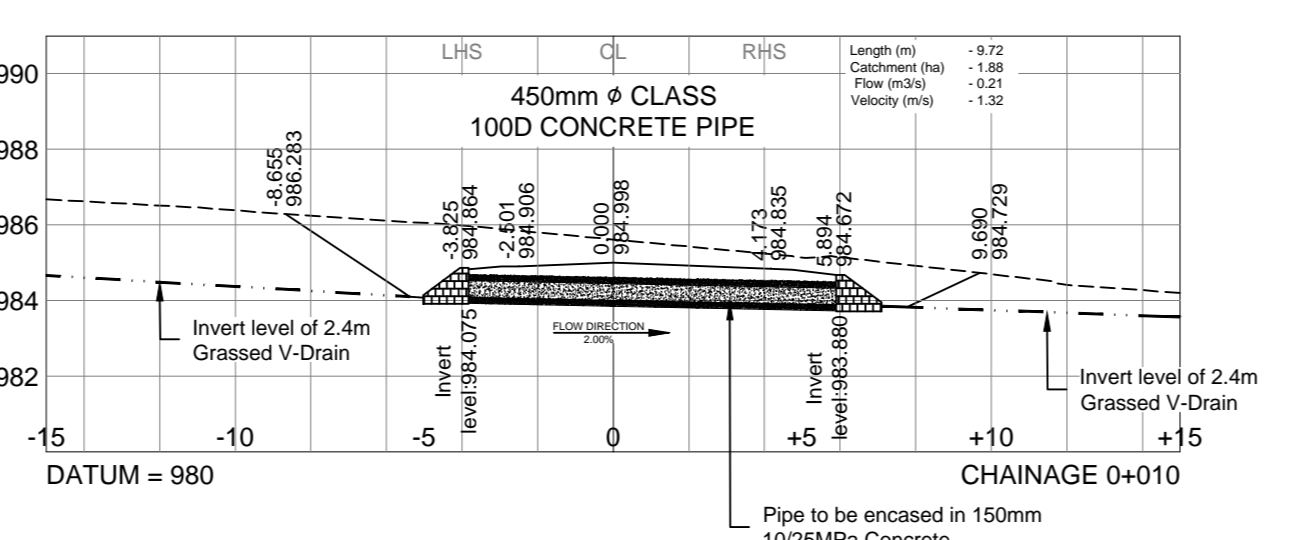
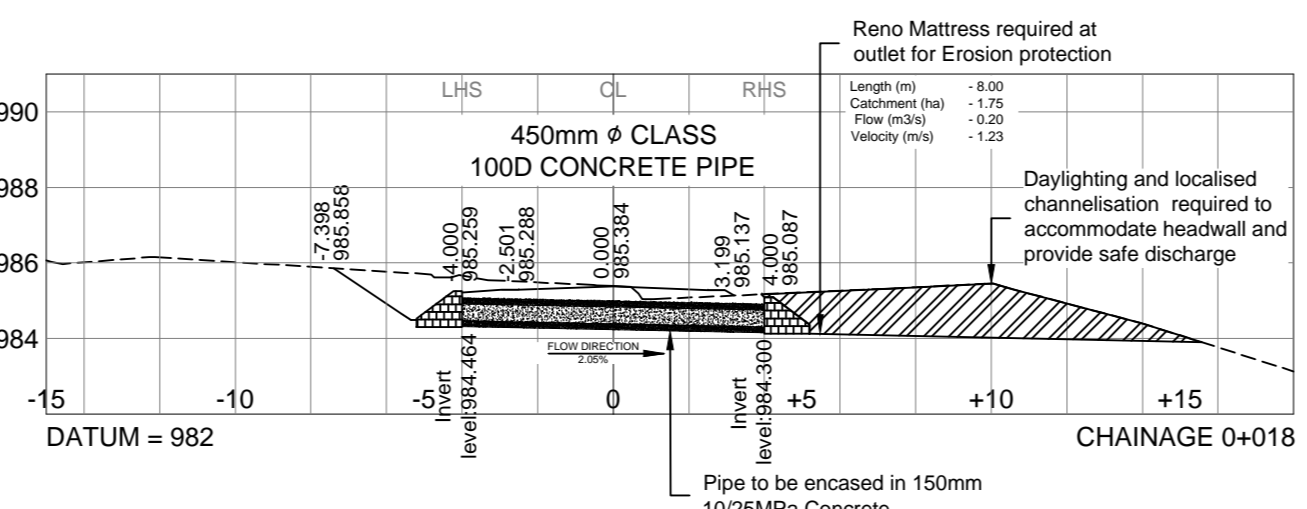
Vertical Alignment	Finished Road Levels	
	Left Edge	Right Edge
Grades	3.185 %	1.012 %
	5.763 %	
Vertical Curves	26.118 VC	885.853
	12.000 VC	
Superelevation	Left edge	Right edge
	-4.00%	
Horizontal Curves	Left edge	Right edge
Staked Kilometre Distance	0+000	0+041

Longitudinal Section for 0+000 to 0+041
Access 1 Intersecting D489 @ Ch 4+159 LHS



Cross Sections for 0+000 to 0+045
Access 1 Intersecting D489 @ Ch 4+159 LHS

Scale
Horizontal 1:200
Vertical 1:200



Pipe Cross Sections for
Access 1 Intersecting D489 @ Ch 4+159 LHS

Scale
Horizontal 1:200
Vertical 1:200

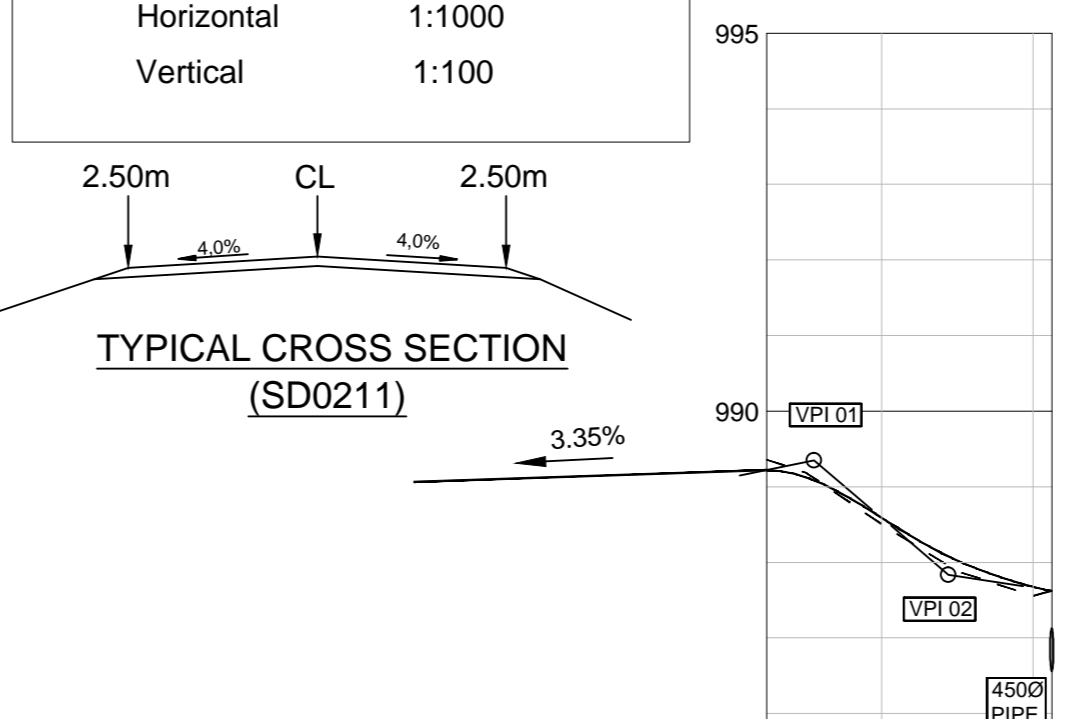
NOTE:
Schedule including Surfacing Type and Chainages.

Chainage (km)	Surfacing Type
0.000 - 0.042	150mm Gravel Wearing Course to TRH 20

PAVEMENT DESIGN
150mm Gravel Wearing Course to TRH 20

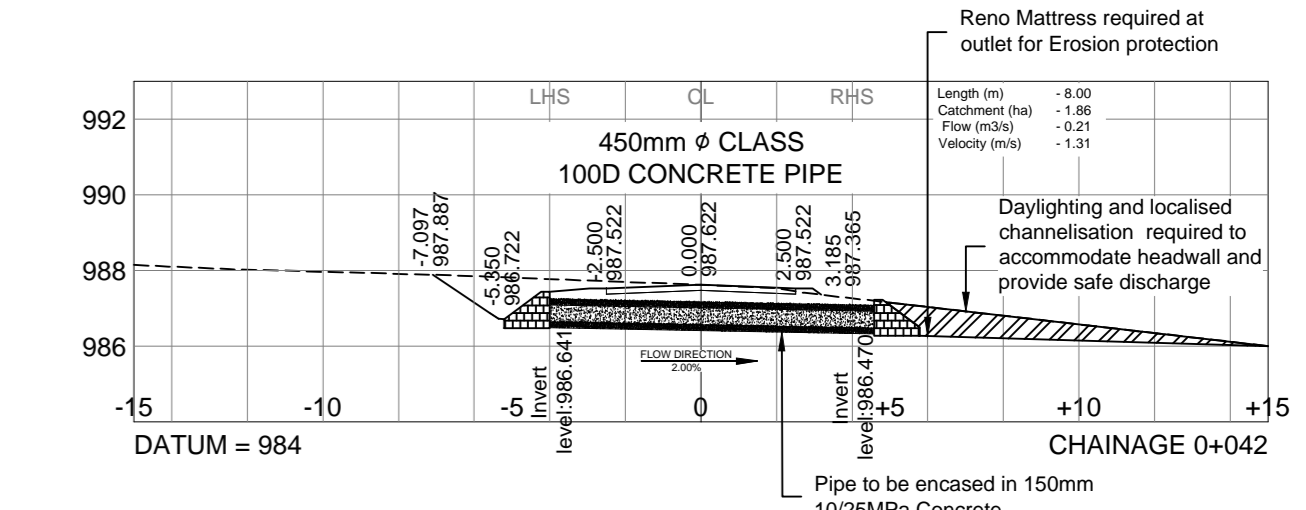
KEY PLAN
Natural Ground Line - - - - -
Finished Road Level _____

SCALE
Horizontal 1:1000
Vertical 1:100



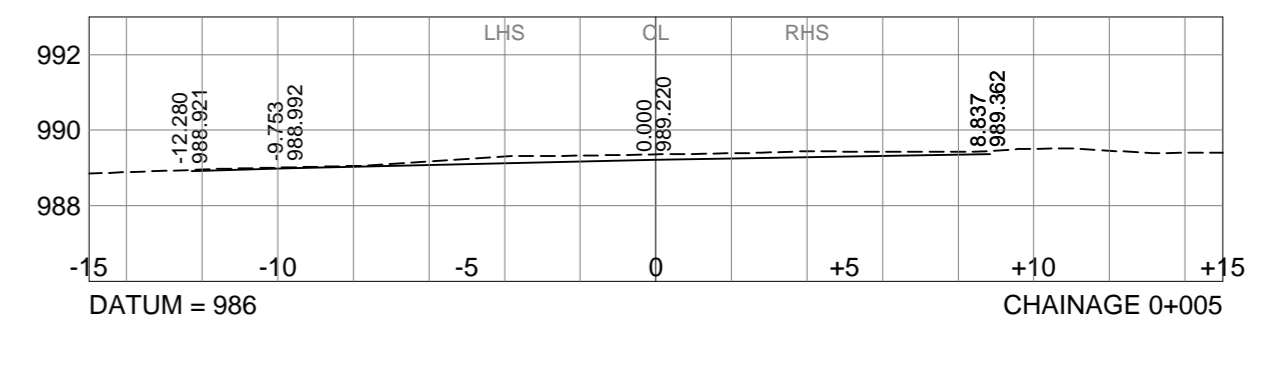
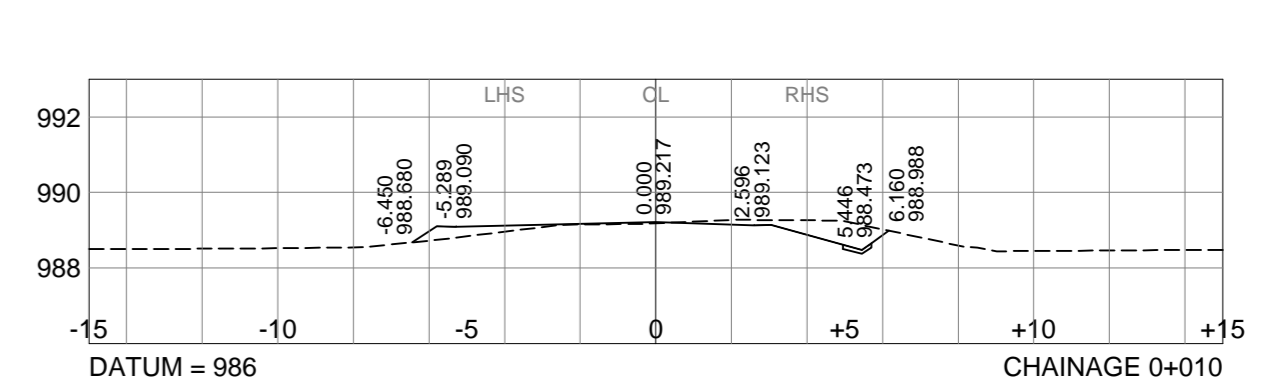
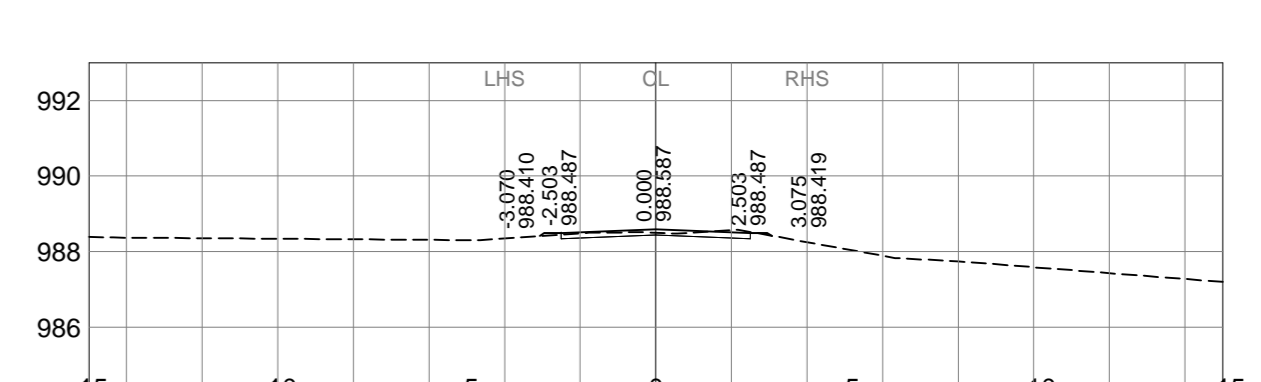
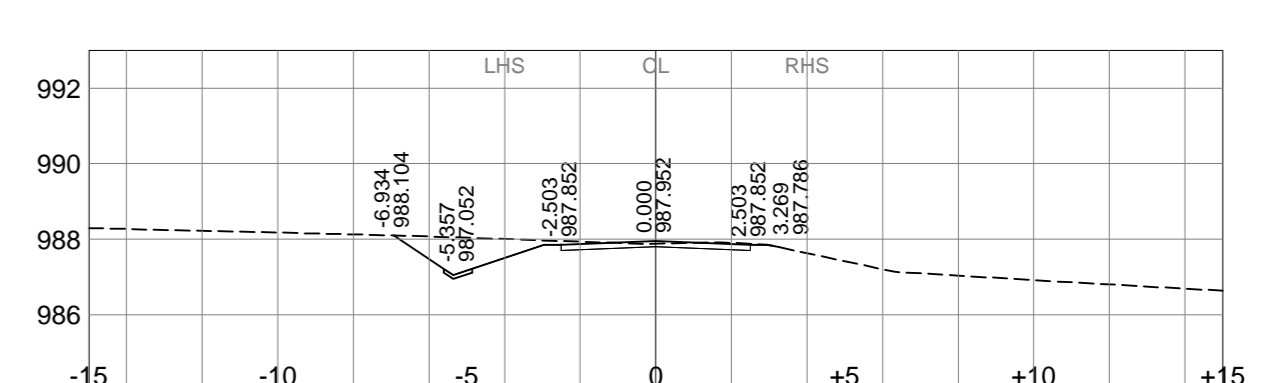
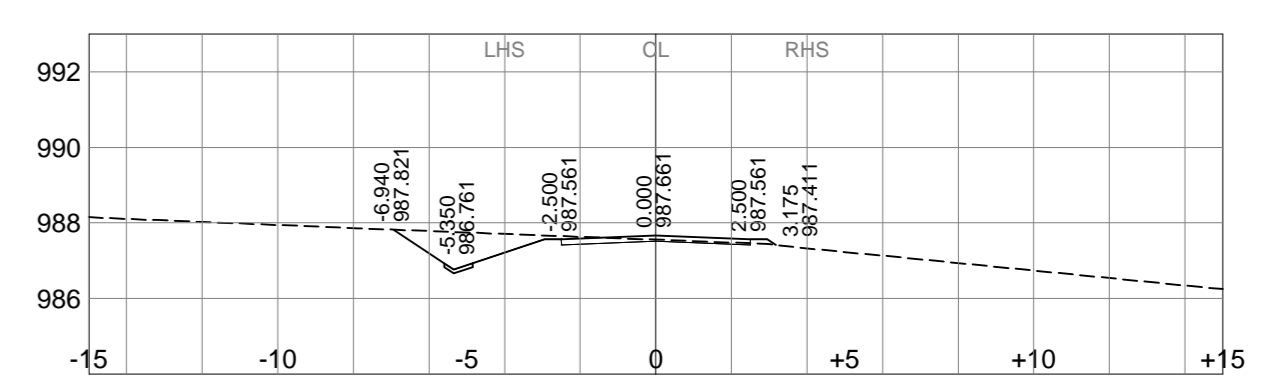
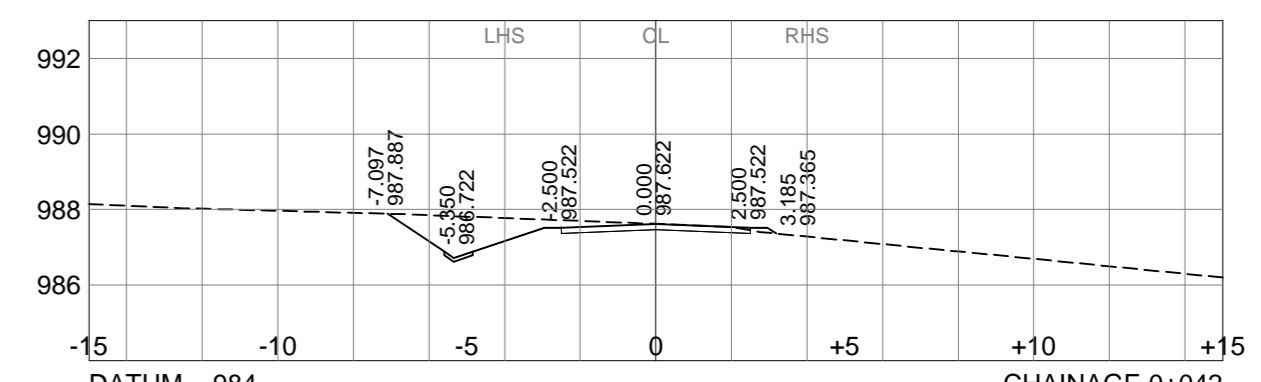
Vertical Alignment	Finished Road Levels	
	Left Edge 2.50m Left of Centerline	Right Edge 2.50m Right of Centerline
Grades	2.013 %	-1.568 %
	8.486 %	
Vertical Curves	28.825 VC	987.836
	12.000 VC	
Superelevation	Left edge	Right edge
		-4.00%
Horizontal Curves	Left edge	Right edge
Staked Kilometre Distance	0+000	0+042

Longitudinal Section for 0+000 to 0+042
Access 2 Intersecting D489 @ Ch 4+159 LHS



Pipe Cross Sections for
Access 2 Intersecting D489 @ Ch 4+159 LHS

Scale
Horizontal 1:200
Vertical 1:200



Cross Sections for 0+000 to 0+045
Access 2 Intersecting D489 @ Ch 4+159 LHS

Scale
Horizontal 1:200
Vertical 1:200

Symbol	Date	Description	Checked	Signed
AMENDMENTS				

AS BUILT	
Supervising Engineer	Date
Supervising Authority	

Continued from:-	C47153	Designed by:-	Y.NANKHOOD
Continued on:-		Checked by:-	P.NANKHOOD (Pr.Eng : 910350)
Design Plan No:-	C47151	Drawn by:-	K.RAMSUROOP
Long Section No:-	C47152	Checked by:-	P.NANKHOOD (Pr.Eng : 910350)
Cross Section No:-	C47153 - C47154	Date of Approval:-	11 APRIL 2022



PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

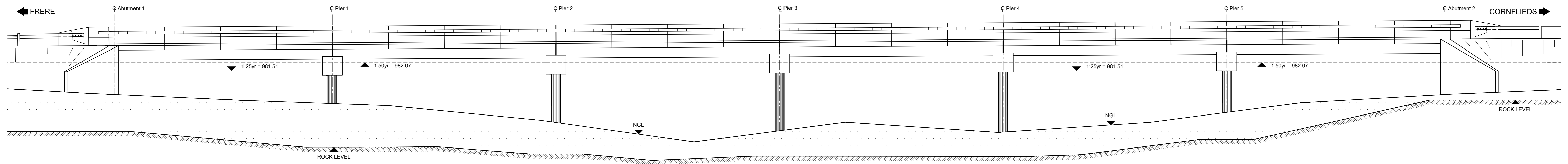
NANKHOOD
Consulting Engineers
www.nankhoo.co.za

