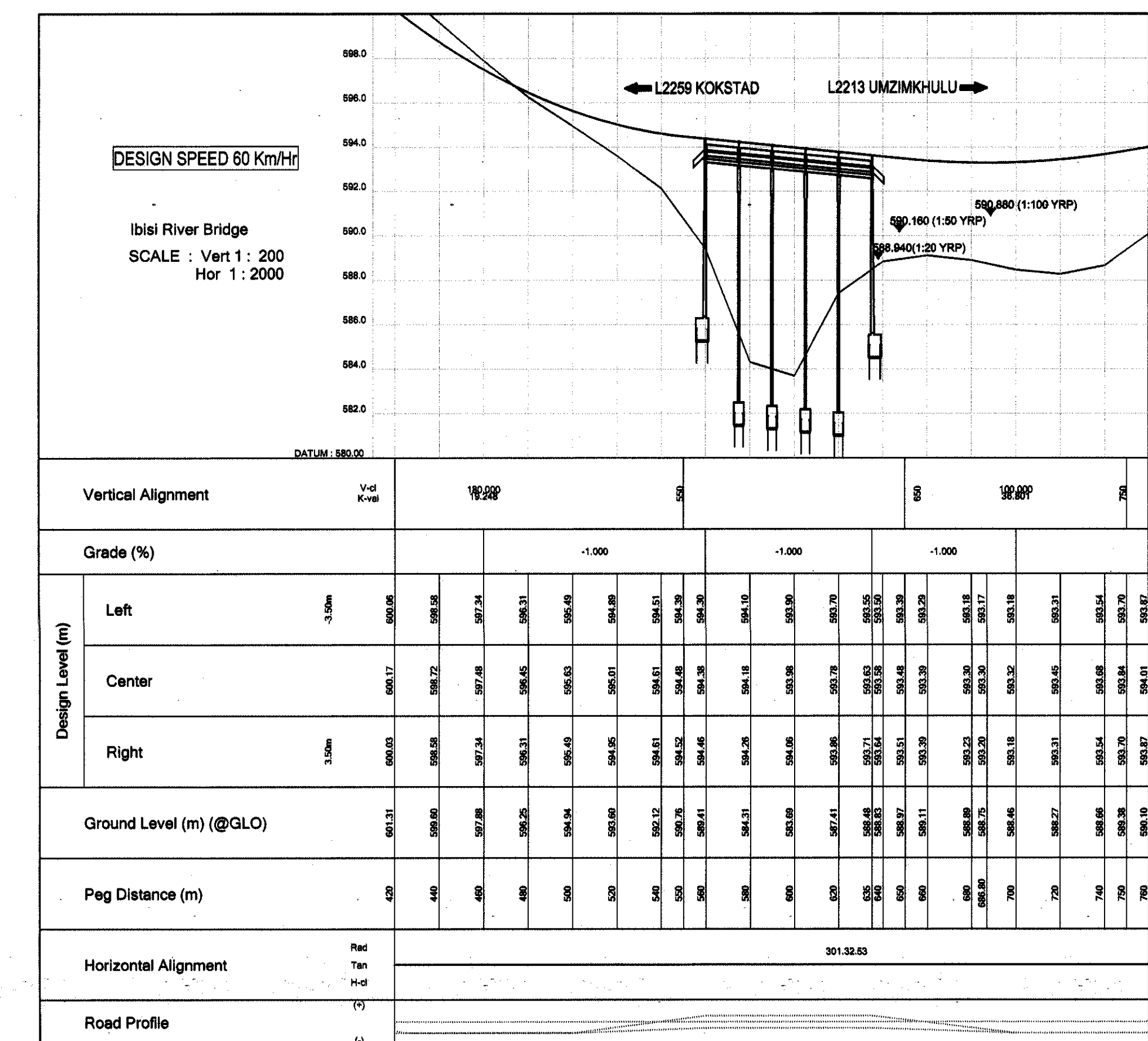
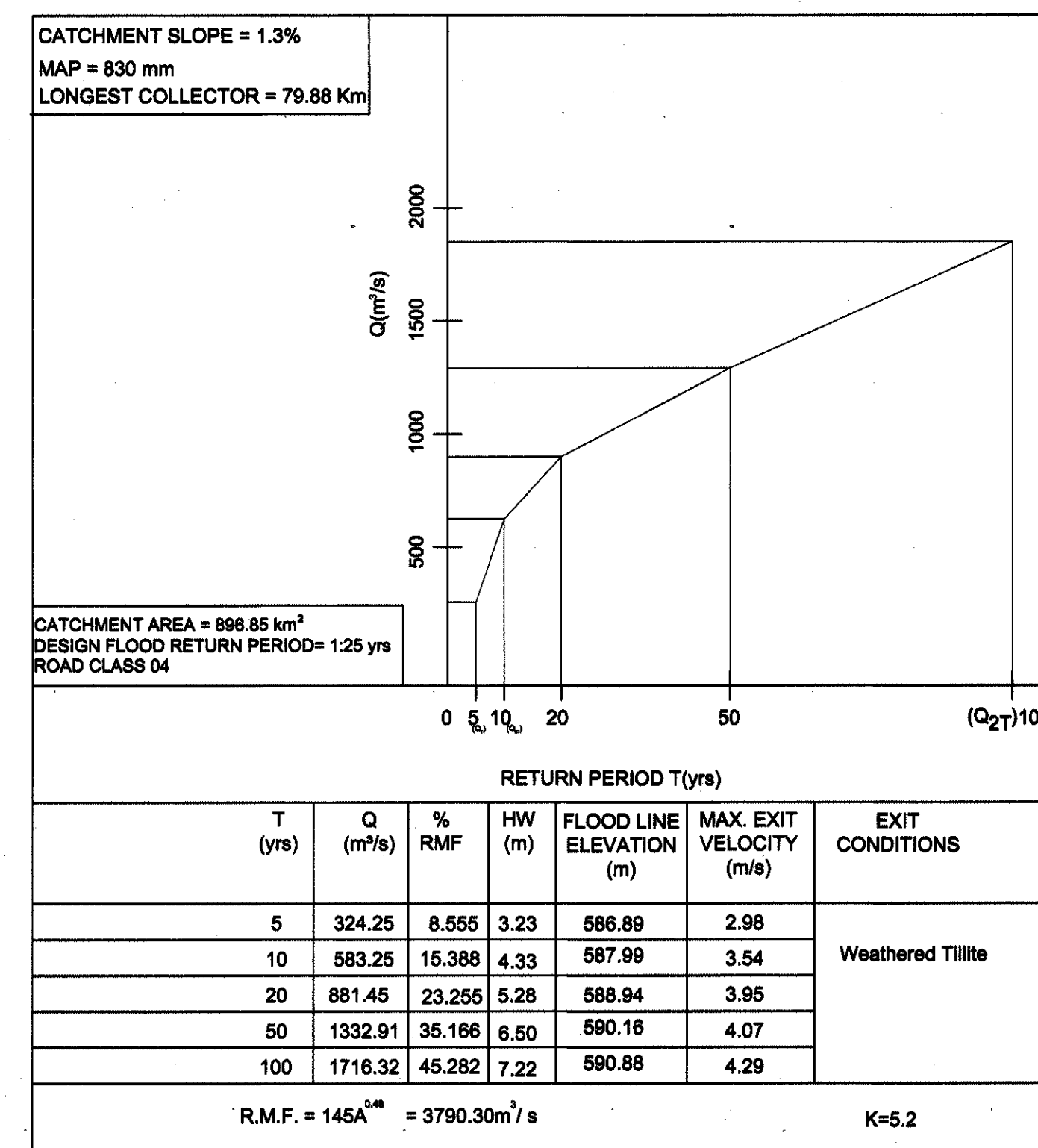
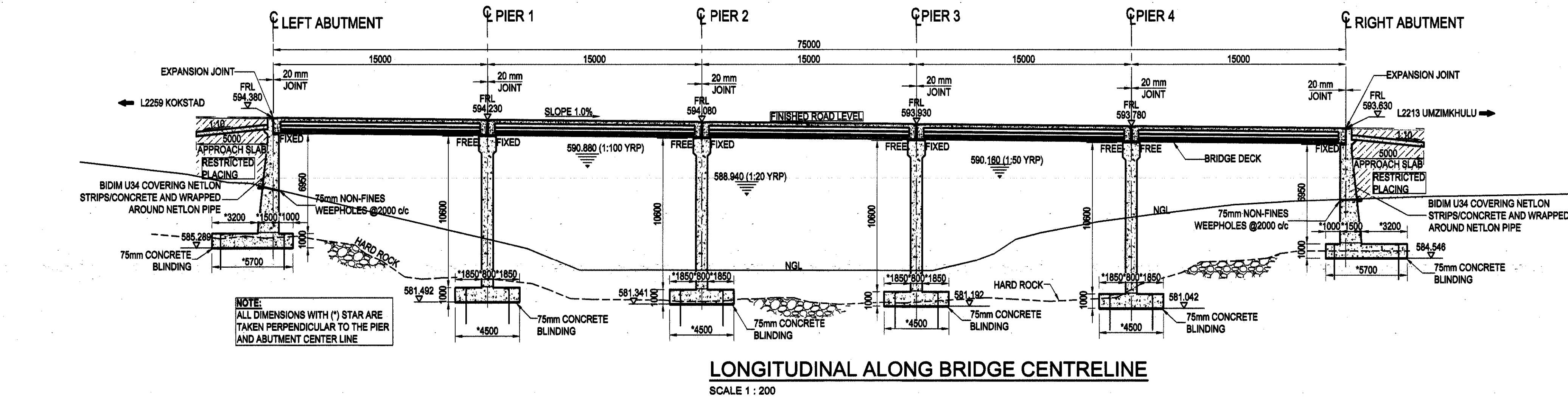
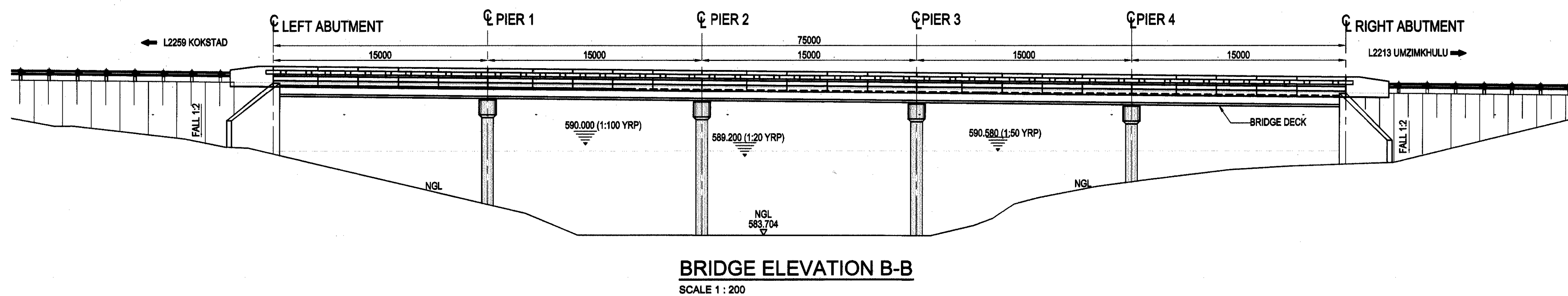
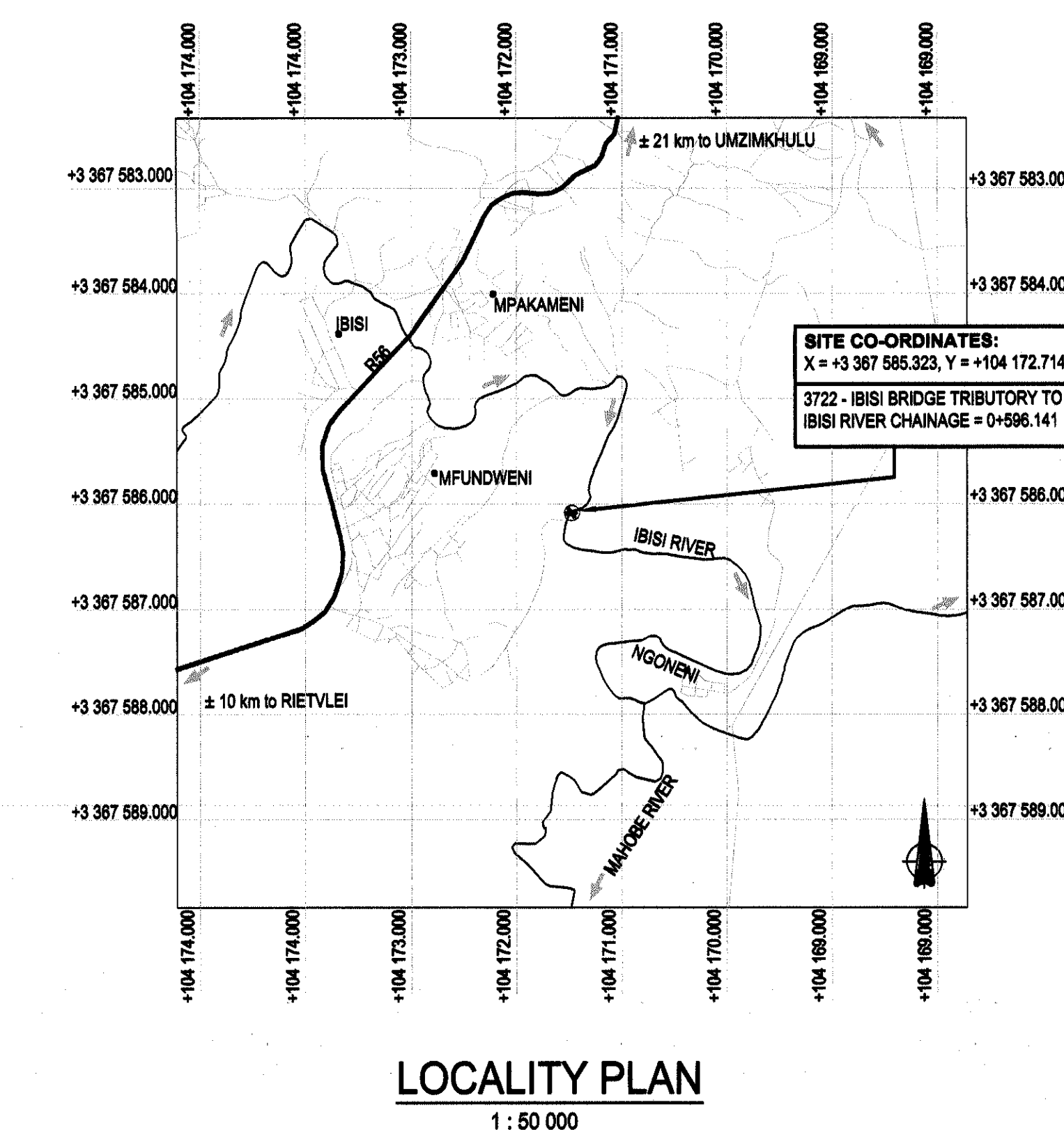
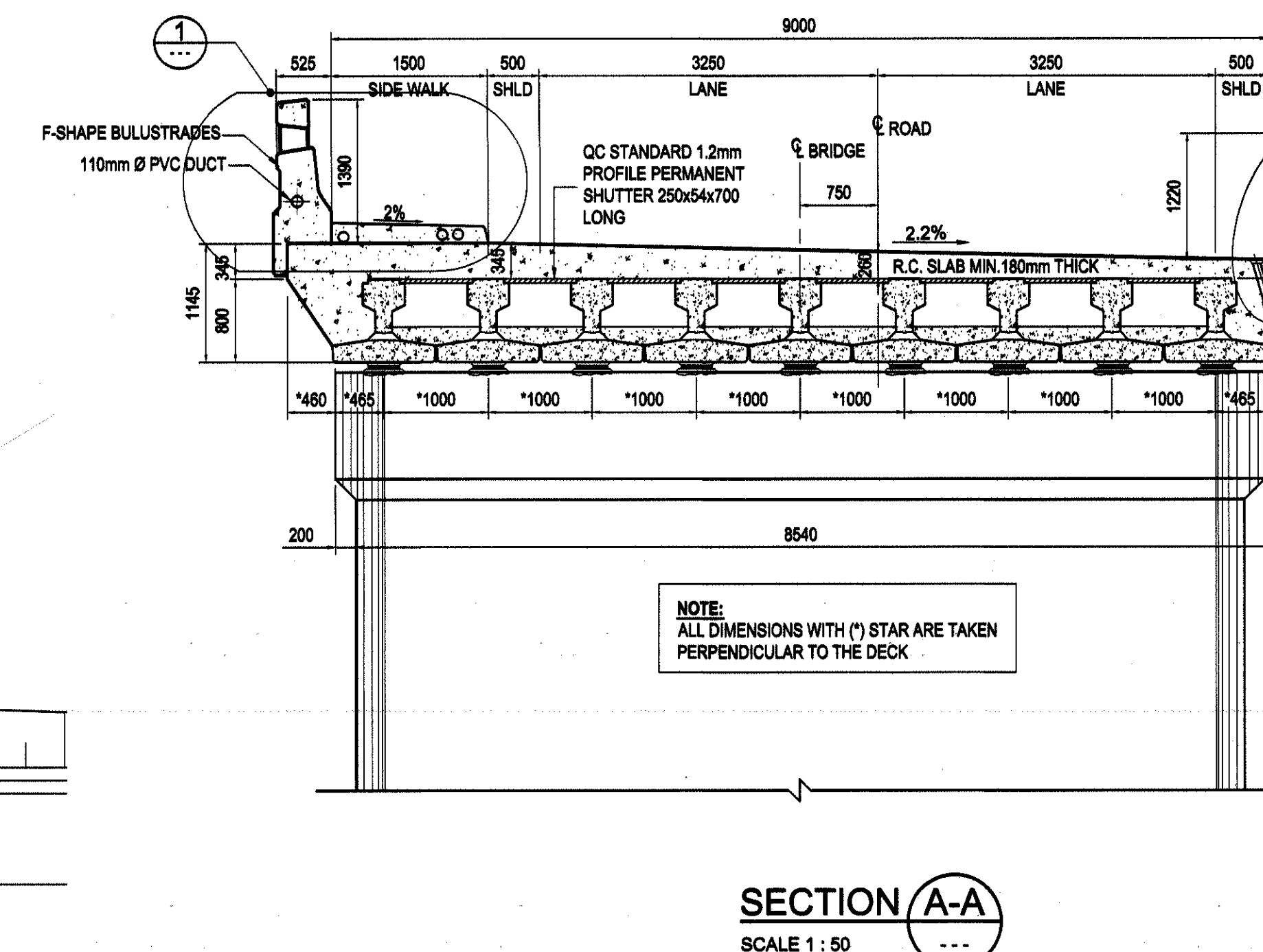
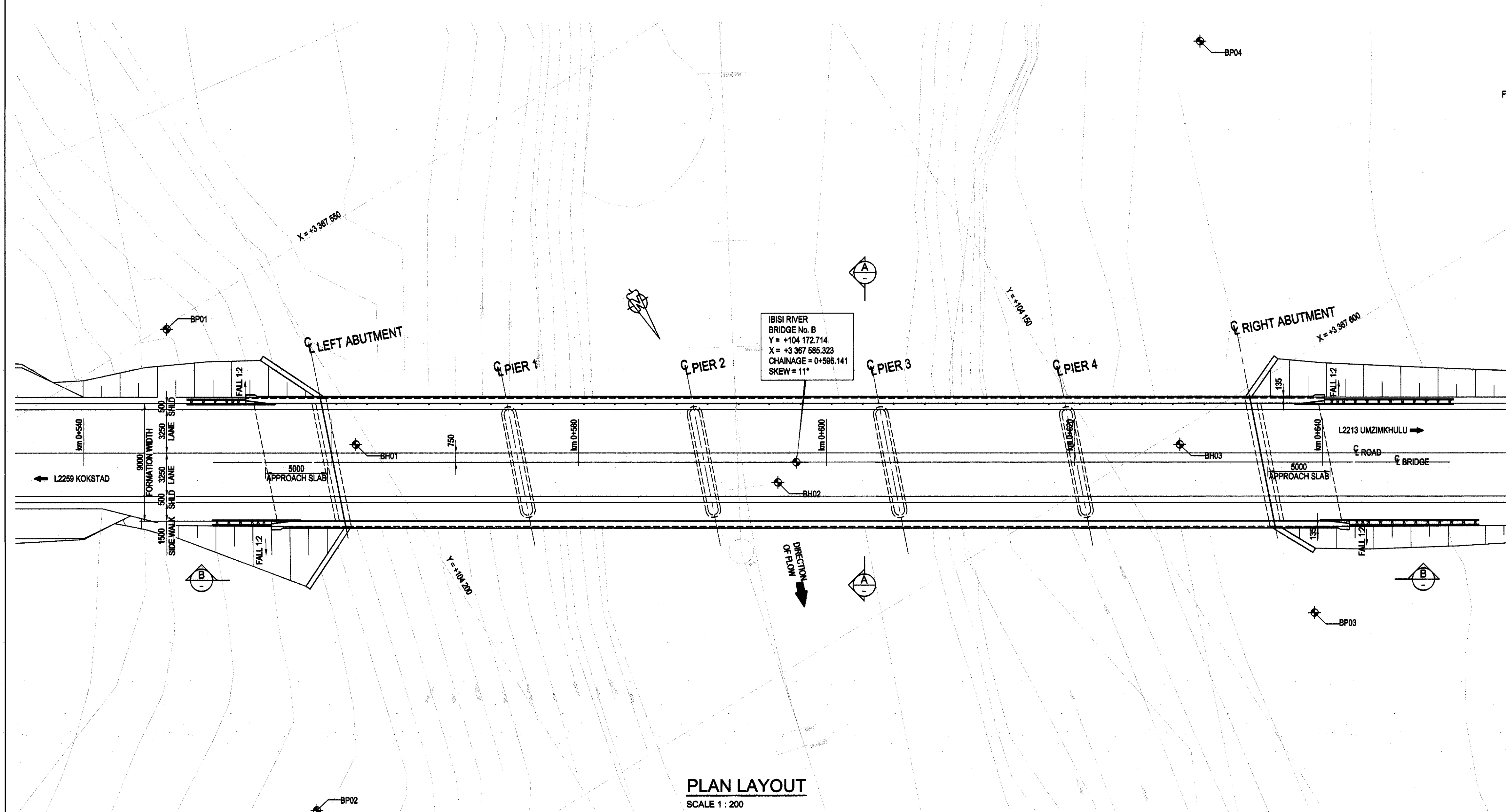




POINT	X	Y
BP 01	+3 387 550.314	+104 209.206
BP 02	+3 387 569.751	+104 218.207
BP 03	+3 387 518.294	+104 142.341
BP 04	+3 387 574.118	+104 125.953

POINT	X	Y
BH-1	+3 387 555.829	+104 201.054
BH-2	+3 387 567.890	+104 172.452
BH-3	+3 387 504.294	+104 138.974



Drawing No.	Description
372225	PARAPET UNIT 02 AND ENDBLOCK UNIT 02 BENDING SCHEDULE
372224	PARAPET UNIT 01 AND ENDBLOCK UNIT 01 BENDING SCHEDULE
372223	RIGHT ABUTMENT BENDING SCHEDULES
372222	LEFT ABUTMENT BENDING SCHEDULES
372221	APPROACH SLAB, DECK SLAB AND PIER BENDING SCHEDULES
372220	MISCELLANEOUS DETAILS
372219	ENDBLOCK UNIT 02 REINFORCEMENT DETAILS
372218	ENDBLOCK UNIT 01 REINFORCEMENT DETAILS
372217	PARAPET UNIT 01 & 02 AND APPROACH SLAB REINFORCEMENT DETAILS
372216	SERVICE DUCTS INSPECTION EYE FRAME & COVER DETAILS AND REAR & FRONT GUARDRAIL TO ENDBLOCK CONNECTION AND GUARDRAIL APPROACH & DEPARTURE DETAILS
372215	PARAPET CONCRETE DETAILS II (ENDBLOCK UNIT TYPE 02)
372214	PARAPET CONCRETE DETAILS II (ENDBLOCK UNIT TYPE 01)
372213	PARAPET CONCRETE DETAILS I (UNIT TYPE 1 & 2)
372212	PIER REINFORCEMENT DETAILS
372211	DECK SLAB AND PRECAST BEAM REINFORCEMENT DETAILS
372210	PRECAST BEAM CONCRETE DETAILS
372209	DECK SLAB CONCRETE DETAILS
372208	PIER 3 & 4 CONCRETE DETAILS
372207	PIER 1 & 2 CONCRETE DETAILS
372206	LEFT ABUTMENT REINFORCEMENT DETAILS
372205	LEFT ABUTMENT CONCRETE DETAILS
372204	RIGHT ABUTMENT REINFORCEMENT DETAILS
372203	RIGHT ABUTMENT CONCRETE DETAILS
372202	FOUNDATION SETTING OUT & BOREHOLE DATA
372201	GENERAL ARRANGEMENT

- NOTES:**
- STRUCTURE DESCRIPTION
5 SPANS SIMPLY SUPPORTED W/3 INVERTED T BEAMS AND SLAB SUPPORTED ON WALL TYPE PIERS AND BRIDGE ABUTMENTS. ABUTMENTS AND PIERS SPREAD FOOTING ARE FOUND ON BEDROCK.
 - ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE C.O.I.T.O. SPECIFICATION FOR ROAD AND BRIDGE WORKS (1988).
 - THE DESIGN LOADING IS IN ACCORDANCE WITH TMH 7 : PARTS 1 & 2 1989 (AS AMENDED) NA AND NB 24 LOADING. PARAPET DESIGN LOADING IS IN ACCORDANCE WITH SANRAL STD BRIDGE DRAWING TD-S-P-1002 TO 1008.
 - CONCRETE DESIGN BASED ON LIMIT STATE IN ACCORDANCE WITH TMH 7 : PART 3 1988.
 - ALLOWABLE BEARING PRESSURE IS > 500kPa.
 - HEALTH AND SAFETY: CONSTRUCTION OF THE NEW WORKS ON THIS PROJECT WILL BE REQUIRED TO COMPLY WITH KZN DOT'S USUAL SAFETY SPECIFICATIONS WHICH MUST IN THIS INSTANCE INCLUDE FOR SPECIAL PRECAUTIONS ASSOCIATED WITH WORKING AT HEIGHT AND DEEP EXCAVATIONS.
 - CONCRETE SHALL BE CLASS: BASES CONCRETE: 15/19 ABUTMENTS & PIERS: 30/19 DECK SLAB: 40/19
 - COVER TO REINFORCEMENT: BASES - 50mm ABUTMENTS & PIERS - 50mm DECK SLAB - 40mm PARAPETS - 40mm
 - FORMED SURFACE FINISHES: CLASS F1 - CONCEALED SURFACES (ROUGH) CLASS F2 - VISIBLE SURFACES (SMOOTH)
 - ALL UNFORMED SURFACE FINISHES: CLASS U1 - CONCEALED SURFACES CLASS U2 - VISIBLE SURFACES
 - REINFORCEMENT SHALL BE BENT IN ACCORDANCE WITH S.A.B.S. 52 :1997.
 - REINFORCEMENT SHALL CONFORM TO SANS 920:2011
HOT ROLLED HIGH YIELD STRESS DEFORMED BARS
CHARACTERISTIC STRENGTH 450 MPa
HOT ROLLED ROUND MILD STEEL BARS
CHARACTERISTIC STRENGTH 250 MPa
 - ALL EXPOSED SHARP CONCRETE EDGES SHALL BE CHAMFERED 20mm x 20mm
 - FOUNDATION BASES TO BE DOWELLED INTO ROCK AS DETAILED
 - THE RIVER NAME 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 & DATE IS TO BE HORIZONTALLY PLACED CENTRALLY ORIENTATED ON THE LEFT HAND APPROACH END BLOCK ON EACH OF THE F-TYPE BALUSTRADE. ABOVE THE GUARDRAIL RECESS LEVEL. THE BRIDGE NUMBER IS TO BE REBATED 10mm IN 75mm NUMBERING INTO THE TOP OF THE SLOPING HORIZONTAL SURFACE. ALL NUMBERS & LETTERING IS TO BE CAREFULLY PAINTED WITH TWO COATS OF BLACK ALKALI PAINT.
 - ALL WORK AND MATERIALS SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE WORKS 1987 (CSA).

Symbol	Date	Description	Checked	Signed
		AMENDMENTS		

AS BUILT

Supervising Engineer

Date



transport
Department:
Transport
Province of KwaZulu-Natal

Designed by: *[Signature]* D. D. D. D.

Checked by: *[Signature]* S. Mathe

Drawn by: *[Signature]* T. Mkhize

Checked by: *[Signature]* S. Mathe

File Reference: L2214/037224

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Designed by: *[Signature]*

emzansi
ENGINEERS (PTY) LTD
Providing the most innovative engineering solutions

Signature

02/11/2019

[Signature]

Bridge Engineer

[Signature]

Head: Transport

TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214
CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

Kilometer Distance
km 0+596.141

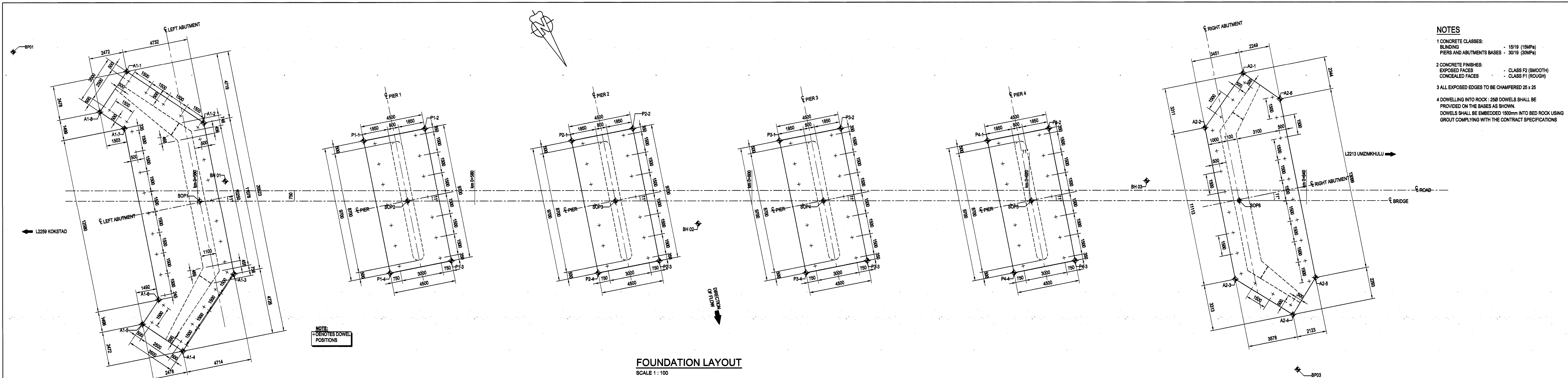
Sheet No.: 01
of 25
Revision
00

IBISI RIVER BRIDGE
GENERAL ARRANGEMENT

Scale
As Shown

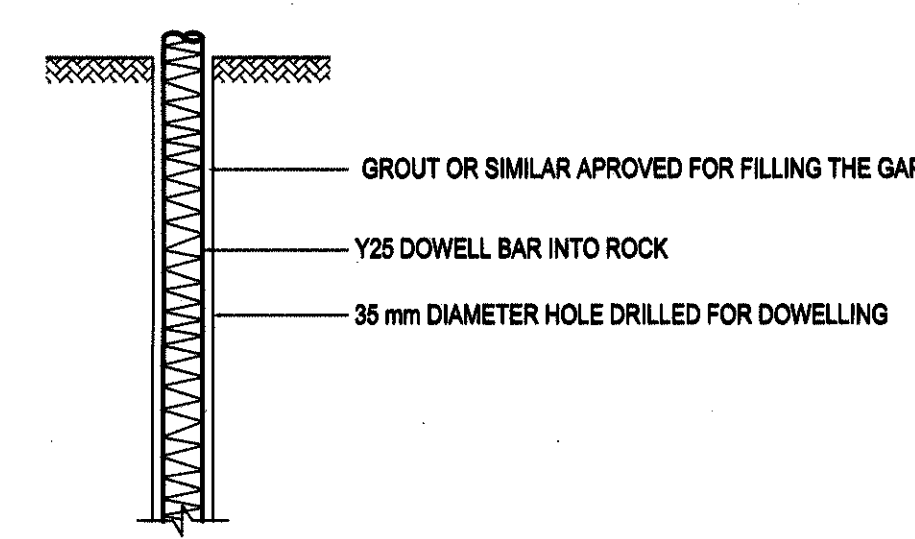
PLAN NUMBER
3722/01

3722/01

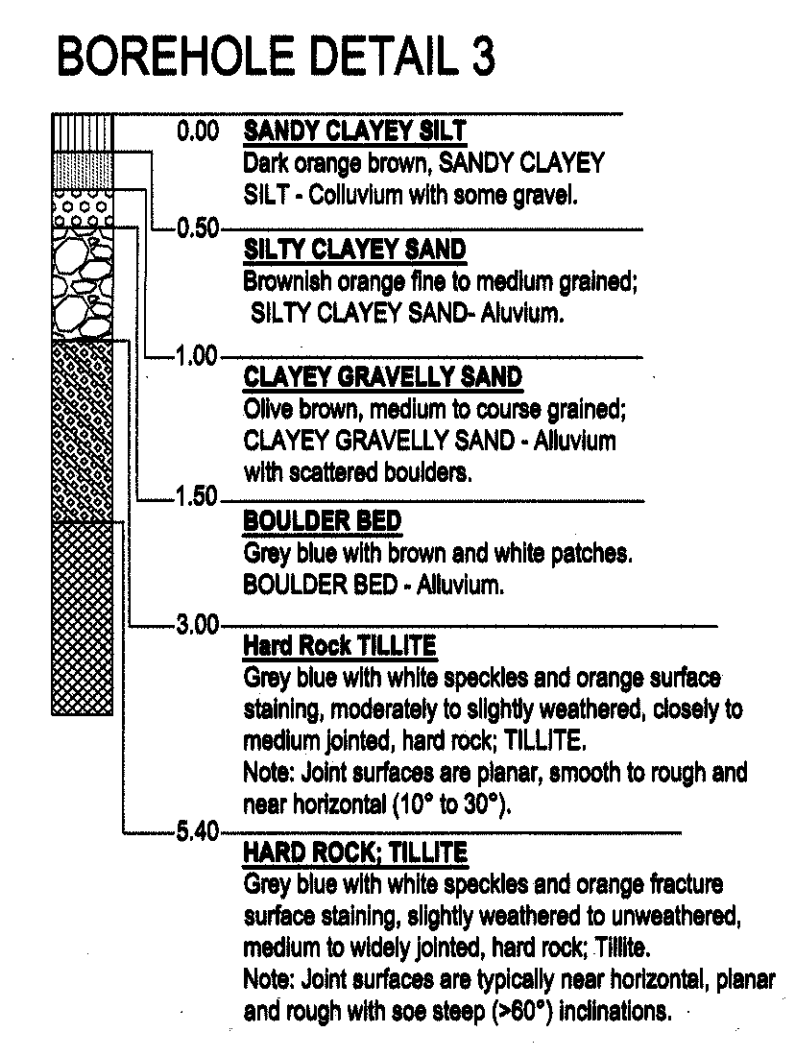
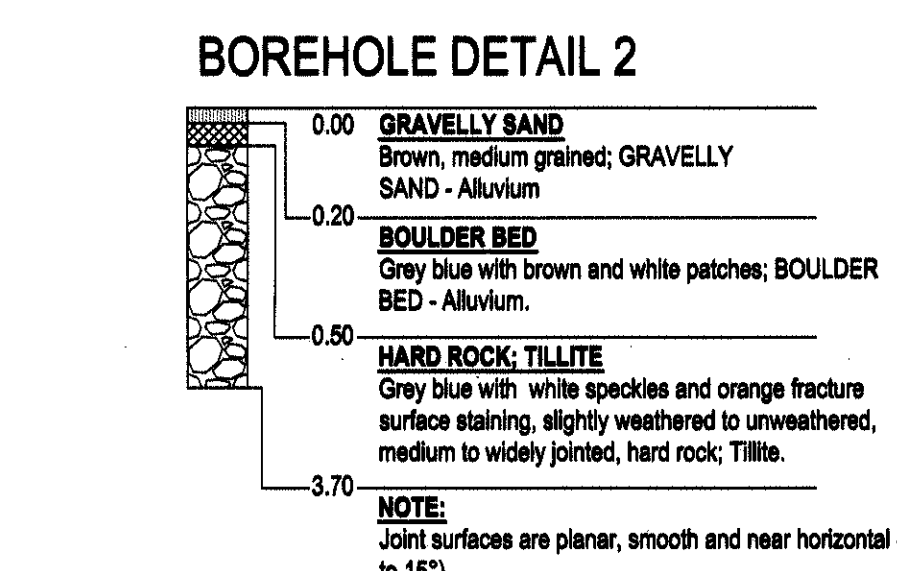
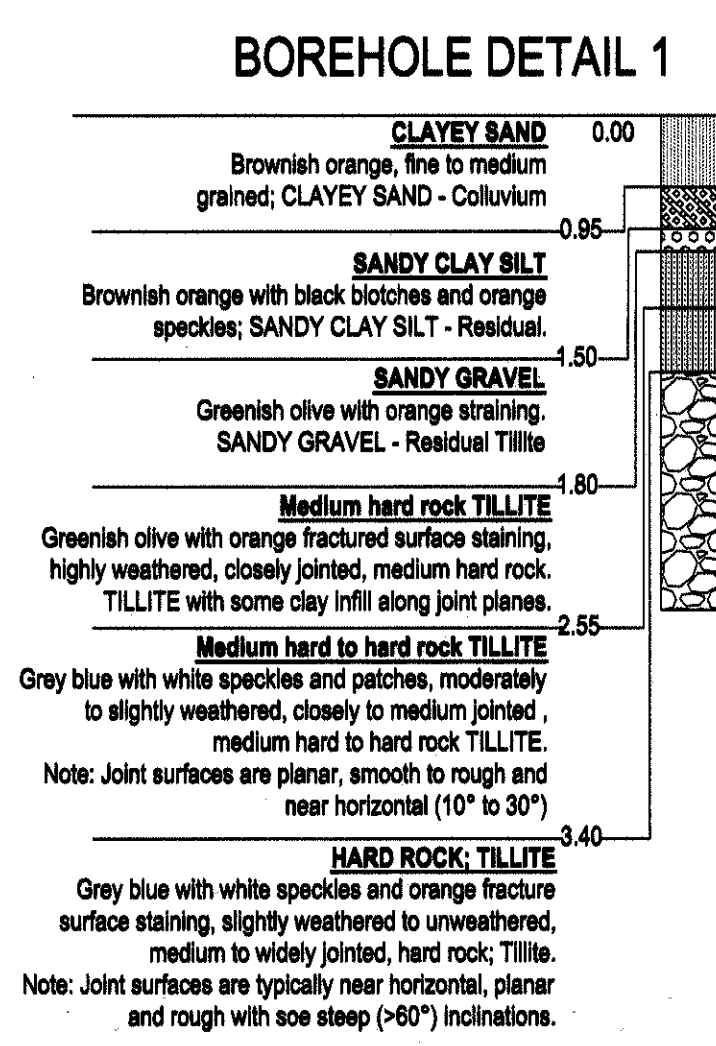


- NOTES**
1. CONCRETE CLASSES:
BLINDING PERS AND ABUTMENTS BASES - 15/19 (15MPa)
CONCEALED FACES - CLASS F2 (SMOOTH)
CLASS F1 (ROUGH)
 2. ALL EXPOSED EDGES TO BE CHAMFERED 25 x 25
 3. DOWELLING INTO ROCK: 250 DOWELS SHALL BE PROVIDED ON THE BASES AS SHOWN. DOWELS SHALL BE EMBEDDED 150mm INTO BED ROCK USING GROUT COMPLYING WITH THE CONTRACT SPECIFICATIONS

FOUNDATION LAYOUT
SCALE 1 : 100



TYPICAL DOWEL BAR DETAIL
SCALE 1 : 5

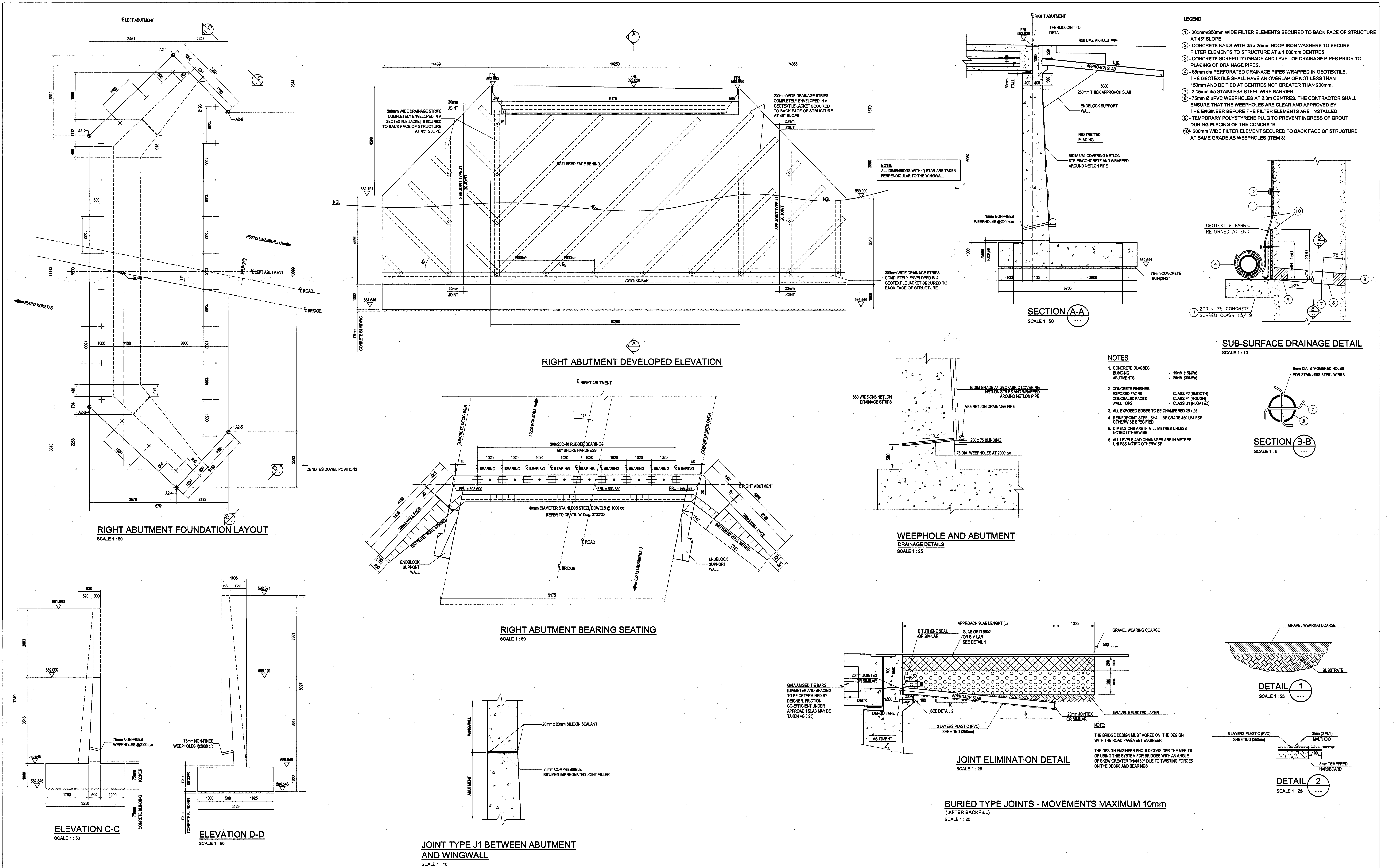


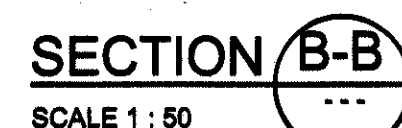
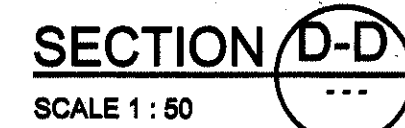
BOREHOLES-LOGS

BRIDGE PEG CO-ORDINATES		
POINT	X	Y
BP 01	+3 367 550.914	+104 229.228
BP 02	+3 367 559.751	+104 219.207
BP 03	+3 367 618.284	+104 142.241
BP 04	+3 367 574.118	+104 125.953

BOREHOLES SETTING OUT CO-ORDINATES		
POINT	X	Y
BH-1	+3 367 555.529	+104 201.054
BH-2	+3 367 587.900	+104 172.452
BH-3	+3 367 604.384	+104 138.974

SETTING OUT COORDINATES (WGS 84 Lo 31)		
POINT	Y-COORDINATES	X-COORDINATES
A1-1	+104353.9761	+3367398.5511
A1-2	+104349.2361	+3367398.7062
A1-3	+104347.3903	+3367398.9664
A1-4	+104350.5416	+3367403.8991
A1-5	+104353.0234	+3367402.0475
A1-6	+104352.0282	+3367400.5499
A1-7	+104356.2743	+3367559.1785
A1-8	+104356.1648	+3367557.2493
A2-1	+104285.3458	+3367398.8899
A2-2	+104287.8787	+3367390.0301
A2-3	+104285.8240	+3367398.3179
A2-4	+104282.2816	+3367401.4900
A2-5	+104280.8894	+3367599.2195
A2-6	+104283.0746	+3367398.2721
P1-1	+104339.3988	+3367390.8114
P1-2	+104336.6378	+3367390.0628
P1-3	+104334.0236	+3367398.1696
P1-4	+104337.7847	+3367398.9184
P2-1	+104326.6150	+3367390.8120
P2-2	+104322.8540	+3367390.0632
P2-3	+104321.2368	+3367398.1702
P2-4	+104325.0009	+3367398.9190
P3-1	+104313.8332	+3367390.8128
P3-2	+104310.0721	+3367390.0638
P3-3	+104308.4587	+3367398.1707
P3-4	+104312.2178	+3367398.9196
P4-1	+104301.0488	+3367390.8132
P4-2	+104297.2877	+3367390.0643
P4-3	+104296.6736	+3367398.1713
P4-4	+104299.4347	+3367398.9202
SOP1	+104349.4909	+3367394.5011
SOP2	+104336.7074	+3367394.5011
SOP3	+104323.9224	+3367394.5011
SOP4	+104311.1394	+3367394.5011
SOP5	+104286.3564	+3367394.5011
SOP6	+104285.5749	+3367394.5015



