

NOTES :
REFER TO NOTES DRAWINGS, DRAWING NUMBERS, SG001, SG002,
AND SG003

PRELIMINARY

TENDER PURPOSES

FOR CONSTRUCTION

AS BUILT

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| DATE | REVISIONS |



CITY OF
MBOMBELA
THE ULTIMATE DESTINATION

1 Nel Street
Mbombela
1201

TEL: (013) 759 9111
FAX: (013) 759 2070
WEB: www.mbombela.gov.za

City of Mbombela

PROJECT :
CONSTRUCTION OF BARCELONA
WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
ROAD LAYOUT AND SETTING OUT

| | |
|-------------|------------------|
| DESIGNED : | J.T. |
| DRAWN : | A.F. |
| SCALE : | 1:750 |
| DATE : | 23 DECEMBER 2022 |
| CHECKED : | J.T. |
| APPROVED : | J.T.M |
| SIGNATURE : | |

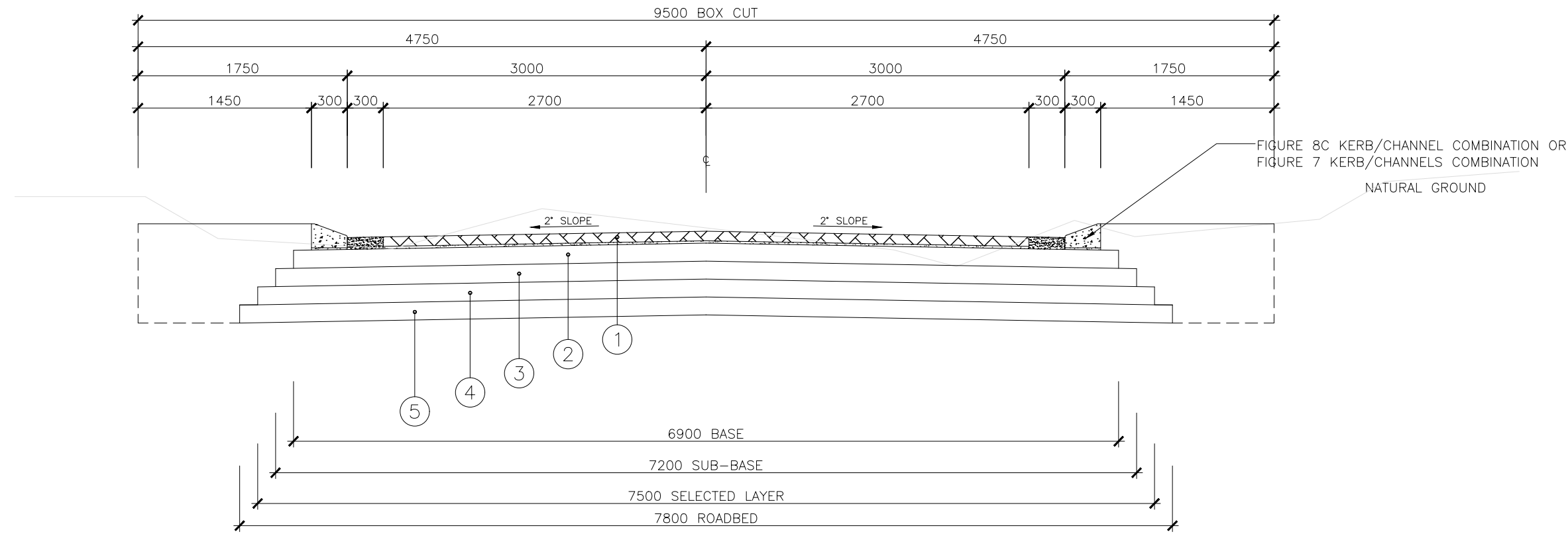
PROFESSIONAL SERVICE :
CIVIL ENGINEERING

DRAWING No :
067/BAR/R001 REV 0

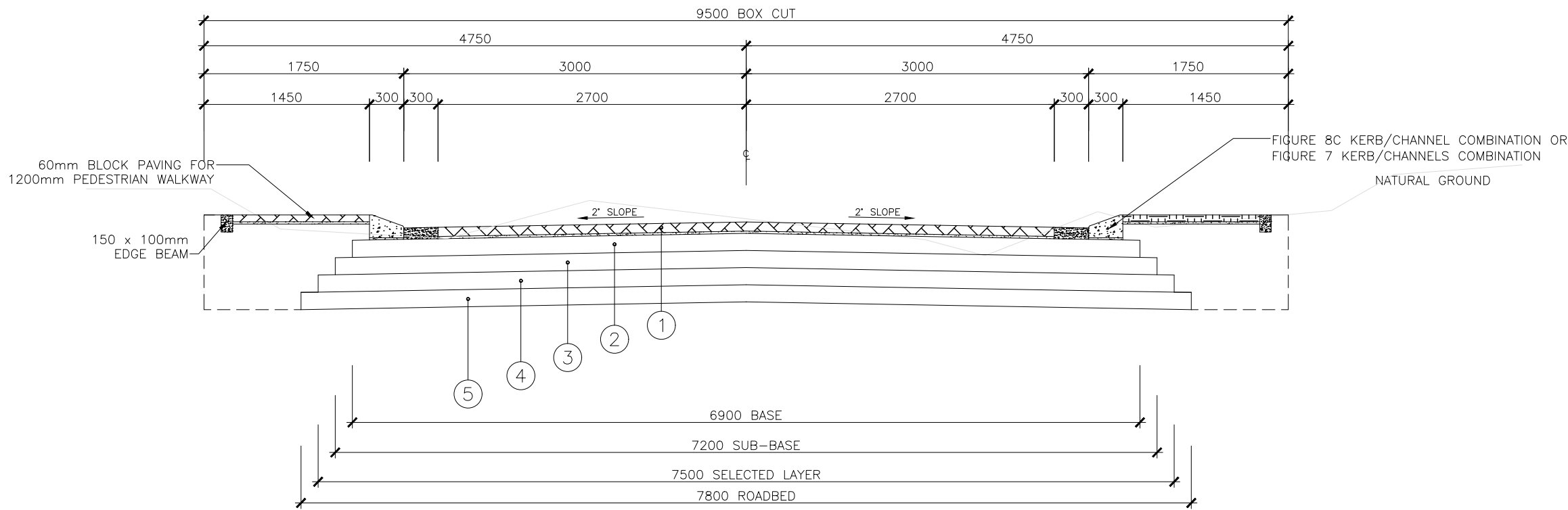
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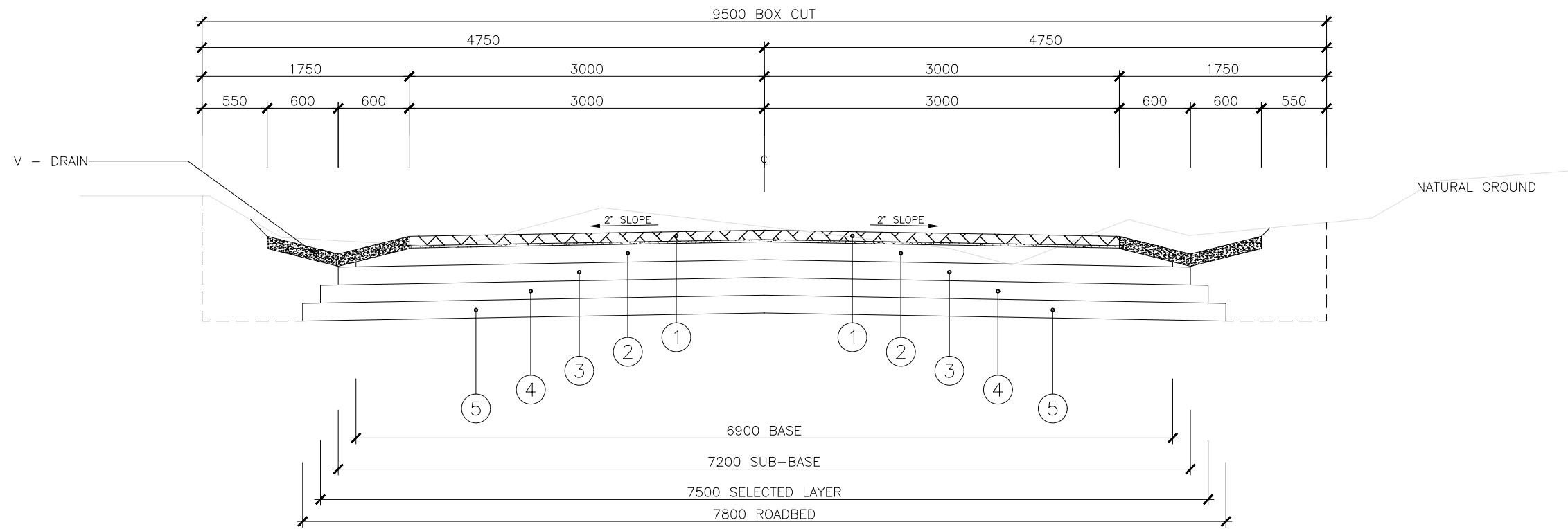
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P.O. BOX 569, SONPARK, 1206
TEL: (013) 753 2998, FAX: 086 549 1872



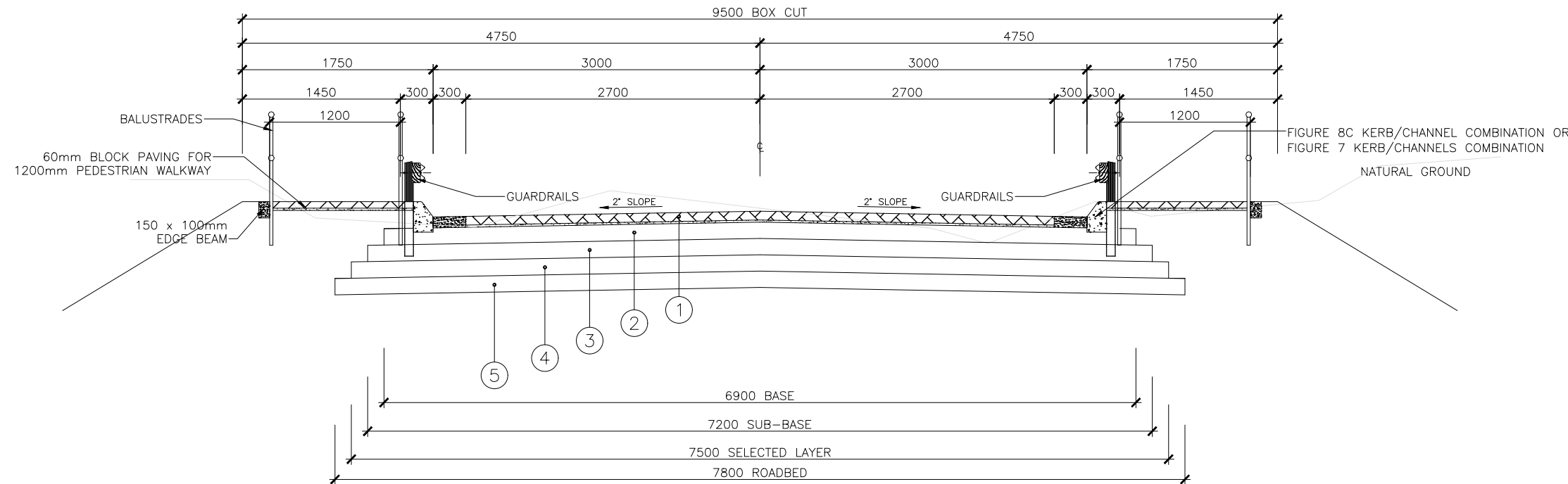
TYPICAL ROAD SECTION 1



TYPICAL ROAD SECTION 2 (WITH WALKWAY)



TYPICAL ROAD SECTION 3 (V-DRAINS)



TYPICAL ROAD SECTION 4 (AT BRIDGES)

| ITEM | LAYER | THICKNESS (mm) | TRH 4 CODE | DESCRIPTION | FIELD REQUIRED COMPACTION |
|--|--|----------------|------------|---|---------------------------|
| 1 | PAVING (SURFACE) | 100 | | 80mm THICK 35MPa INTERLOCKING PAVING BLOCKS ON A 20mm THICK BED OF RIVERSAND | — |
| 2 | BASE (IMPORTED FROM BORROW PIT AND/OR COMMERCIAL SOURCE) | 150 | C3 | UCS:1,5 TO 3,0 Mpa @ 100% MOD. AASHTO; MINIMUM ITS = 250 Kpa @ 95–97% MOD. ASSHTO COMPACTION; MAXIMUM AGGREGATE 63mm; 5% MOD. AASHTO; FIELD COMPACTION 98% MOD. AASHTO MIN. | 98% MOD AASHTO MIN |
| 3 | SUB-BASE (IMPORTED FROM BORROW PIT AND/OR COMMERCIAL SOURCE) | 150 | G6 | MINIMUM CBR = 15% @ 93% MOD. AASHTO; MAXIMUM SIZE ¾ OF LAYER THICKNESS; DENSITY = 95% MOD. AASHTO; PI < 12 OR 3GM + 10; MAXIMUM SWELL 1.5% @100% MOD. AASHTO; FIELD COMPACTION 95% MOD. AASHTO MIN. | 95% MOD AASHTO MIN |
| 4 | ROADBED | 150 | IN-SITU | IN-SITU | 93% MOD AASHTO MIN |
| 5 | SUBGRADE INSITU | 150 LAYERS | IN-SITU | IN-SITU | 90% MOD AASHTO MIN |
| *FILL (CUT & FILL) INSITU MATERIAL CUT TO STOCKPILE/FILL | | 150 LAYERS | IN-SITU | MINIMUM CBR = 3% @ 90% MOD. AASHTO; MAXIMUM SIZE ¾ OF LAYER THICKNESS; | 90% MOD AASHTO MIN |
| *PIONEER LAYER | | 300 | — | ROCKFILL (MAXIMUM ½ OF LAYER) THICKNESS MIXED WITH G9–G10 | — |
| *REPLACEMENT LAYER | | 1000 | — | DUMPROCK MIXED WITH G9–G10 | — |

NOTES :
REFER TO NOTES DRAWINGS, DRAWING NUMBERS, SG001, SG002, AND SG003

PRELIMINARY

TENDER PURPOSES

*

FOR CONSTRUCTION

AS BUILT

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| DATE REVISIONS | | |

CITY OF MBOMBELA
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1 Nel Street Mbombela 1201
TEL: (013) 759 9111
FAX: (013) 759 2070
WEB: www.mbombela.gov.za
City of Mbombela

PROJECT :
CONSTRUCTION OF BARCELONA ROAD WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
PAVEMENT LAYERWORKS AND TYPICAL SECTION DETAILS 1 OF 2

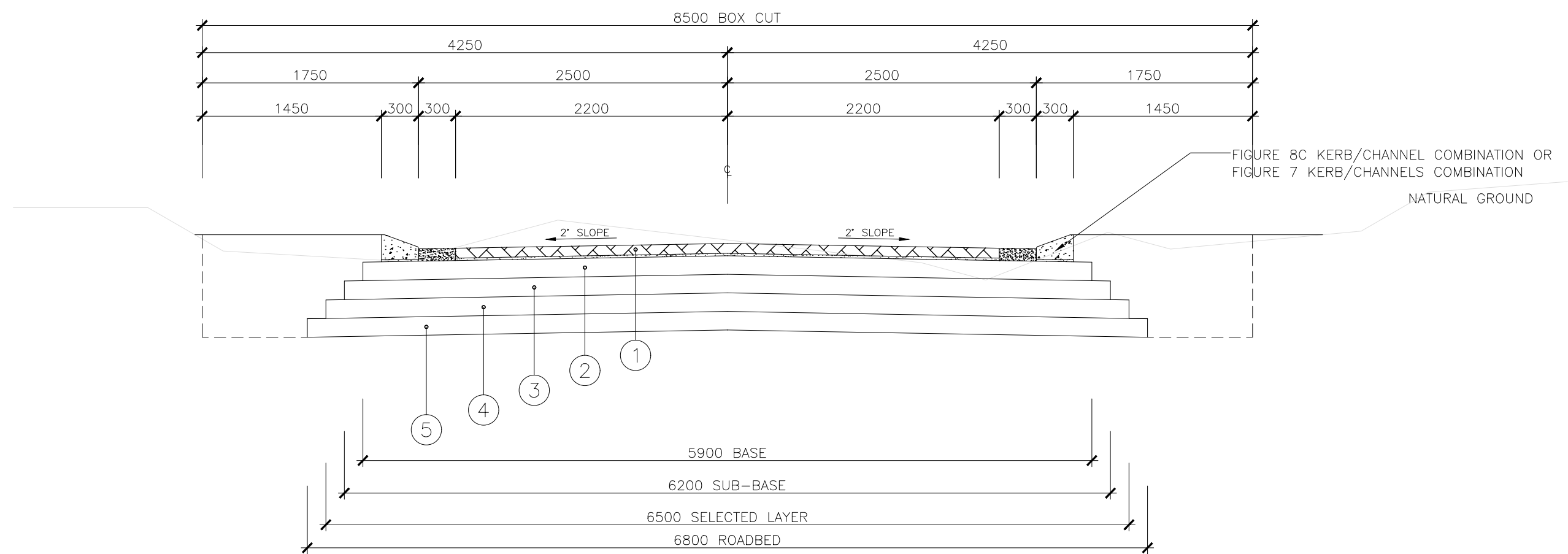
| | |
|-------------|------------------|
| DESIGNED : | J.T. |
| DRAWN : | A.F. |
| SCALE : | N.T.S. |
| DATE : | 23 DECEMBER 2022 |
| CHECKED : | J.T. |
| APPROVED : | J.T.M |
| SIGNATURE : | |

PROFESSIONAL SERVICE :
CIVIL ENGINEERING

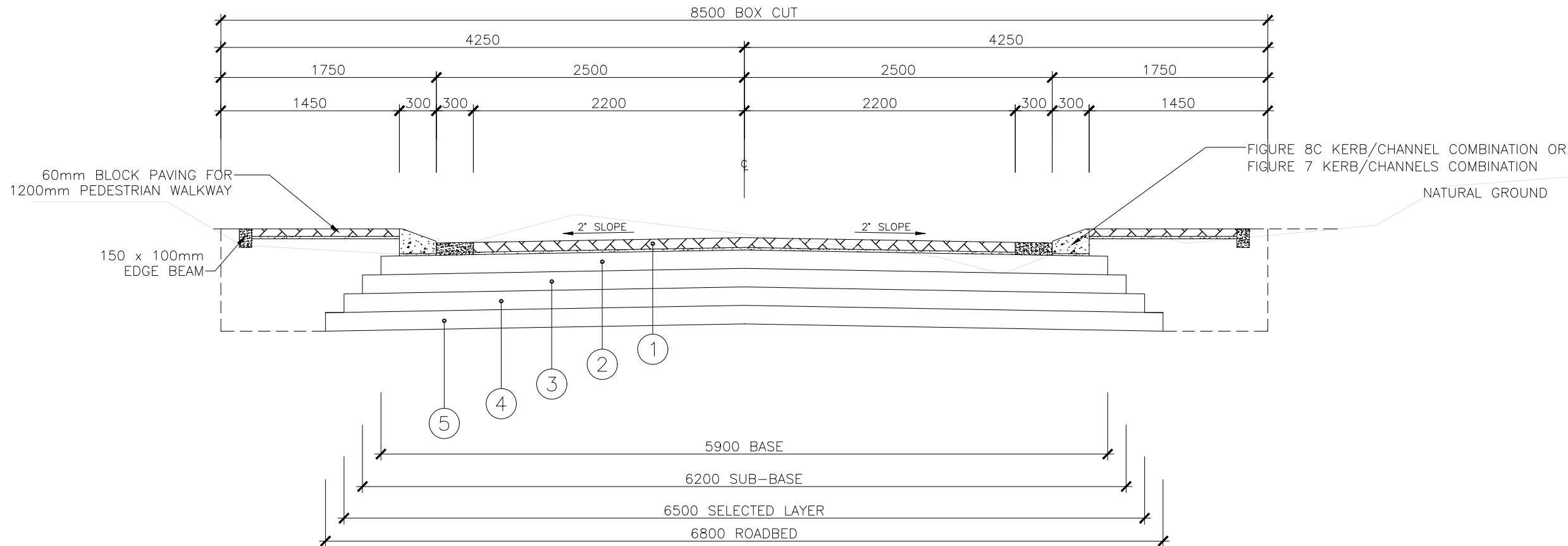
DRAWING No :
067/BAR/R051 REV 0

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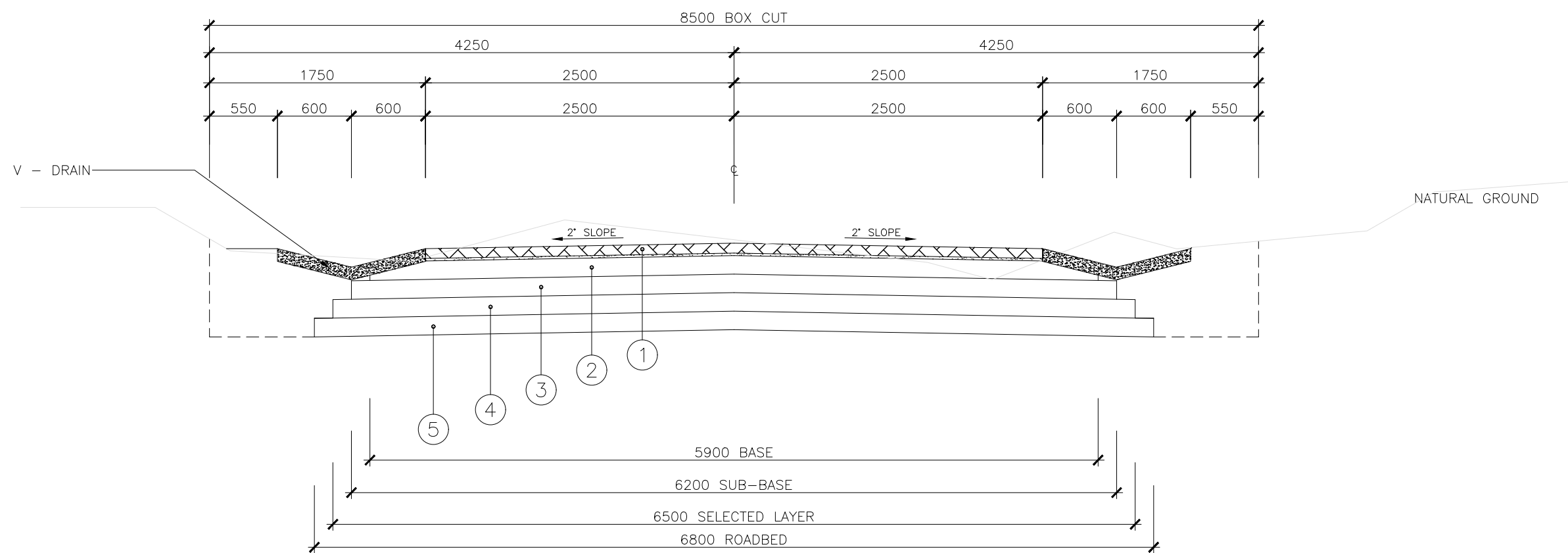
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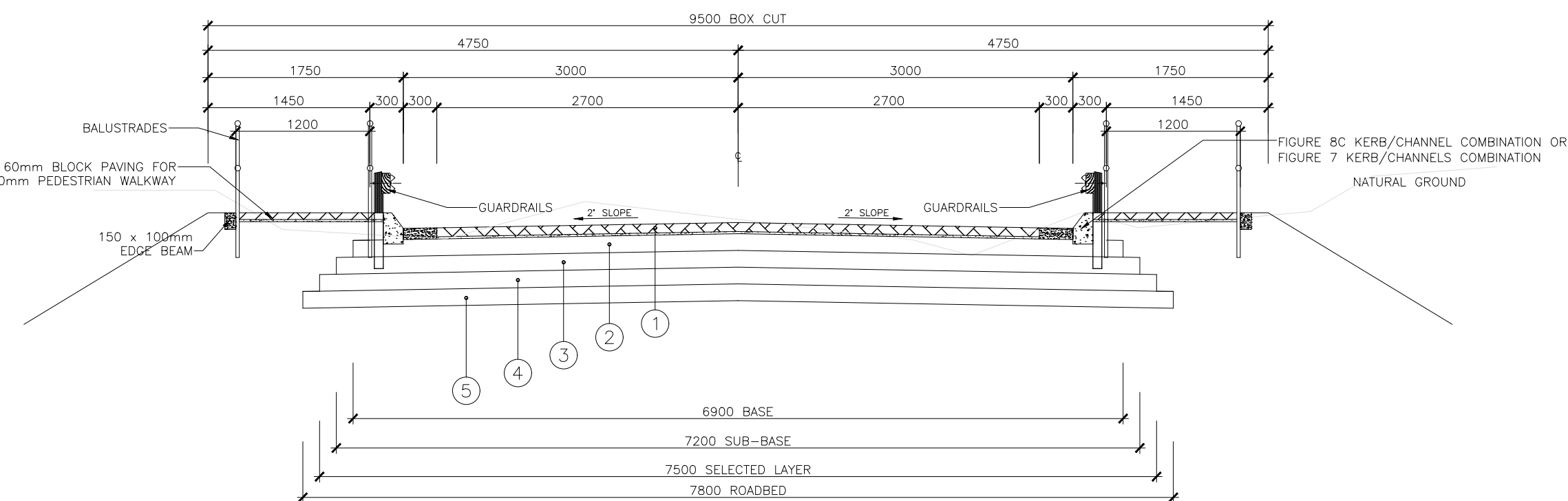
TYPICAL ROAD SECTION 1