Transportation Engineering : Chief Engineer
Head: Transport

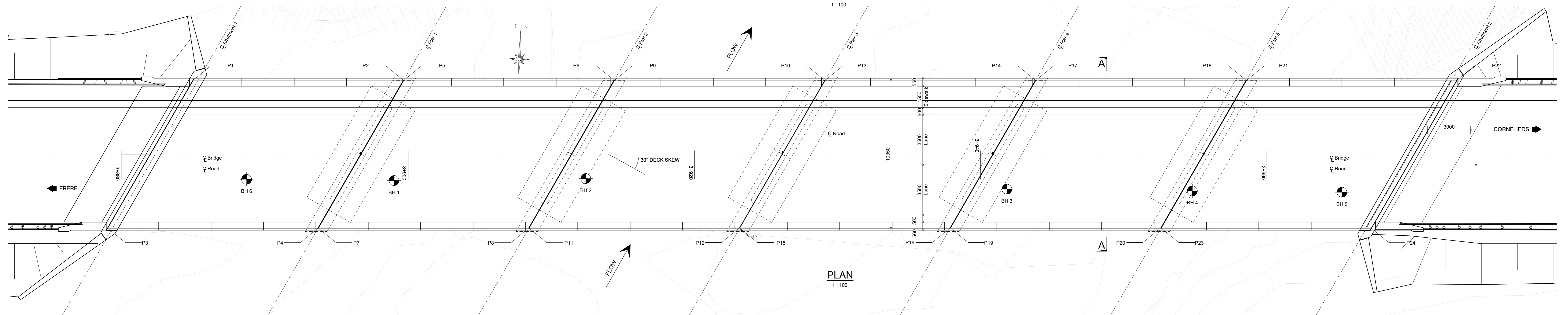
DISTRICT ROAD D489 : GRENFORD - CORNFIELDS
BLOUKRANS (RAMA) RIVER BRIDGE
PORTION
DISTRICT ROAD 489 BRIDGE APPROACHES
(Km 3.612 to Km 4.291)
ACCESS LONGITUDINAL SECTION & CROSS SECTIONS

FOR TENDER PURPOSES	
Staked km distance	Sheet 01 of 01
Scale AS SHOWN	Plan No.:- C47154

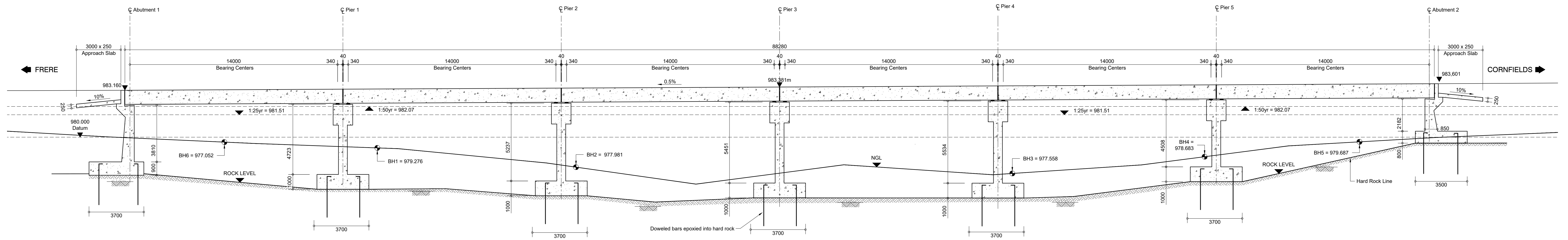
C47154



ELEVATION
1:100



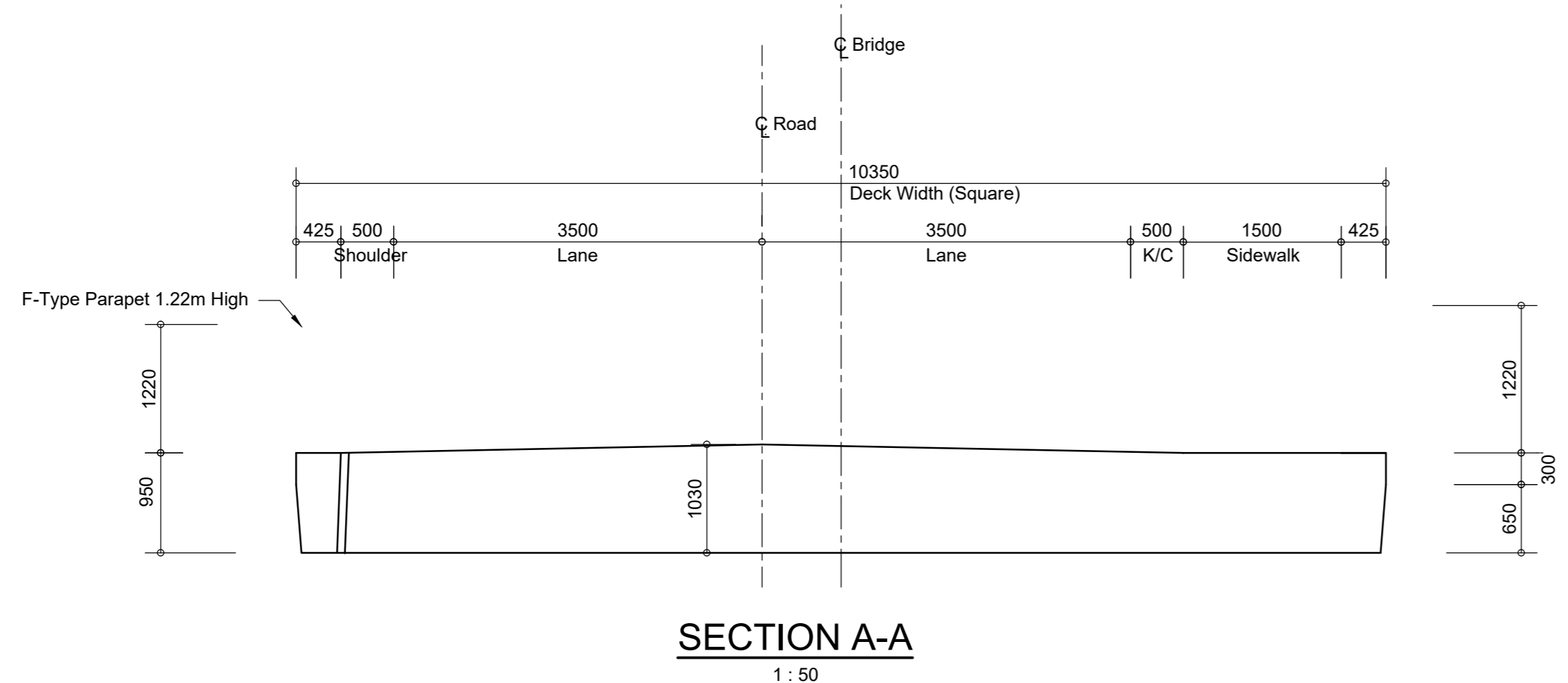
PLAN
1:100



LONGITUDINAL SECTION
1:100

CONTROL POINTS			
POINTS	X	Y	Z
BPA	3193749.057	-79990.044	980.813
BPB	3193690.947	-80005.277	982.682
BPC	3193692.448	-80107.884	982.861
BPD	3193751.059	-80083.465	988.280

BOREHOLE		
WGS84 Lo 31° CO-ORDINATES		
Point	Y	X
BH 1	-80018.592	3193717.927
BH 2	-80031.954	3193717.099
BH 3	-80061.381	3193716.338
BH 4	-80074.332	3193715.790
BH 5	-80084.768	3193715.353
BH 6	-80008.295	3193718.372
EXP1	-80087.587	3193724.009



SECTION A-A
1:50

T (years)	Q (SDF) (m³/s)	HW (m)	Flood Elevation (m)	Maximum Velocity (m/s)	Freeboard (m)	Exit Conditions	
2	51.107	2.72	978.72	0.45	3.35	Rock Bed	
5	153.96	4.08	980.06	0.59	2.45		
10	247.11	4.80	980.80	0.83	1.92		
20	351.72	5.39	981.39	1.15	1.42		
25	377.79	5.51	981.51	1.16	1.27		
50	508.15	6.07	982.07	1.38	1.703		
100	640.28	6.57	982.57	1.71	0.843		
RMF = 4392 m³/s (100A ^{0.05}) K = 5.6							

DECK SETTING OUT		
WGS84 Lo 31° CO-ORDINATES		
Point	Y	X
P1	-80004.221	3193711.635
P2	-80018.882	3193710.882
P3	-79998.784	3193722.278
P4	-80013.444	3193721.525
P5	-80018.922	3193710.880
P6	-80033.582	3193710.128
P7	-80013.484	3193721.523
P8	-80028.145	3193720.771
P9	-80033.622	3193710.126
P10	-80048.293	3193709.373
P11	-80028.185	3193720.769
P12	-80042.856	3193720.015
P13	-80048.313	3193709.372
P14	-80062.984	3193708.619
P15	-80042.876	3193720.014
P16	-80057.546	3193719.281
P17	-80063.024	3193708.617
P18	-80077.684	3193707.864
P19	-80057.586	3193719.259
P20	-80072.247	3193718.507
P21	-80077.724	3193707.862
P22	-80062.385	3193707.109
P23	-80072.287	3193718.505
P24	-80086.948	3193717.752

Rev	Date	Description / Description	Checked	Signed
AMENDMENTS				

AS BUILT	
Supervising Engineer	Date
Supervising Authority	

Continued from:-	Designed by:- Y. JEAWON Pr Eng (202101810)
Continued on:-	Checked by:- P. NANKHOO Pr Eng (910350)
Design Plan No:-	Drawn by:- A. GUNAS
Long Section No:-	Checked by:- P. NANKHOO Pr Eng (910350)
Cross Section No:-	File Reference - D489 / 6 / 2590 / 4

Designed by: **NANKHOO Consulting Engineers**
www.nankhoo.co.za

Province of KwaZulu-Natal
Department of Transport

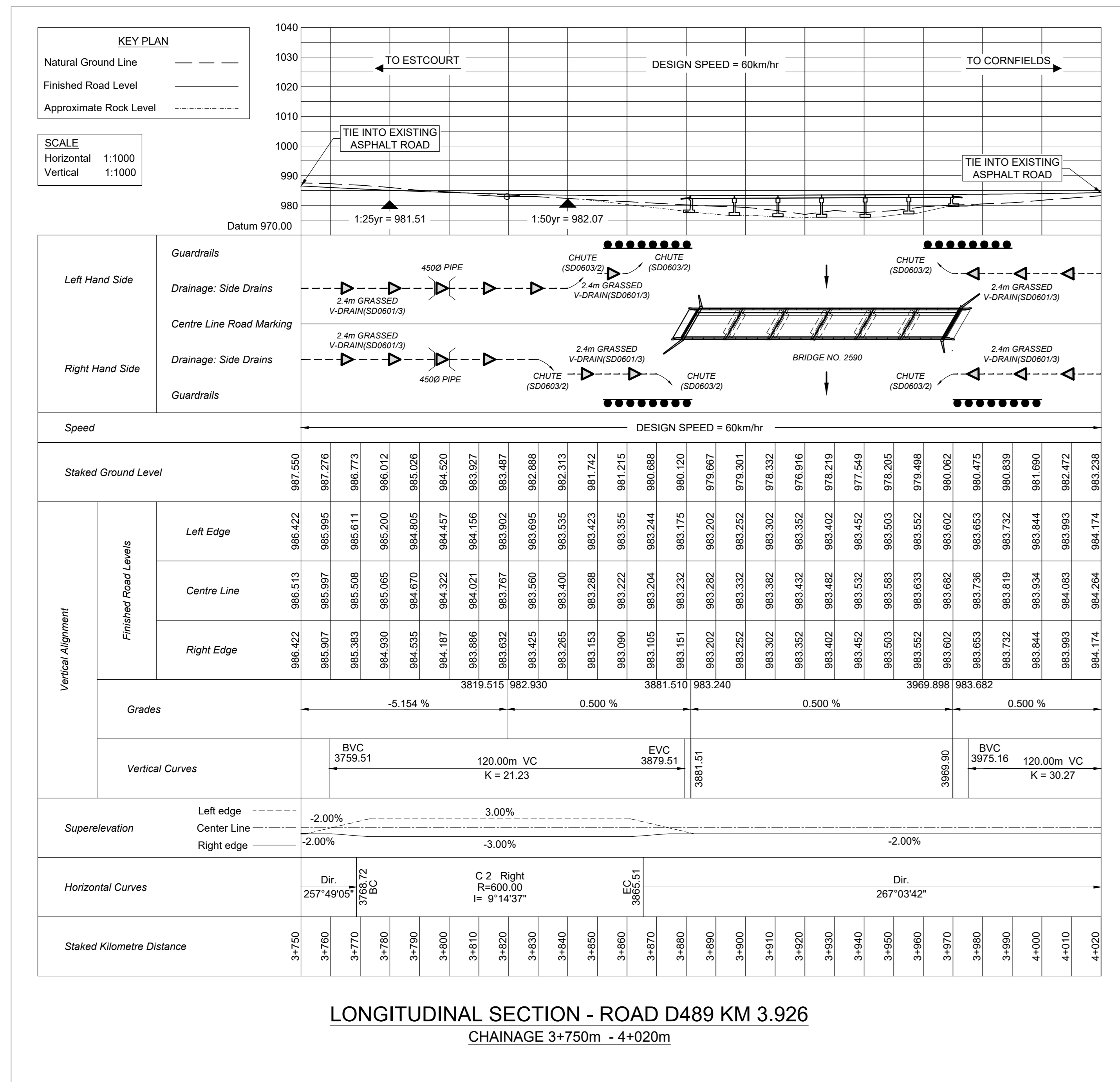
Chief Engineer: Structures
Head: Transport

DISTRICT ROAD D489 FRERE - CORNFLIEDS

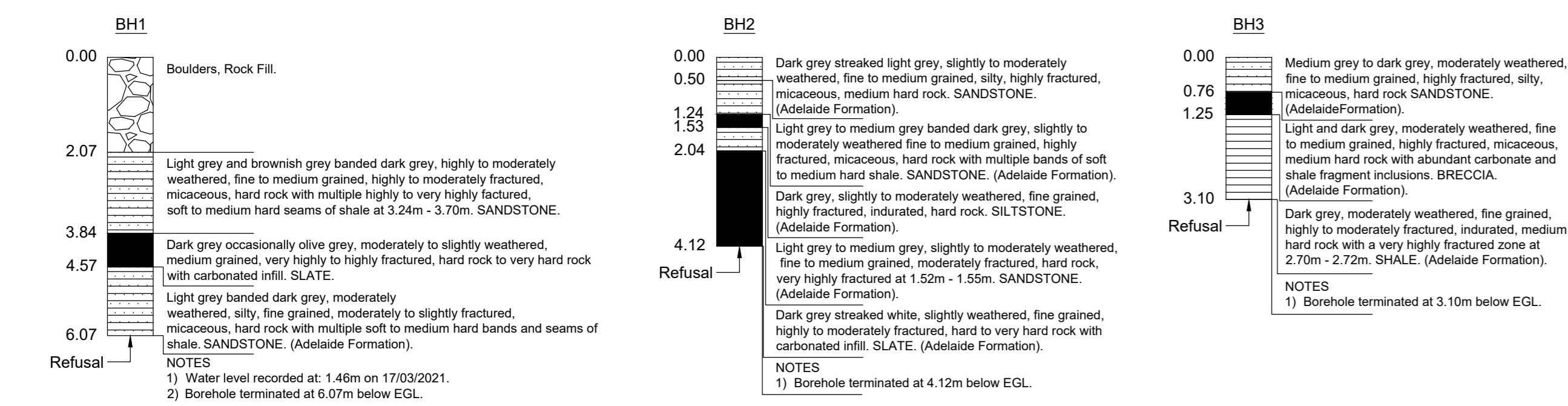
BLOUKRANS (RAMA) RIVER BRIDGE 2590

GENERAL ARRANGEMENT A

FOR TENDER PURPOSES	
Staked km distance	Sheet -> 01
km 3.926	of -> 12
28 85716 S	Plan No. ->
29.82042 E	As shown
Scale	2590 / 01



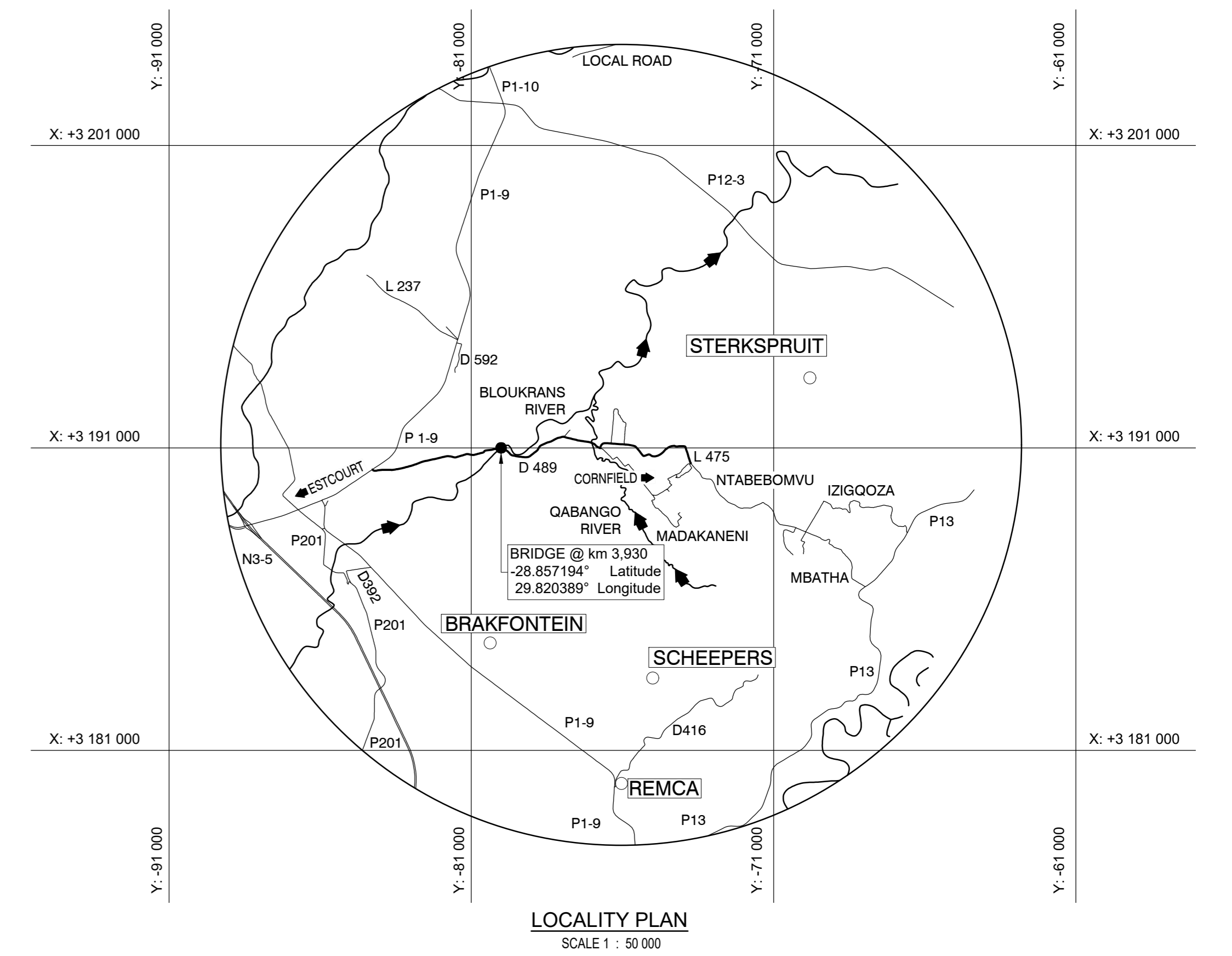
LONGITUDINAL SECTION - ROAD D489 KM 3.926
 CHAINAGE 3+750m - 4+020m



BOREHOLE PROFILES
 SCALE 1:100

DRAWING INDEX

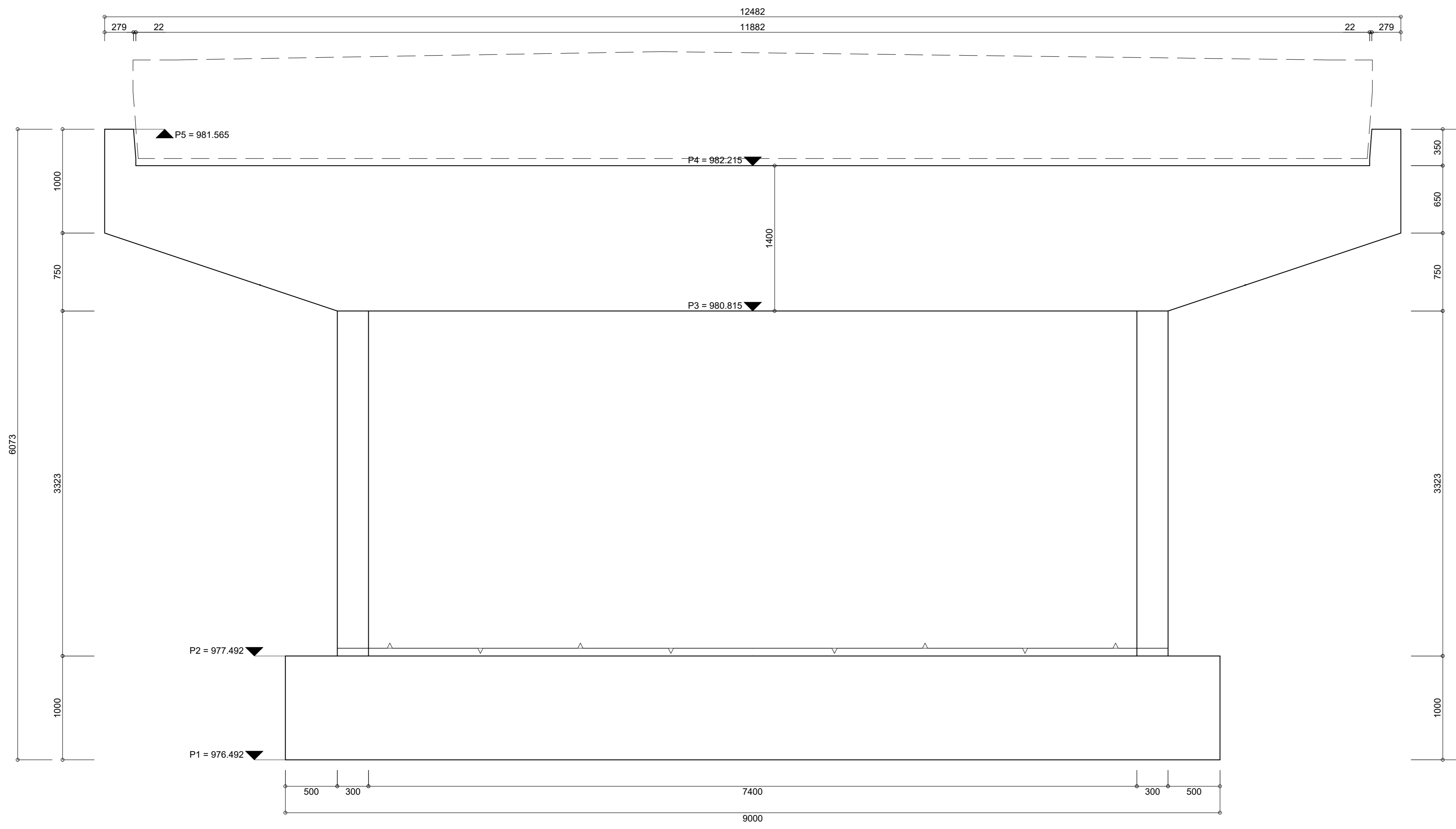
DRAWING No.	TITLE OF DRAWING
2590 /01	GENERAL ARRANGEMENT A
2590 /02	GENERAL ARRANGEMENT B
2590 /03	LEFT ABUTMENT CONCRETE DETAILS
2590 /04	PIER 1 CONCRETE DETAILS
2590 /05	PIER 2 CONCRETE DETAILS
2590 /06	PIER 3 CONCRETE DETAILS
2590 /07	PIER 4 CONCRETE DETAILS
2590 /08	PIER 5 CONCRETE DETAILS
2590 /09	RIGHT ABUTMENT CONCRETE DETAILS
2590 /10	DECK CONCRETE DETAILS
2590 /11	F-TYPE BARRIERS
2590 /12	END BLOCK