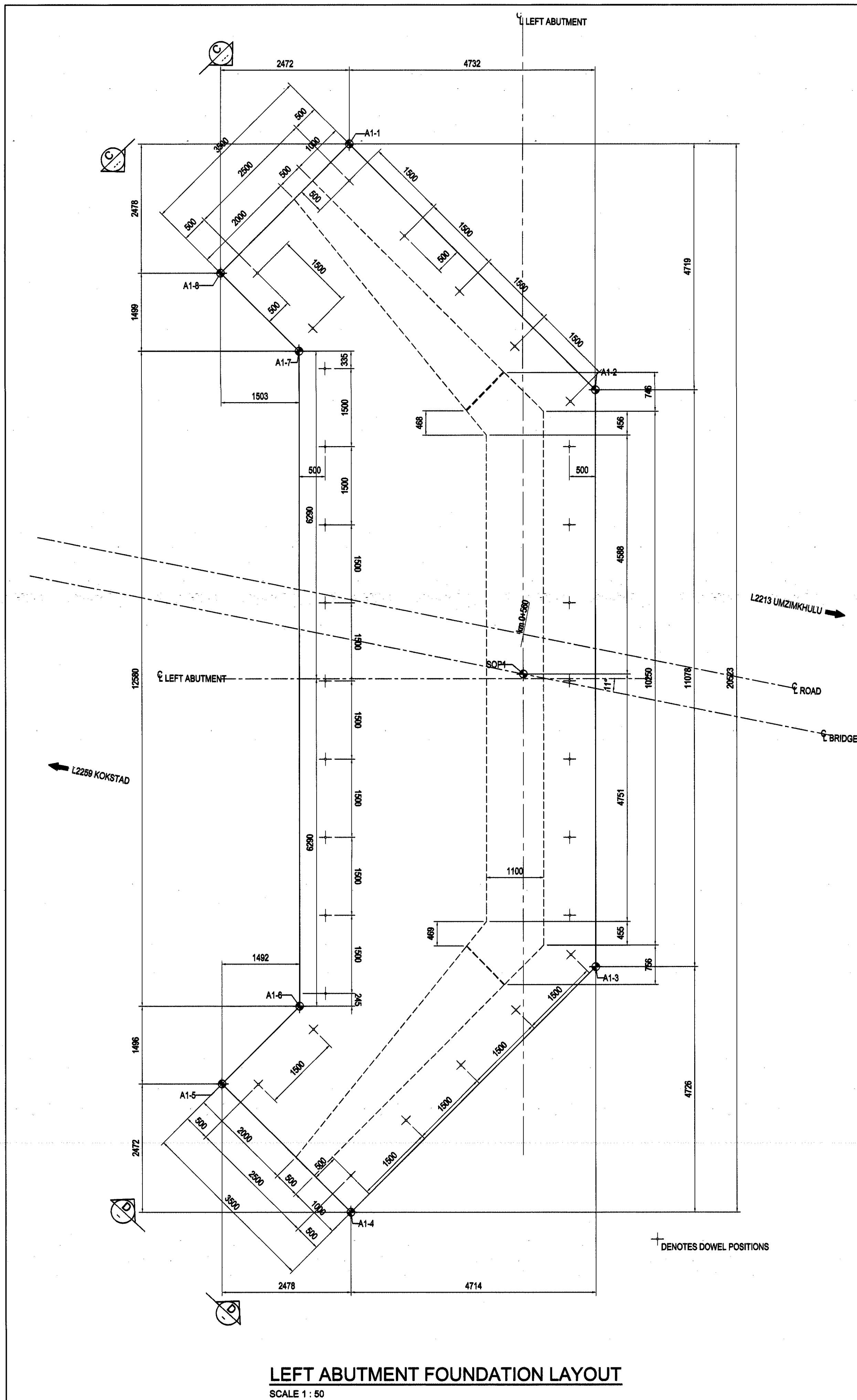


- ## REINFORCING LEGEND:
- | | | | |
|-----|-----|---|-------------------------|
| 1. | T | - | TOP |
| 2. | M | - | MIDDLE |
| 3. | B | - | BOTTOM |
| 4. | T1 | - | UPPER TOP LAYER |
| 5. | T2 | - | LOWER TOP LAYER |
| 6. | B1 | - | LOWER BOTTOM LAYER |
| 7. | B2 | - | UPPER BOTTOM LAYER |
| 8. | ABR | - | ALTERNATE BARS REVERSED |
| 9. | ALT | - | ALTERNATING BARS |
| 10. | NF | - | NEAR FACE |
| 11. | FF | - | FAIR FACE |
| 12. | EF | - | EDGE FACE |
| 13. | IF | - | INSIDE FACE |
| 14. | OF | - | OUTSIDE FACE |
| 15. | EW | - | EACH WAY |

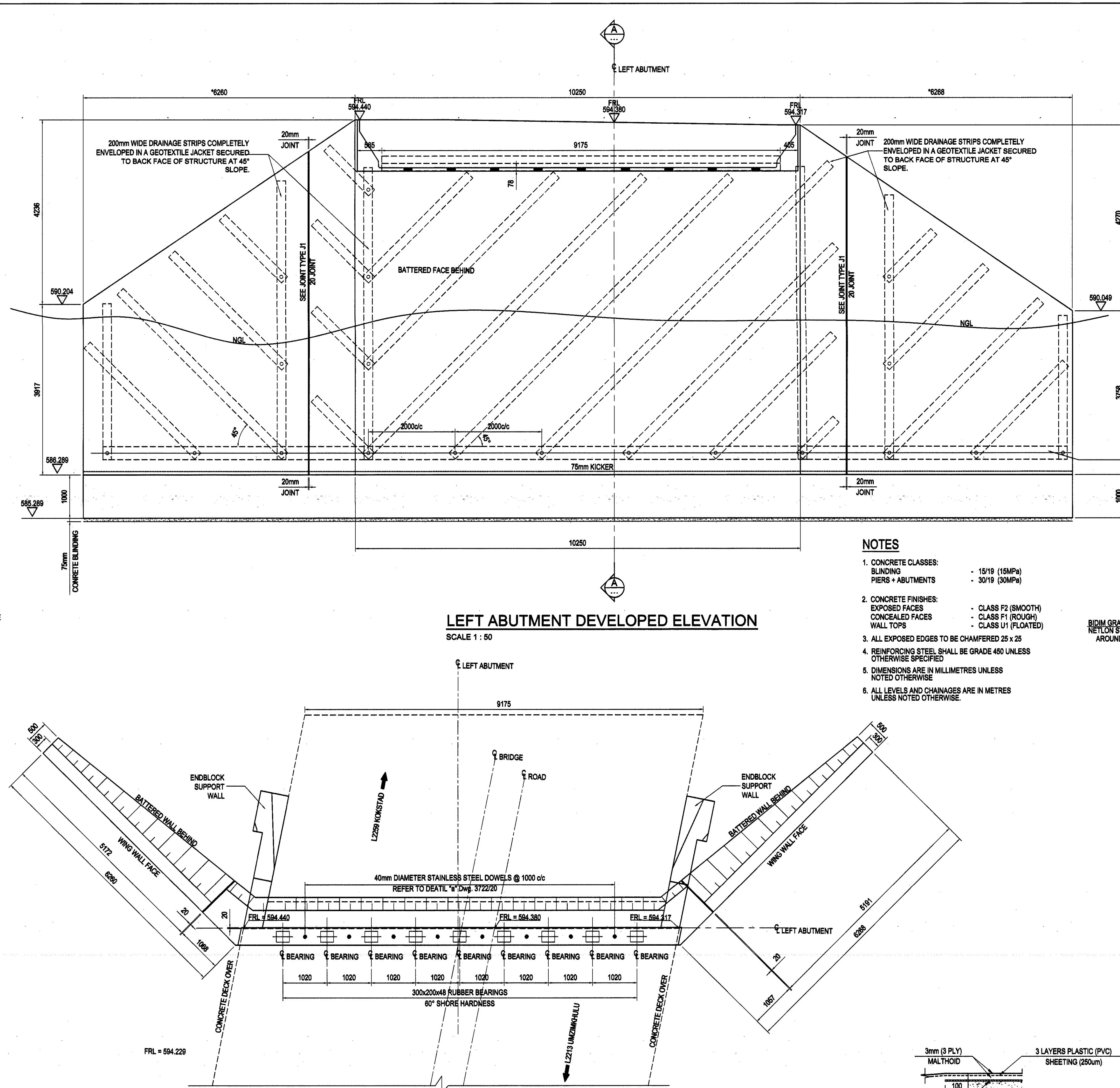
-
- STOOLS**
- Diagram illustrating the components of a stool:
- T1: Top layer (Seat)
 - T2: Middle layer (Support)
 - B1: Bottom layer (Base)
 - B2: Bottom layer (Base)
- NOTE:
STOOLS TO REST ON B1 LAYER AND
SUPPORT T2 LAYER AS SHOWN

3/22/04

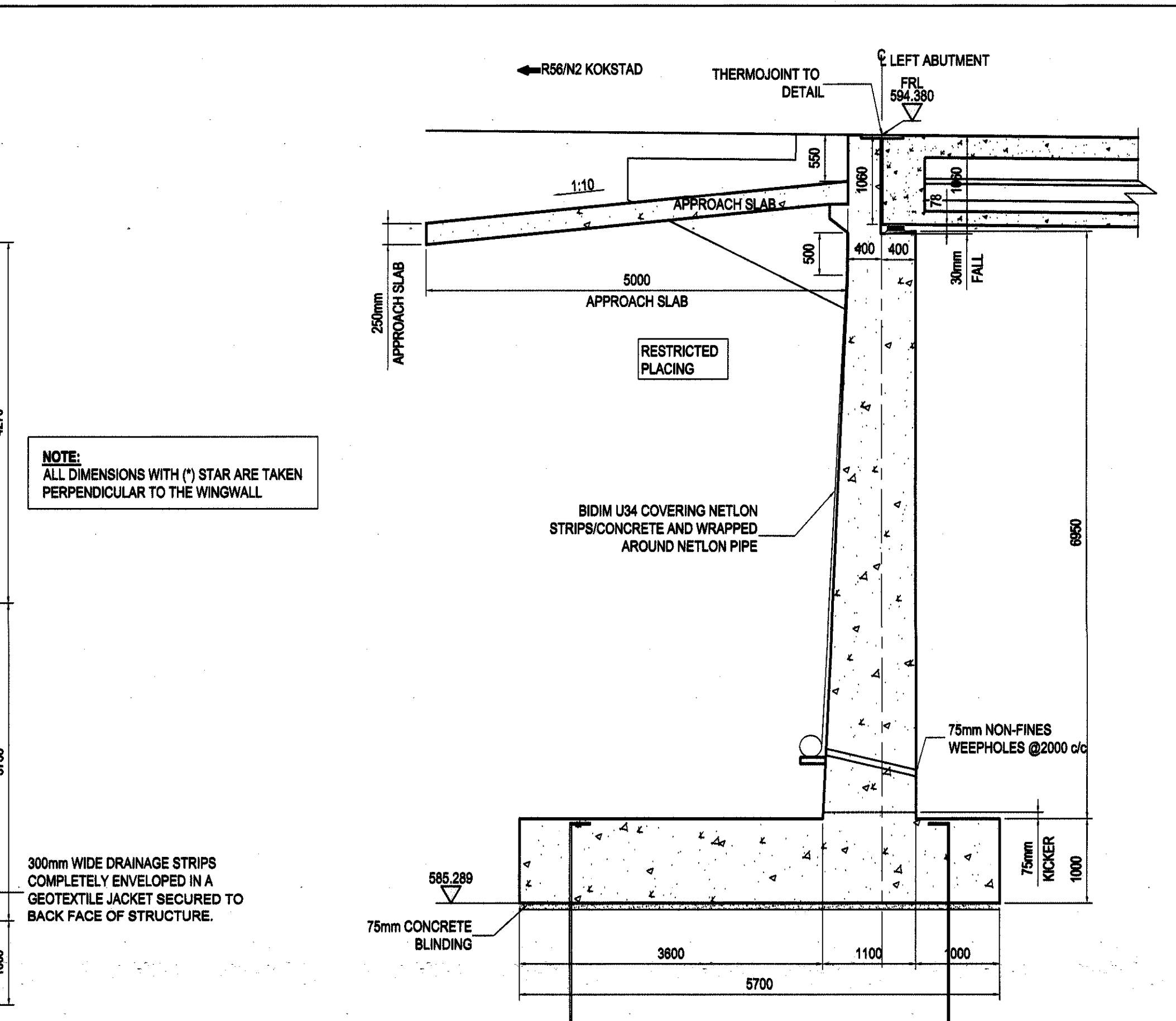
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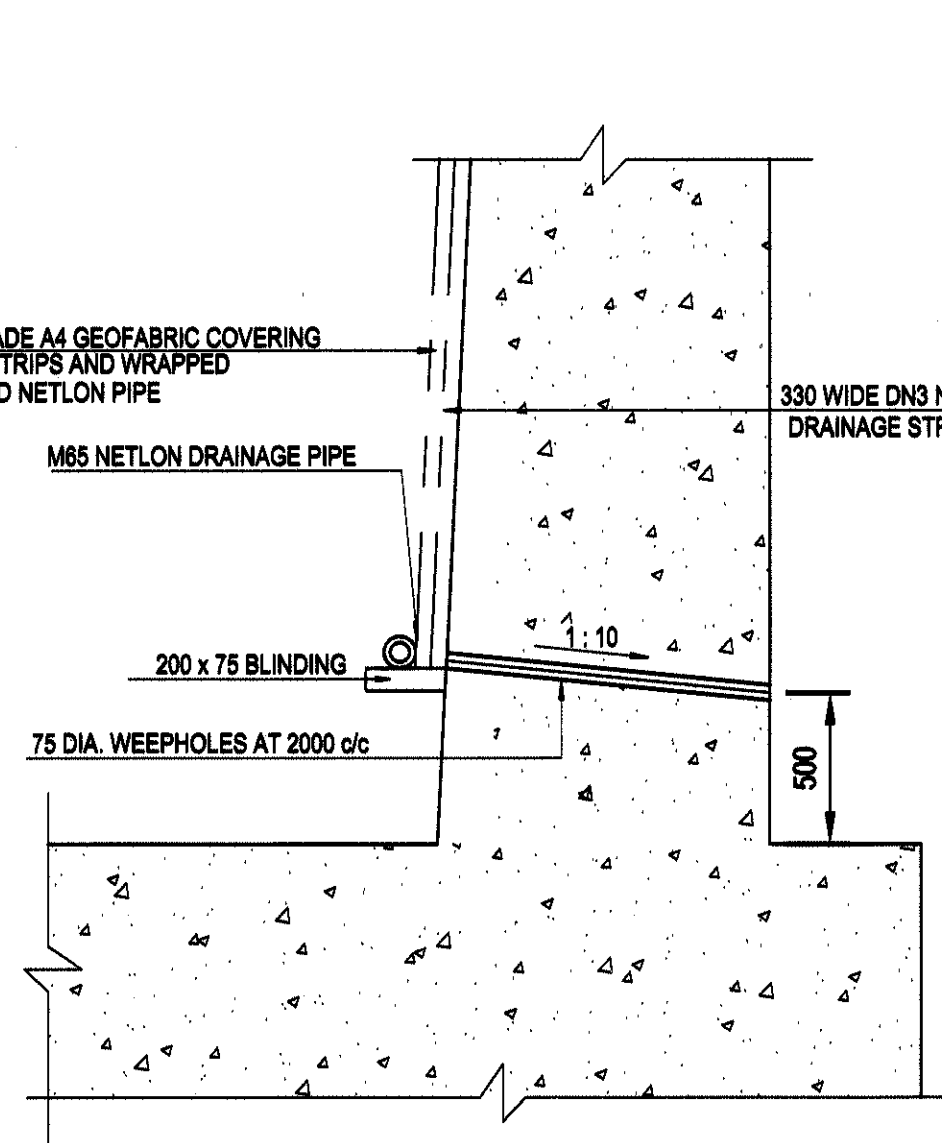
LEFT ABUTMENT FOUNDATION LAYOUT
SCALE 1 : 50



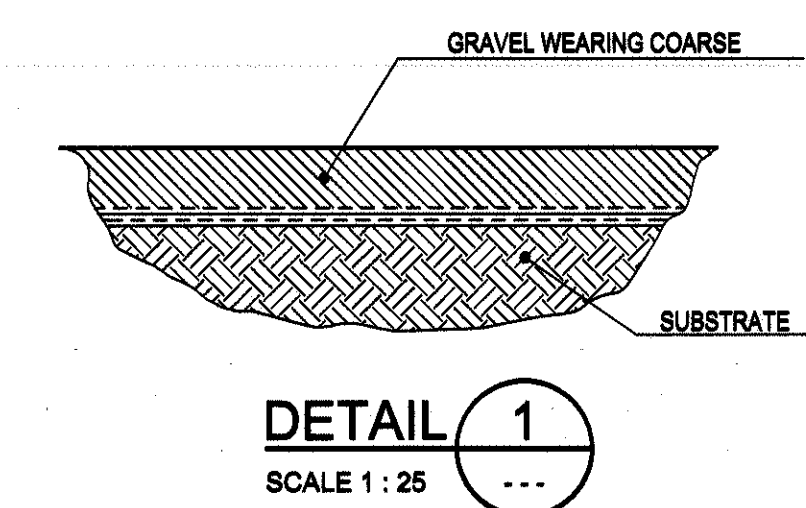
LEFT ABUTMENT BEARING SEATING
SCALE 1 : 50



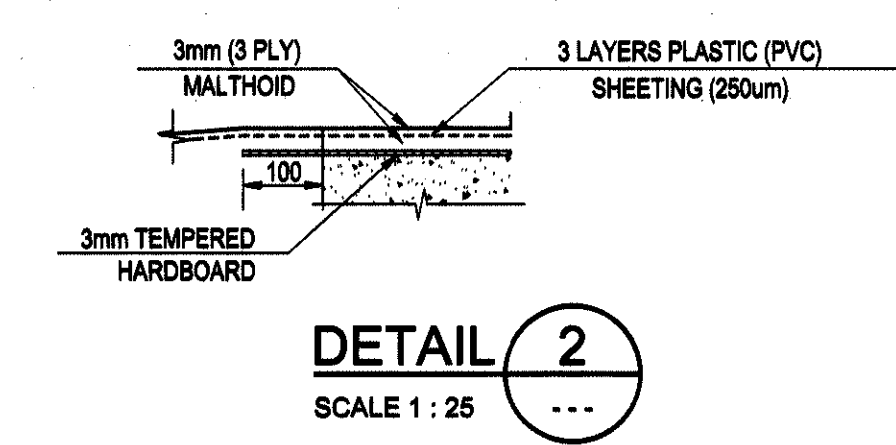
SECTION A-A
SCALE 1 : 50



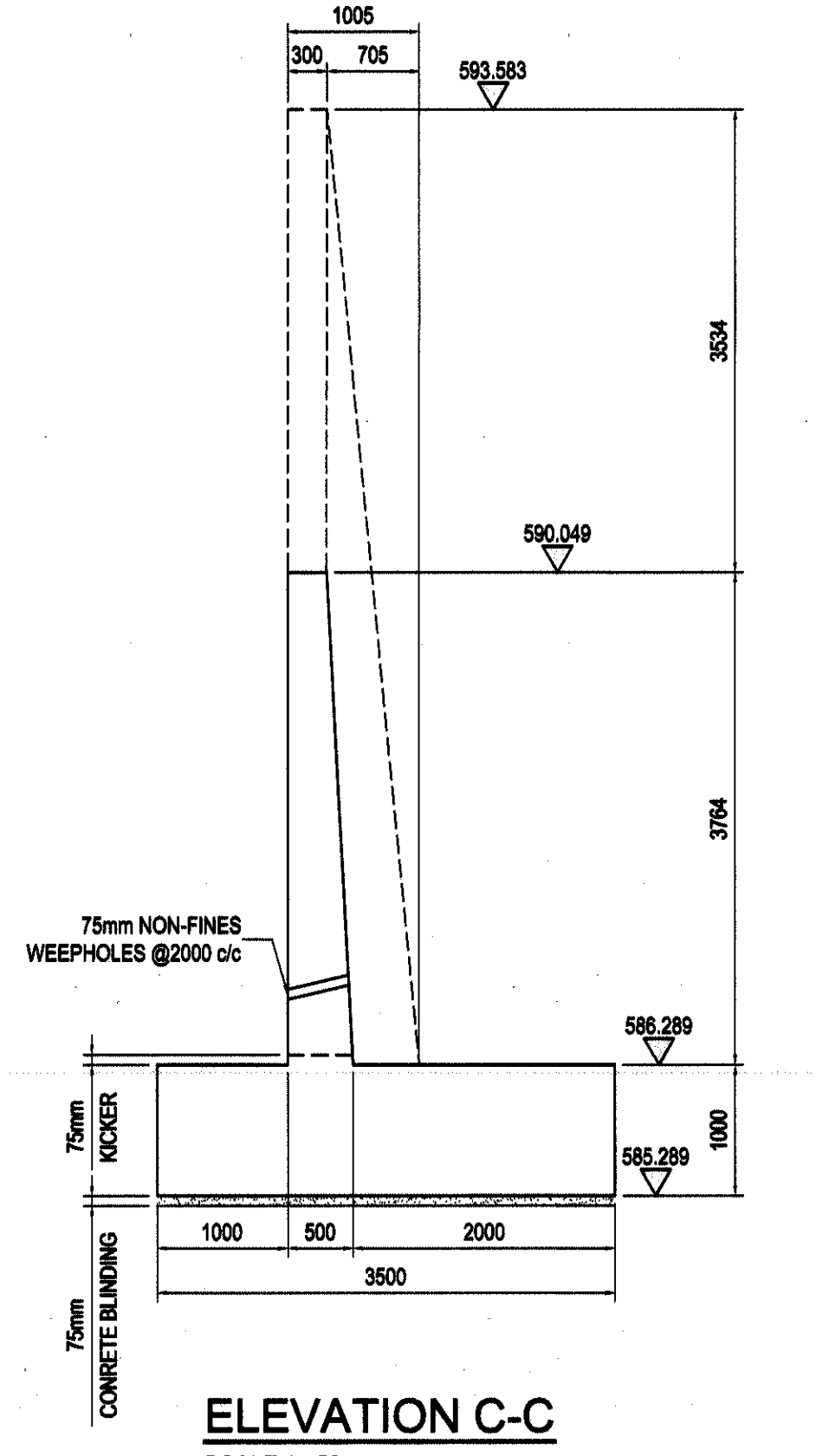
WEEPHOLE AND ABUTMENT DRAINAGE DETAILS
SCALE 1 : 25



DETAIL 1
SCALE 1 : 25

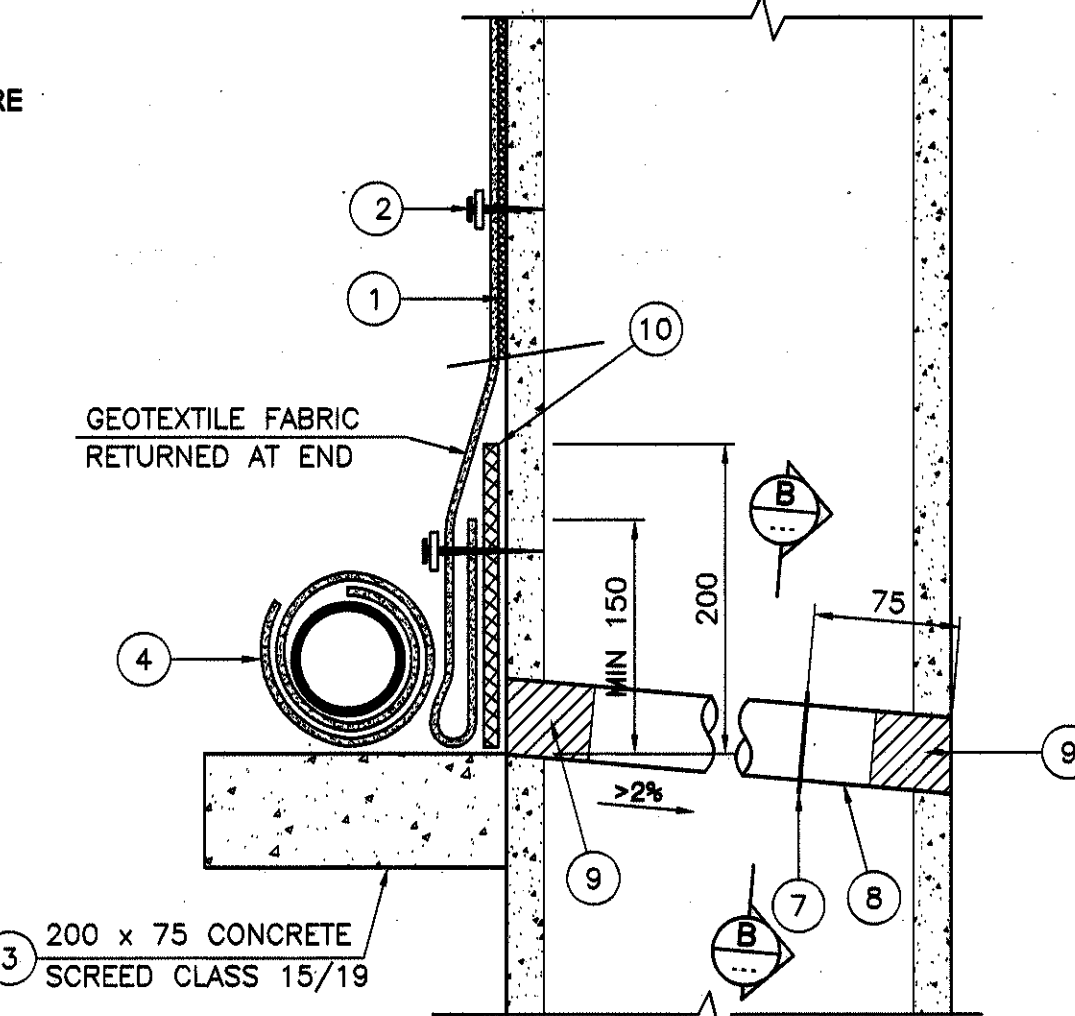


DETAIL 2
SCALE 1 : 25

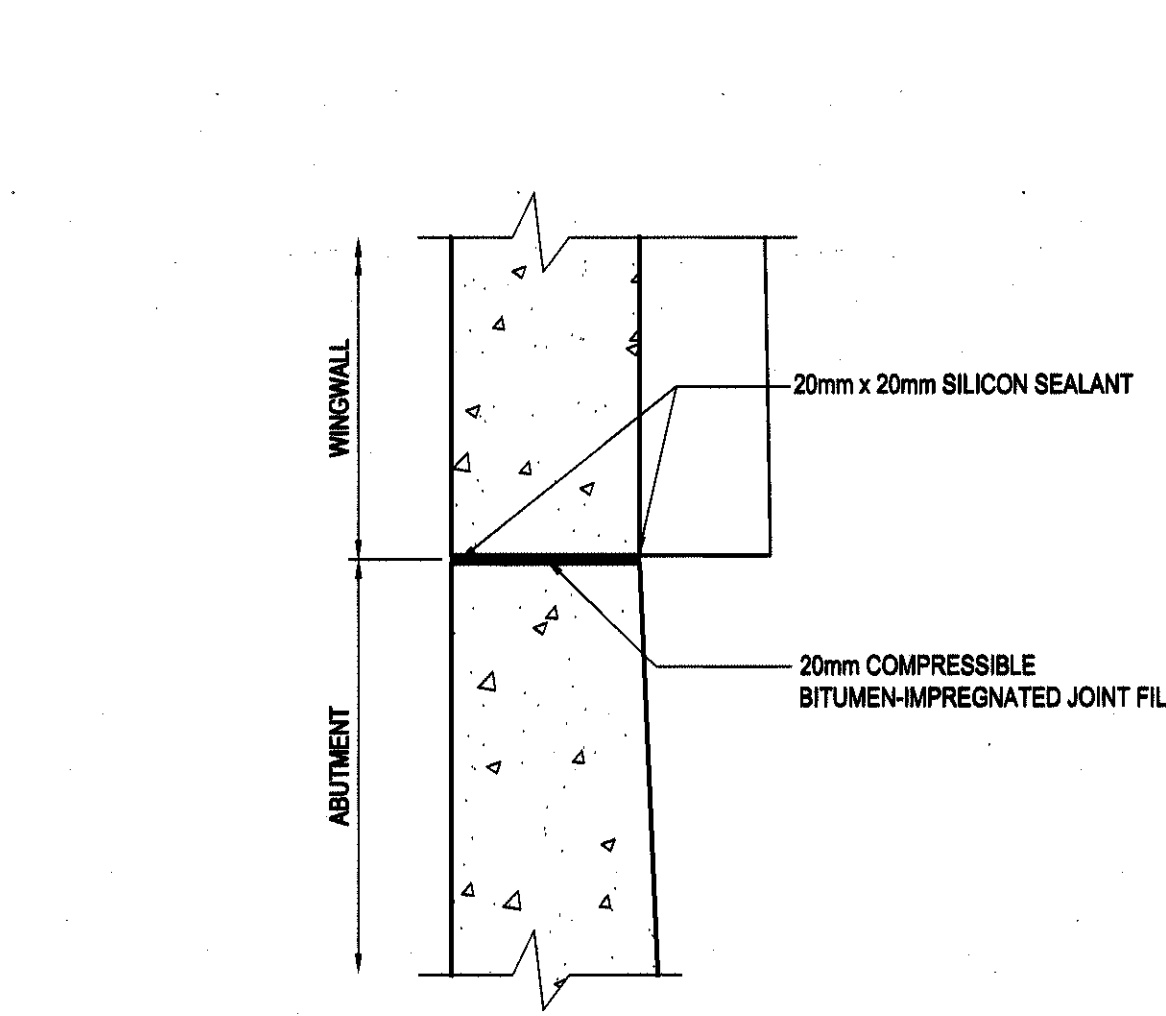


ELEVATION C-C
SCALE 1 : 50

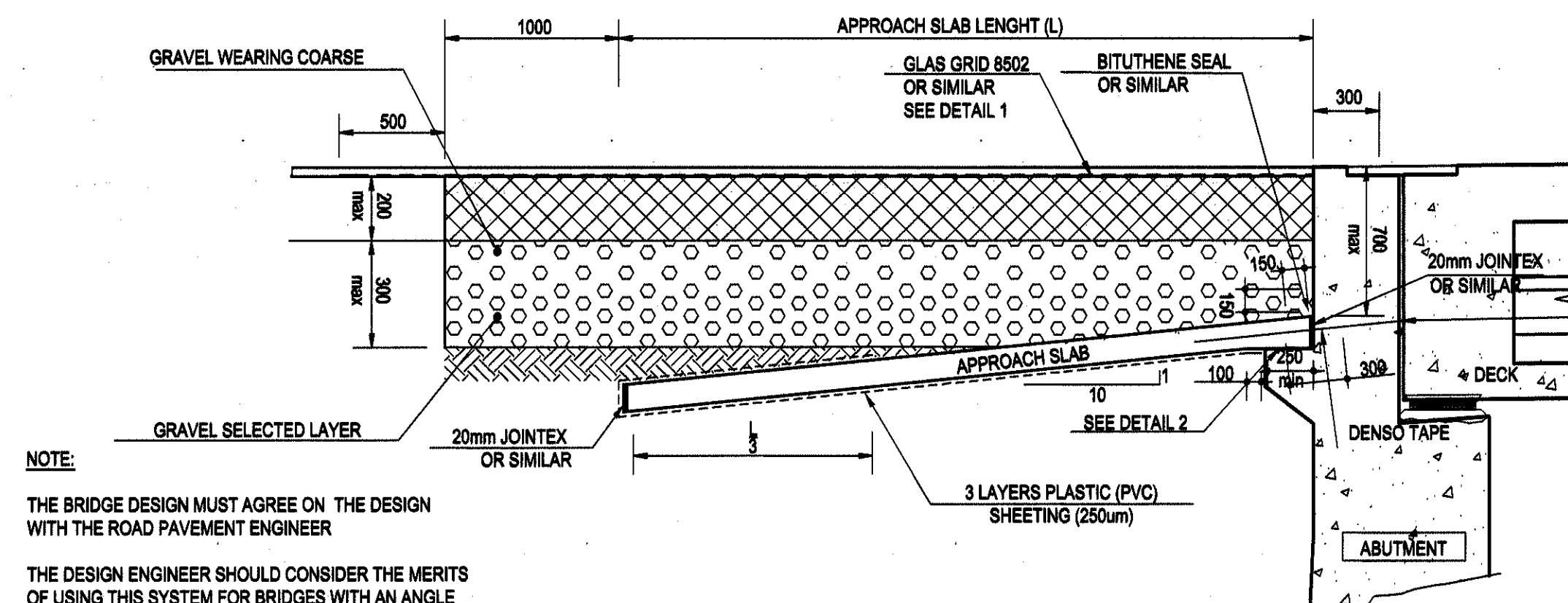
- LEGEND**
- 200mm/300mm WIDE FILTER ELEMENTS SECURED TO BACK FACE OF STRUCTURE AT 45° SLOPE.
 - CONCRETE NAILS WITH 25 x 25mm HOOP IRON WASHERS TO SECURE FILTER ELEMENTS TO STRUCTURE AT ± 1 000mm CENTRES.
 - CONCRETE SCREED TO GRADE AND LEVEL OF DRAINAGE PIPES PRIOR TO PLACING OF DRAINAGE PIPES.
 - 65mm dia PERFORATED DRAINAGE PIPES WRAPPED IN GEOTEXTILE. THE GEOTEXTILE SHALL HAVE AN OVERLAP OF NOT LESS THAN 150mm AND BE TIED AT CENTRES NOT GREATER THAN 200mm.
 - 3.15mm dia STAINLESS STEEL WIRE BARRIER.
 - 75mm Ø uPVC WEEPHOLES AT 2.0m CENTRES. THE CONTRACTOR SHALL ENSURE THAT THE WEEPHOLES ARE CLEAR AND APPROVED BY THE ENGINEER BEFORE THE FILTER ELEMENTS ARE INSTALLED.
 - TEMPORARY POLYSTYRENE PLUG TO PREVENT INGRESS OF GROUT DURING PLACING OF THE CONCRETE.
 - 200mm WIDE FILTER ELEMENT SECURED TO BACK FACE OF STRUCTURE AT SAME GRADE AS WEEPHOLES (ITEM 8).



SUB-SURFACE DRAINAGE DETAIL
SCALE 1 : 10

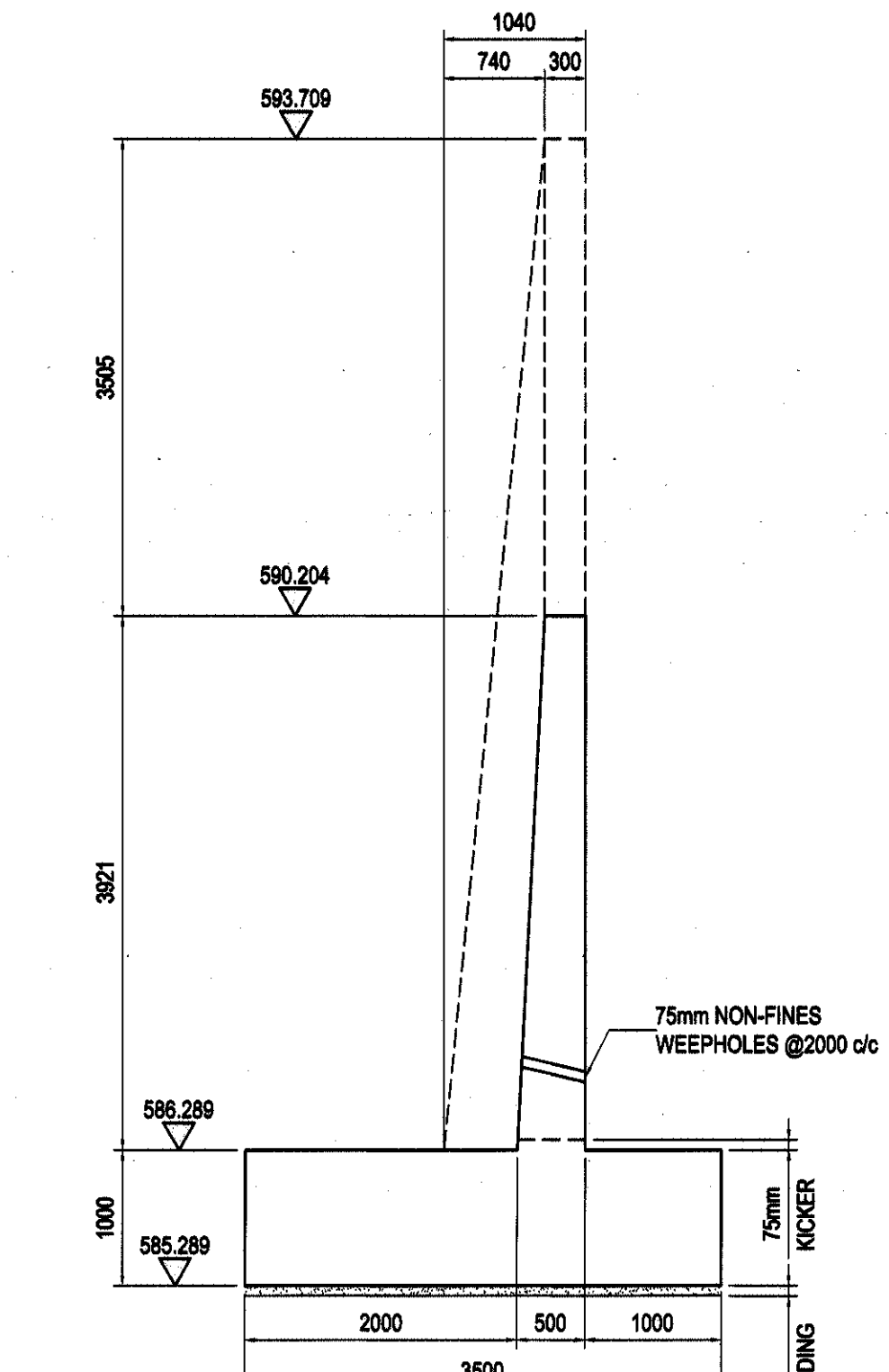


JOINT TYPE J1 BETWEEN ABUTMENT AND WINGWALL
SCALE 1 : 10



JOINT ELIMINATION DETAIL
SCALE 1 : 25

BURIED TYPE JOINTS - MOVEMENTS MAXIMUM 10mm
(AFTER BACKFILL)
SCALE 1 : 25



ELEVATION D-D
SCALE 1 : 50

Symbol	Date	Description	Checked	Signed
		AMENDMENTS		

AS BUILT

Supervising Engineer Date

Supervising Authority



Designed by: S. Mathe

Checked by: S. Mathe

Drawn by: Y. Michize

Checked by: S. Mathe

File Reference: L2214/8/3722/4

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Designed by: emzansi ENGINEERS (PTY) LTD

Signature: 04/11/2019

Signature: Head: Transport

TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214
CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

IBISI RIVER BRIDGE
LEFT ABUTMENT CONCRETE DETAILS

Kilometer Distance: km 0+596.141

Sheet No.: 05 of 25

Revision: 00

Scale: As Shown

PLAN NUMBER: 3722/05

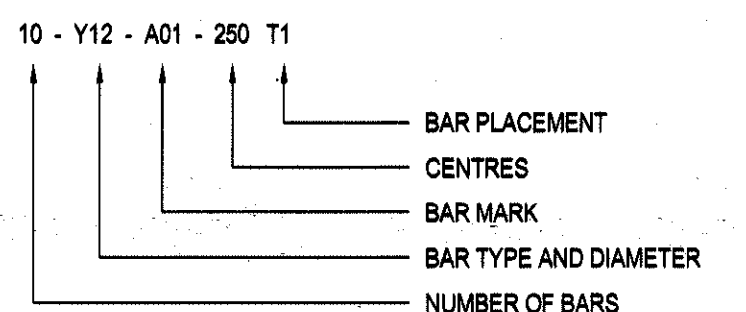
NOTES:

- MINIMUM CONCRETE COVER TO REINFORCEMENT = 50mm
- MINIMUM LAP LENGTH TO BE : 45 x SMALLER BAR DIAMETER. MINIMUM LAP DIMENSION INDICATED TO BE APPLICABLE, UNLESS GEOMETRIC CONSTRAINTS REQUIRE LARGER LAP LENGTH.
- DETAILING AND ABBREVIATIONS IN ACCORDANCE WITH SABS 0144 - 2012
- FOR STEEL SPECIFICATIONS AND BENDING DETAILS REFER TO BENDING SCHEDULE
- REINFORCEMENT TO CONFORM TO SABS 920-1985 HOT ROLLED HIGH YIELD STRESS DEFORMED (Y) BARS - CHARACTERISTIC STRENGTH 450 MPa

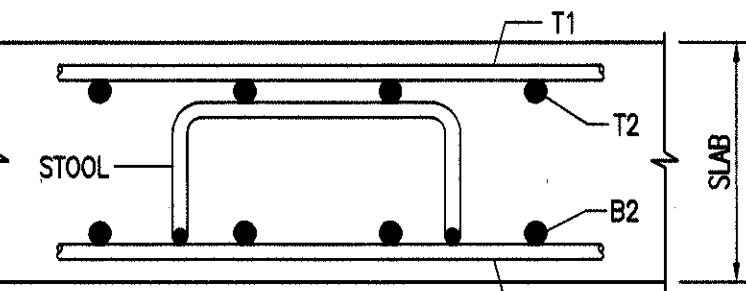
REINFORCING LEGEND:

- T - TOP
- M - MIDDLE
- B - BOTTOM
- T1 - UPPER TOP LAYER
- T2 - LOWER TOP LAYER
- B1 - LOWER BOTTOM LAYER
- B2 - UPPER BOTTOM LAYER
- ABR - ALTERNATE BARS REVERSED
- ALT - ALTERNATING BARS
- NF - NEAR FACE
- FF - FAR FACE
- EF - EACH FACE
- IF - INSIDE FACE
- OF - OUTSIDE FACE
- EW - EACH WAY

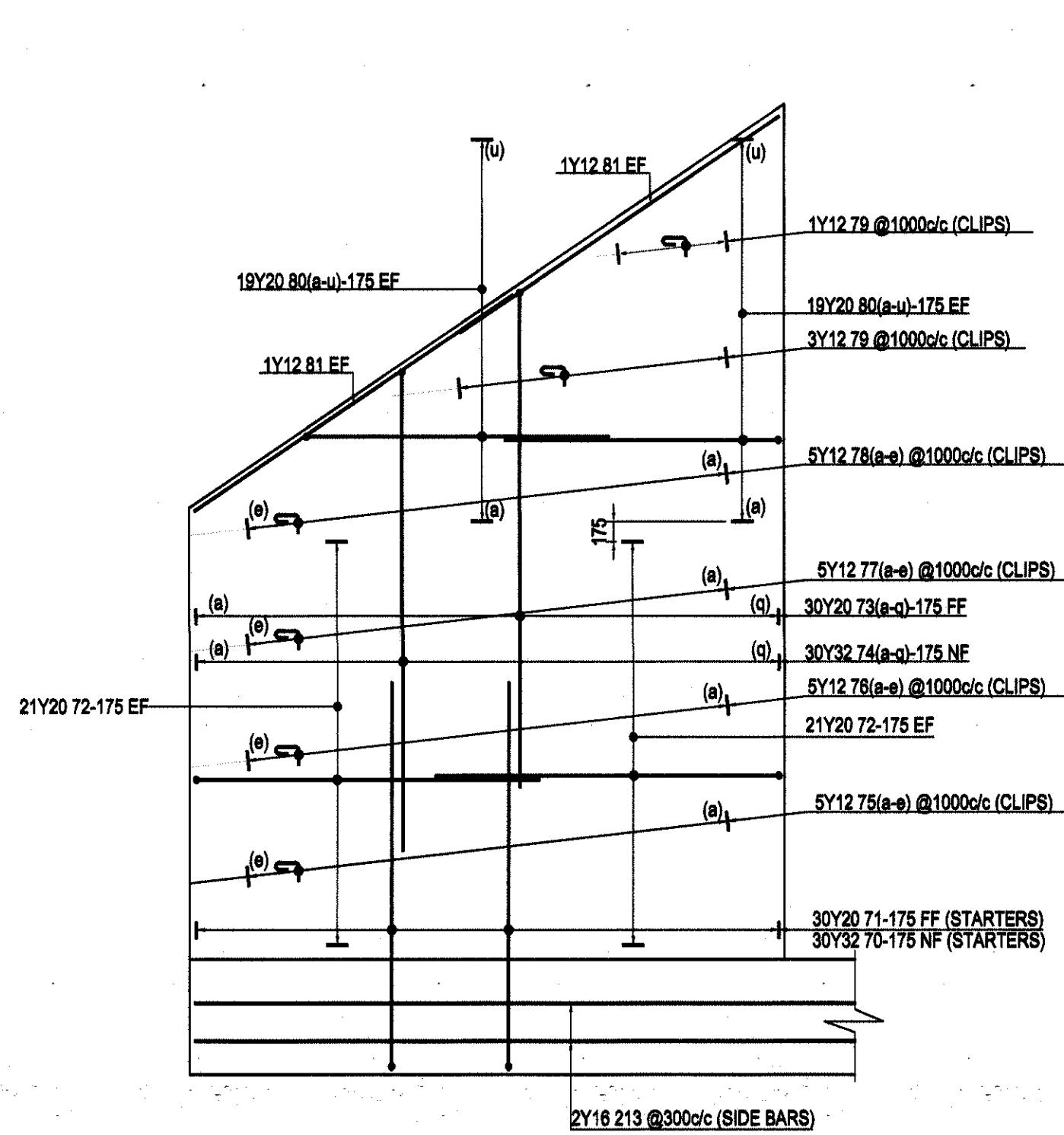
REINFORCING NOTATION:



