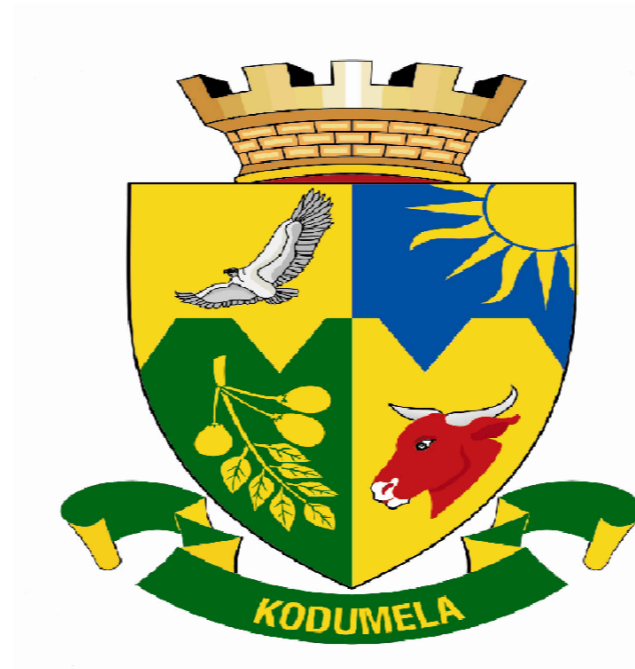


BLOUBERG MUNICIPALITY



CONSTRUCTION OF SENWABARWANA BYPASS ROAD

CONTRACT NO. BM 01/20/21

TENDER DRAWINGS

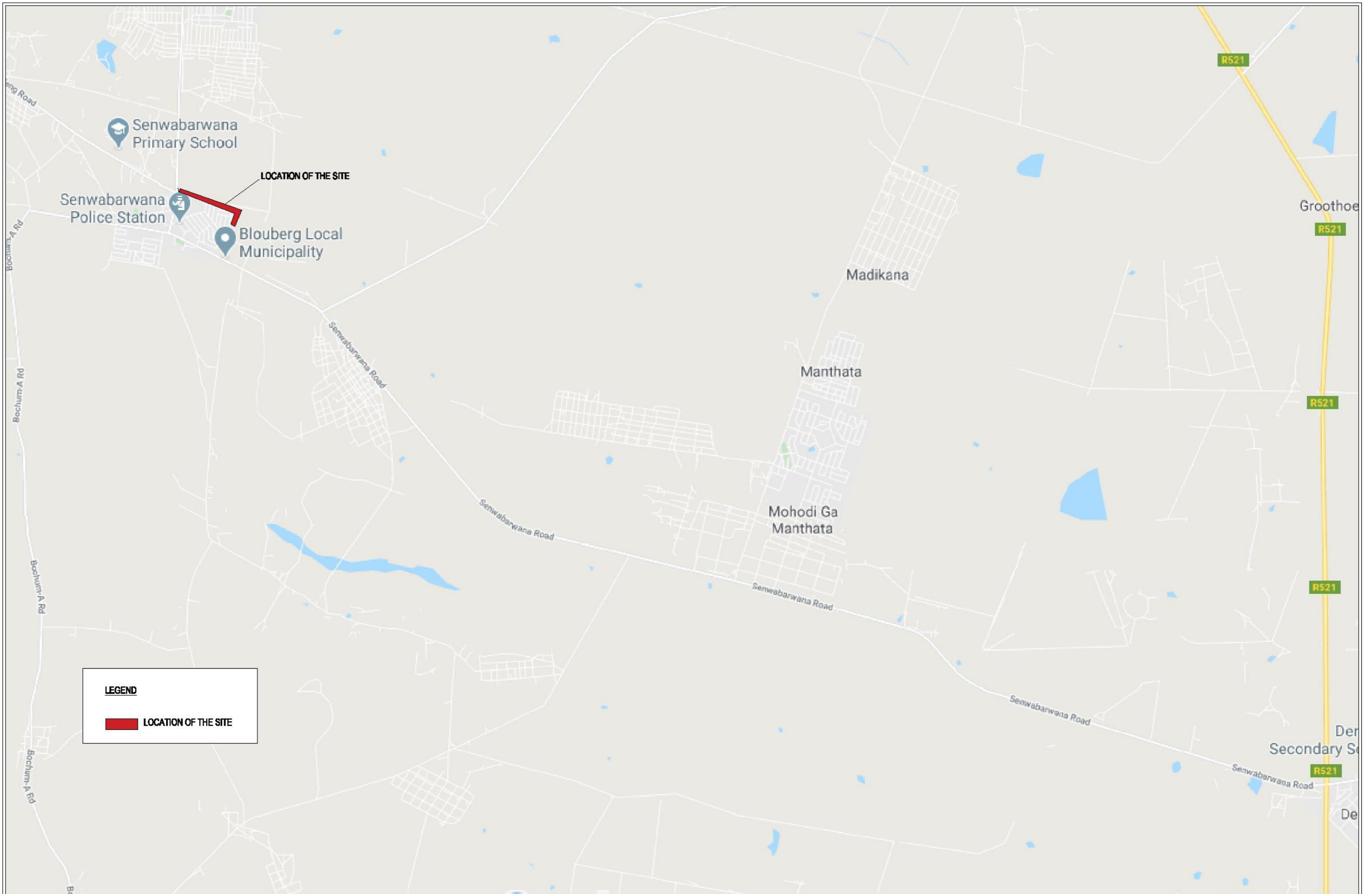
SEPTEMBER 2020

PREPARED BY



T2-TECH CONSULTING ENGINEERS
P.O. BOX 233, FAUNA PARK
0787.

TELL : (015) 291 3320
FAX : (015) 295 2116



LEGEND

LOCATION OF THE SITE

NO.	DATE	AMENDMENTS

CONSULTANT



T2 TECH CONSULTING ENG.
14 A CHURCH STREET
7013 COVAGE
010
TEL: (011) 291 3320
FAX: (011) 291 3114

DESIGNED BY:		CONSULTANT APPROVAL	
NAME:	LRYOSA	NAME:	TPV HDOU
PROF. REG. NO.:	201482540-CD	PROF. REG. NO.:	200870195
CHECKED BY:		SIGNATURE:	_____
NAME:	F. MANTOMBA	DATE:	_____
PROF. REG. NO.:	20180191	THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING	

CLIENT:



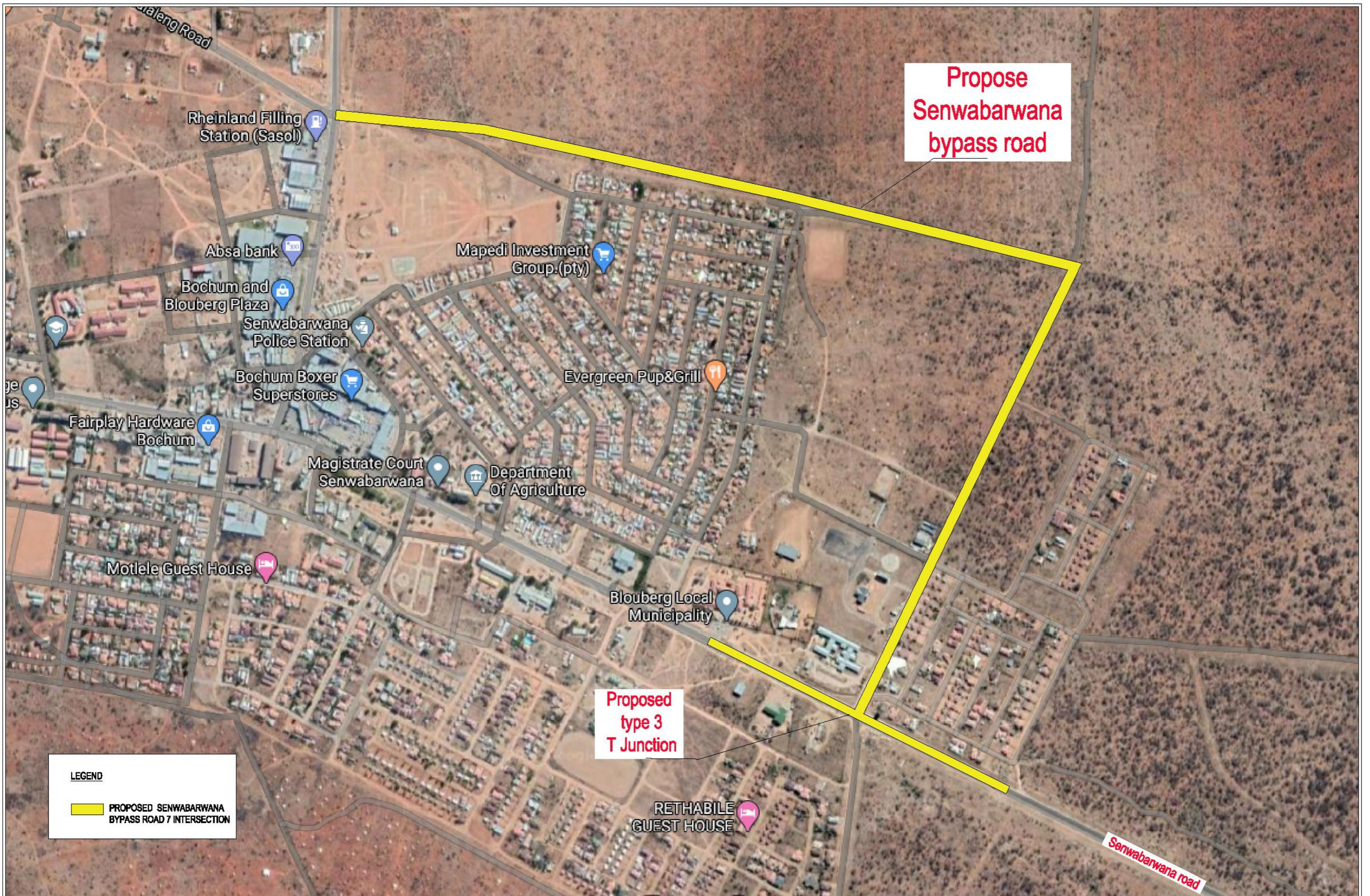
BLOUBERG MUNICIPALITY
P.O. BOX 1893
2018 BLOUBERG
076
TEL: (018) 856 7100
FAX: (018) 856 9148

APPROVAL BY CLIENT	
NAME:	_____
POSITION:	_____
SIGNATURE:	_____
DATE:	_____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD
CONTRACT NO.: BM 01/20/21


LOCALITY MAP

SCALE	INTERNAL PROJECT No.:	VER No.
ON A0	T1508 F - BM	W0
	DRAWING No.:	
	T1508000001	1 SHEET OF 1



**Propose
Senwabarwana
bypass road**

**Proposed
type 3
T Junction**

LEGEND
 **PROPOSED SENWABARWANA BYPASS ROAD 7 INTERSECTION**

NO.	DATE	AMENDMENTS

CONSULTANT

T2-Tech
 Consulting Engineers
 14 A CHURCH STREET
 FICKLEBURG
 0700
 TEL: 011 291 3300
 FAX: (102) 295 2114

DESIGNED BY:
 NAME: LUYISA
 PROF. REG. NO.: 20148054-00
CHECKED BY:
 NAME: P. MANYOWA
 PROF. REG. NO.: 20100191

CONSULTANT APPROVAL
 NAME: TIV NDOU
 PROF. REG. NO.: 200870155
 SIGNATURE: _____
 DATE: _____
 THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CLIENT:

BLOUBERG MUNICIPALITY
 P.O. BOX 1093
 SENWABARWANA,
 0795.
 TEL: (011) 556 7100
 FAX: (011) 556 0448

APPROVAL BY CLIENT
 NAME: _____
 POSITION: _____
 SIGNATURE: _____
 DATE: _____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD
 CONTRACT NO.: BM 01/20/21

PROPOSED SENWABARWANA BYPASS ROAD & INTERSECTION

SCALE
 ON A0

INTERNAL PROJECT No.:
 T1508 F-BM

DRAWING No.:
 T1508DDMLP01

VER No
 V00

1 SHEET OF 1



LEGEND

	= DENOTES FENCE LINE
	= DENOTES TELEPHONE LINE
	= DENOTES POWER LINE
	= DENOTES TREE
	= DENOTES WATER METRE
	= DENOTES LAMP POST
	= DENOTES BENCH MARKS
	= DENOTES SIGN BOARD
	= DENOTES BULK WATER LINE
	= DENOTES BULK SEWER LINE
	= DENOTES PROPOSED ROAD
	= DENOTES CROSS CULVERTS

NO.	DATE	AMENDMENTS


CONSULTANT



T2-Tech Consulting Engineers
 14 CHURCH STREET
 POLKOVANE
 0700
 TEL: (015) 291 3320
 FAX: (015) 291 2114

DESIGNED BY:	CONSULTANT APPROVAL
NAME: LRYOBA PROF. REG. NO. 20148059-CD	NAME: TIVINDOU PROF. REG. NO. 20067055
CHECKED BY: NAME: P. MANYOWA PROF. REG. NO. 20160191	SIGNATURE: _____ DATE: _____ THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CLIENT:



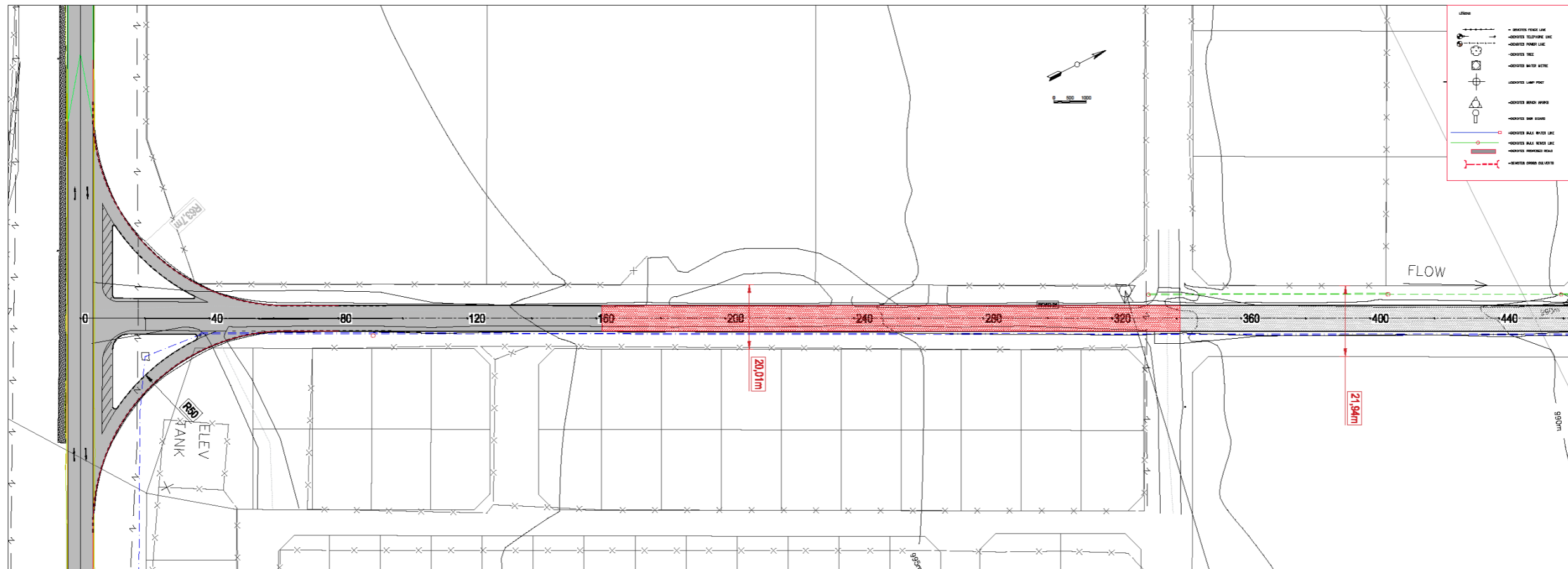
BLOUBAERG MUNICIPALITY
 P.O. BOX 1993
 SENWABARWANA,
 0796
 TEL: (015) 800 7100
 FAX: (015) 800 0868

APPROVAL BY CLIENT
NAME: _____
POSITION: _____
SIGNATURE: _____
DATE: _____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD
CONTRACT NO.: BM 01/20/21

GENERAL ROAD LAYOUT & INTERSECTION PLAN

SCALE	INTERNAL PROJECT No.:	VER No
1:2000	T1508 F-BM	V00
ON A/D	DRAWING No.:	
	T1508DD00GLP01	
		1 SHEET OF 1



SCALES:
Horizontal 1:1000
Vertical 1:100
DATUM 990.000

VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	
LEFT EDGE (L)	
CENTRE LINE (CL)	
RIGHT EDGE (R)	
GROUND LEVELS ON CL	
SUPERELEVATION	LEFT RIGHT - - - -
HORIZONTAL ALIGNMENT	
DISTANCE (m)	

Station	Left Edge (L)	Centre Line (CL)	Right Edge (R)	Ground Level (GL)
0	98.62	98.45	98.35	98.45
20	98.67	98.52	98.42	98.52
40	98.77	98.62	98.52	98.62
60	98.87	98.72	98.62	98.72
80	98.97	98.82	98.72	98.82
100	99.07	98.92	98.82	98.92
120	99.17	99.02	98.92	99.02
140	99.27	99.12	99.02	99.12
160	99.37	99.22	99.12	99.22
180	99.47	99.32	99.22	99.32
200	99.57	99.42	99.32	99.42
220	99.67	99.52	99.42	99.52
240	99.77	99.62	99.52	99.62
260	99.87	99.72	99.62	99.72
280	99.97	99.82	99.72	99.82
300	100.07	99.92	99.82	99.92
320	100.17	100.02	99.92	100.02
340	100.27	100.12	100.02	100.12
360	100.37	100.22	100.12	100.22
380	100.47	100.32	100.22	100.32
400	100.57	100.42	100.32	100.42
420	100.67	100.52	100.42	100.52
440	100.77	100.62	100.52	100.62

LONGSECTION ROAD 01
FROM 0.000 TO 437.102

CONSULTANT

CLIENT

BLOUBERG MUNICIPALITY
P.O. BOX 1852
SENWABARWANA,
7796
TEL: (018) 304 7000
FAX: (018) 304 0568

DESIGNED BY:

NAME: I. RYOBA
PROF. REG. NO.: 201482549-CD

CHECKED BY:

NAME: P. MANYOWA
PROF. REG. NO.: 20160191

CONSULTANT APPROVAL

NAME: T.V. NDOU
PROF. REG. NO.: 200670155
SIGNATURE: _____
DATE: _____

THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CONSTRUCTION OF SENWABARWANA BYPASS ROAD

CONTRACT NO.: BM 01/20/21

INTERNAL PROJECT No.: T1508 F- BM

General Notes

No.	Drawn By	Checked By
	Rev/Sgn/Issue	Date

Site Name and Address

T2 TECH CONSULTING ENG.
14 A CHURCH STREET
PO BOX 1852
7796
TEL: (018) 391 3000
FAX: (018) 395 2114

Project Name and Address

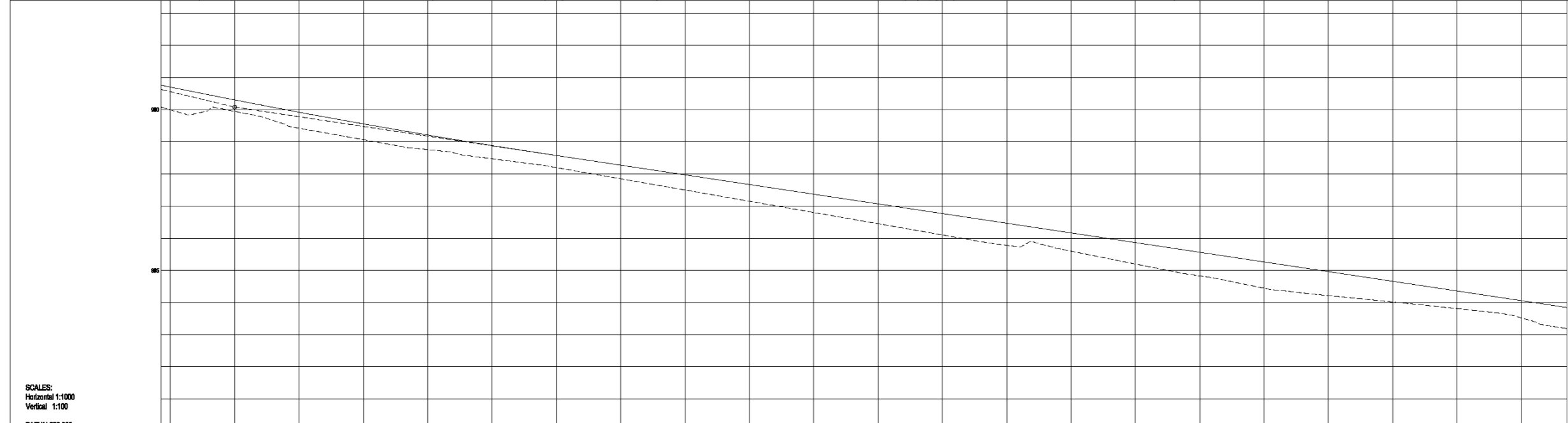
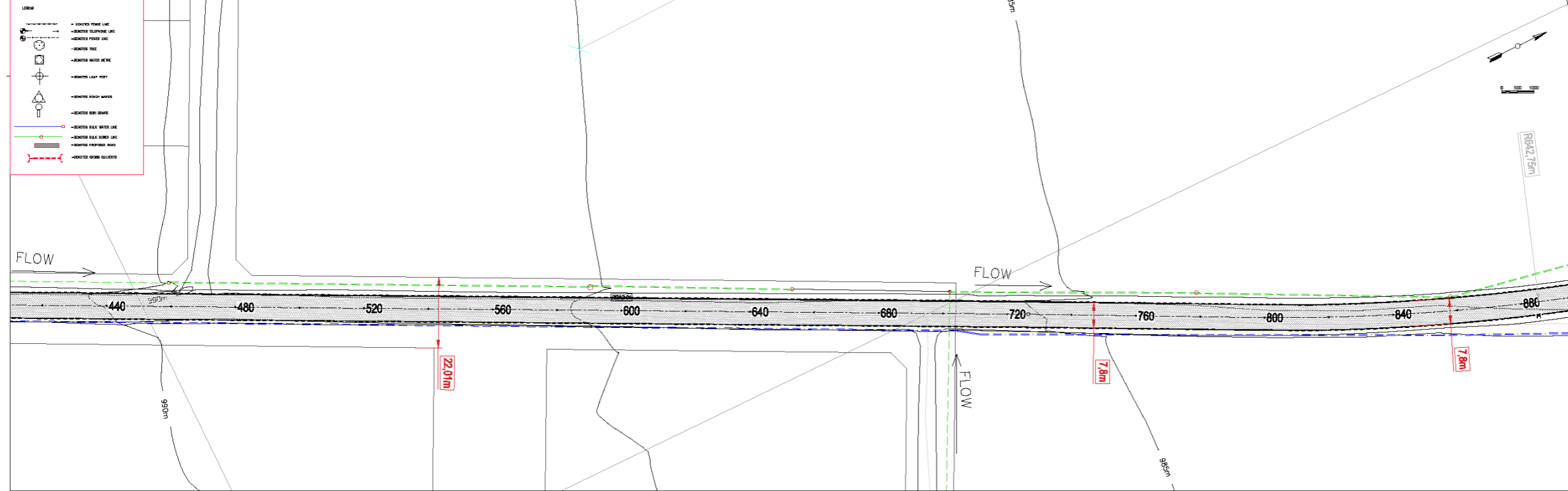
Construction of
bypass Road in Senwabarwana
Township Center

Contract No. BM 01/20/21

Date: 28.07.2020

Scale: 1:500

Sheet: 1



SCALES:
Horizontal 1:1000
Vertical 1:100
DATUM 680.000

VERTICAL PROFILE GRADES		K-24																														
FINAL DESIGN ROAD LEVELS	GROUND LEVELS ON CL	DISTANCE (m)																														
		LEFT	RIGHT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
LEFT EDGE (L)		87.123	87.118	87.113	87.108	87.103	87.098	87.093	87.088	87.083	87.078	87.073	87.068	87.063	87.058	87.053	87.048	87.043	87.038	87.033	87.028	87.023	87.018	87.013	87.008	87.003	86.998	86.993	86.988	86.983	86.978	86.973
CENTRE LINE (CL)		87.123	87.118	87.113	87.108	87.103	87.098	87.093	87.088	87.083	87.078	87.073	87.068	87.063	87.058	87.053	87.048	87.043	87.038	87.033	87.028	87.023	87.018	87.013	87.008	87.003	86.998	86.993	86.988	86.983	86.978	86.973
RIGHT EDGE (R)		87.123	87.118	87.113	87.108	87.103	87.098	87.093	87.088	87.083	87.078	87.073	87.068	87.063	87.058	87.053	87.048	87.043	87.038	87.033	87.028	87.023	87.018	87.013	87.008	87.003	86.998	86.993	86.988	86.983	86.978	86.973
SUPERELEVATION		Left: 100% Right: 100%																														
HORIZONTAL ALIGNMENT		Centre line alignment																														
DISTANCE (m)		440, 480, 520, 560, 600, 640, 680, 720, 760, 800, 840, 880																														

LONGSECTION ROAD 01
FROM 437.102 TO 874.204

CONSULTANT

 CLIENT

 BLOUBERG MUNICIPALITY
 BLOUBERG MUNICIPALITY
 P.O. BOX 1191
 SENWABARWANA
 0796
 TEL: (011) 691 7000
 FAX: (011) 691 6568

DESIGNED BY:
 NAME: LRYCOBA
 PROF. REG. NO. 201480598-CD
 CHECKED BY:
 NAME: P. MANYOWA
 PROF. REG. NO. 20160191

CONSULTANT APPROVAL
 NAME: TPV NDU
 PROF. REG. NO. 200670155
 SIGNATURE: _____
 DATE: _____
 THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CONSTRUCTION OF
 SENWABARWANA BYPASS
 ROAD