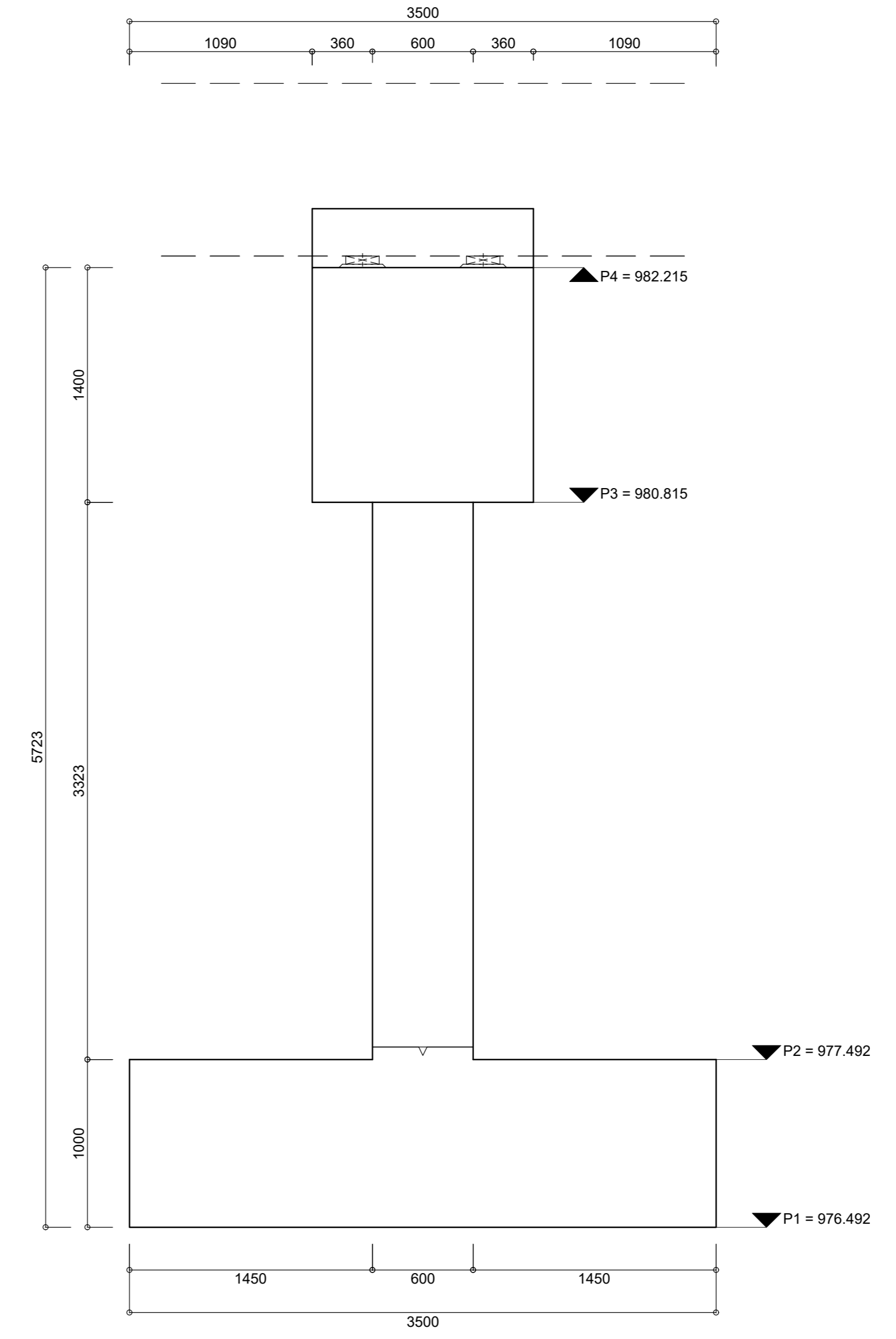
- NOTES:**
- DESCRIPTION OF STRUCTURE
 - DECK: 14.0m (SKEW) CONTINUOUS FOUR SPAN REINFORCED CONCRETE SLAB.
 - ABUTMENTS: CLOSED TYPE, REINFORCED CONCRETE VERTICAL CANTILEVER WALLS.
 - FOUNDATIONS: ABUTMENTS SUPPORTED ON SANDSTONE BEDROCK WITH A SAFE BEARING CAPACITY 500 kPa
 - ANCILLARY COMPONENTS: BEARING ELASTOMETRIC PADS, ROADWAY JOINTS: THORACANT, PARAPETS: IN SITU CONCRETE, F - TYPE.
- DESIGN CRITERIA**
- THE BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH TMH 7 PARTS 1 & 2 (AS AMENDED 1989)
 - LOADING LIVE LOADS: NA, NC24.
 - DEAD LOADS: REINFORCED CONCRETE - 25KN/m³
 ASPHALT (Min 40mm) - 22KN/m²
 COMPACTED FILL - 20KN/m³
 EARTH PRESSURE: IN TERM OF TMH7 PART 2 CL 2.4.2 TYPE 2 SOIL ASSUMED
 PARAPETS: IN TERM OF TMH7 PART 2 D 3.5.1.2(b)(iii)
- DESIGN METHOD AND PARAMETERS: CLASS 1 BALUSTRADES: 100KN IMPACT FORCE**
- DESIGN METHOD: LIMIT STATE DESIGN TO TMH 1.2 AND 3 (AS AMENDED 1988)
 DECK ANALYSIS: GRILLAGE
 - YOUNG MODULIUS: CONCRETE : 30 GPa
 STEEL : 200 GPa
 - COEFFICIENT OF THERMAL EXPANSION 12 x 10⁻⁶ /°C
 - SHRINKAGE FACTOR : 250 x 10⁻⁶ /Pa⁶
 - TEMPERATURE AND STRESSES : RANGE +- 20 C⁰
 - ALLOWABLE BEARING PRESSURE : LEFT ABUTMENT (250 kPa)
 RIGHT ABUTMENT (250 kPa)
 ACTUAL BEARING PRESSURE : LEFT ABUTMENT (233.8 kPa)
 RIGHT ABUTMENT (233.8 kPa)
- 4. MATERIALS**
- REINFORCING STEEL OF SABS 920
 CHARACTERISTIC STRENGTH
 MILD STEEL : 250 MPa
 HIGH YIELD STEEL : 450 MPa
 - CONCRETE CLASS CHARACTERISTIC STRENGTH
 MASS CONCRETE 15/19 MPa/m³ 15 MPa
 FOUNDATION 30/19 MPa/m³ 30 MPa
 ABUTMENTS 30/19 MPa/m³ 30 MPa
 DECK 40/19 MPa/m³ 40 MPa
- 5. CONCRETE COVER AND MATERIALS**
- MINIMUM COVER TO REINFORCEMENT
 BASES : 50mm
 ABUTMENTS, WINGWALLS & DECK SLAB : 40mm
 PARAPETS : 35mm
 - ALL SHARP EDGES TO BE CHAMFERED 20mm x 20mm U.O.S.
- 5.3 FORMED CONCRETE FINISHES**
 CLASS F1: CONCEALED SURFACES
 CLASS F2: EXPOSED SURFACES
- 5.4 UNIFORMED CONCRETE FINISHES**
 CLASS U1: BASE
 CLASS U2: TOP OF WALLS AND BRIDGE BEARING AREAS
 CLASS U3: TOP OF PARAPETS
- 6. CONSTRUCTION SAFETY**
- THE CONTRACTOR SHALL OBSERVE ALL SAFETY REQUIREMENTS OF THE CONSTRUCTION REGULATIONS OF THE OHS ACT NO. 85 OF 1993
 - SPECIAL ATTENTION SHALL BE PAID TO:
 - LATERAL SUPPORT OF EXCAVATION EXCEEDING 1.5m IN DEPTH
 - PROTECTION AROUND OPEN EXCAVATIONS
 - FULL PROTECTION FROM ALL COMPONENTS DURING ERECTION AND CONCRETING
 - THE RIVER NAME (BLOUKRANS) IS TO BE REBATED 10mm DEEP IN 100mm CAPITAL LETTERING WITH THE YEAR OF CONSTRUCTION IN 75mm NUMBERING, CENTRALLY ORIENTATED BELOW THE NAME. THE NAME AND DATE IS TO BE HORIZONTALLY PLACED, CENTRALLY ORIENTATED ON THE LEFT HAND APPROACH END BLOCK, ON EACH END OF THE F-TYPE BALUSTRADE. ABOVE THE GUARDRAIL RECESS LEVEL. THE BRIDGE NUMBER (2590) IS TO BE REBATED 10mm IN 75mm NUMBERING INTO THE TOP OF THE SLOPING HORIZONTAL SURFACE. ALL NUMBERS AND LETTERING IS TO BE CAREFULLY PAINTED WITH TWO COATS OF BLACK ALKALI RESISTANT PAINT.

FOR TENDER PURPOSES

AS BUILT		Continued from:	Designed by: Y. JEAWON Pr Eng (202101810)			PROVINCE OF KWAZULU-NATAL DEPARTMENT OF TRANSPORT	Chief Engineer: Structures Head: Transport	DISTRICT ROAD D489 FRERE - CORNFLEIDS	Staked km distance: km 3.926	Sheet: 02
Supervising Engineer: _____ Date: _____		Continued on:	Checked by: P. NANKHOO Pr Eng (910350)					Scale: 28 85716 S 29.82042 E	Plan No.: 12	
Supervising Authority: _____		Design Plan No.:	Drawn by: A. GUNAS	As shown		BLOUKRANS (RAMA) RIVER BRIDGE 2590		GENERAL ARRANGEMENT B		2590 /02
Rev: _____ Date: _____ Description / Description: _____ Checked: _____ Signed: _____		Long Section No.:	Checked by: P. NANKHOO Pr Eng (910350)	File Reference: D489 / 6 / 2590 / 4		Signed: _____ Date: _____				

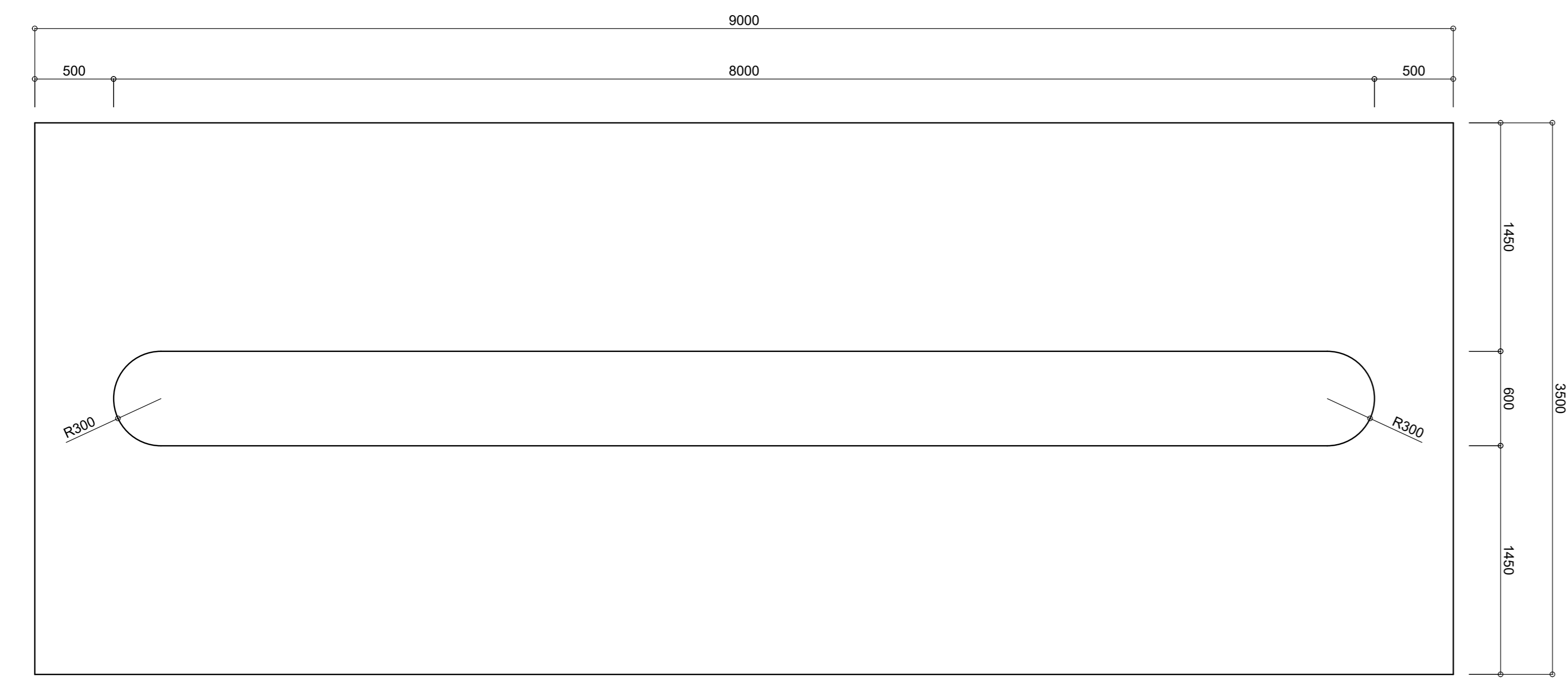


ELEVATION
1:25

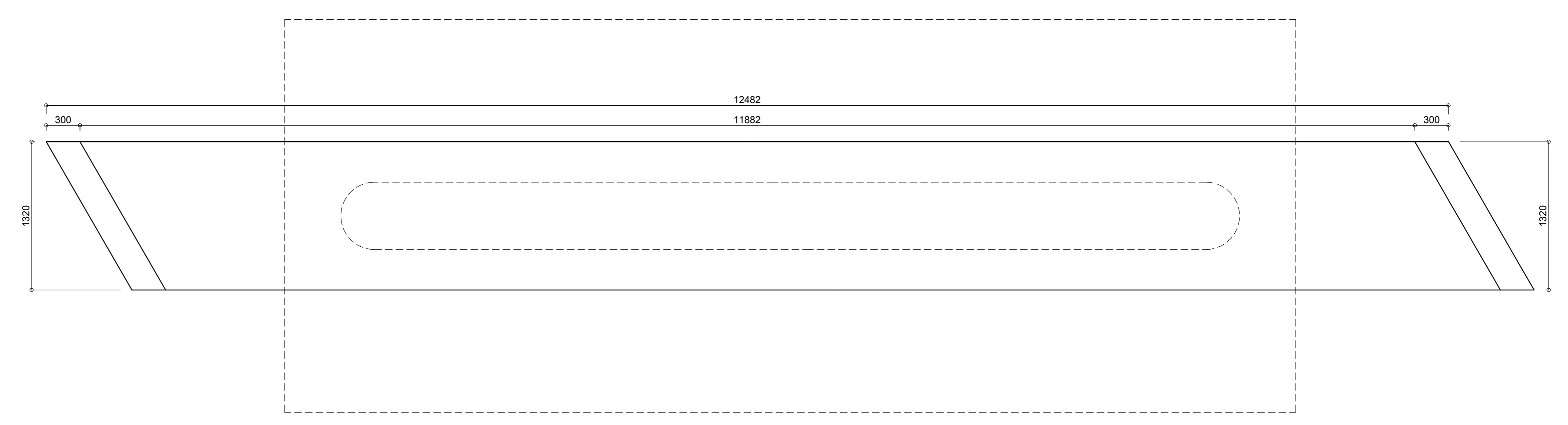


SECTION A-A
1:25

PIER LEVELS					
Point	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5
P1	976.492	976.051	975.911	975.901	977.001
P2	977.492	977.051	976.911	976.901	978.001
P3	980.815	980.888	980.962	981.035	981.109
P4	982.215	982.288	982.362	982.435	982.509
P5	981.565	982.638	982.712	982.785	982.859



PLAN BASE
1:25



PLAN PIER HEAD
1:25

Rev	Date	Description / Description	Checked	Signed

AS BUILT

Supervising Engineer: _____ Date: _____

Supervising Authority: _____

Continued from: _____

Continued on: _____

Design Plan No: _____

Long Section No: _____

Cross Section No: _____

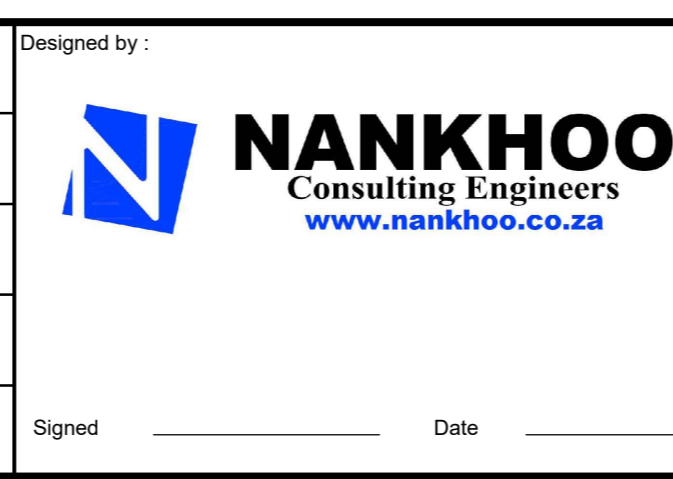
Designed by: Y. JEAWON Pr Eng (202101810)

Checked by: P. NANKHOO Pr Eng (910350)

Drawn by: A. GUNAS

Checked by: P. NANKHOO Pr Eng (910350)