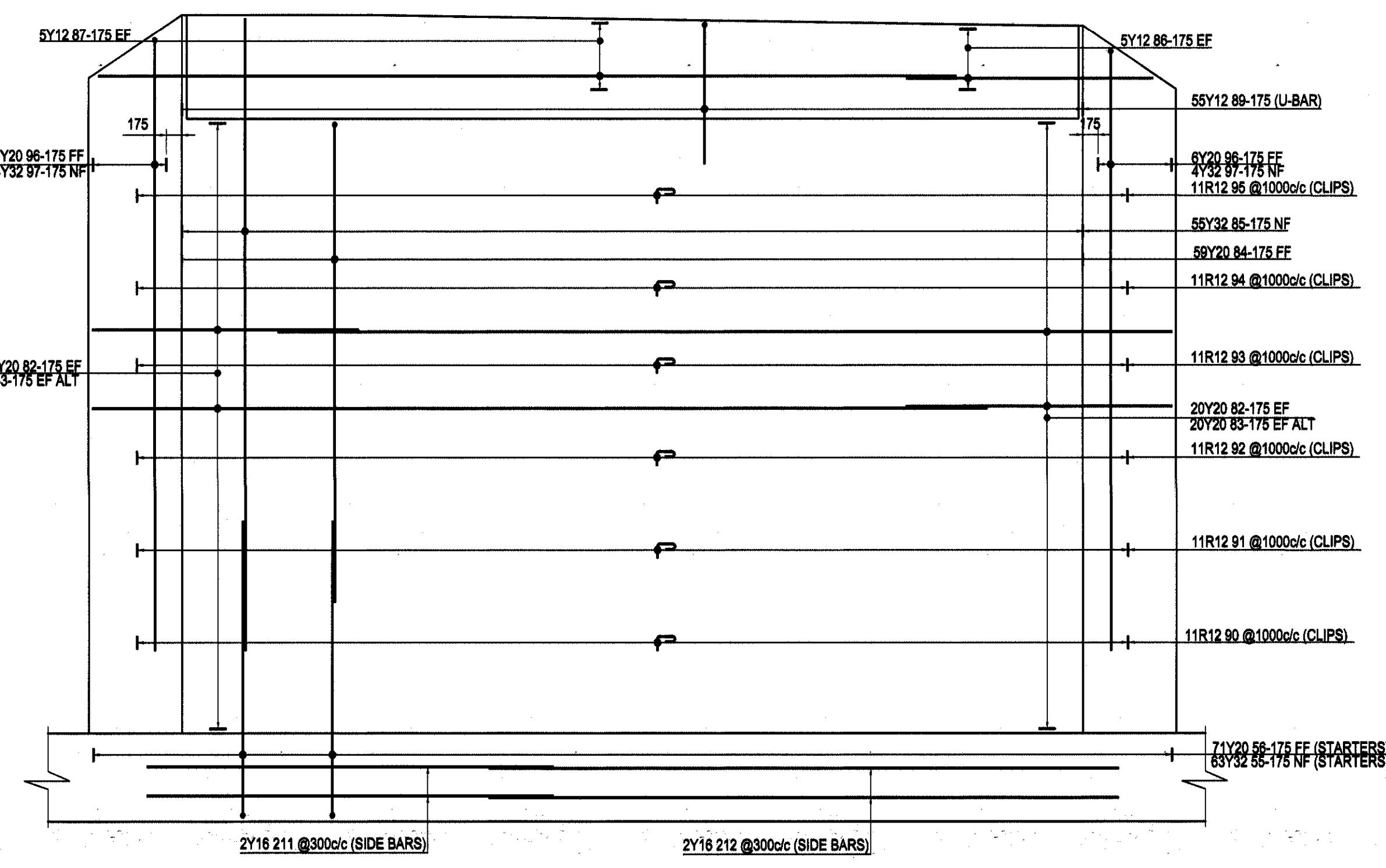
STOOLS



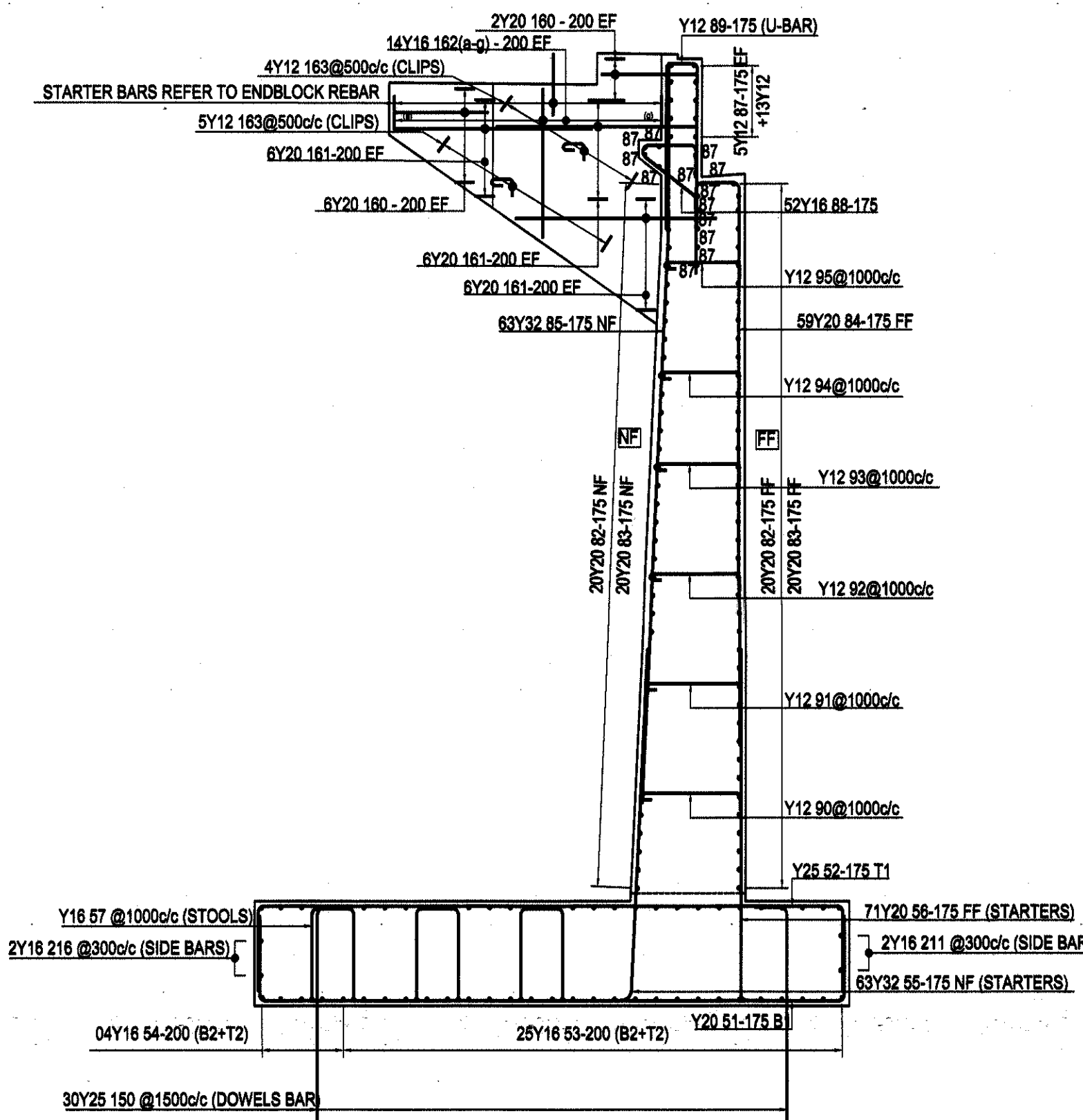
NOTE: STOOLS TO REST ON B1 LAYER AND SUPPORT T2 LAYER AS SHOWN



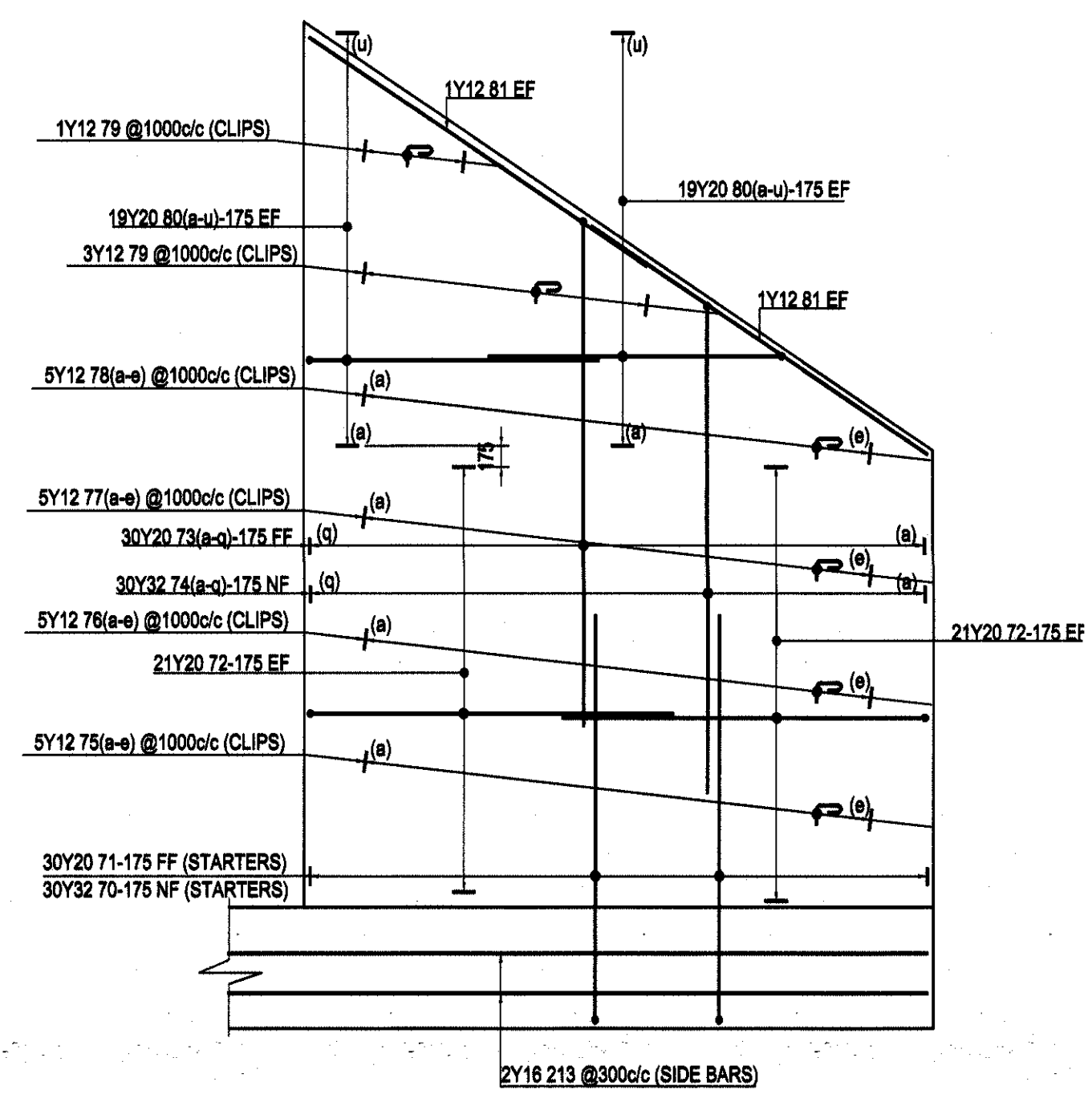
SECTION C-C
SCALE 1 : 50



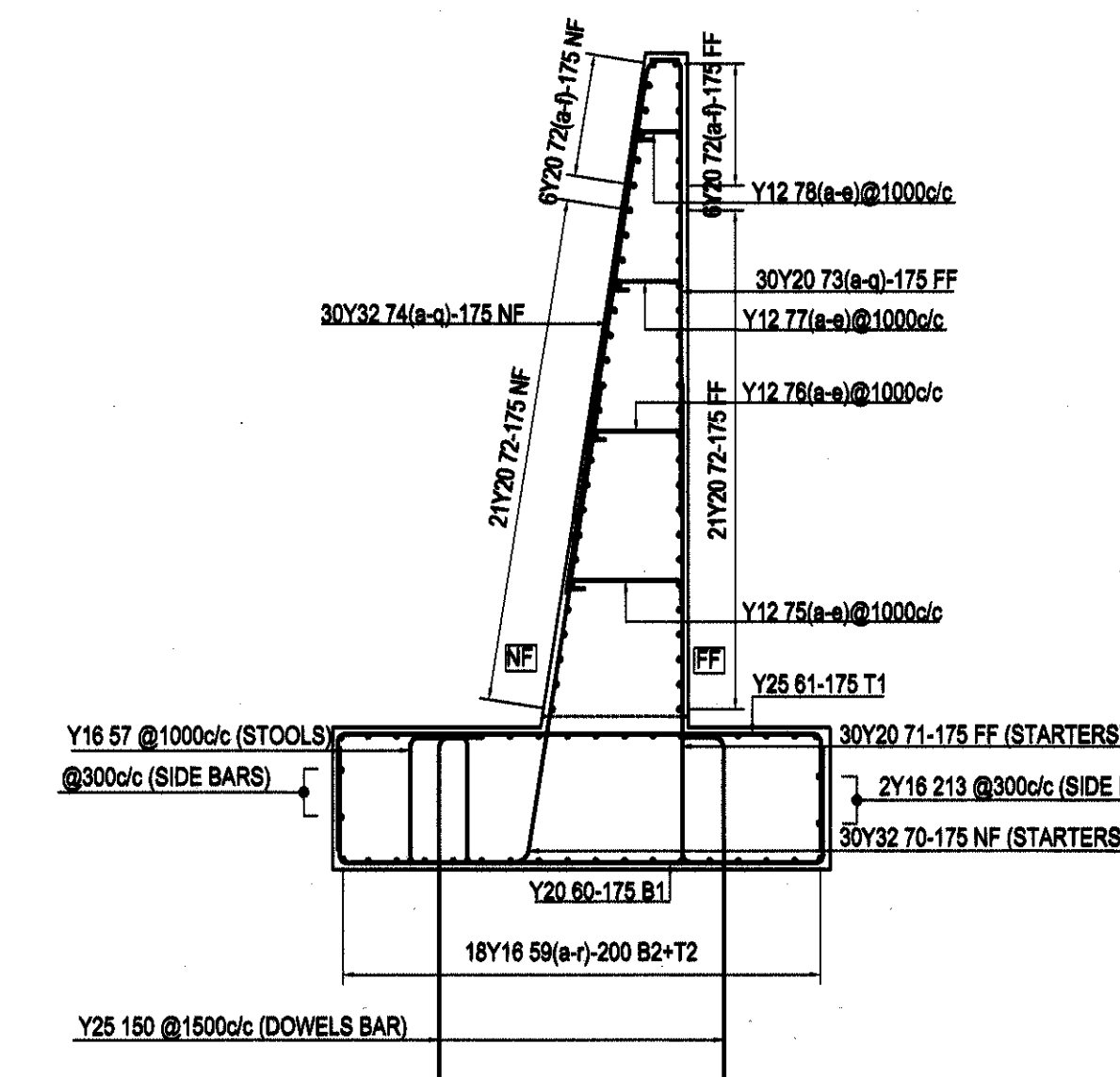
SECTION B-B
SCALE 1 : 50



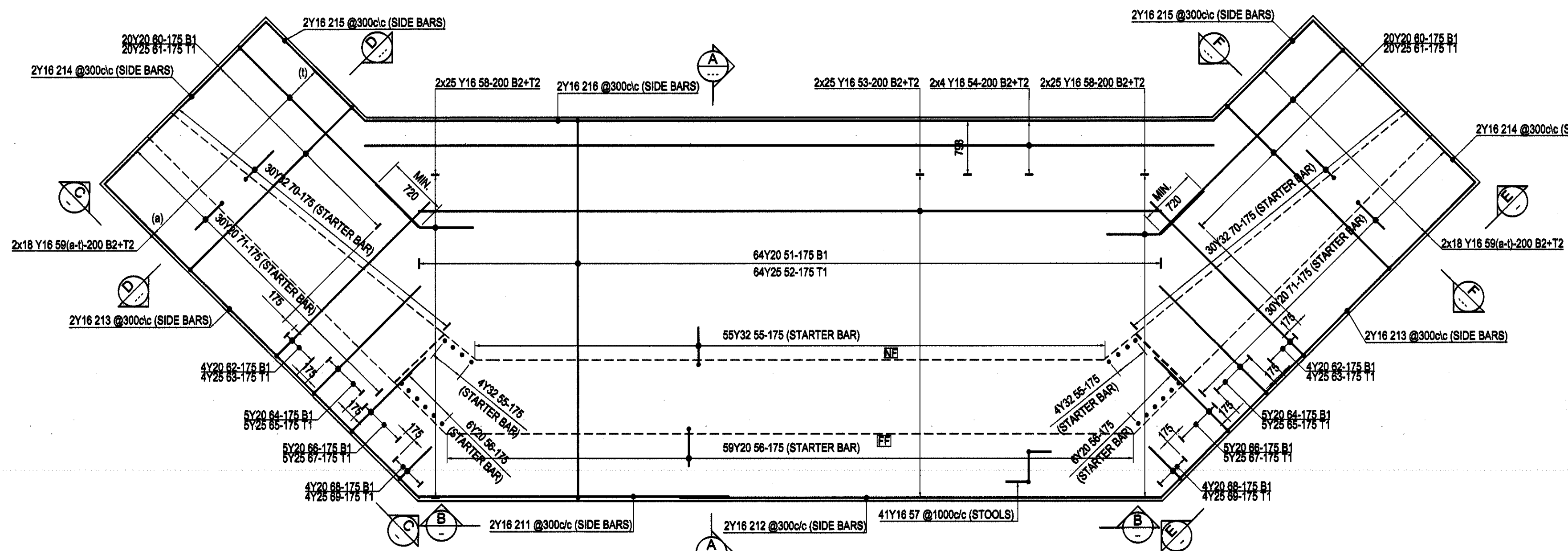
SECTION A-A
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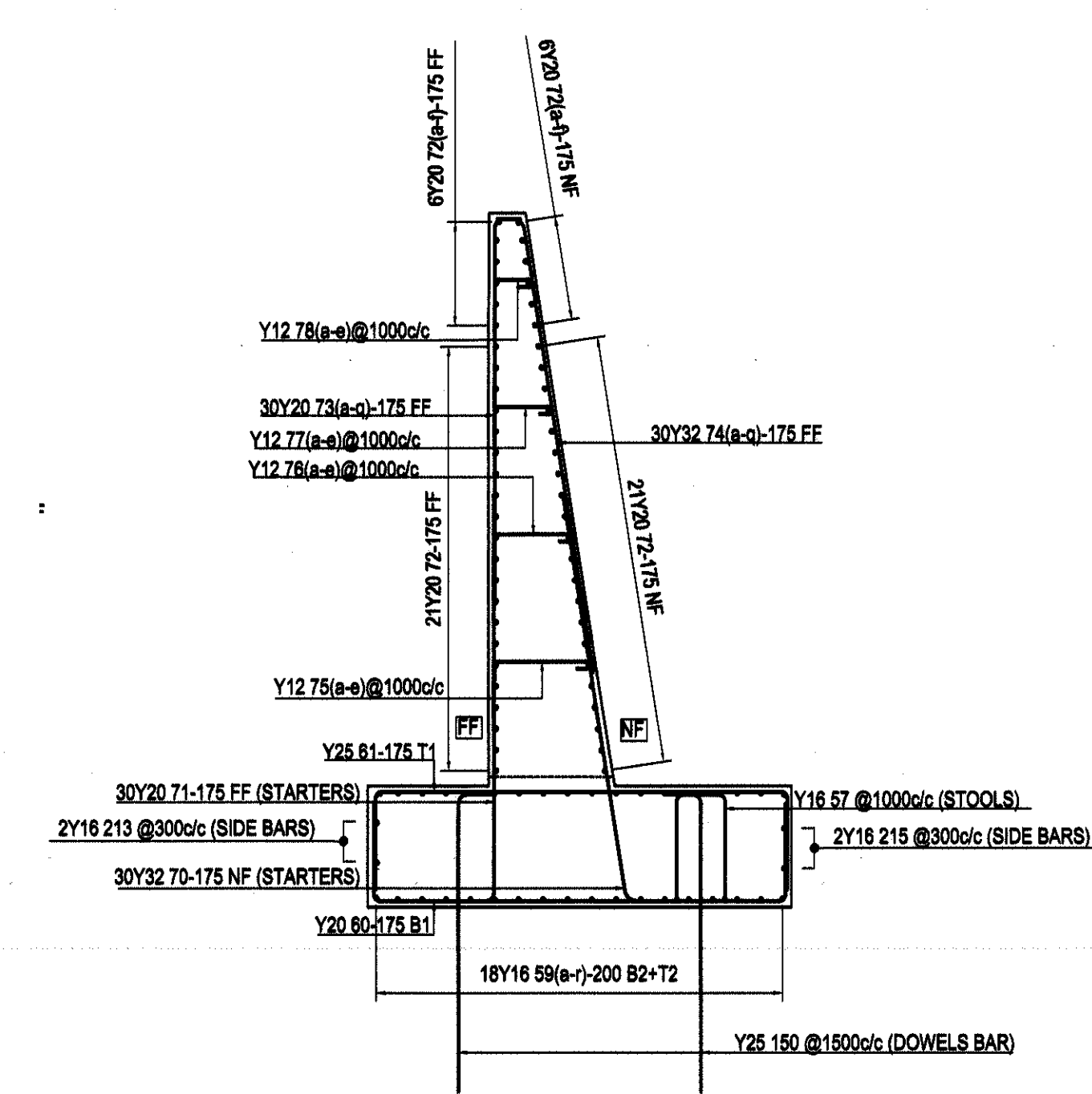
SECTION E-E
SCALE 1 : 50



SECTION D-D
SCALE 1 : 50



LEFT ABUTMENT BASE RE-BAR LAYOUT
SCALE 1 : 50



SECTION F-F
SCALE 1 : 50

20	38 (CONTO/VERVOLG)	51	62	65	91
32	39	52	65	86	92
33	41	53	72	87	93
34	42	54	73	88	94
35	43	55	74	89	95
36	44	56	75	90	96
37	45	57	76	91	97
38	46	58	77	92	98
39	47	59	78	93	99
40	48	60	79	94	100
41	49	61	80	95	101
42	50	62	81	96	102
43	51	63	82	97	103
44	52	64	83	98	104
45	53	65	84	99	105
46	54	66	85	100	106
47	55	67	86	101	107
48	56	68	87	102	108
49	57	69	88	103	109
50	58	70	89	104	110

Symbol	Date	Description	Checked	Signed
		AMENDMENTS		

AS BUILT

Supervising Engineer Date

Supervising Authority



transport
Department:
Province of KwaZulu-Natal

Designed by: S. Dandane

Checked by: S. Maithe

Drawn by: S. Maithe

Checked by: S. Maithe

File Reference: L2214/6/3722/4

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Designed by:

Checked by:

Drawn by:

Checked by:

File Reference:

emzansi
ENGINEERS (PTY) LTD
Pretoria, Johannesburg, Durban, Cape Town

Signature Date 09/11/2017

Designed by:

Checked by:

Drawn by:

Checked by:

File Reference:

TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214
CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

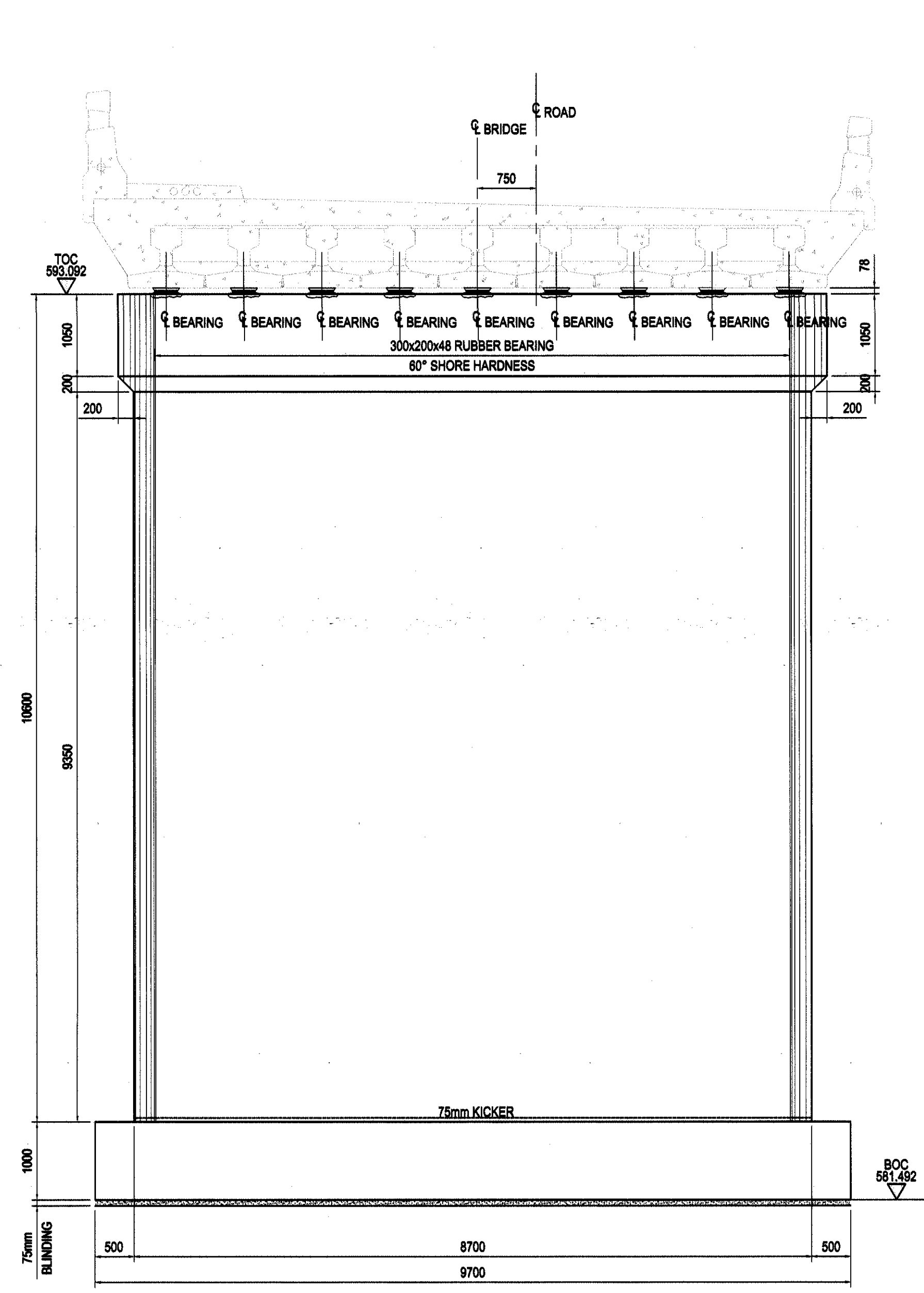
IBISI RIVER BRIDGE
LEFT ABUTMENT REINFORCEMENT DETAILS

Kilometer Distance
km 0+596.141

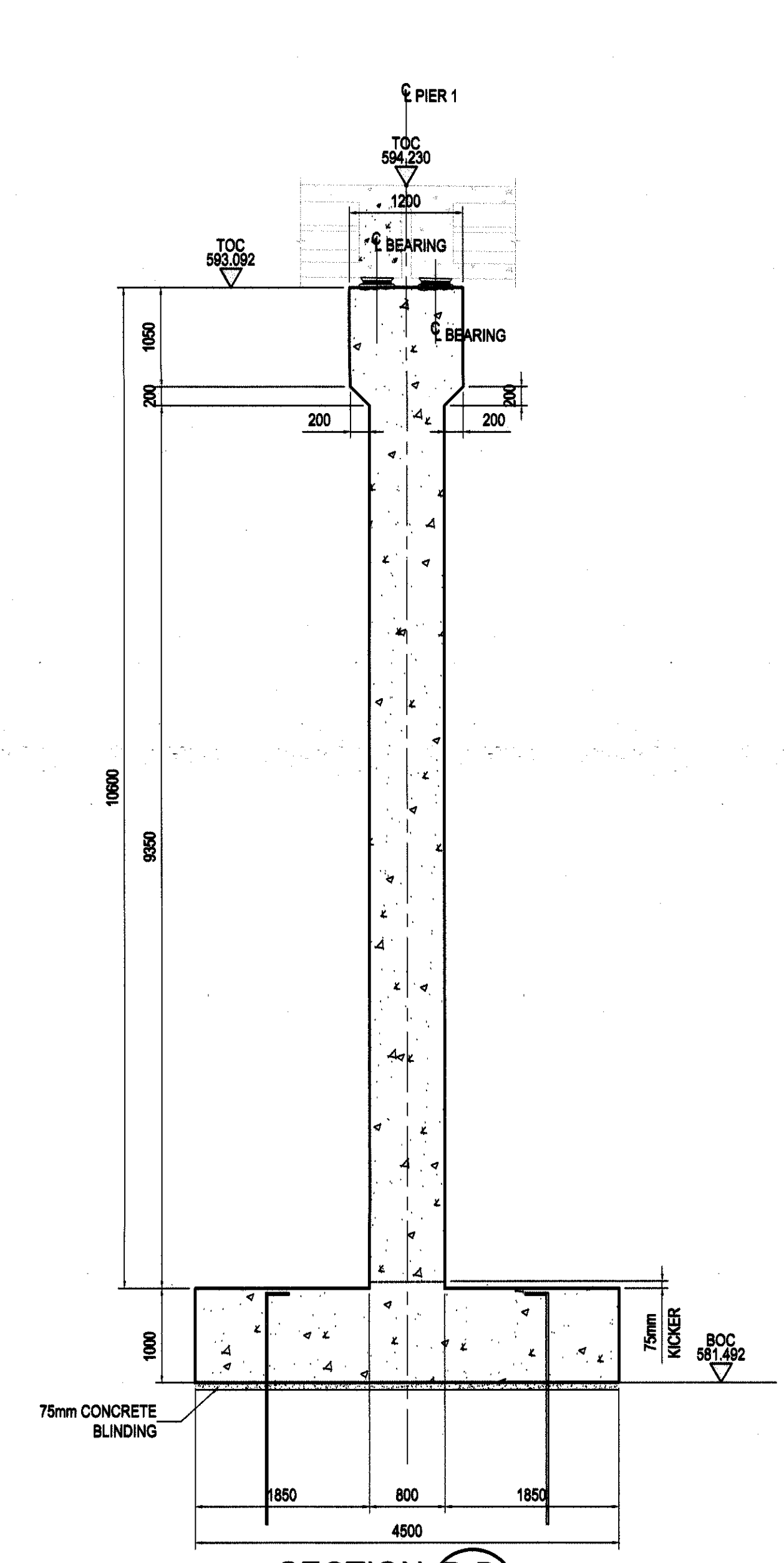
Scale
As Shown

Sheet No.: 06
Revision
00

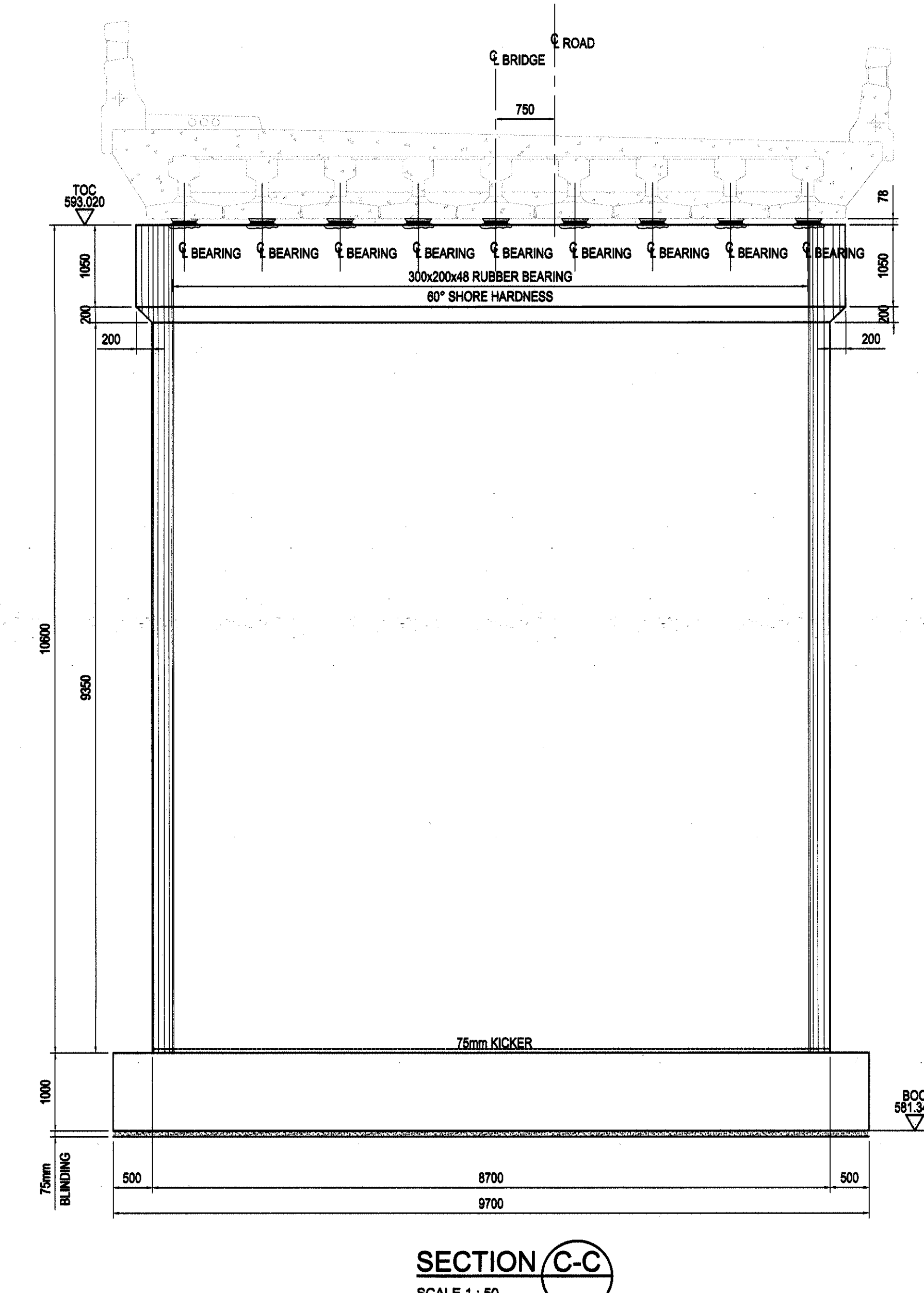
PLAN NUMBER
3722/06



SECTION A-A
SCALE 1: 50



SECTION B-B
SCALE 1: 50

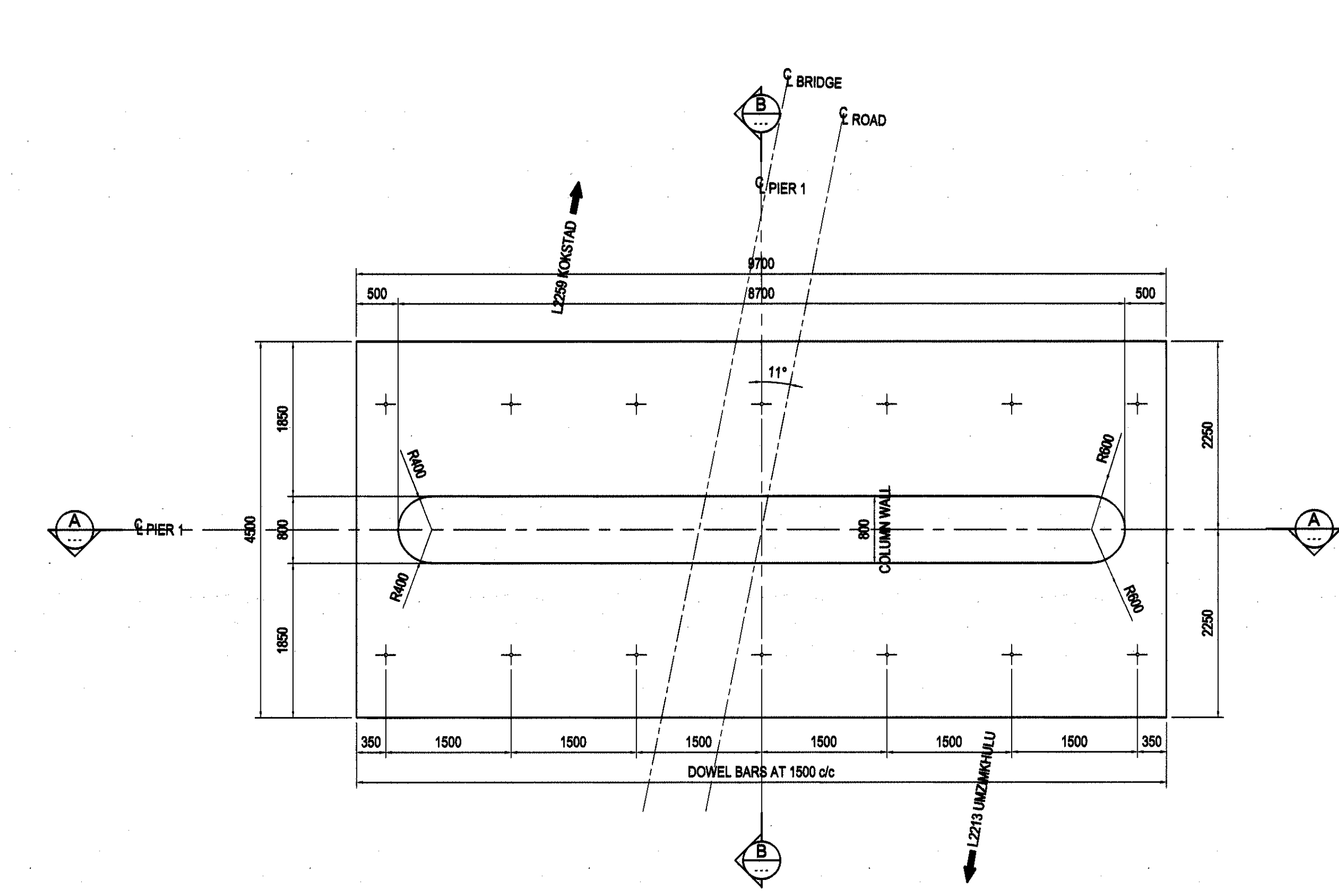


SECTION C-C
SCALE 1: 50

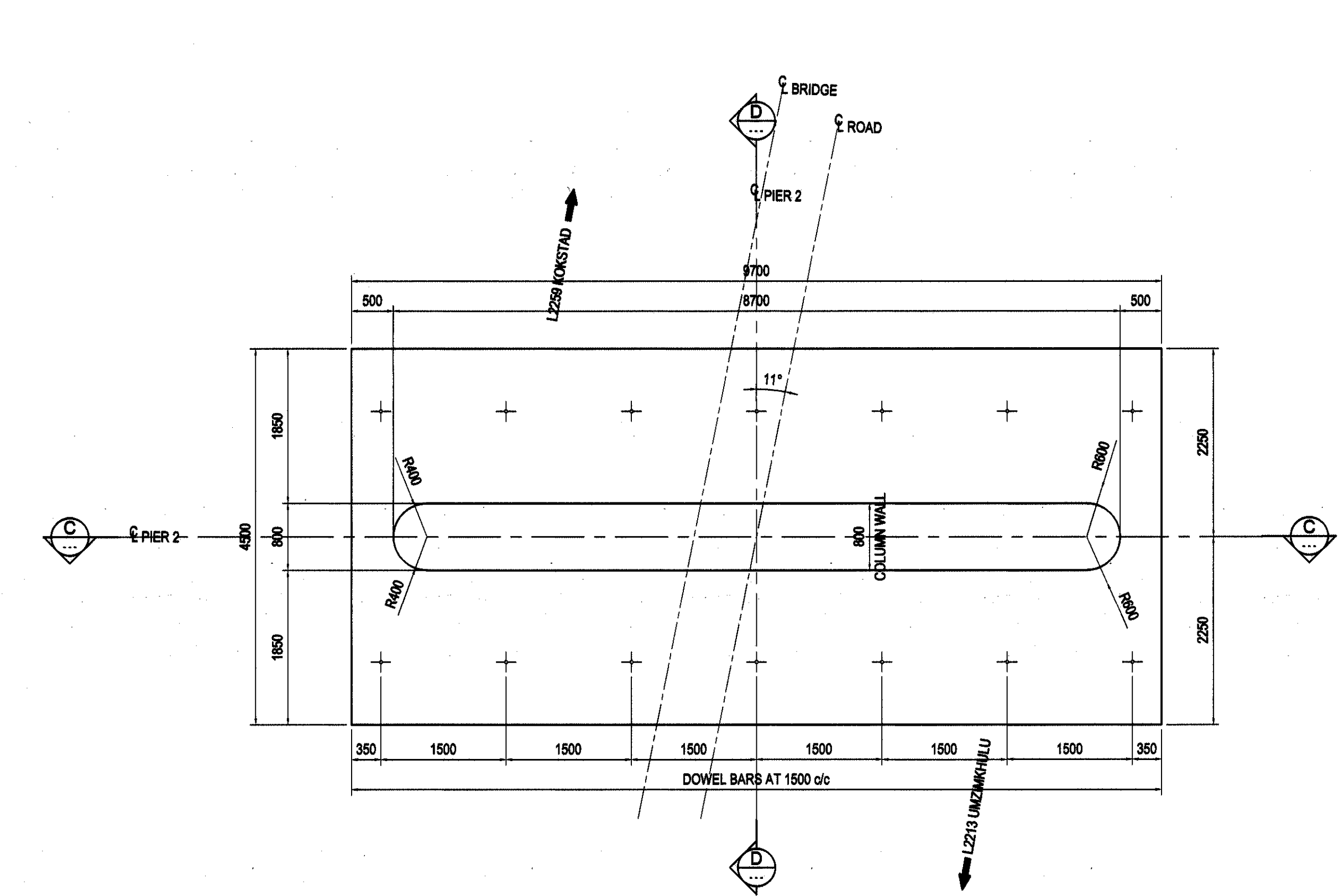


SECTION D-D
SCALE 1: 50

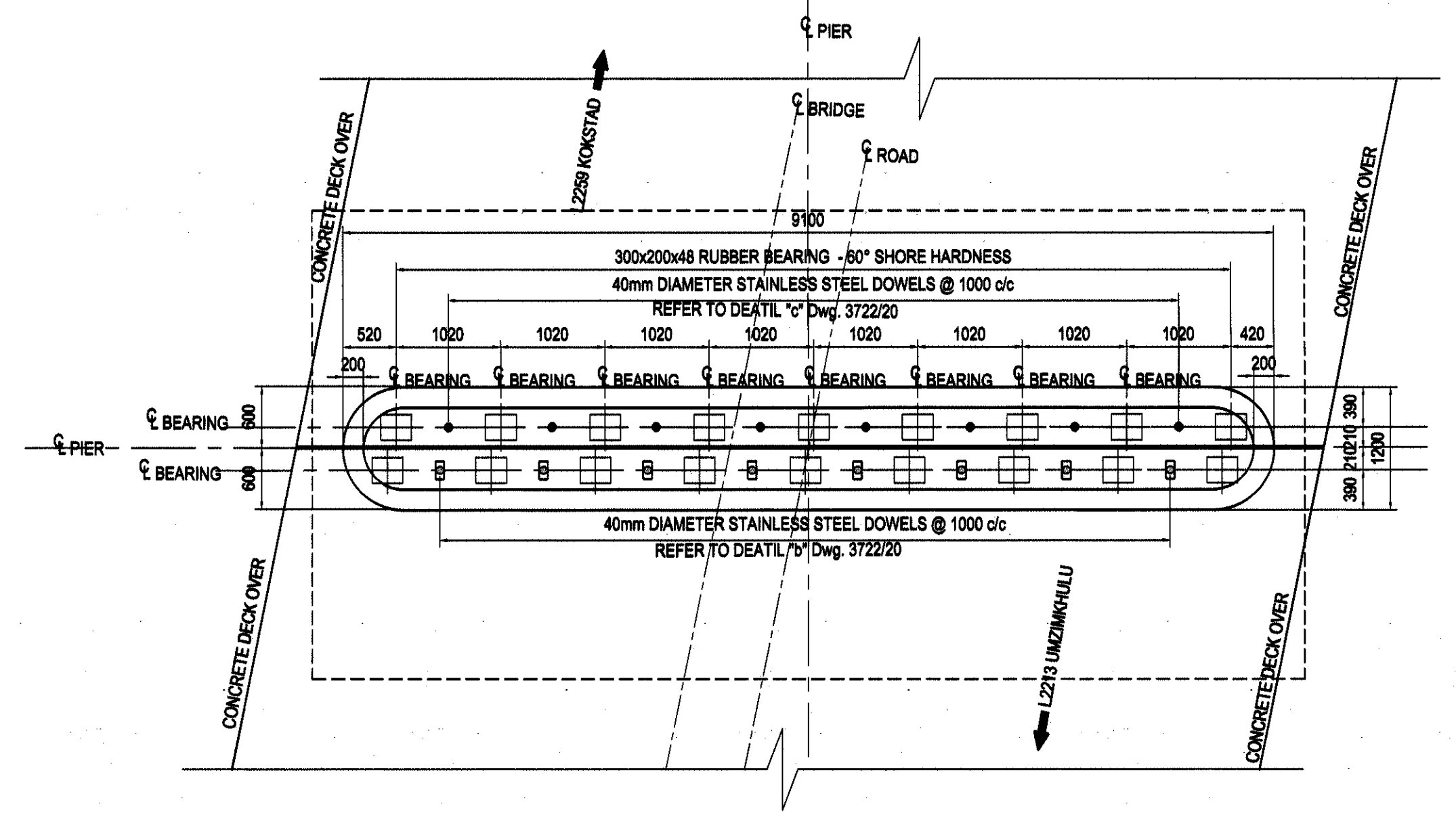
- NOTES
- CONCRETE CLASS:
 - BLINDING: 15/19 (15MPa)
 - PIERS: 30/19 (30MPa)
 - CONCRETE FINISHES:
 - EXPOSED FACES: CLASS F2 FINISH (SMOOTH)
 - CONCEALED FACES: CLASS F1 FINISH (ROUGH)
 - TOP OF PIER: CLASS U2 FINISH (FLOATED AND BROOMED)
 - ALL UNFORMED SURFACE FINISHES TOP OF DECK - CLASS U2 (WOOD FLOATED)
 - ALL EXPOSED EDGES TO BE CHAMFERED 25 x 25 UNLESS OTHERWISE SHOWN



PIER 01 FOUNDATION LAYOUT
SCALE 1: 50



PIER 02 FOUNDATION LAYOUT
SCALE 1: 50



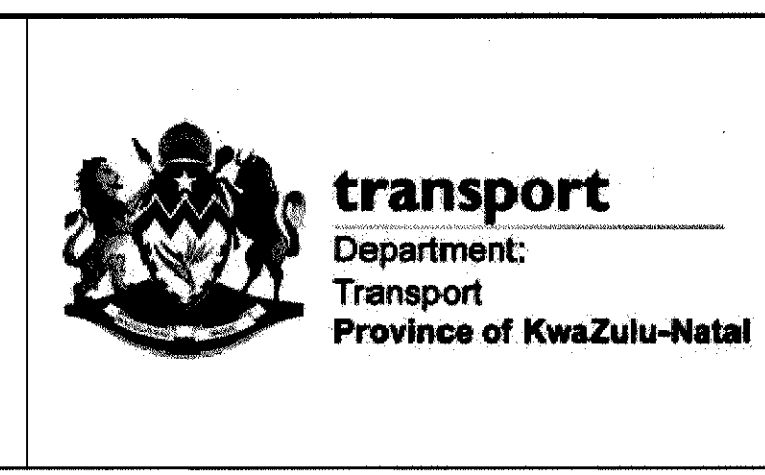
PIER 1,2 & 3 BEARING SEATING
3-OFF
SCALE 1: 50

Symbol	Date	Description	Checked	Signed
		AMENDMENTS		

AS BUILT

Supervising Engineer: _____ Date: _____

Supervising Authority: _____



Designed by: *[Signature]* S. Dordane

Checked by: *[Signature]* S. Matele

Drawn by: *[Signature]* S. Michize

Checked by: *[Signature]* S. Matele

File Reference: L2214/8/3722/4

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Designed by: *[Signature]*

emzansi
ENGINEERS (PTY) LTD
Providing the widest Engineering Solutions

[Signature] 09/11/2017

[Signature] Bridge Engineer

[Signature] Head: Transport

TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214
CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

IBISI RIVER BRIDGE
PIER 1 & 2 CONCRETE DETAILS

Kilometer Distance: km 0+596.141

Scale: As Shown

Sheet No.: 07 of 25

Revision: 00

PLAN NUMBER: 3722/07

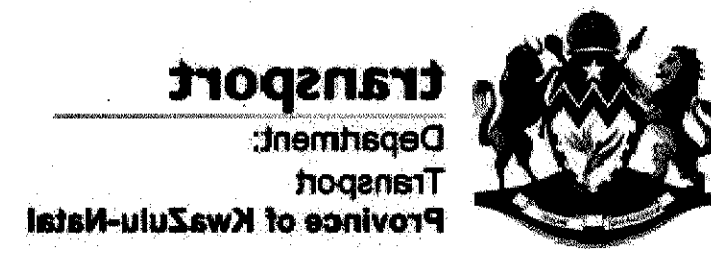
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AS BUILT