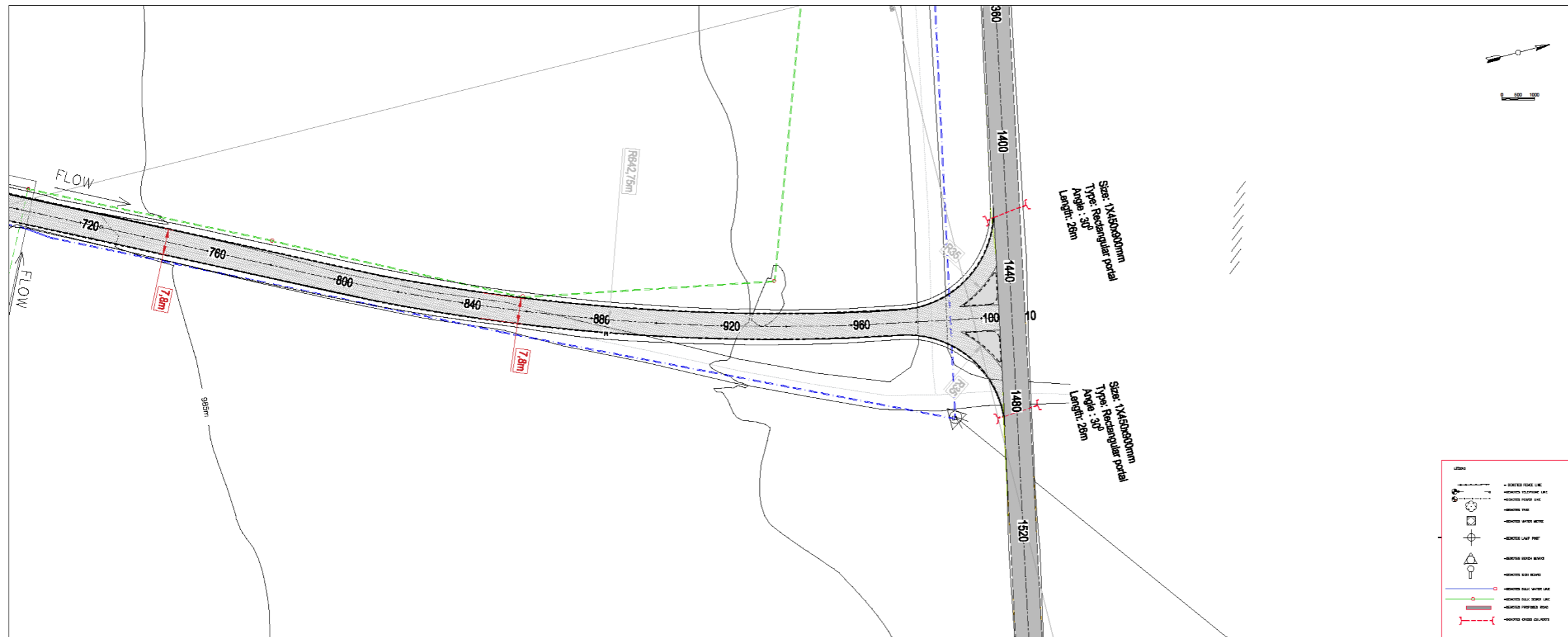
CONTRACT NO.: BM 01/20/21

INTERNAL PROJECT No.:
 T1508 F - BM
 General Notes

Firm Name and Address
 T2 TECH CONSULTING ENG.
 11A CHURCH STREET
 POLDERWAAE
 0795
 TEL (011) 291 3220
 FAX: (011) 292 2114

Project Name and Address
 Construction of
 bypass Road in Senwabarwana
 Township Center

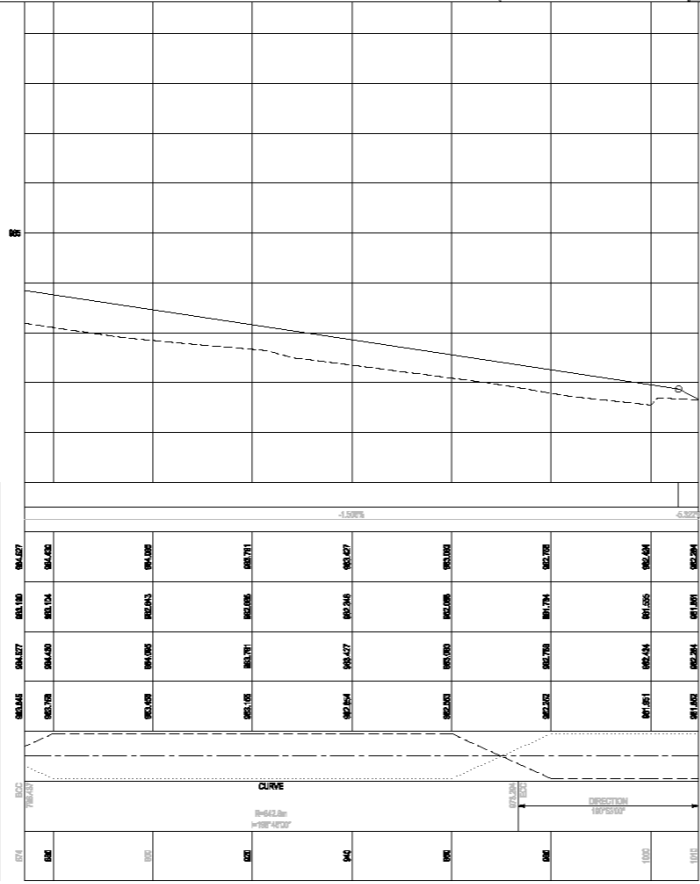
Contract No. BM 01/20/21
 Date 28.07.2020
 Scale 1:500
 Sheet 2



SCALES:
Horizontal 1:1000
Vertical 1:100

DATUM 960.000

VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (FR)
GROUND LEVELS ON CL	
SUPERELEVATION LEFT RIGHT - - - -	
HORIZONTAL ALIGNMENT	
DISTANCE (m)	



LONGSECTION ROAD 01
FROM 874.204 TO 1009.810

CONSULTANT

T2-Tech
Consulting Engineers

CLIENT

BLOBERG MUNICIPALITY

BLOBERG MUNICIPALITY
P.O. BOX 1893
SEMWABARWANA
0795
TEL: (015) 805 7100
FAX: (015) 805 6568

DESIGNED BY:

NAME:	IRYOMA
PROF. REG. NO.:	201485249-CD

CHECKED BY:

NAME:	F. MANYOMA
PROF. REG. NO.:	20146191

CONSULTANT APPROVAL

NAME:	TFV NDOU
PROF. REG. NO.:	200870155
SIGNATURE:	
DATE:	

THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING.

**CONSTRUCTION OF
SEMWABARWANA BYPASS
ROAD**

CONTRACT NO.: BM 01/20/21

INTERNAL PROJECT No.:
T1508 F - BM

General Notes

No.	Revision/Issue	Date

Site Name and Address

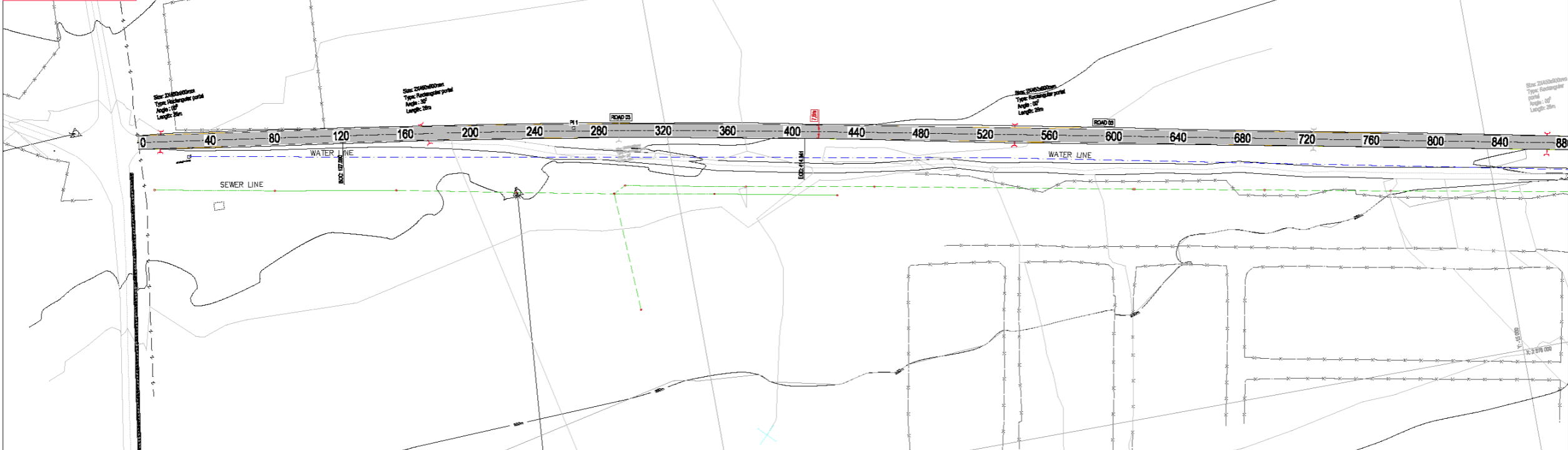
T2 TECH CONSULTING ENG.
14 A CHURCH STREET
POLOKWANE
0795
TEL: (015) 291 3220
FAX: (150) 295 2114

Project Name and Address

Construction of
bypass Road in Semwabarwana
Township Center

Contract No. BM 01/20/21	Sheet 3
Date 28.07.2020	Scale 1:500

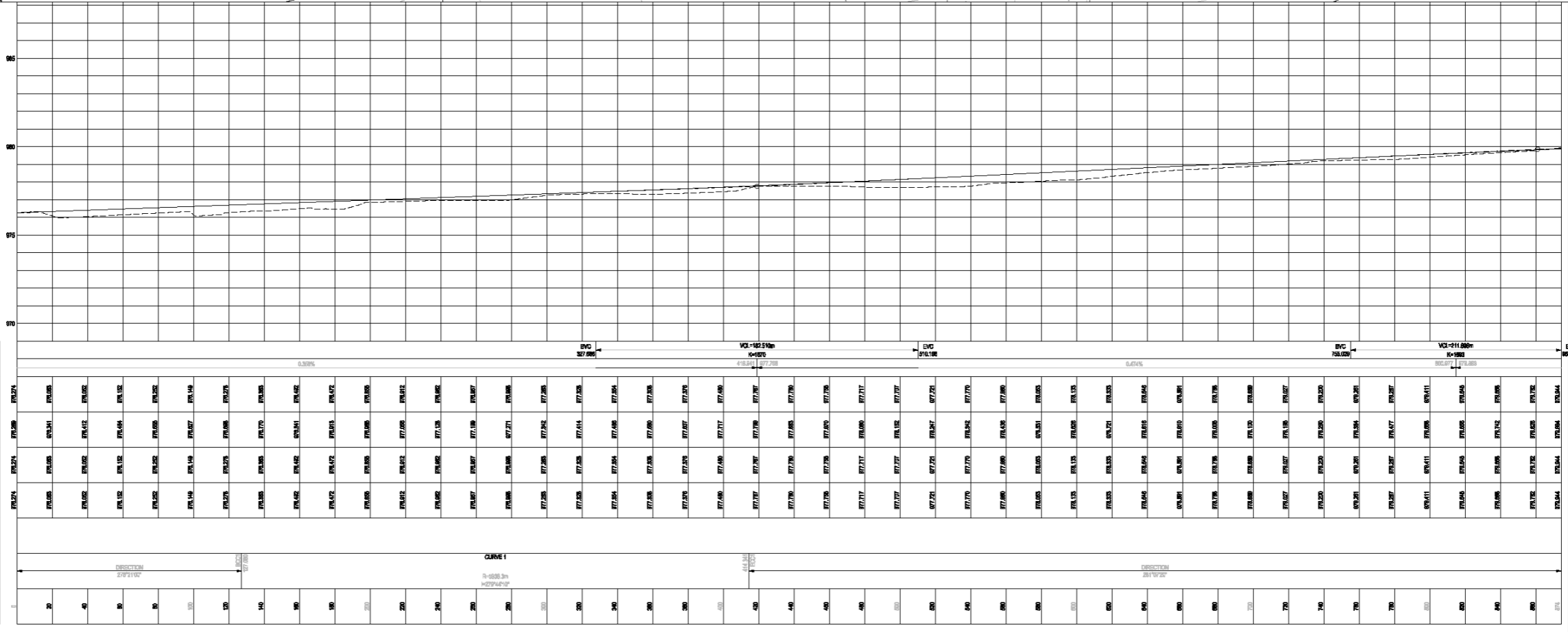
- LEGEND
- PROPOSED ROAD LINE
 - EXISTING ROAD LINE
 - EXISTING WATER LINE
 - EXISTING SEWER LINE
 - EXISTING POWER LINE
 - EXISTING TELEPHONE LINE
 - EXISTING TREE
 - EXISTING WATER METER
 - EXISTING LAMP POST
 - EXISTING ROAD MARK
 - EXISTING ROAD SIGN
 - EXISTING BULL WATER LINE
 - EXISTING BULL SEWER LINE
 - EXISTING PROPOSED ROAD
 - EXISTING DRAIN COLLECTOR