File Reference: D489 / 6 / 2590 / 4



Chief Engineer: Structures _____

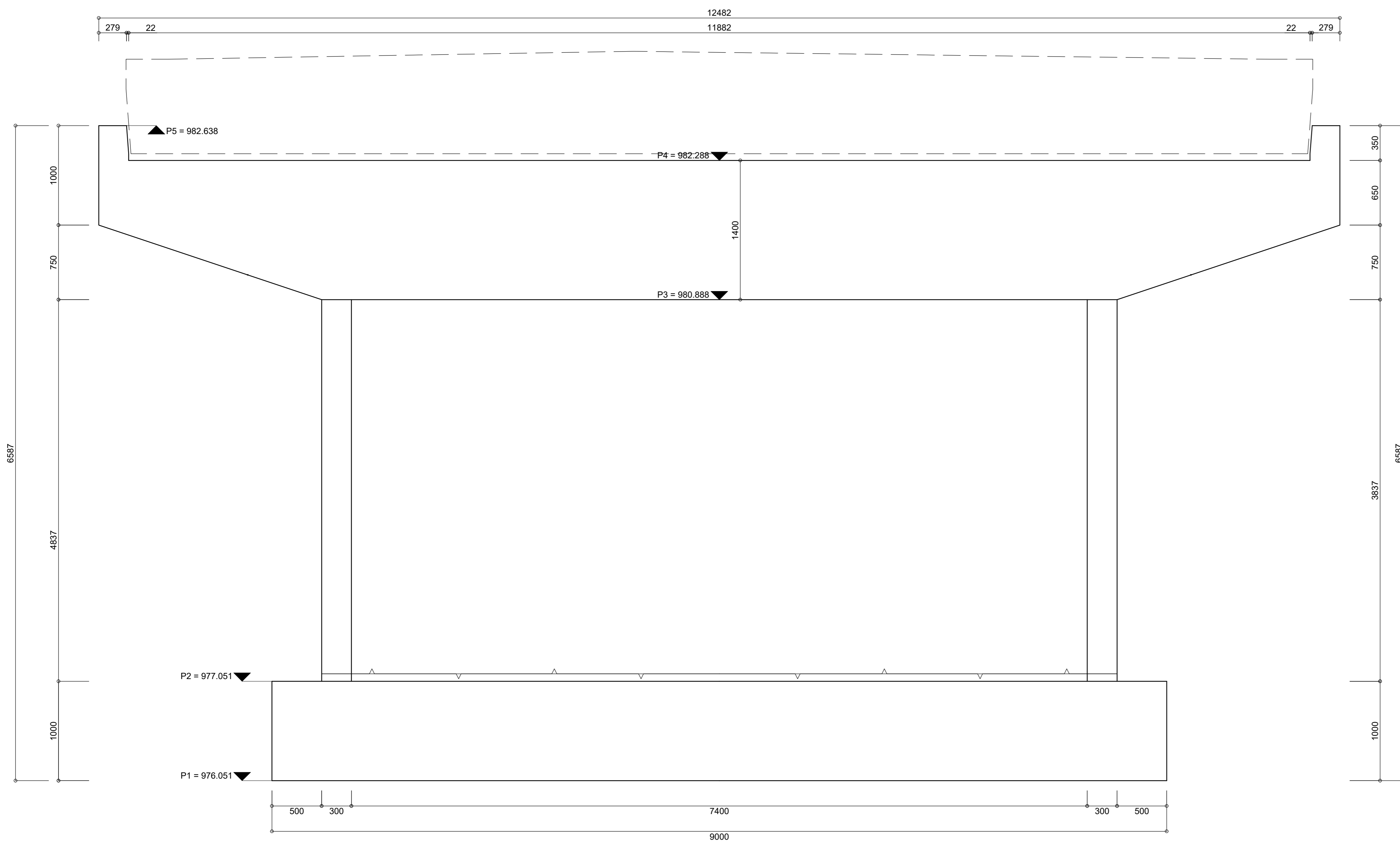
Head: Transport _____

DISTRICT ROAD D489 FRERE - CORNFLIEDS

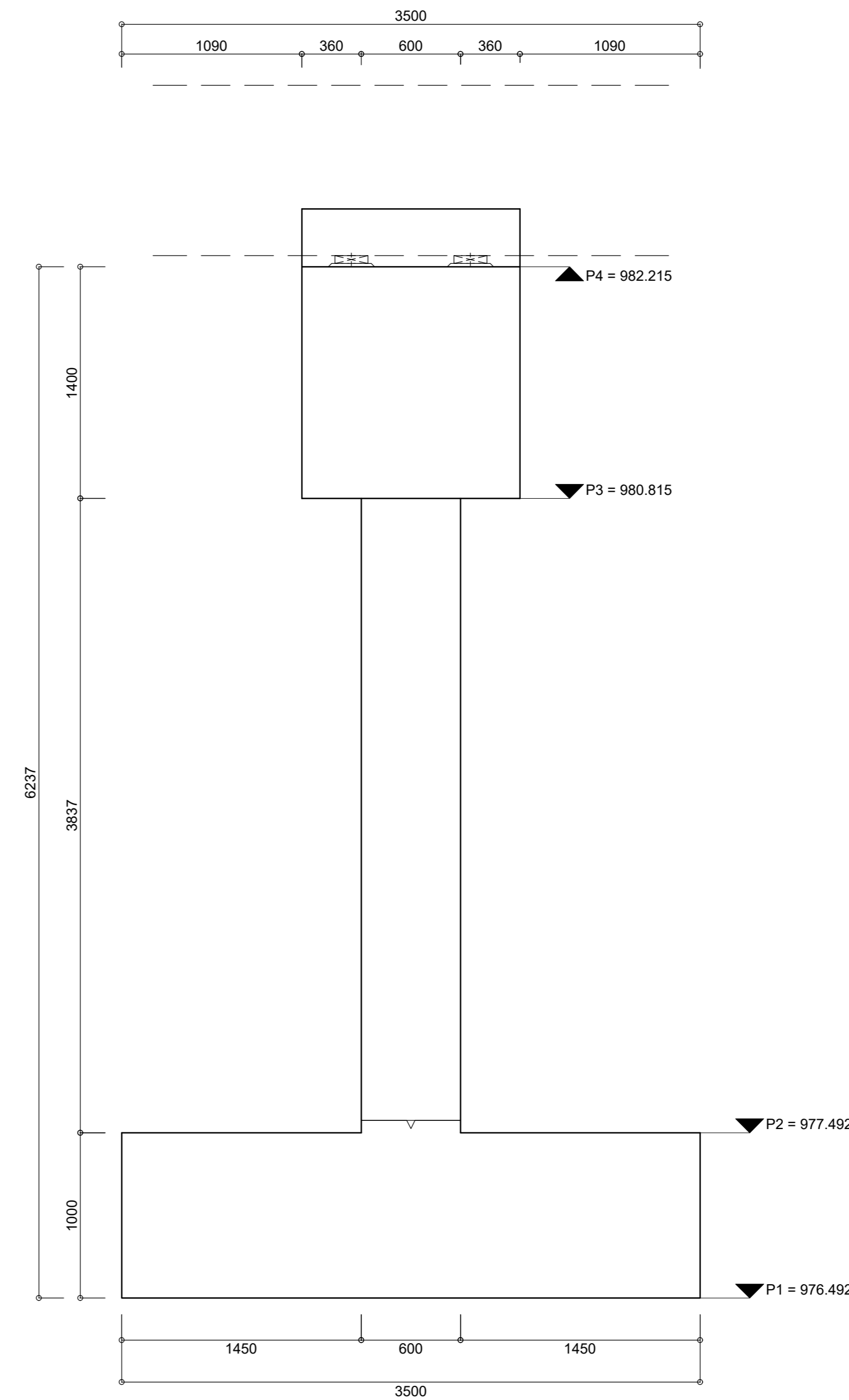
BLOUKRANS (RAMA) RIVER BRIDGE 2590

PIER 1 CONCRETE DETAILS

FOR TENDER PURPOSES			
Staked km distance km 3.926 28 85716 S 29 62042 E	Sheet: 04 of: 12	Scale: As shown	Plan No.: 2590 /04

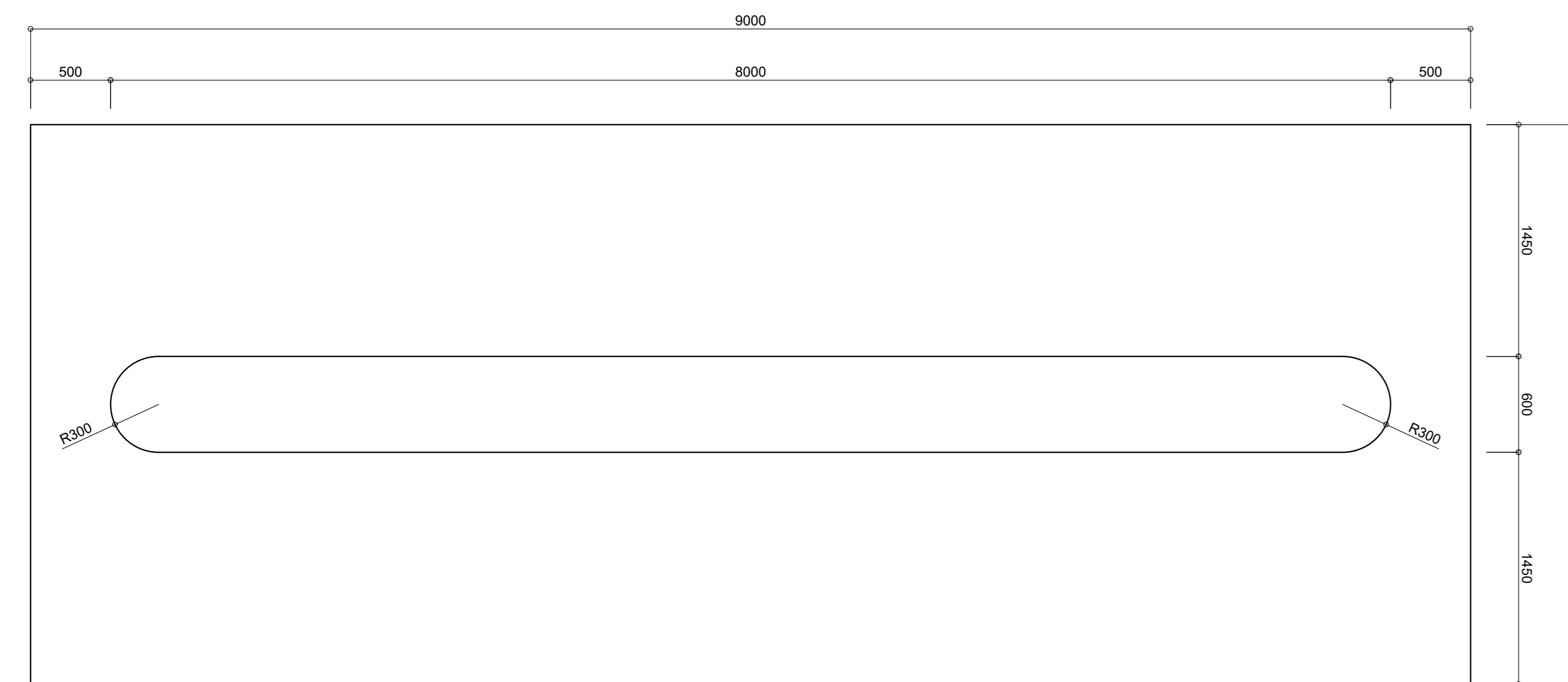


ELEVATION
1:25

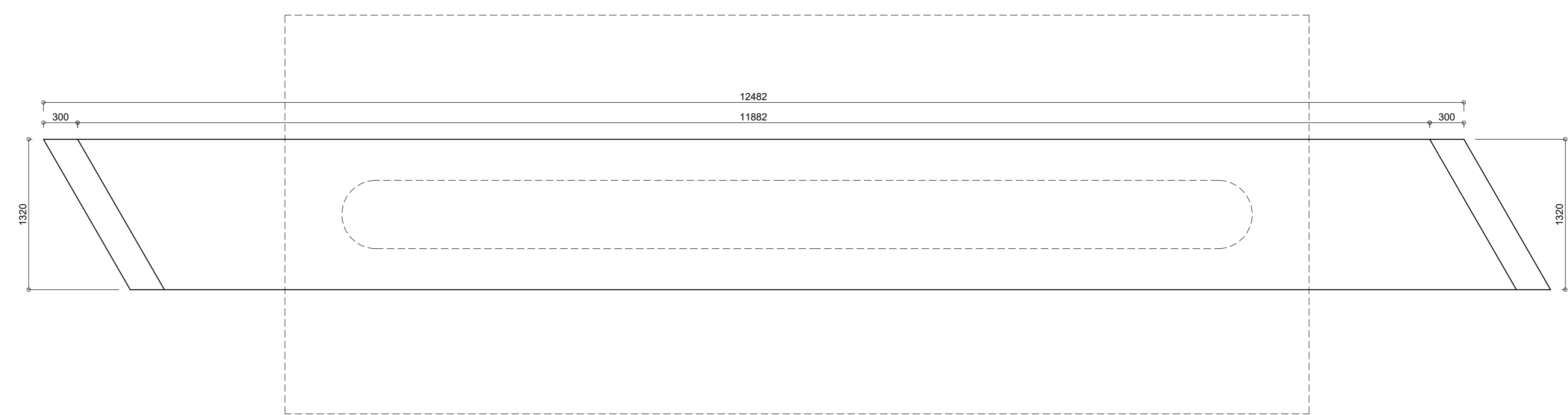


SECTION A-A
1:25

PIER LEVELS					
Point	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5
P1	976.492	976.051	975.911	975.901	977.001
P2	977.492	977.051	976.911	976.901	978.001
P3	980.815	980.888	980.962	981.035	981.109
P4	982.215	982.288	982.362	982.435	982.509
P5	981.565	982.638	982.712	982.785	982.859



PLAN BASE
1:25



PLAN PIER HEAD
1:25

Rev	Date	Description / Description	Checked	Signed
AMENDMENTS				

AS BUILT

Supervising Engineer: _____ Date: _____

Supervising Authority: _____

Continued from: _____

Continued on: _____

Design Plan No.: _____

Long Section No.: _____

Cross Section No.: _____

Designed by: Y. JEAWON Pr Eng (202101810)

Checked by: P. NANKHOO Pr Eng (910350)

Drawn by: A. GUNAS

Checked by: P. NANKHOO Pr Eng (910350)

File Reference: D489 / 6 / 2590 / 4



Chief Engineer: Structures _____

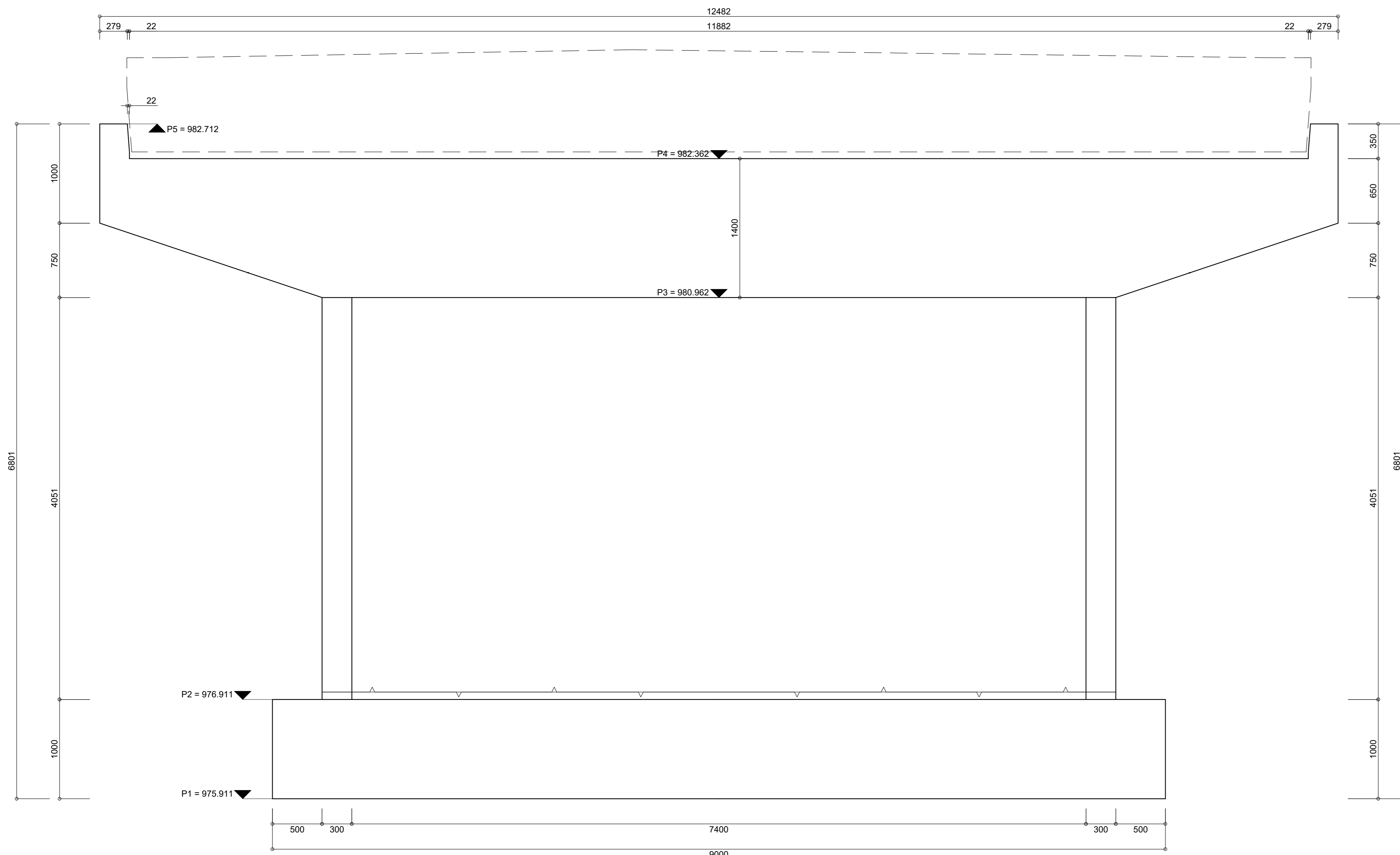
Head: Transport _____

DISTRICT ROAD D489 FRERE - CORNFLIEDS

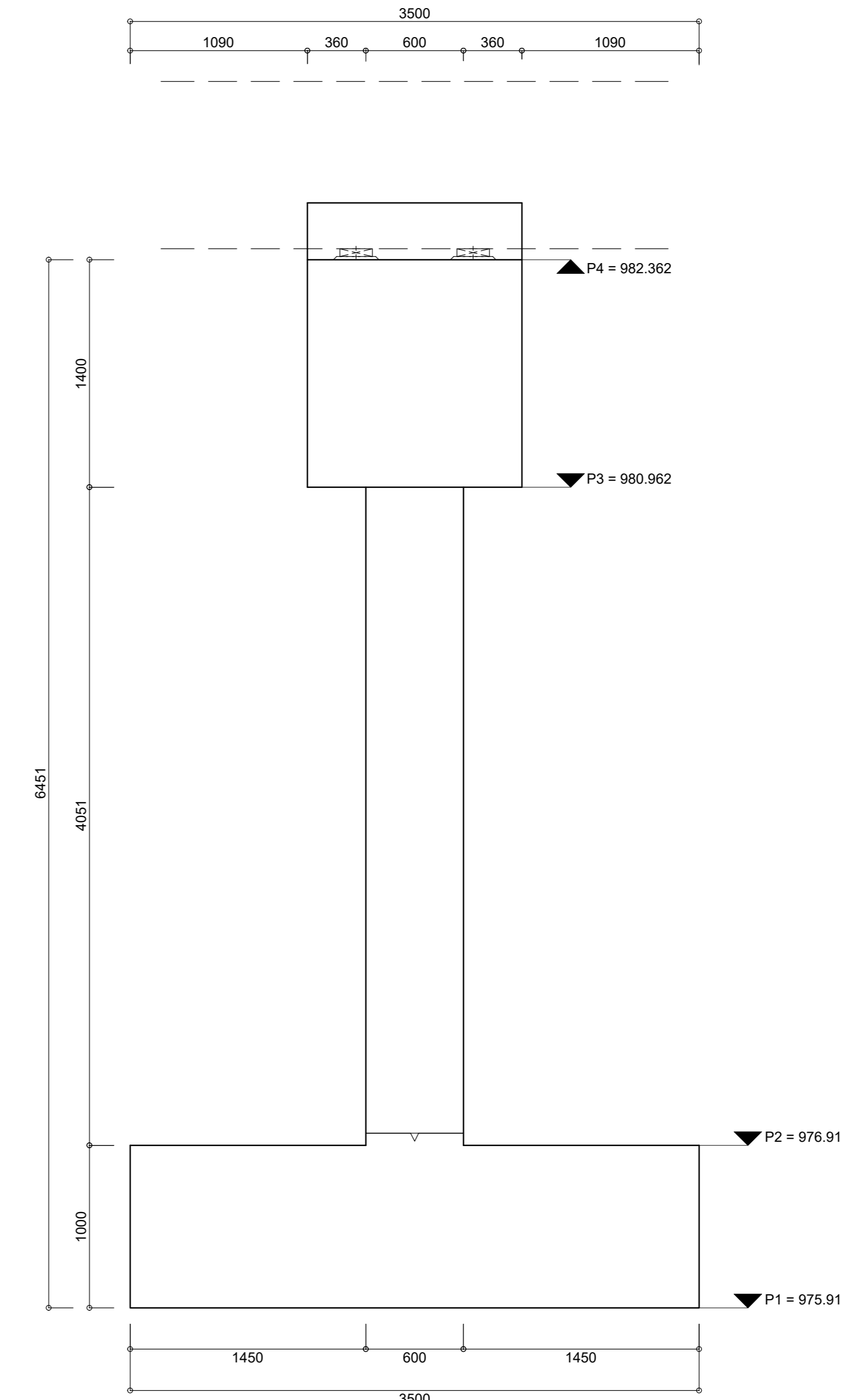
BLOUKRANS (RAMA) RIVER BRIDGE 2590

PIER 2 CONCRETE DETAILS

FOR TENDER PURPOSES			
Staked km distance km 3.926 28 85716 S 29 62042 E	Sheet: 05 of: 12	Scale: As shown	Plan No.: 2590 /05

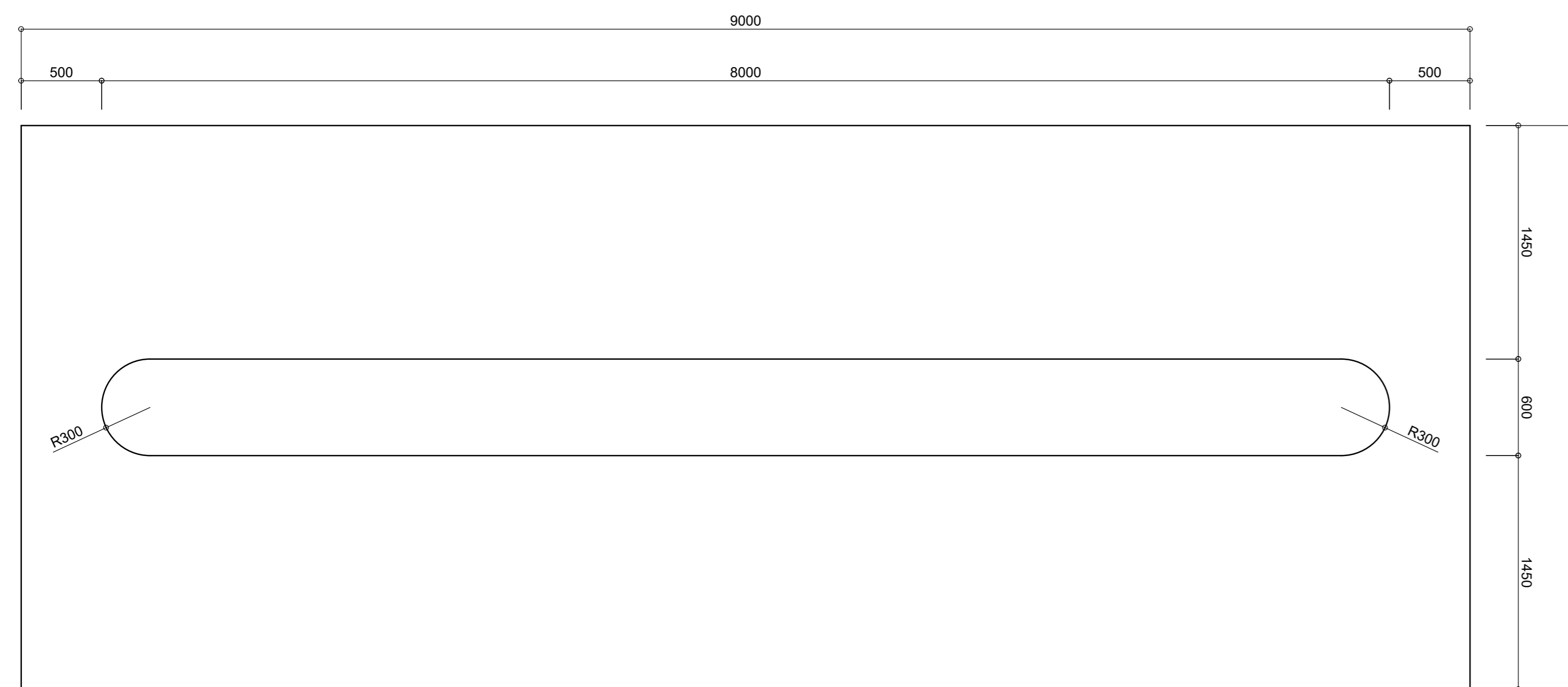


ELEVATION
1:25

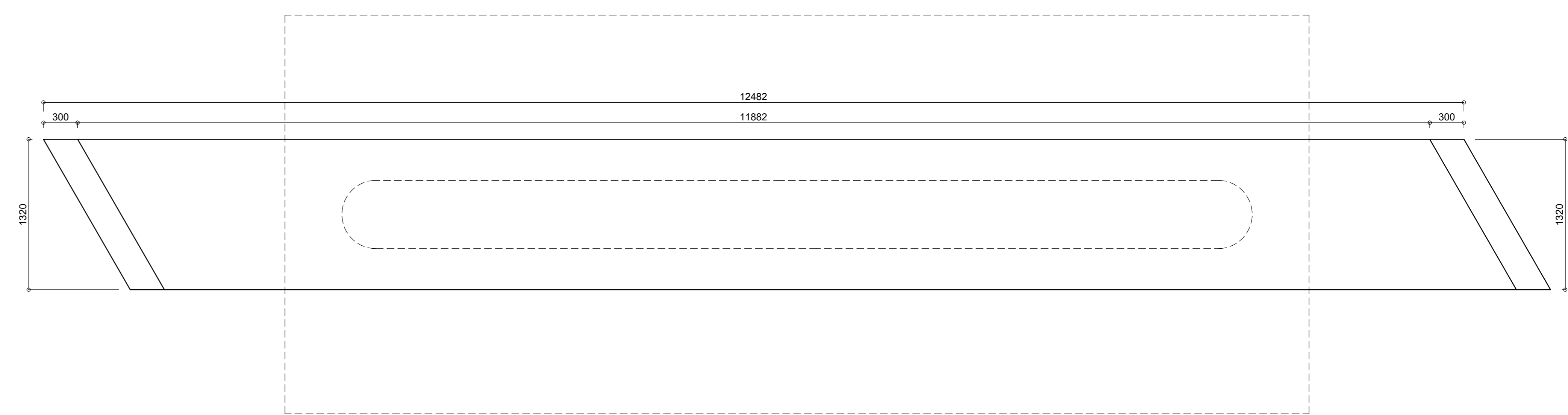


SECTION A-A
1:25

PIER LEVELS					
Point	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5
P1	976.492	976.051	975.911	975.901	977.001
P2	977.492	977.051	976.911	976.901	978.001
P3	980.815	980.888	980.962	981.035	981.109
P4	982.215	982.288	982.362	982.435	982.509
P5	981.565	982.638	982.712	982.785	982.859