Supervising Authority

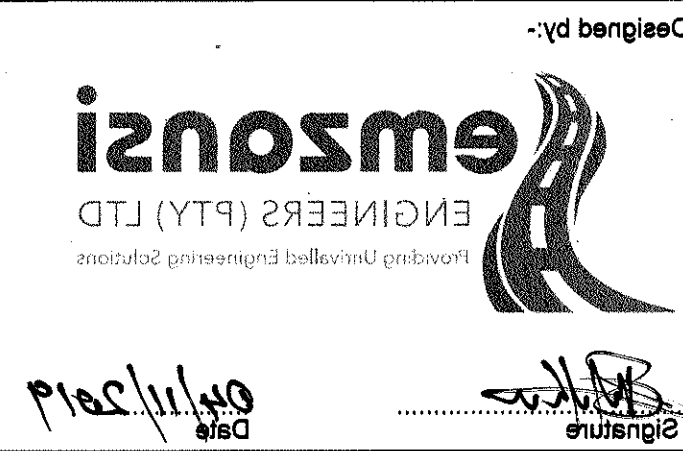
Revising Engineer

D



File Reference:	123146132534
Checked by:-	2 Nataraja
Drawn by:-	1 Nataraja
Checked by:-	2 Nataraja
Designed by:-	2 Nataraja

DEPARTMENT OF TRANSPORT
PROVINCE OF KWAZULU-NATAL



Head: Transpoc
Bridge Engineer

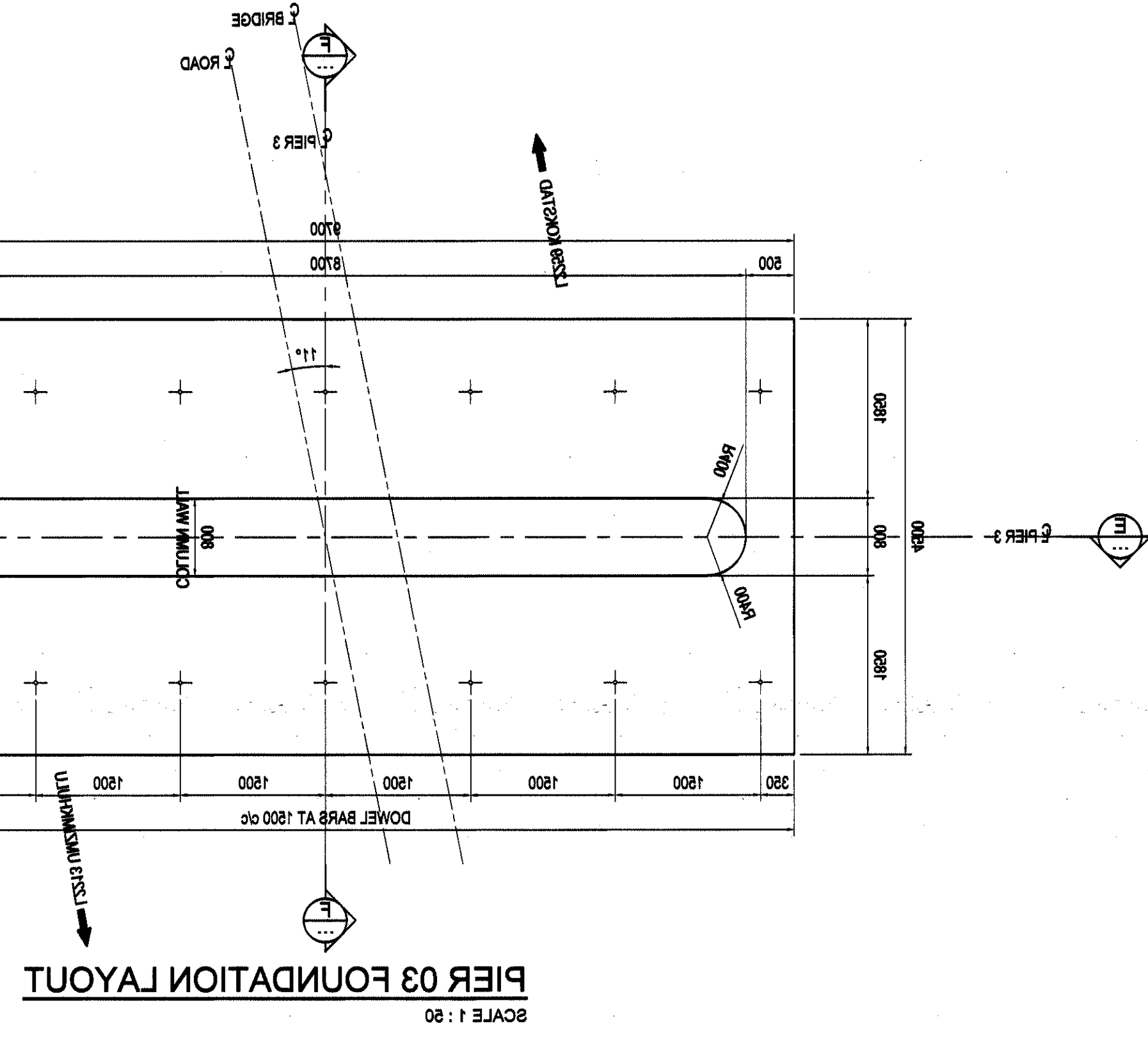
BIISI RIVER BRIDGE
PIER 3 & 4 CONCRETE DETAILS

CO-ORDINATES: 30° 52.58' S & 28° 54.58' 03"E

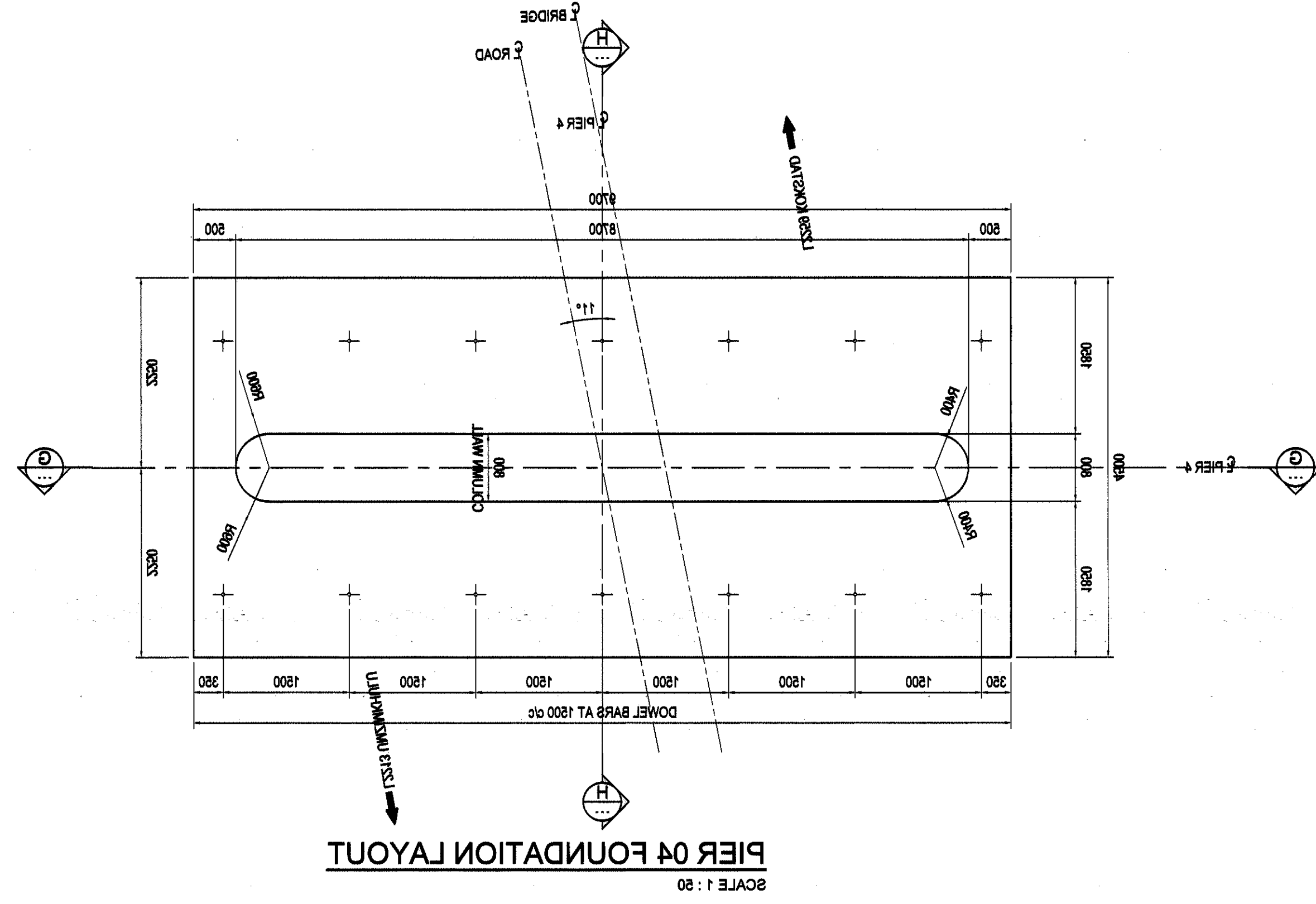
As shown

PLAN NUMBER
8722\08

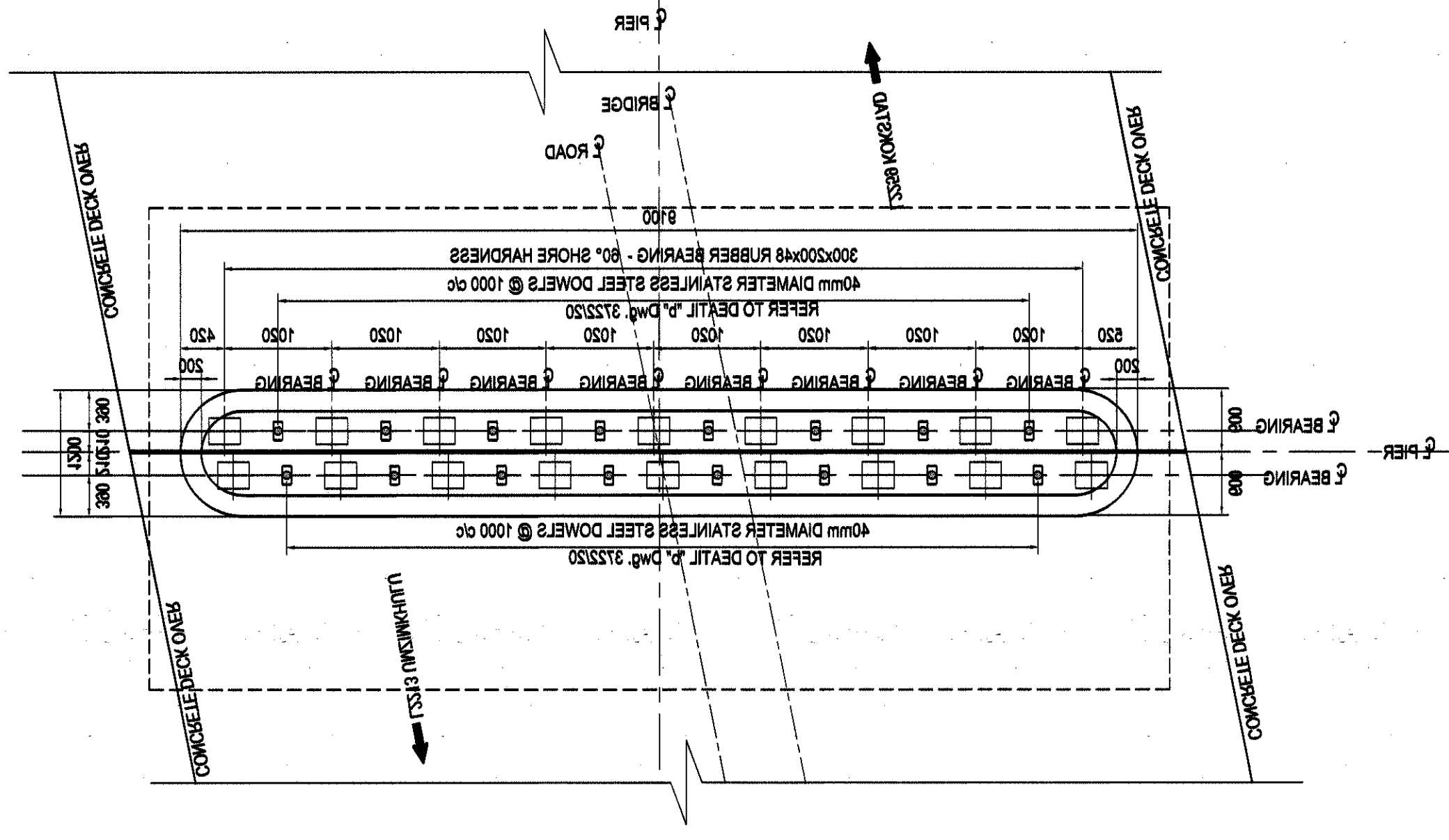
00	Sheet No.: 08
00	of 25



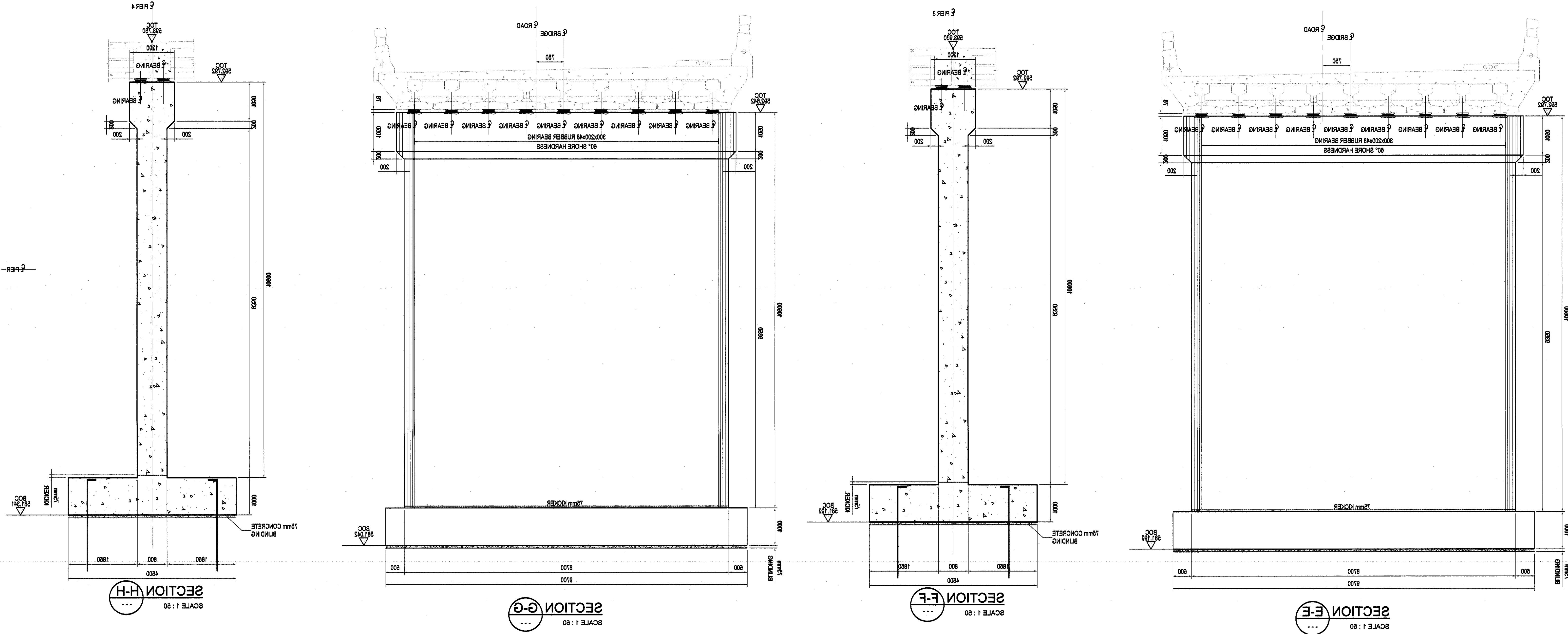
PIER 03 FOUNDATION LAYOUT



PIER 04 FOUNDATION LAYOUT



PIER 4 BEARING SEATING

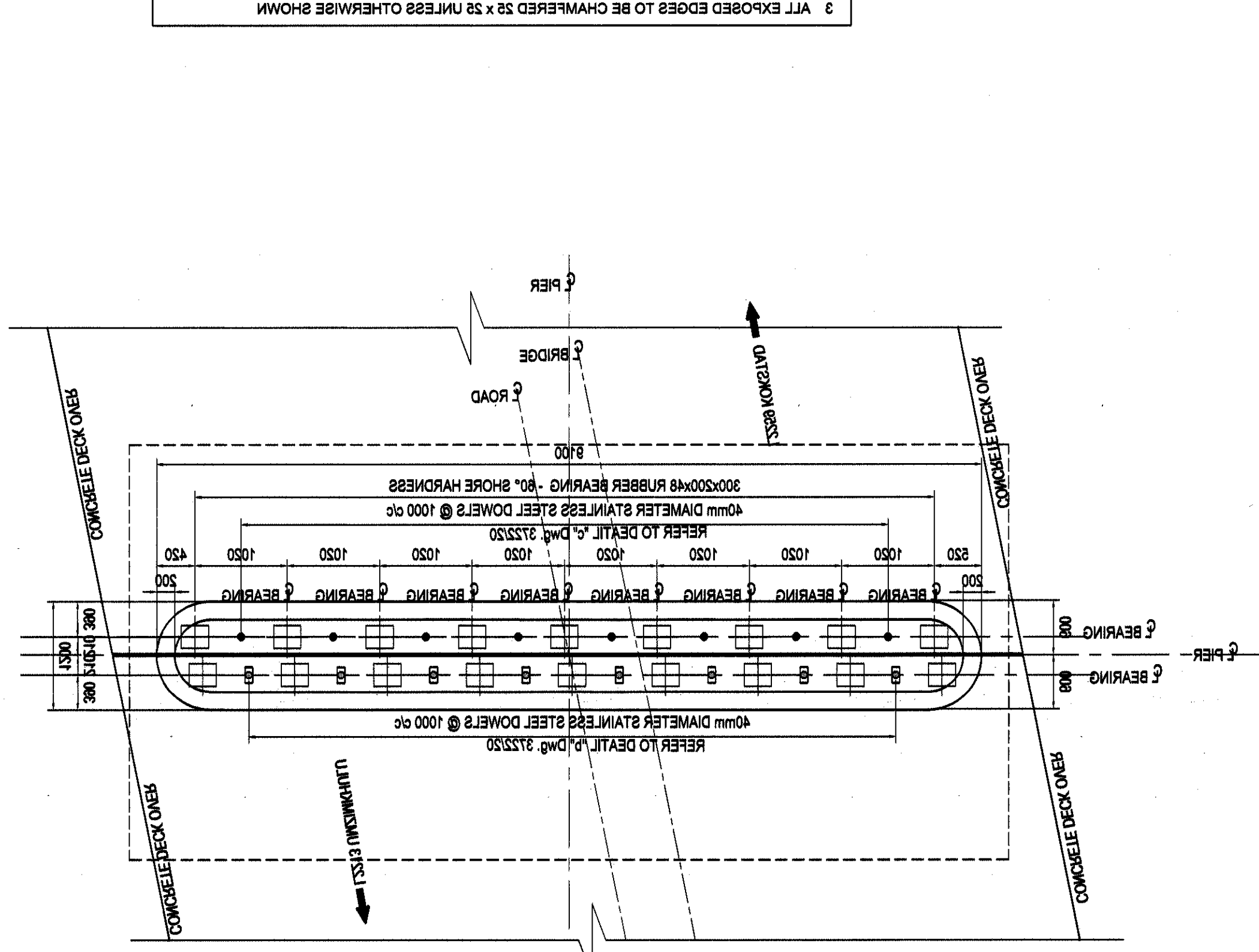


SECTION E-E

SCALE 1 : 50

SECTION G-G
SCALE 1 : 50
...

SCALE 1 : 50



PIER 1, 2 & 3 BEARING SEATING

NOTES:

ALL EXPOSED EDGES TO BE CHAMFERED 25 x 25 UNLESS OTHERWISE SHOWN

ALL UNIFORM SURFACE FINISHES TOP OF DECK - CLASS N (WOOD PLATED)

TOP OF PIER

CONCRETE FACES

CLASS F1 FINISH (ROUGH)

CLASS F2 FINISH (SMOOTH)

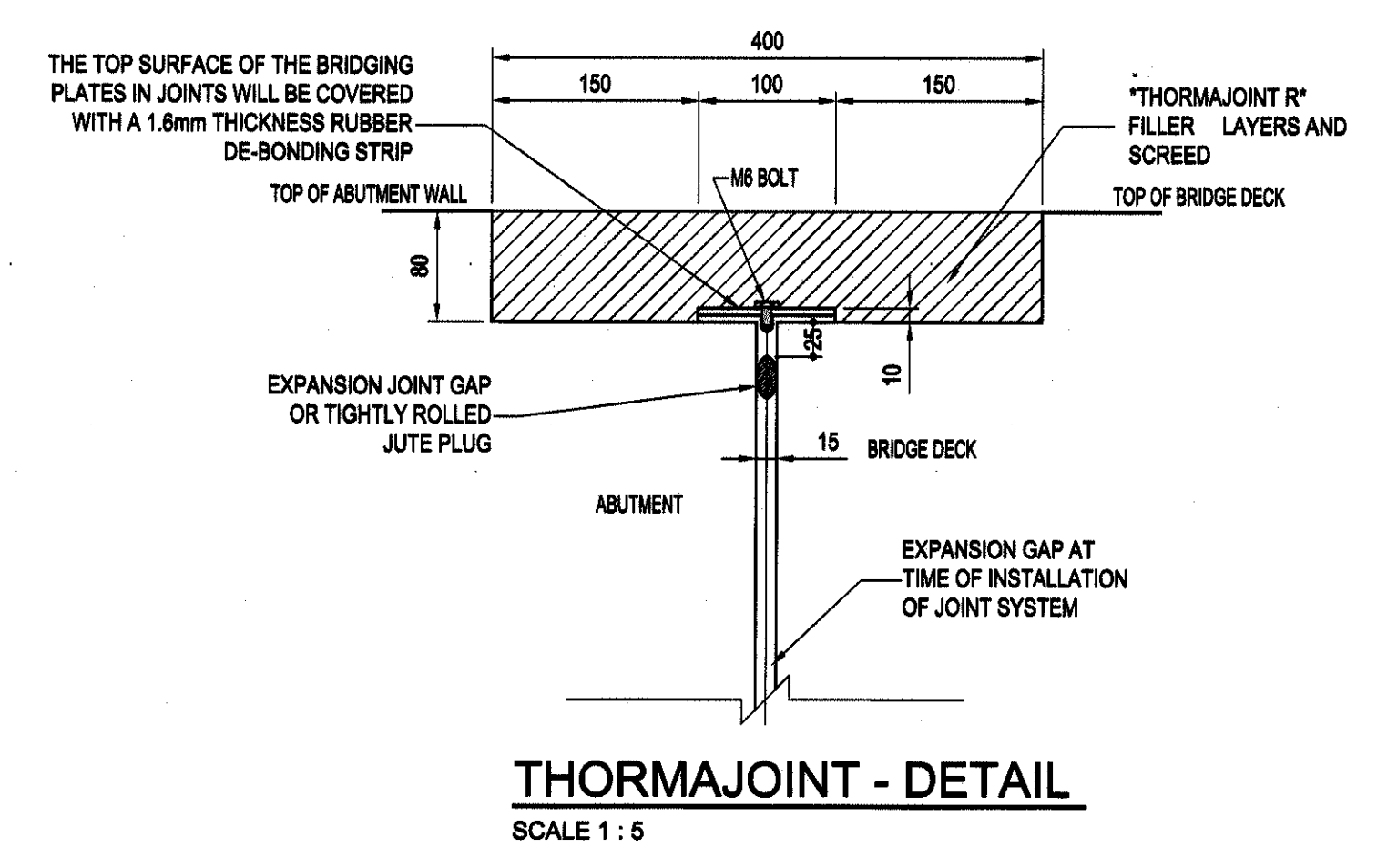
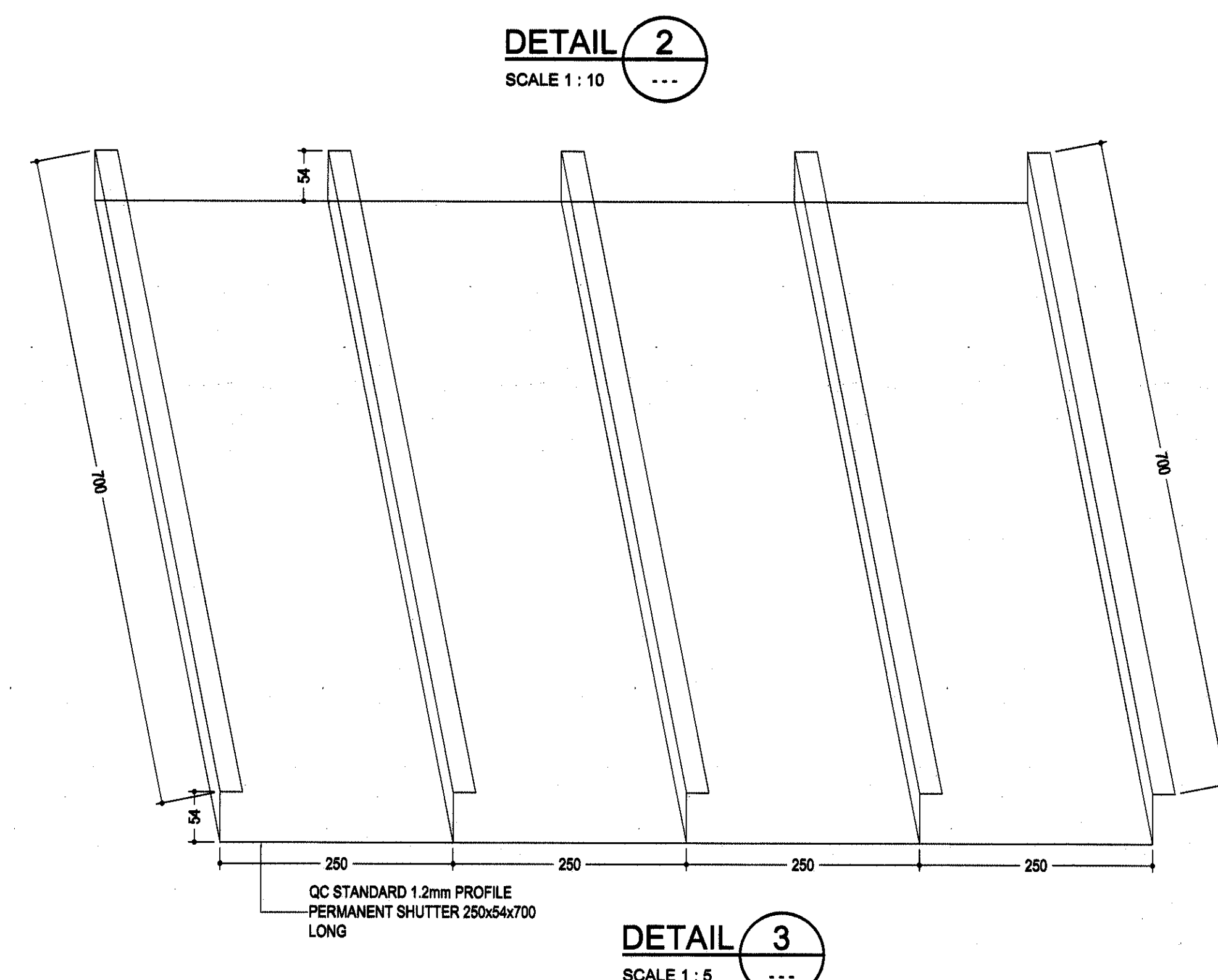
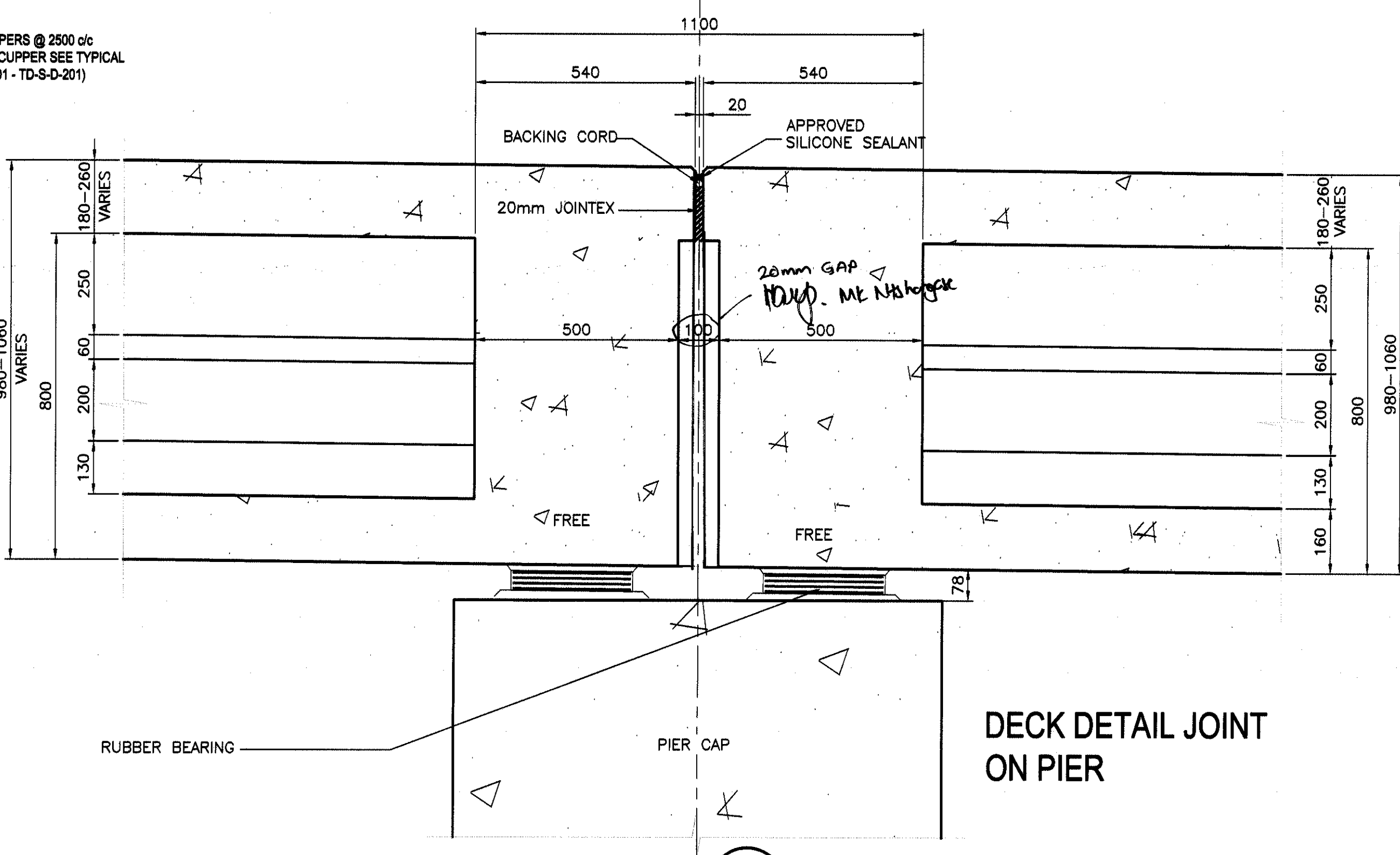
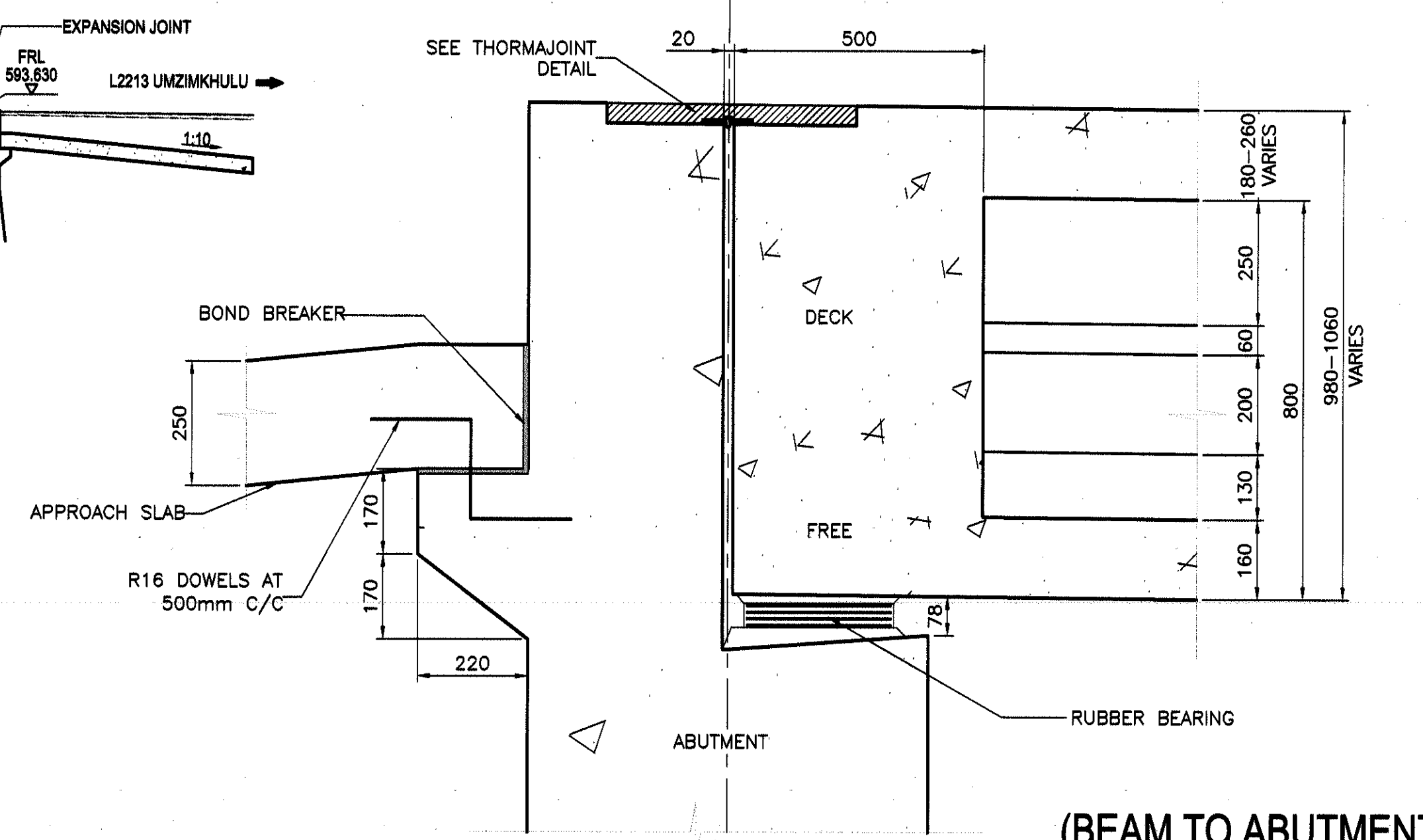
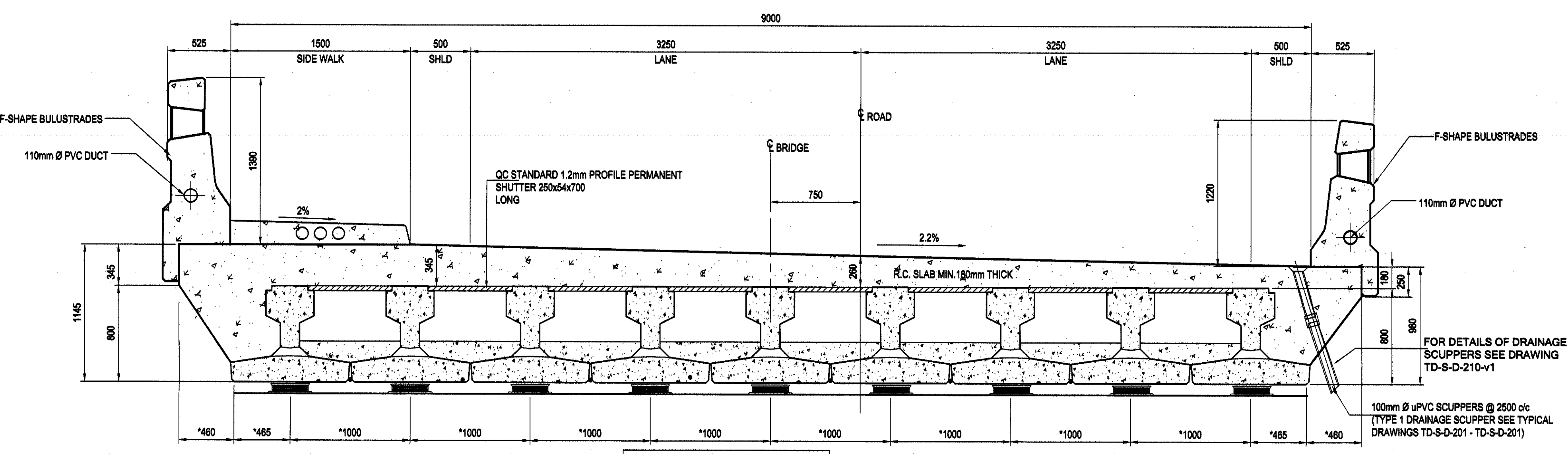
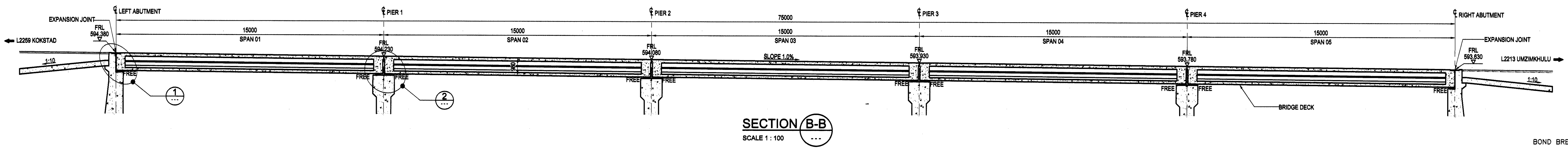
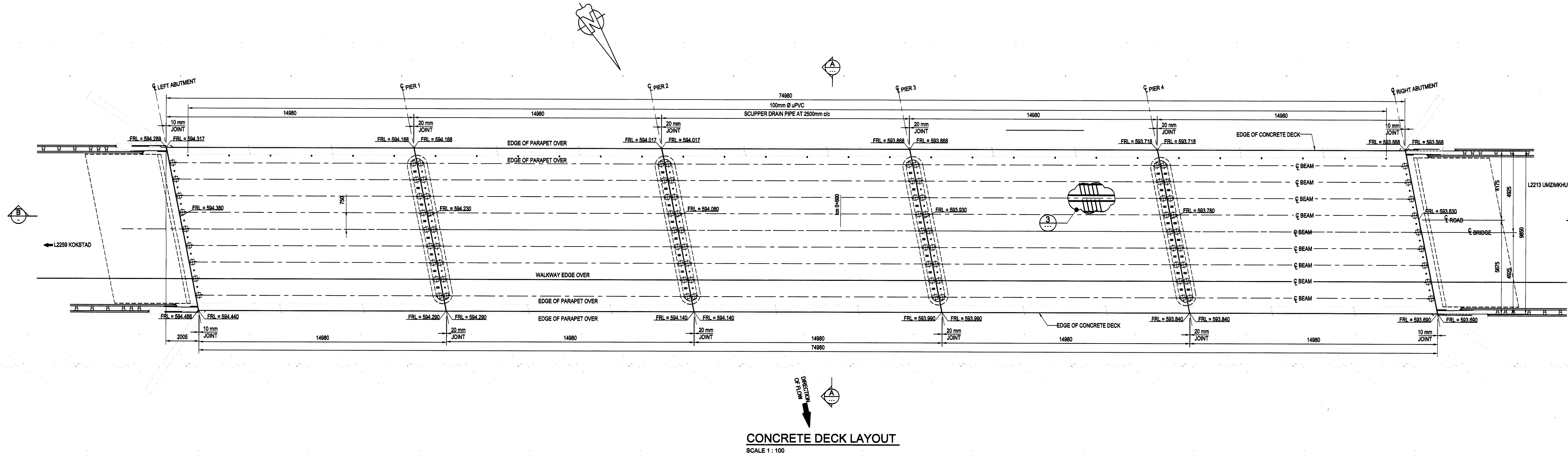
PIERS

BLINDING

12'x10' (8MP#)

30'x16' (30MP#)

- NOTES**
- CONCRETE CLASS : DECK SLAB - 30/10 (30MPa)
DECK IN/ILL CONCRETE - 30/15 (30MPa)
PRECAST BEAMS - 30/15 (30MPa)
 - CONCRETE FINISHES : EXPOSED FACES - CLASS F2 FINISH (SMOOTH)
CONCEALED FACES - CLASS F1 FINISH (ROUGH)
BEARING SEAT - CLASS U2 FINISH (FLOATED AND BROOMED)
CLASS U2 FINISH (WOOD FLOATED)
 - ALL UNFORMED SURFACE FINISHES TOP OF DECK - CLASS U2 (WOOD FLOATED)
 - ALL EXPOSED EDGES TO BE CHAMFERED 25 x 25 UNLESS OTHERWISE SHOWN



AS BUILT Supervising Engineer: _____ Date: _____ Supervising Authority: _____					PROVINCE OF KWAZULU-NATAL DEPARTMENT OF TRANSPORT					emzansi ENGINEERS (PTY) LTD Providing Turnkey Engineering Solutions Designed by: _____ Checked by: _____ Drawn by: _____ Checked by: _____ File Reference: L2214/6/3722/4					TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214 CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E IBISI RIVER BRIDGE DECK CONCRETE DETAILS I					Kilometer Distance: km 0+596.141 Sheet No.: 08 of 25 Revision: 00 Scale: As Shown PLAN NUMBER: 3722/9				
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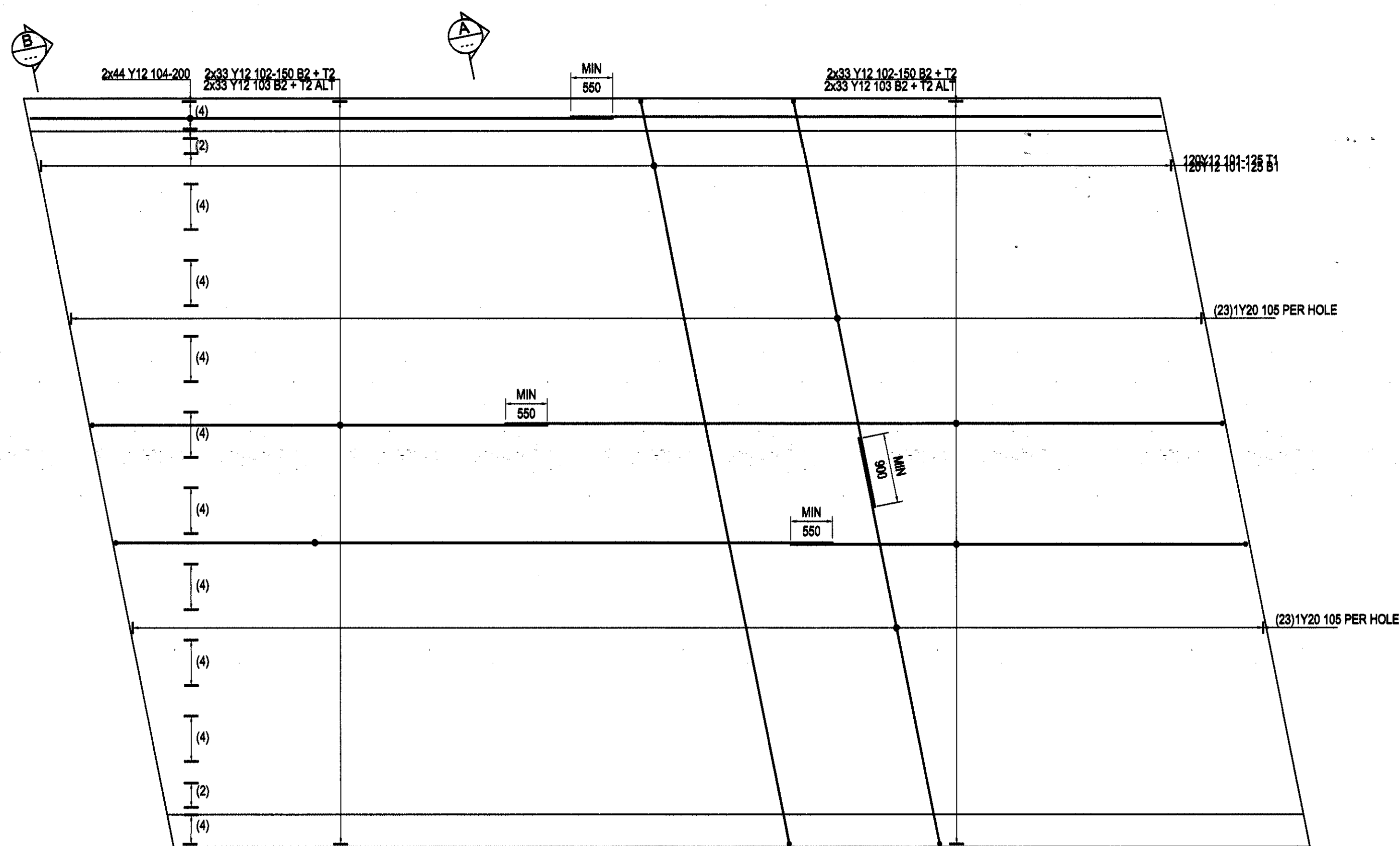
185
140
80
65