TYPICAL ROAD SECTION 2 (WITH WALKWAY)



TYPICAL ROAD SECTION 3 (V-DRAINS)



TYPICAL ROAD SECTION 4 (AT BRIDGES)

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| 3 | SUB-BASE (IMPORTED FROM BORROW PIT AND/OR COMMERCIAL SOURCE) | 150 | G6 | MINIMUM CBR = 15% @ 93% MOD. AASHTO; MAXIMUM SIZE ¾ OF LAYER THICKNESS; DENSITY = 95% MOD. AASHTO; PI < 12 OR 3GM + 10; MAXIMUM SWELL 1.5% @100% MOD. AASHTO; FIELD COMPACTION 95% MOD. AASHTO MIN. | 95% MOD AASHTO MIN |
| 4 | ROADBED | 150 | IN-SITU | IN-SITU | 93% MOD AASHTO MIN |
| 5 | SUBGRADE INSITU | 150 LAYERS | IN-SITU | IN-SITU | 90% MOD AASHTO MIN |
| *FILL (CUT & FILL) INSITU MATERIAL CUT TO STOCKPILE/FILL | | 150 LAYERS | IN-SITU | MINIMUM CBR = 3% @ 90% MOD. AASHTO; MAXIMUM SIZE ¾ OF LAYER THICKNESS; | 90% MOD AASHTO MIN |
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NOTES :
REFER TO NOTES DRAWINGS, DRAWING NUMBERS, SG001, SG002, AND SG003

PRELIMINARY

TENDER PURPOSES

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FOR CONSTRUCTION

AS BUILT

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| DATE REVISIONS | | |

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City of Mbombela

PROJECT :
CONSTRUCTION OF BARCELONA
ROAD WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
PAVEMENT LAYERWORKS AND
TYPICAL SECTION DETAILS 2 OF 2

| | |
|-------------|------------------|
| DESIGNED : | J.T. |
| DRAWN : | A.F. |
| SCALE : | N.T.S. |
| DATE : | 23 DECEMBER 2022 |
| CHECKED : | J.T. |
| APPROVED : | J.T.M |
| SIGNATURE : | |

PROFESSIONAL SERVICE :
CIVIL ENGINEERING

DRAWING No :
067/BAR/R052 REV 0

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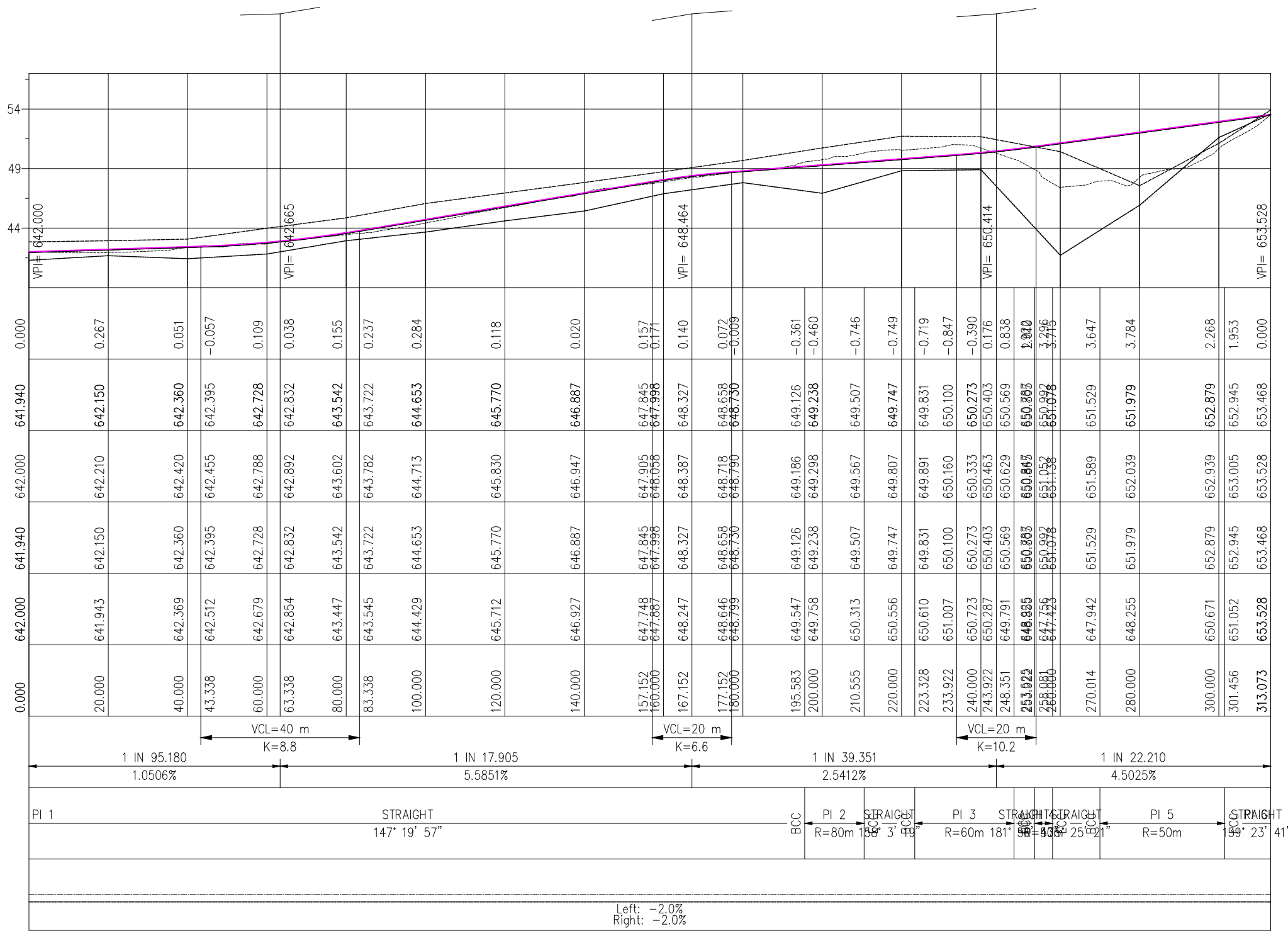
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ROAD-LEFT
ROAD-CENTRELINE
ROAD-RIGHT
NGL-LEFT
NGL-CENTRELINE
NGL-RIGHT

SCALES:
Horizontal 1:750
Vertical 1:250

Datum : 639 m

| CUT / FILL | |
|------------------|------------|
| ROAD | LEFT |
| | CENTRELINE |
| | RIGHT |
| C/L GROUND LEVEL | |
| DISTANCE (m) | |
| VERTICAL PROFILE | |
| HORIZONTAL | |
| SECTION PROFILE | |



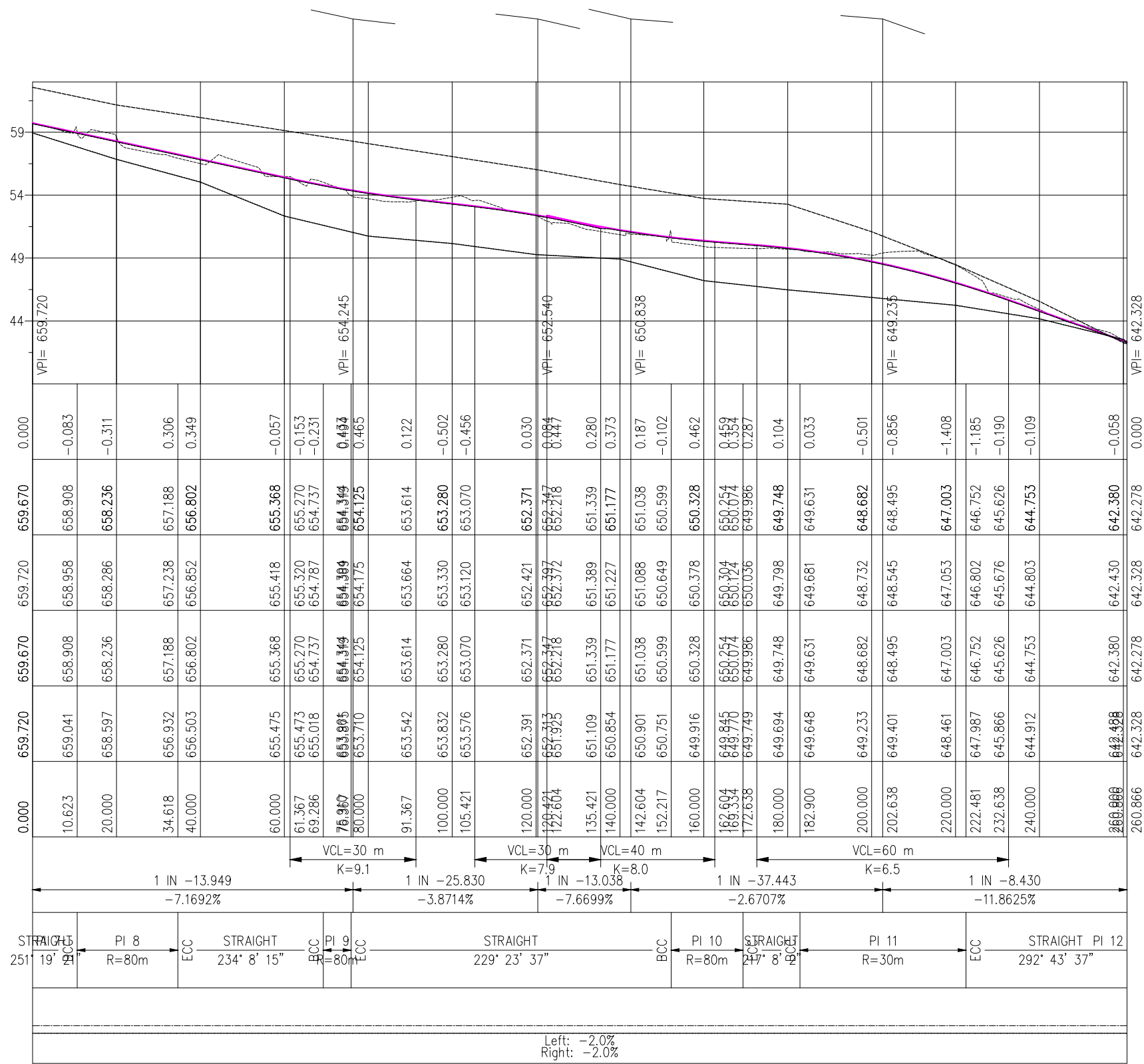
Road 1
DESIGN SPEED: 40

ROAD-LEFT
ROAD-CENTRELINE
ROAD-RIGHT
NGL-LEFT
NGL-CENTRELINE
NGL-RIGHT

SCALES:
Horizontal 1:750
Vertical 1:250

Datum : 639 m

| CUT / FILL | |
|------------------|------------|
| ROAD | LEFT |
| | CENTRELINE |
| | RIGHT |
| C/L GROUND LEVEL | |
| DISTANCE (m) | |
| VERTICAL PROFILE | |
| HORIZONTAL | |
| SECTION PROFILE | |



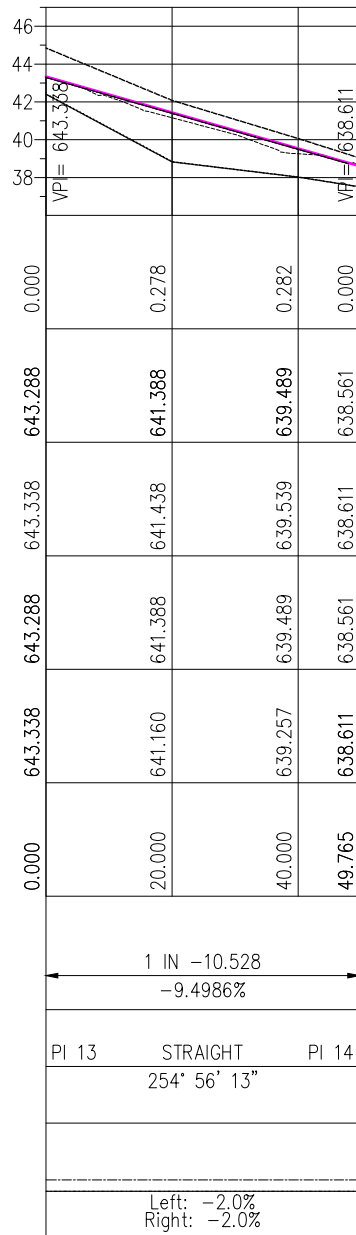
Road 2
DESIGN SPEED: 40

ROAD-LEFT
ROAD-CENTRELINE
ROAD-RIGHT
NGL-LEFT
NGL-CENTRELINE
NGL-RIGHT

SCALES:
Horizontal 1:750
Vertical 1:250

Datum : 636 m

| CUT / FILL | |
|------------------|------------|
| ROAD | LEFT |
| | CENTRELINE |
| | RIGHT |
| C/L GROUND LEVEL | |
| DISTANCE (m) | |
| VERTICAL PROFILE | |
| HORIZONTAL | |
| SECTION PROFILE | |



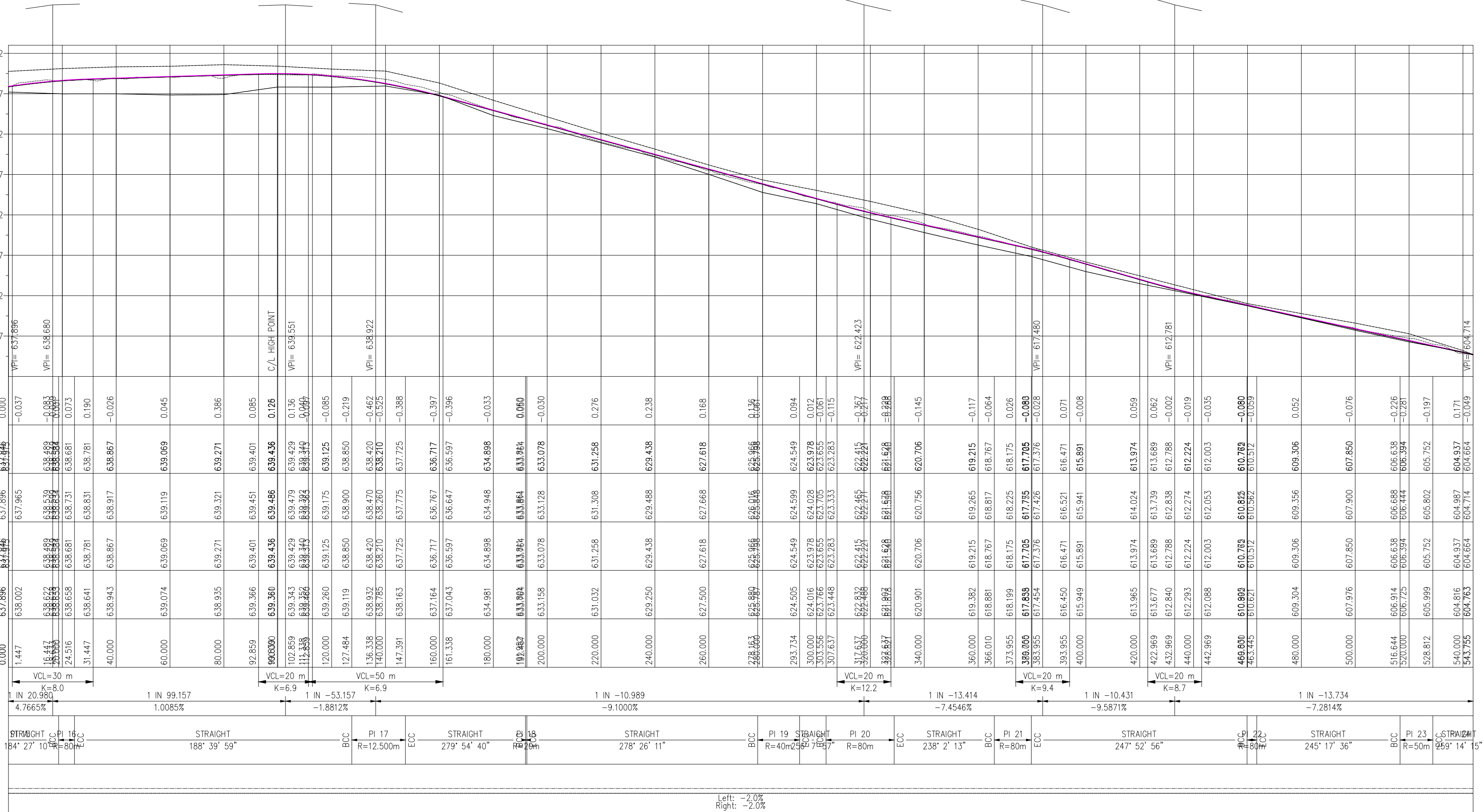
Road 3
DESIGN SPEED: 60

ROAD-LEFT
ROAD-CENTRELINE
ROAD-RIGHT
NGL-LEFT
NGL-CENTRELINE
NGL-RIGHT

SCALES:
Horizontal 1:750
Vertical 1:250

Datum : 602 m

| CUT / FILL | |
|------------------|------------|
| ROAD | LEFT |
| | CENTRELINE |
| | RIGHT |
| C/L GROUND LEVEL | |
| DISTANCE (m) | |
| VERTICAL PROFILE | |
| HORIZONTAL | |
| SECTION PROFILE | |



Road 4
DESIGN SPEED: 40

NOTES :
REFER TO NOTES DRAWINGS, DRAWING NUMBERS, SG001, SG002, AND SG003

PRELIMINARY

TENDER PURPOSES

FOR CONSTRUCTION

AS BUILT

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| DATE REVISIONS | |

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1 Nel Street
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1201
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PROJECT :
CONSTRUCTION OF BARCELONA
ROAD WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
ROAD LONG SECTIONS