PLAN BASE
1:25



PLAN PIER HEAD
1:25

Rev	Date	Description / Description	Checked	Signed
AMENDMENTS				

AS BUILT	
Supervising Engineer	Date
Supervising Authority	

Continued from:-	Designed by:- Y. JEAISON Pr Eng (202101810)
Continued on:-	Checked by:- P. NANKHOO Pr Eng (910350)
Design Plan No:-	Drawn by:- A. GUNAS
Long Section No:-	Checked by:- P. NANKHOO Pr Eng (910350)
Cross Section No:-	File Reference:- D489 / 6 / 2590 / 4

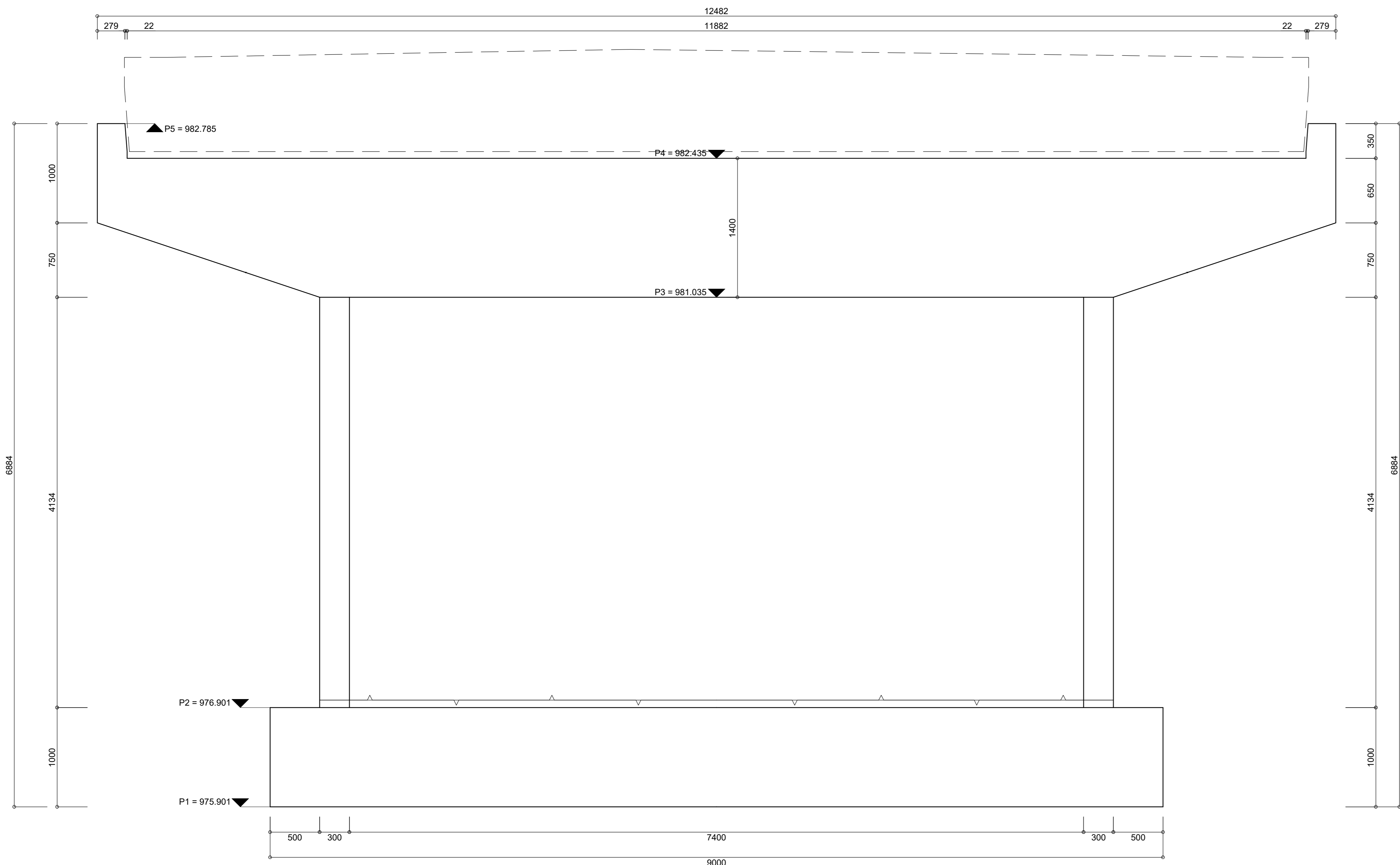
Designed by:-	Y. JEAISON Pr Eng (202101810)
Checked by:-	P. NANKHOO Pr Eng (910350)
Drawn by:-	A. GUNAS
Checked by:-	P. NANKHOO Pr Eng (910350)
File Reference:-	D489 / 6 / 2590 / 4
Signed	Date



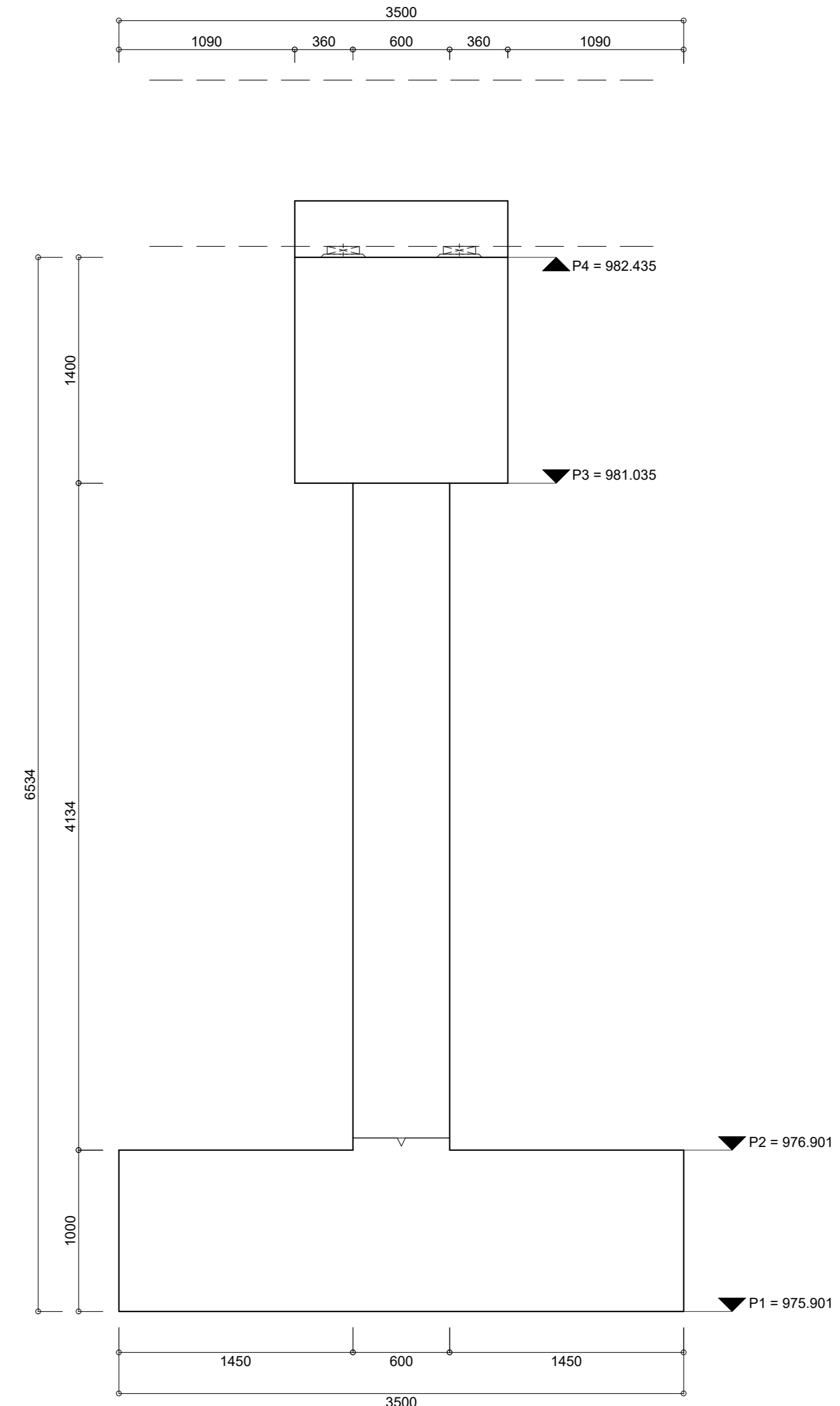
Chief Engineer: Structures
Head: Transport

DISTRICT ROAD D489 FRERE - CORNFLEDS
BLOUKRANS (RAMA) RIVER BRIDGE 2590
PIER 3 CONCRETE DETAILS

FOR TENDER PURPOSES	
Staked km distance km 3.926 28 85716 S 29 62042 E	Sheet -> 06 of -> 12
Scale As shown	Plan No. -> 2590 / 06

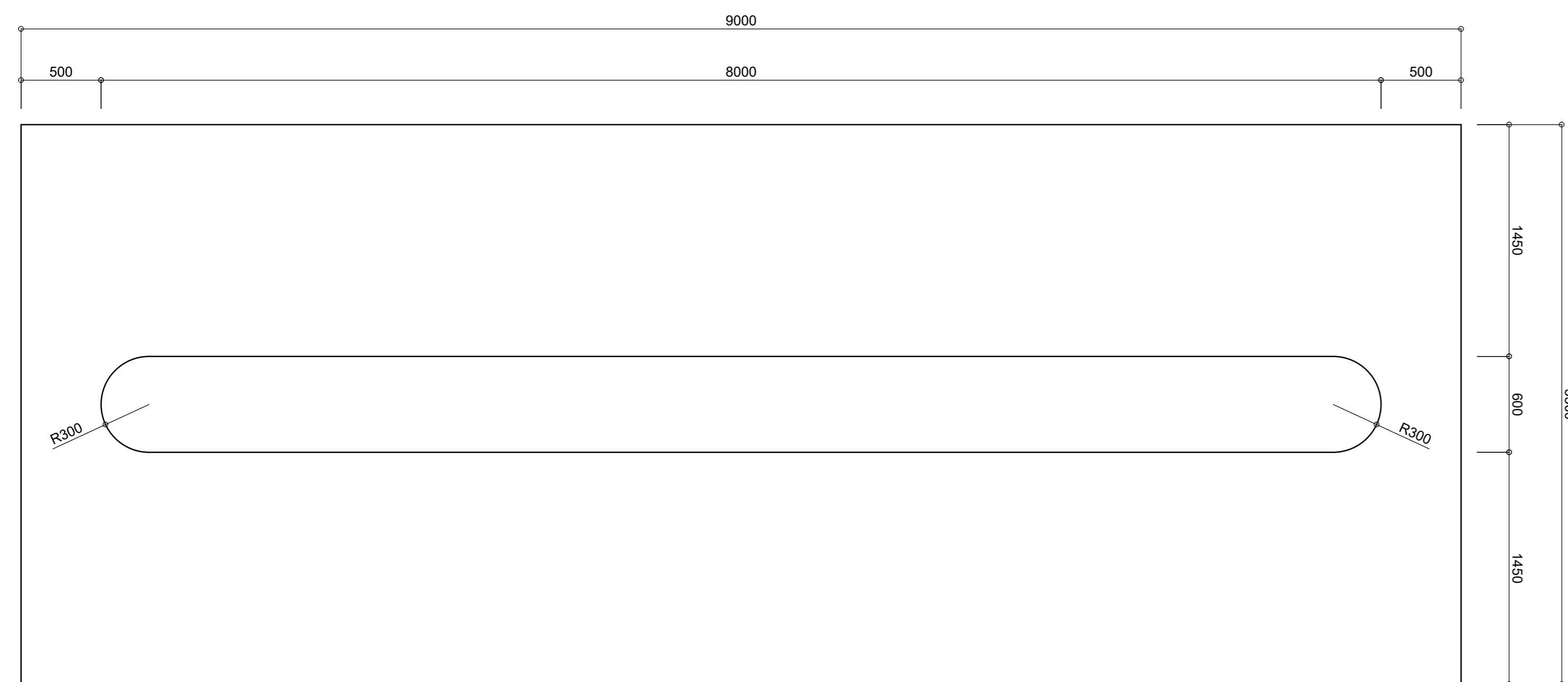


ELEVATION
1:25

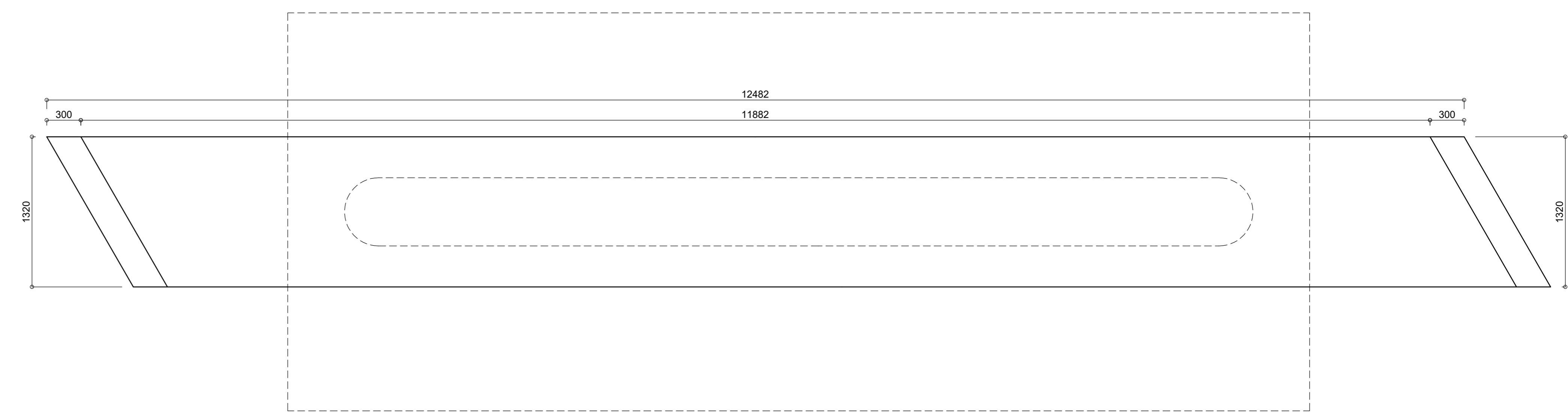


SECTION A-A
1:25

PIER LEVELS					
Point	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5
P1	976.492	976.051	975.911	975.901	977.001
P2	977.492	977.051	976.911	976.901	978.001
P3	980.815	980.888	980.962	981.035	981.109
P4	982.215	982.288	982.362	982.435	982.509
P5	981.565	982.638	982.712	982.785	982.859



PLAN BASE
1:25



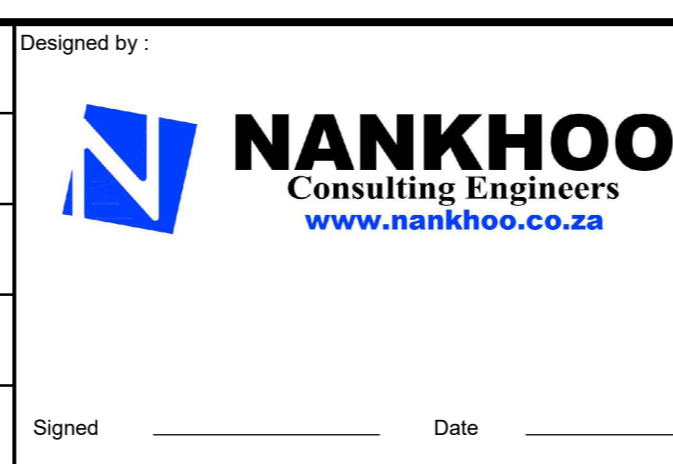
PLAN PIER HEAD
1:25

Rev	Date	Description / Description	Checked	Signed
AMENDMENTS				

AS BUILT	
Supervising Engineer	Date
Supervising Authority	

Continued from:-	Designed by:- Y. JEAISON Pr Eng (202101810)
Continued on:-	Checked by:- P. NANKHOO Pr Eng (910350)
Design Plan No:-	Drawn by:- A. GUNAS
Long Section No:-	Checked by:- P. NANKHOO Pr Eng (910350)
Cross Section No:-	File Reference:- D489 / 6 / 2590 / 4

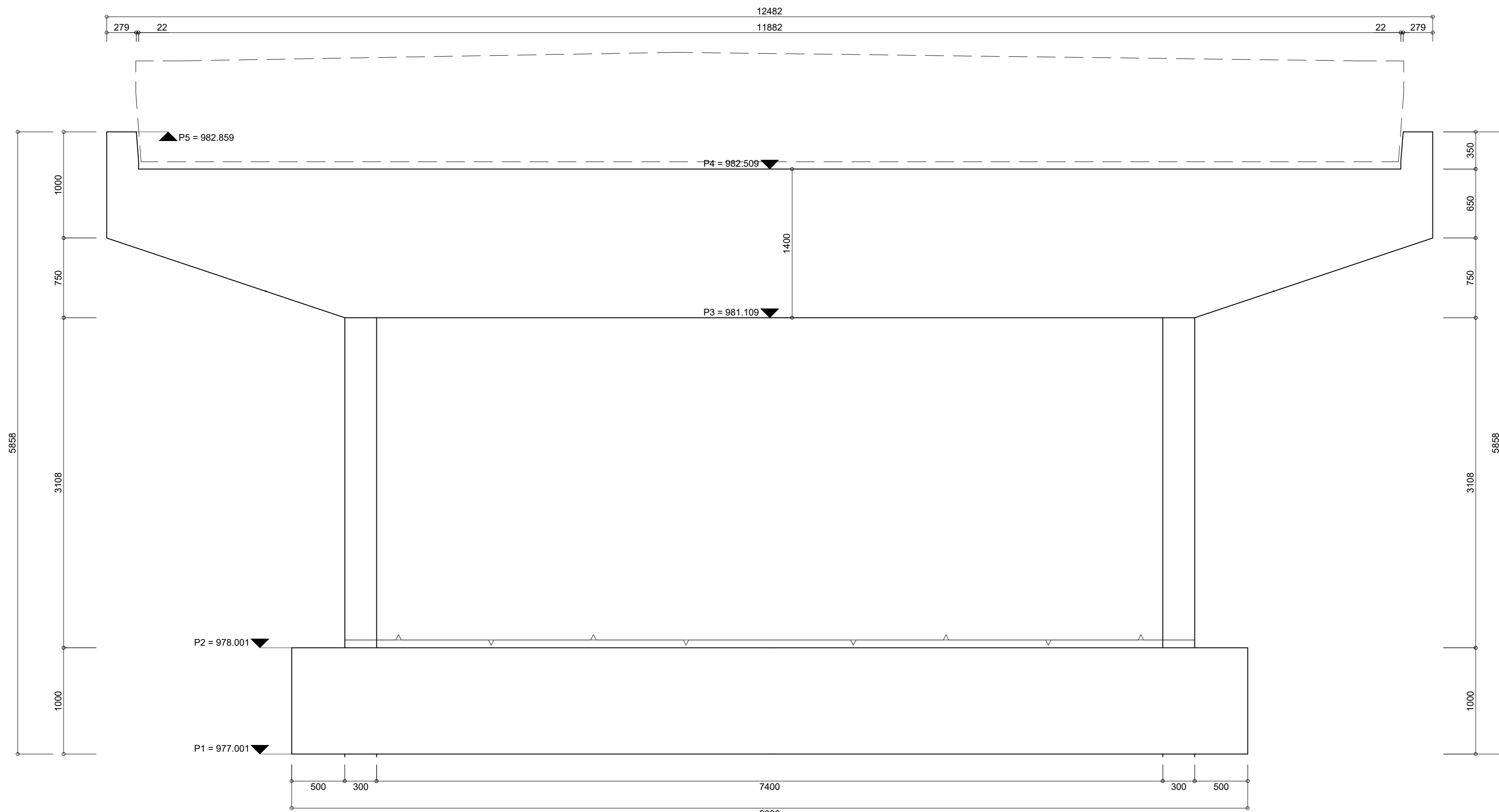
Designed by:-	Y. JEAISON Pr Eng (202101810)
Checked by:-	P. NANKHOO Pr Eng (910350)
Drawn by:-	A. GUNAS
Checked by:-	P. NANKHOO Pr Eng (910350)
File Reference:-	D489 / 6 / 2590 / 4
Signed	Date