DETAIL 1
SCALE 1:5

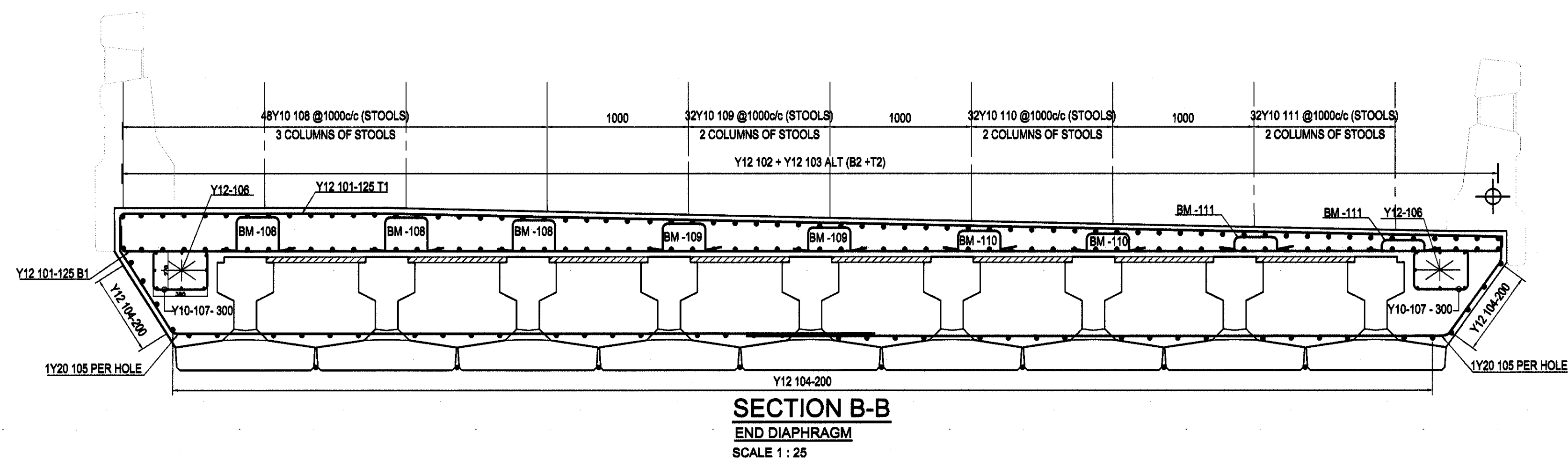
STOOLS

NOTE!
STOOLS TO REST ON B1 LAYER AND
SUPPORT T2 LAYER AS SHOWN

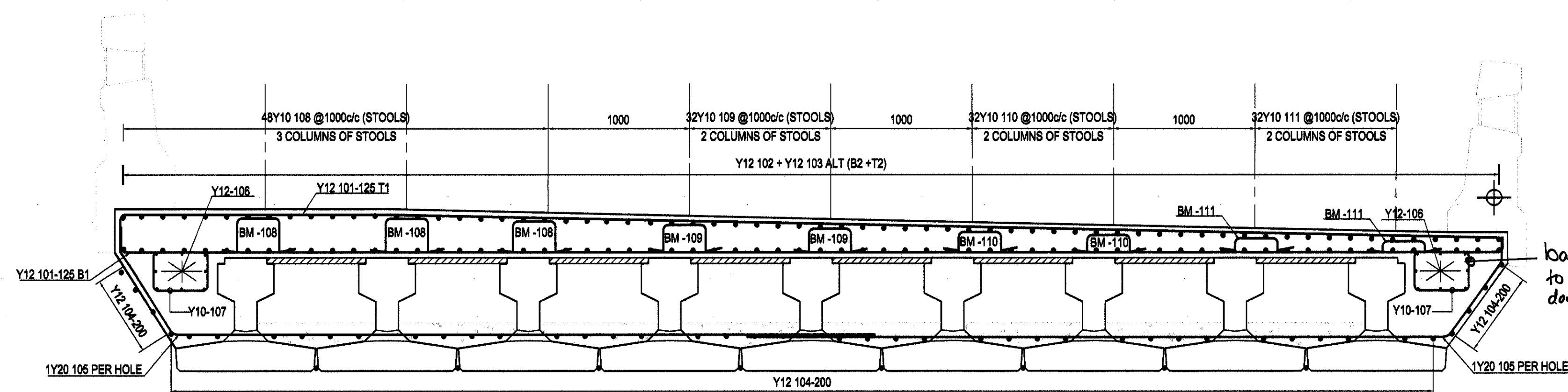
3722/10



DECK REBAR LAYOUT
5-OFF
SCALE 1:50



SECTION B-B
END DIAPHRAGM
SCALE 1:25



SECTION A-A
SCALE 1:25

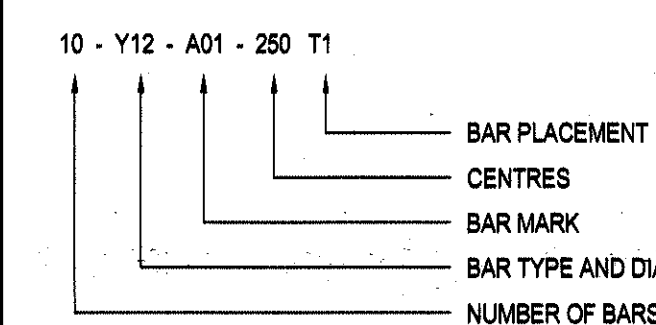
NOTES:

1. MINIMUM CONCRETE COVER TO REINFORCEMENT = 40mm
2. MINIMUM LAP LENGTH TO BE 45 x SMALLER BAR DIAMETER. MINIMUM LAP DIMENSION INDICATED TO BE APPLICABLE UNLESS GEOMETRIC CONSTRAINTS REQUIRE LARGER LAP LENGTH.
3. DETAILING AND ABBREVIATIONS IN ACCORDANCE WITH SABS 0144: 2012.
4. FOR STEEL SPECIFICATIONS AND BENDING DETAILS REFER TO BENDING SCHEDULE.
5. REINFORCEMENT TO CONFORM TO SABS 520:1965 HOT ROLLED HIGH YIELD STRESS DEFORMED (Y) BARS - CHARACTERISTIC STRENGTH 450 MPa
HOT ROLLED ROUND MILD STEEL (R) BARS - CHARACTERISTIC STRENGTH 250 MPa

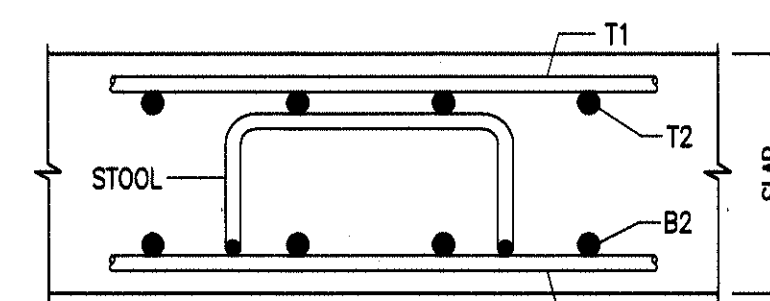
REINFORCING LEGEND:

1. T - TOP
2. M - MIDDLE
3. B - BOTTOM
4. T1 - UPPER TOP LAYER
5. T2 - LOWER TOP LAYER
6. B1 - UPPER BOTTOM LAYER
7. B2 - LOWER BOTTOM LAYER
8. ABR - ALTERNATE BARS REVERSED
9. ALT - ALTERNATING BARS
10. NF - NEAR FACE
11. FF - FAR FACE
12. EF - EACH FACE
13. IF - INSIDE FACE
14. OF - OUTSIDE FACE
15. EW - EACH WAY

REINFORCING NOTATION:



STOOLS



NOTE:
STOOLS TO REST ON B1 LAYER AND SUPPORT T2 LAYER AS SHOWN

20	38 (CONTD/VERVOLG)	51	62	85	91
32	39	52	65	86	92
33	41	53	72	87	93
34	42	54	73	88	94
35	43	55	74	89	95
36	44	56	75	90	96
37	45	57	76	91	97
38	46	58	77	92	98
39	47	59	78	93	99
40	48	60	79	94	100
41	49	61	80	95	101
42	50	62	81	96	102
43	51	63	82	97	103
44	52	64	83	98	104
45	53	65	84	99	105
46	54	66	85	100	106
47	55	67	86	101	107
48	56	68	87	102	108
49	57	69	88	103	109
50	58	70	89	104	110

Symbol	Date	Description	Checked	Signed

AS BUILT

Supervising Engineer Date
Supervising Authority



transport
Department:
Transport
Province of KwaZulu-Natal

Designed by: S. Dordane
Checked by: S. Mathe
Drawn by: T. Mkhize
Checked by: S. Mathe
File Reference: L2214/63722/4

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Designed by:

emzansi
ENGINEERS (PTY) LTD
Providing Unrivalled Engineering Solutions
6/11/2019
Date

Bridge Engineer

Head: Transport

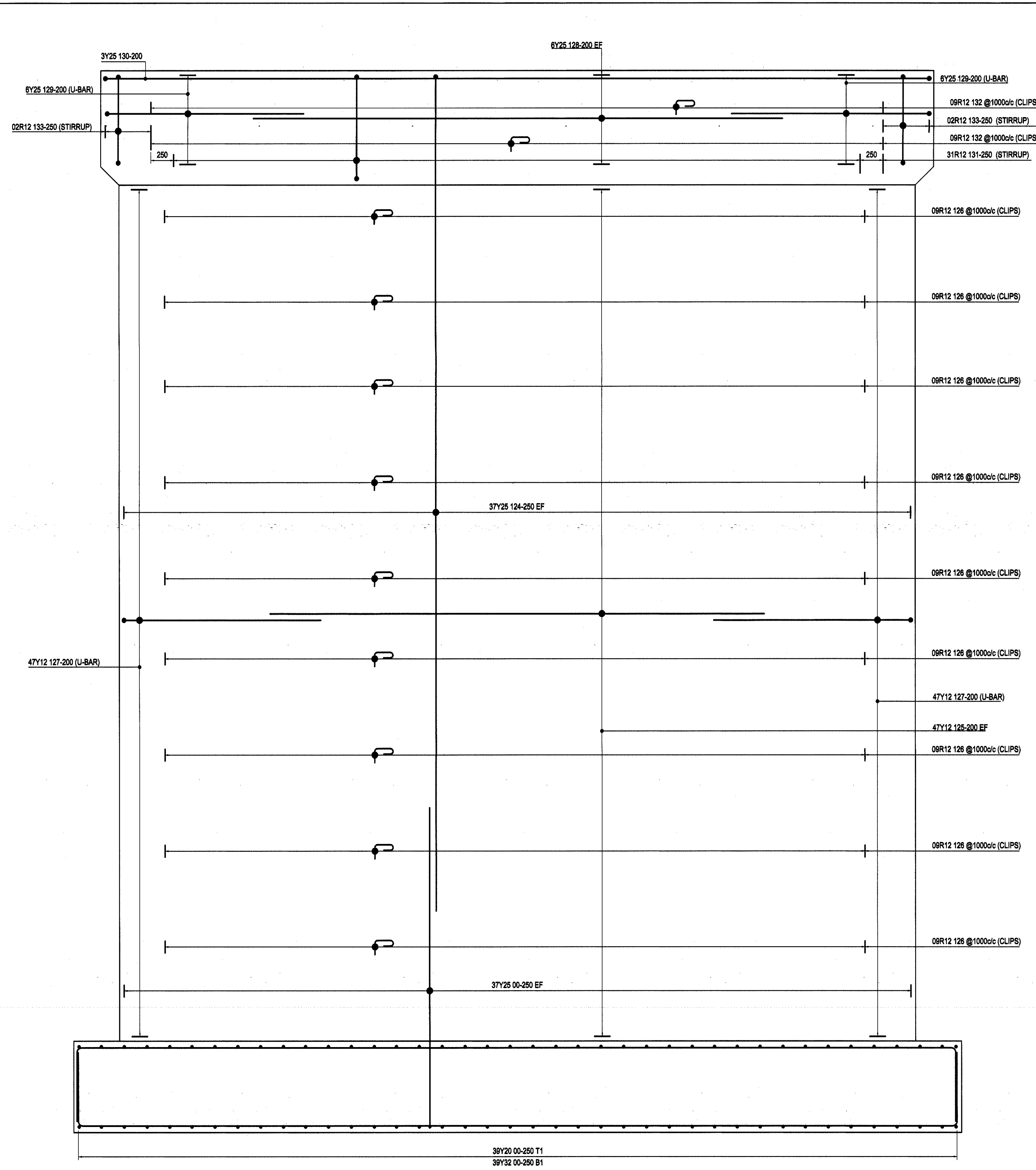
TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214
CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

IBISI RIVER BRIDGE
DECK SLAB REINFORCEMENT DETAILS

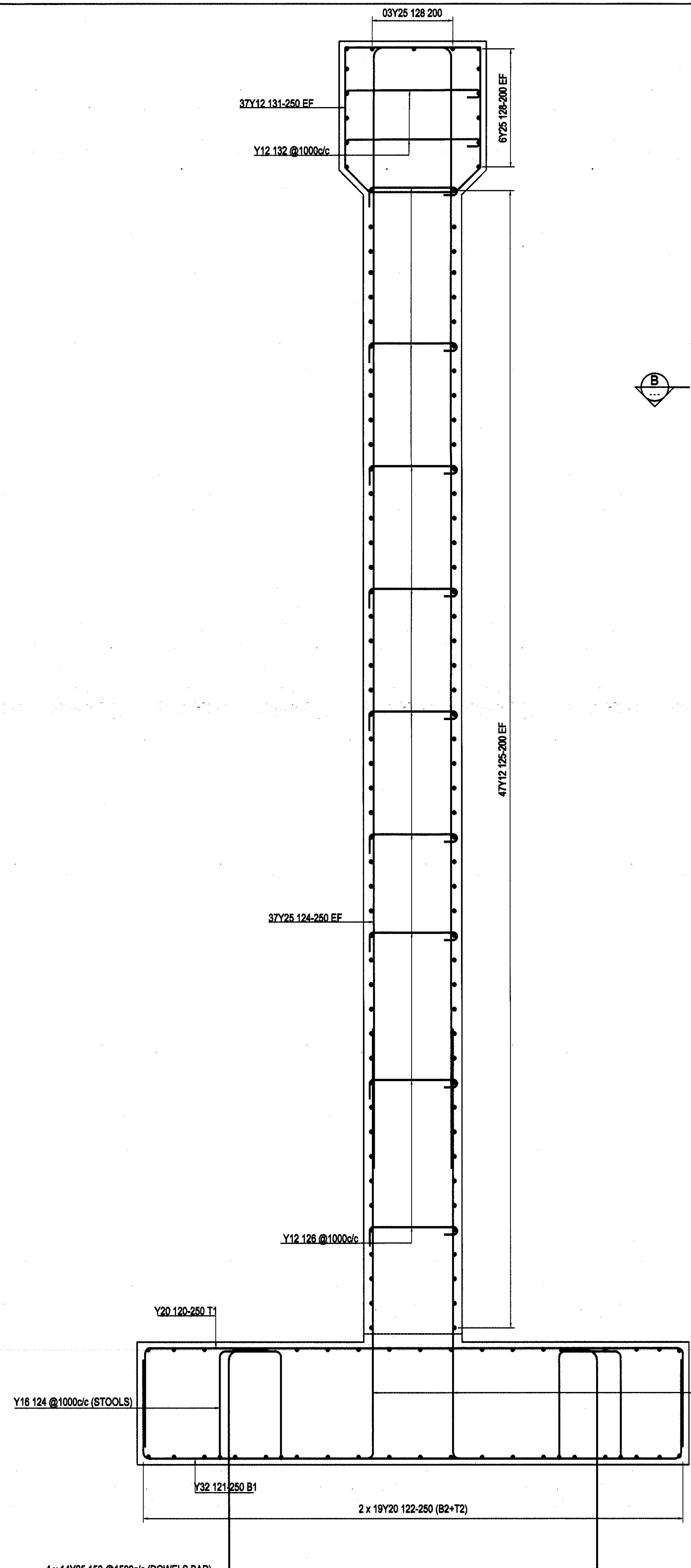
Kilometer Distance
km 0+596.141

Scale
As Shown

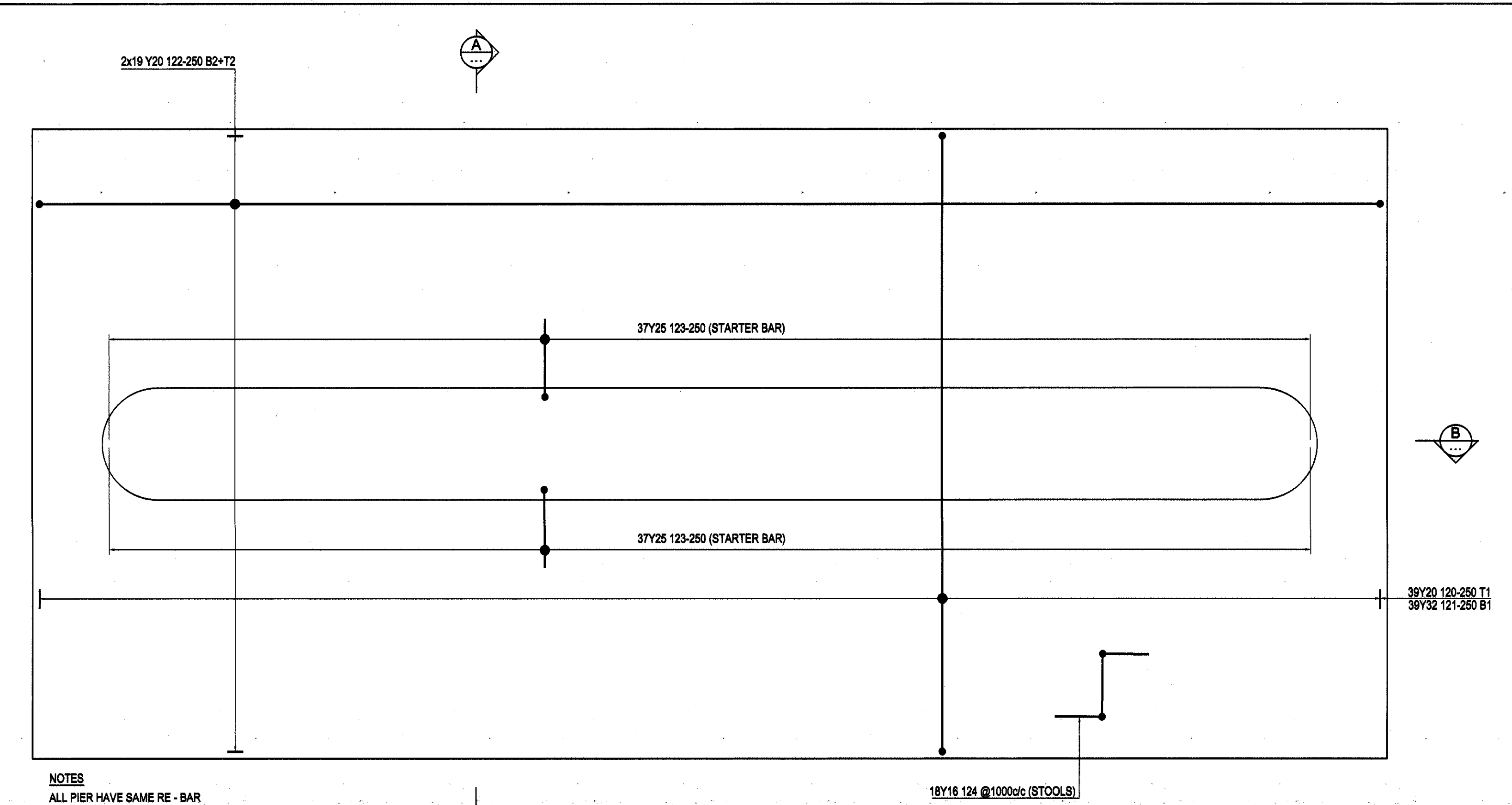
Sheet No.: 11
of 25
Revision
00
PLAN NUMBER
3722/11



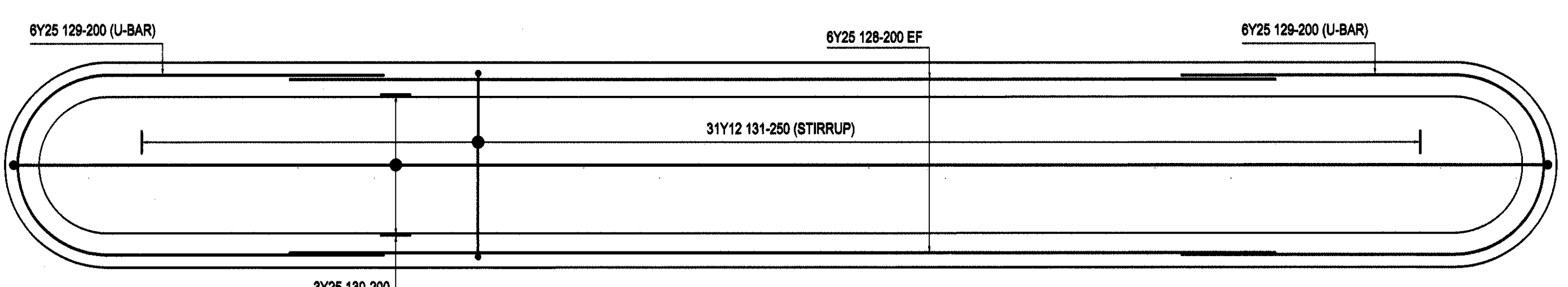
SECTION B-B
SCALE 1 : 25



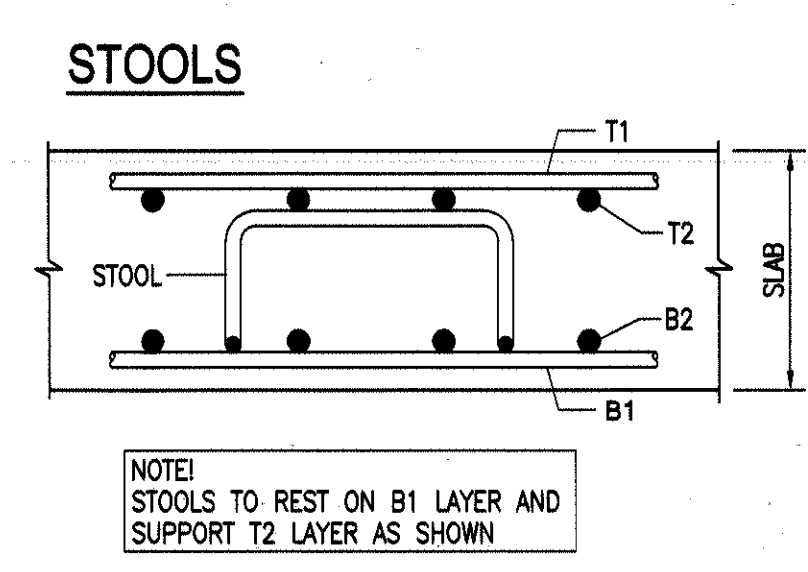
SECTION A-A
SCALE 1 : 25



PIER RE-BAR BASE LAYOUT
SCALE 1 : 25



PIER HEAD RE-BAR LAYOUT
SCALE 1 : 25



NOTES:

- MINIMUM CONCRETE COVER TO REINFORCEMENT = 40mm
- MINIMUM LAP LENGTH TO BE: 45 x SMALLER BAR DIAMETER. MINIMUM LAP DIMENSION INDICATED TO BE APPLICABLE UNLESS GEOMETRIC CONSTRAINTS REQUIRE LARGER LAP LENGTH.
- DETAILING AND ABBREVIATIONS IN ACCORDANCE WITH SABS 0144 - 2012.
- FOR STEEL SPECIFICATIONS AND BENDING DETAILS REFER TO BENDING SCHEDULE.
- 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

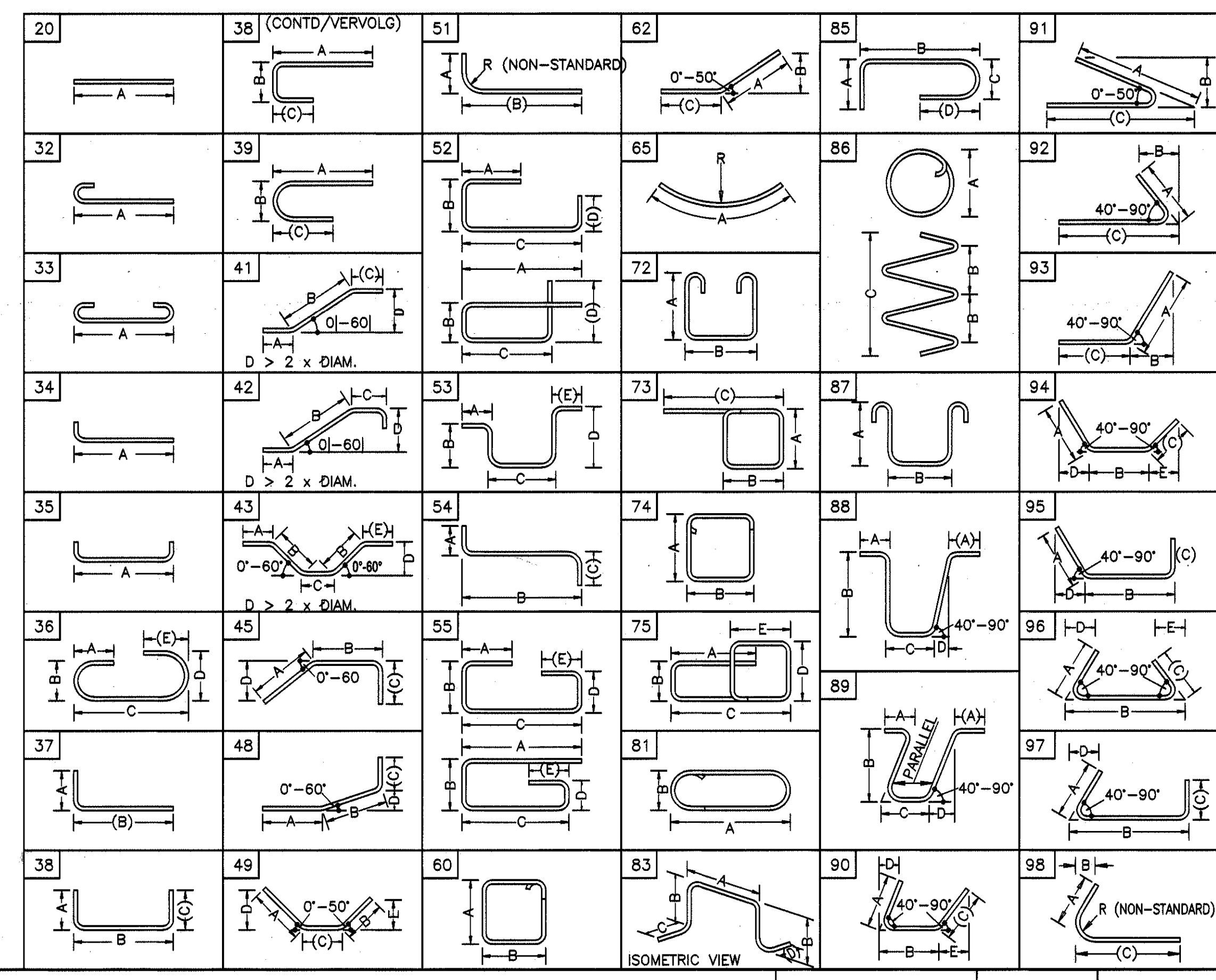
REINFORCING LEGEND:

1. T	TOP
2. M	MIDDLE
3. B	BOTTOM
4. T1	UPPER TOP LAYER
5. T2	LOWER TOP LAYER
6. B1	UPPER BOTTOM LAYER
7. B2	LOWER BOTTOM LAYER
8. ABR	ALTERNATE BARS REVERSED
9. ALT	ALTERNATE BARS
10. NF	NEAR FACE
11. FF	FAR FACE
12. EF	EACH FACE
13. F	INSIDE FACE
14. OF	OUTSIDE FACE
15. EW	EACH WAY

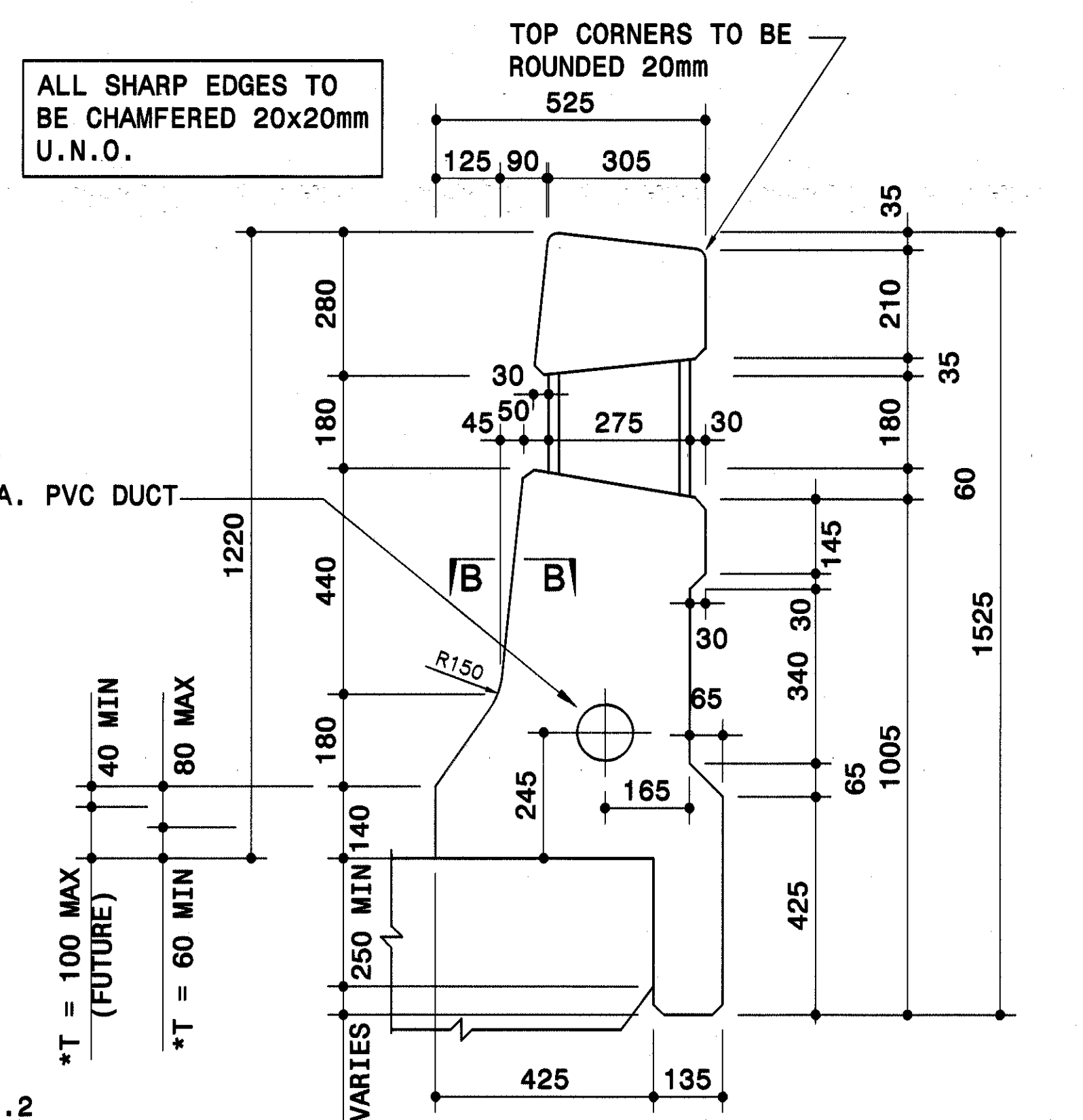
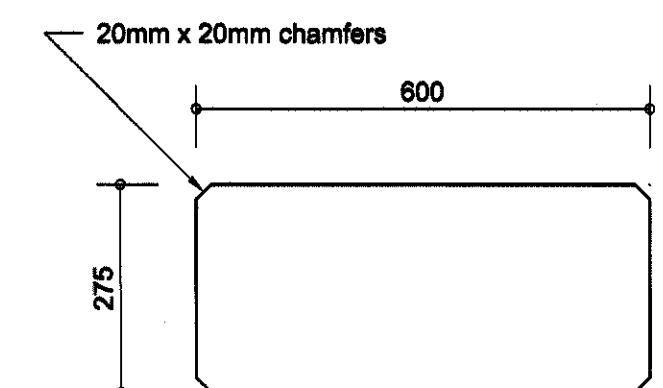
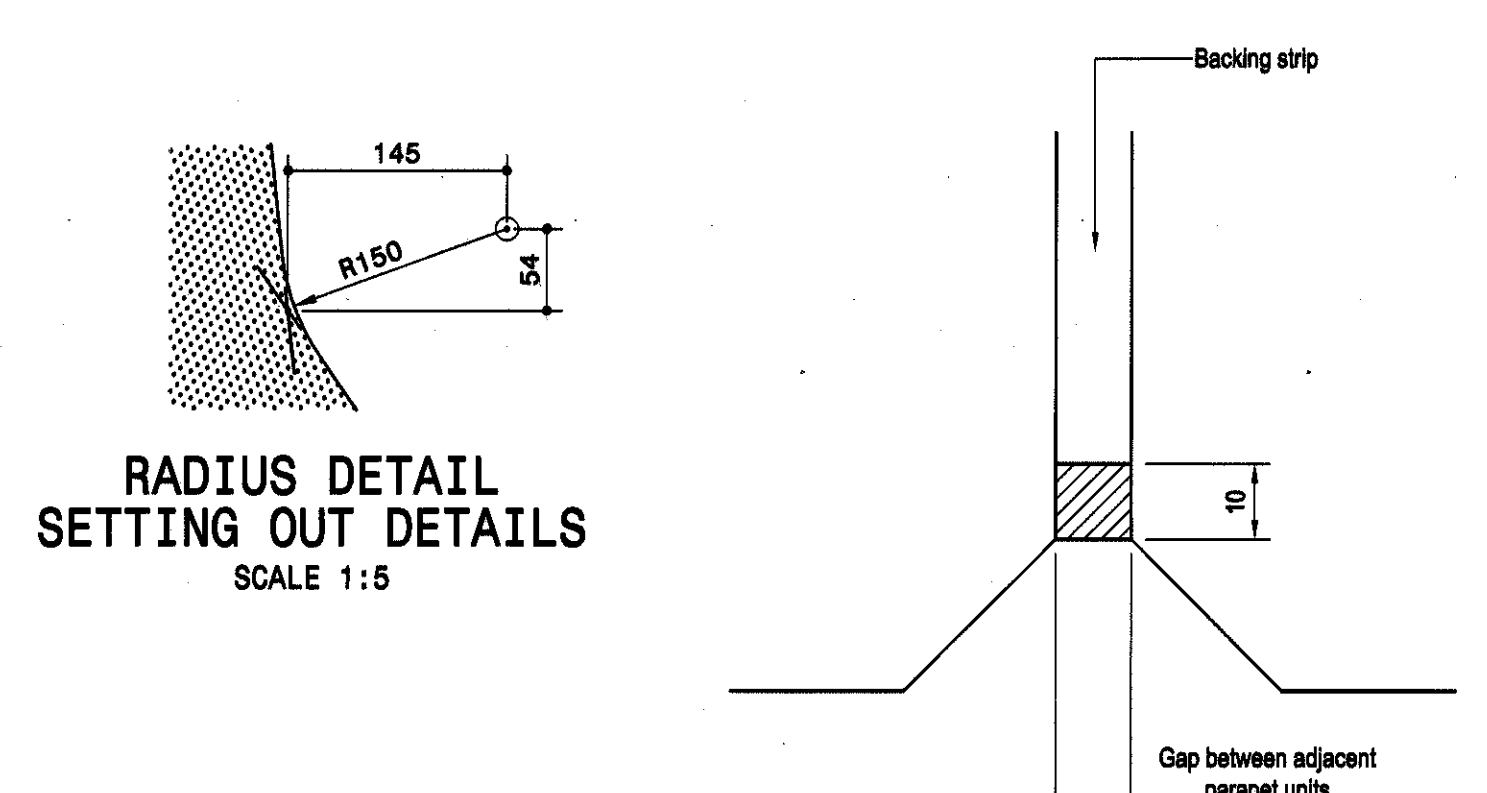
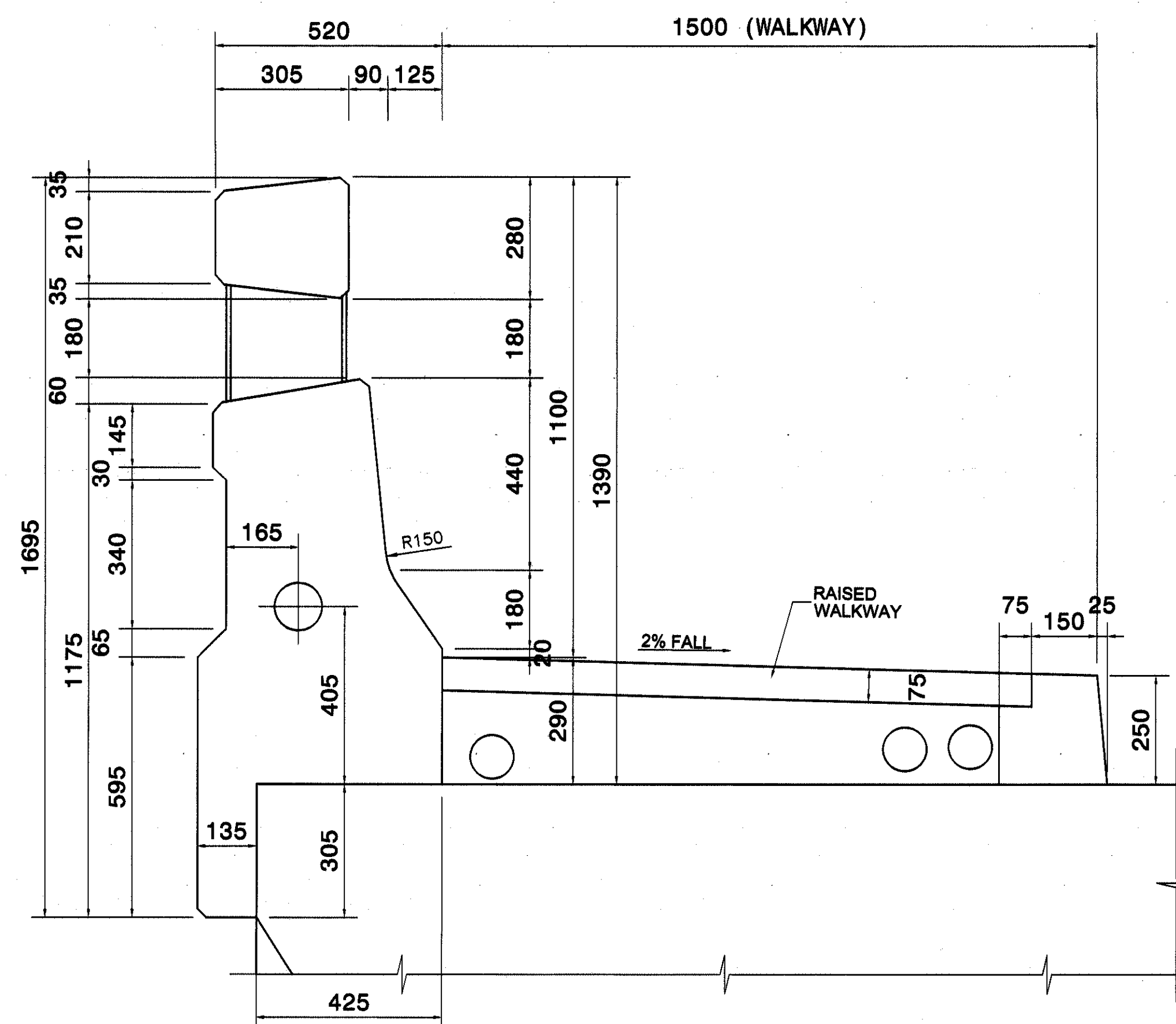
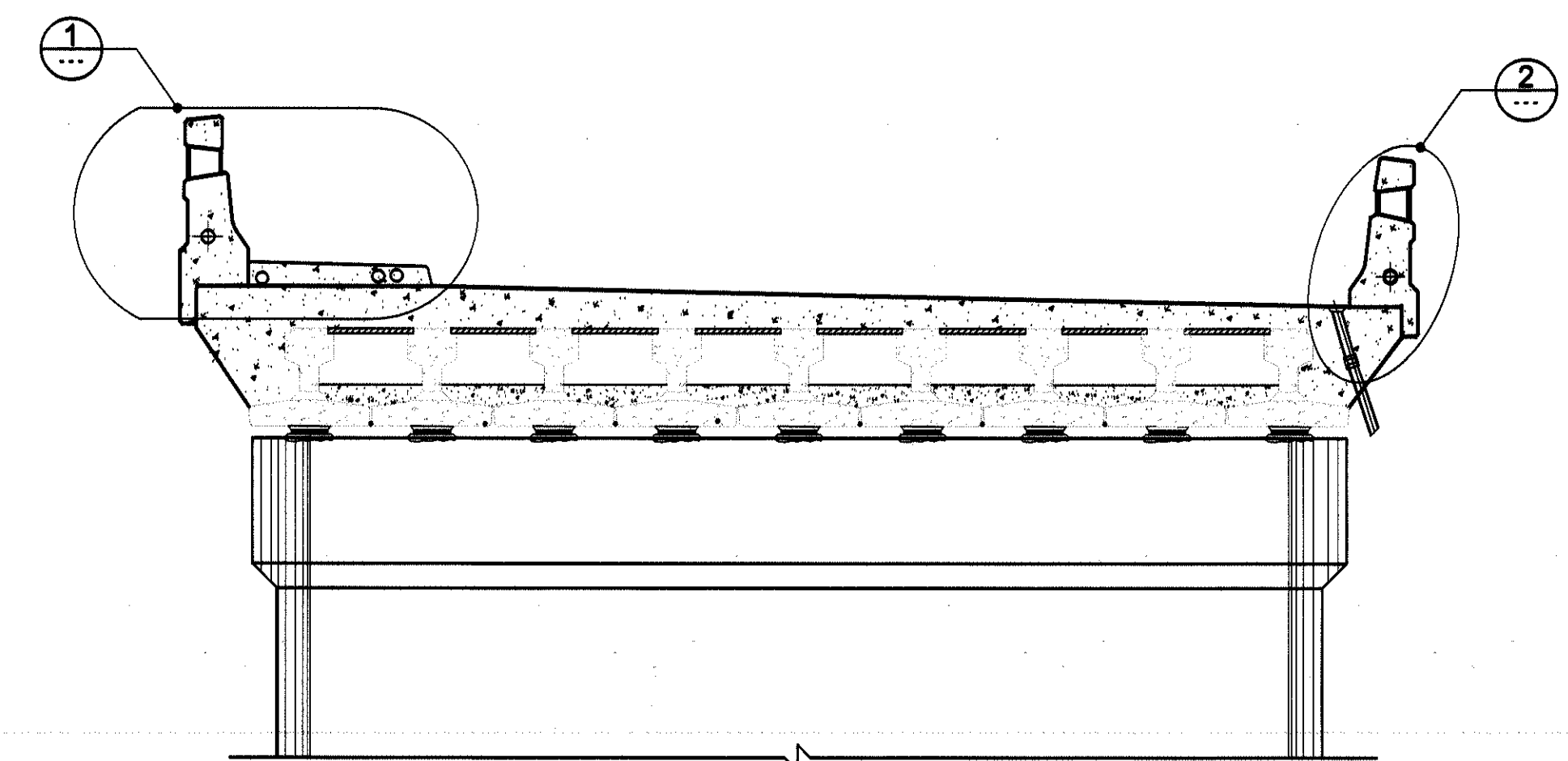
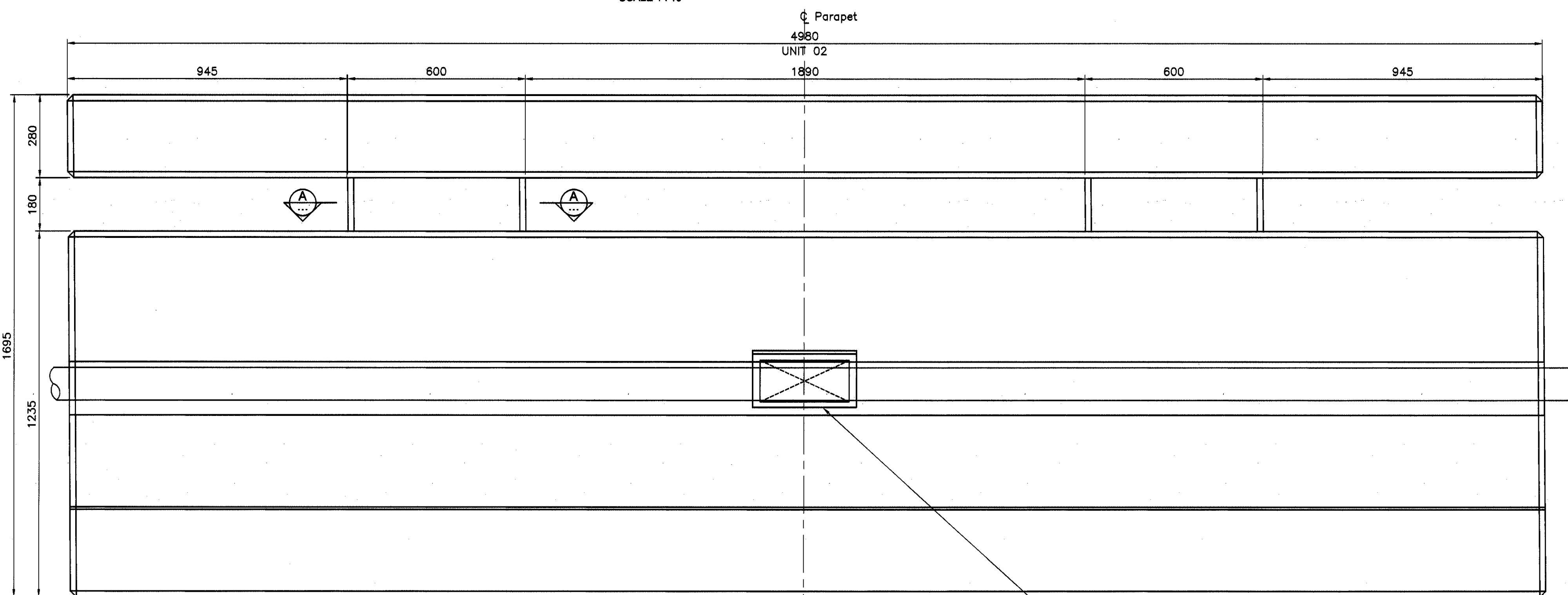
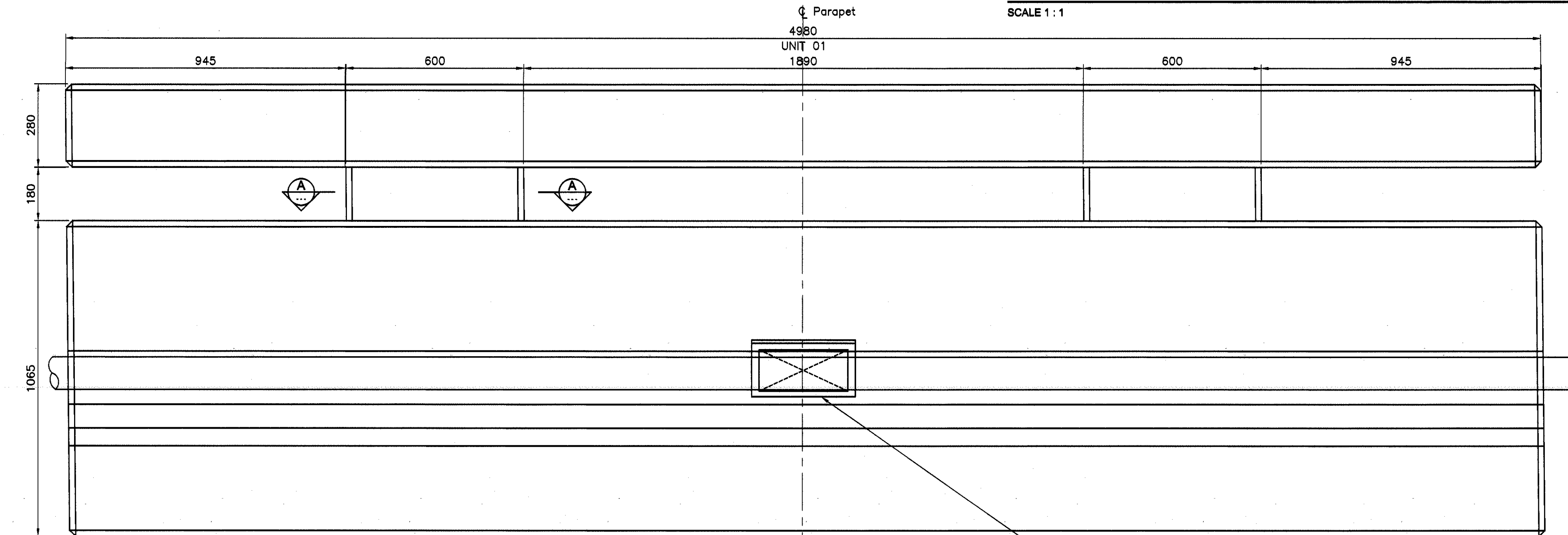
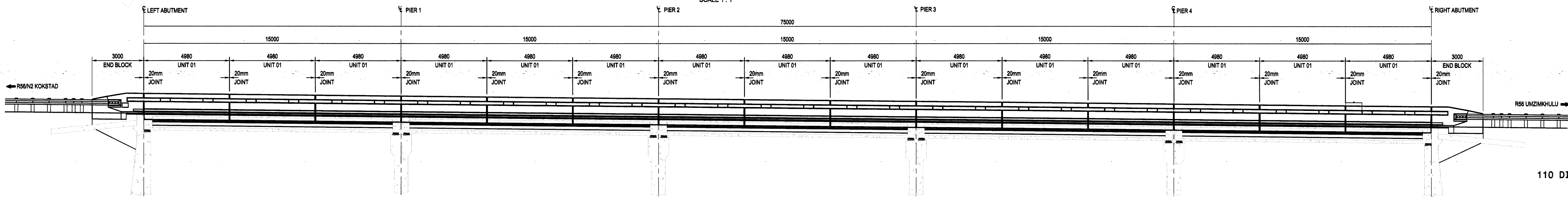
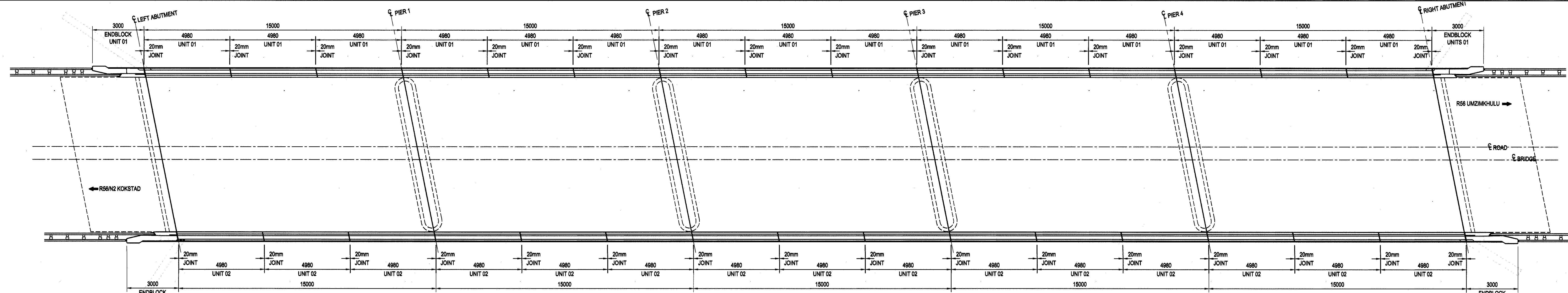
REINFORCING NOTATION:

10 - Y12 - A01 - 250 T1

BAR PLACEMENT
CENTRES
BAR MARK
BAR TYPE AND DIAMETER
NUMBER OF BARS



AS BUILT Supervising Engineer: _____ Date: _____ Supervising Authority: _____					 transport Department: Transport Province of KwaZulu-Natal		Designed by: <i>[Signature]</i> S. Dancie Checked by: <i>[Signature]</i> S. Mathe Drawn by: <i>[Signature]</i> S. Mathe Checked by: <i>[Signature]</i> S. Mathe File Reference: L2214/8/3722/4		PROVINCE OF KWAZULU-NATAL DEPARTMENT OF TRANSPORT		Designed by: <i>[Signature]</i> emzansi ENGINEERS (PTY) LTD Providing the highest Engineering Solutions Signature: <i>[Signature]</i> Date: 04/11/2019		Bridge Engineer: <i>[Signature]</i> Head of Transport: <i>[Signature]</i>		TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214 CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E IBISI RIVER BRIDGE PIER REINFORCEMENT DETAILS		Kilometer Distance: km 0+596.141 Scale: As Shown PLAN NUMBER: 3722/12		Sheet No.: 12 of 25 Revision: 00 3722/12	
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- 1.0 DESIGN LOADING
- 1.1. TYPE A BRIDGE PARAPETS SHALL BE DESIGNED FOR A NOMINAL POINT LOAD OF 100KN ACTING AT A HEIGHT OF 700mm ABOVE THE ROAD SURFACE.
TYPE B BRIDGE PARAPETS SHALL BE DESIGNED FOR A NOMINAL POINT LOAD OF 200KN ACTING AT A HEIGHT OF 800mm ABOVE THE ROAD SURFACE.
- 2.0 THE PARAPET
- 2.1. SHALL NOT BE DESIGNED AS AN INTEGRAL PART OF THE DECK WITHOUT APPROVAL I.E. IT SHALL BE POSSIBLE TO REMOVE THE BALUSTRADE SHOULD THE BRIDGE REQUIRE WIDENING, THE BALUSTRADE SHALL BE CAST AFTER THE DECK IS SELF SUPPORTING.
- 2.2. ALL WORK MUST BE EXECUTED IN ACCORDANCE WITH THE 'STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE WORKS'. (COLTO)
- 3.0 MATERIAL AND FINISHES
- THE MATERIAL AND WORK SHALL COMPLY WITH THE RELEVANT CLAUSES OF SERIES 8000 AND 8000 OF THE STANDARD SPECIFICATIONS, THE PROJECT SPECIFICATIONS AND SHALL INCLUDE THE FOLLOWING.
- 3.1. CONCRETE CLASS (Mpa/mm) : W30/19 UNLESS DURABILITY CONCRETE IS NOT REQUIRED (EXPOSURE CLASS XC1a)
- 3.2. STEEL REINFORCING BARS SHALL COMPLY WITH SANS 920:1985
HIGH YIELD BARS : MIN YIELD STRESS 450 Mpa.
MILD STEEL BARS : MIN YIELD STRESS 250 Mpa.
ALL REINFORCING TO BE HOT DIPPED GALVANISED.
NOTE : GALVANISING SHALL APPLY ONLY WHEN W CLASS
DURABILITY CONCRETE IS REQUIRED
- 3.3. MINIMUM CONCRETE COVER TO REINFORCEMENT : 40mm.
- 3.4. SURFACE FINISHES: (EXPOSED FACES)
- CLASS F3 - STEEL SHUTTER FINISH.
- CLASS U3 - STEEL TROWEL FINISH.
- 3.5. CURING
PARAPETS ARE TO BE CURED BY EITHER METHOD (d), (e) OR (f) OF COLTO GUIDE 8409, AS AGREED WITH ENGINEER.
- 4.0. GENERAL
- 4.1. INSPECTION EYES TO BE PROVIDED AT DISTANCES NOT EXCEEDING 50m.
- 4.2. *T = 60mm MIN (20mm LEVELLING COURSE + 40mm ASPHALT)
OR 100mm MAX (20mm LEVELLING COURSE + 2x40mm ASPHALT)

Symbol	Date	Description	Checked	Signed
AMENDMENTS				

Supervising Engineer Date



Department:
Transport
Province of KwaZulu-Natal

Designed by:- S. Doncabe

Checked by:- Katli

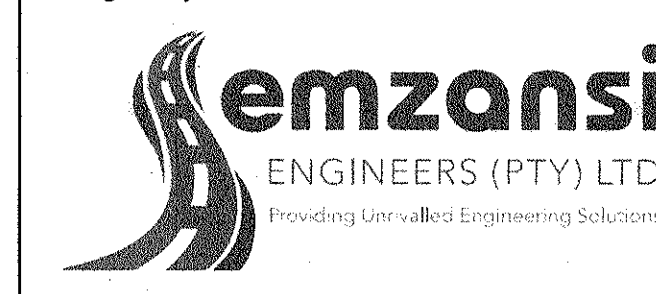
S. Matete

Drawn by:- T. Mkhize

Checked by:- S. Matele

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Designed by:-	
---------------	--



04/11/2011

1241

10/10/10

Bridge Engineer

11

[Signature]

TRIBUTARY TO IBIS| RIVER BRIDGE ON NEW LINK ROAD | 2214

CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

IBISI RIVER BRIDGE

PARAPET CONCRETE DETAILS I (UNIT TYPE 1 & 2)

Kilometer Distance	\$
0	0
10	10
20	20
30	30
40	40
50	50
60	60
70	70
80	80
90	90
100	100

km 0+596.141

[illegible]

Scale

1

As Shown	3
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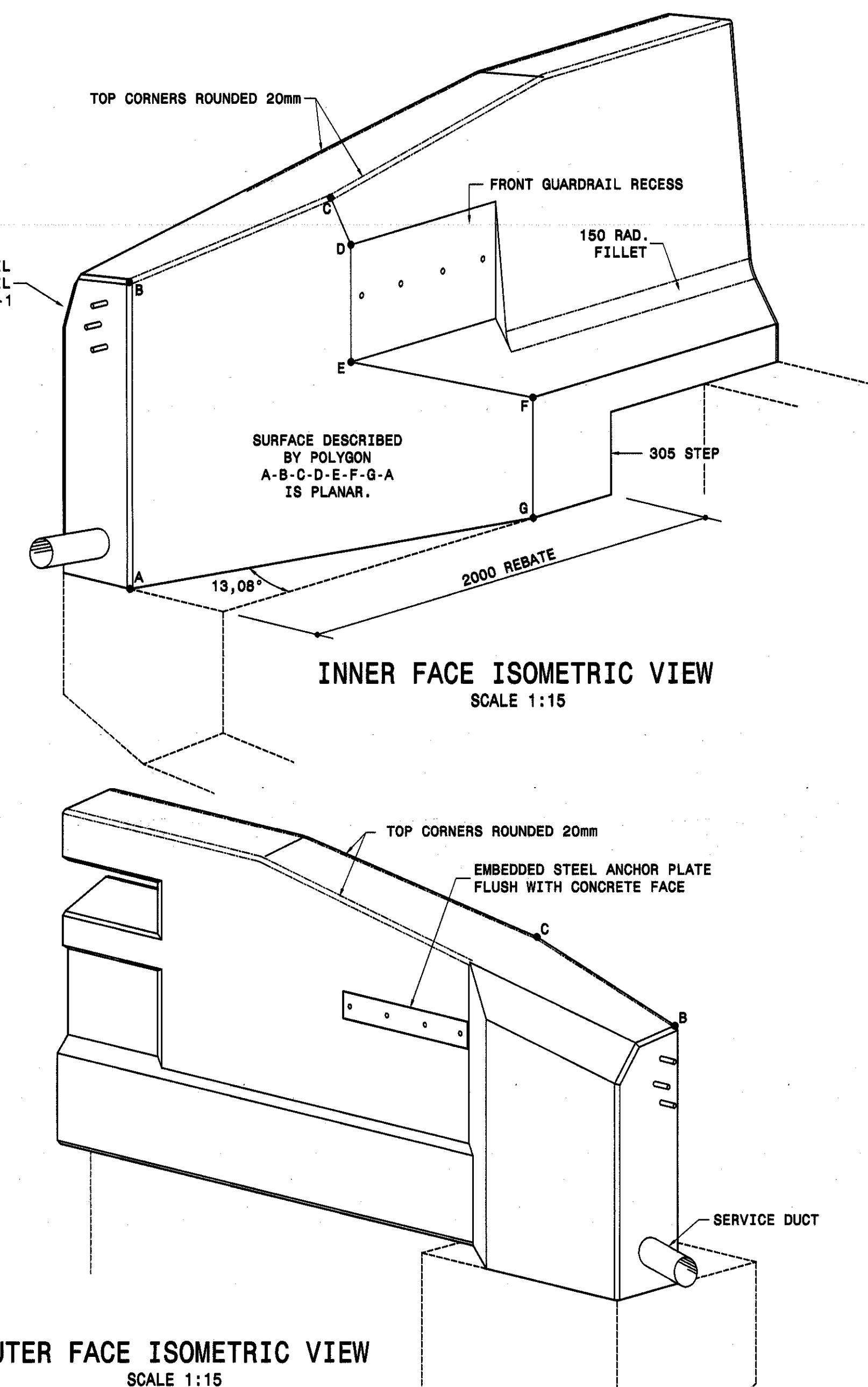
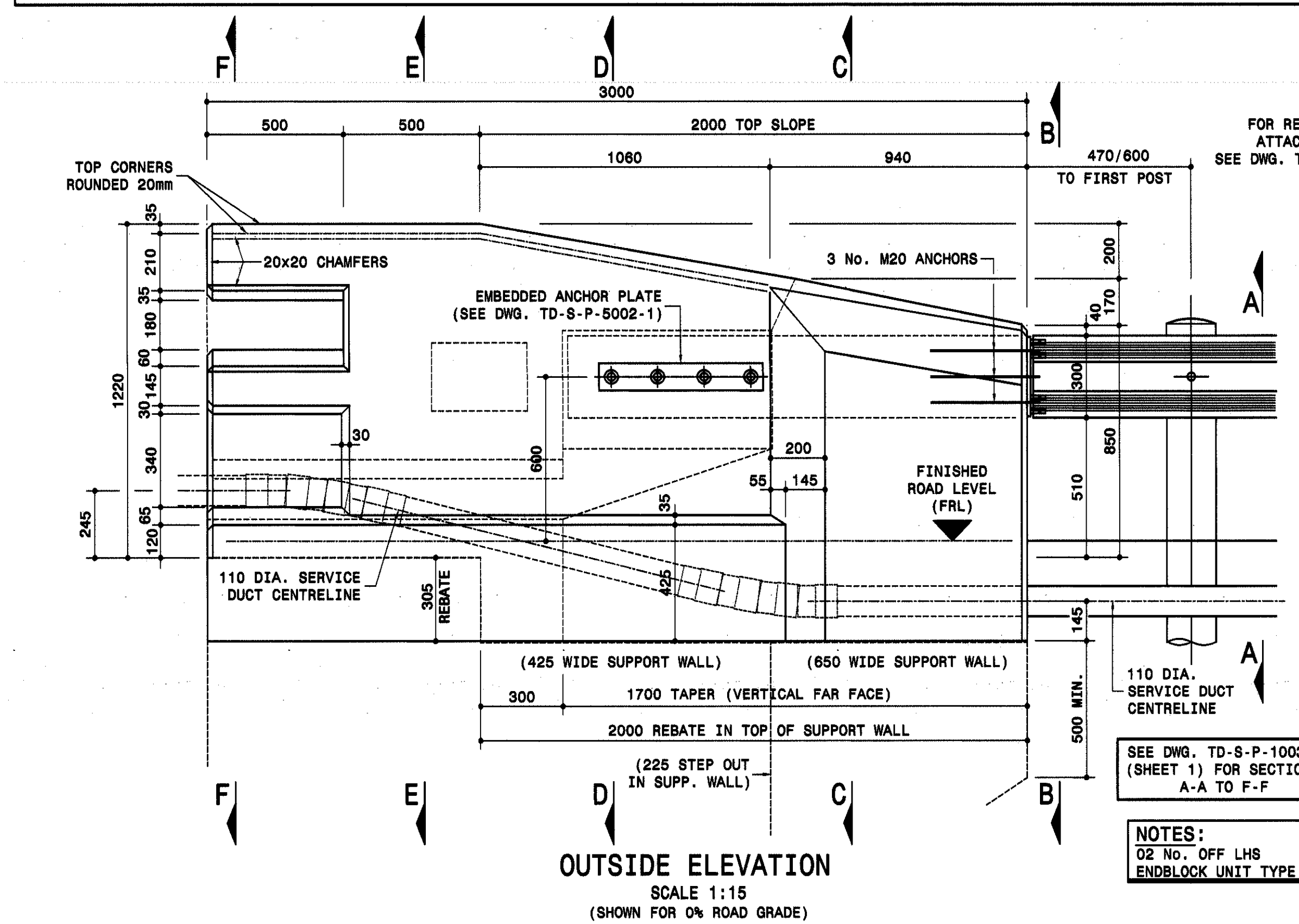
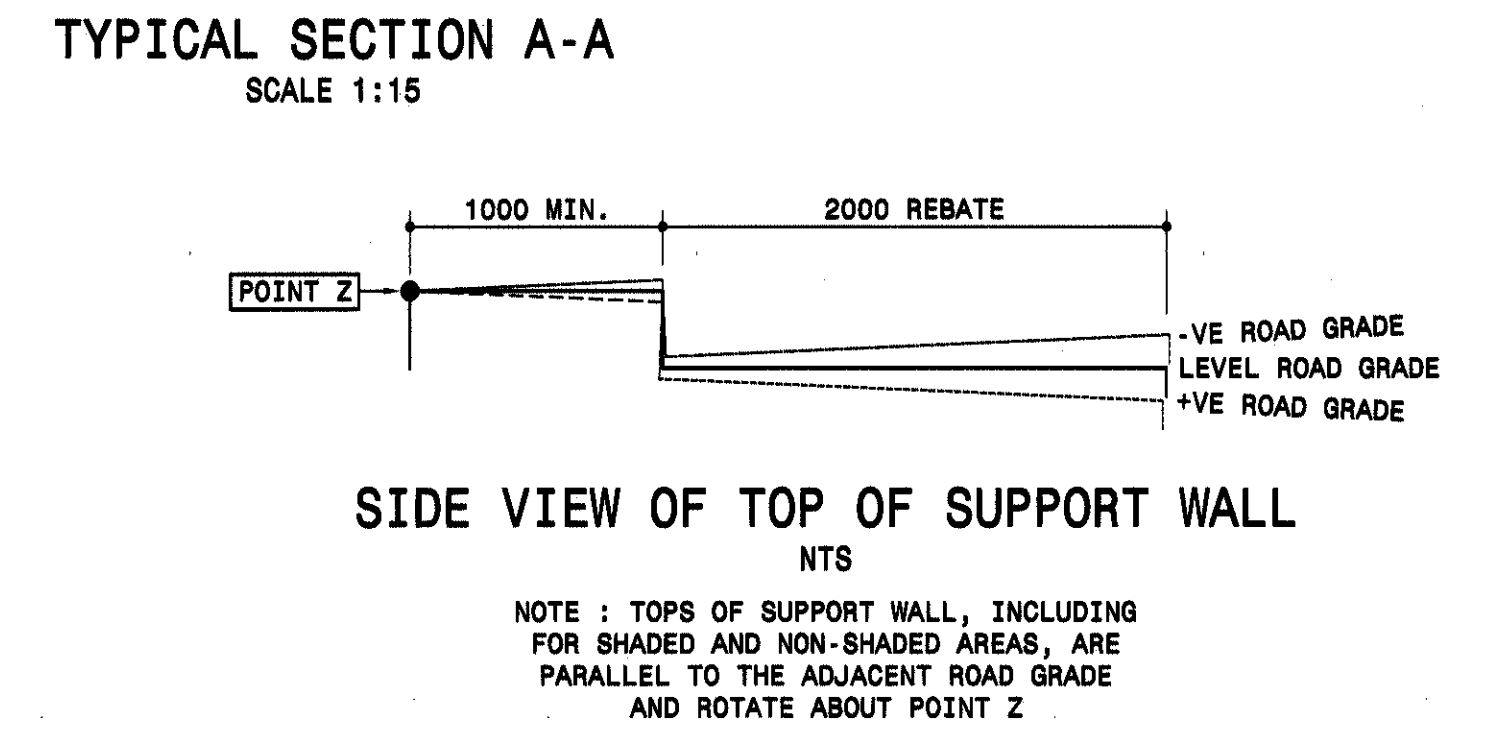
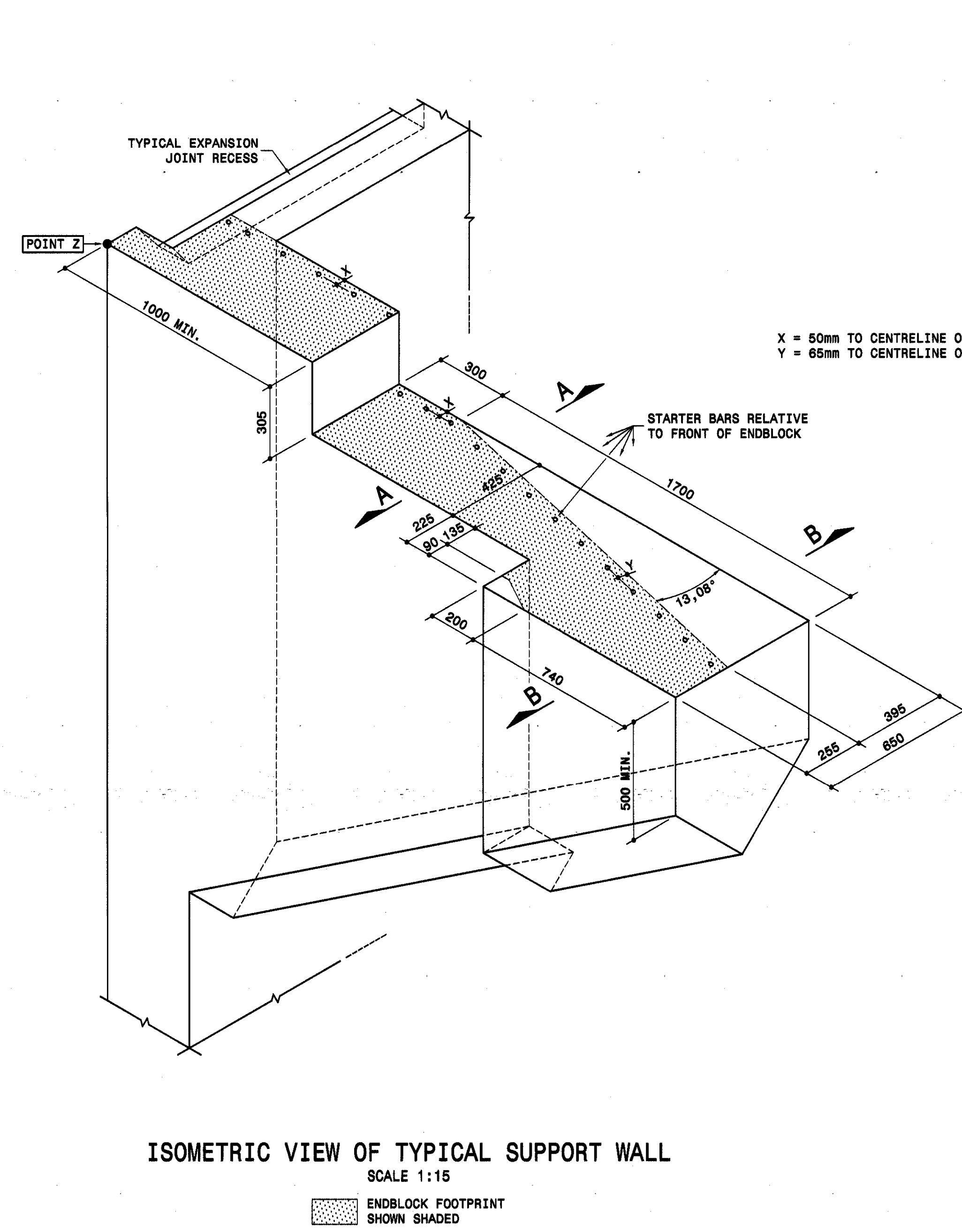
Sheet No.: 13	Revision
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of 25 | 00

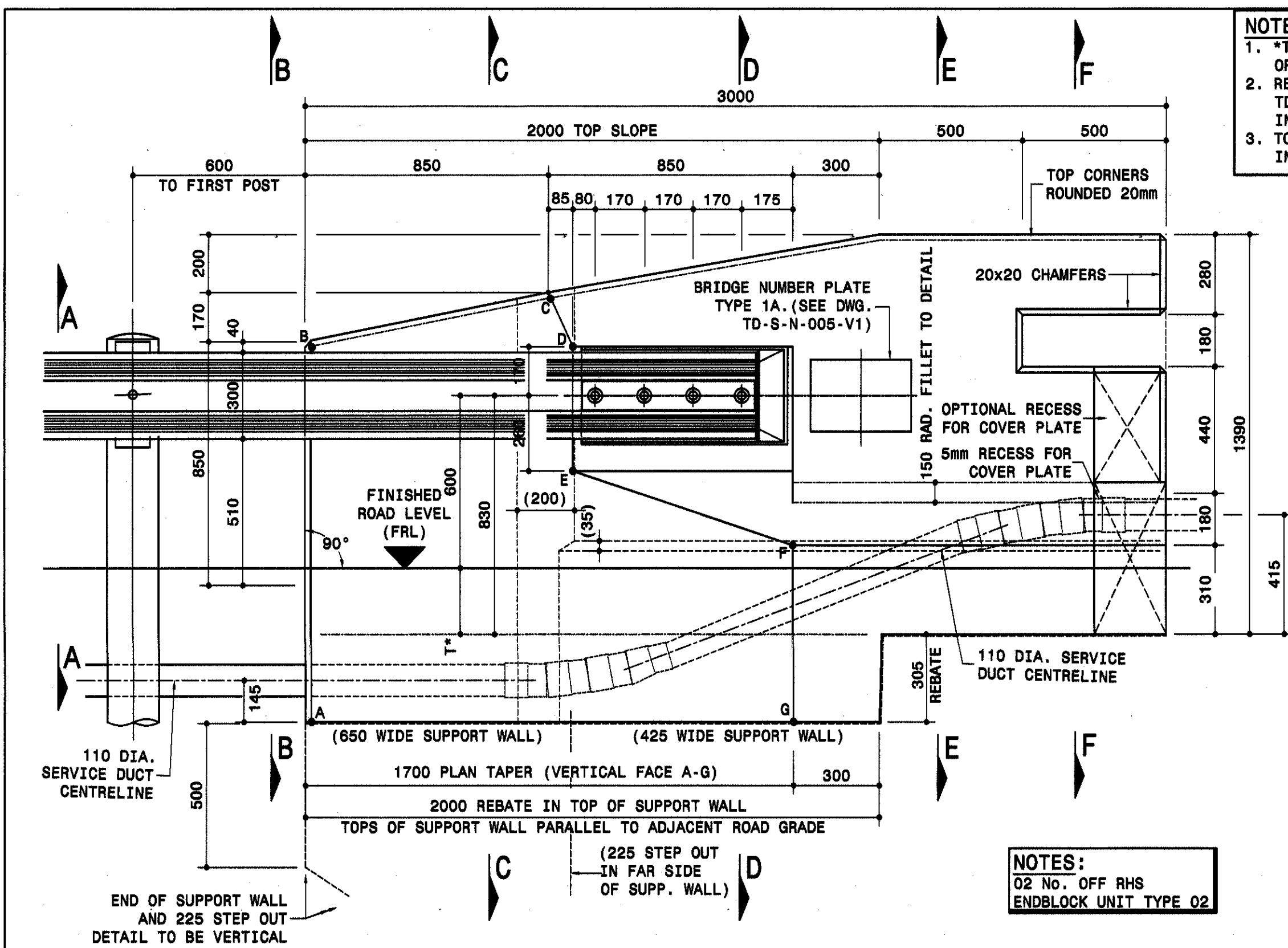
PLAN NUMBER

0700/10

3/22/13

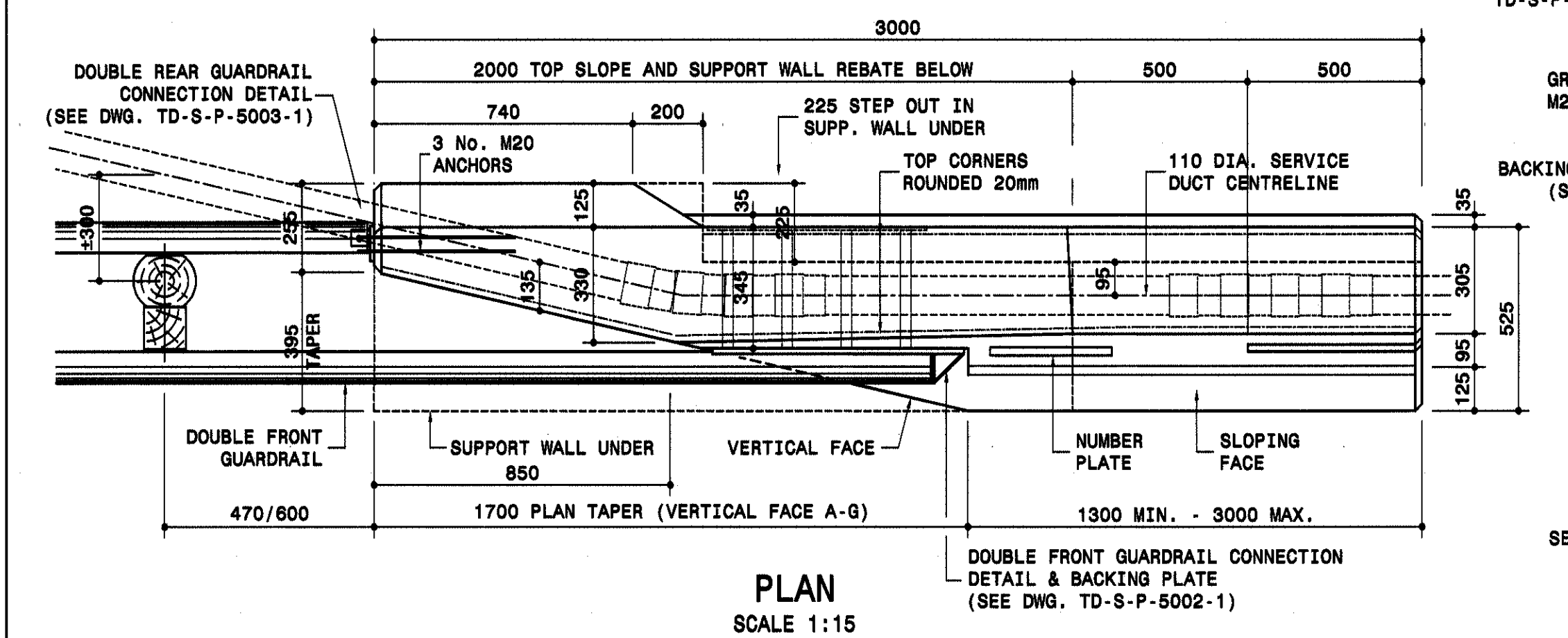


Scale	PLAN NUMBER
As Shown	3722/14



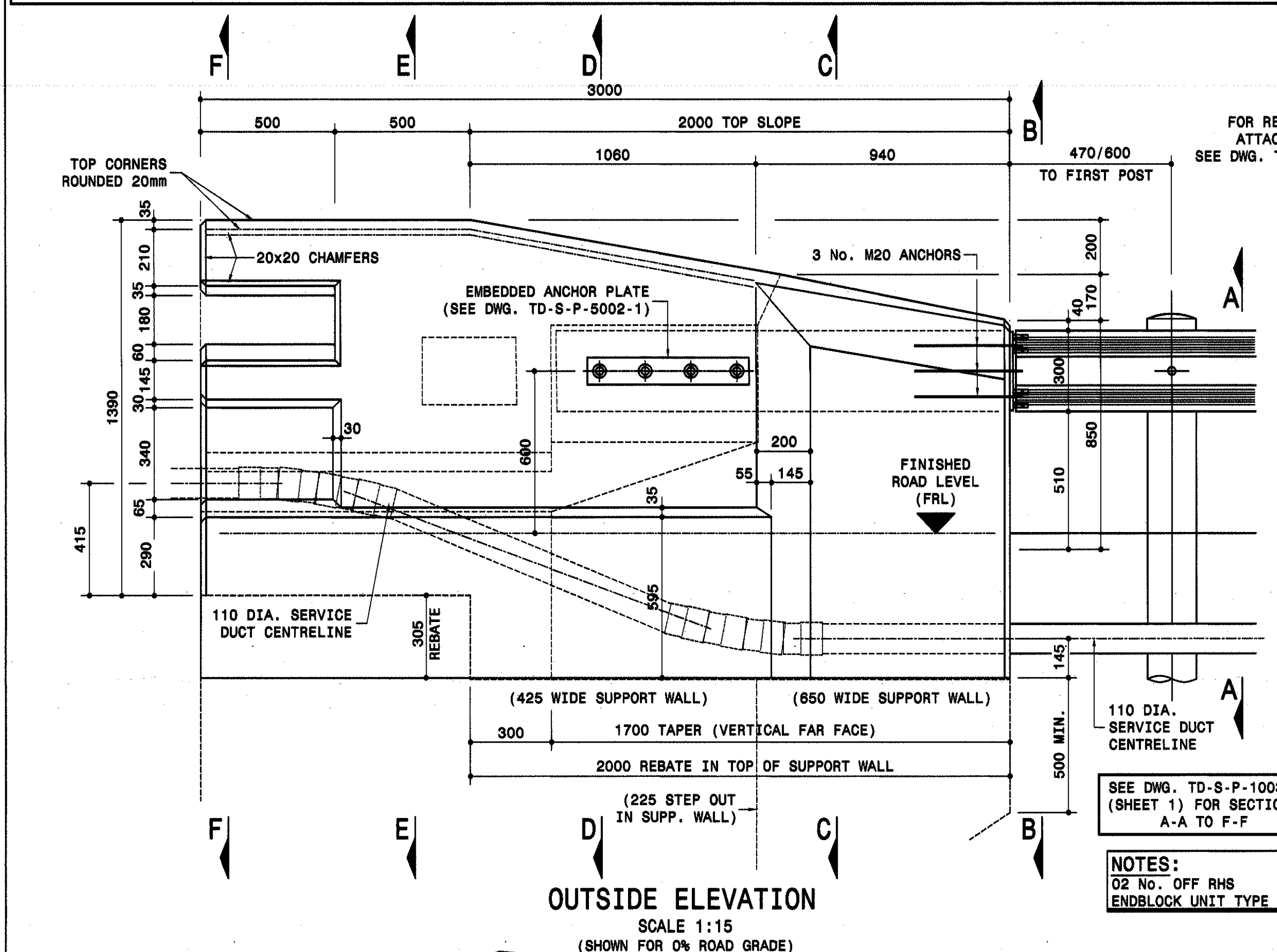
INSIDE ELEVATION

THE SURFACE DESCRIBED BY POLYGON A-B-C-D-E-F-G-A IS PLANAR.
SERVICE DUCT LARGE RADIUS BENDS ACHIEVED BY USING ACCUMULATIVE
PLAY IN RUBBER GASKETS OF MULTIPLE STRAIGHT COUPLERS.



PLAN
SCALE 1:15

- NOTES:
1. "T" = 60mm MIN (20mm LEVELLING COURSE + 40mm ASPHALT) OR 100mm MAX (20mm LEVELLING COURSE + 2x40mm ASPHALT).
 2. READ THIS DRAWING IN CONJUNCTION WITH DWG. NOS. TD-S-P-1003-1 (SHEET 1) AND TD-S-P-1002-1 (FOR INTERIOR PANELS TYPE A AND TYPE B).
 3. TOP RAIL AS SHOWN ON THIS DRAWING MATCHES TYPE A INTERIOR PANELS.
 4. GAP UNDER TOP RAIL FILLED IN TO MATCH TYPE B INTERIOR PANELS.
 5. ALL JOINTS BETWEEN PANELS AND ALL VERTICAL DIMENSIONS SHOWN SHALL BE PERPENDICULAR TO THE ROAD SURFACE IN ALL CASES.
 6. A REBATED SUPPORT WALL AS OUTLINED IS ALSO REQUIRED FOR ABUTMENTS WITH SPALLED WINGWALLS.
 7. CONCRETE CLASS TO BE 30/19 UNLESS DURABILITY CONCRETE IS NOT REQUIRED (EXPOSURE CLASS XC1a).
 8. ALL EXPOSED CORNERS CHAMFERED 20mm x 20mm UNLESS OTHERWISE SHOWN.

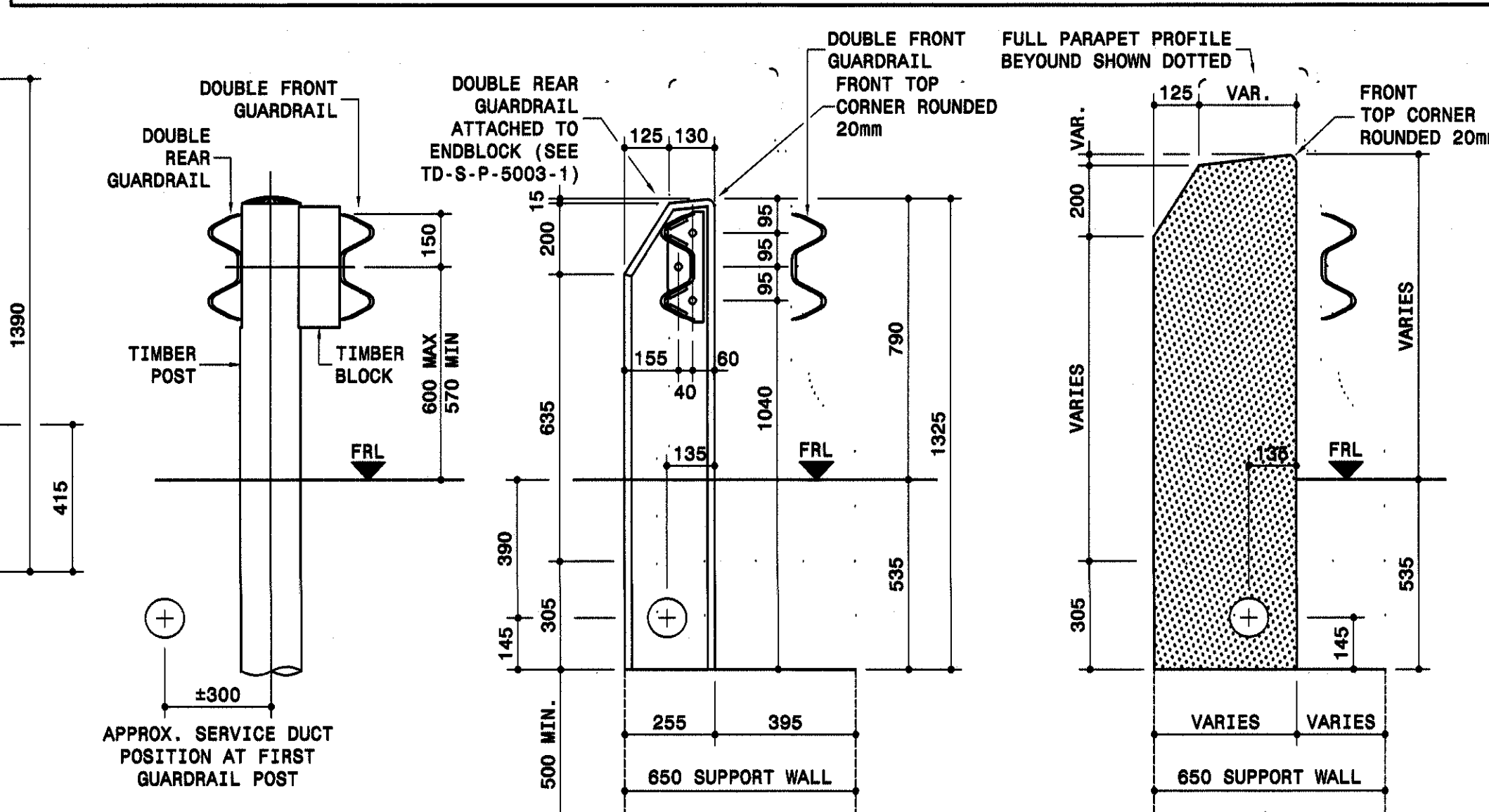


OUTSIDE ELEVATION
SCALE 1:15
(SHOWN FOR 0% ROAD GRADE)

$F_R = 234kN$ (ULS) INCLUDES
FOR $\gamma_R = 1.25$ AND $\gamma_{DS} = 1.10$
45° DENOTES ANTICIPATED
SPREAD OF FORCE F_R
TO SUPPORT WALL

FORCES APPLIED TO ENDBLOCK
FOR SUPPORT WALL ANALYSIS
NOT TO SCALE

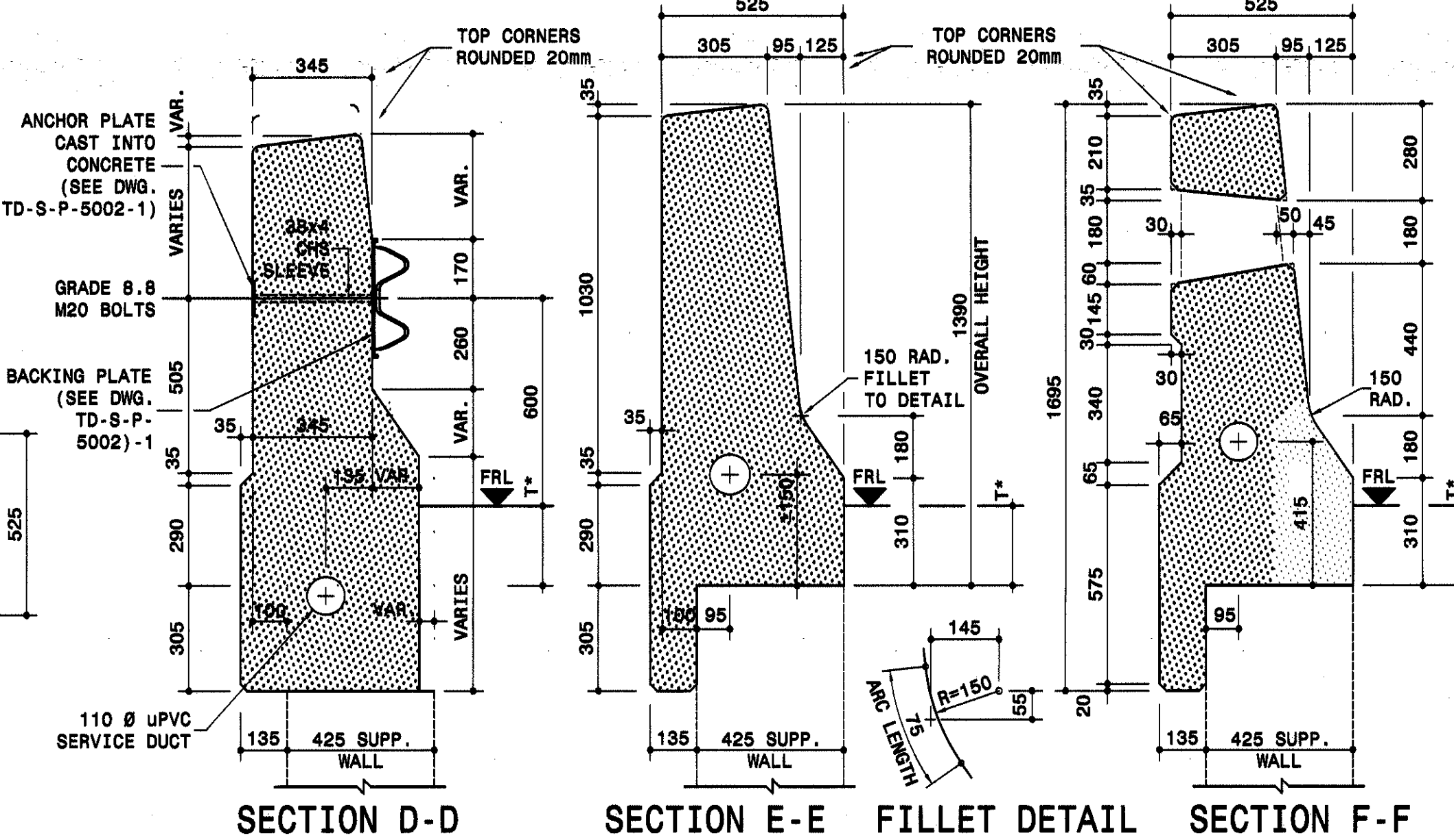
- NOTES:
1. "T" = 60mm MIN (20mm LEVELLING COURSE + 40mm ASPHALT) OR 100mm MAX (20mm LEVELLING COURSE + 2x40mm ASPHALT).
 2. READ THIS DRAWING IN CONJUNCTION WITH DWG. NOS. TD-S-P-1003-2 (SHEET 2) AND TD-S-P-1002-1 (FOR INTERIOR PANELS TYPE A AND TYPE B).
 3. TOP RAIL AS SHOWN ON THIS DRAWING MATCHES TYPE A INTERIOR PANELS. (GAP FILLED IN FOR TYPE B PANELS).
 4. ALL JOINTS BETWEEN PANELS AND ALL VERTICAL DIMENSIONS SHOWN SHALL BE PERPENDICULAR TO THE ROAD SURFACE IN ALL CASES.
 5. A REBATED SUPPORT WALL AS OUTLINED IS ALSO REQUIRED FOR ABUTMENTS WITH SPALLED WINGWALLS.
 6. CONCRETE CLASS TO BE 30/19 UNLESS DURABILITY CONCRETE IS NOT REQUIRED (EXPOSURE CLASS XC1a).
 7. ALL EXPOSED CORNERS CHAMFERED 20mm x 20mm UNLESS OTHERWISE SHOWN.