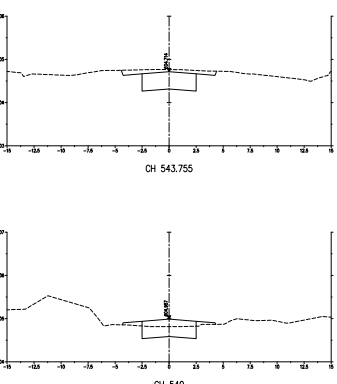
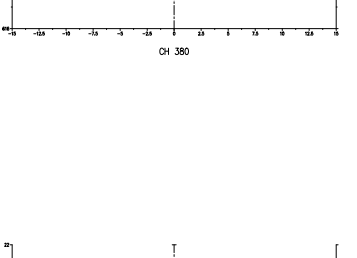
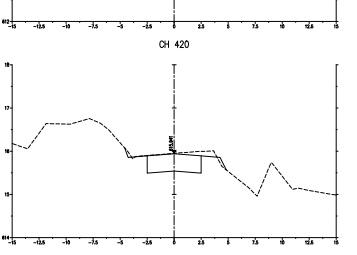
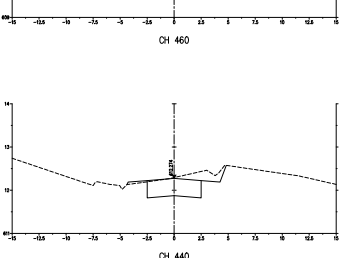
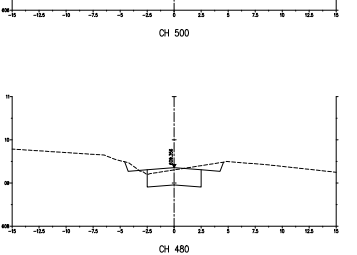
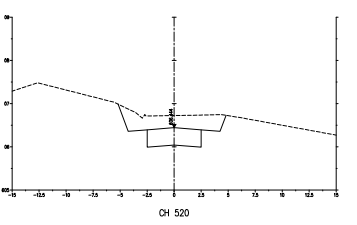
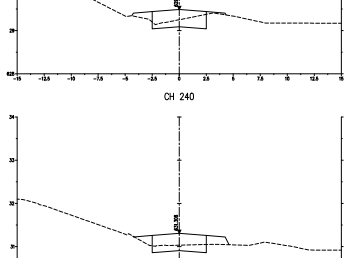
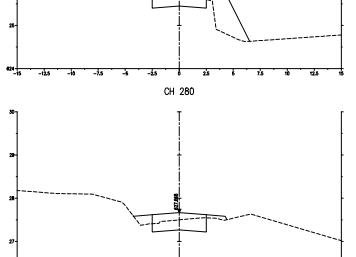
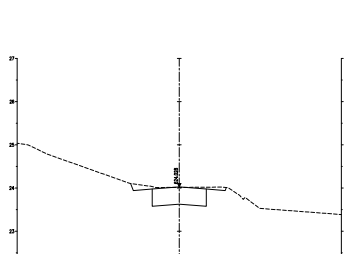
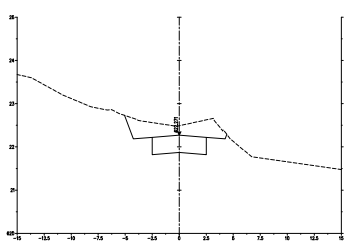
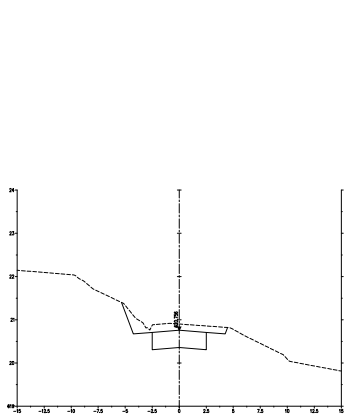
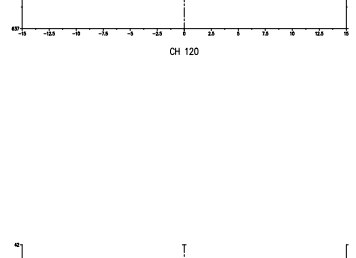
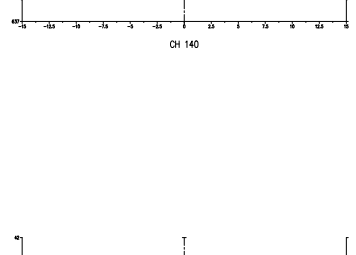
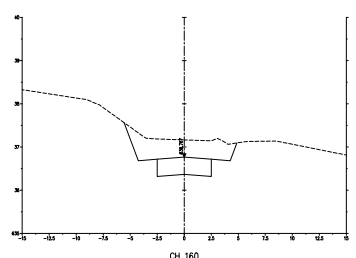
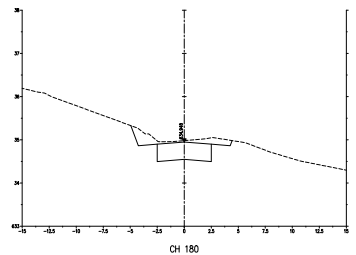
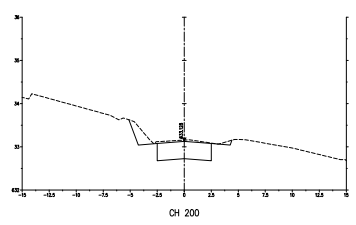
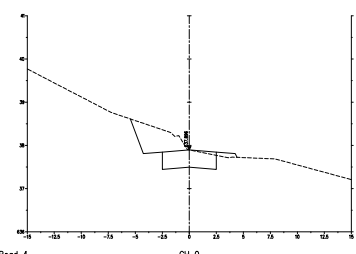
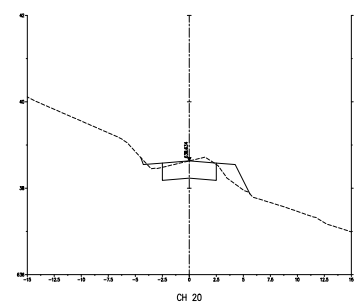
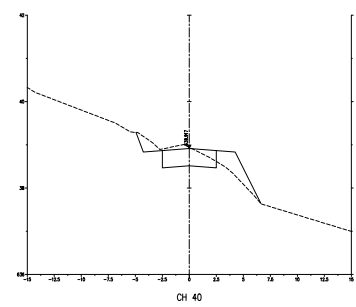
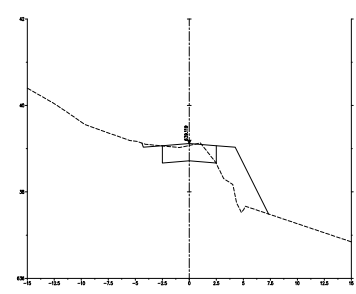
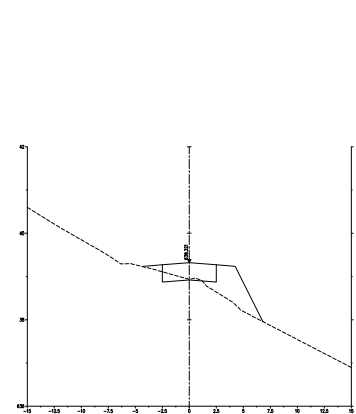
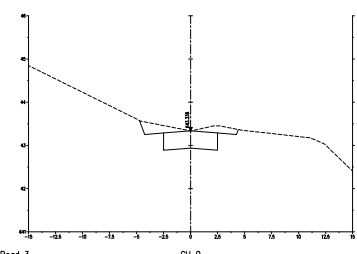
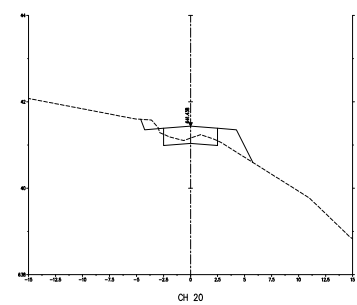
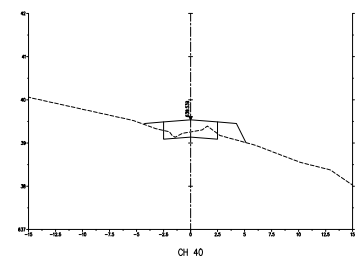
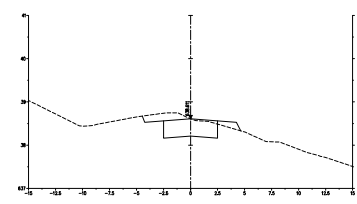
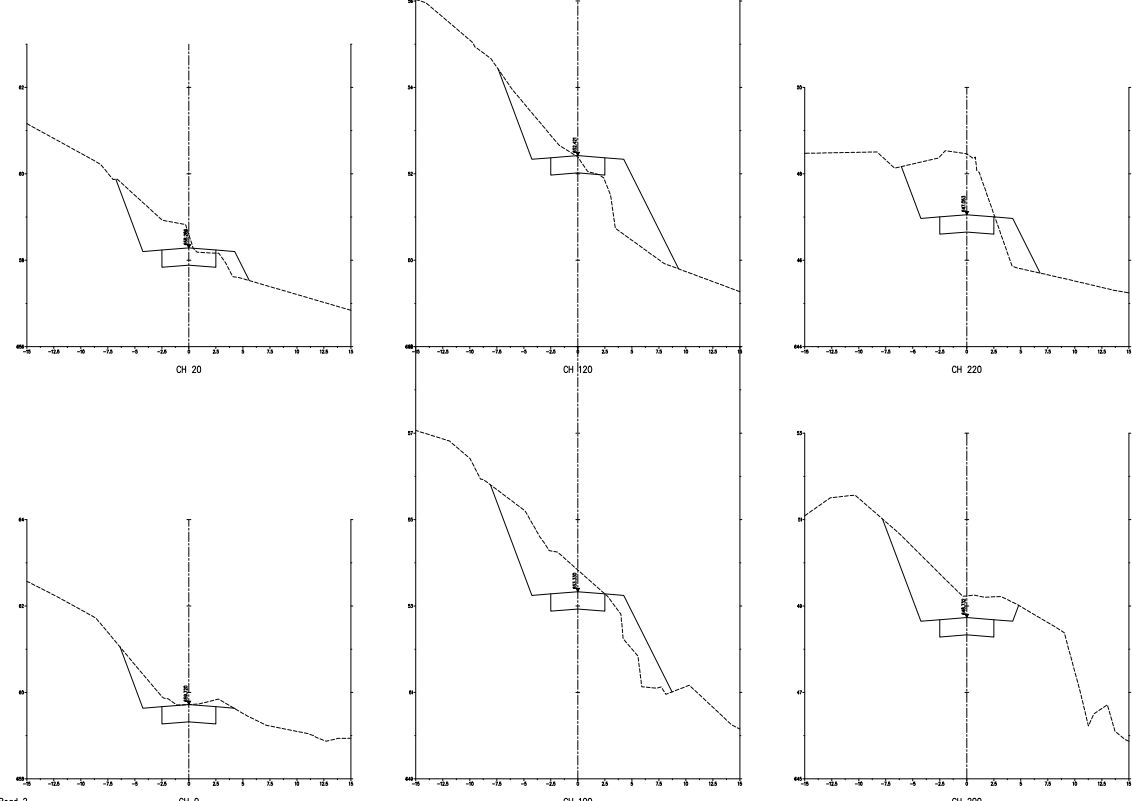
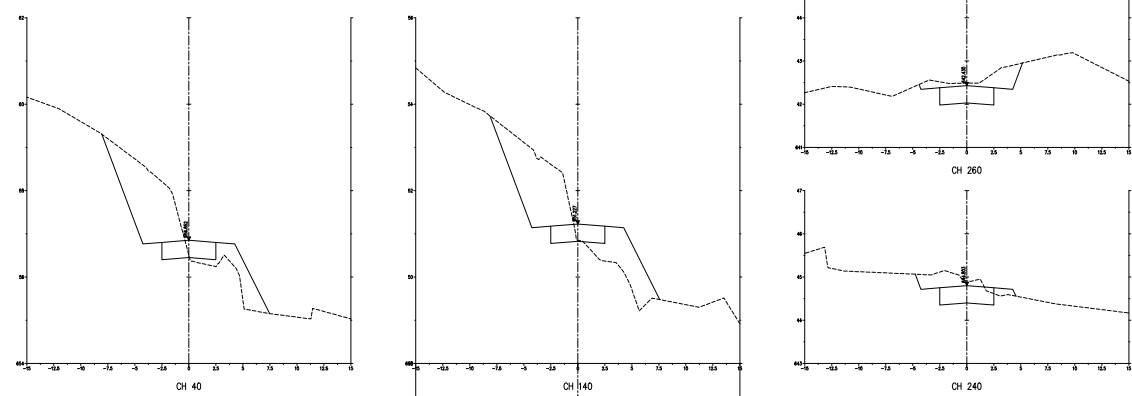
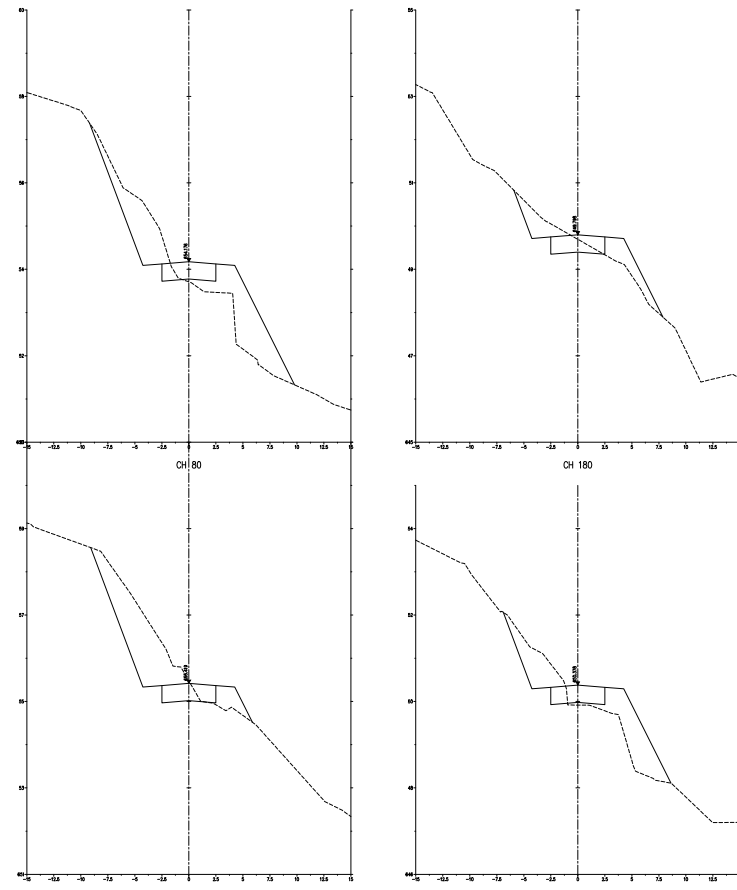
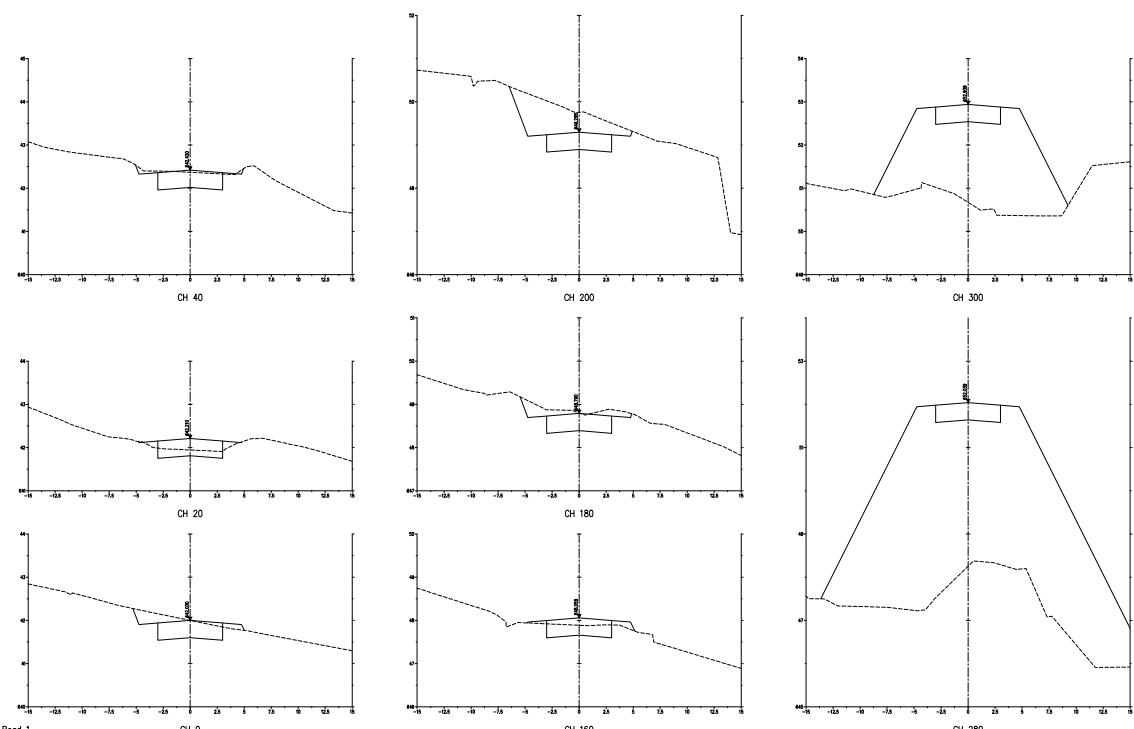
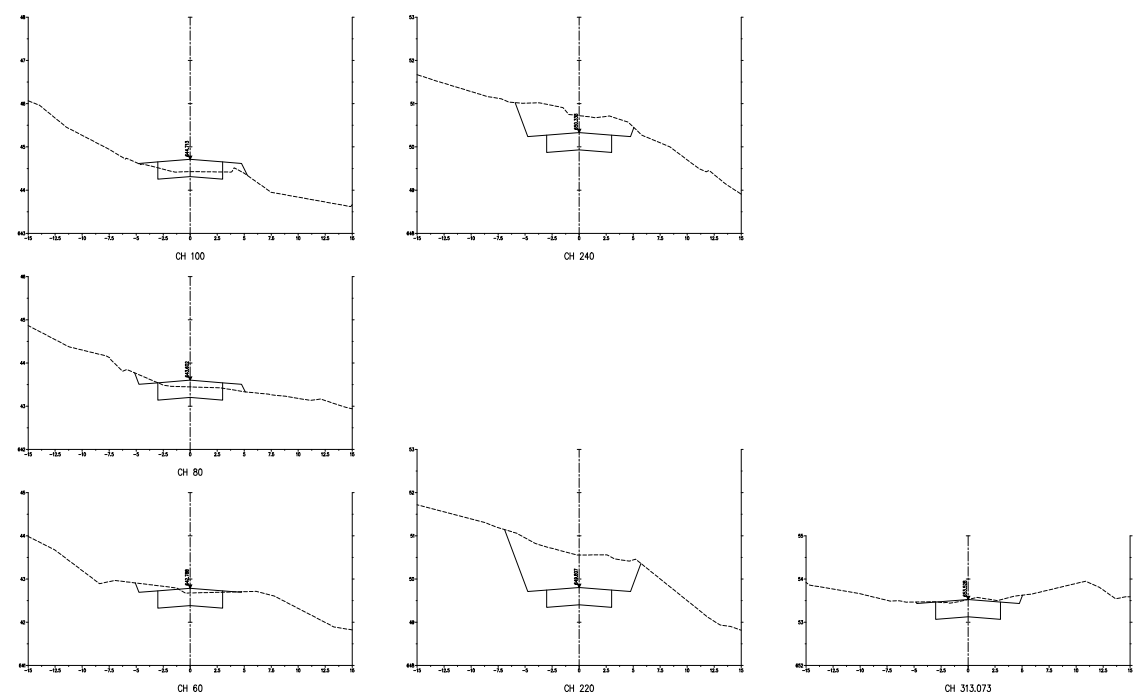
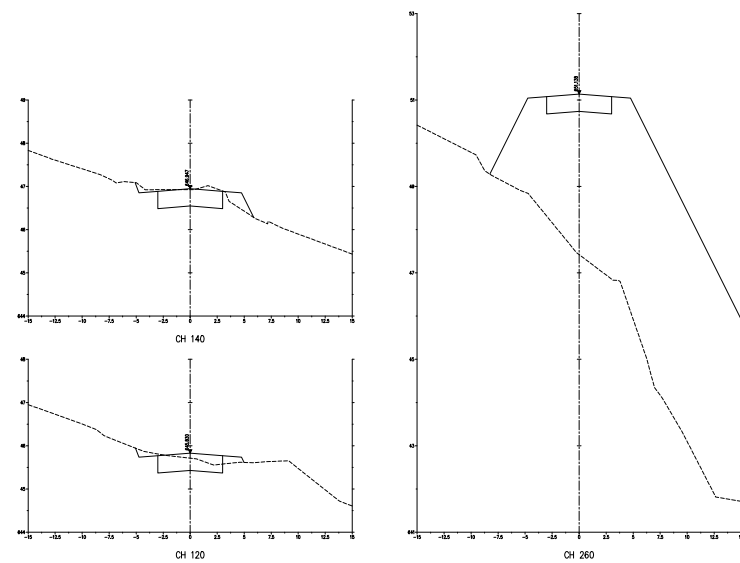
| | |
|-------------|------------------|
| DESIGNED : | J.T. |
| DRAWN : | A.F. |
| SCALE : | N.T.S. |
| DATE : | 23 DECEMBER 2022 |
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| SIGNATURE : | |

PROFESSIONAL SERVICE :
CIVIL ENGINEERING

DRAWING No :
067/BAR/R101 REV 0

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TENDER PURPOSES

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City of Mbombela

PROJECT :
CONSTRUCTION OF BARCELONA
ROAD WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
ROAD CROSS SECTIONS

| | |
|-------------|------------------|
| DESIGNED : | J.T. |
| DRAWN : | A.F. |
| SCALE : | N.T.S. |
| DATE : | 23 DECEMBER 2022 |
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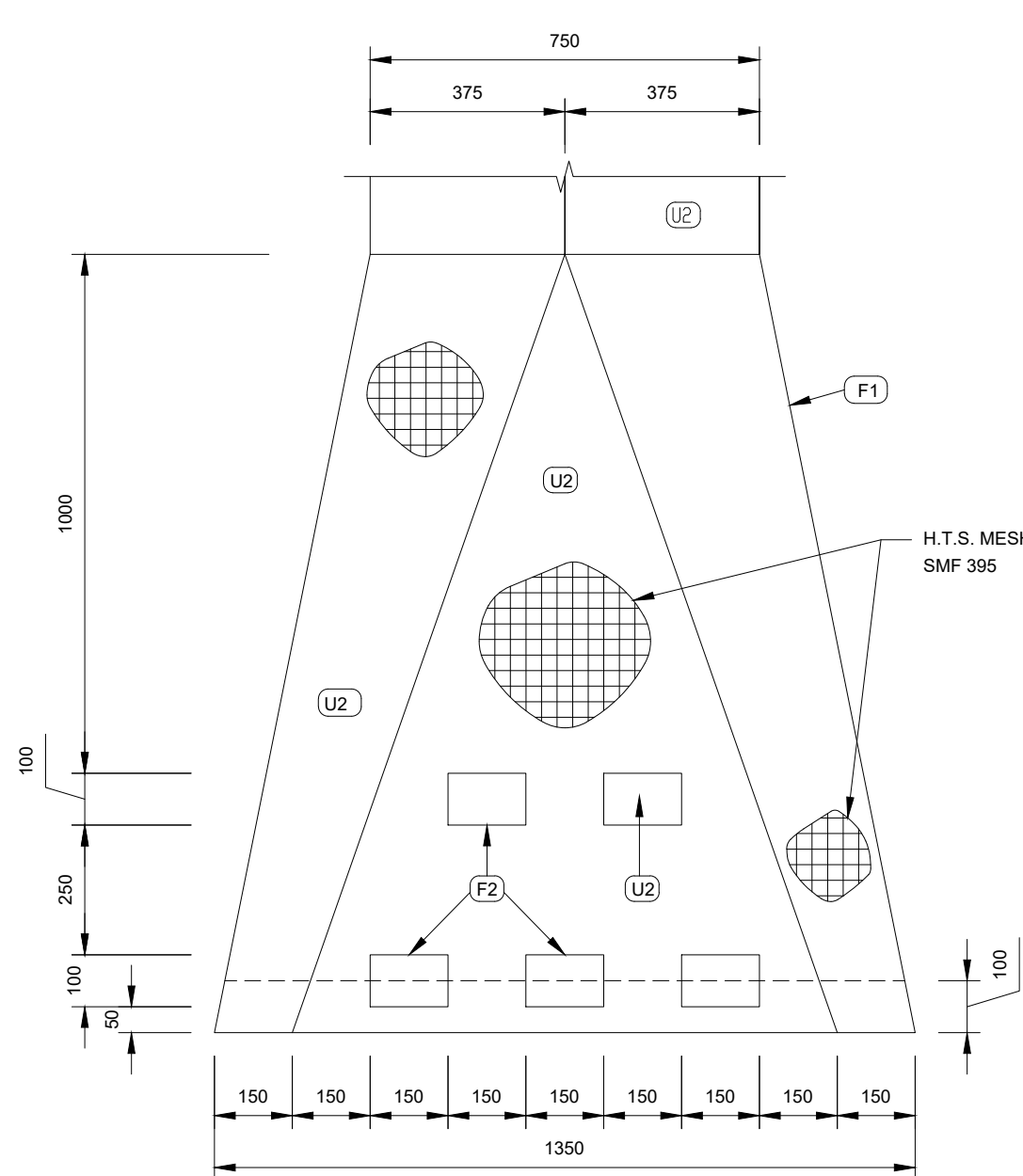
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DRAWING No :
067/BAR/R101 REV 0

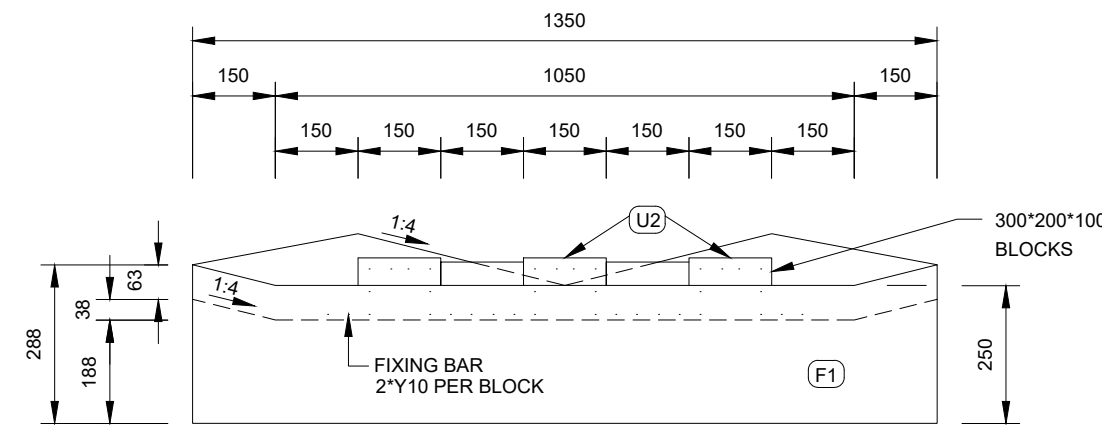
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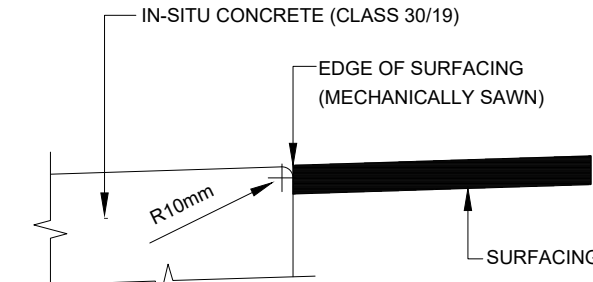
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OFFICE No. 7 LIZA'S COURT, 28 VAN RENSBURG STREET, NELSPRUIT, 1200
P.O. BOX 569, SONPARK, 1206
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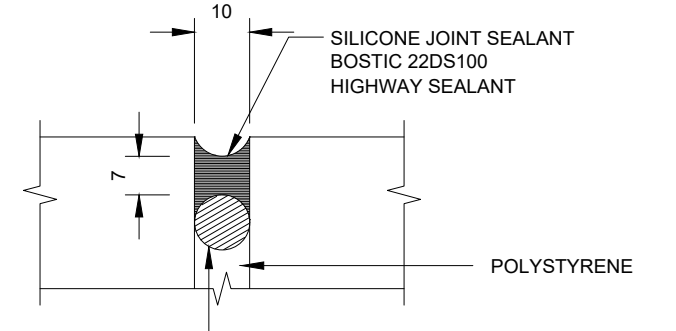
PLAN OF ENERGY BREAKER
SCALE 1:20