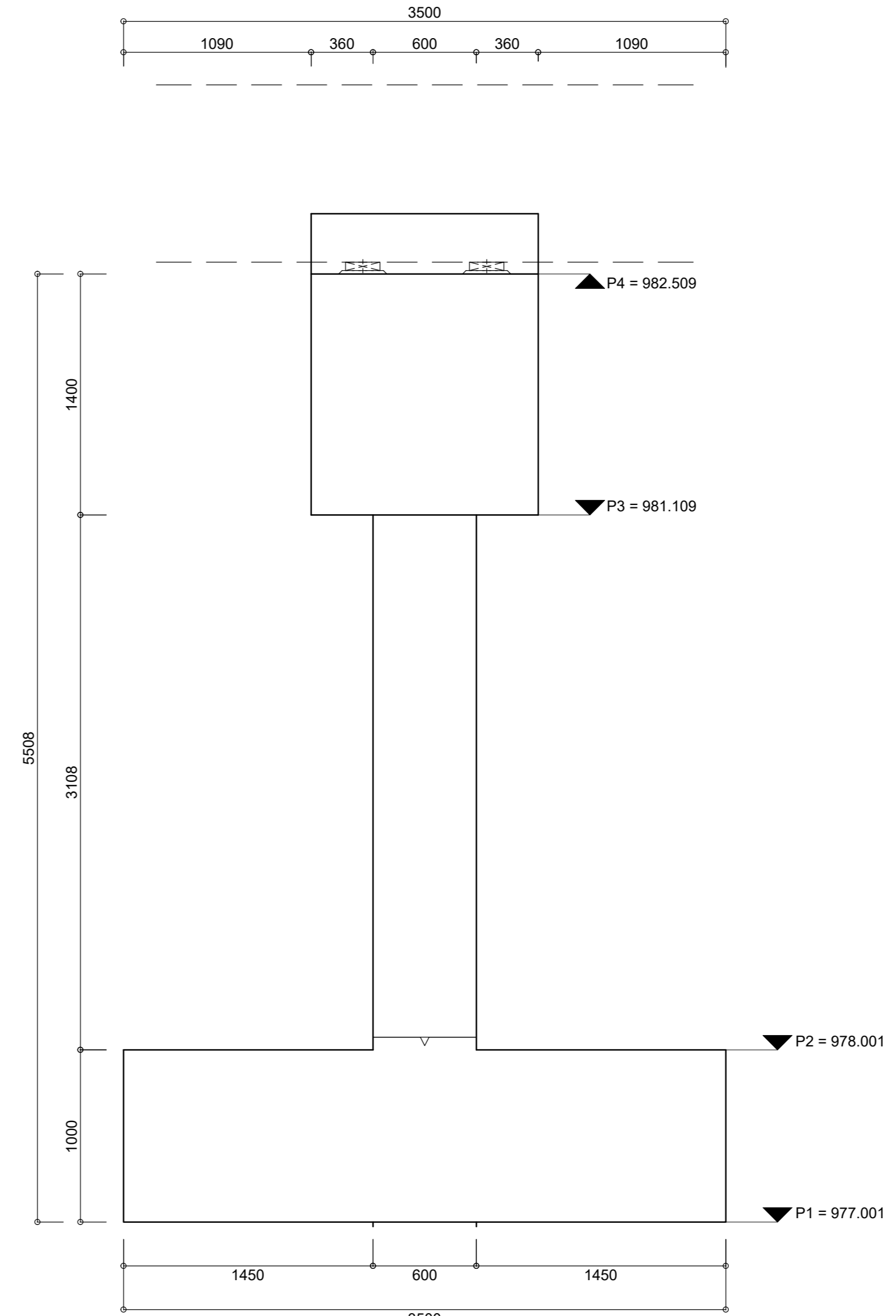
Chief Engineer: Structures
Head: Transport

DISTRICT ROAD D489 FRERE - CORNFLEIDS
BLOUKRANS (RAMA) RIVER BRIDGE 2590
PIER 4 CONCRETE DETAILS

FOR TENDER PURPOSES	
Staked km distance km 3.926 28 85716 S 29 62042 E	Sheet -> 07 of -> 12
Scale As shown	Plan No. -> 2590 / 12



ELEVATION
1:25

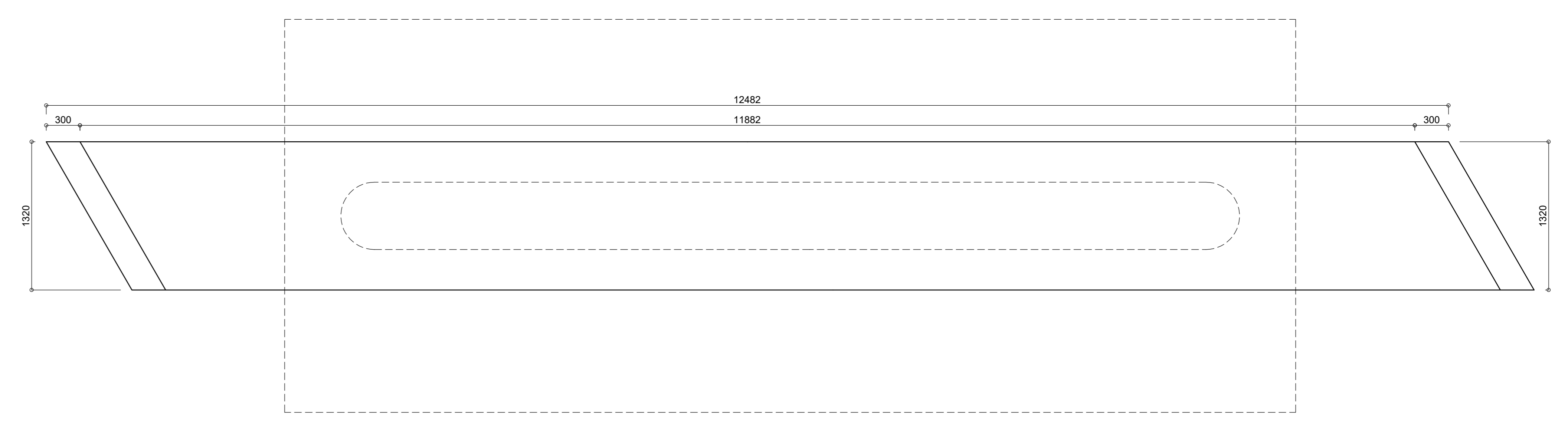


SECTION A-A
1:25

PIER LEVELS					
Point	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5
P1	976.492	976.051	975.911	975.901	977.001
P2	977.492	977.051	976.911	976.901	978.001
P3	980.815	980.888	980.962	981.035	981.109
P4	982.215	982.288	982.362	982.435	982.509
P5	981.565	982.638	982.712	982.785	982.859



PLAN BASE
1:25



PLAN PIER HEAD
1:25

Rev	Date	Description / Description	Checked	Signed

AS BUILT

Supervising Engineer: _____ Date: _____

Supervising Authority: _____

Continued from: _____

Continued on: _____

Design Plan No.: _____

Long Section No.: _____

Cross Section No.: _____

Designed by: Y. JEAWON Pr Eng (202101810)

Checked by: P. NANKHOO Pr Eng (910350)

Drawn by: A. GUNAS

Checked by: P. NANKHOO Pr Eng (910350)

File Reference: D489 / 6 / 2590 / 4



Chief Engineer: Structures _____

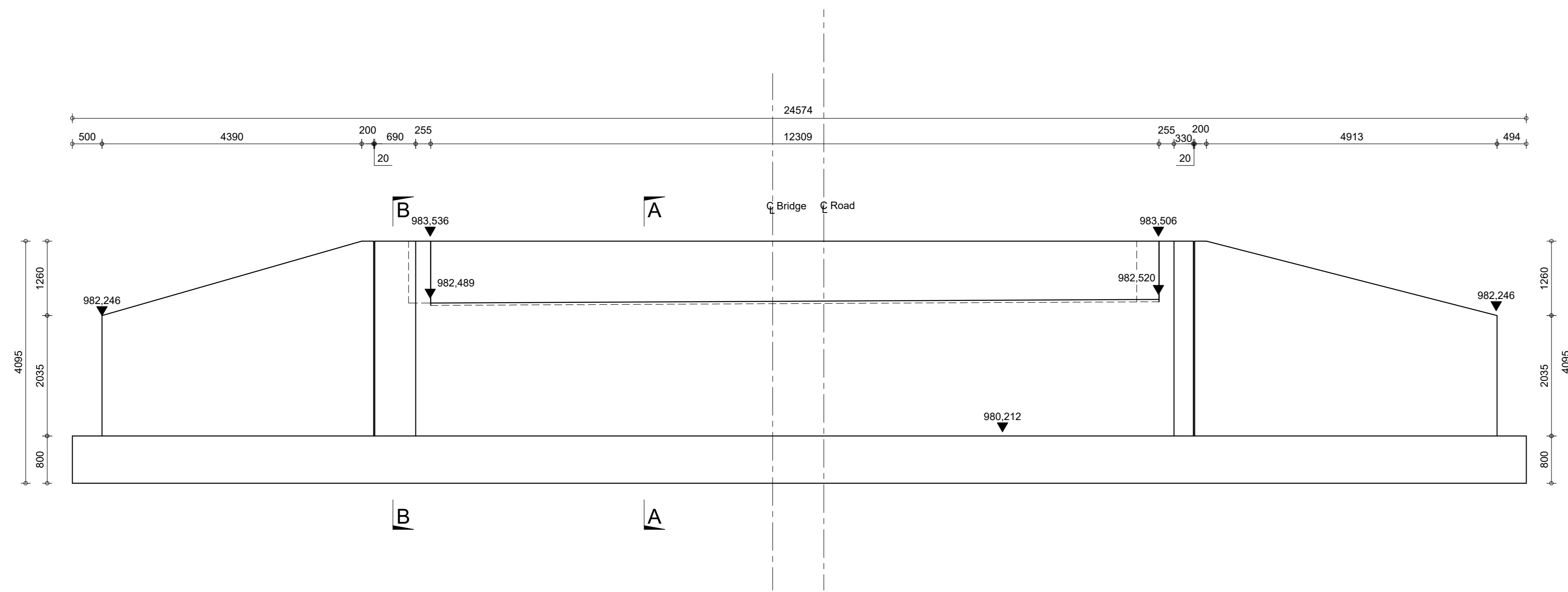
Head: Transport _____

DISTRICT ROAD D489 FRERE - CORNFLIEDS

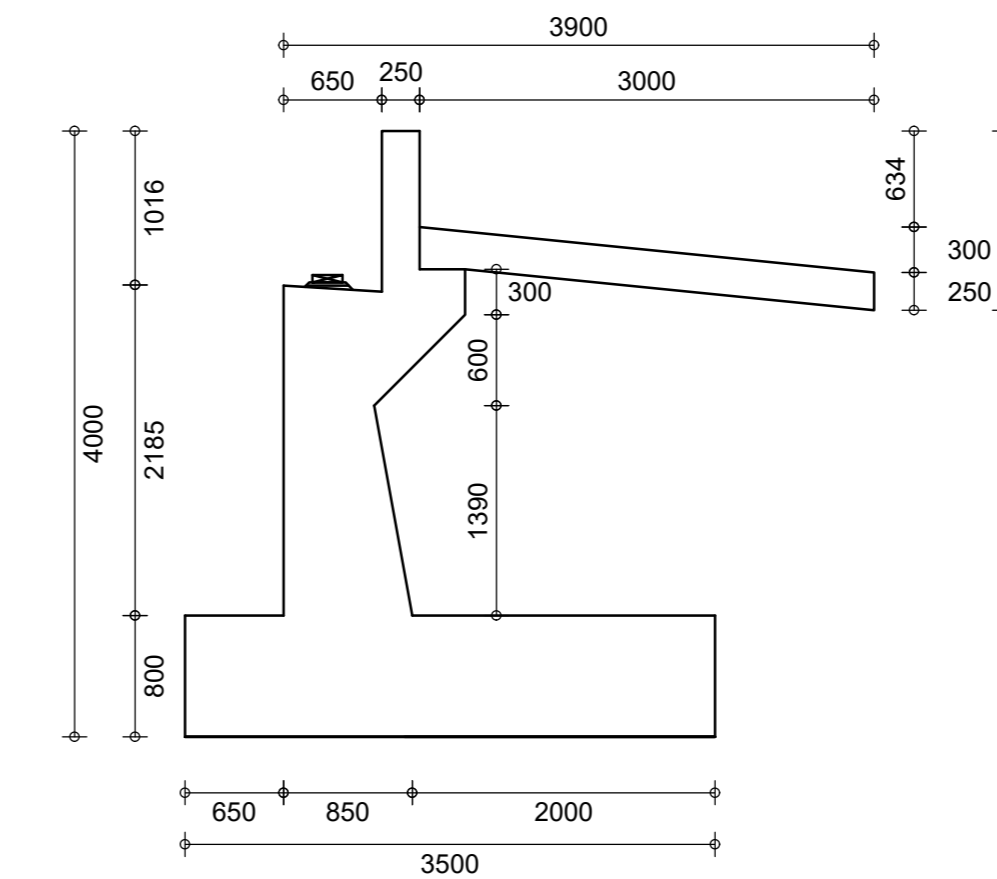
BLOUKRANS (RAMA) RIVER BRIDGE 2590

PIER 5 CONCRETE DETAILS

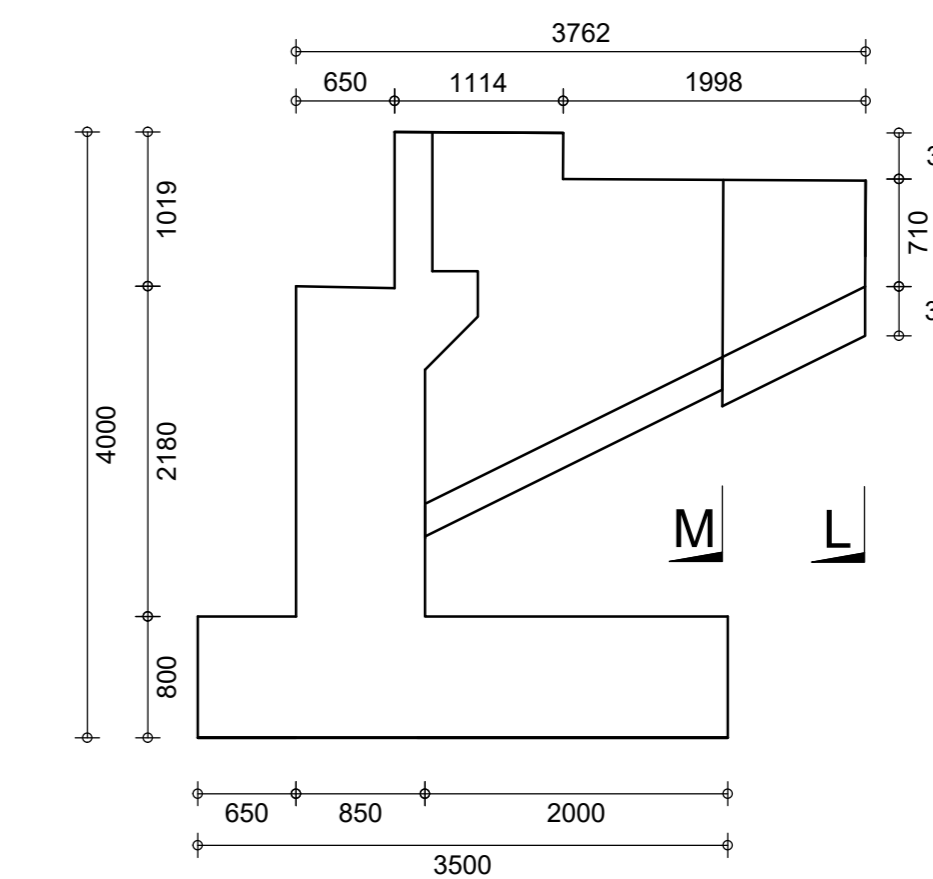
FOR TENDER PURPOSES			
Staked km distance	Sheet >	08	
km 3.926	of -	12	
28 85716 S	Plan No. >	2590 / 08	
29 82042 E	As shown		