SCALES:
Horizontal 1:1000
Vertical 1:100

DATUM 999.000

VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	
LEFT EDGE (HL)	
CENTRE LINE (CL)	
RIGHT EDGE (HR)	
GROUND LEVELS ON CL	
SUPERELEVATION	LEFT RIGHT ---
HORIZONTAL ALIGNMENT	
DISTANCE (m)	



LONGSECTION ROAD 03
FROM 0.000 TO 874.204

CONSULTANT

T2-Tech
Consulting Engineers

CLIENT

BLOUBERG MUNICIPALITY

BLOUBERG MUNICIPALITY
P.O. BOX 1893
SENWABARWANA,
0790.
TEL: (018) 805 7100
FAX: (018) 805 0568

DESIGNED BY:

NAME: LUYOBA
PROF. REG. NO.: 201400549-CD

CHECKED BY:

NAME: P. MANYOWA
PROF. REG. NO.: 20140191

CONSULTANT APPROVAL

NAME: TVY NDOU
PROF. REG. NO.: 200670155
SIGNATURE: _____
DATE: _____

THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CONSTRUCTION OF SENWABARWANA BYPASS ROAD

CONTRACT NO.: BM 01/20/21

INTERNAL PROJECT No.: T1506 F - BM

General Notes

No.	Design	1/10/2020
No.	Revision/Issue	Date

Draw Name and Address

T2 TECH CONSULTING ENG.
14 A CHURCH STREET
POLKOWALE
0790.
TEL: (018) 291 3020
FAX: (152) 292 2114

Project Name and Address

Construction of
bypass Road in Senwabarwana
Township Center

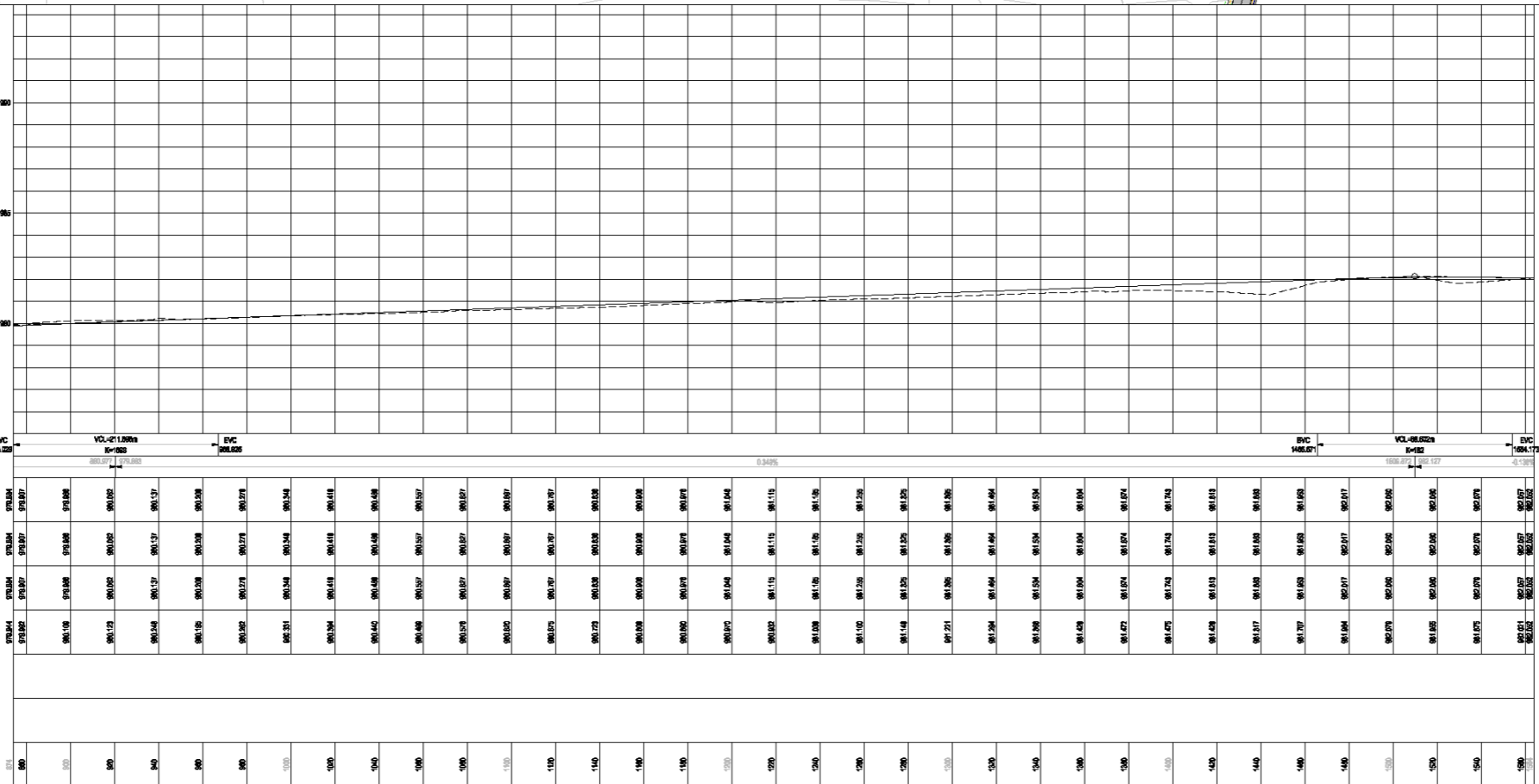
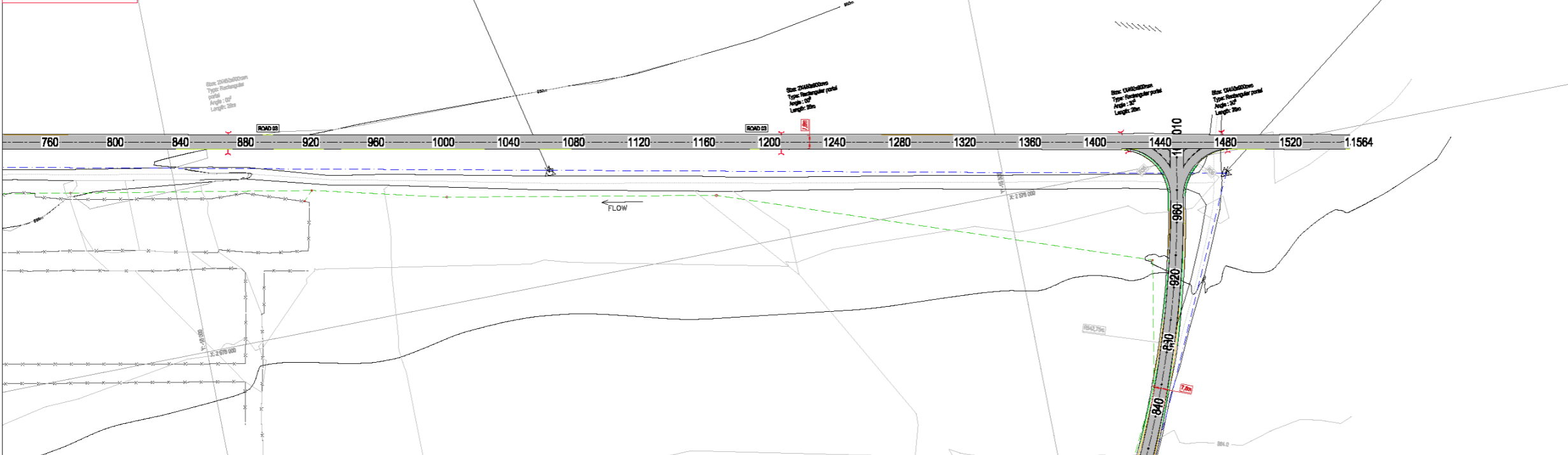
Contract No. BM 01/20/21 Sheet 1

Date 10.07.2020

Scale 1:1000

LEGEND

- PROPOSED ROAD LINE
- PROPOSED TELEPHONE LINE
- PROPOSED POWER LINE
- PROPOSED WATER RETIC
- PROPOSED LAMP POST
- PROPOSED ROAD MARK
- PROPOSED SIGN BOARD
- PROPOSED BULK WATER LINE
- PROPOSED BULK SEWER LINE
- PROPOSED PROPOSED ROAD
- EXISTING DRAIN DRAINAGE



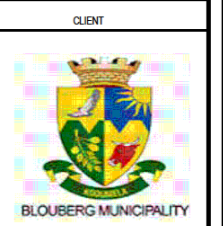
SCALES:
Horizontal 1:1000
Vertical 1:100

DATUM 875.000

VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (HR)
GROUND LEVELS ON CL	
SUPERELEVATION	LEFT
	RIGHT
HORIZONTAL ALIGNMENT	
DISTANCE (m)	

STATION	760	800	840	880	920	960	1000	1040	1080	1120	1160	1200	1240	1280	1320	1360	1400	1440	1480	1520	1564	
LEFT EDGE (HL)	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	
CENTRE LINE (CL)	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	
RIGHT EDGE (HR)	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	
GROUND LEVELS ON CL	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	90.12	
SUPERELEVATION																						
HORIZONTAL ALIGNMENT																						

LONGSECTION ROAD 03
FROM 874.204 TO 1563.888



BLOUBERG MUNICIPALITY
P.O. BOX 1002
SENWABARWANA,
0760
TEL: (015) 868 7100
FAX: (015) 868 0568

DESIGNED BY:

NAME:	LUYOBA
PROF. REG. NO.:	201402549-CD

CHECKED BY:

NAME:	P. MANYOWA
PROF. REG. NO.:	20180191

CONSULTANT APPROVAL:

NAME:	TFV NDOU
PROF. REG. NO.:	200670155
SIGNATURE:	
DATE:	

THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CONSTRUCTION OF SENWABARWANA BYPASS ROAD

CONTRACT NO.: BM 01/20/21

INTERNAL PROJECT No.: T1508 F - BM

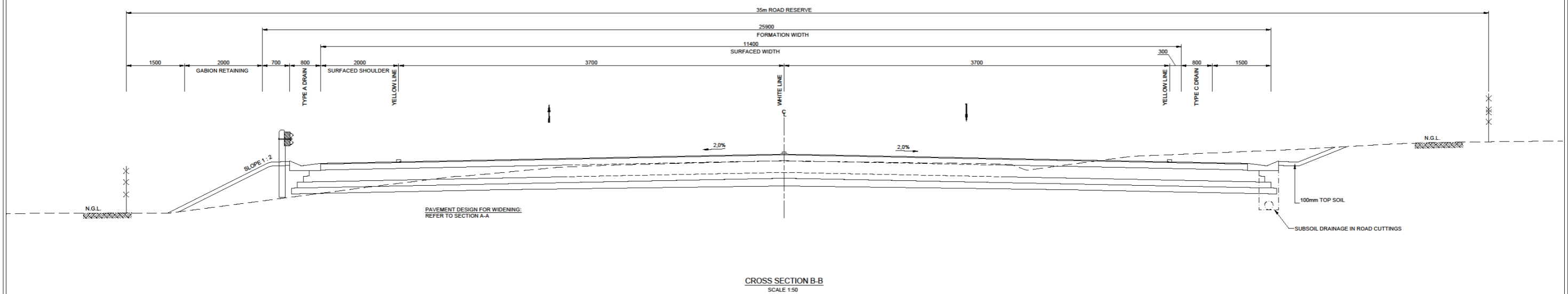
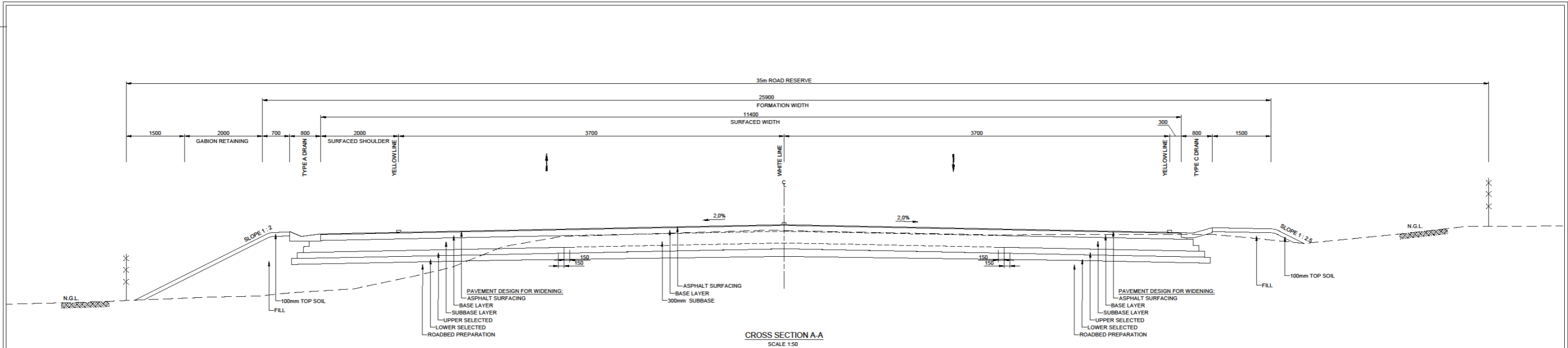
General Notes