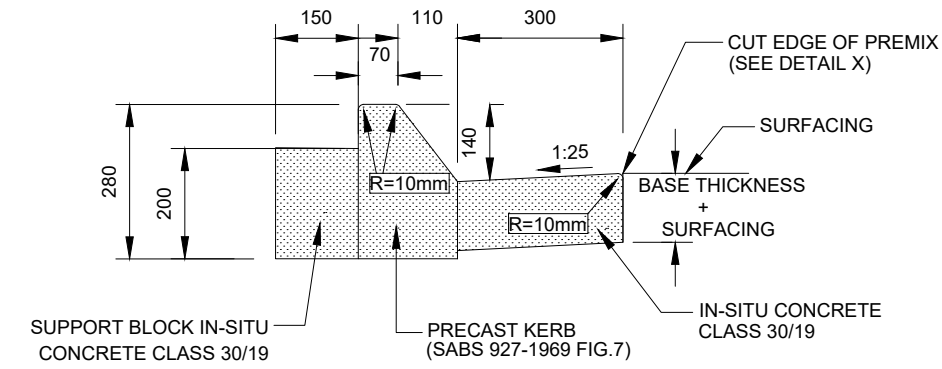
FRONT ELEVATION OF ENERGY BREAKER
SCALE 1:20



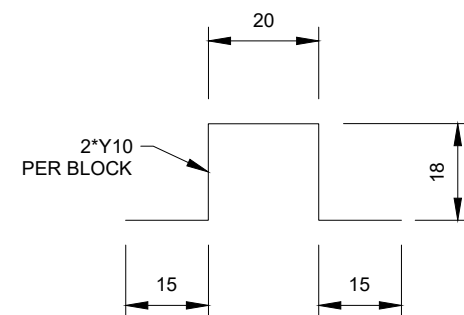
DETAIL X
SCALE 1:5



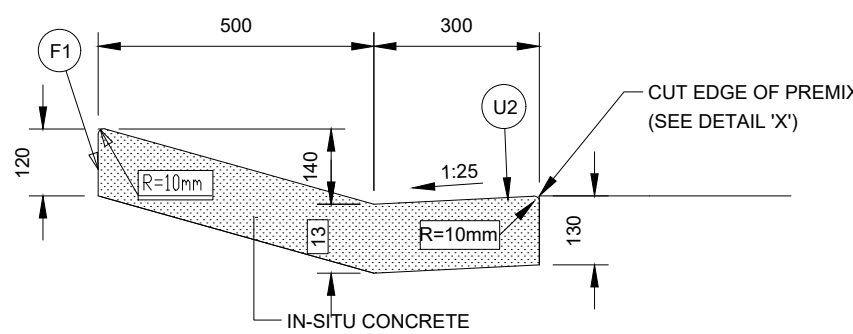
EXPANSION JOINT
SCALE : SCHEMATIC
NOTE: EXPANSION JOINT EVERY 5th PANEL (10m)



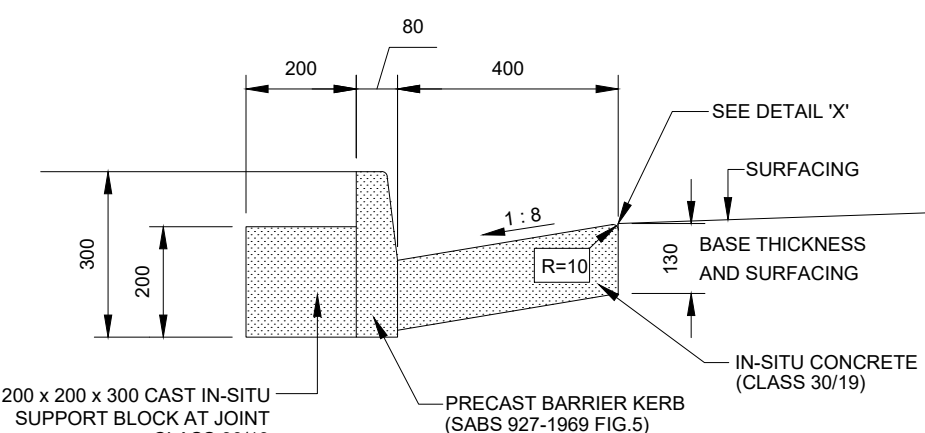
CROSS SECTION OF TYPE B SEMI MOUNTABLE KERB
AT INTERSECTIONS
SCALE 1:10



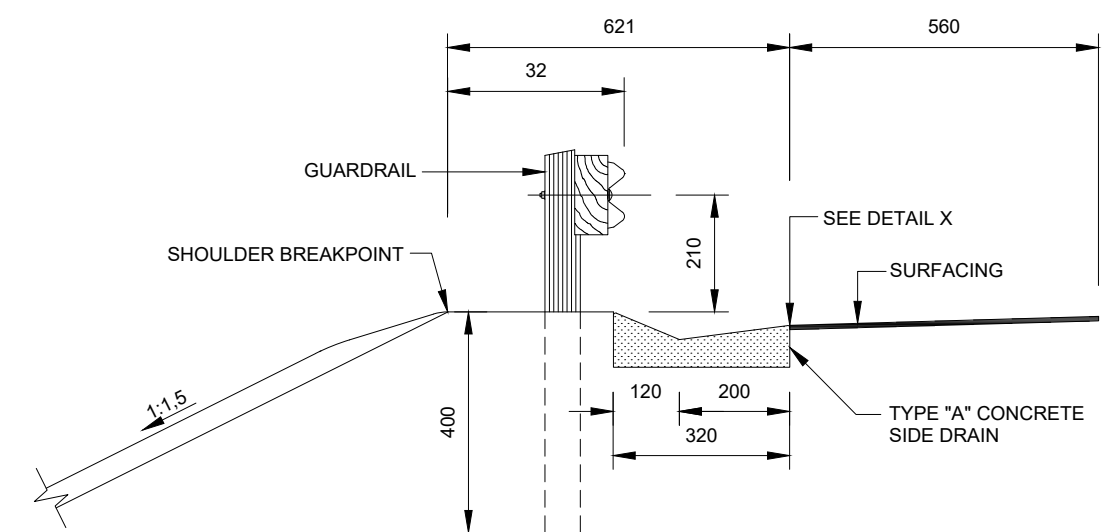
FIXING BAR
SCALE 1:10



CROSS SECTION OF TYPE C MOUNTABLE KERB
AT RURAL INTERSECTIONS
SCALE 1:10

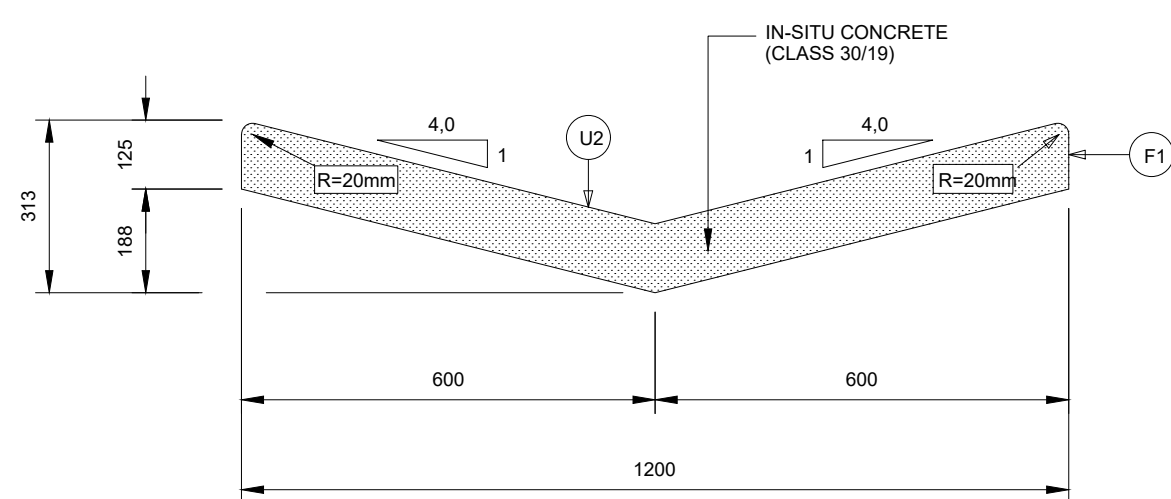


TYPE B1 KERB
SECTION THROUGH BARRIER KERB (FIG 5)
SCALE 1:10

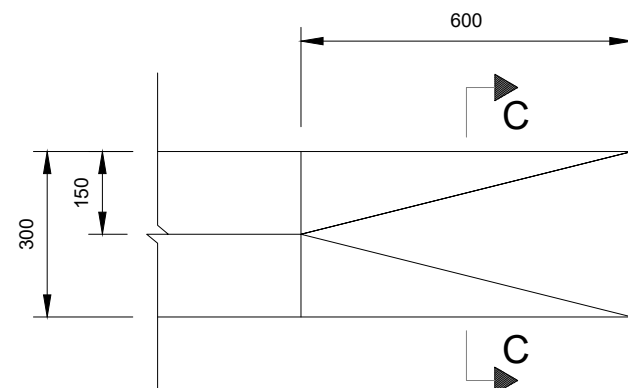


POSITION OF TYPE "A" CONCRETE SIDE DRAIN
SCALE 1:25

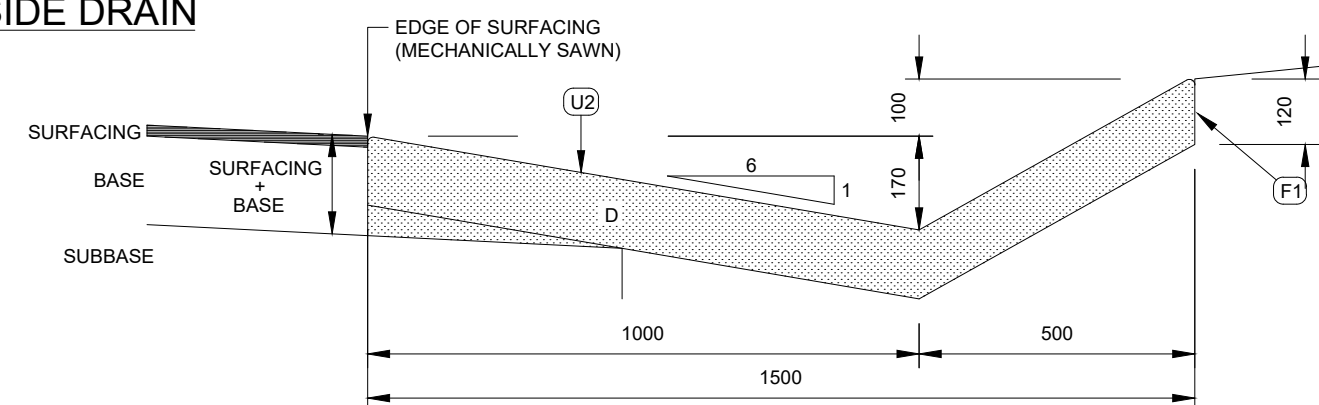
DETAIL OF ENERGY BREAKER SYSTEM AT DISCHARGE POINT OF TYPE 'F' CONCRETE SIDE DRAIN



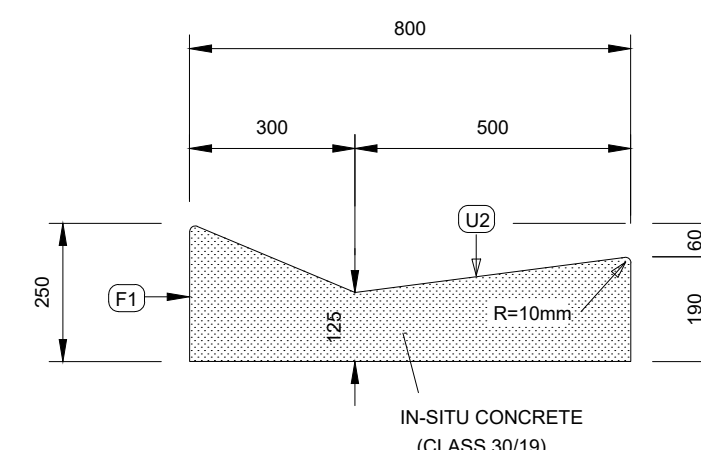
CROSS SECTION OF TYPE E CONCRETE CHANNEL IN OPEN DRAINS
SCALE : SCHEMATIC



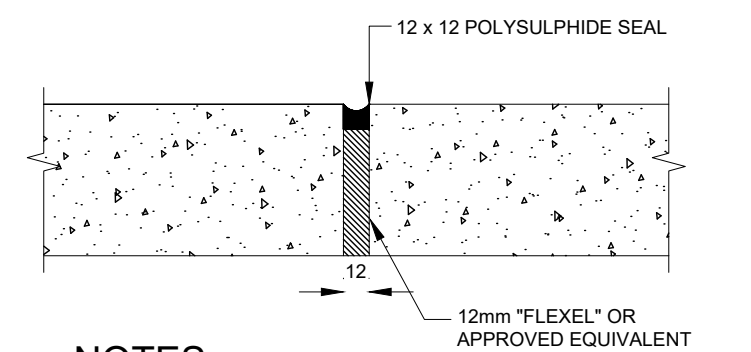
BEGINNING OF TYPE 'E' CONCRETE DRAIN
SCALE : SCHEMATIC



CROSS SECTION OF TYPE 'F' CONCRETE SIDE DRAIN IN CUTTINGS
SCALE : SCHEMATIC

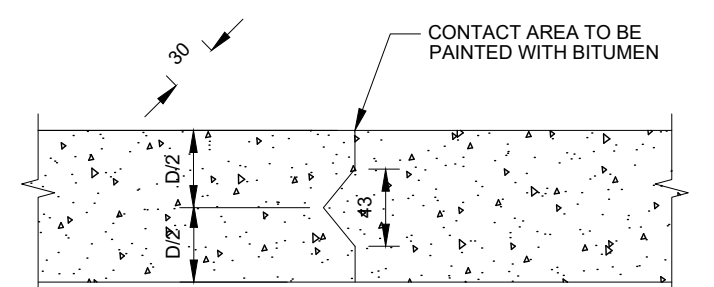


CROSS SECTION OF TYPE "A" CONCRETE SIDE DRAIN
SCALE 1:10



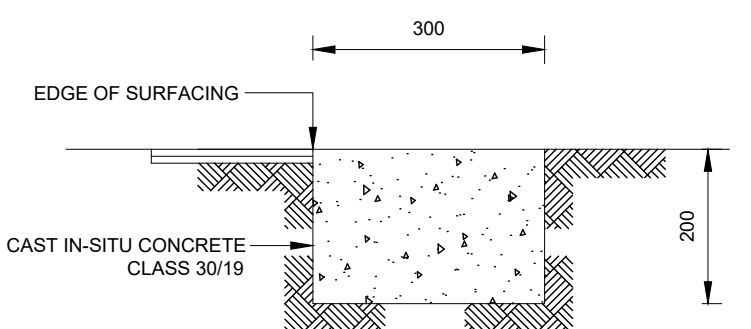
NOTES
EXPANSION JOINT SHALL BE SPACED AT 30m INTERVALS

DETAIL OF EXPANSION JOINT
N.T.S



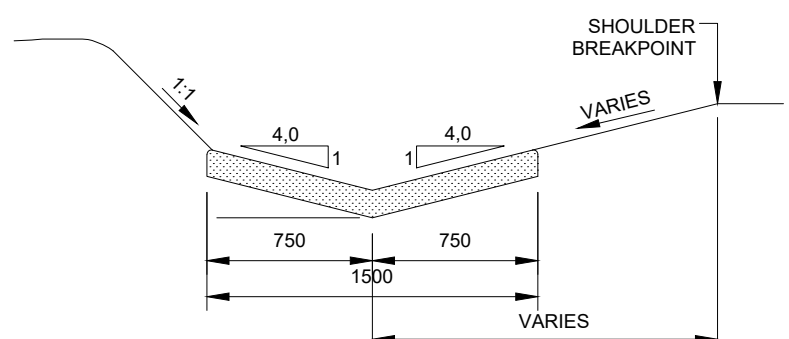
NOTES
CONTRACTION JOINTS SHALL BE SPACED AT 2m INTERVALS. ALTERNATIVELY, SHRINKAGE JOINTS MAY BE CUT TO A DEPTH OF 50mm AND FINISHED WITH A GROOVING TOOL

DETAIL OF CONTRACTION JOINT
N.T.S



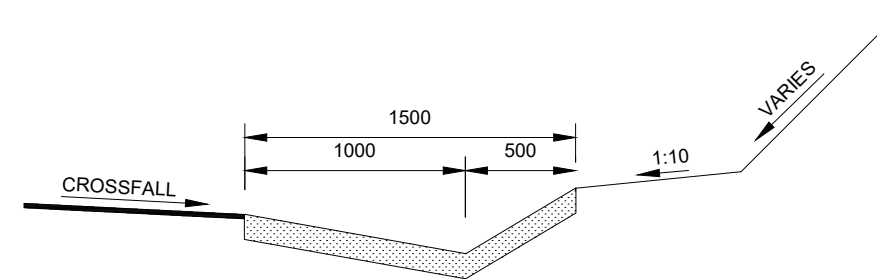
DETAIL OF EDGE BEAM (TYPE A)
N.T.S

JOINTS IN CONCRETE EDGE BEAMS



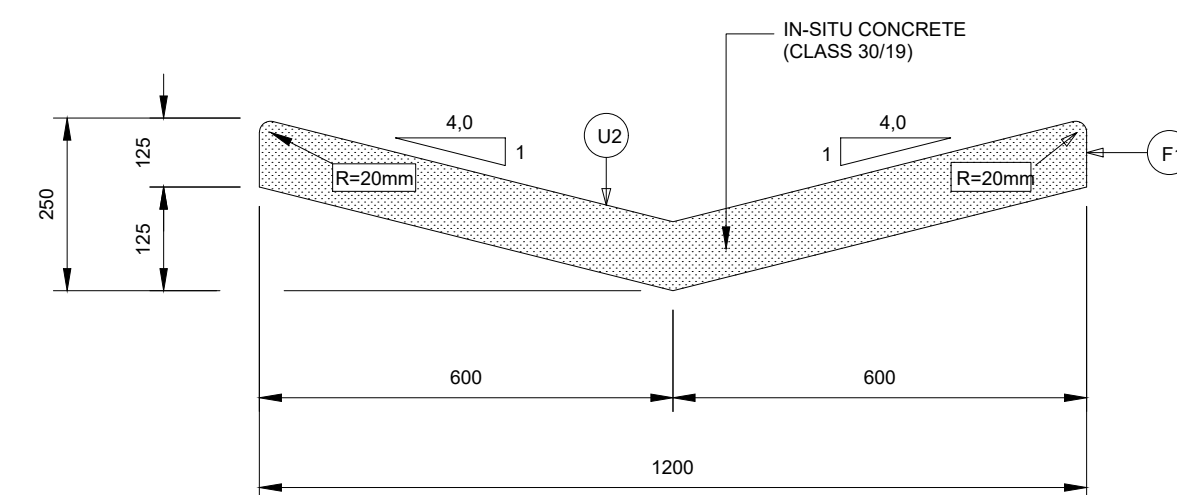
POSITION OF TYPE 'E' CONCRETE DRAIN
IN SHALLOW CUT
SCALE : SCHEMATIC

SECTION C-C
SCALE 1:50



POSITION OF TYPE 'F' CONCRETE SIDE DRAIN
SCALE : SCHEMATIC

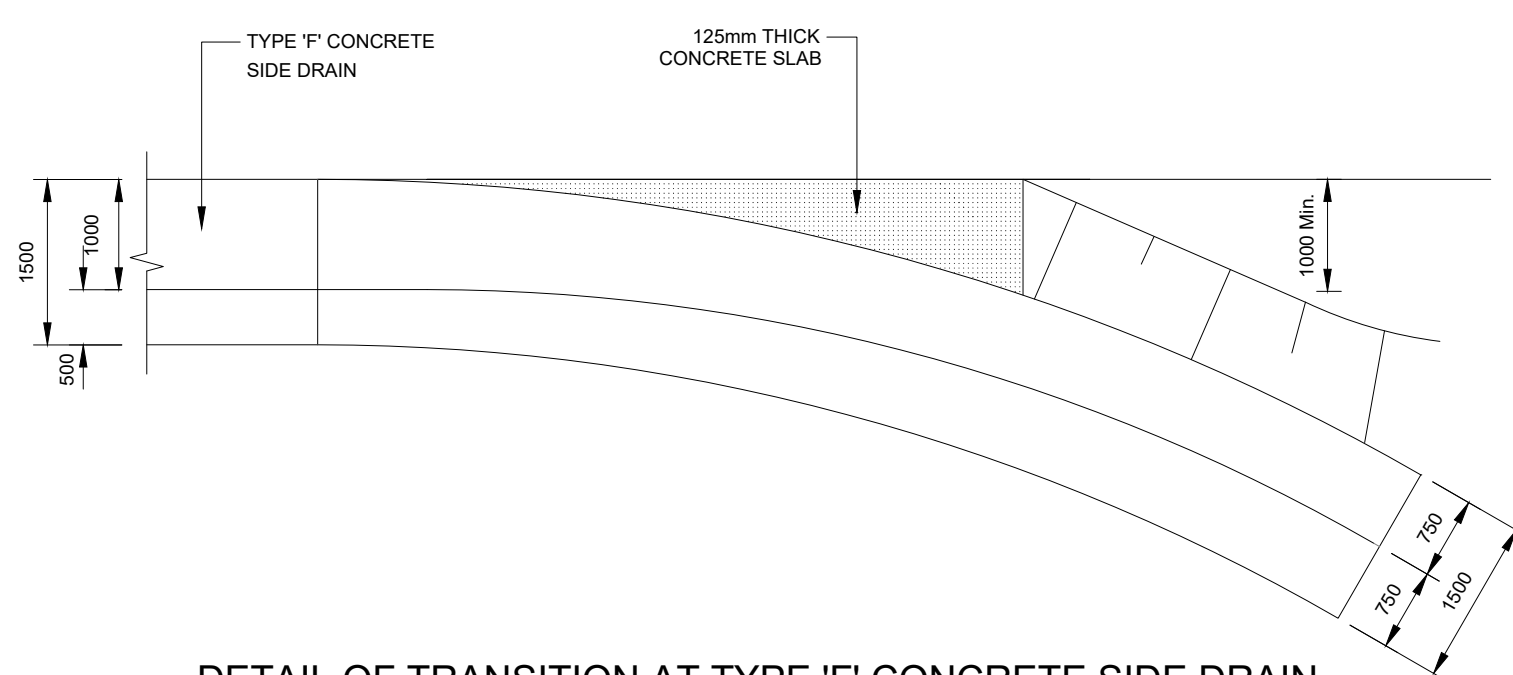
- NOTES
1. ALL CONCRETE CHANNELS AND OTHER DRAINAGE STRUCTURES ON THIS PLAN TO BE CAST USING CLASS 30/19 CONCRETE
 2. TYPES 'E' AND 'F' CONCRETE MUST BE CAST IN ALTERNATIVE LENGTHS OF 2.0 m MAXIMUM WITH EXPANSION JOINTS EVERY 5th PANEL (10 m)
 3. ALL EXPOSED CORNERS MUST BE ROUNDED OFF TO A RADIUS OF 10 mm
 4. THE CLASS OF SURFACE FINISH IS INDICATED AS 'F1' OR 'U2'
 5. V MIN. = 150mm (PREFERRED = 300mm)