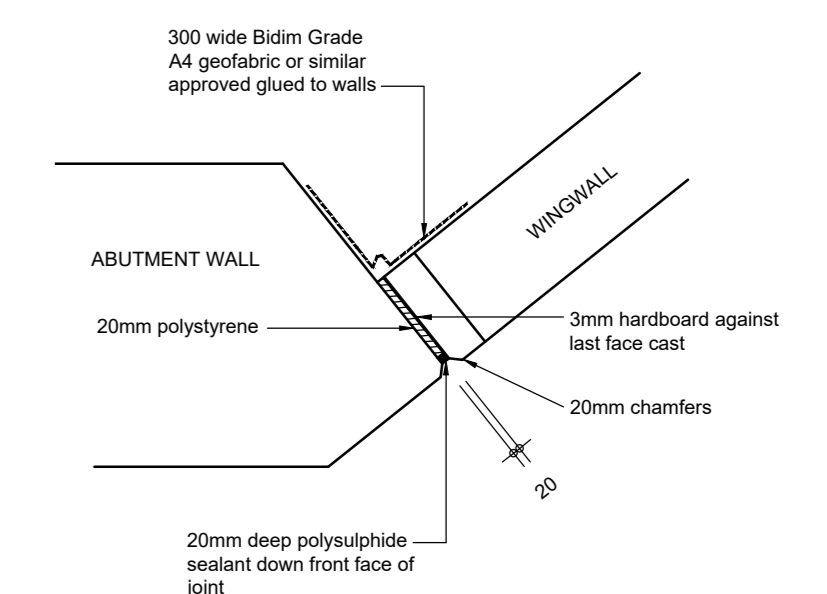
**ELEVATION
(DEVELOPED)**
1:50



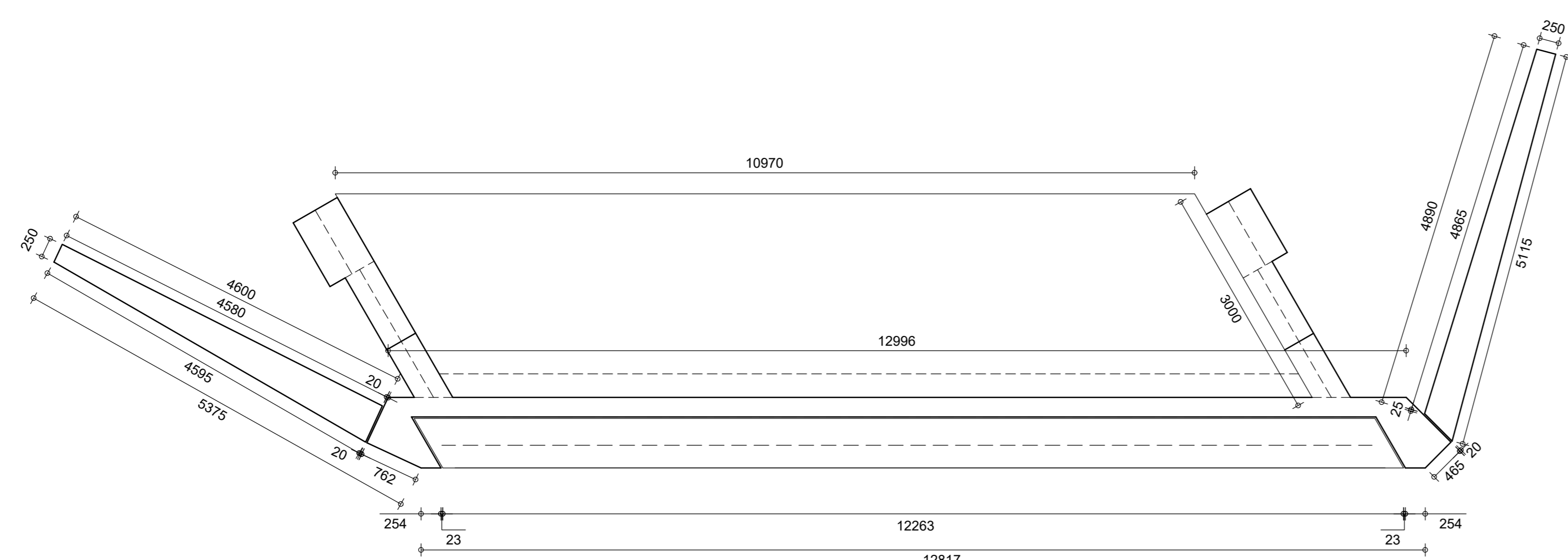
SECTION H-H
1:50



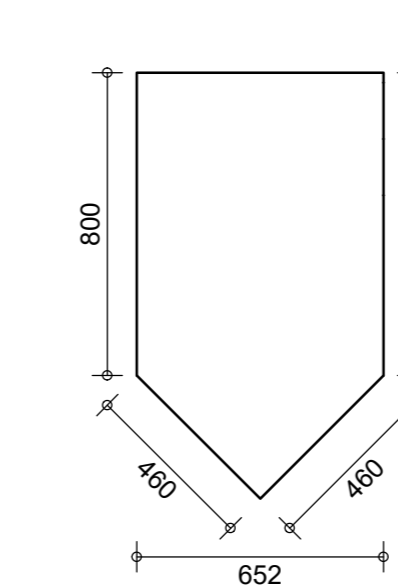
SECTION I-I
1:50



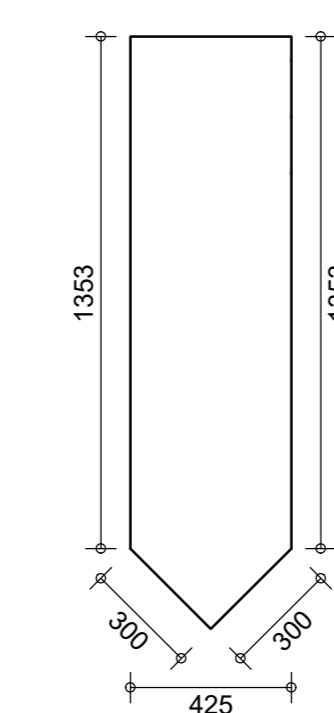
WINGWALL JOINT DETAIL
1:15



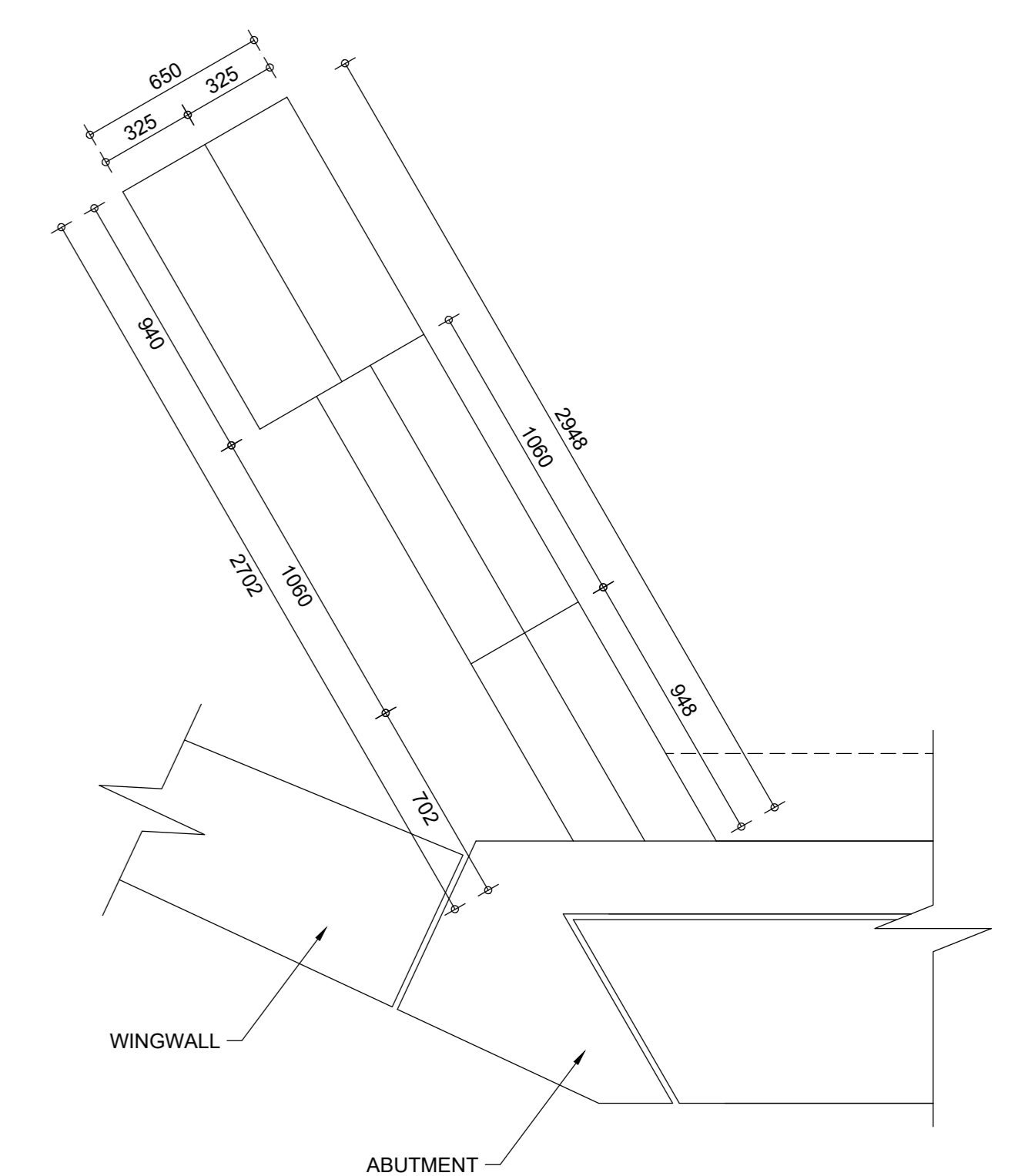
PLAN (BEARING LEVEL)
1:50



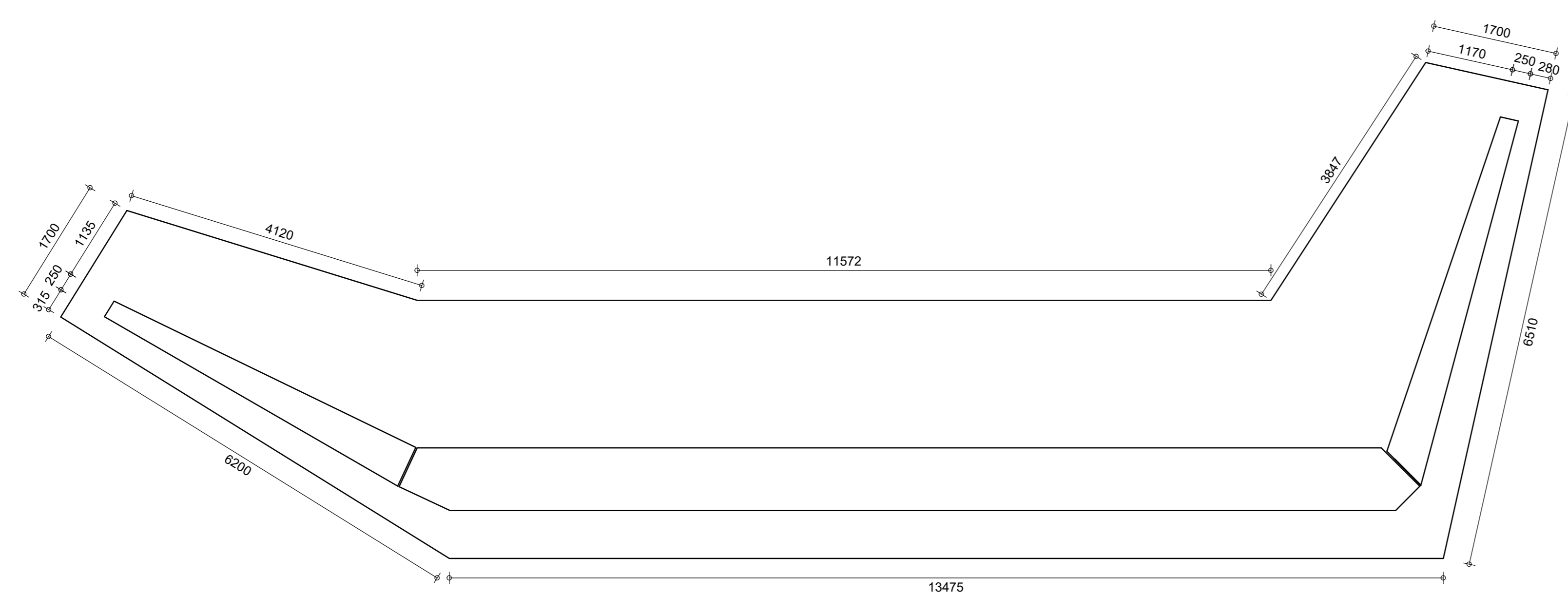
SECTION L-L
1:20



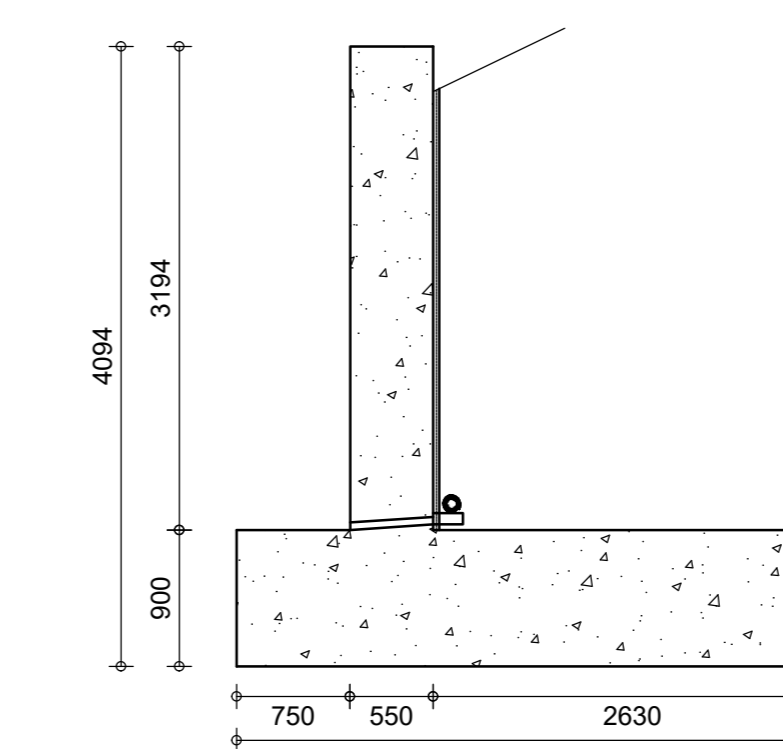
SECTION M-M
1:20



PLAN EARWALL
1:20



PLAN FOUNDATION
1:50



**TYPICAL WINGWALL
DETAIL**
1:50

NOTES

- Concrete class:
15/19 (15MPa) : Blinding
30/19 (30MPa) : Abutment walls
30/19 (30MPa) : Bases
- Chamfers:
All exposed sharp edges to be chamfered 20mm x 20mm unless otherwise shown.
- Formed concrete surface finishes:
Foundation sides and concealed surfaces of walls : Class F1
Visible surfaces of abutments : Class F2
- Unformed concrete surface finishes:
Class U1 : Tops of foundation
Class U2 : Tops of walls and bearing seats

FOR TENDER PURPOSES

Rev	Date	Description / Description	Checked	Signed
AMENDMENTS				

AS BUILT	
Supervising Engineer	Date
Supervising Authority	

Continued from:-	Designed by:- Y. JEAWON Pr Eng (202101810)
Continued on:-	Checked by:- P. NANKHOO Pr Eng (910350)
Design Plan No:-	Drawn by:- A. GUNAS
Long Section No:-	Checked by:- P. NANKHOO Pr Eng (910350)
Cross Section No:-	File Reference :- D489 / 6 / 2590 / 4

Designed by:-	Y. JEAWON Pr Eng (202101810)
Checked by:-	P. NANKHOO Pr Eng (910350)
Drawn by:-	A. GUNAS
Checked by:-	P. NANKHOO Pr Eng (910350)
File Reference :-	D489 / 6 / 2590 / 4

Designed by:

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PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

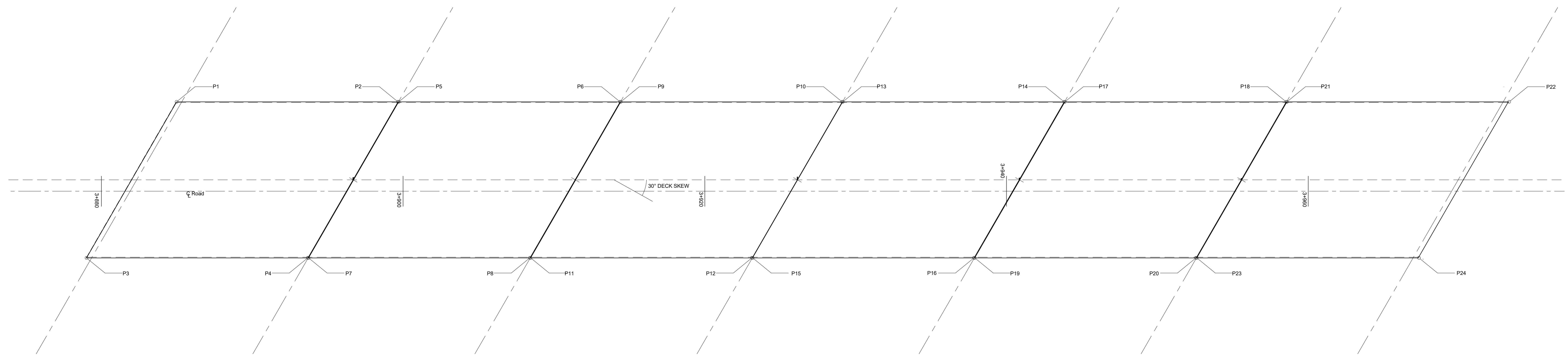
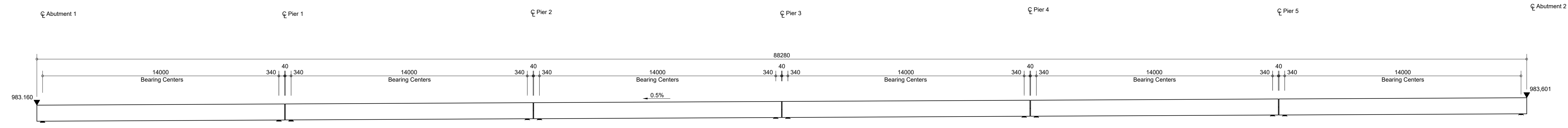
Chief Engineer: Structures
Head: Transport

DISTRICT ROAD D489 FRERE - CORNFLEIDS

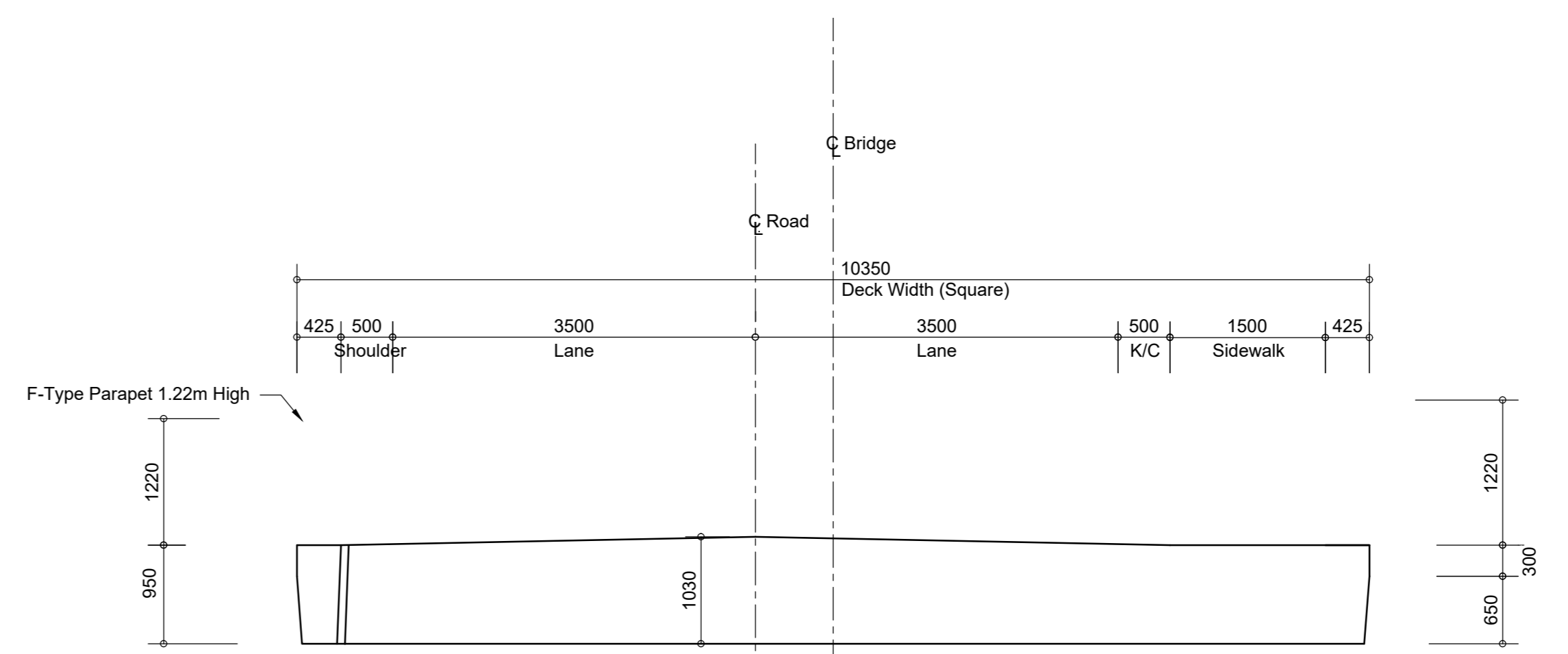
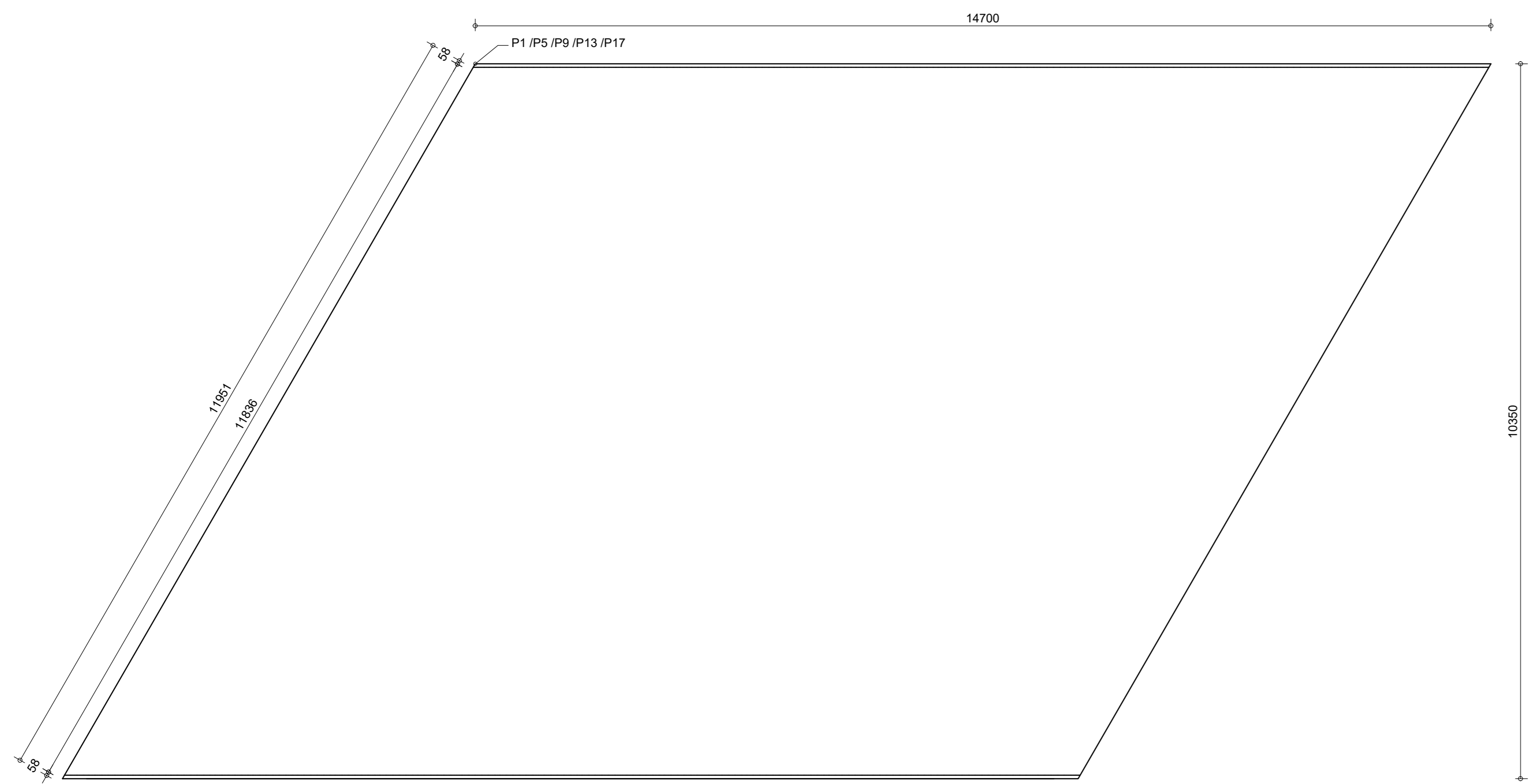
BLOUKRANS (RAMA) RIVER BRIDGE 2590

RIGHT ABUTMENT CONCRETE DETAILS

Staked km distance km 3.926 28 85716 S 29.82042 E	Sheet :- 09 of :- 12
Scale As shown	Plan No. :- 2590 /09



DECK SETTING OUT		
WGS84 Lo 31° CO-ORDINATES		
Point	Y	X
P1	-9004.221	3193711.635
P2	-9018.882	3193710.882
P3	-79998.784	3193722.278
P4	-8013.444	3193721.525
P5	-8018.922	3193710.880
P6	-80033.582	3193710.128
P7	-8013.484	3193721.523
P8	-80028.145	3193720.771
P9	-80033.622	3193710.126
P10	-90048.293	3193709.373
P11	-90028.185	3193720.769
P12	-80042.856	3193720.015
P13	-80048.313	3193709.372
P14	-80062.984	3193708.619
P15	-80042.876	3193720.014
P16	-80057.546	3193719.261
P17	-80063.024	3193708.617
P18	-80077.684	3193707.864
P19	-80057.586	3193719.259
P20	-90072.247	3193718.507
P21	-90077.724	3193707.862
P22	-80082.385	3193707.109
P23	-80072.287	3193718.505
P24	-80086.948	3193717.752



DECK LEVELS											
Point	SPAN 1	Point	SPAN 2	Point	SPAN 3	Point	SPAN 4	Point	SPAN 5	Point	SPAN 6
1	983.095	5	983.169	9	983.242	13	983.316	17	983.389	21	983.463
2	983.168	6	983.242	10	983.316	14	983.389	18	983.463	22	983.536
3	983.065	7	983.139	11	983.212	15	983.286	19	983.359	23	983.433
4	983.138	8	983.212	12	983.286	16	983.359	20	983.433	24	983.506

Rev	Date	Description / Description	Checked	Signed

AS BUILT	
Supervising Engineer	Date
Supervising Authority	

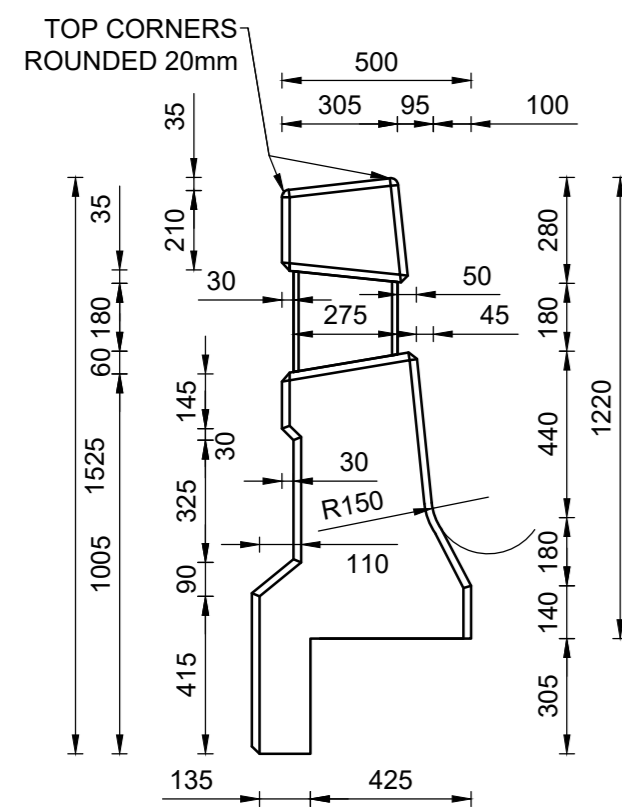
Continued from:-	Designed by:- Y. JEAWON Pr Eng (202101810)
Continued on:-	Checked by:- P. NANKHOO Pr Eng (910350)
Design Plan No:-	Drawn by:- A. GUNAS
Long Section No:-	Checked by:- P. NANKHOO Pr Eng (910350)
Cross Section No:-	File Reference:- D489 / 6 / 2590 / 4