No.	Revised/Issue	Date

T2 TECH CONSULTING ENG.
14 A CHURCH STREET
POLOKwane
0700
TEL: (015) 991 3020
FAX: (015) 245 2114

Construction of
bypass Road in Senwabarwana
Township Center

Contract No. BM 01/20/21	Sheet 2
Date 10.07.2020	
Scale 1:1000	



PAVEMENT DESIGN FOR ROAD 1 & 2
REFER TO SECTION A-A

TRAFFIC SUMMARY	LIKELY SCENARIO	WORST CASE
AADT	4946	4946
AADTT	643	643
AVE. E80/HEAVY	1.85	3.00
GROWTH RATE	4%	6%
DESIGN PERIOD	20	20
LANE FACTOR	0.5	0.5
DESIGN MESA	6.72	13.73
DESIGN TRAFFIC CLASS	ES 10	ES 30
ADDED MESA 2038	3.74	10.44
COMBINED MESA 2038	10.47	24.17
DESIGN TRAFFIC CLASS	ES 30	ES 30

CATALOGUE DESIGN FOR CATEGORY B ROAD, ES30 TRAFFIC CLASS			
DESCRIPTION	TRH 14 CODE	THICKNESS (mm)	COMPACTION % (MDD)
ASPHALT *	-	40	97%**
BASE	G2	150	85%***
SUBBASE	C3	300	97%
UPPER SELECTED	G7	150	95%
LOWER SELECTED	G9	150	93%
ROADBED PREP.	IN-SITU	150	93%
FILL	G10	200	93%

EXISTING PAVEMENT TEST RESULTS							
ROAD 1 - KM 0+350		ROAD 1 KM 0+820		ROAD 02 - KM 0+550		ROAD 02 - KM 1+200	
TRH 14 CODE	THICKNESS (mm)	TRH 14 CODE	THICKNESS (mm)	TRH 14 CODE	THICKNESS (mm)	TRH 14 CODE	THICKNESS (mm)
G6	120	G6	180	G6	170	G6	120
G7	250	G5	500	G6	350	G7	240

* CONTINUOUSLY GRADED ASPHALT (MEDIUM GRADE), USING AE-2 MODIFIED BITUMEN WITH 13.2mm ROLLED IN CHIPPINGS
 ** Mod AASHTO LESS VOIDS IN APPROVED PRODUCTION MIX
 *** COMPACTION APPARENT RELATIVE DENSITY

NO.	DATE	AMENDMENTS

CONSULTANT

T2 TECH CONSULTING ENG.
 14 A CHURCH STREET
 POLKOVANE
 0350
 TEL: (015) 291 2820
 FAX: (015) 295 2114

DESIGNED BY:

NAME: LRYOBA
 PROF. REG. NO. 201480949-CD

CHECKED BY:

NAME: P. MANYOWA
 PROF. REG. NO. 20160191

CONSULTANT APPROVAL

NAME: TVYNDU
 PROF. REG. NO. 200670155

SIGNATURE: _____
 DATE: _____

THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CLIENT:

BLOUBERG MUNICIPALITY
 P.O. BOX 1393
 SENWABARWANA
 0796
 TEL: (015) 858 7100
 FAX: (015) 858 9548

APPROVAL BY CLIENT

NAME: _____
 POSITION: _____
 SIGNATURE: _____
 DATE: _____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD
 CONTRACT NO.: BM 01/20/21

TYPICAL CROSS SECTION

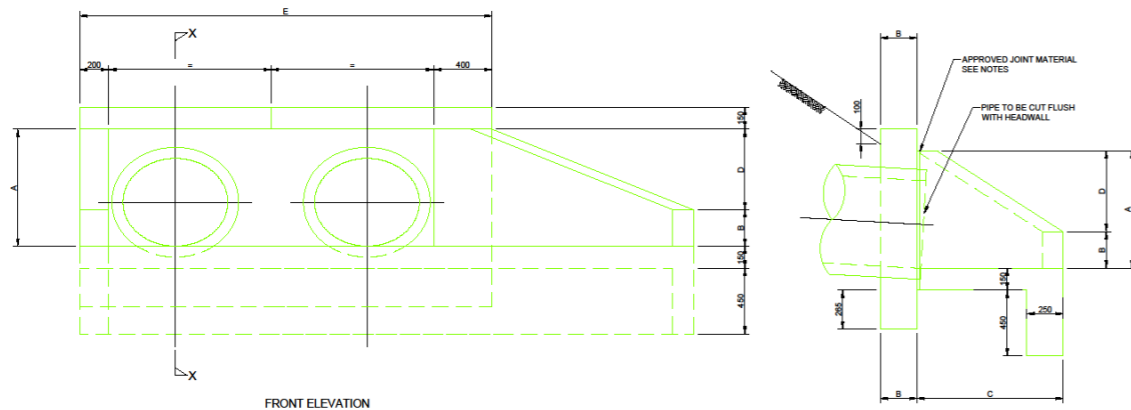
SCALE: AS SHOWN

INTERNAL PROJECT No.: T1508 F - BM

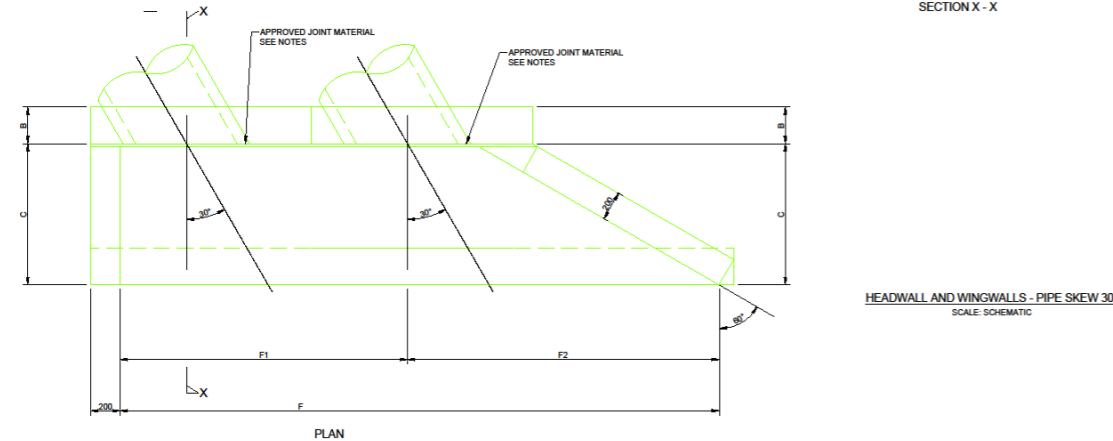
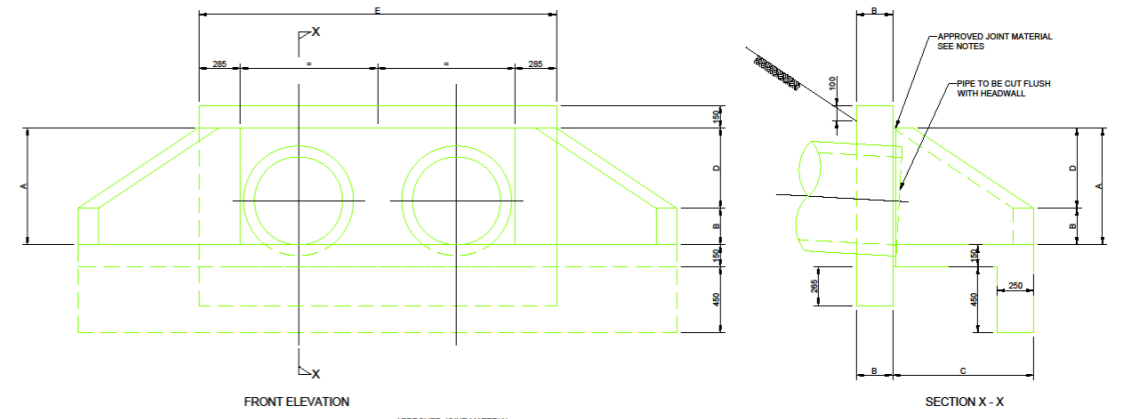
DRAWING No.: T2004TD01TCS

VER No: _____

SHEET OF: _____



- NOTES:**
- ALL EXPOSED SHARP CORNERS TO HAVE 25x25 CHAMFERS
 - ALL CONCRETE TO BE CLASS 20/19
 - CONCRETE FINISHES:
FORMED FINISHES: CLASS F1 - UNEXPOSED
CLASS F2 - EXPOSED
UNFORMED FINISHES: CLASS U1 - UNEXPOSED
CLASS U2 - EXPOSED
 - JOINT MATERIAL: 3-PLY ROOFING FELT ('MALTHOIT' OR SIMILAR) TO BE PLACED AT INTERFACE OF HEADWALL, WINGWALL AND APRON SLAB
 - COVER TO REINFORCEMENT = 50
 - CUTTING AND BENDING IN ACCORDANCE WITH SABS S2
 - Y-BARS TO BE HIGH YIELD STRESS STEEL TO SABS S20 WITH A CHARACTERISTIC STRENGTH OF 450 MPa
 - WELDED STEEL FABRIC TO CONFIRM SABS 1024
 - OVERLAPS OF STEEL FABRIC TO BE A MIN. OF 300



DIMENSIONS FOR SKEW 30°

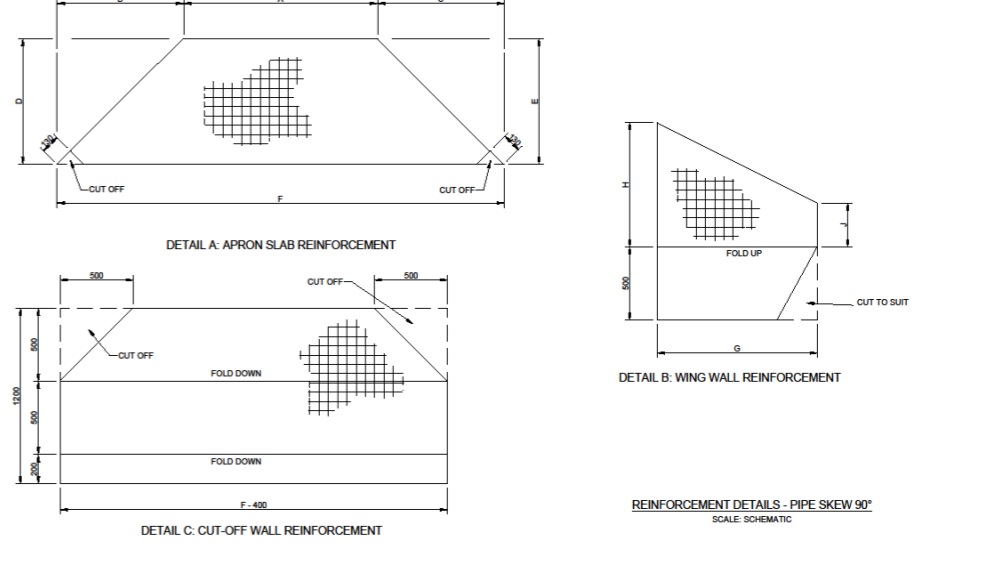
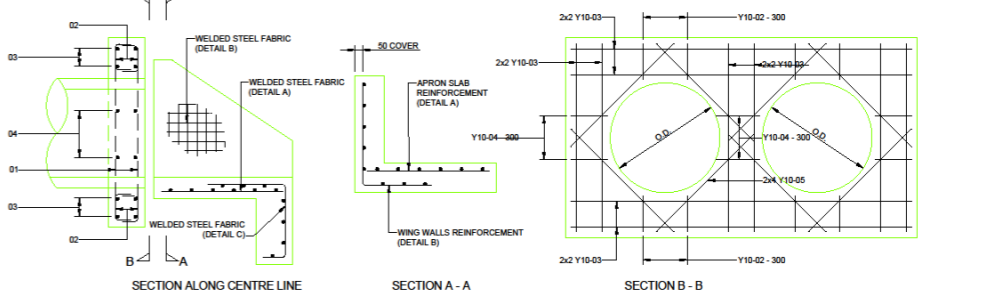
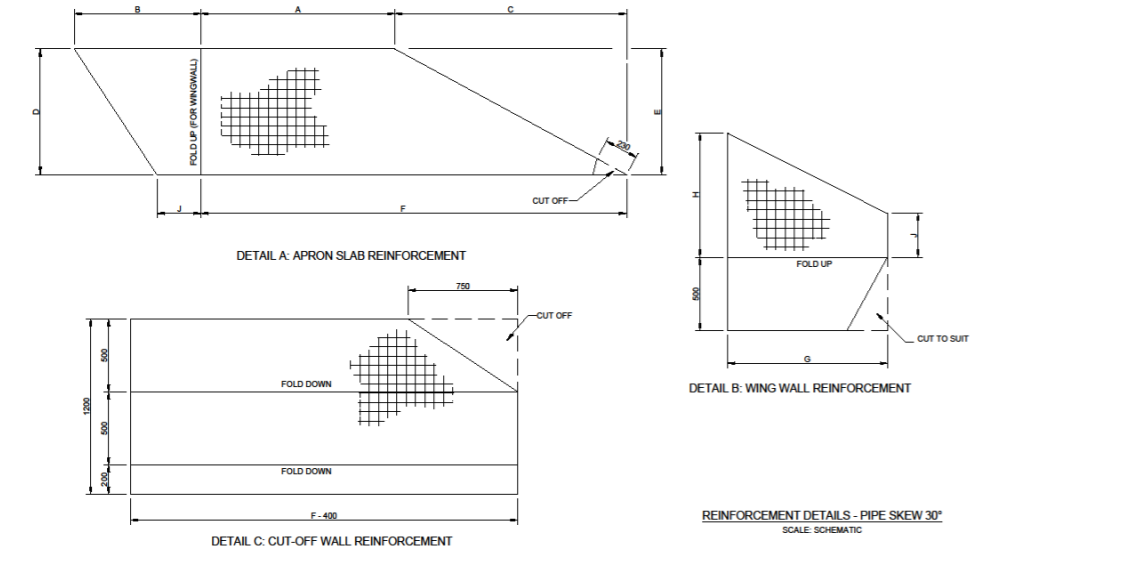
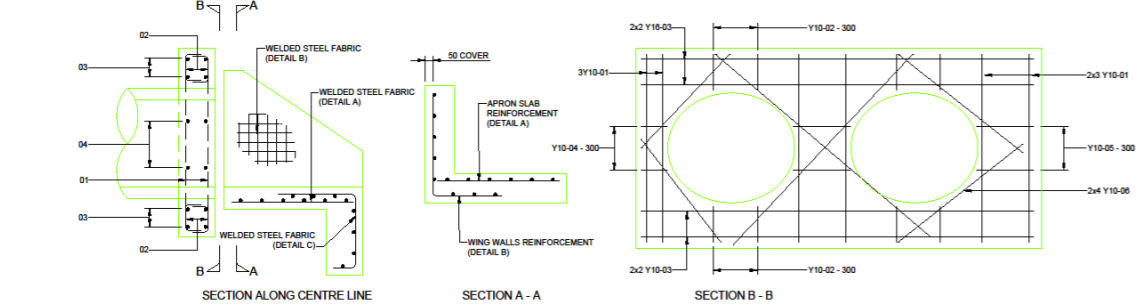
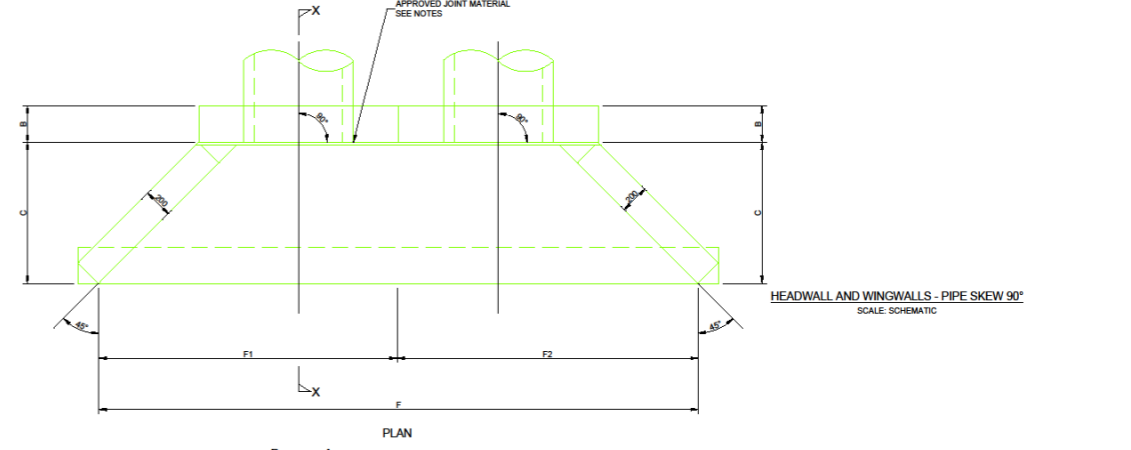
PIPE Ø	A	B	C	D	E	F	F1	F2
900	1100	250	1415	850	1800	3800	645	3155