CROSS SECTION OF TYPE E CONCRETE CHANNEL IN OPEN DRAINS
SCALE : SCHEMATIC

| CASE(n) | W | W/2 | W/8 | D | W/8+D | VOLUME ³ m/m |
|---------|------|------|-----|-----|-------|-------------------------|
| 1 | 1000 | 500 | 125 | 125 | 250 | 0.1250 |
| 2 | 1500 | 750 | 188 | 125 | 313 | 0.1875 |
| 3 | 2000 | 1000 | 250 | 150 | 400 | 0.3000 |
| 4 | 2500 | 1250 | 313 | 150 | 463 | 0.3750 |

DIMENSIONS OF TYPE E CONCRETE CHANNELS



DETAIL OF TRANSITION AT TYPE 'F' CONCRETE SIDE DRAIN
SCALE : SCHEMATIC

| CASE(n) | W | X | Y | Z | D | VOLUME ³ m/m |
|---------|------|------|-----|-----|-----|-------------------------|
| 1 | 1000 | 670 | 330 | 110 | 125 | 0.1250 |
| 2 | 1500 | 1000 | 500 | 170 | 125 | 0.1875 |
| 3 | 2000 | 1330 | 670 | 220 | 150 | 0.3000 |
| 4 | 2500 | 1670 | 830 | 280 | 150 | 0.3750 |

DIMENSIONS OF TYPE F CONCRETE CHANNELS

PROJECT :
CONSTRUCTION OF BARCELONA ROAD
WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
STANDARD DETAILS
CONCRETE CHANNEL AND KERB DETAILS

REVISIONS

| | | | |
|---|--------------|----|----|
| 6 | | | |
| 5 | | | |
| 4 | | | |
| 3 | | | |
| 2 | | | |
| 1 | -- / -- / -- | -- | -- |

PRELIMINARY
TENDER PURPOSES
FOR CONSTRUCTION
AS BUILT

DESIGNED : J.T.
DRAWN : J.T.
SCALE : N. T. S.
DATE : 23 DECEMBER 2022
CHECKED : J.T.
APPROVED : J.T.M.
SIGNATURE :

PROFESSIONAL SERVICE :
CIVIL ENGINEERING

DRAWING No :
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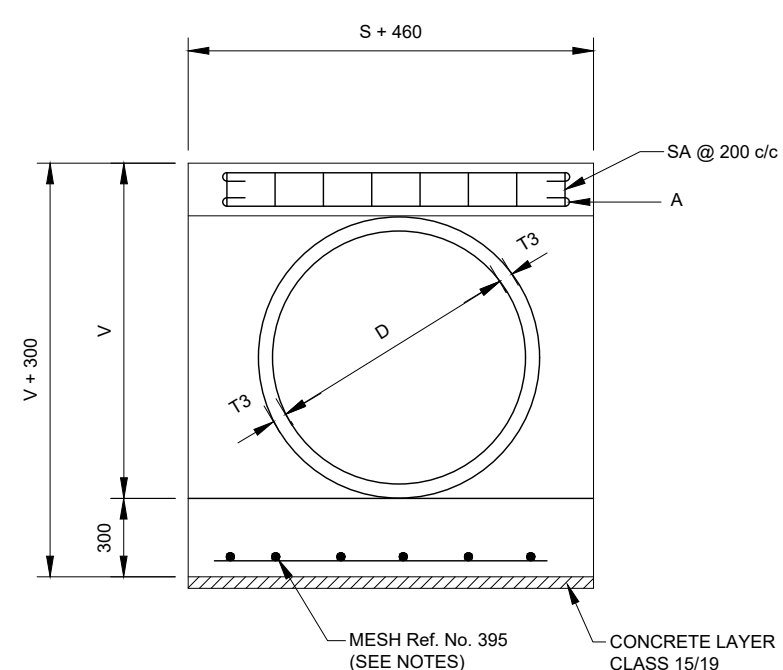
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SUITE 7 LIZA'S COURT, 28 VAN RENSBURG STREET, NELSPRUIT
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CITY OF MBOMBELA
THE METROPOLITAN MUNICIPALITY

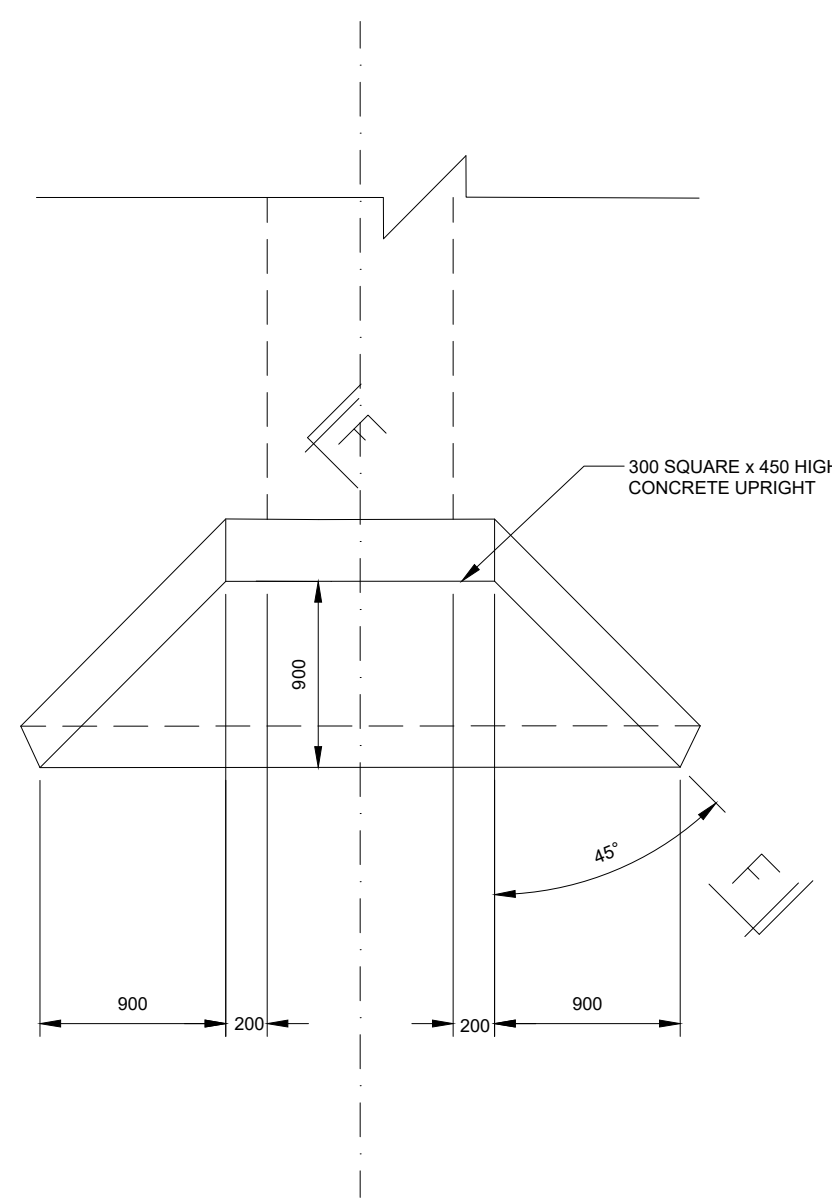
1 Nel Street
Mbombela
1201

City of Mbombela

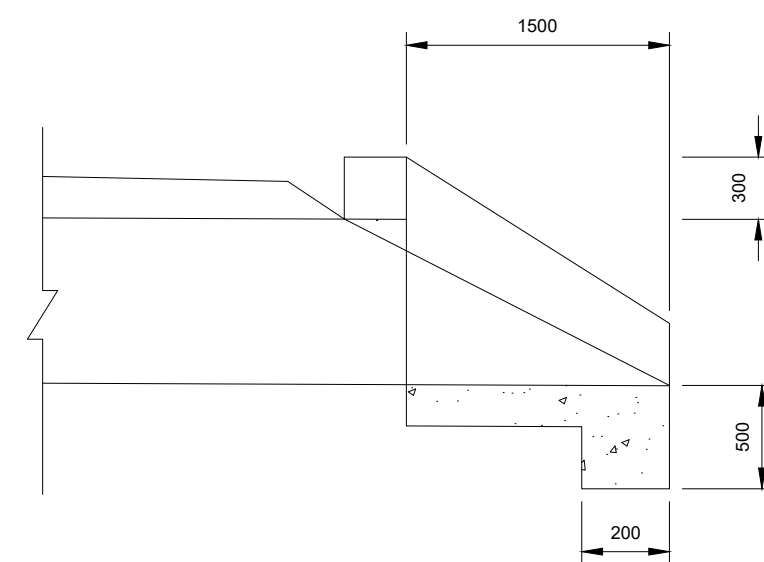
TEL: (013) 759 9111
FAX: (013) 759 2070
WEB: www.mbombela.gov.za



SECTION E - E



PLAN OF OUTLET AND OUTLET (NORMAL CULVETS)
SCALE 1 : 50



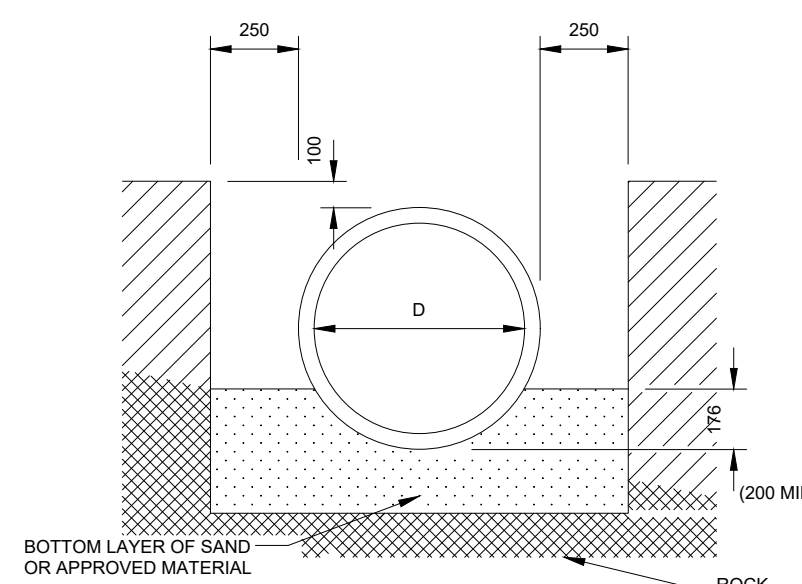
SECTION F-F
SCALE 1 : 50

NOTES

ALL SHARP CORNERS ON HEADWALLS, WINGWALLS
AND APRON SLAB TO BE FINISHED OFF WITH A
25x25 BEVEL

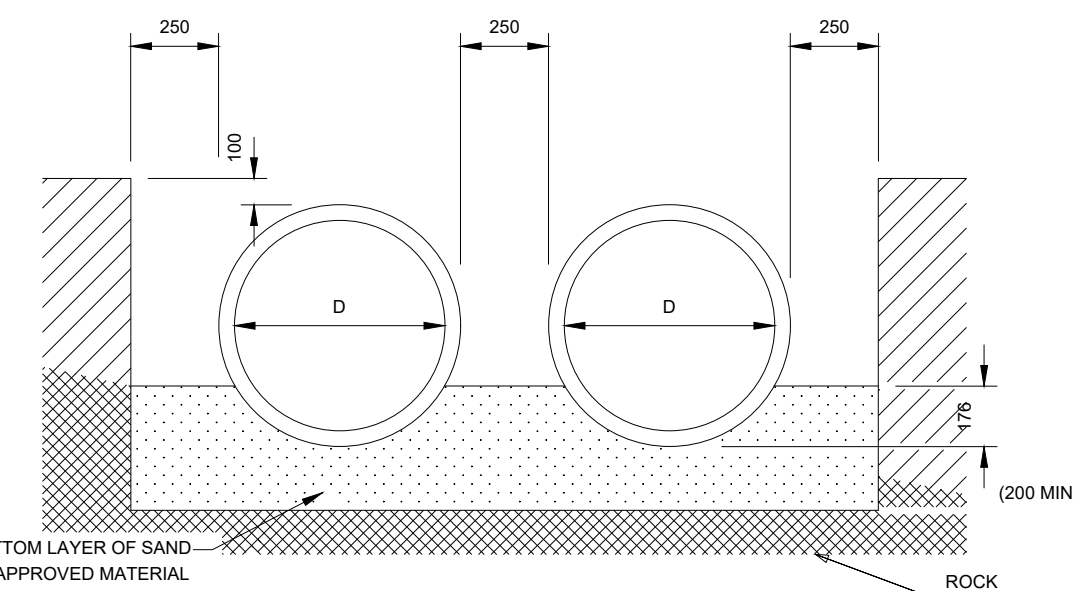
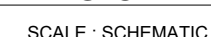
ALL DIMENSIONS AND LEVELS OF CULVERT TO BE
FINALISED BEFORE CONSTRUCTION MAY COMMENCE

NOTES : 1. SEE TYPE 1 & 2 DETAIL DRAWINGS FOR NOTE.(INFORMATION)
2. THIS TYPE OF HEADWALL IS ONLY APPLICABLE TO CULVERT INLET



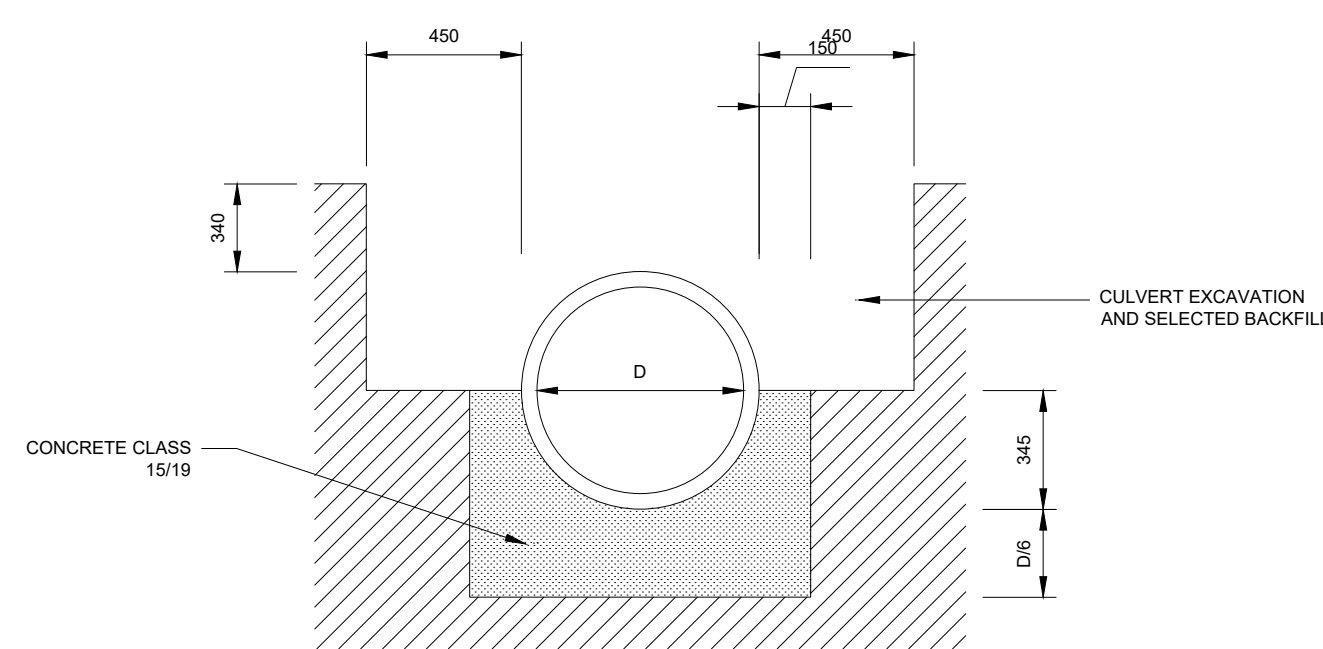
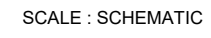
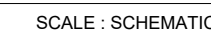
CLASS B BEDDING ON SOFT MATERIAL (SINGLE PIPE)

CLASS B BEDDING ON ROCK (SINGLE PIPE)



CLASS B BEDDING ON SOFT MATERIAL

CLASS B BEDDING ON ROCK



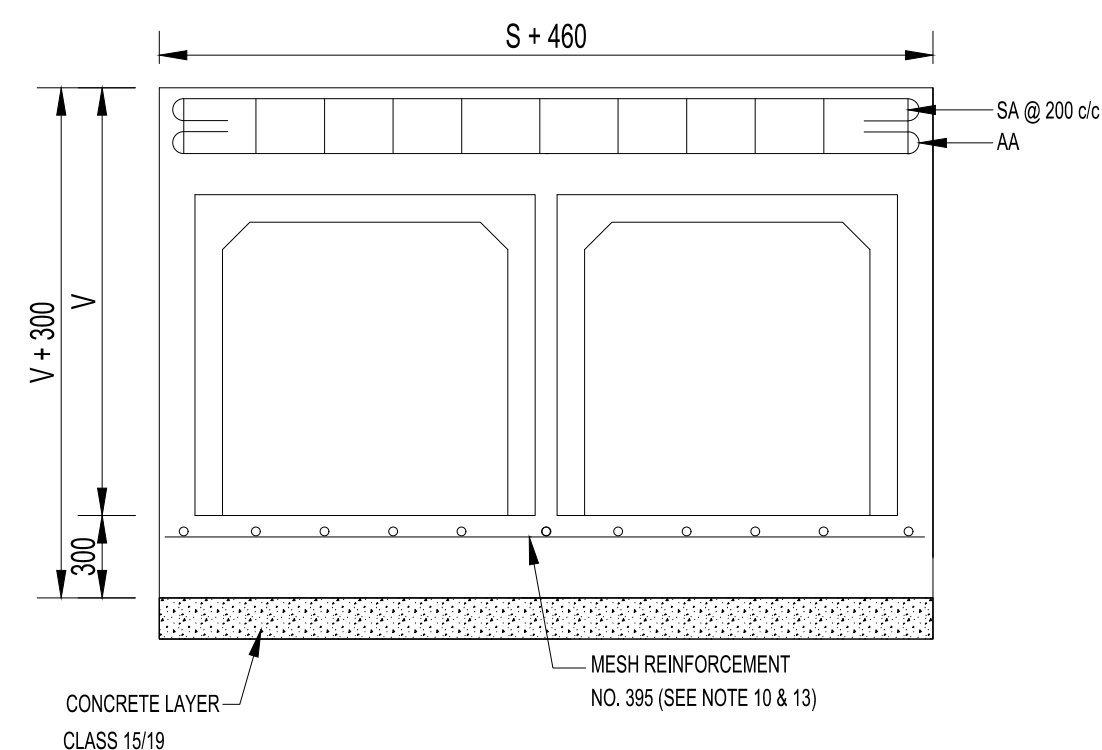
CLASS A BEDDING
SCALE 1:25

CLASS A BEDDING

SCALE 1:25

NOTES

- 1.01 ALL CONCRETE PIPE CULVERTS SHALL COMPLY WITH THE REQUIREMENTS OF S A B 677.
- 1.02 THE PIPE CLASS MUST BE DETERMINED FROM THE WEIGHT OF THE PRISM OF FILL ABOVE THE CULVERT PLUS THE SNAG LOADINGS IN ACCORDANCE WITH TMH 7 (TABLE 182) "CODE OF PRACTICE FOR THE DESIGN OF HIGHWAY BRIDGES AND CULVERTS IN SOUTH AFRICA" AND STUDIED IN THE DRAINAGE SCHEDULE.
- 1.03 THE MAXIMUM WHEEL LOAD ALLOWED ON THE PIPE IS 30KN WITH A MINIMUM FILL OF 150mm ON TOP OF THE PIPE FOR BOTH BEDDING CONDITIONS AND ALL PIPE DIAMETERS AS SHOWN.
- 1.04 ALL INFORMATION REGARDING A SPECIFIC PIPE CULVERT APPEARS ON THE DRAINAGE SCHEDULE OF THE ROAD.
- 1.05 CONCRETE BACKFILL CLASS 15/19.