SECTION A-A
SCALE 1:15

END ELEVATION B-B
SCALE 1:15

SECTION C-C
SCALE 1:15

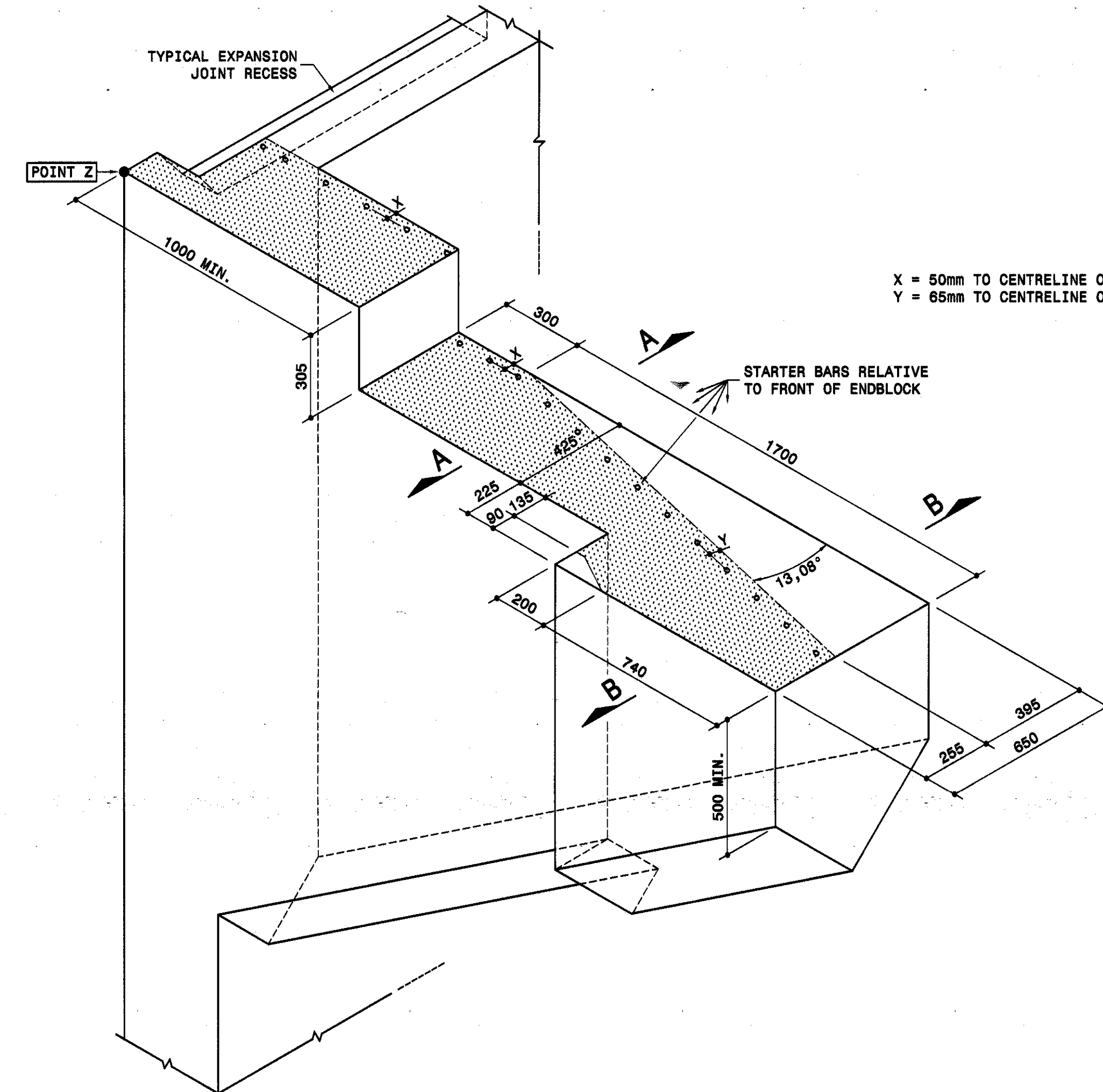


SECTION D-D
SCALE 1:15

SECTION E-E
SCALE 1:15

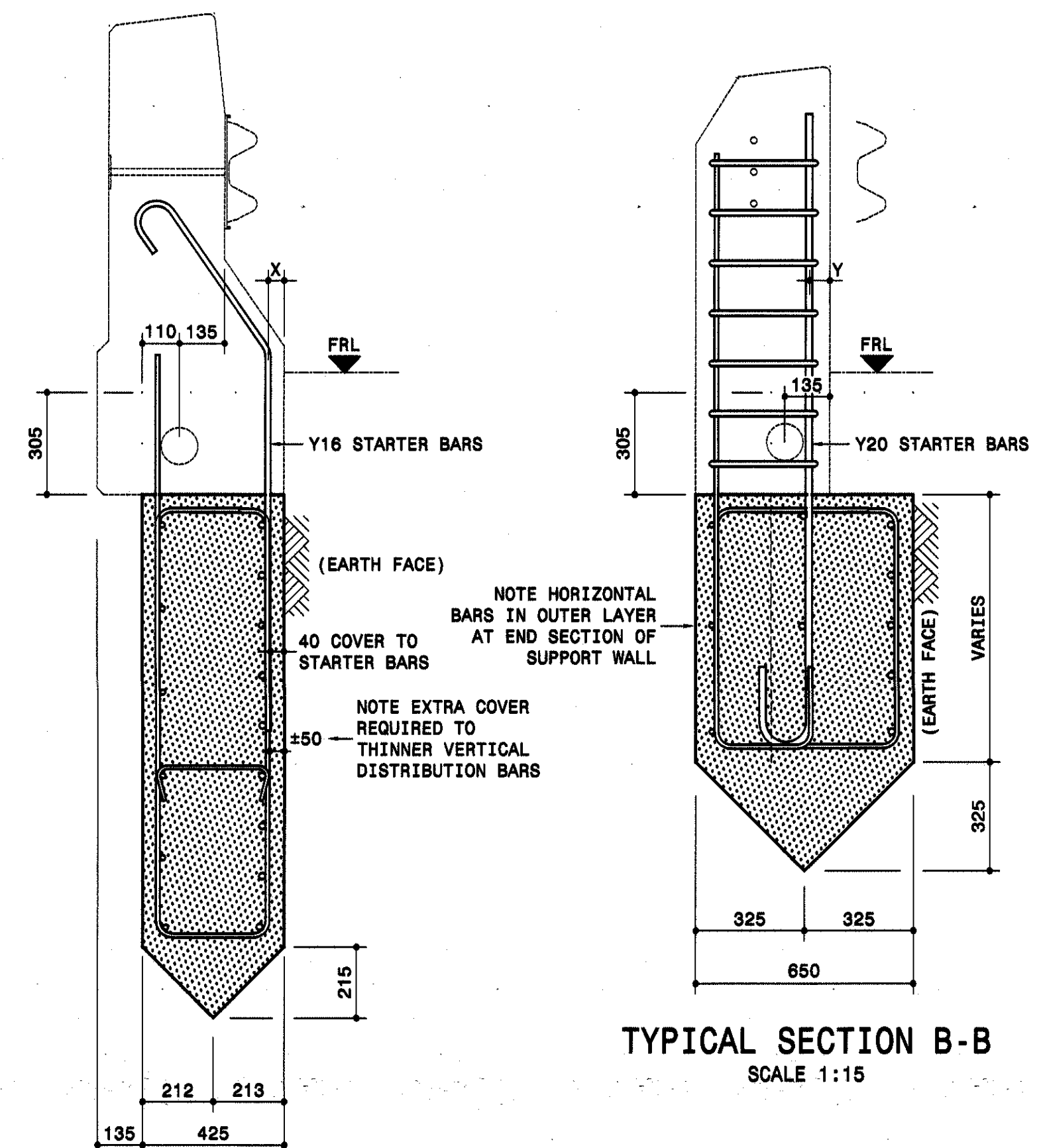
FILLET DETAIL
NTS

SECTION F-F
SCALE 1:15



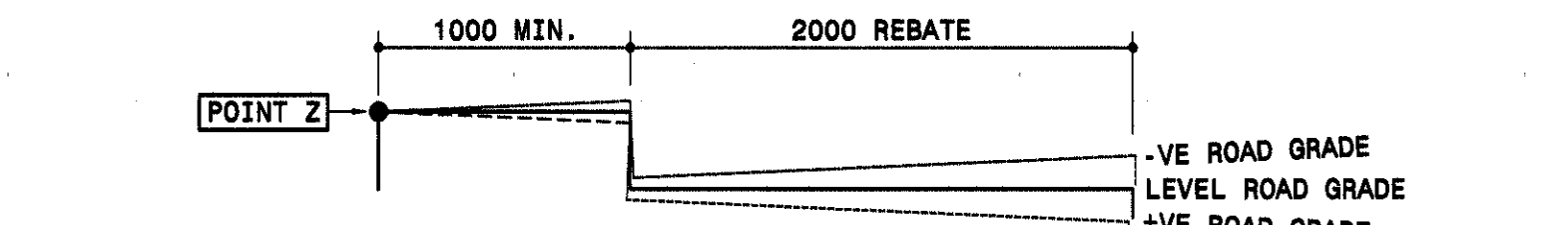
ISOMETRIC VIEW OF TYPICAL SUPPORT WALL
SCALE 1:15

ENDBLOCK FOOTPRINT
SHOWN SHADED



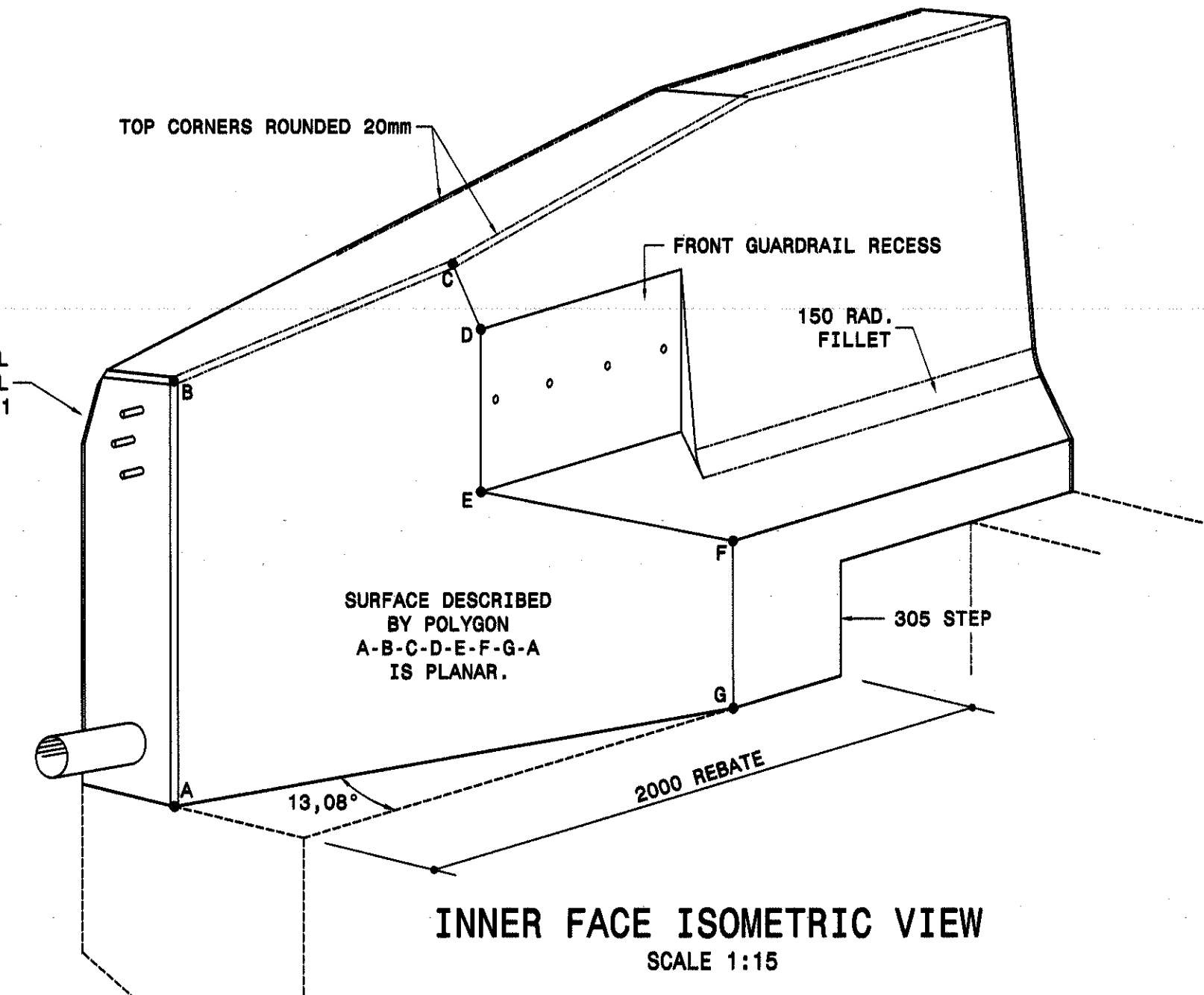
TYPICAL SECTION A-A
SCALE 1:15

TYPICAL SECTION B-B
SCALE 1:15

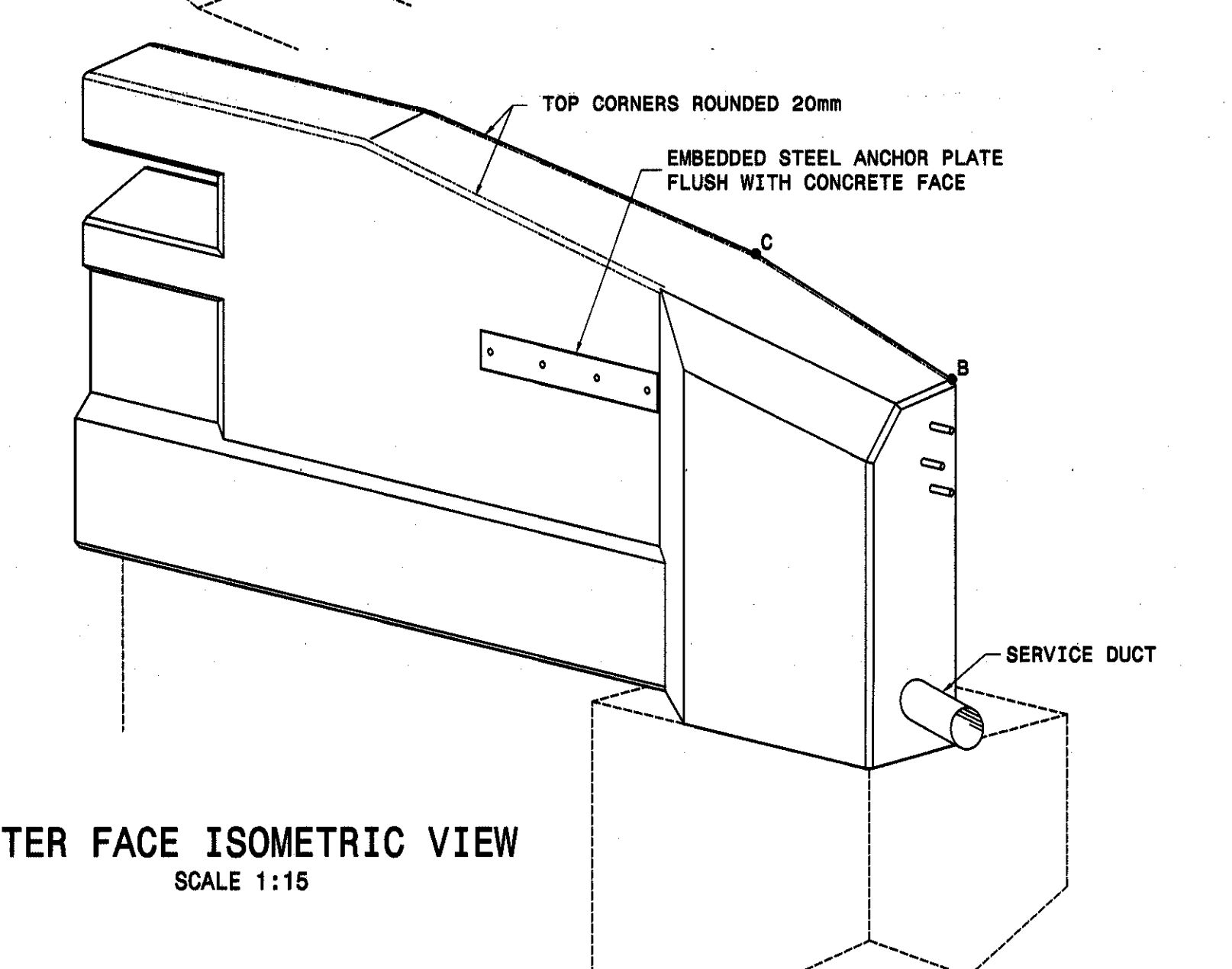


SIDE VIEW OF TOP OF SUPPORT WALL
NTS

NOTE : TOPS OF SUPPORT WALL, INCLUDING
FOR SHADED AND NON-SHADED AREAS, ARE
PARALLEL TO THE ADJACENT ROAD GRADE
AND ROTATE ABOUT POINT Z



INNER FACE ISOMETRIC VIEW
SCALE 1:15



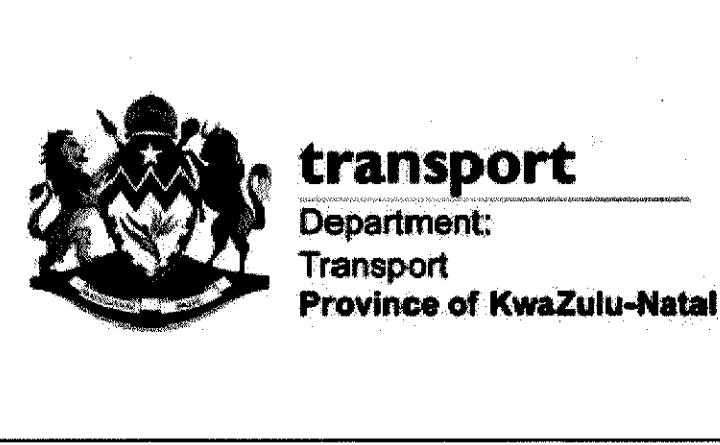
OUTER FACE ISOMETRIC VIEW
SCALE 1:15

Symbol	Date	Description	Checked	Signed
		AMENDMENTS		

AS BUILT

Supervising Engineer: _____ Date: _____

Supervising Authority: _____



Designed by: _____

Checked by: _____

Drawn by: _____

Checked by: _____

File Reference: L2214/8/3722/4

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Designed by: _____

Checked by: _____

Drawn by: _____

Checked by: _____

File Reference: L2214/8/3722/4

Bridge Engineer

Head Transport

TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214
CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

IBISI RIVER BRIDGE
PARAPET CONCRETE DETAILS III (ENDBLOCK UNIT TYPE 02)

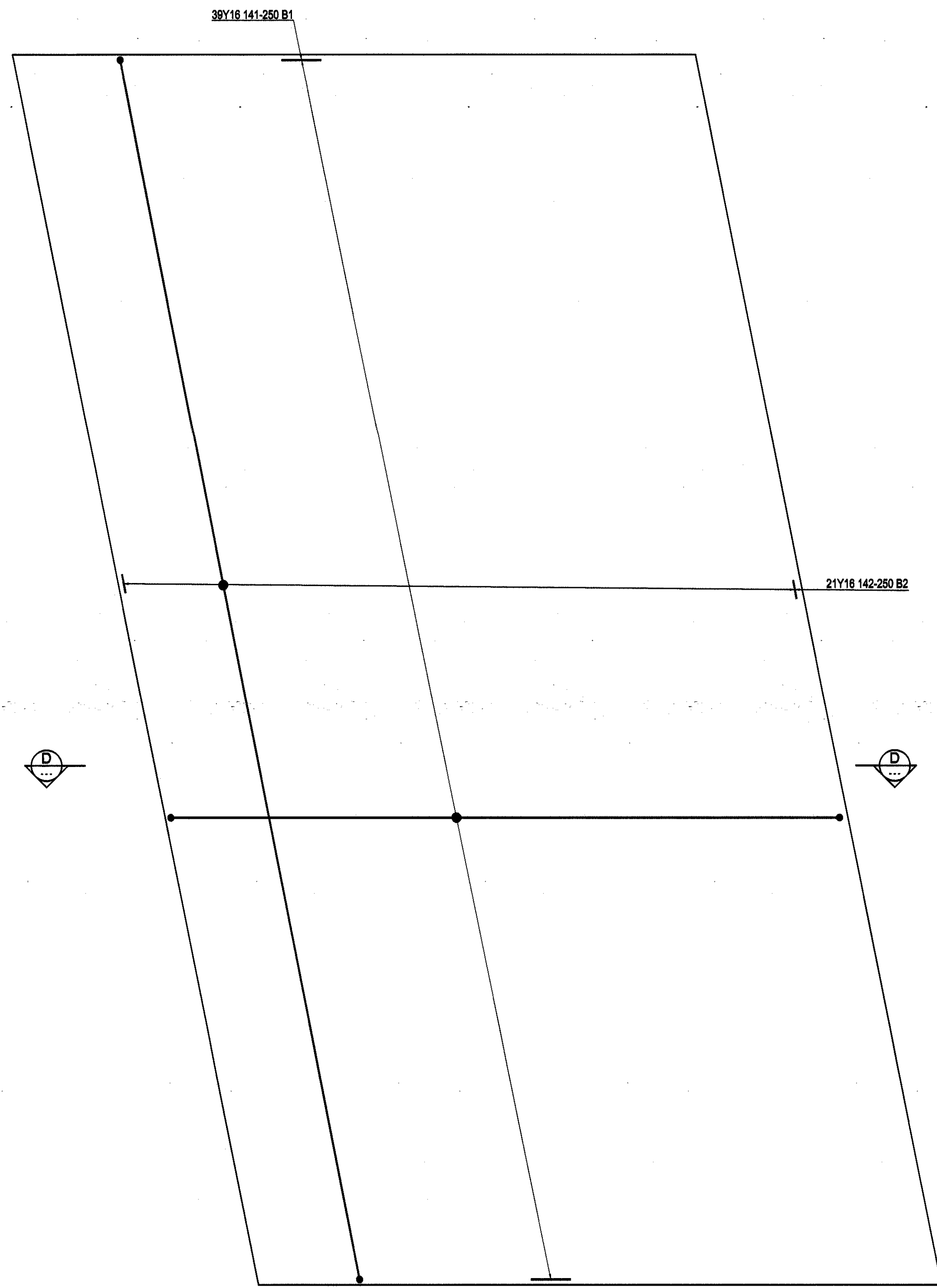
Kilometer Distance
km 0+596.141

Scale
As Shown

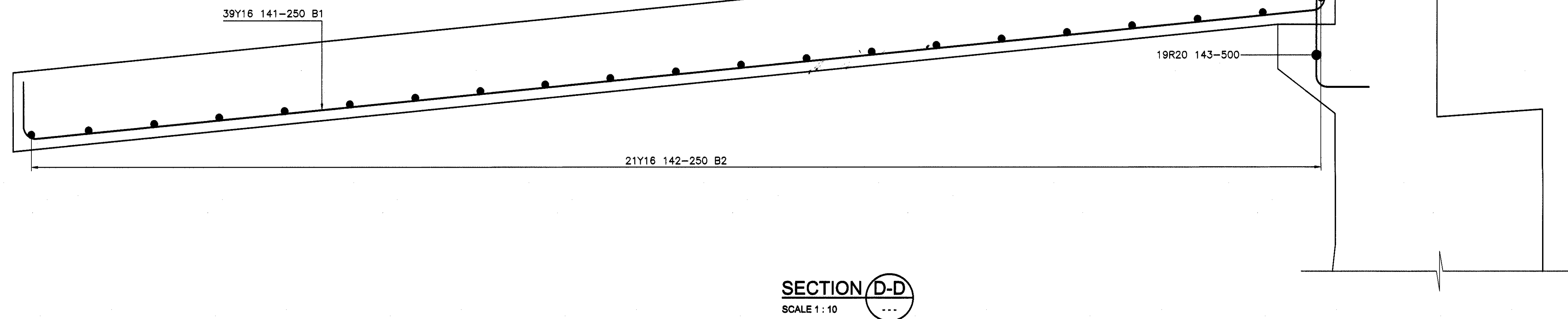
Sheet No.: 15
of 25

Revision
00

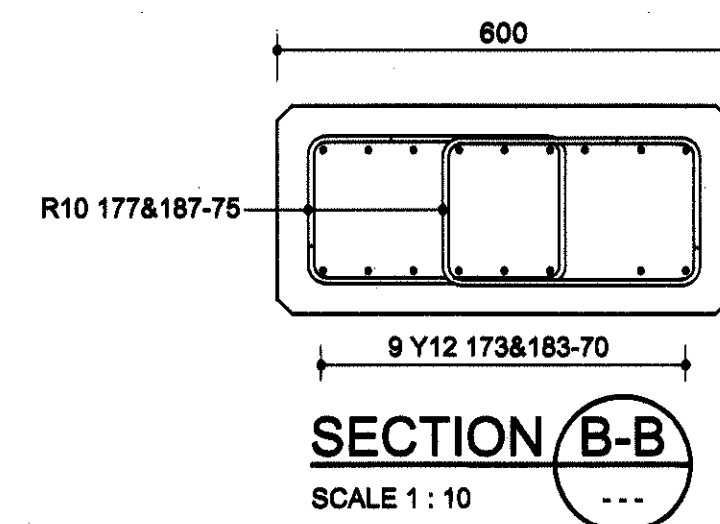
PLAN NUMBER
3722/15



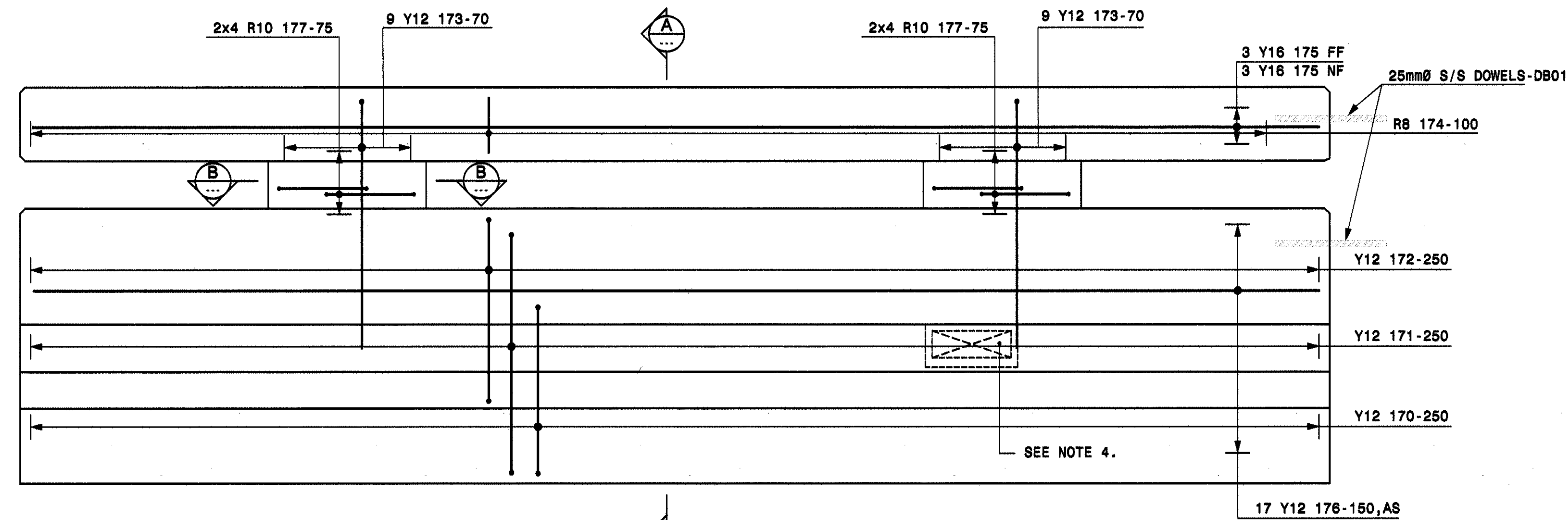
APPROACH SLAB REBAR LAYOUT
SCALE 1:25



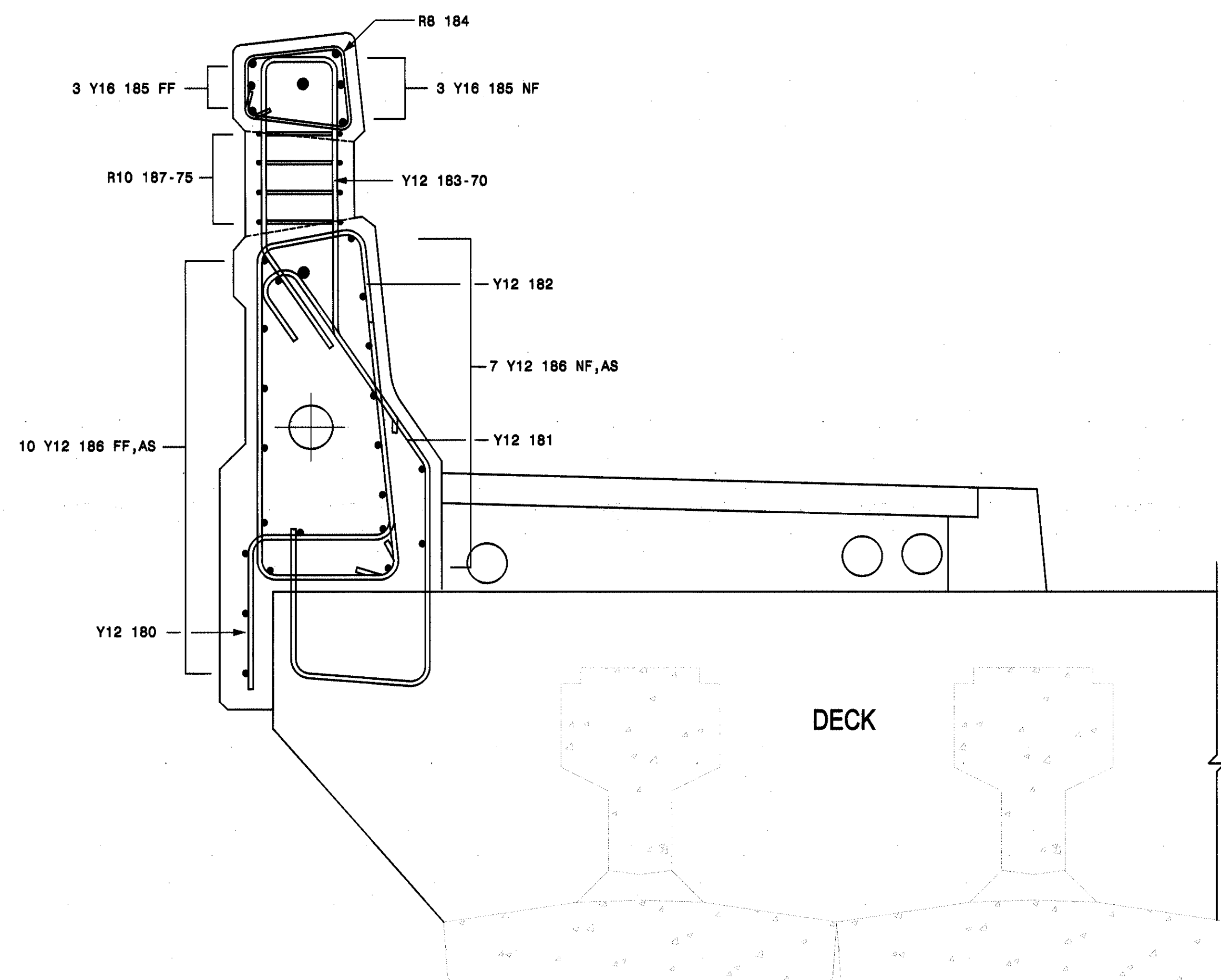
SECTION D-D
SCALE 1:10



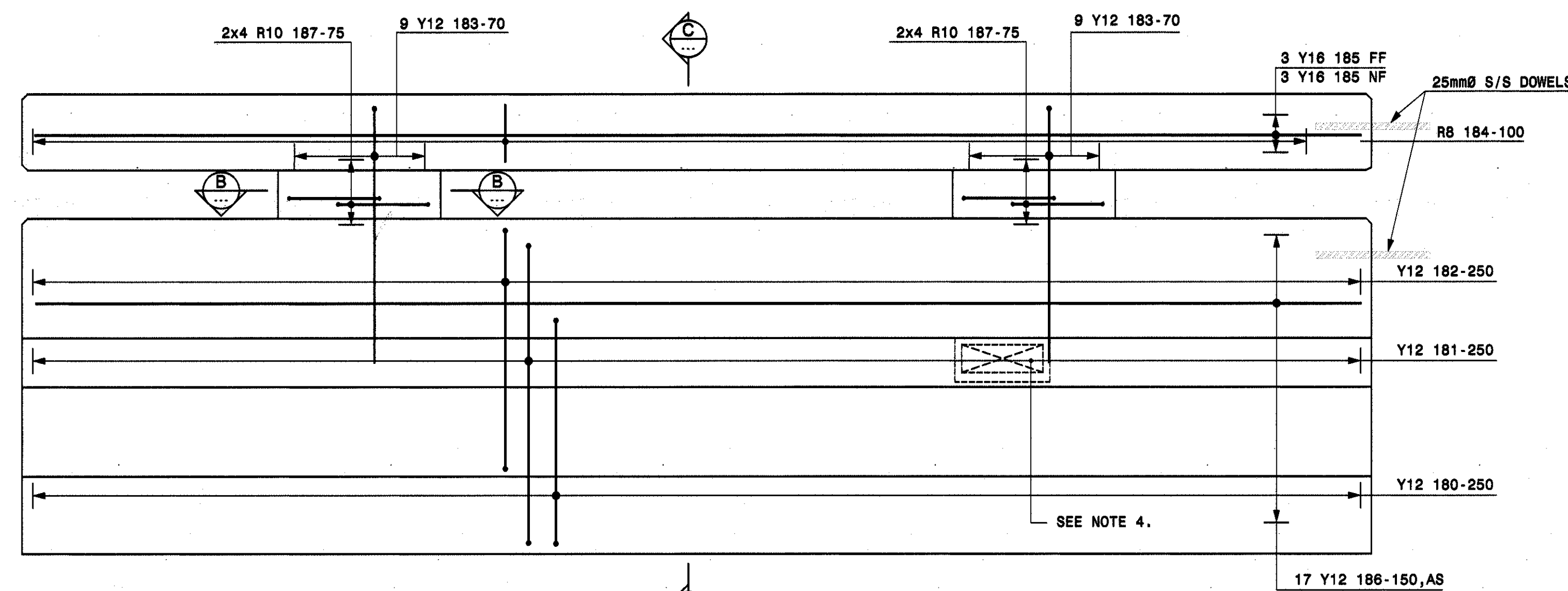
SECTION B-B
SCALE 1:10



UNIT TYPE 01 INSIDE ELEVATION
15 No-OFF
SCALE 1:15



SECTION C-C
SCALE 1:10



UNIT TYPE 02 INSIDE ELEVATION
15 No-OFF
SCALE 1:15

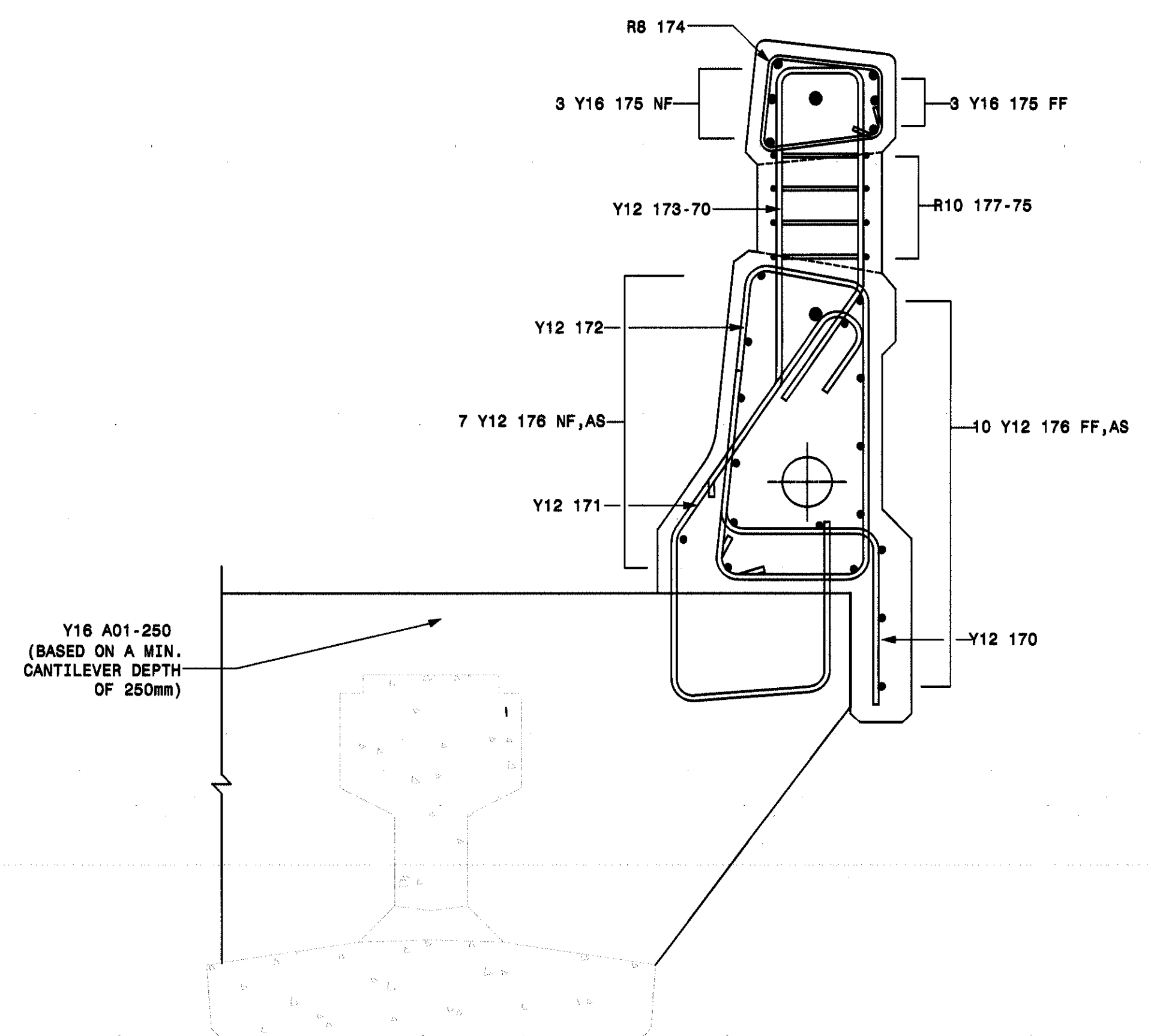
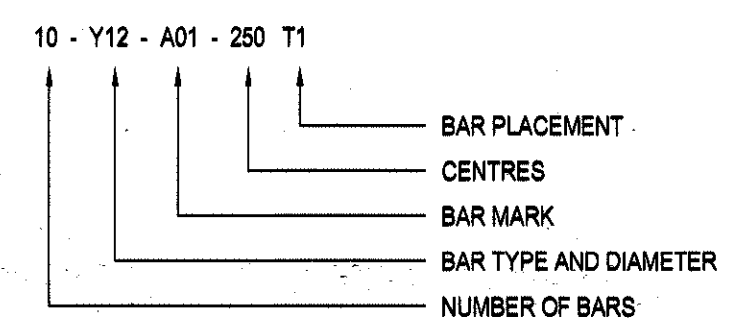
NOTES:

- MINIMUM CONCRETE COVER TO REINFORCEMENT = 40mm
- MINIMUM LAP LENGTH TO BE 45 x SMALLER BAR DIAMETER. MINIMUM LAP DIMENSION INDICATED TO BE APPLICABLE. UNLESS GEOMETRIC CONSTRAINTS REQUIRE LARGER LAP LENGTH.
- DETAILING AND ABBREVIATIONS IN ACCORDANCE WITH SABS 0144: 2012.
- FOR STEEL SPECIFICATIONS AND BENDING DETAILS REFER TO BENDING SCHEDULE.
- 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

REINFORCING LEGEND:

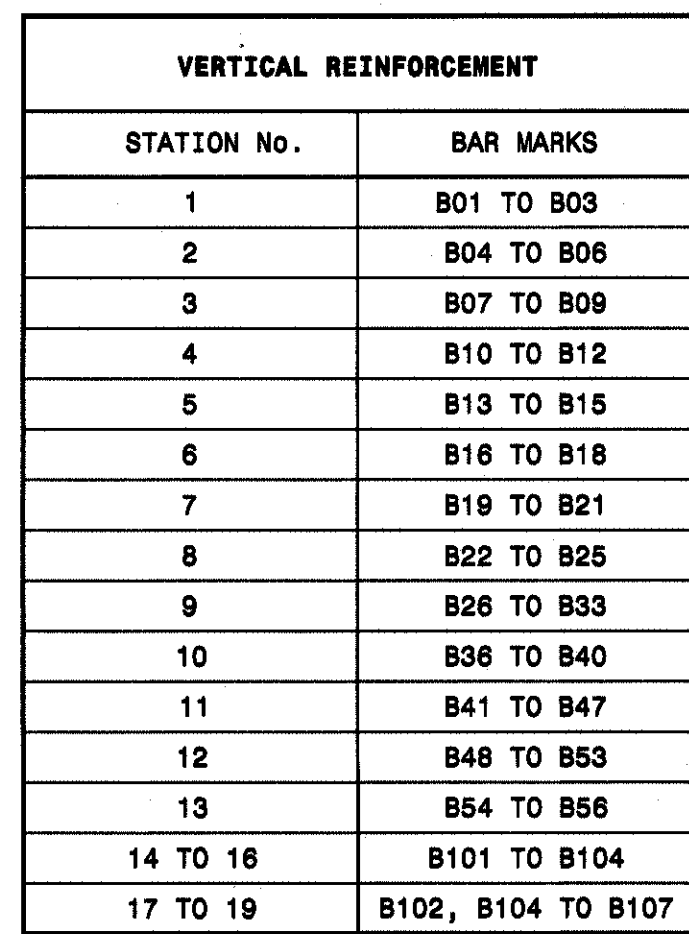
- T - TOP
- M - MIDDLE
- B - BOTTOM
- T1 - UPPER TOP LAYER
- T2 - LOWER TOP LAYER
- B1 - UPPER BOTTOM LAYER
- B2 - LOWER BOTTOM LAYER
- ABR - ALTERNATE BARS REVERSED
- ALT - ALTERNATING BARS
- NF - NEAR FACE
- FF - FAR FACE
- EF - EACH FACE
- F - INSIDE FACE
- OF - OUTSIDE FACE
- EW - EACH WAY

REINFORCING NOTATION:



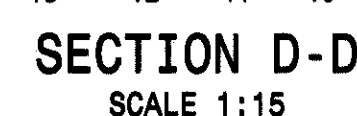
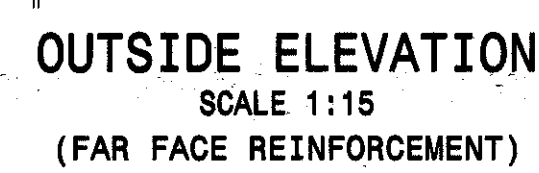
SECTION A-A
SCALE 1:10

20	38 (CONTD/VERVOLG)	51	62	85	91
32	39	52	65	86	92
33	41	53	72	87	93
34	42	54	73	88	94
35	43	55	74	89	95
36	44	56	75	90	96
37	48	60	81	97	98
38	49	61	83	98	99



1. MINIMUM CONCRETE COVER TO REINFORCEMENT SHALL BE 40mm. SPECIAL ATTENTION SHALL BE GIVEN TO THE NUMBER AND POSITIONING OF THE COVER BLOCKS TO ENSURE THAT THE MINIMUM CONCRETE COVER IS MAINTAINED DURING CONCRETING.