HEADWALL REINFORCEMENT

PIPE Ø	MARK	TYPE / DIA	No. OF UNITS	No. IN EACH	TOTAL No.	CUT LENGTH	SHAPE CODE	A	B
900	01	Y10	-	7	-	1700	38	150	1450
	02	Y10	-	16	-	400	38	140	165
	03	Y16	-	8	-	2000	38	150	1750
	04	Y10	-	6	-	500	99	150	110
	05	Y10	-	6	-	600	38	150	300
	06	Y10	-	8	-	1150	20	-	-
20	STRAIGHT		38				99		

CUTTING DIMENSIONS WELDED STEEL FABRIC

PIPE Ø	MESH	A	B	C	D	E	F	G	H	J
900	341	1825	1150	2355	1300	1300	4180	2460	1150	300



NO.	DATE	AMENDMENTS

CONSULTANT

T2 TECH CONSULTING ENG.
14 A CHURCH STREET
FOULDAVE
0700
TEL: (015) 291 2520
FAX: (015) 291 2114

DESIGNED BY:

NAME: LRYOBA
PROF. REG. NO.: 20148098-CD
CHECKED BY:
NAME: P. MANYOMA
PROF. REG. NO.: 20140191

CONSULTANT APPROVAL

NAME: TIVINDU
PROF. REG. NO.: 20067015
SIGNATURE: _____
DATE: _____

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TOLL: (015) 908 0544

APPROVAL BY CLIENT

NAME: _____
POSITION: _____
SIGNATURE: _____
DATE: _____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD
CONTRACT NO.: BM 01/20/21

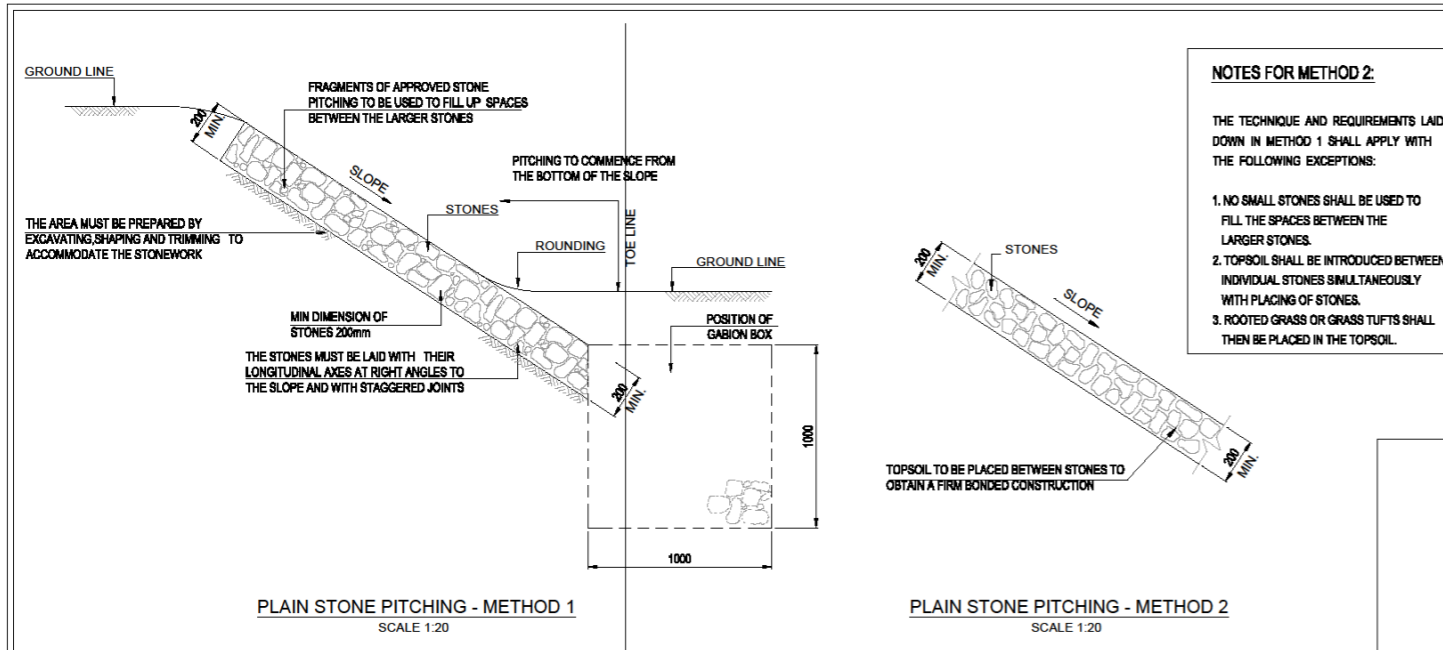
HEAD WALLS & WING WALL DETAILS

SCALE
AS SHOWN

INTERNAL PROJECT No.:
T1508 F - BM

DRAWING No.:
T2004TD01WPD01

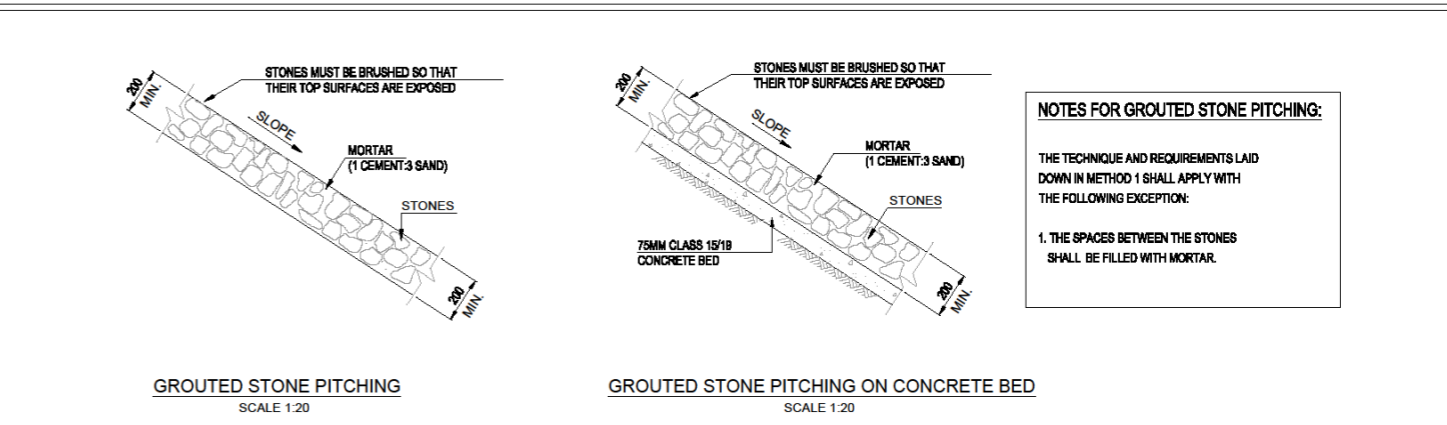
VER No.
SHEET OF



NOTES FOR METHOD 2:

THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTIONS:

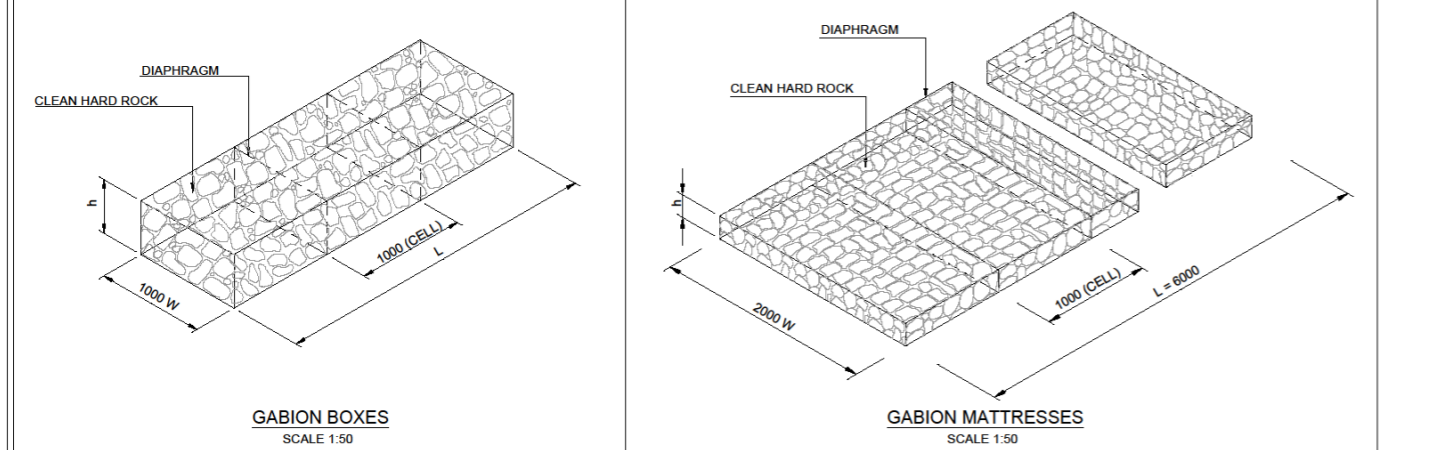
1. NO SMALL STONES SHALL BE USED TO FILL THE SPACES BETWEEN THE LARGER STONES.
2. TOPSOIL SHALL BE INTRODUCED BETWEEN INDIVIDUAL STONES SIMULTANEOUSLY WITH PLACING OF STONES.
3. ROOTED GRASS OR GRASS TUFTS SHALL THEN BE PLACED IN THE TOPSOIL.