SECTION E - E

SCALE 1:25

SECTION F - F
SCALE 1:25

City of Mbombela

| | |
|-------------|------------|
| PROJECT NO: | COM12/2023 |
|-------------|------------|

DRAWING TITLE :
STANDARD DETAILS
CULVERT DETAILS

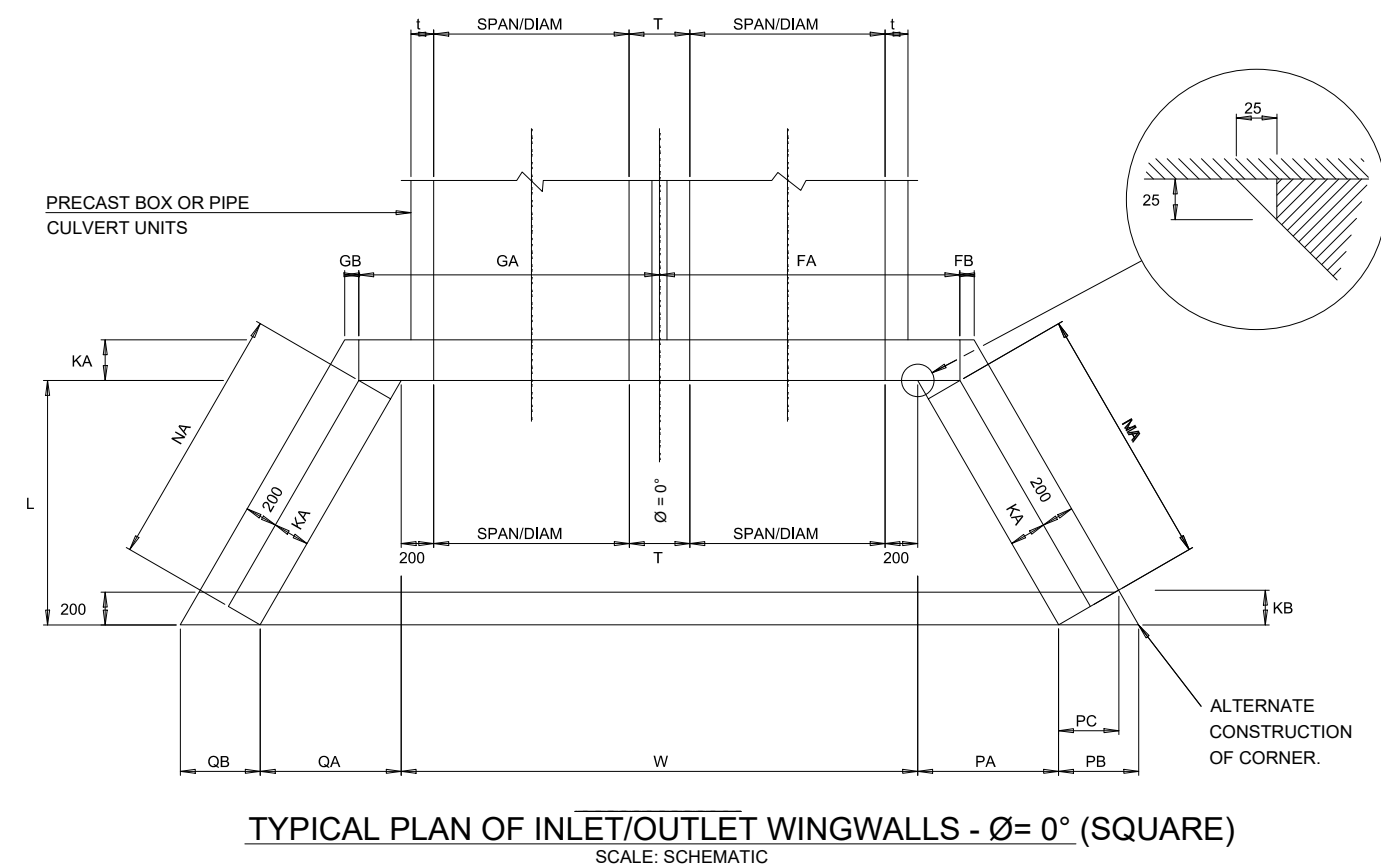
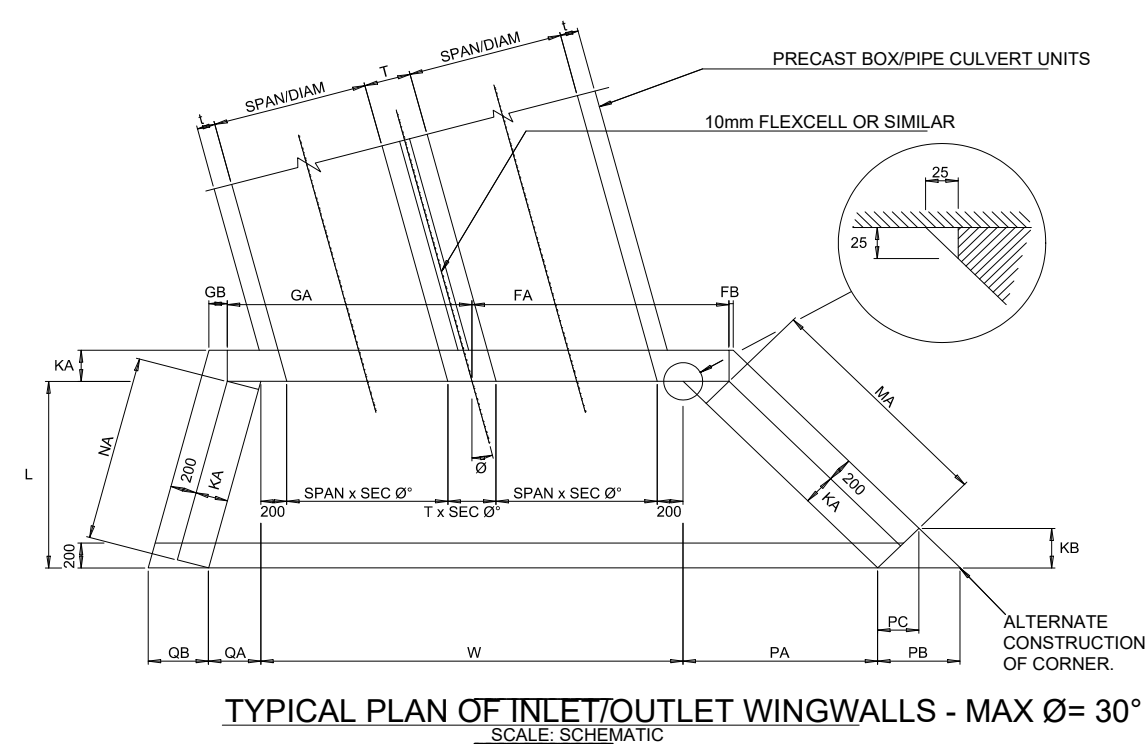
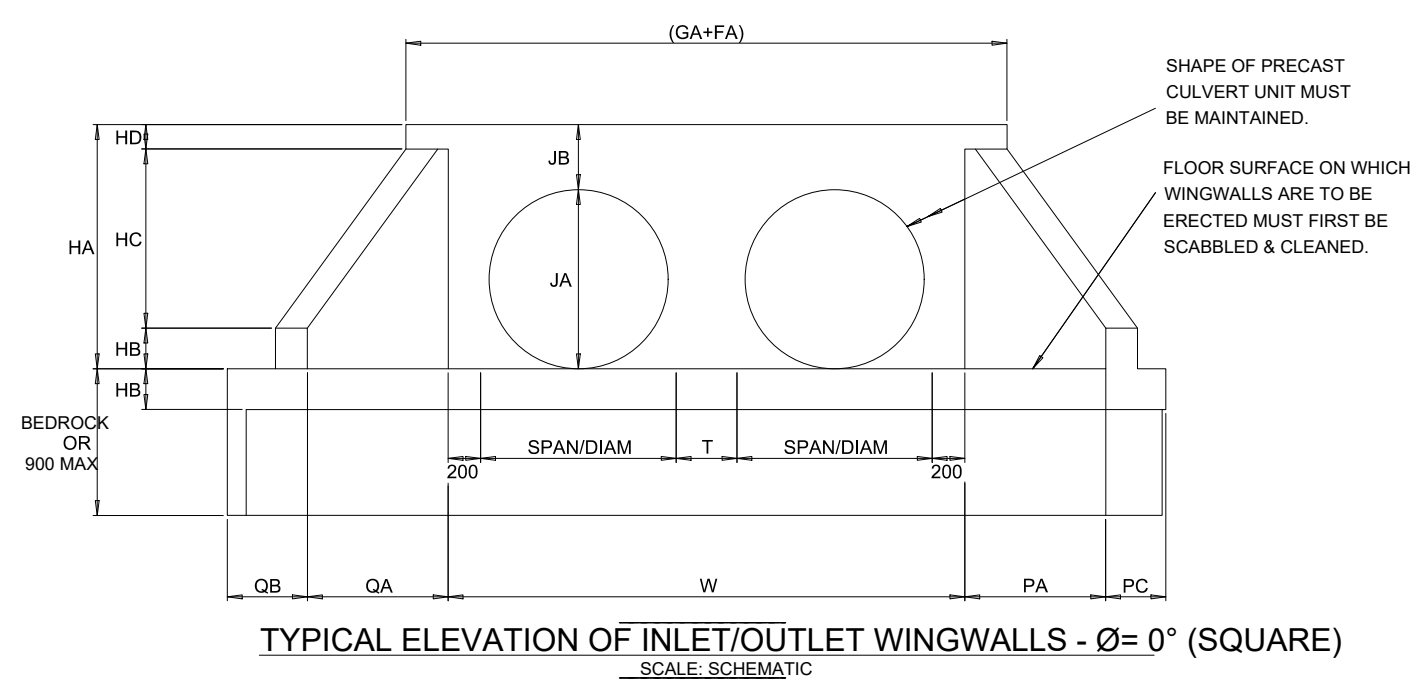
| | |
|------------------|---|
| PRELIMINARY | |
| TENDER PURPOSES | |
| FOR CONSTRUCTION | * |
| AS BUILT | |

| | |
|-------------|------------------|
| DESIGNED : | J.T. |
| DRAWN : | J.T. |
| SCALE : | N. T. S. |
| DATE : | 23 DECEMBER 2022 |
| CHECKED : | J.T. |
| APPROVED : | J.T.M. |
| SIGNATURE : | |

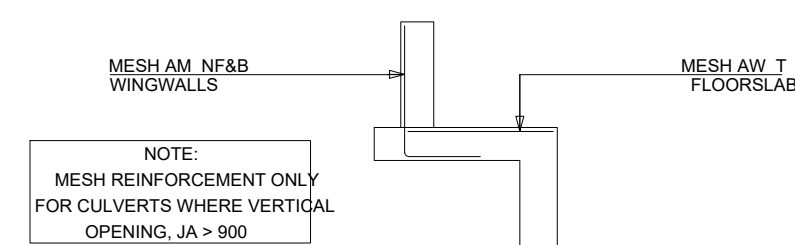
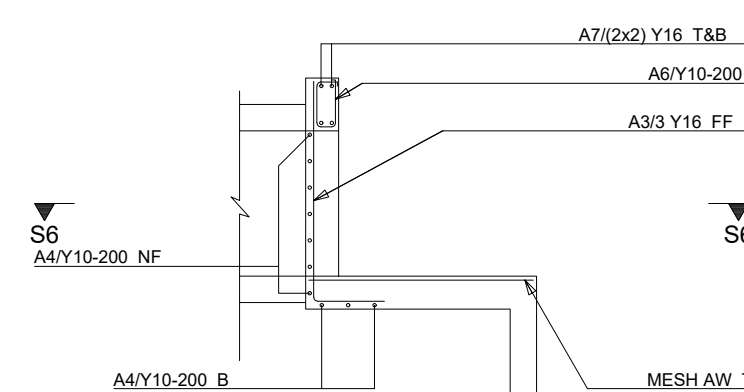
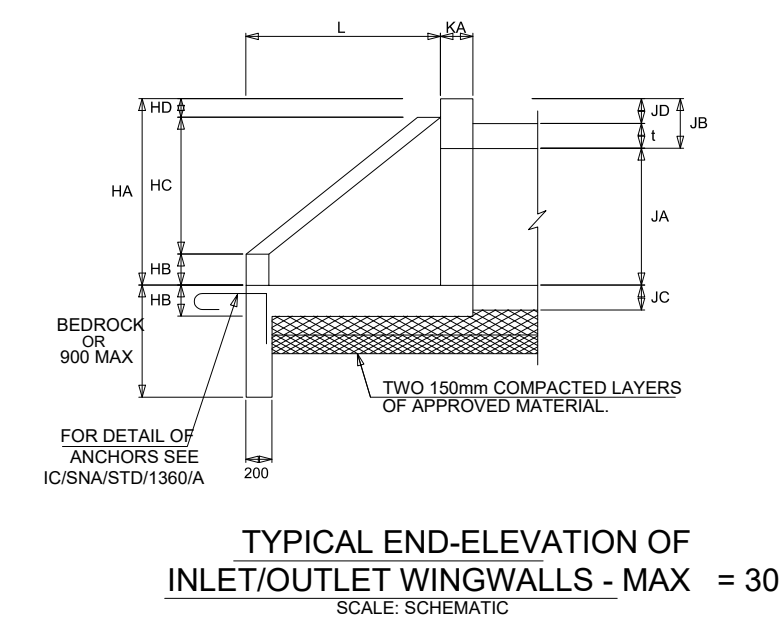
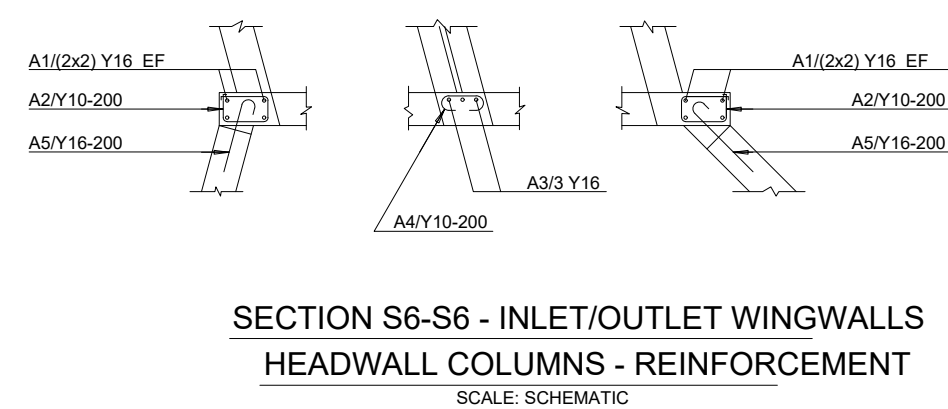
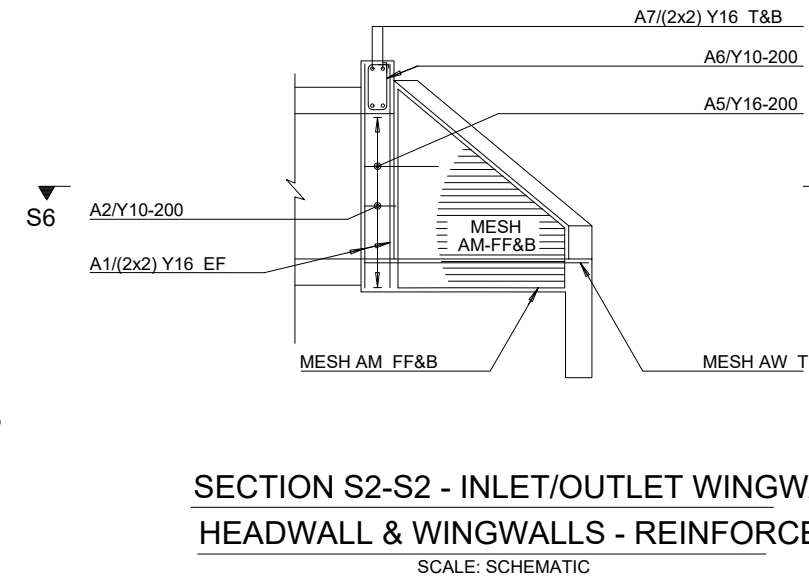
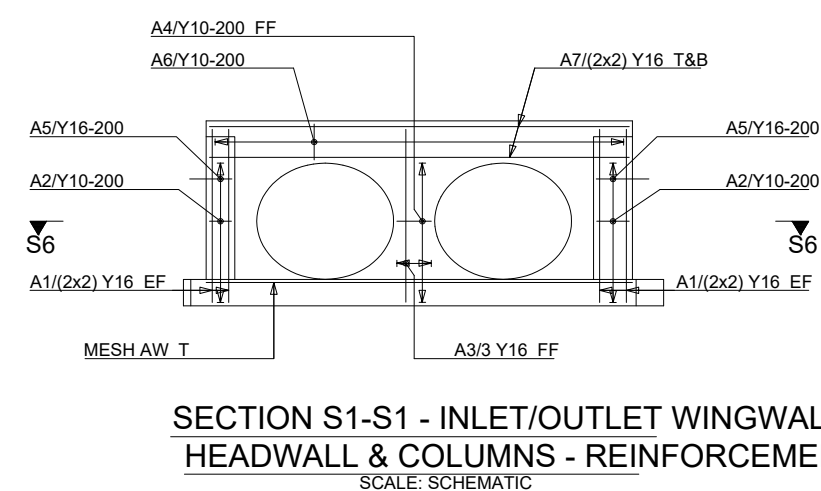
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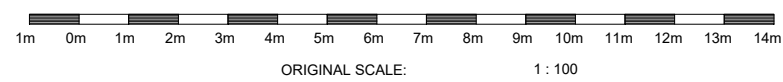
| CULVERT DESCRIPTION | WINGWALL REFERENCE NUMBER | INLET/OUTLET WINGWALLS REINFORCEMENT | | INLET/OUTLET WINGWALLS MESH REINFORCEMENT | | | |
|---------------------|---------------------------|--------------------------------------|-----------------|---|------|---|--|
| | | CONCRETE DIMENSIONS | TYPE | MESH AN | TYPE | | |
| | | | BARRELS | | | | |
| | | | SPAN/DIA | | | | |
| | | | HEIGHT | | | | |
| | | | PIPE/ABED CLASS | | | | |
| | | | SKEW ANGLE | | | | |
| | | | FA | | | | |
| | | | FB | | | | |
| | | | GA | | | | |
| | | | GB | | | | |
| | | | HA | | | | |
| | | | HB | | | | |
| | | | HC | | | | |
| | | | HD | | | | |
| | | | JA | | | | |
| | | | JB | | | | |
| | | | JC | | | | |
| | | | JD | | | | |
| | | | KA | | | | |
| | | | KB | | | | |
| | | | | | | L | |
| MA | | | | | | | |
| NA | | | | | | | |
| PA | | | | | | | |
| PB | | | | | | | |
| PC | | | | | | | |
| QA | | | | | | | |
| QB | | | | | | | |
| R | | | | | | | |
| T | | | | | | | |
| t | | | | | | | |
| W | | | | | | | |
| A1 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A2 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A3 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A4 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A5 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A6 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A7 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A8 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
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| A9 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A10 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
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| A11 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A12 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A13 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A14 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A15 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A16 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A17 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A18 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A19 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A20 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A21 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A22 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A23 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A24 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A25 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A26 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A27 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A28 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A29 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A30 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A31 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A32 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A33 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A34 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A35 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A36 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A37 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A38 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A39 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A40 | | | | | | | |
| BAR DIA | | | | | | | |
| QUANTITY | | | | | | | |
| aa | | | | | | | |
| A41 | | | | | | | |
| CUT LENGTH | | | | | | | |
| ab | | | | | | | |
| A42 | | | | | | | |
| BAR DIA | | | | | | | |
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NOTES FOR INLET/OUTLET WINGWALLS

- 1 DESIGN CRITERIA
- 1.01 THE WINGWALLS ARE DESIGNED AS CANTILEVERS FIXED TO THE BASE AND SUPPORTED BY THE HEADWALL.
- 1.02 THE WINGWALLS ARE DESIGNED FOR A SURCHARGE OF 750 mm AND A MAXIMUM SLOPE OF 1:1.16 FOR AN 80% HEIGHT.
- 1.03 THE DENSITY OF SOIL = 20 kN/m³
- 1.04 SOIL PRESSURES DETERMINED USING RANKINE'S THEORY.
- 1.05 CONCRETE:
- WINGWALLS INSITU BARREL
- | CHARACTERISTIC STRENGTH (MPa) | 30 | 30 |
|-------------------------------|---------|-------|
| CLASS CONCRETE | > 30/19 | 30/19 |
- 1.06 REINFORCEMENT ACCORDING TO SABS 502 - LATEST REVISION.
- CHARACTERISTIC STRENGTH OF HIGH TENSILE STEEL = 450 MPa
- CHARACTERISTIC STRENGTH OF HIGH TENSILE STEEL MES = 450 MPa
- 1.07 A LINEAR SOIL PRESSURE DISTRIBUTION IS ASSUMED.

- 2.01 GENERAL
- 2.02 THE REQUIRED CLASS OF SURFACE FINISH IS F2 FOR ALL VISIBLE SURFACES.
- 2.03 ALL VISIBLE CORNERS MUST HAVE A 25 x 25 mm CHAMFER.
- 2.04 TWO 150 mm LAYERS OF APPROVED MATERIAL, COMPACTED TO 93% MODIFIED A.A.S.H.T.O. DENSITY, ARE REQUIRED UNDER THE INLETS AND OUTLETS.
- 2.05 MINIMUM CONCRETE COVER TO REINFORCEMENT IS 40 mm.
- 2.06 FURTHER INFORMATION REGARDING SPECIFIC CULVERTS APPEAR ON THE DRAINAGE SCHEDULES OF THE ROAD.
- 2.07 THE INLET AND OUTLET UNITS ARE DESIGNED TO ACT AS INDEPENDENT UNITS WHEN USED TOGETHER WITH PIPES.
- 2.08 THE HEADWALLS MUST BE ALIGNED PARALLEL TO THE ROAD SHOULDER.