PROVINCE OF KWAZULU-NATAL
 DEPARTMENT OF TRANSPORT

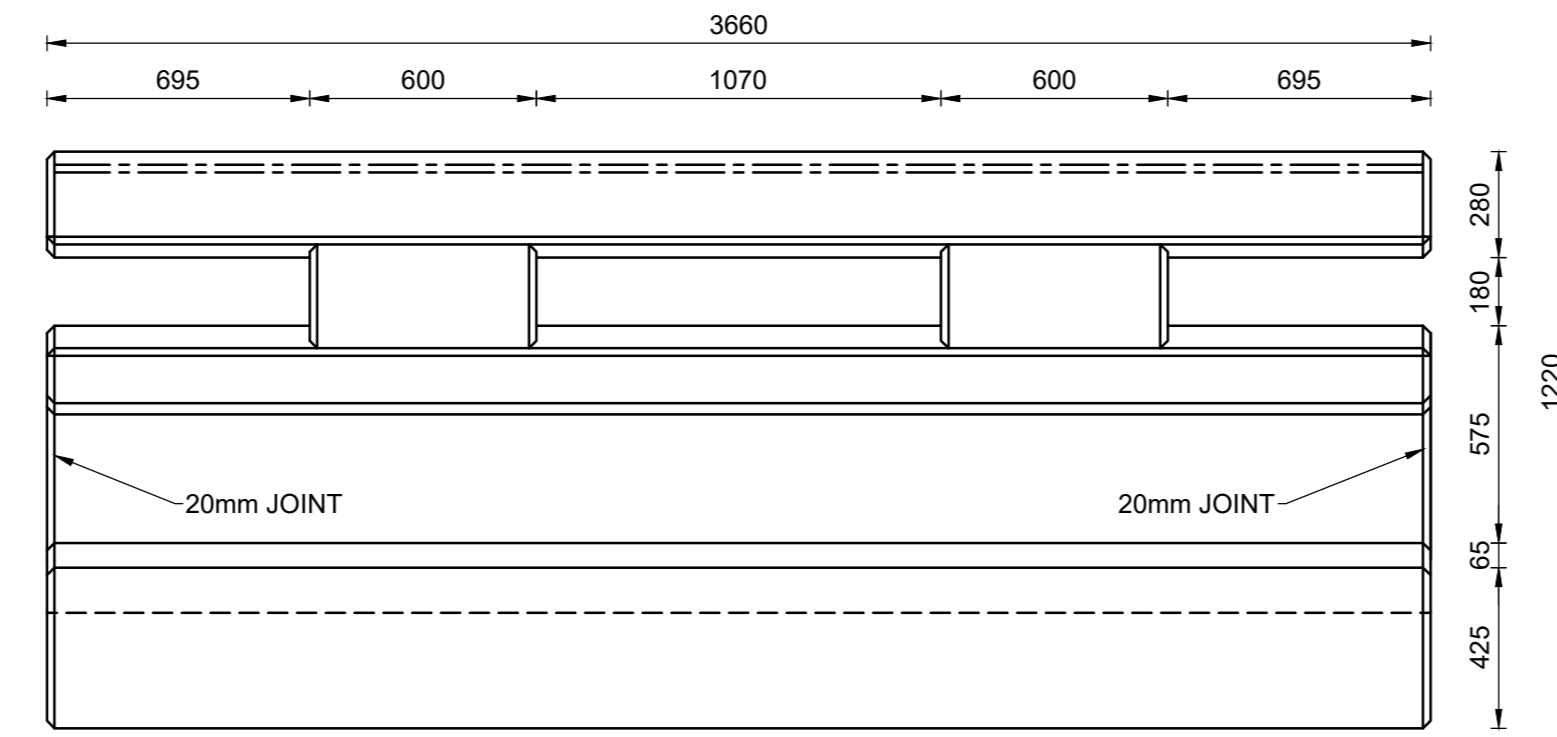
Chief Engineer: Structures
Head: Transport

DISTRICT ROAD D489 FRERE - CORNFLEIDS
BLOUKRANS (RAMA) RIVER BRIDGE 2590
 DECK CONCRETE DETAILS

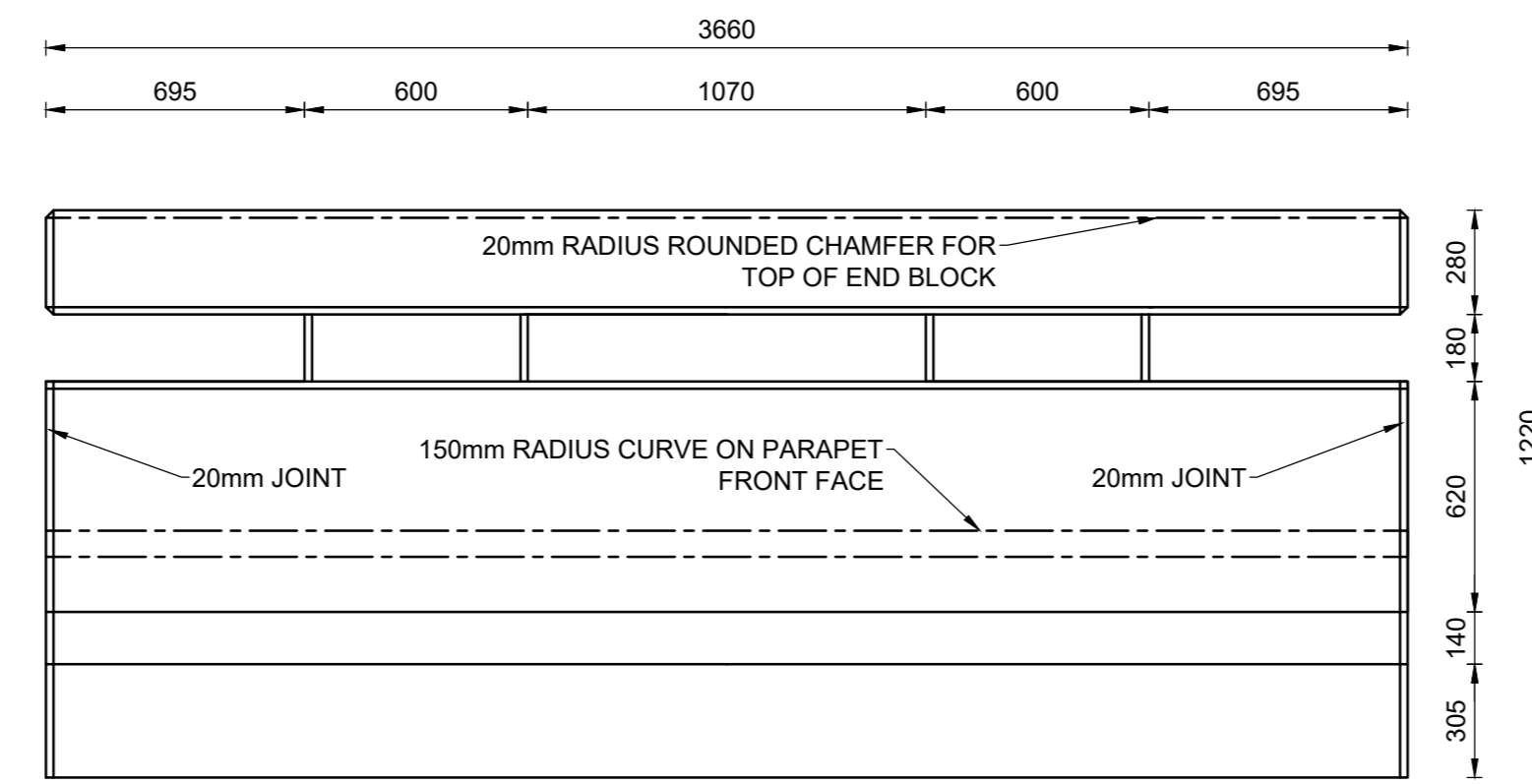
FOR TENDER PURPOSES	
Staked km distance km 3.926 28 85716 S 29 82042 E	Sheet -> 10 of -> 12
Scale As shown	Plan No. -> 2590 / 10



TYPICAL SECTIONAL ELEVATION OF F-TYPE BARRIER SECTIONAL
SCALE 1:20



REAR VIEW OF TYPE A PARAPET, F-TYPE BARRIER SECTION (3.66m PANEL)
SCALE 1:20



FRONT VIEW OF TYPE A PARAPET, F-TYPE BARRIER SECTION (3.66m PANEL)
SCALE 1:20

- NOTES :**
- MINIMUM CONCRETE COVER - 40mm ALL SIDES
 - REINFORCEMENT DETAILED IN ACCORDANCE WITH SABS 0144 - 1995
 - ABBREVIATIONS :
B1 - LOWEST BOTTOM LAYER
B2 - SECOND LOWEST BOTTOM LAYER
T1 - TOPMOST TOP LAYER
T2 - SECOND HIGHEST TOP LAYER
EF - EACH FACE
NF - NEAR FACE
FF - FAR FACE
ALT - ALTERNATING
STG - STAGGERED
H - HORIZONTAL
V - VERTICAL
ABR - ALTERNATE BAR REVERSED
EW - EACHWAY
 - MINIMUM LAP LENGTH TO BE 50 x DIA. OF THE SMALLER BAR
 - REINFORCEMENT TO CONFORM TO SABS 920-1985 HOT ROLLED HIGH YIELD STRESS DEFORMED (Y) BARS - CHARACTERISTIC STRENGTH 450 MPa
HOT ROLLED ROUND MILD STEEL (R) BARS - CHARACTERISTIC STRENGTH 250 MPa
 - CONCRETE CLASSES:
F-TYPE BARRIER - 40/19 (40MPa)
 - CONCRETE FINISHES:
EXPOSED FACES - CLASS F2 (SMOOTH)
CONCEALED FACES - CLASS F1 (ROUGH)
 - ALL EXPOSED EDGES TO BE CHAMFERED 25 x 25
 - ALL DESIGNATED BARS FOR GALVANISING SHALL BE HEAVY DUTY HOT DIP GALVANISE IN ACCORDANCE WITH SANS 121: 2000 TO A ZINC COAT THICKNESS NOT LESS THAN 105 MICRONS.

Rev	Date	Description / Description	Checked	Signed
AMENDMENTS				

AS BUILT	
Supervising Engineer	Date
Supervising Authority	

Continued from:-	Designed by :- Y. JEAISON Pr Eng (202101910)
Continued on:-	Checked by :- P. NANKHO Pr Eng (910350)
Design Plan No:-	Drawn by :- A. GUNAS
Long Section No:-	Checked by :- P. NANKHO Pr Eng (910350)
Cross Section No:-	File Reference :- D489 / 6 / 2590 / 4

Designed by :-	Signed	Date
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PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

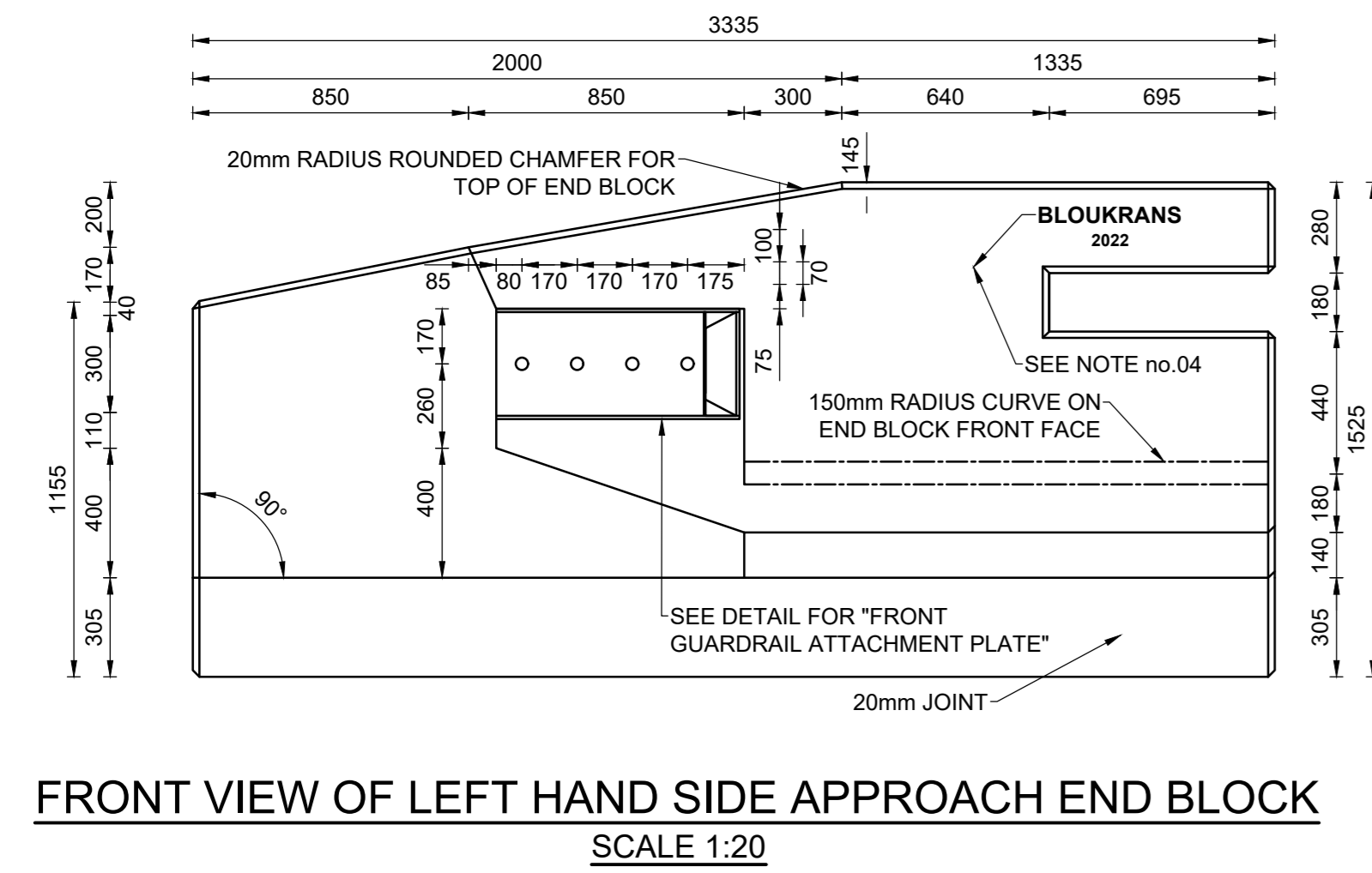
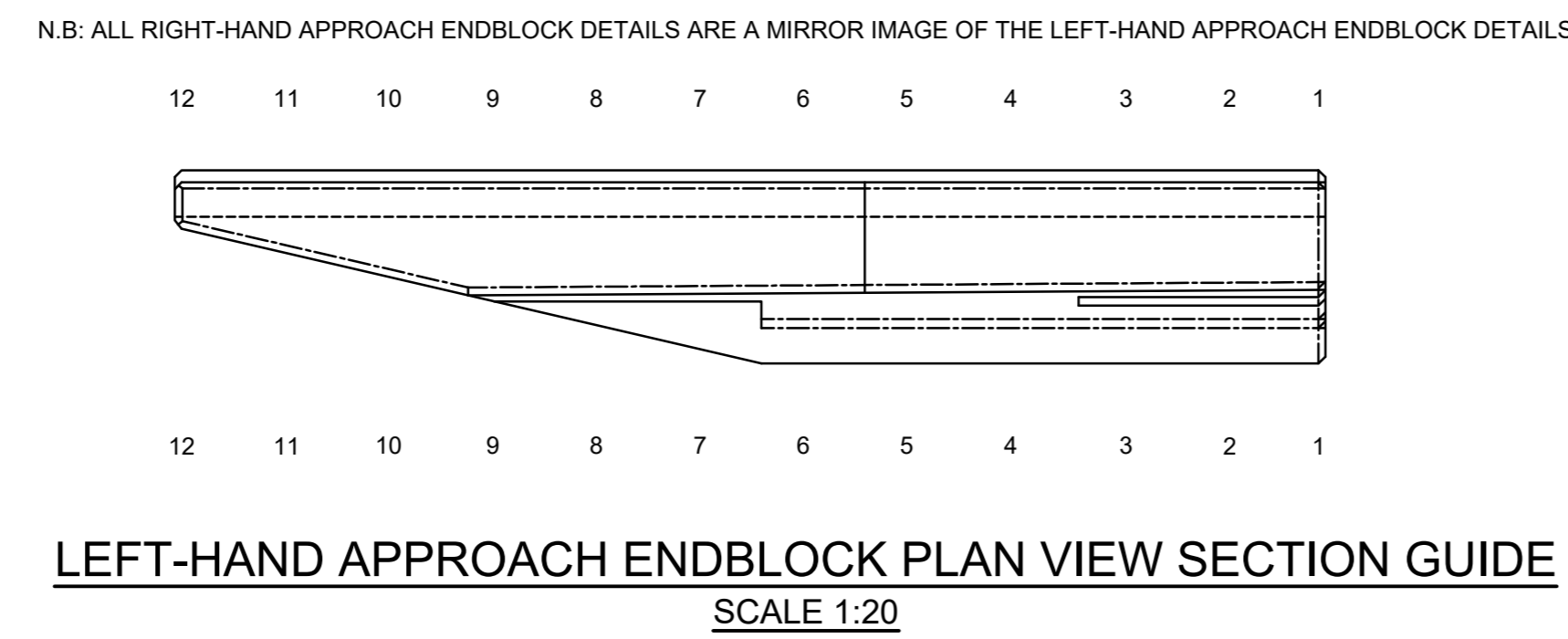
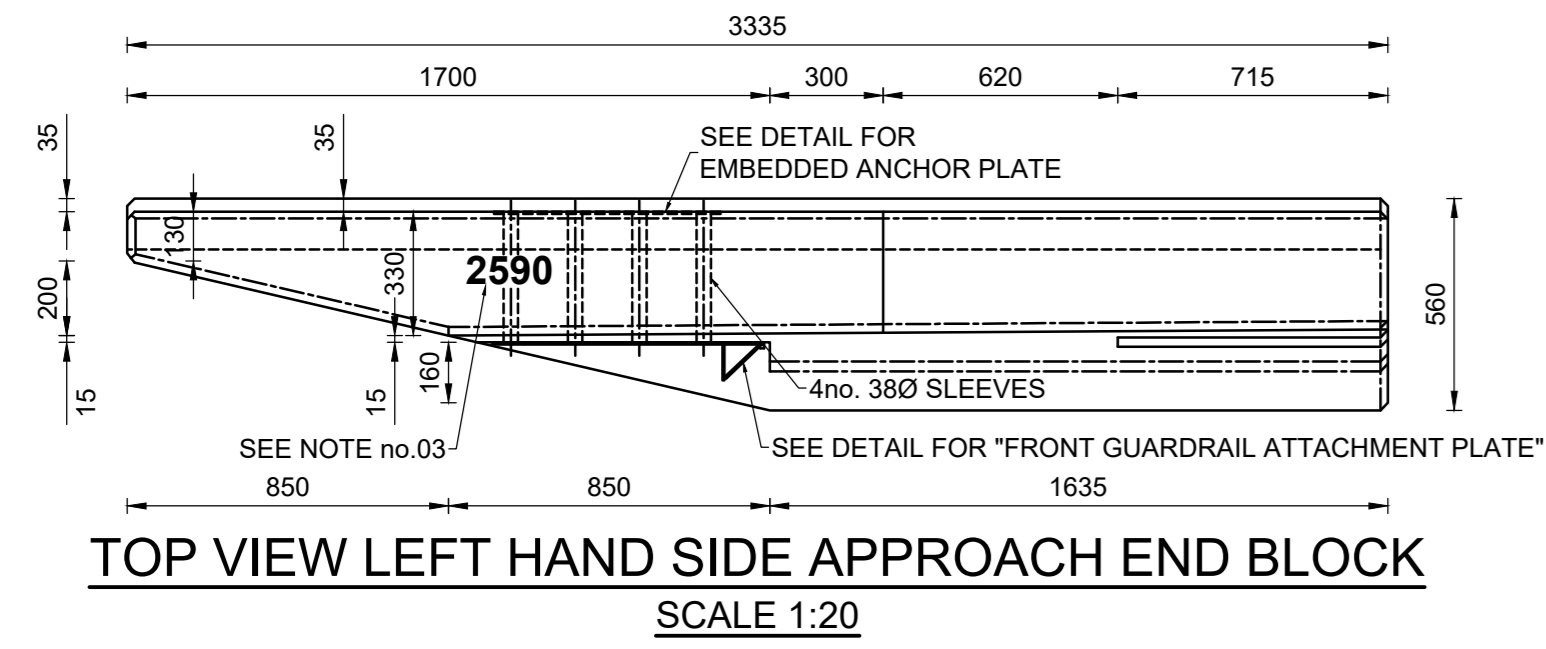
Chief Engineer: Structures
Head: Transport

DISTRICT ROAD D489 FRERE - CORNFIELDS

BLOUKRANS (RAMA) RIVER BRIDGE 2590

F-TYPE BARRIERS

FOR TENDER PURPOSES	
Staked km distance km 3.926 28 857 16 S 29 920 42 E	Sheet :- 11 of :- 12
Scale As shown	Plan No. :- 2590 / 11



- NOTES:**
- MINIMUM CONCRETE COVER - 50mm ALL SIDES
 - REINFORCEMENT DETAILED IN ACCORDANCE WITH SABS 0144 - 1995
 - ABBREVIATIONS -
 B1 - LOWEST BOTTOM LAYER
 B2 - SECOND LOWEST BOTTOM LAYER
 T1 - TOPMOST TOP LAYER
 T2 - SECOND HIGHEST TOP LAYER
 EF - EACH FACE
 NF - NEAR FACE
 FF - FAR FACE
 ALT. - ALTERNATING
 STG. - STAGGERED
 H. - HORIZONTAL
 V. - VERTICAL
 ABR. - ALTERNATE BAR REVERSED
 EW. - EACHWAY
 - MINIMUM LAP LENGTH TO BE 50 x DIA. OF THE SMALLER BAR
 - REINFORCEMENT TO CONFORM TO SABS 920-1985
 HOT ROLLED HIGH YIELD STRESS DEFORMED (Y) BARS - CHARACTERISTIC STRENGTH 450 MPa
 HOT ROLLED ROUND MILD STEEL (R) BARS - CHARACTERISTIC STRENGTH 250 MPa
 - CONCRETE CLASSES:
 END BLOCK - 40/19 (40MPa)
 - CONCRETE FINISHES:
 EXPOSED FACES - CLASS F2 (SMOOTH)
 CONCEALED FACES - CLASS F1 (ROUGH)
 - ALL EXPOSED EDGES TO BE CHAMFERED 25 x 25
 - ALL DESIGNATED BARS FOR GALVANISING SHALL BE HEAVY DUTY
 HOT DIP GALVANISE IN ACCORDANCE WITH SANS 121: 2000 TO A ZINC COAT THICKNESS NOT LESS THAN 105 MICRONS.

Rev	Date	Description / Description	Checked	Signed
AMENDMENTS				

AS BUILT

Supervising Engineer _____ Date _____

Supervising Authority _____

Continued from:- _____

Continued on:- _____

Design Plan No:- _____

Long Section No:- _____

Cross Section No:- _____

Designed by:- Y. JEAWON Pr Eng (202101910)

Checked by:- P. NANKHOO Pr Eng (910350)

Drawn by:- A. GUNAS

Checked by:- P. NANKHOO Pr Eng (910350)

File Reference:- D489 / 6 / 2590 / 4

Designed by:

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Signed _____ Date _____

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Chief Engineer: Structures _____

Head: Transport _____

DISTRICT ROAD D489 FRERE - CORNFLIEDS

BLOUKRANS (RAMA) RIVER BRIDGE 2590

F-TYPE BARRIERS

FOR TENDER PURPOSES	
Staked km distance km 3.926 28 857 16 S 29 820 42 E	Sheet - 12 of - 12
Scale As shown	Plan No. - 2590 / 12