NOTES FOR GRouted STONE PITCHING:

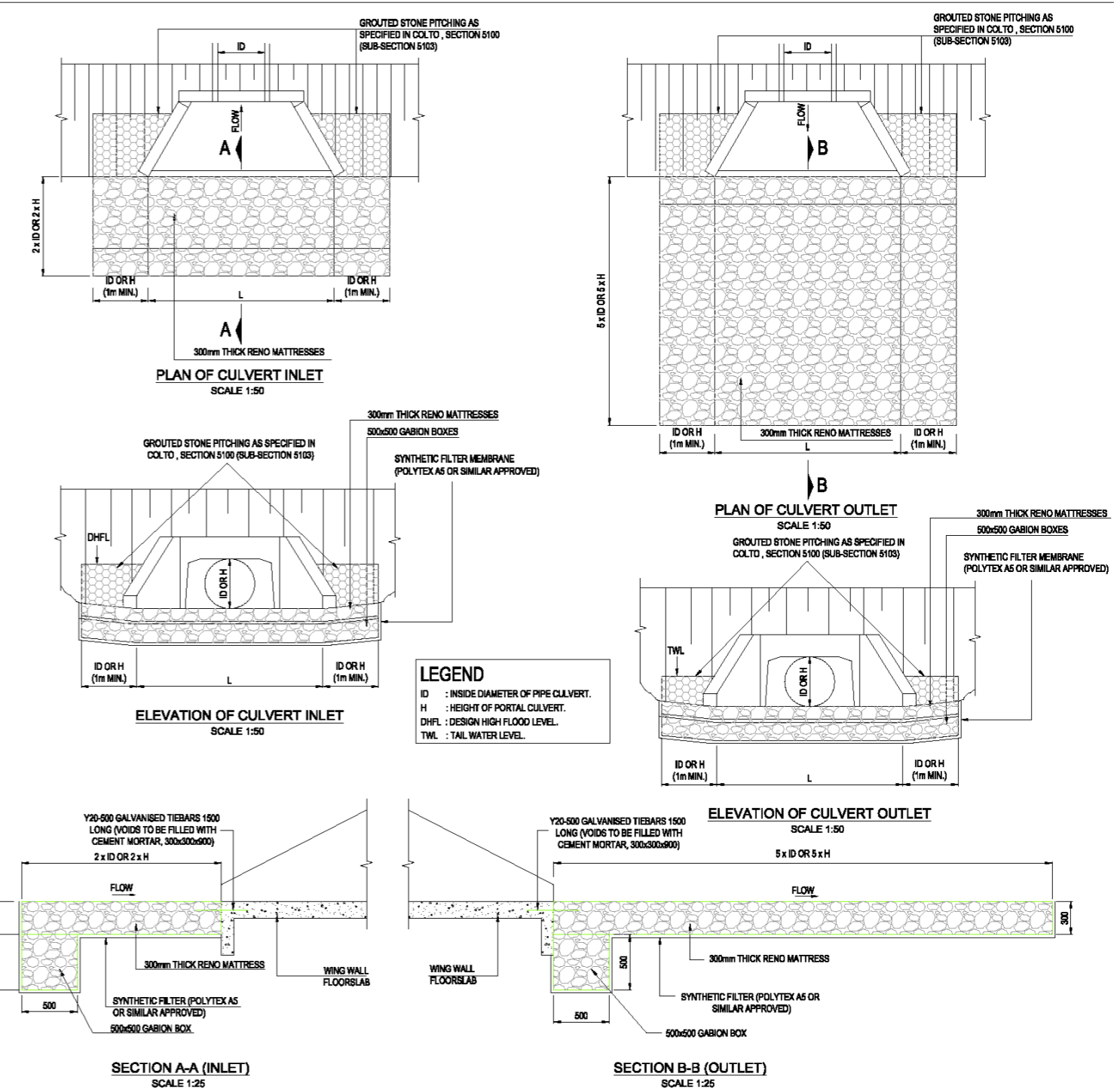
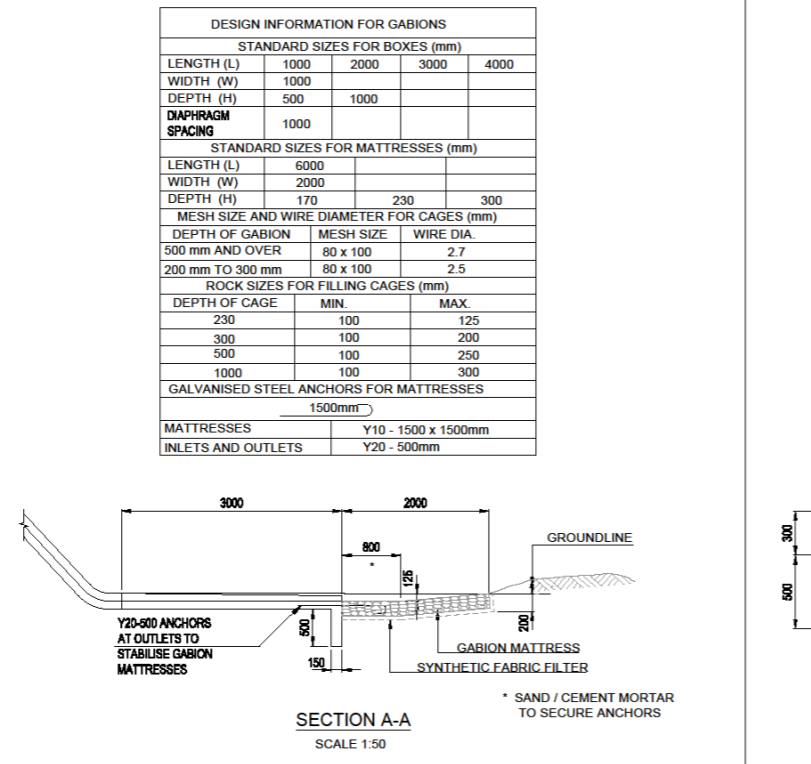
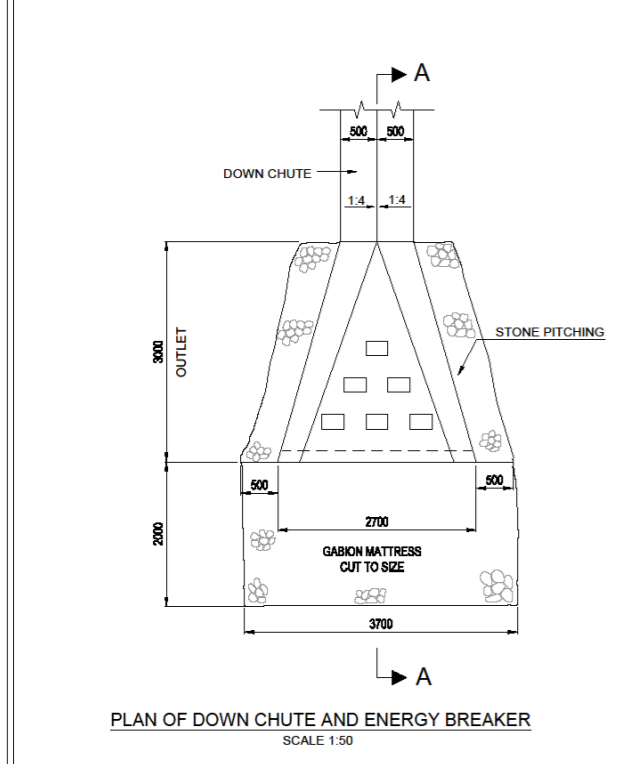
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTION:

1. THE SPACES BETWEEN THE STONES SHALL BE FILLED WITH MORTAR.



DESIGN INFORMATION FOR GABIONS

STANDARD SIZES FOR BOXES (mm)			
LENGTH (L)	1000	2000	3000
WIDTH (W)	1000		
DEPTH (H)	500	1000	
DIAPHRAGM SPACING	1000		
STANDARD SIZES FOR MATTRESSES (mm)			
LENGTH (L)	6000		
WIDTH (W)	2000		
DEPTH (H)	170	230	300
MESH SIZE AND WIRE DIAMETER FOR CAGES (mm)			
DEPTH OF GABION	MESH SIZE	WIRE DIA.	
500 mm AND OVER	80 x 100	2.7	
200 mm TO 300 mm	80 x 100	2.5	
ROCK SIZES FOR FILLING CAGES (mm)			
DEPTH OF CAGE	MIN.	MAX.	
230	100	125	
300	100	200	
500	100	250	
1000	100	300	
GALVANISED STEEL ANCHORS FOR MATTRESSES			
	1500mm		
MATTRESSES	Y10 - 1500 x 1500mm		
INLETS AND OUTLETS	Y20 - 500mm		



LEGEND

ID : INSIDE DIAMETER OF PIPE CULVERT.
H : HEIGHT OF PORTAL CULVERT.
DHFL : DESIGN HIGH FLOOD LEVEL.
TWL : TAIL WATER LEVEL.

NO.	DATE	AMENDMENTS

CONSULTANT

T2 TECH CONSULTING ENG.
14 A CHURCH STREET
FOURIEBURG
7200

TEL: (018) 291 3520
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DESIGNED BY: LUYOBA

NAME: LUYOBA
PROF. REG. NO.: 20148859-CD

CHECKED BY: P. MANYONA

NAME: P. MANYONA
PROF. REG. NO.: 20140191

CONSULTANT APPROVAL

NAME: TTV NDOU
PROF. REG. NO.: 200670105

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0190

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FAX: (018) 866 6868

APPROVAL BY CLIENT

NAME: _____
POSITION: _____
SIGNATURE: _____
DATE: _____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD
CONTRACT NO.: BM 01/20/21