PROJECT NO: COM12/2023

DRAWING TITLE :
STANDARD DETAILS
INLET AND OUTLET WING WALLS

REVISIONS

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TENDER PURPOSES

FOR CONSTRUCTION

AS BUILT

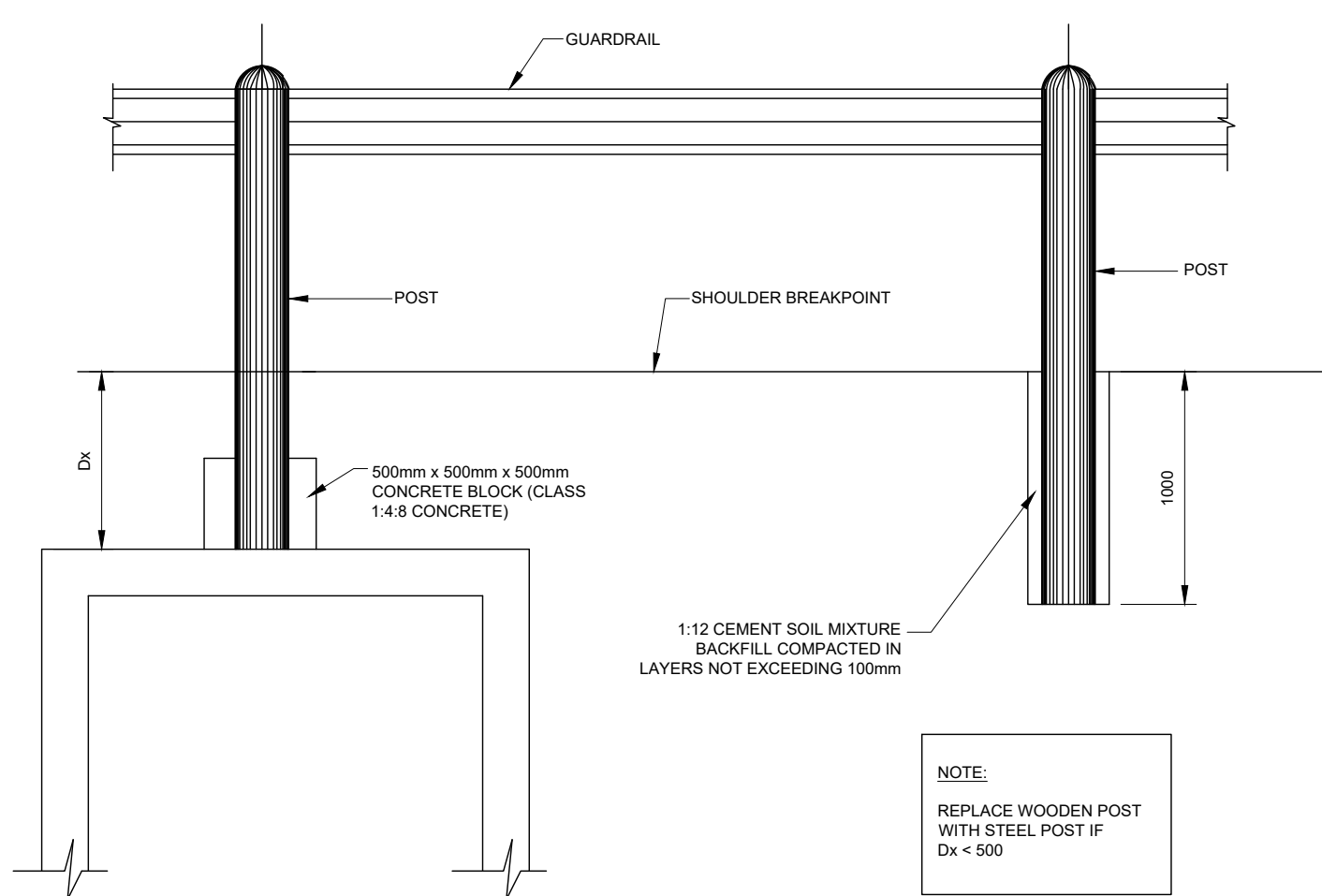
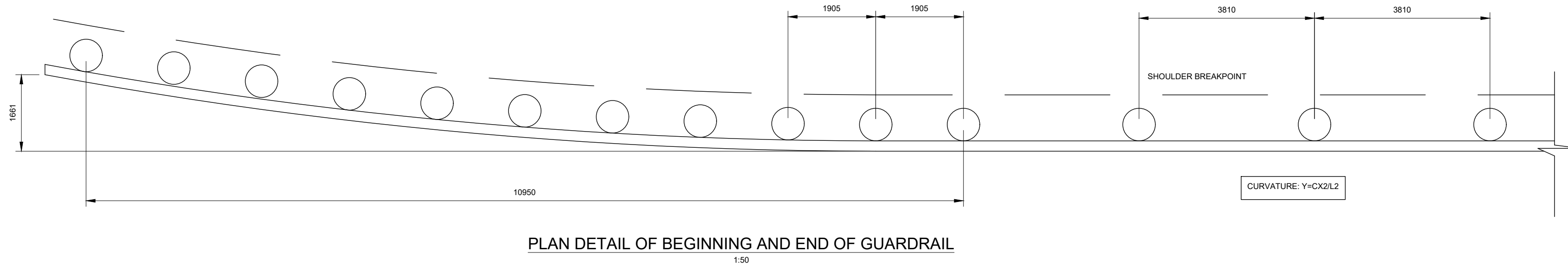
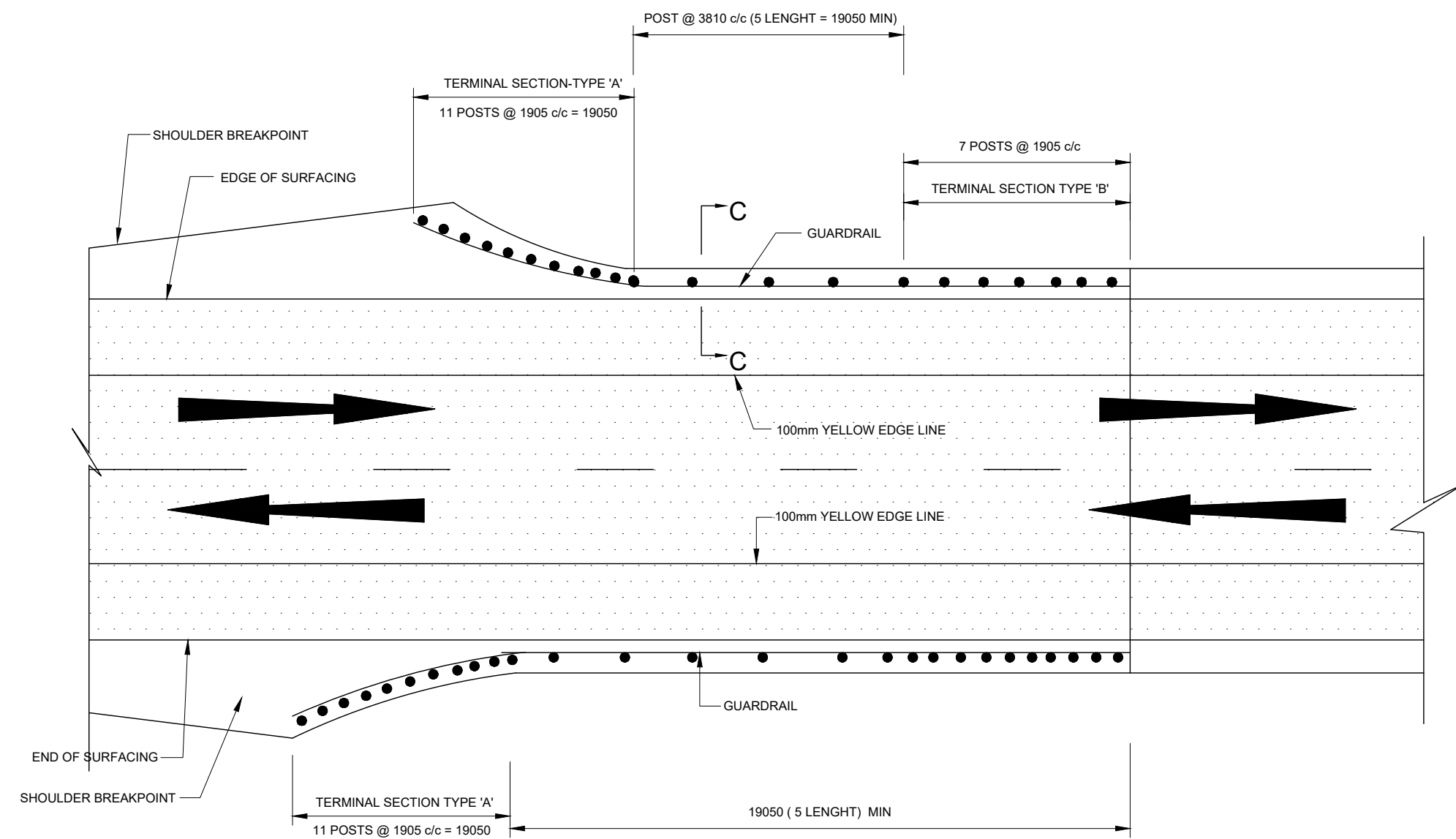
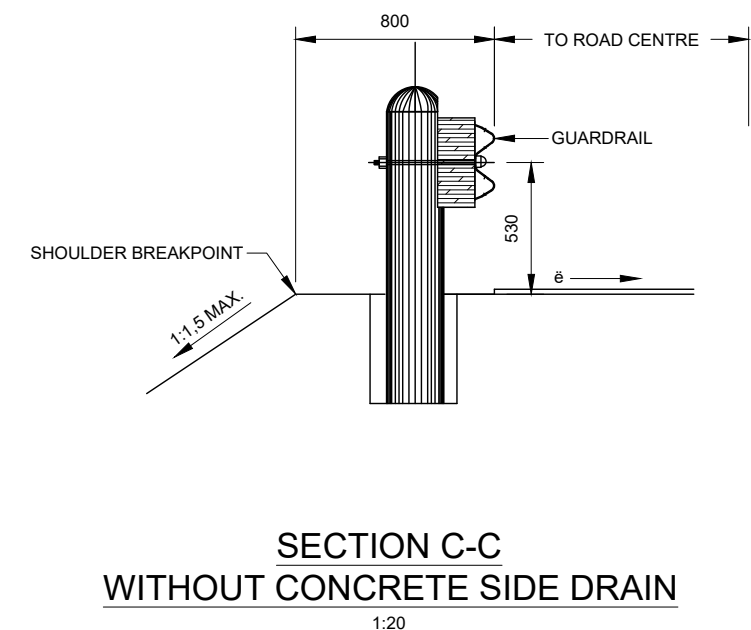
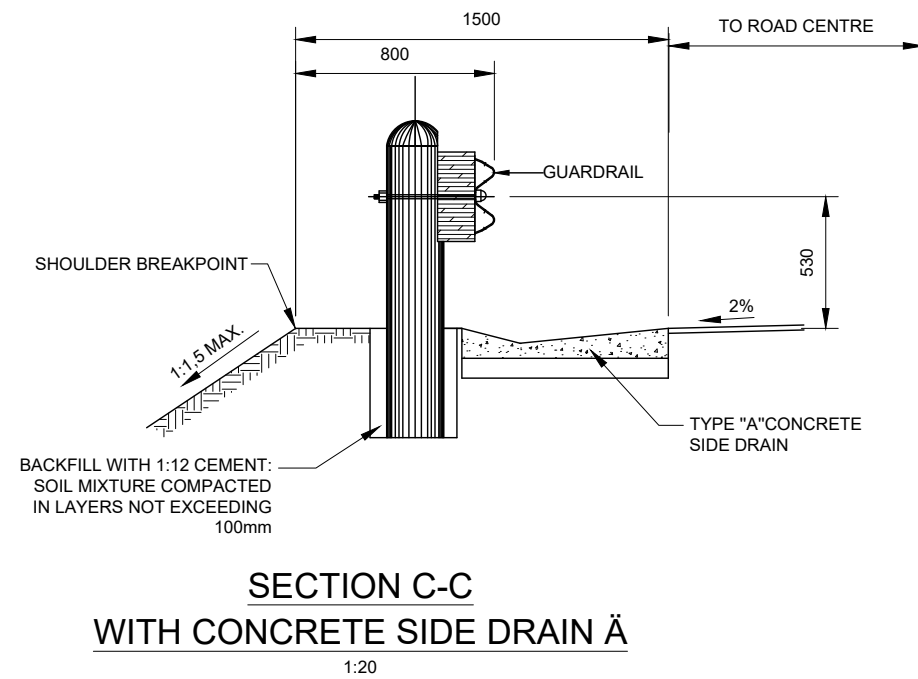
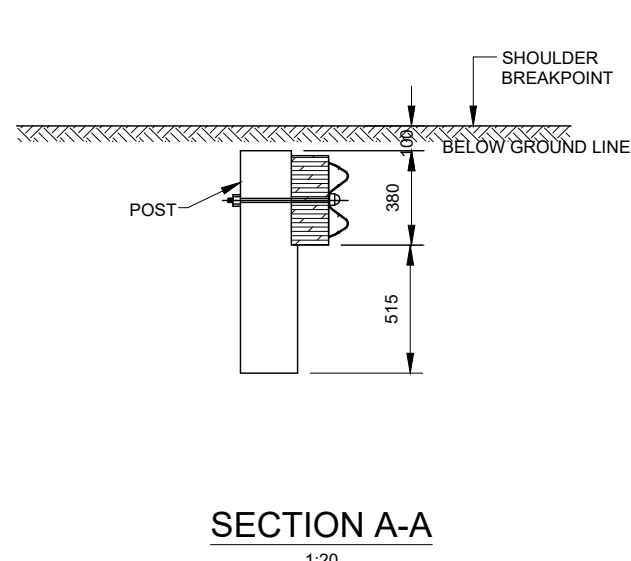
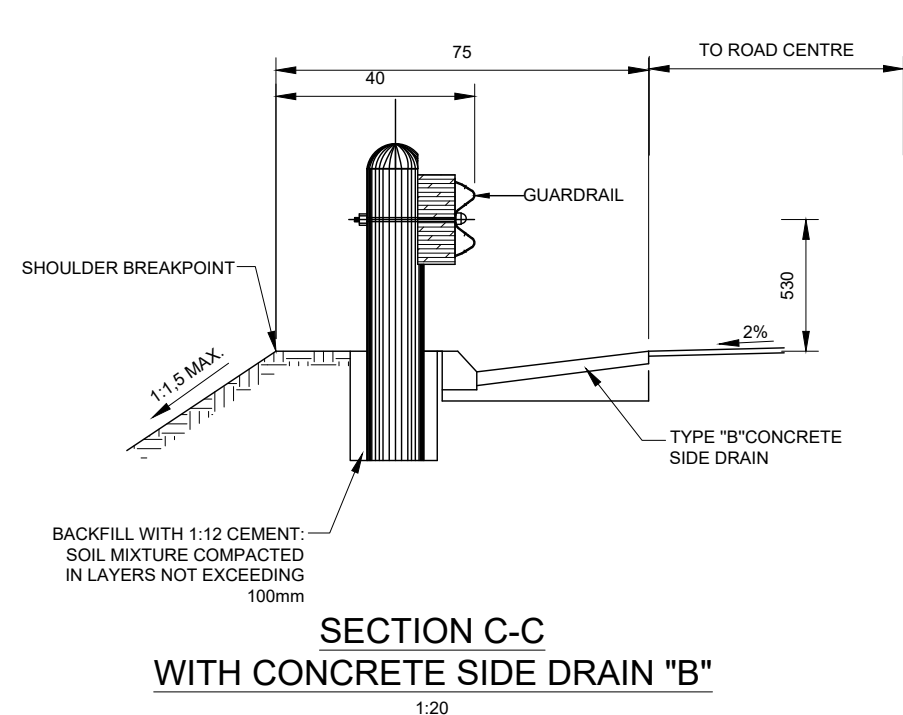
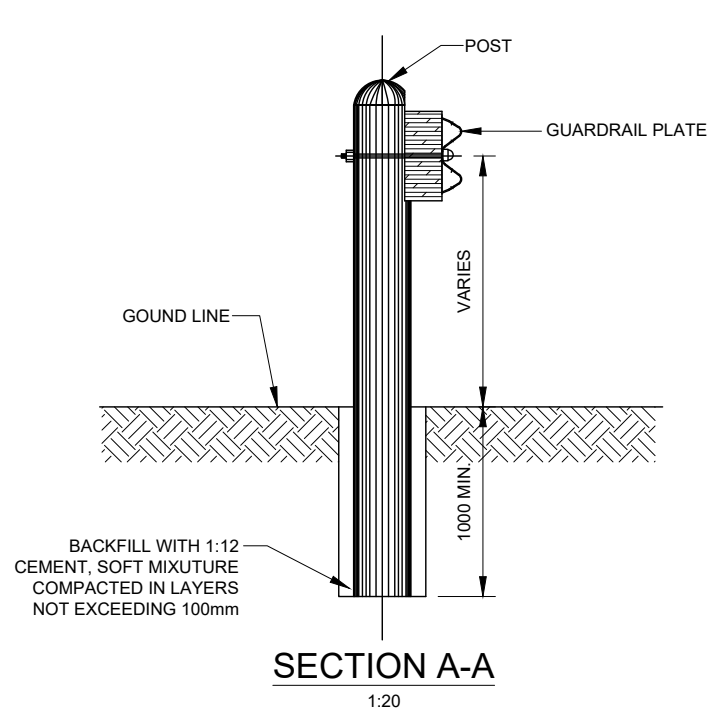
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PROFESSIONAL SERVICE :
CIVIL ENGINEERING

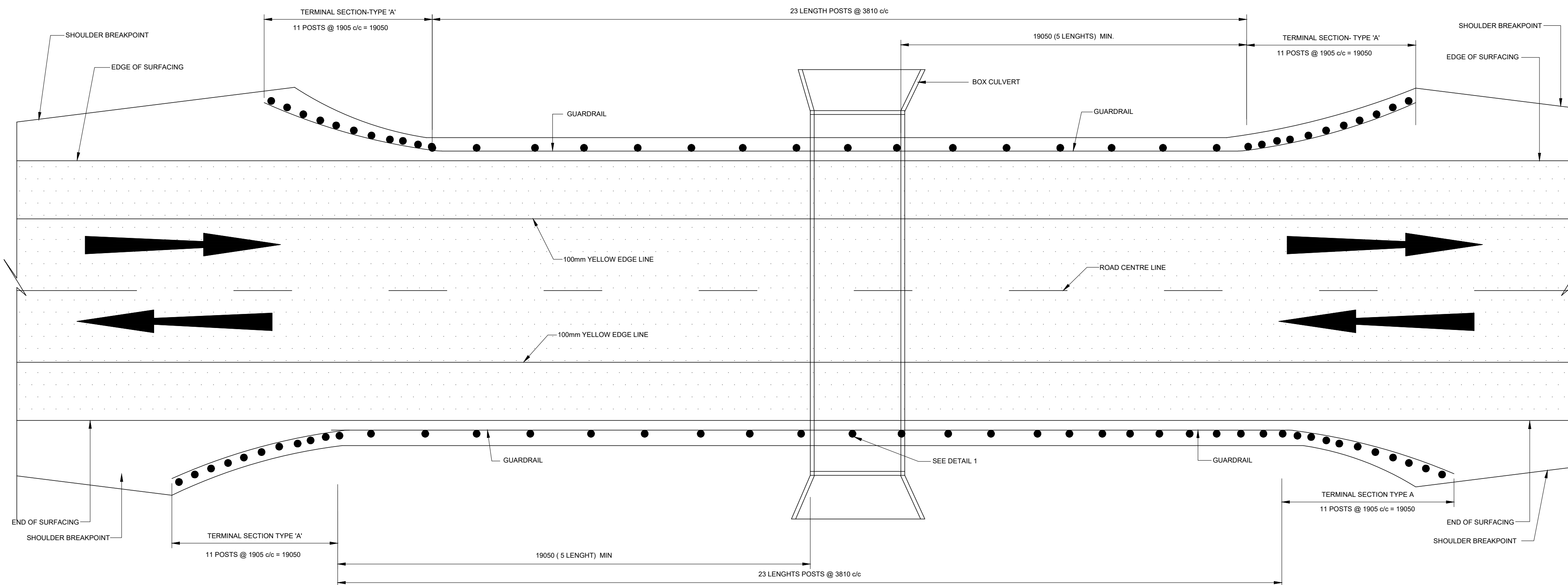
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| TABLE: I | | |
|---|--|---|
| PLACING OF POLES AT PARABOLIC TERMINAL SECTIONS | | |
| | HORIZONTAL OFF-SETS FOR PARABOLIC TERMINAL SECTIONS Y (mm) | VERTICAL OFF-SETS FOR PARABOLIC TERMINAL SECTIONS (MEASURED TOP OF POST) X (mm) |
| a | 60 | 0 |
| b | 70 | 33 |
| c | 80 | 133 |
| d | 90 | 299 |
| e | 100 | 531 |
| f | 110 | 635 |



DETAIL 1



PLACING DETAILS AT BOX CULVERTS
N.T.S.



1 Nel Street
Mbombela
1201

City of Mbombela

PROJECT :
CONSTRUCTION OF BARCELONA ROAD
WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
STANDARD DETAILS
GUARDRAIL DETAILS

REVISIONS

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PRELIMINARY
TENDER PURPOSES
FOR CONSTRUCTION
AS BUILT

DESIGNED : J.T.
DRAWN : J.T.
SCALE : N. T. S.
DATE : 23 DECEMBER 2022
CHECKED : J.T.
APPROVED : J.T.M.
SIGNATURE :