NOTES:
02 No. OFF LHS
ENDBLOCK UNIT TYPE 01



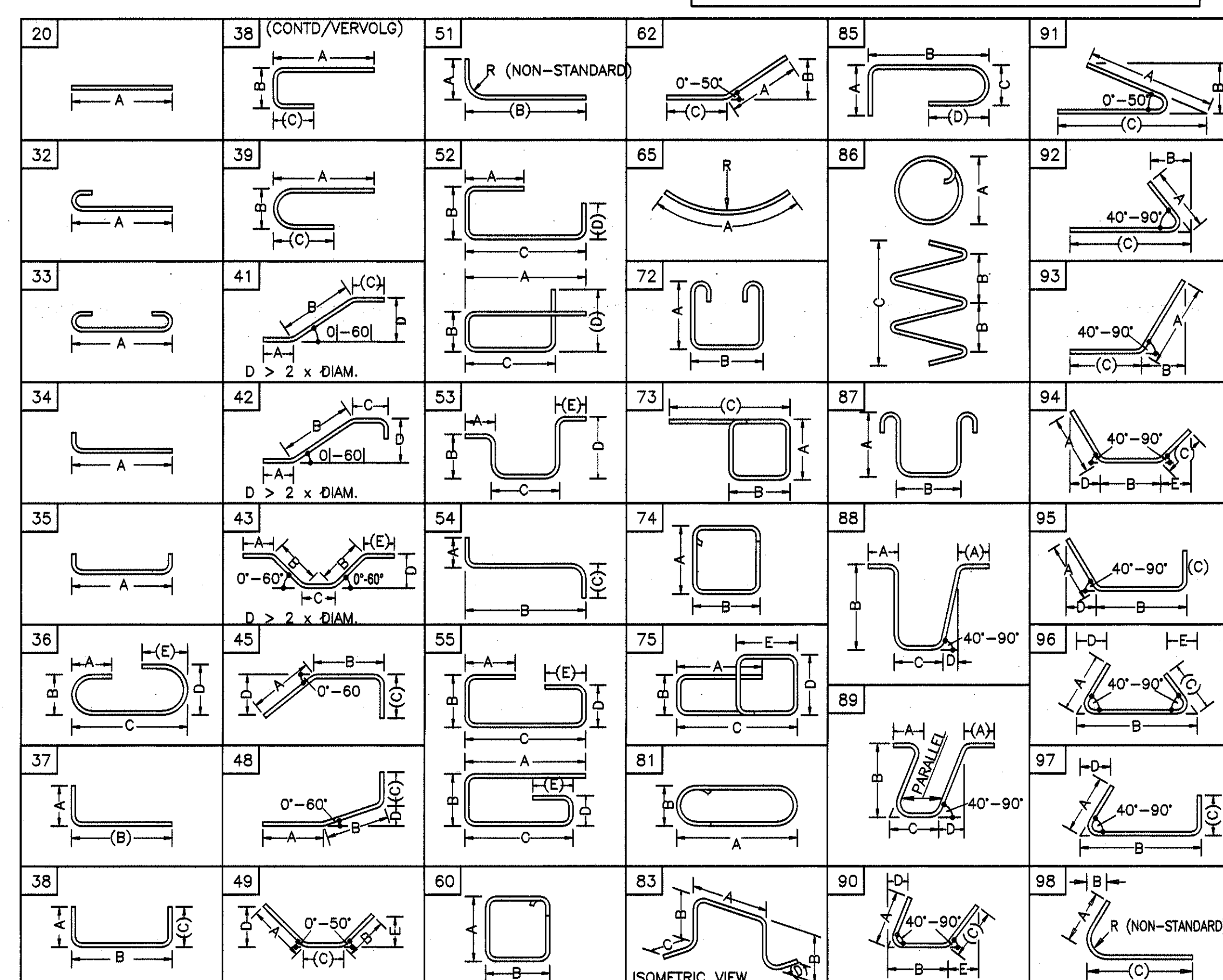
1. MINIMUM CONCRETE COVER TO REINFORCEMENT # 40mm
2. MINIMUM LAP LENGTH TO BE : 45 x SMALLER BAR DIAMETER, MINIMUM LAP INDICATION TO BE APPLICABLE, UNLESS GEOMETRIC CONSTRAINTS REQUIRE LARGER LAP LENGTH.
3. DETAILING AND ABBREVIATIONS IN ACCORDANCE WITH SABS 014 : 2001
4. FOR STEEL SPECIFICATIONS AND BENDING DETAILS REFER TO BENDING SCHEDULE.
5. REINFORCEMENT TO CONFORM TO SABS S20:1985 HOT ROLLED HIGH YIELD STRESS DEFORMED (Y) BARS - CHARACTERISTIC STRENGTH 450 MPa

HOT ROLLED ROUND MILD STEEL (R) BARS - CHARACTERISTIC STRENGTH 250 MPa

1.	T	-	TOP
2.	M	-	MIDDLE
3.	B	-	BOTTOM
4.	T1	-	UPPER TOP LAYER
5.	T2	-	LOWER TOP LAYER
6.	B1	-	LOWER BOTTOM LAYER
7.	B2	-	UPPER BOTTOM LAYER
8.	ABR	-	ALTERNATE BARS REVERSED
9.	ALT	-	ALTERNATING BARS
10.	NF	-	NEAR FACE
11.	FF	-	FAR FACE
12.	EF	-	EACH FACE
13.	IF	-	INSIDE FACE
14.	OF	-	OUTSIDE FACE
15.	EW	-	EACH WAY

10 - Y12 - A01 - 250 T1

BAR PLACEMENT
CENTRES
BAR MARK
BAR TYPE AND DIAMETER
NUMBER OF BARS



transport
Department:
Transport
Province of KwaZulu-Natal

	S. Matete

Designed by:-

 **emzansi**
ENGINEERS (PTY) LTD
Providing Un-valued Engineering Solutions

 **D. K. K. K. K.**
Signed: Date: 04/11/2011


.....
Bridge Engineer

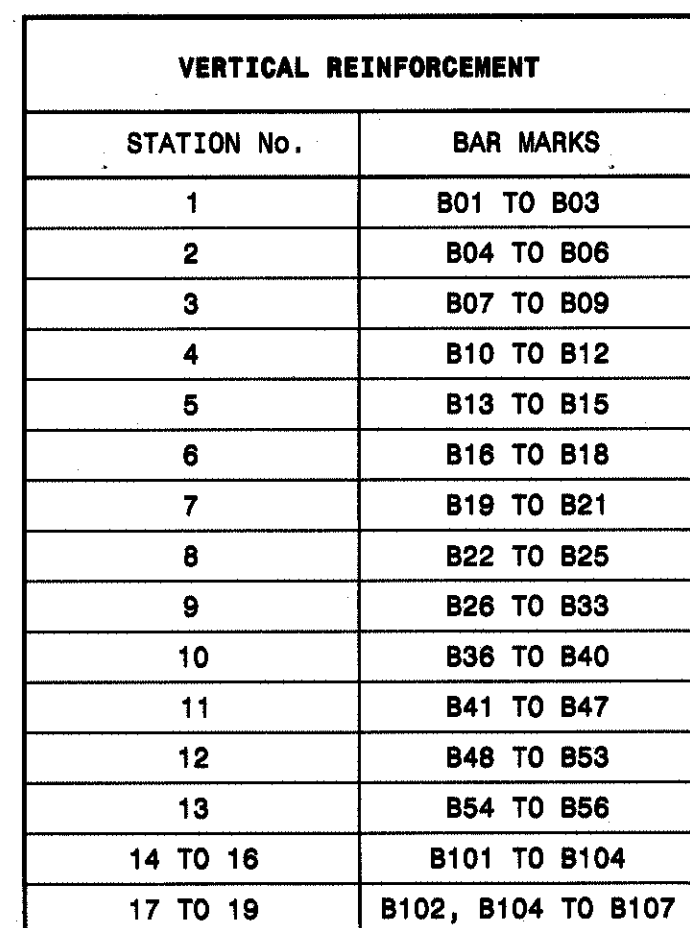

.....
Head: Transport

IBISI RIVER BRIDGE
ENDBLOCK UNIT 01 REINFORCEMENT DETAILS

Scale

As Shown

PLAN NUMBER
3722/18

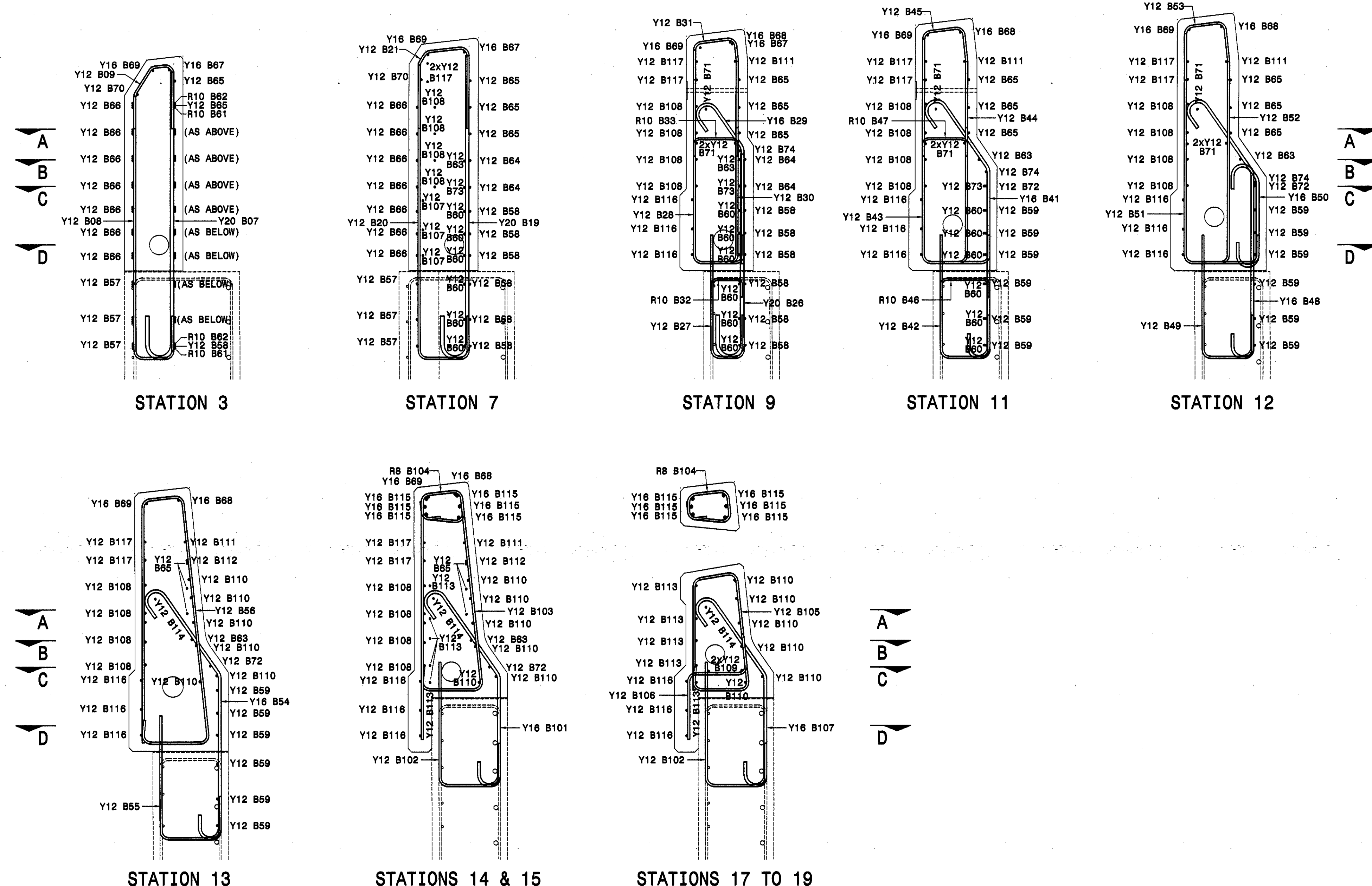
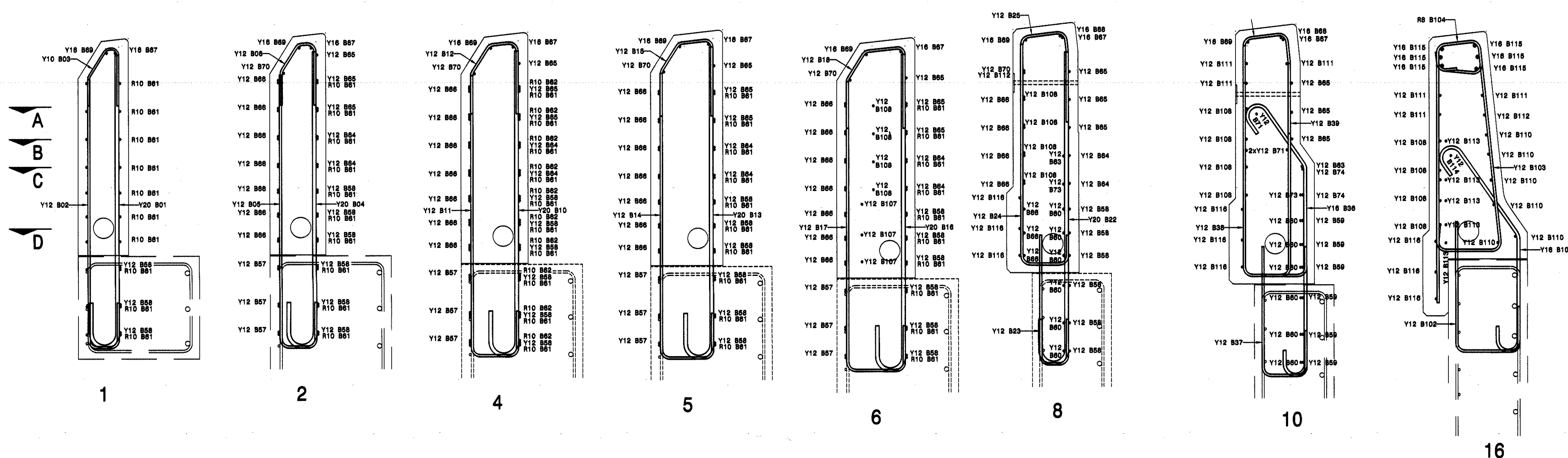
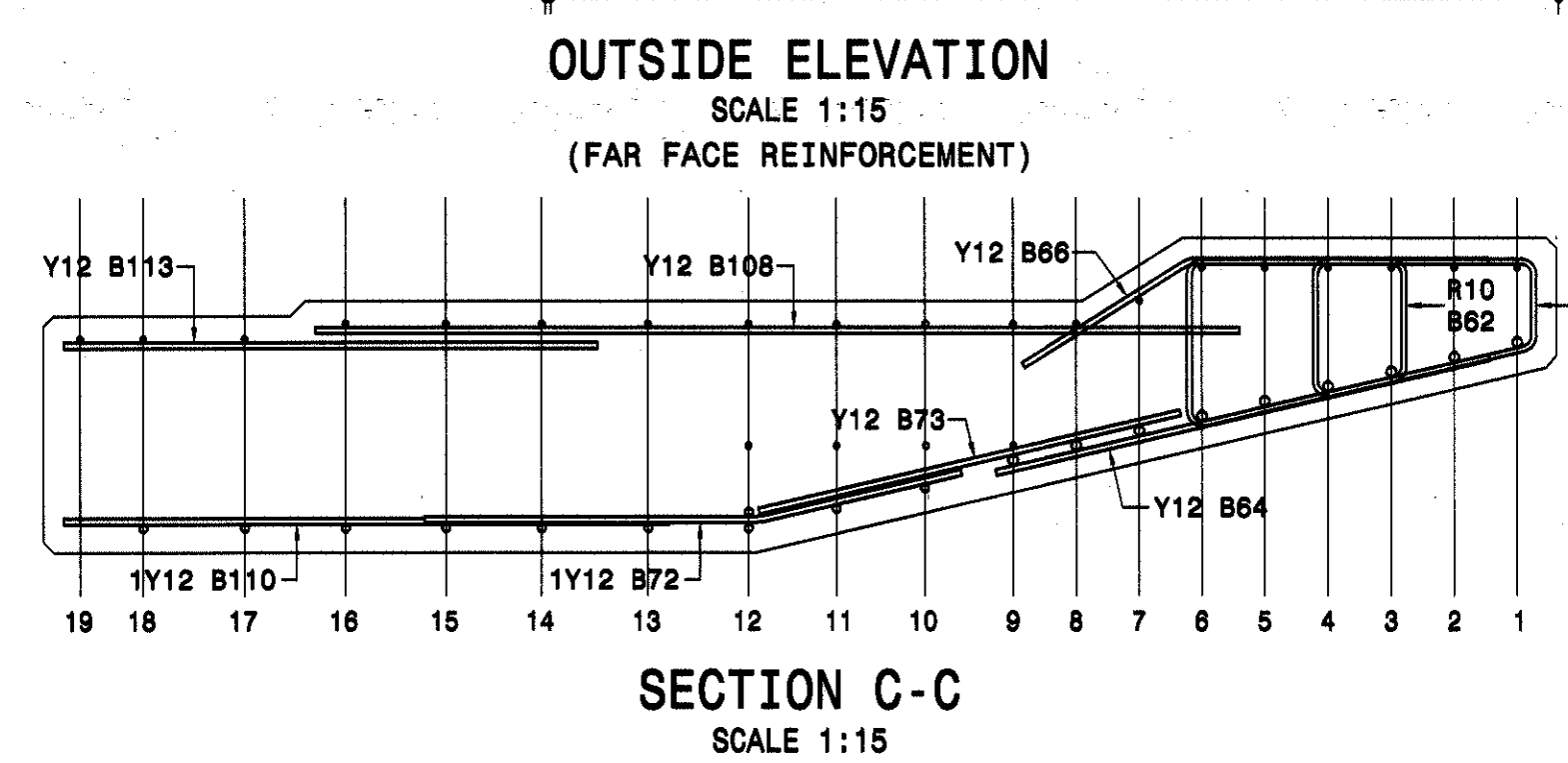


NOTES

1. THE REINFORCEMENT DETAILED ON THIS DRAWING IS FOR CONVENTIONAL REINFORCING STEEL BARS TO SANS 920:2005.
2. AFTER CUTTING AND BENDING, ALL REINFORCEMENT SHALL BE HEAVY DUTY HOT-DIP GALVANIZED IN ACCORDANCE WITH SANS 121:2000 TO A ZINC COAT THICKNESS OF NOT LESS THAN 105 MICRONS.
NOTE: GALVANISING SHALL APPLY ONLY WHEN W CLASS DURABILITY CONCRETE IS REQUIRED.

1. MINIMUM CONCRETE COVER TO REINFORCEMENT SHALL BE 40mm. SPECIAL ATTENTION SHALL BE GIVEN TO THE NUMBER AND POSITIONING OF THE COVER BLOCKS TO ENSURE THAT THE MINIMUM CONCRETE COVER IS MAINTAINED DURING CONCRETING.

NOTES:
02 No. OFF RHS
ENDBLOCK UNIT TYPE 02



NOTES:

1. MINIMUM CONCRETE COVER TO REINFORCEMENT = 40mm
2. MINIMUM LAP LENGTH TO BE: 45 x SMALLER BAR DIAMETER, MINIMUM LAP DIMENSION INDICATED TO BE APPLICABLE, UNLESS GEOMETRIC CONSTRAINTS REQUIRE LARGER LAP LENGTH.
3. DETAILING AND ABBREVIATIONS IN ACCORDANCE WITH SABS 0144 - 2012.
4. FOR STEEL SPECIFICATIONS AND BENDING DETAILS REFER TO BENDING SCHEDULE.
5. 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

REINFORCING LEGEND:

- | | | | |
|-----|-----|---|------------------------|
| 1. | T | - | TOP |
| 2. | M | - | MIDDLE |
| 3. | B | - | BOTTOM |
| 4. | T1 | - | UPPER TOP LAYER |
| 5. | T2 | - | LOWER TOP LAYER |
| 6. | B1 | - | LOWER BOTTOM LAYER |
| 7. | B2 | - | UPPER BOTTOM LAYER |
| 8. | ABR | - | ALTERNATE BARS REVERSE |
| 9. | ALT | - | ALTERNATING BARS |
| 10. | NF | - | NEAR FACE |
| 11. | FF | - | FAR FACE |
| 12. | EF | - | EACH FACE |
| 13. | IF | - | INSIDE FACE |
| 14. | OF | - | OUTSIDE FACE |
| 15. | EW | - | EACH WAY |

REINFORCING NOTATION:

BAR PLACEMENT
CENTRES
BAR MARK
BAR TYPE AND DIAMETER
NUMBER OF BARS

Designed by:



emzansi
ENGINEERS (PTY) LTD
Providing Unrivalled Engineering Solutions


Bridge Engineer


Head of Transport

TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214
CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

Kilometer Distance
km 0+596.141

Sheet No.: 19 of 25	Revision 00
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IBISI RIVER BRIDGE
ENDBLOCK UNIT 02 REINFORCEMENT DETAILS

Scale

As Shown

PLAN NUMBER
3722/19

AS BUILT

Supervising Engineer Date



transport
Department:
Transport
Province of KwaZulu-Natal

Designed by: Konate

Designed by: S. Doncabe

Checked by:- S. Matele

Drawn by:- 

T. Mkhize

Checked by:- S. Matele

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Symbl	Date	Description	Checked	Signed
AMENDMENTS				



Permanent loads : Fz : 313 kN (Compression)
Deck live load etc : Fz : 139 kN
Fx : Nil (Shear)
Translation : δx : 15mm * (Temperature, shrinkage, creep)
Rotation : θy : 0,01 Radians (nominal)

PLAN LAYOUT AT BEARING LEVEL

**AS BUILT**

Supervising Engineer _____ Date _____

Supervising Authority _____

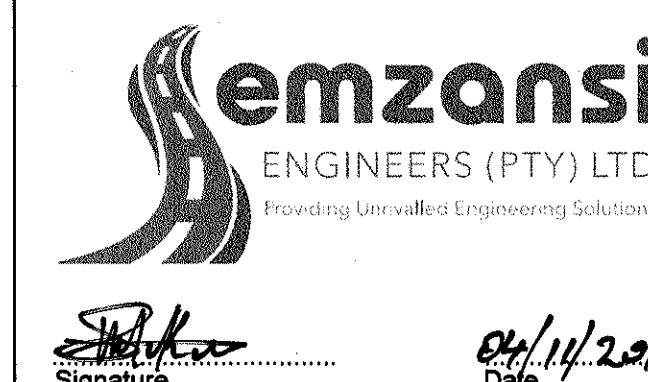


transport
Department:
Transport
Province of KwaZulu-Natal

Designed by:-	 S. Doncabe
Checked by:-	 S. Matete
Drawn by:-	 T. Mkhize
Checked by:-	 S. Matete
File Reference:	L2214/6/37224

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF TRANSPORT

Designed by:-	
---------------	--




Bridge Engineer


Head: Transport

TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214
CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E

Kilometer Distance
km 0+596.141

Sheet No.: 20 of 25	Revision 00
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IBISI RIVER BRIDGE

MISCELLANEOUS DETAILS

Scale

As Shown

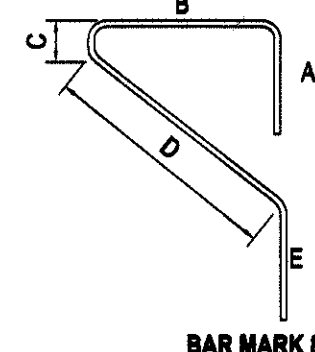
PLAN NUMBER
3722/20

MEMBER				REINFORCEMENT					BENDING DIMENSIONS FOR SHAPE CODES (SABS 82)							FIXING AND NON STANDARD BENDING DETAILS					
Description		Mark	Type & Size	No. of Mbers	No. of Bars	Total	Cutting Length	Shape code	A	B	C	D	E or F								
DECK SLAB		101	Y 12	05	240	1200	10100	38	100	9950											
		102	Y 12	05	132	660	6100	37	100												
		103	Y 12	05	132	660	9350	37	100												
		104	Y 12	05	88	440	7720	20	7750												
		105	Y 12	05	46	230	5800	48	4975	650	230										
		106	Y 12	45	16	720	7800	20	7800												
		107	Y 10	1	500	500	1500	60	170	380											
		108	R 10	05	48	240	1300	83	300	200	300	300									
		109	R 10	05	32	160	1500	83	300	155	300	300									
		110	R 10	05	32	160	7800	83	300	110	300	300									
		111	R 10	05	32	160	1500	83	300	70	300	300									
M3 BEAM		120	Y 32	45	07	315	5500	20	5500												
REINFORCEMENT		121	Y 32	45	07	315	11000	20	11000												
LAYOUT		122	Y 12	45	85	3625	2150	PPC	900	2490	24250	310	50								
		123	Y 12	45	85	3625	1350	PPD	24200	24140	24130	80									
		124	Y 12	45	85	3625	2700	PPR	24900	80	24410										
		125	Y 12	45	8	360	7700	20	7700												
		126	Y 20	45	16	720	7900	20	7900												
		127	Y 25	45	4	180	8100	20	8100												
		128	Y 12	45	12	540	7700	20	7700												
APPROACH SLAB		141	Y 16	2	39	78	5200	35	4919												
		142	Y 16	2	21	42	9400	35	9100												
		143	Y 20	2	19	38	800	54	200	500	200										
Masses (kg)	Size	6	8	10	12	16	20	25	32	40	Total (kg)				BENDING SCHEDULES.						
	Type														Project No.						
	R'														1450						
	Y"														Schedule No.						
Total (kg)																		Project			
																		Ref. Dwg.			
																		3722/11			
																		Revision Suffix			
																		Date			
																		15/08/2019			
																		Drawn			
																		Checked			
																		T.M.			
																		S.M.			

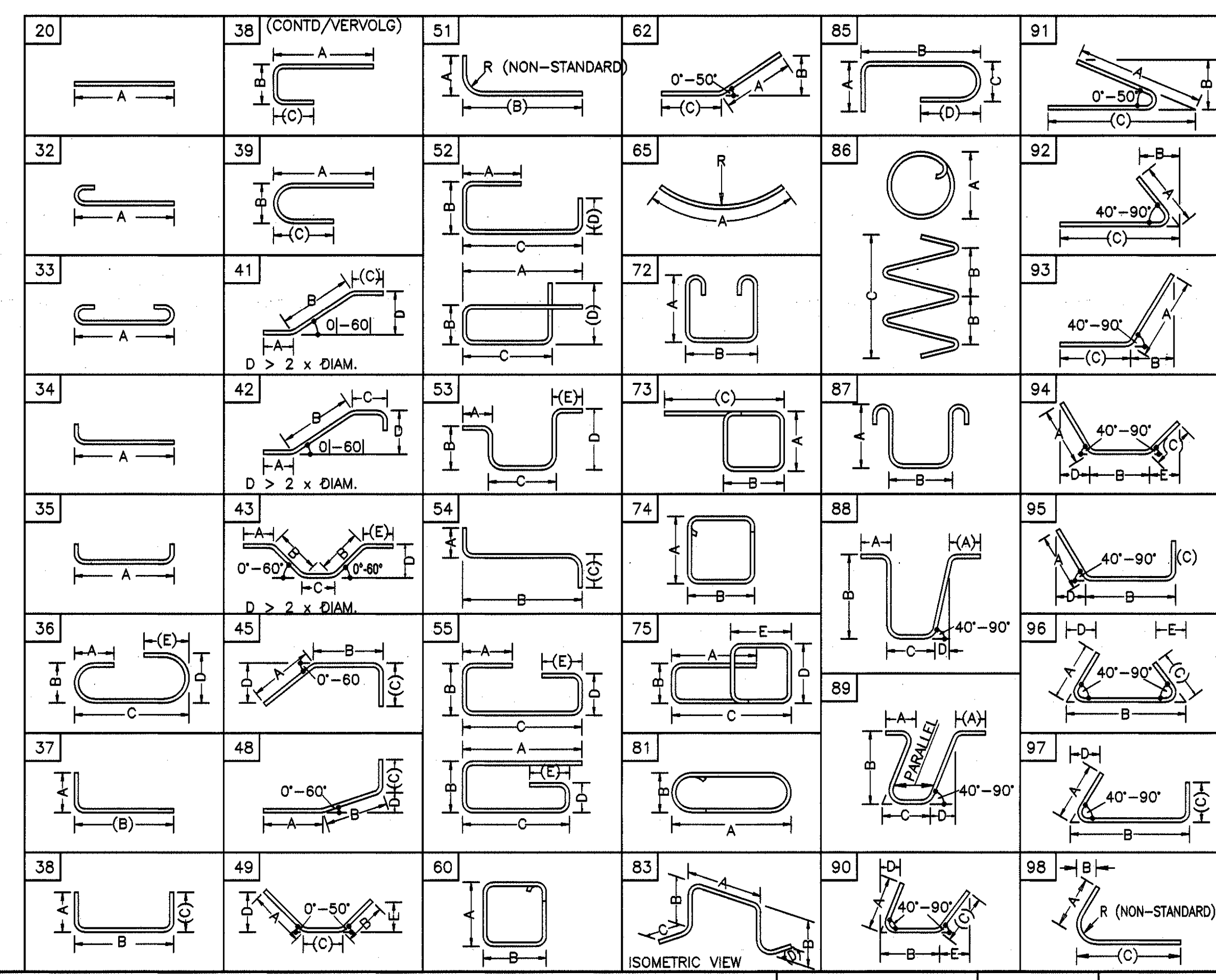
3722/21

					AS BUILT Supervising Engineer: _____ Date: _____ Supervising Authority: _____		 transport Department: Transport Province of KwaZulu-Natal		Designed by:  S. Donabe Checked by:  S. Mafela Drawn by:  T. Michize Checked by:  S. Mafela File Reference: L2214/6/3722/4		PROVINCE OF KWAZULU-NATAL DEPARTMENT OF TRANSPORT		Designed by:  emzansi ENGINEERS (PTY) LTD Providing the highest Engineering Solutions  S. Mafela Date: 04/11/2019		 Bridge Engineer  Head: Transport		TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214 CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E Kilometer Distance km 0+596.141 Sheet No.: 21 of 25 Revision 00		IBISI RIVER BRIDGE APPROACH SLAB, DECK SLAB AND PIER BENDING SCHEDULE Scale As Shown PLAN NUMBER 3722/21	
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[illegible][illegible]

MEMBER		REINFORCEMENT										BENDING DIMENSIONS FOR SHAPE COICES (SABS 82)					FIXING AND NON STANDARD BENDING DETAILS				
Description		Mark	Type & Size	No. of labors	No. of Bars	Total	Cutting Length	Shape code	A	B	C	D	E or r								
LEFT ABUTMENT and WINDWALLS	80(L)	Y 20	02	04	8	1750	37	200													
	80(M)	Y 20	02	04	8	1650	37	200													
	80(N)	Y 20	02	04	8	1550	37	200													
	80(O)	Y 20	02	04	8	1400	37	200													
	80(G)	Y 20	02	04	8	1250	37	200													
	80(R)	Y 20	02	04	8	1100	37	200													
	80(S)	Y 20	02	04	8	900	37	200													
	80(T)	Y 20	02	04	8	650	37	200													
	80(U)	Y 20	02	04	8	400	37	200													
	81	Y 12	02	04	8	3400	20	3365													
	82	Y 20	01	80	80	3000	62	993		700		2000									
	83	Y 20	01	80	90	10150	62	955				9300									
	84	Y 20	01	99	99	8150	36	6968		410											
	85	Y 32	01	55	55	7250	20														
	86	Y 12	01	23	23	2750	20														
	87	Y 12	01	23	23	1450	20														
	88	Y 14	01	52	52	1850	99(A)	300	495	110		440	300								
	89	Y 12	01	53	55	3400	38	1575	290												
90	Y 12	01	11	11	1350	65	300	920	60												
91	Y 12	01	11	11	1300	85	300	955	60												
92	Y 12	01	11	11	1250	85	300	955	60												
93	Y 12	01	11	11	1200	85	300	905	60												
94	Y 12	01	11	11	1150	85	300	745	60												
95	Y 12	01	11	11	1100	85	300	720	60												
96	Y 20	01	12	12	7100	37	400														
97	Y 32	01	8	8	7100	37	400														

Masses (kg)	Size	6	8	10	12	16	20	25	32	40	Total (kg)	Sheet Title	BENDING SCHEDULES:		Project No.	Schedule No.	
	R'												Project	Ref. Dwg.		1450	Revision Suffix
	Y'																
	Total (kg)																

[illegible]

				AS BUILT Supervising Engineer: _____ Date: _____ Supervising Authority: _____		 transport Department: Transport Province of KwaZulu-Natal		Designed by: <i>S. Maitete</i> Checked by: <i>S. Maitete</i> Drawn by: <i>T. Michize</i> Checked by: <i>S. Maitete</i> File Reference: L2214/8/3722/4 Date: _____		PROVINCE OF KWAZULU-NATAL DEPARTMENT OF TRANSPORT		Designed by: <i>emzansi</i>  emzansi ENGINEERS (PTY) LTD Providing the widest Engineering Solutions <i>Signature</i> Date: <i>04/11/2019</i> Head: Transport		TRIBUTARY TO IBISI RIVER BRIDGE ON NEW LINK ROAD L2214 CO-ORDINATES: 30° 25'26.2"S & 29° 54'56.03"E Kilometer Distance: km 0+596.141 Scale: As Shown PLAN NUMBER: 3722/22	
Symbol Date Description Checked Signed AMENDMENTS															

MEMBER		REINFORCEMENT					BENDING DIMENSIONS FOR SHAPE CODES (SABS 82)					FIXING AND NON STANDARD BENDING DETAILS				
Description	Mark	Type & Size	No. of Mbers	No. of Bars	Total	Cutting Length	Shape code	A	B	C	D	E or r				
RIGHT ABUTMENT and WINGWALLS	01	Y 20	01	64	64	7100	38	800	5600							
	02	Y 23	01	64	64	7100	38	800	5600							
	03	Y 14	01	38	38	11050	20									
	04	Y 20	01	74	74	3750	37	400								
	05	Y 32	01	65	65	3750	51	400								
	06	Y 14	01	75	75	2650	83	400	840	330						
	07	Y 14	01	104	104	1600	62	800	565	800						
	08(A)	Y 14	02	02	4	4550	37	800								
	08(B)	Y 14	02	02	4	4550	37	800								
	08(C)	Y 14	02	02	4	4550	37	800								
	08(D)	Y 14	02	02	4	4550	37	800								
	08(E)	Y 14	02	02	4	4550	37	800								
	08(F)	Y 14	02	02	4	4550	37	800								
	08(G)	Y 14	02	02	4	4550	37	800								
	08(H)	Y 14	02	02	4	4550	37	800								
	08(I)	Y 14	02	02	4	4550	37	800								
	08(J)	Y 14	02	02	4	4550	37	800								
	08(K)	Y 14	02	02	4	4550	37	800								
	08(L)	Y 14	02	02	4	4550	37	800								
	08(M)	Y 14	02	02	4	4550	37	800								
	08(N)	Y 14	02	02	4	4550	37	800								
	08(O)	Y 14	02	02	4	4550	37	800								
	08(P)	Y 14	02	02	4	4550	37	800								
	08(Q)	Y 14	02	02	4	4550	37	800								
	08(R)	Y 14	02	02	4	4550	37	800								
	08(S)	Y 14	02	02	4	4550	37	800								
	08(T)	Y 14	02	02	4	4550	37	800								
	08(U)	Y 14	02	02	4	4550	37	800								
Size Type		6	8	10	12	16	20	25	32	40	Total (Kg)	Sheet Title	BENDING SCHEDULES:		Project No.	Schedule No.
R												Project	IBISI RIVER BRIDGE		Ref. Dwg. 1450	Revision Suffix
Y												Section	REINFORCEMENT		Date 15/08/2019	Drawn T.M. Checked S.M.
Total (Kg)																

MEMBER		REINFORCEMENT					BENDING DIMENSIONS FOR SHAPE CODES (SABS 82)					FIXING AND NON STANDARD BENDING DETAILS				
Description	Mark	Type & Size	No. of Mbers	No. of Bars	Total	Cutting Length	Shape code	A	B	C	D	E or r				
RIGHT ABUTMENT and WINGWALLS	09	Y 20	02	10	20	2900	37	800								
	10	Y 25	02	10	20	3000	37	800								
	11	Y 20	02	05	10	4400	37	800								
	12	Y 25	02	05	10	4400	37	800								
	13	Y 20	02	05	10	3600	37	800								
	14	Y 25	02	05	10	3600	37	800								
	15	Y 20	02	05	10	2800	37	800								
	16	Y 25	02	05	10	2800	37	800								
	17	Y 20	02	04	8	1950	37	800								
	18	Y 25	02	04	8	1600	37	400								
	19	Y 20	02	04	8	1350	37	800								
	20	Y 25	02	04	8	950	37	400								
	21	Y 20	01	35	35	3750	37	400								
	22	Y 32	01	35	35	3750	51	400								
	23	Y 20	02	80	160	2350	37	300								
	24(A)	Y 32	02	01	2	2950	51	200								
	24(B)	Y 32	02	01	2	3150	51	200								
	24(C)	Y 32	02	01	2	3350	51	200								
	24(D)	Y 32	02	01	2	3550	51	200								
	24(E)	Y 32	02	01	2	3650	51	200								
	24(F)	Y 32	02	01	2	3850	51	200								
	24(G)	Y 32	02	01	2	4050	51	200								
	24(H)	Y 32	02	01	2	4200	51	200								
	24(I)	Y 32	02	01	2	4400	51	200								
	24(J)	Y 32	02	01	2	4550	51	200								
	24(K)	Y 32	02	01	2	4750	51	200								
	24(L)	Y 32	02	01	2	4950	51	200								
	24(M)	Y 32	02	01	2	4950	51	200								
Size Type		6	8	10	12	16	20	25	32	40	Total (Kg)	Sheet Title	BENDING SCHEDULES:		Project No.	Schedule No.
R												Project	IBISI RIVER BRIDGE		Ref. Dwg. 1450	Revision Suffix
Y												Section	REINFORCEMENT		Date 15/08/2019	Drawn T.M. Checked S.M.
Total (Kg)																

MEMBER		REINFORCEMENT					BENDING DIMENSIONS FOR SHAPE CODES (SABS 82)					FIXING AND NON STANDARD BENDING DETAILS				
Description	Mark	Type & Size	No. of Mbers	No. of Bars	Total	Cutting Length	Shape code	A	B	C	D	E or r				
RIGHT ABUTMENT and WINGWALLS	24(N)	Y 32	02	01	2	5100	51	200								
	24(P)	Y 32	02	01	2	5250	51	200								
	24(Q)	Y 32	02	01	2	5450	51	200								
	24(R)	Y 32	02	01	2	5650	51	200								
	24(S)	Y 32	01	01	1	6580	51	200								
	24(T)	Y 32	01	01	1	6250	51	200								
	24(U)	Y 32	01	01	1	4450	51	200								
	24(V)	Y 20	02	01	2	2300	37	200								
	25(S)	Y 20	02	01	2	2500	37	200								
	25(C)	Y 20	02	01	2	2700	37	200								
	25(D)	Y 20	02	01	2	2800	37	200								
	25(E)	Y 20	02	01	2	3100	37	200								
	25(F)	Y 20	02	01	2	3300	37	200								
	25(G)	Y 20	02	01	2	3500	37	200								
	25(H)	Y 20	02	01	2	3700	37	200								
	25(I)	Y 20	02	01	2	3900	37	200								
	25(J)	Y 20	02	01	2	4100	37	200								
	25(K)	Y 20	02	01	2	4300	37	200								
	25(L)	Y 20	02	01	2	4500	37	200								
	25(M)	Y 20	02	01	2	4700	37	200								
	25(N)	Y 20	02	01	2	4900	37	200								
	25(O)	Y 20	02	01	2	5100	37	200								
	25(P)	Y 20	02	01	2	5300	37	200								
	25(Q)	Y 20	02	01	2	5500	37	200								
	25(R)	Y 20	02	01	2	5700	37	200								
	25(S)	Y 20	01	01	1	5500	37	200								
	25(T)	Y 20	01	01	1	5700	37	200								
	25(U)	Y 20	01	01	1	5900	37	200								
Size Type		6	8	10	12	16	20	25	32	40	Total (Kg)	Sheet Title	BENDING SCHEDULES:		Project No.	Schedule No.
R												Project	IBISI RIVER BRIDGE		Ref. Dwg. 1450	Revision Suffix
Y												Section	REINFORCEMENT		Date 15/08/2019	Drawn T.M. Checked S.M.
Total (Kg)																

MEMBER		REINFORCEMENT					BENDING DIMENSIONS FOR SHAPE CODES (SABS 82)							FIXING AND NON STANDARD BENDING DETAILS			
Description		Mark	Type & Size	No. of Mbers	No. of Bars	Total	Cutting Length	Shape code	A	B	C	D	E or r				
RIGHT ABUTMENT and WINGWALLS	26(A)	Y 12	02	01	2	1100	85	150	830	60							
	26(B)	Y 12	02	01	2	800	85	150	555	60							
	26(C)	Y 12	02	01	2	750	85	150	500	60							
	27(A)	Y 12	02	01	2	800	85	150	560	60							
	27(B)	Y 12	02	01	2	750	85	150	450	60							
	27(C)	Y 12	02	01	2	450	85	150	400	60							
	28(A)	Y 12	02	01	2	650	85	150	410	60							
	28(B)	Y 12	02	01	2	600	85	150	365	60							
	28(C)	Y 12	02	01	2	550	85	150	300	60							
	29(A)	Y 12	02	01	2	550	85	150	300	60							
	29(B)	Y 12	02	01	2	300	85	150	245	60							
	29(C)	Y 12	02	01	2	450	85	150	240	60							
	30	Y 12	01	04	4	400	85	150	200	60							
	31(A)	Y 20	02	04	8	2150	37	200									
	31(B)	Y 20	02	04	8	2050	37	200									
	31(C)	Y 20	02	04	8	1950	37	200									
	31(D)	Y 20	02	04	8	1900	37	200									
	31(E)	Y 20	02	04	8	1800	37	200									
	31(F)	Y 20	02	04	8	1700	37	200									
	31(G)	Y 20	02	04	8	1600	37	200									
31(H)	Y 20	02	04	8	1550	37	200										
31(I)	Y 20	02	04	8	1450	37	200										
31(K)	Y 20	02	04	8	1350	37	200										
31(L)	Y 20	02	04	8	1250	37	200										
31(M)	Y 20	02	04	8	1200	37	200										
31(N)	Y 20	02	04	8	1100	37	200										

ORIENTATION		STATION No.	MARK	TYPE & Ø	UNITS	MO/UNIT	TOTAL	LENGTH	CODE	A	B	C	D	E	F	
VERTICAL REINFC.	14	B101	Y16	1	3	3	1700	99C	925	475						
	15	B102	Y12	1	3	3	1250	38	700	345						
	16	B103	Y12	1	3	3	2100	99F	1390	20	230	115	15	1130		
		B104	R8	1	3	3	850	99E	20	135	220					
	17	B102	Y12	1	3	3	1250	38	700	345						
		B104	R8	1	3	3	850	99E	20	135	220	15				
	19	B105	Y12	1	3	3	1800	99F	925	35	245	85		665		
	B106	Y12	1	3	3	900	99G	225	20	335						
	B107	Y16	1	3	3	1650	99C	825	435	400	560					
HORIZONTAL REINFORCEMENT	ALL STATIONS	B57	Y12	1	3	3	800	62	190	100						
		B58	Y12	1	6	6	1150	20	STR							
		B59	Y12	1	6	6	850	62	250	55						
		B60	Y12	1	6	6	800	20	STR							
		B61	R10	1	10	10	2050	99D	960	175	155					
		B62	R10	1	10	10	1000	99D	185	235	35					
		B63	Y12	1	1	1	1500	62	480	110						
		B64	Y12	1	2	2	1000	20	STR							
		B65	Y12	1	3	3	2150	62	925	190						
		B66	Y12	1	7	7	1000	62	390	210						
		B67	Y16	1	1	1	1100	62	250	60						
		B68	Y16	1	1	1	1350	62	250	45						
		B69	Y16	1	1	1	2250	62	250	45						
		B70	Y12	1	1	1	950	62	250	50						
	B71	Y12	1	3	3	800	20	STR								
	B72	Y12	1	1	1	1100	62	400	95							
	B73	Y12	1	1	1	850	20	STR								
	B74	Y12	1	1	1	750	20	STR								
		B108	Y12	1	4	4	1900	20	STR							
		B109	Y12	1	2	2	450	20	STR							
B110		Y12	1	6	6	1250	20	STR								
B111		Y12	1	1	1	1500	20	STR								
B112		Y12	1	1	1	750	20	STR								
B113		Y12	1	5	5	1100	20	STR								
B114		Y12	1	1	1	1300	20	STR								
B115	Y16	1	6	6	950	20	STR									
B116	Y12	1	3	3	2400	20	STR									
B117	Y12	1	2	2	1750	20	STR									
MASS / MEMBER																kg
MASSA / DEEL																kg
		MILD STEEL / SAGTE STAAL														
		HIGH TENSILE STEEL / HOEVLOEISPANNINGSTAAL														

NOTES:
LHS ENDBLOCK UNIT TYPE
01 BENDING SCHEDULE

[illegible]3722/24

ORIENTATION	STATION NO.	MARK	TYPE & Ø	UNITS	NO/UNIT	TOTAL	LENGTH	CODE	A	B	C	D	E	F	G
VERTICAL REINFORCEMENT	1	B01	Y20	1	1	1850	32	1570							
	B02	Y12	1	1	1800	38	1440	185							
	B03	Y10	1	1	750	99A	200	150							
	2	B04	Y20	1	1	1850	32	1570							
	B05	Y12	1	1	1850	38	1480	195							
	B06	Y12	1	1	800	99A	200	145							
	3	B07	Y20	1	1	1850	32	1570							
	B08	Y12	1	1	1900	38	1460	225							
	B09	Y12	1	1	850	99A	200	150							
	4	B10	Y20	1	1	1900	32	1620							
HORIZONTAL REINFORCEMENT	B11	Y12	1	1	1950	38	1560	255							
	B12	Y12	1	1	850	99A	200	150							
	5	B13	Y20	1	1	1950	32	1670							
	B14	Y12	1	1	2000	38	1550	285							
	B15	Y12	1	1	900	99A	200	150							
	6	B16	Y20	1	1	1950	32	1670							
	B17	Y12	1	1	2050	38	1550	310							
	B18	Y12	1	1	950	99A	200	150							
	7	B19	Y20	1	1	1950	32	1670							
	B20	Y12	1	1	2100	38	1650	285							
ALL STATIONS	B21	Y12	1	1	750	99A	200	65							
	8	B22	Y20	1	1	1950	32	1670							
	B23	Y12	1	1	1050	38	700	155							
	B24	Y12	1	1	1650	38	1180	255							
	B25	Y12	1	1	700	99B	200	25							
	9	B26	Y20	1	1	1400	32	1120							
	B27	Y12	1	1	1100	38	700	185							
	B28	Y12	1	1	1650	38	1200	285							
	B29	Y16	1	1	1450	99H	340	275							
	B30	Y12	1	1	1250	34	1120								
VERTICAL REINFORCEMENT	B31	Y12	1	1	750	99B	200	25							
	B32	R10	1	1	400	35	175								
	B33	R10	1	1	450	35	250								
	B34	NO BAR													
	B35	NO BAR													
	10	B36	Y16	1	1	2050	99C	1130	330						
	B37	Y12	1	1	1150	38	700	240							
	B38	Y12	1	1	1750	38	1200	340							
	B39	Y12	1	1	1250	34	1120								
	B40	Y12	1	1	750	99B	200	25							
HORIZONTAL REINFORCEMENT	11	B41	Y16	1	1	2050	99C	1070	390						
	B42	Y12	1	1	1150	38	700	280							
	B43	Y12	1	1	1800	38	1250	380							
	B44	Y12	1	1	1250	34	1120								
	B45	Y12	1	1	800	99B	200	25							
	B46	R10	1	1	500	35	275								
	B47	R10	1	1	450	35	250								
	12	B48	Y16	1	1	1550	33	1090							
	B49	Y12	1	1	1200	38	700	290							
	B50	Y16	1	1	1550	99C	475	445							
VERTICAL REINFORCEMENT	B51	Y12	1	1	1900	38	1300	420							
	B52	Y12	1	1	1250	34	1120								
	B53	Y12	1	1	800	99B	200	25							
	13	B54	Y16	1	1	2000	99C	930	475						
	B55	Y12	1	1	1250	38	700	345							
	B56	Y12	1	1	3450	99F	1370	20							
	MASS / MEMBER	MILD STEEL / SAGTE STAAL													
	MASSA / DEEL	HIGH TENSILE STEEL / HOEVLOEISPANNINGSTAAL													

ORIENTATION	STATION NO.	MARK	TYPE & Ø	UNITS	NO/UNIT	TOTAL	LENGTH	CODE	A	B	C	D	E	F	G
VERTICAL REINFORCEMENT	14	B101	Y16	1	3	3	1700	99C	625	475	430	610			
	B102	Y12	1	3	3	1250	38	700	345						
	B103	Y12	1	3	3	3100	99F	1380	20	230	115	1130			
	B104	R8	1	3	3	850	99E	20	135	220	15				
	17	B102	Y12	1	3	3	1250	38	700	345					
	B104	R8	1	3	3	850	99E	20	135	220	15				
	B105	Y12	1	3	3	1900	99F	625	35	245	65	665			
	B106	Y12	1	3	3	900	99G	225	20	335					
	B107	Y16	1	3	3	1850	99C	625	435	400	560				
	18	B104	R8	1	3	3	850	99E	20	135	220	15			
HORIZONTAL REINFORCEMENT	B57	Y12	1	3	3	800	62	190	100						
	B58	Y12	1	6	6	1180	20	STR							
	B59	Y12	1	6	6	850	62	250	55						
	B60	Y12	1	6	6	800	20	STR							
	B61	R10	1	10	10	2050	99D	690	175	155					
	B62	R10	1	10	10	1000	99D	185	235	35					
	B63	Y12	1	1	1	1500	62	480	110						
	B64	Y12	1	2	2	1000	20	STR							
	B65	Y12	1	3	3	2150	62	625	190						
	B66	Y12	1	7	7	1000	62	390	210						
ALL STATIONS	B67	Y16	1	1	1	1100	62	250	60						
	B68	Y16	1	1	1	1350	62	250	45						
	B69	Y16	1	1	1	2250	62	250	45						
	B70	Y12	1	1	1	950	62	250	50						
	B71	Y12	1	3	3	800	20	STR							
	B72	Y12	1	1	1	1100	62	400	95						
	B73	Y12	1	1	1	850	20	STR							
	B74	Y12	1	1	1	750	20	STR							
	B108	Y12	1	4	4	1900	20	STR							
	B109	Y12	1	2	2	450	20	STR							
VERTICAL REINFORCEMENT	B110	Y12	1	6	6	1250	20	STR							
	B111	Y12	1	1	1	1500	20	STR							
	B112	Y12	1	1	1	750	20	STR							
	B113	Y12	1	5	5	1100	20	STR							
	B114	Y12	1	1	1	1300	20	STR							
	B115	Y16	1	6	6	950	20	STR							
	B116	Y12	1	3	3	2400	20	STR							
	B117	Y12	1	2	2	1750	20	STR							
	MASS / MEMBER	MILD STEEL / SAGTE STAAL													
	MASSA / DEEL	HIGH TENSILE STEEL / HOEVLOEISPANNINGSTAAL													

NOTES

- THE REINFORCEMENT SCHEDULED ON THIS DRAWING IS FOR CONVENTIONAL REINFORCING STEEL BARS TO SANS 920:2005.
- AFTER CUTTING AND BENDING, ALL REINFORCEMENT SHALL BE HEAVY DUTY HOT-DIP GALVANIZED IN ACCORDANCE WITH SANS 121:2000 TO A ZINC COAT THICKNESS OF NOT LESS THAN 105 MICRONS. NOTE: GALVANISING SHALL APPLY ONLY WHEN IT CLASS DURABILITY CONCRETE IS REQUIRED.
- MINIMUM CONCRETE COVER TO REINFORCEMENT : 40mm. SPECIAL ATTENTION SHALL BE GIVEN TO THE NUMBER AND POSITIONING OF THE COVER BLOCKS TO ENSURE THAT THE MINIMUM CONCRETE COVER IS MAINTAINED DURING CONCRETING.

NOTES:
RHS ENDBLOCK UNIT TYPE
D2 BENDING SCHEDULE

SHAPE CODES

MEMBER		REINFORCEMENT					BENDING DIMENSIONS FOR SHAPE CODES (SABS 82)							FIXING AND NON STANDARD BENDING DETAILS				
Description	Mark	Type & Size	No. of Mbrs	No. of Bars	Total	Cutting Length	Shape code	A	B	C	D	E or r						
PARAPETS UNIT TYPE 02	170	Y 12	15	01	15	900	99G	225	20	335								
	171	Y 12	15	01	15	1700	99C	625	475	430		610						
	172	Y 12	15	01	15	1900	99F	625	35	245		65	665					
	173	Y 12	15	01	15	850	99E	20	135	220		15						
	174	R 8	15	01	15	850	99E	20	135	220		15						
	175	Y 12	15	06	90	4900	20											
	176	Y 12	15	17	255	4900	20											
	177	R 10	15	16	240	1250	60	350	195									
	D801	S/S 25	01	32	32	500	20											