PROFESSIONAL SERVICE :
CIVIL ENGINEERING

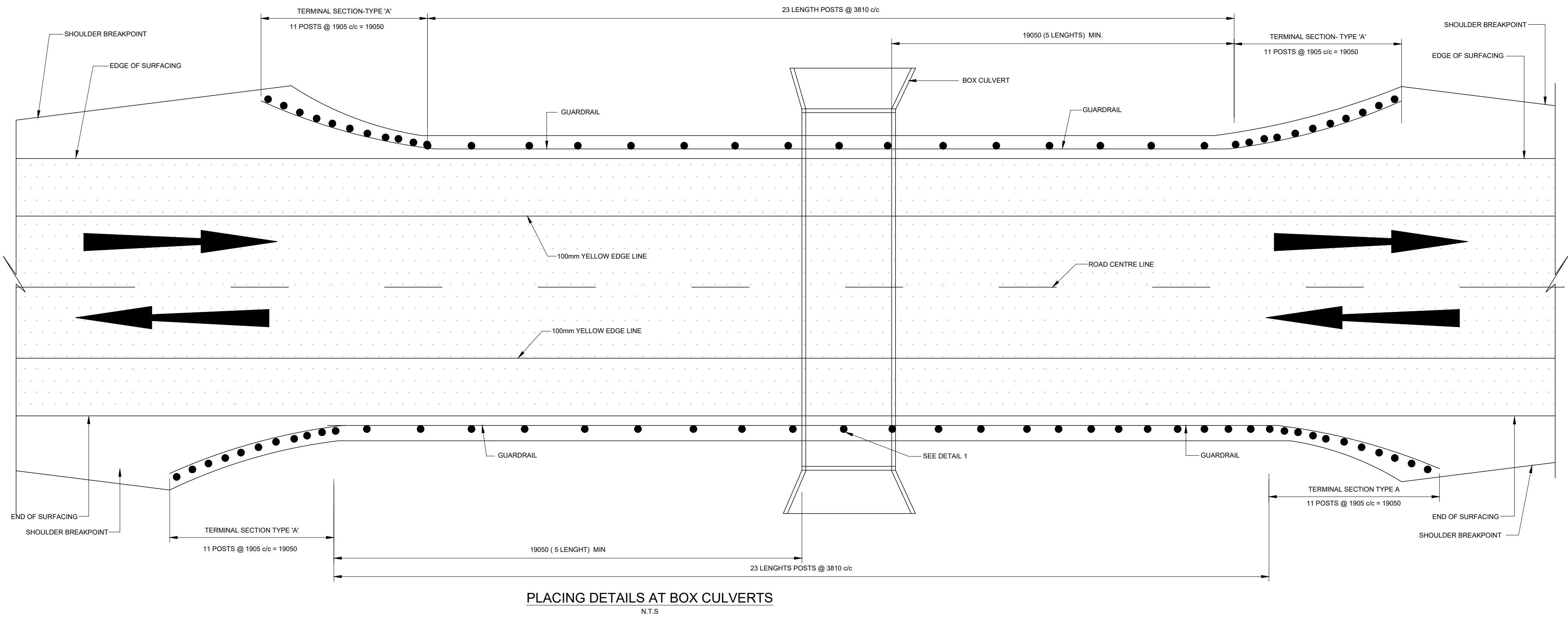
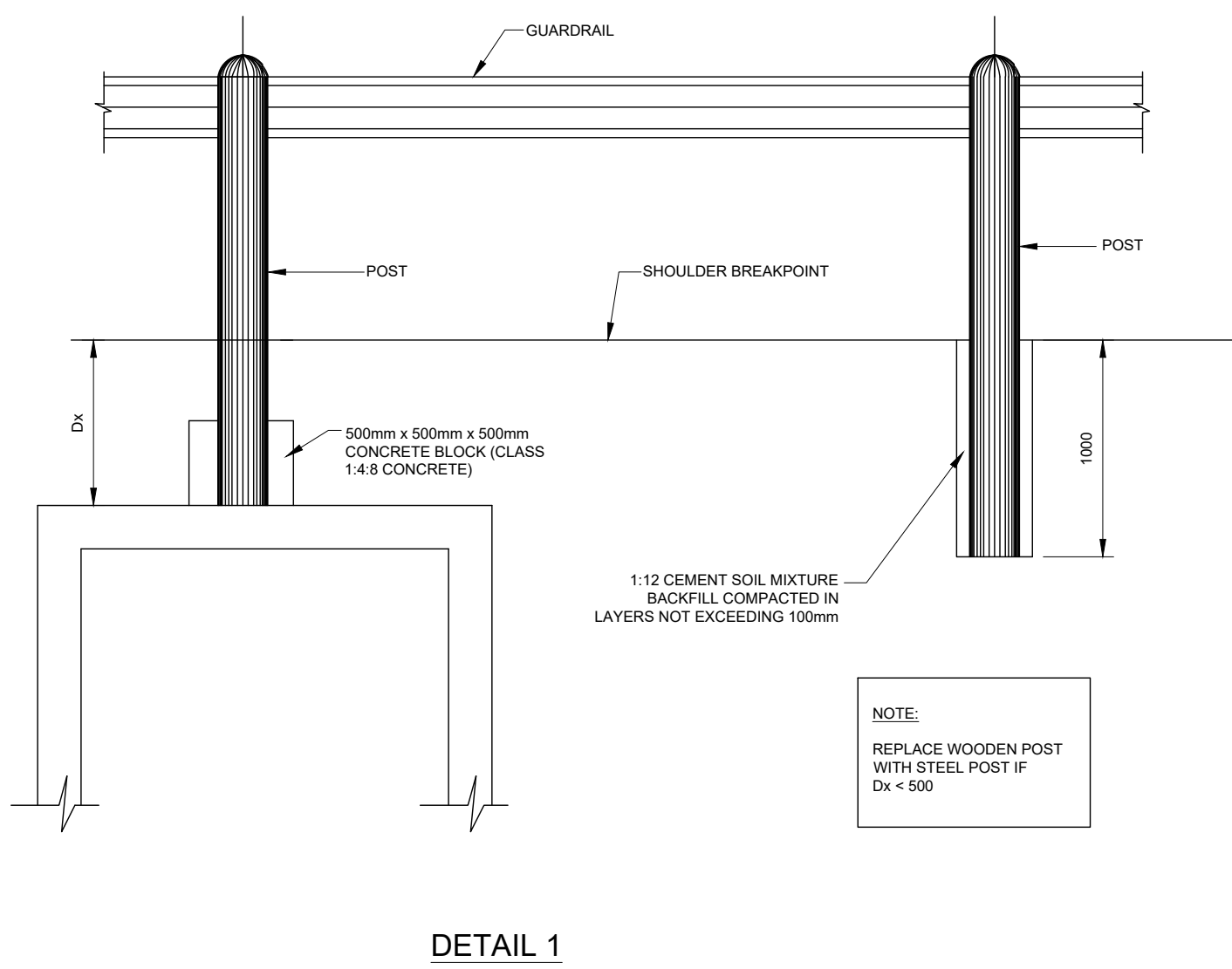
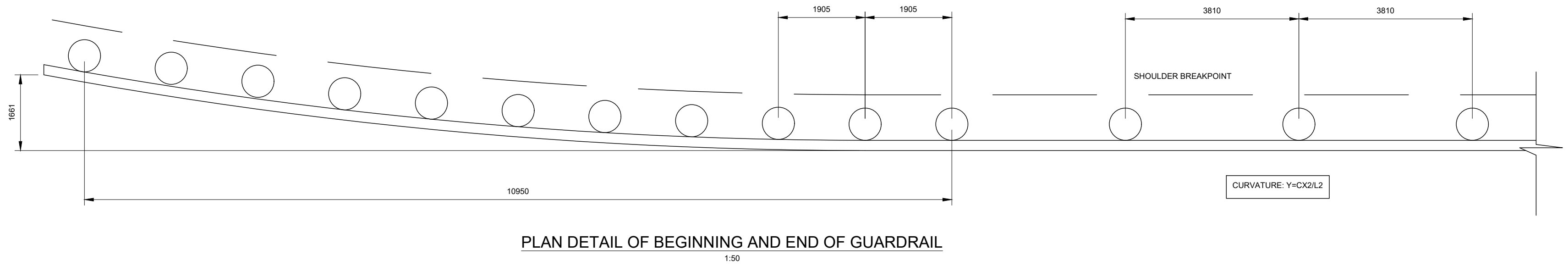
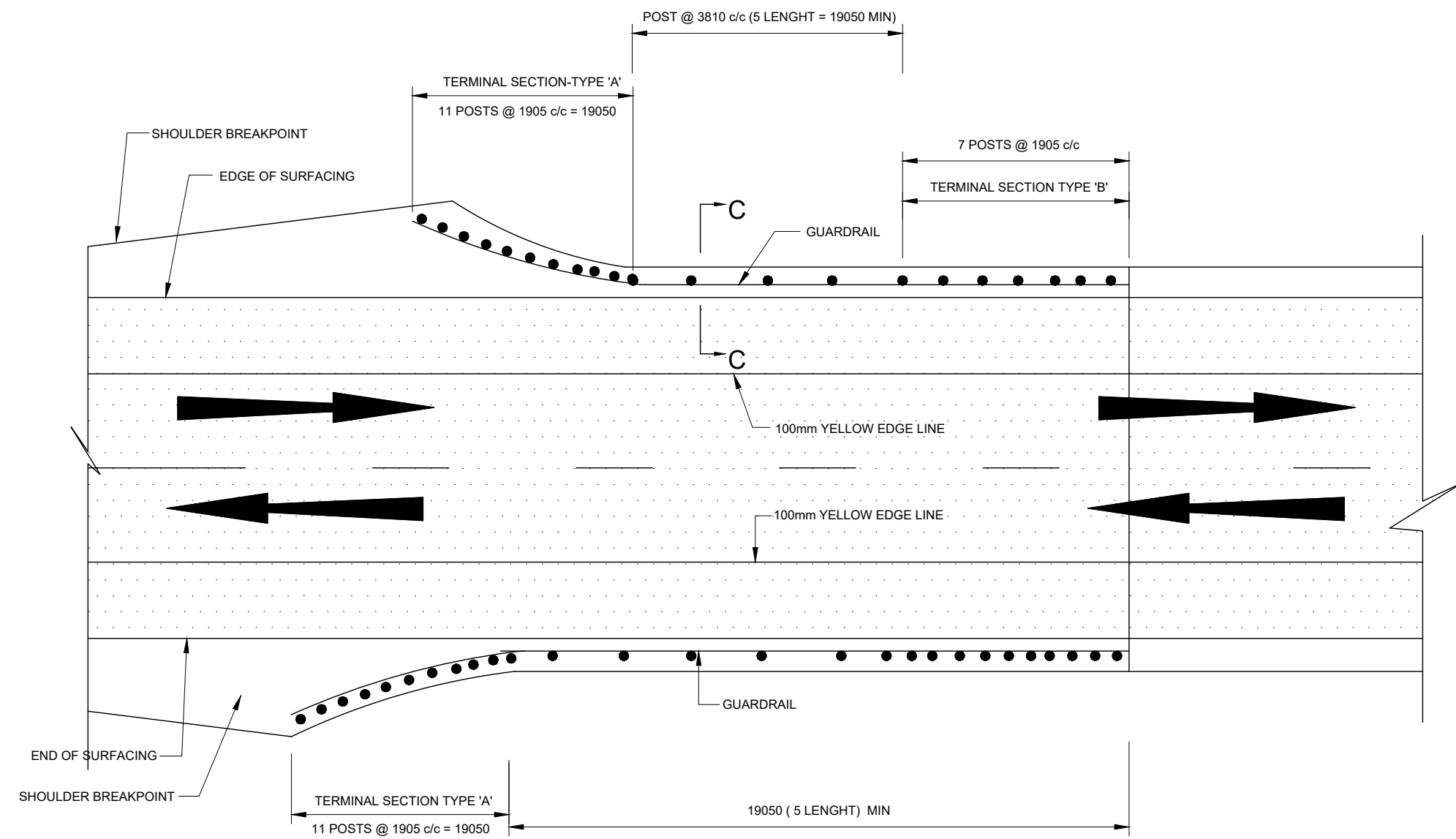
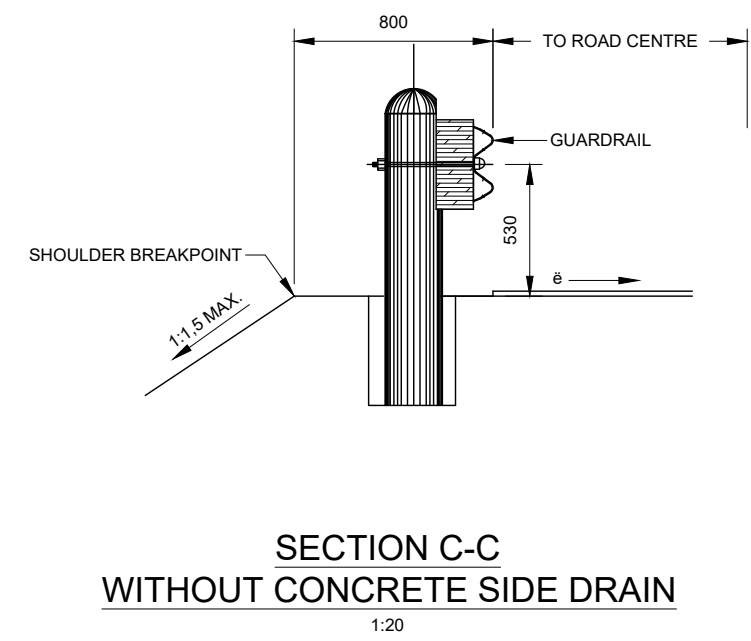
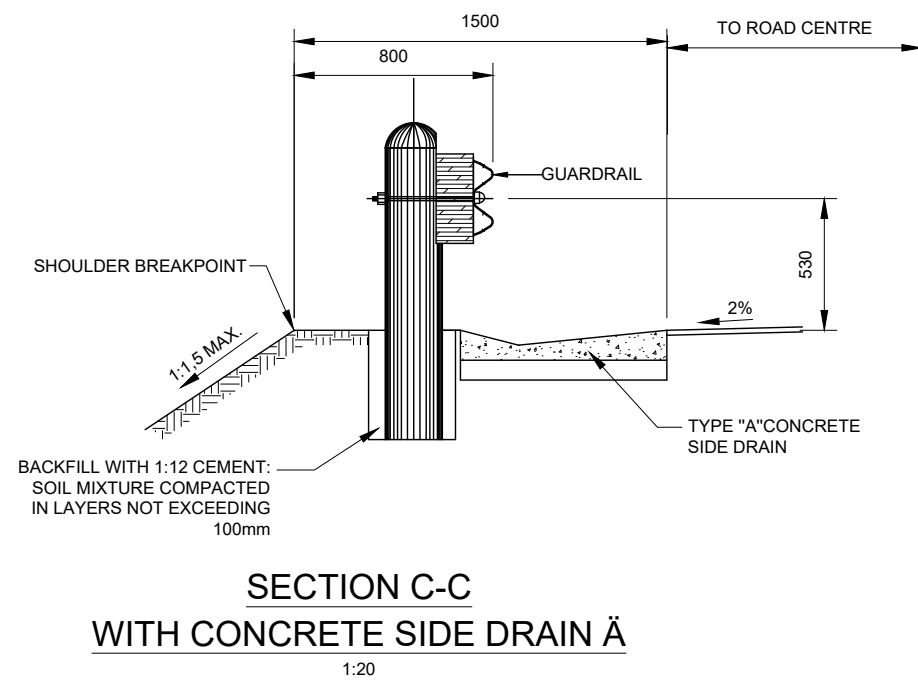
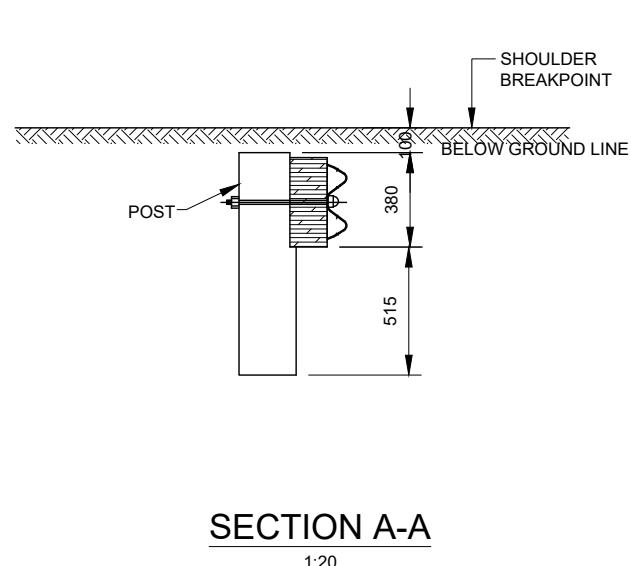
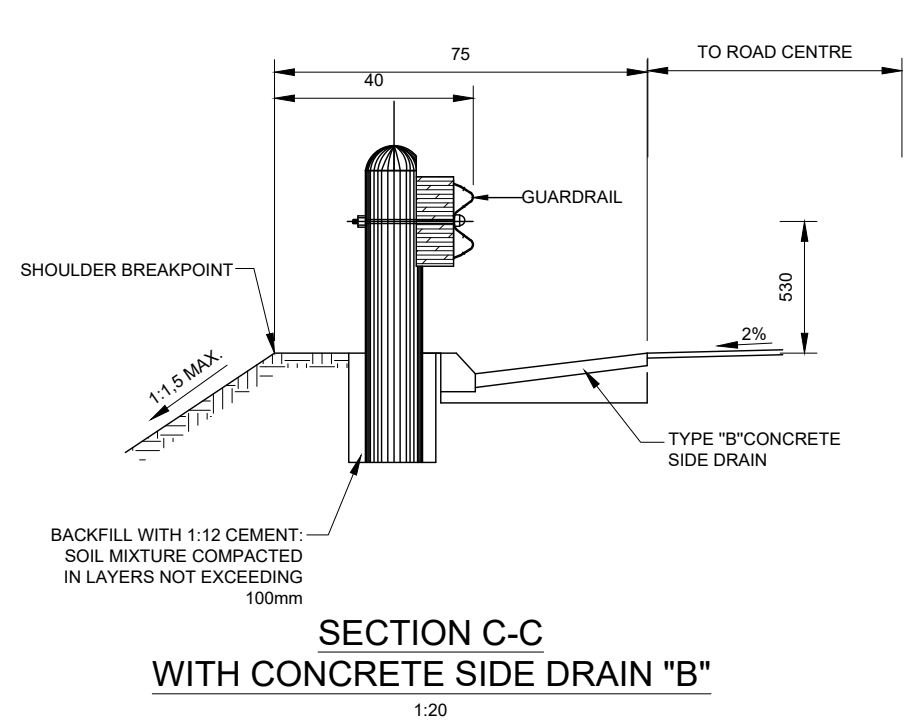
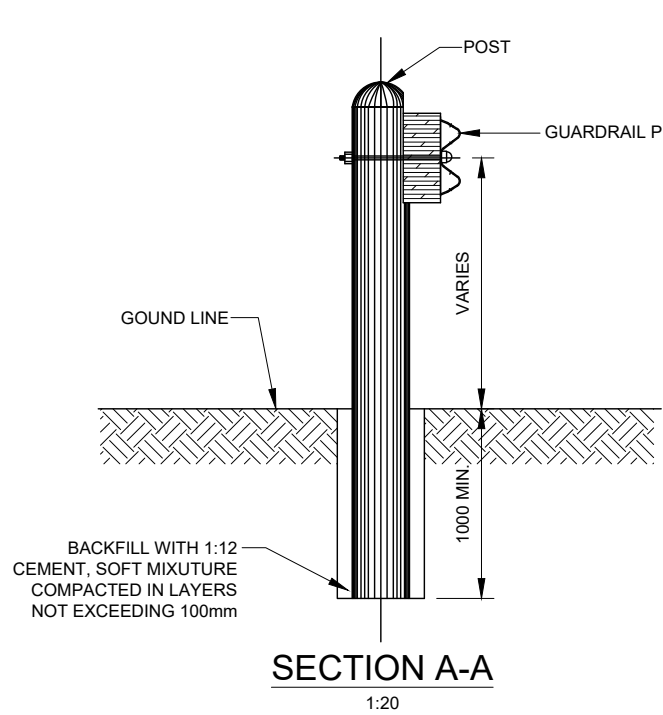
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P.O. BOX 569, SONPARK, 1206 TEL: (013) 763 2998

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| a | 60 | 0 |
| b | 70 | 33 |
| c | 80 | 133 |
| d | 90 | 299 |
| e | 100 | 531 |
| f | 110 | 635 |



PLACING DETAILS AT BOX CULVERTS

N.T.S.



1 Nel Street
Mbombela
1201

City of Mbombela

PROJECT :
CONSTRUCTION OF BARCELONA ROAD
WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
STANDARD DETAILS
GUARDRAIL DETAILS

REVISIONS

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PRELIMINARY
TENDER PURPOSES
FOR CONSTRUCTION
AS BUILT

DESIGNED : J.T.
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DATE : 23 DECEMBER 2022
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PROFESSIONAL SERVICE :
CIVIL ENGINEERING

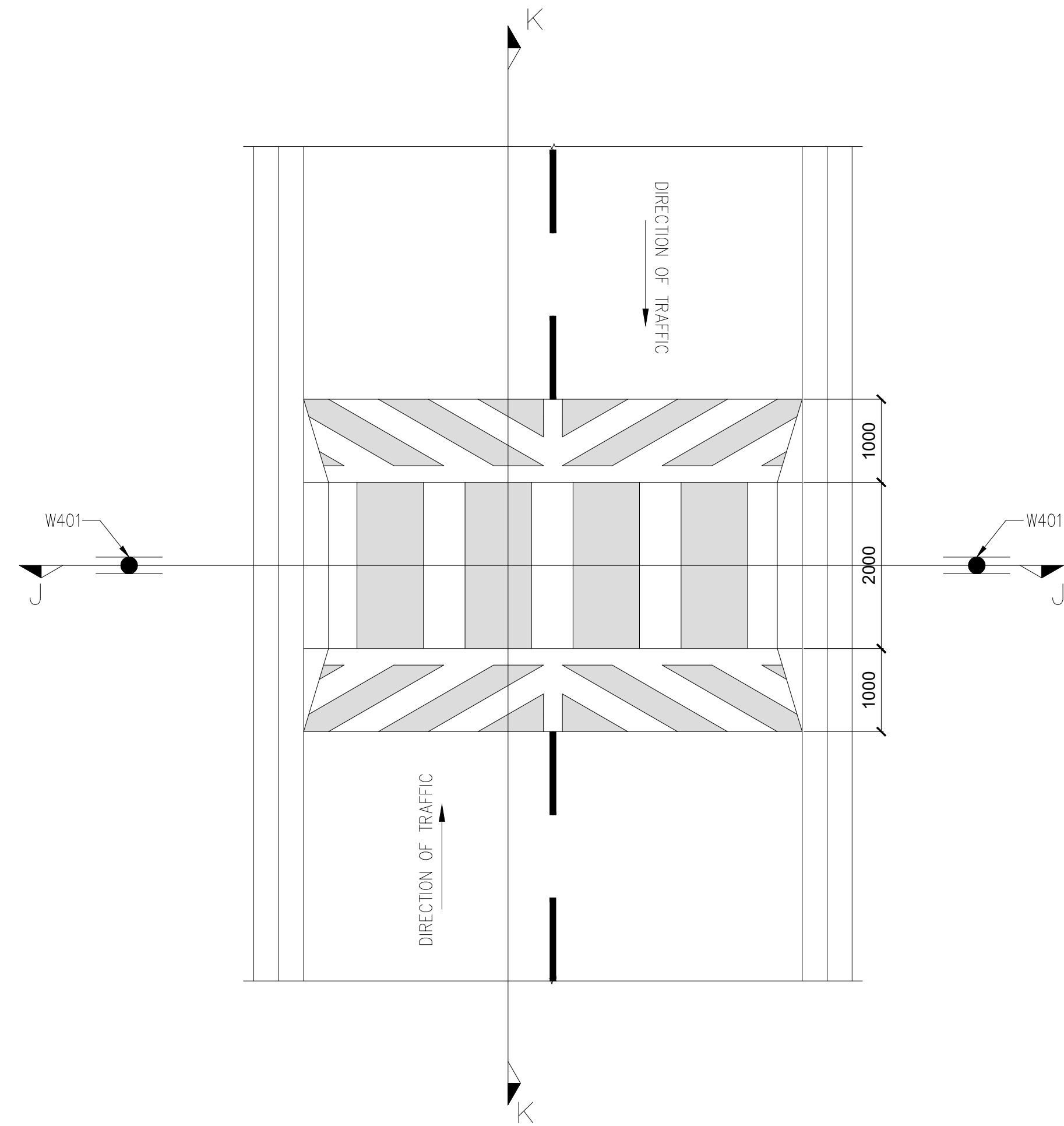
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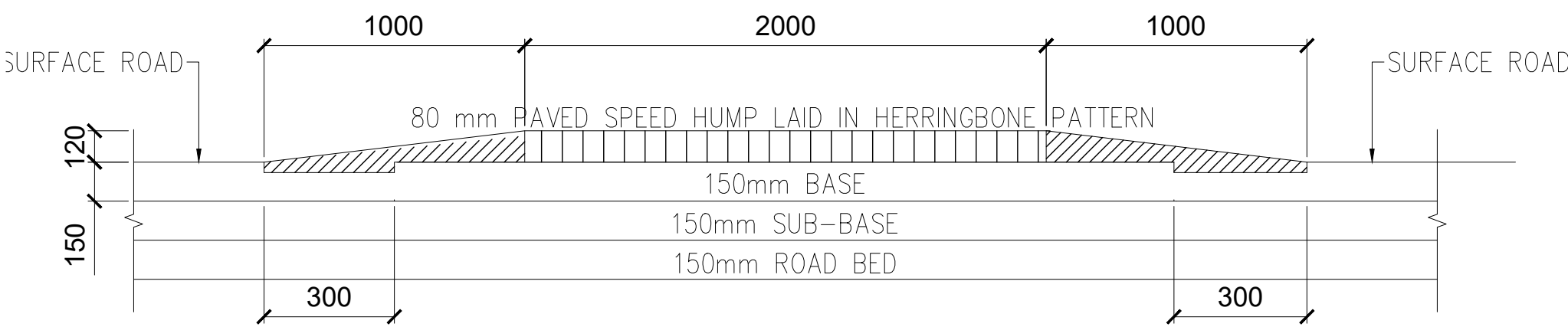


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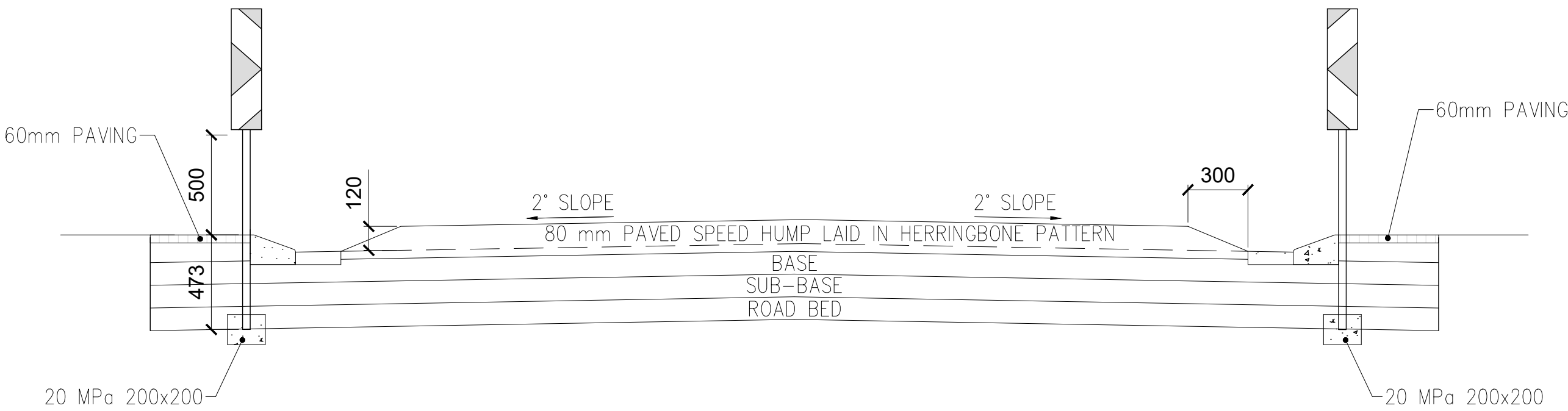
NOTES :
REFER TO NOTES DRAWINGS, DRAWING NUMBERS, SG001, SG002, AND SG003



SPEED HUMPS PLAN VIEW
SCALE: N.T.S



SECTION KK SPEED HUMPS
SCALE: N.T.S



SECTION JJ SPEED HUMPS
SCALE: N.T.S

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| DATE REVISIONS | | |

CITY OF MBOMBELA
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City of Mbombela

PROJECT :
CONSTRUCTION OF BARCELONA
ROAD WARD 33

PROJECT NO: COM12/2023

DRAWING TITLE :
SPEED HUMP DETAILS

| | |
|-------------|------------------|
| DESIGNED : | J.T. |
| DRAWN : | A.F. |
| SCALE : | N.T.S. |
| DATE : | 23 DECEMBER 2022 |
| CHECKED : | J.T. |
| APPROVED : | J.T.M |
| SIGNATURE : | |

PROFESSIONAL SERVICE :
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