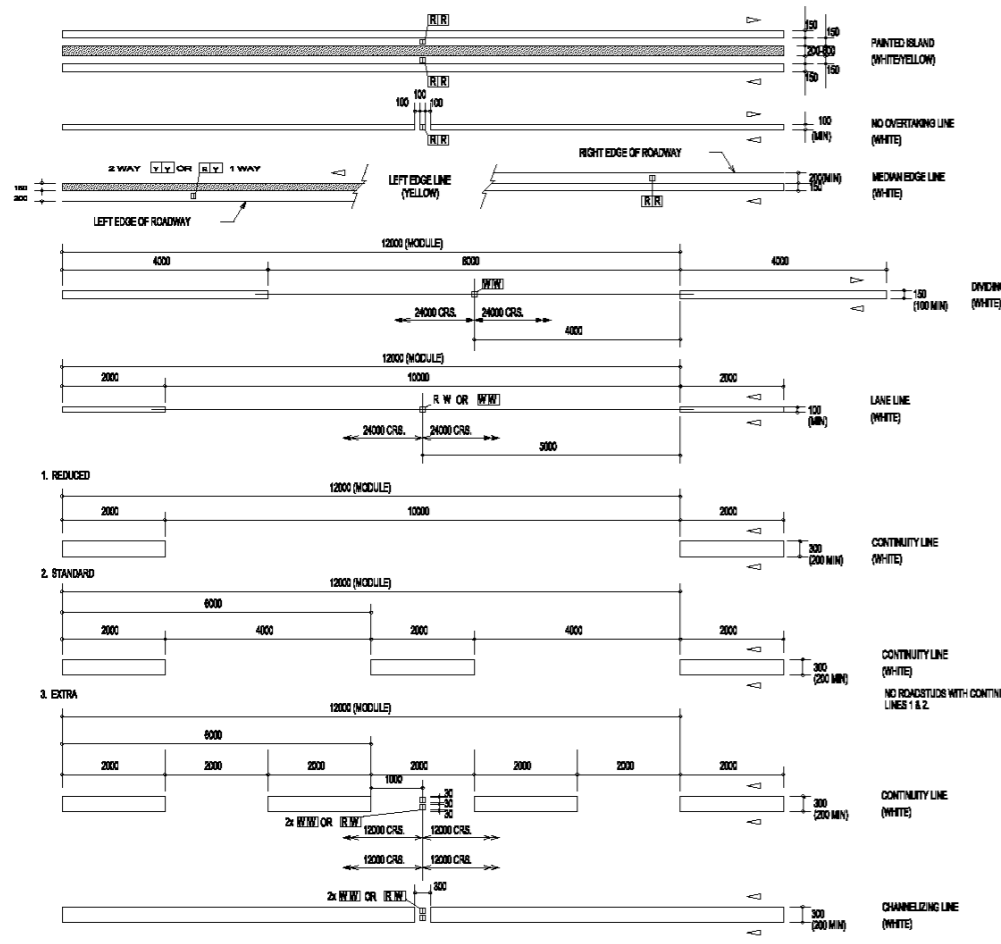
CULVERT INLETS AND OUTLET DETAILS

SCALE: ON A3

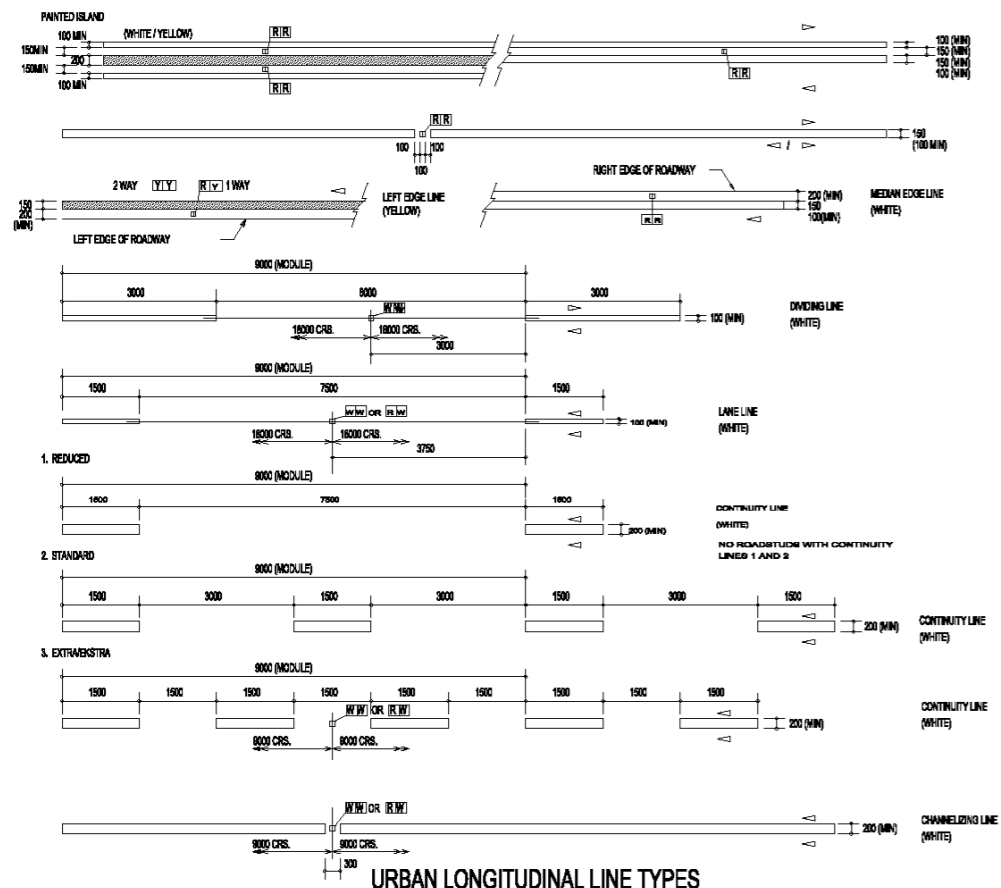
INTERNAL PROJECT No.: T1508 F - BM

DRAWING No.: T2004TD01CD01

VER No: _____
SHEET OF: _____



RURAL LONGITUDINAL LINE TYPES

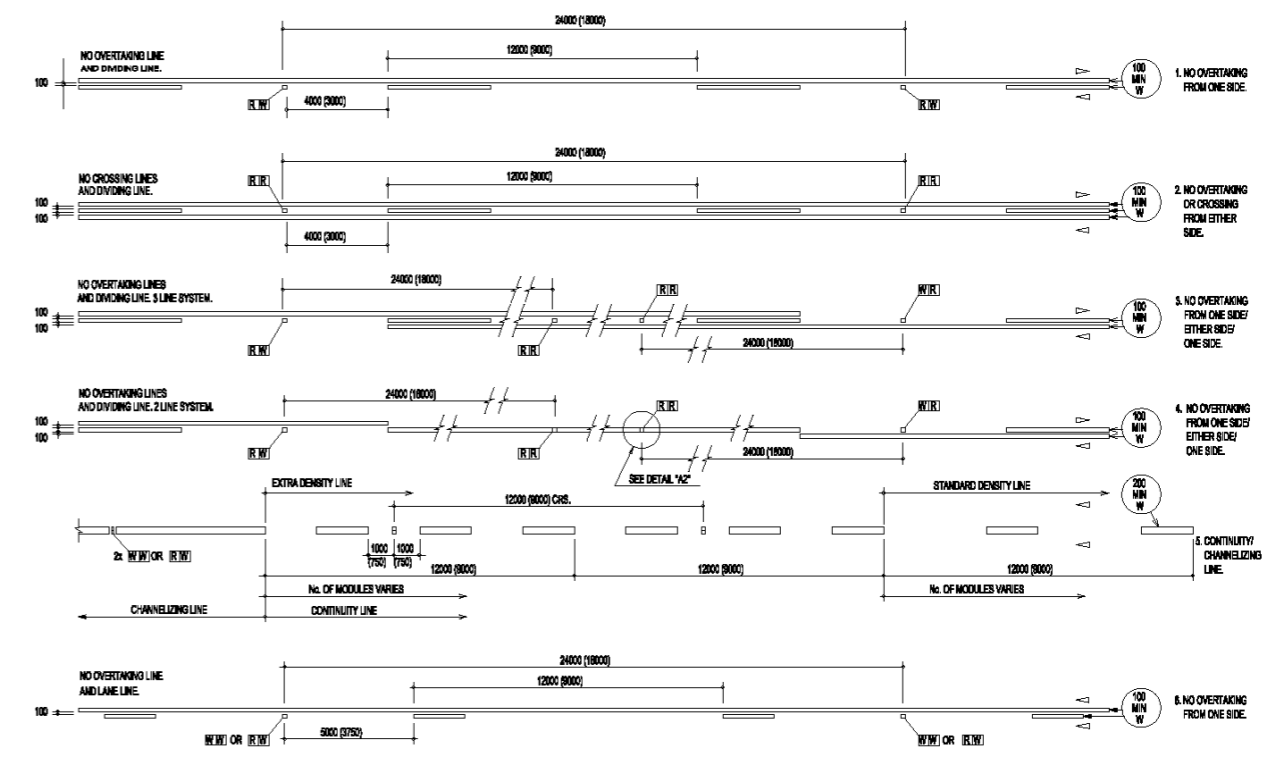
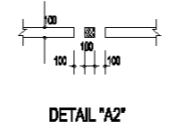


URBAN LONGITUDINAL LINE TYPES

NOTES: (RURAL LONGITUDINAL LINE TYPES)

1. DIRECTION OF TRAFFIC MOVEMENT WITH RESPECT TO LINE MARKING INDICATED THIS > OR <.
2. PAINTED ISLAND MARKINGS SHALL BE USED AS A STANDARD DIVIDING MARKING ON ALL 4-LANE 2-WAY ROADWAYS. (SEE URBAN LONGITUDINAL LINE TYPES)
3. A NO OVERTAKING LINE MAY BE USED TO REPLACE A DIVIDING LINE MARKING ON MINOR ROADS OR TO MATCH PROVINCIAL ROAD MARKING POLICY ON AN INTERSECTING ROADWAY AS APPROPRIATE. A NO OVERTAKING LINE MAY BE USED IN COMBINATION WITH A LANE LINE (USUALLY ON A FREEWAY OVERPASSAGE).
4. A LEFT EDGE LINE MARKING SHALL NOT EXTEND ACROSS THE POINT OF DEPARTURE FROM A THROUGH PORTION OF ROADWAY.
5. A RIGHT EDGE LINE MARKING IS ONLY REQUIRED TO DEMARCATATE AN UNBERMED MEDIAN (A MEDIAN GUARDRAIL OR CONCRETE SEPARATOR BARRIER DOES NOT CONSTITUTE A KERBED MEDIAN).
6. THE DIVIDING LINE MARKING REPLACES THE PREVIOUS 'CENTRE LINE' MARKING AND SHALL ONLY BE USED BETWEEN LANES CARRYING OPPOSING TRAFFIC FLOWS WHERE OVERTAKING IS PERMITTED.
7. A CONTINUITY LINE MAY BE SPECIFIED IN ONE OF THREE DENSITIES - 1. REDUCED, 2. STANDARD OR 3. EXTRA. A CONTINUITY LINE MAY BE USED TO DEFINE THE LIMIT OF THE THROUGH PORTION OF A ROADWAY, EITHER AT A HIGH SPEED EXIT (OFF-RAMP OR SLIP ROAD), A DEDICATED EXIT LINE ON FREEWAY, OR AT-GRADE ROAD (RIGHT OR LEFT TURN).
8. A CHANNELIZING LINE MAY BE USED AS AN EXTENSION OF A CONTINUITY LINE FOR CERTAIN APPLICATIONS ON THE APPROACH TO AN AT-GRADE SLIP ROAD GORE AREA.
9. A LANE LINE, CONTINUITY LINE OR CHANNELIZING LINE SHALL NOT BE USED BETWEEN OPPOSING TRAFFIC MOVEMENTS.
10. THE WIDTHS OF LINES SHOWN ARE RECOMMENDATIONS ONLY. (SEE LONGITUDINAL LINE COMBINATIONS).

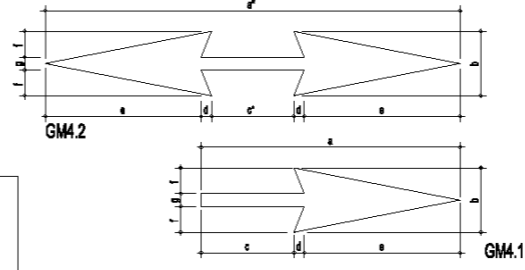
LEGEND:
 R = RED
 W = WHITE
 Y = YELLOW



NOTES: (LONGITUDINAL LINE COMBINATIONS)

1. DIRECTION OF TRAFFIC MOVEMENT WITH RESPECT TO THE MARKING INDICATED THIS > OR <.
2. FOR FULL LONGITUDINAL DIMENSIONS OF COMPONENT MARKINGS SEE RURAL AND URBAN LONGITUDINAL LINE TYPES.
3. COMBINATION MARKING 1 TO 4 ARE FOR TWO WAY TRAFFIC AND ARE APPLICABLE TO NATIONAL NON-FREEWAY ROUTES WHICH INTERSECT FREEWAYS.
4. COMBINATION MARKING 5 SHALL BE USED TO INDICATE THE DIVISIONS BETWEEN THE THROUGH ROADWAY AND ANY EXCLUSIVE EXIT/TURN LANES. WHEREVER POSSIBLE A CONTINUITY LINE SHOULD LEAD TO, OR TERMINATE IN A CHANNELIZING LINE WHICH MAY BE SHORT. RECOMMENDED MINIMUM LENGTH IS 12m FOR RURAL AND 3m FOR URBAN APPLICATIONS.
5. FOR MARKINGS 1 TO 4 ROADSTOPS SHOULD BE LOCATED ON CONTRALINE OF THE DIVIDING LINE, (OR SINGLE NO OVERTAKING LINE MARKING 4).
6. WHERE POSSIBLE THE LENGTH OF CHANNELIZING MARKING SHOULD BE ADJUSTED SO THAT THE CONTINUITY LINE ROADSTOPS MATCH OTHER ROADSTOPS ON CROSS-SECTION AND FALL IN THE CENTRE OF A GAP IN THE CONTINUITY LINE.
7. DIMENSIONS FOR URBAN APPLICATIONS ARE INDICATED IN BRACKETS.
8. ROADSTOPS ON THE SINGLE NO OVERTAKING LINE IN MARKING 4 MAY BE COVERED DURING LINE MARKING OR PLACED AS INDICATED IN DETAIL 'A2'.

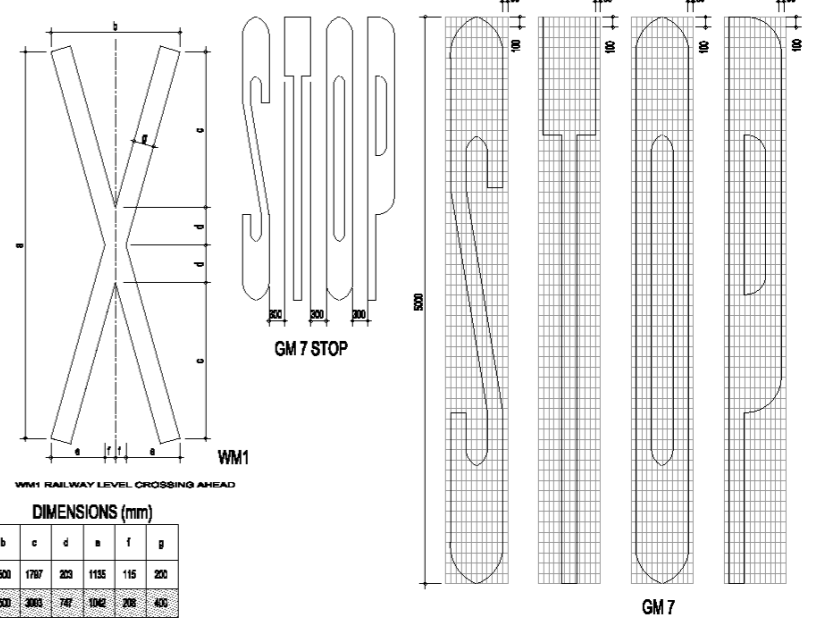
LONGITUDINAL LINE COMBINATIONS



GM 2 REVERSIBLE FLOW ARROW / GM 1 INFORMATION ARROW		DIMENSIONS (mm)								
Operating Speed km/h	Typical Applications	a	a'	b	c	c'	d	e	f	g
20 - 40	City Centre	1200	2000	1200	400	400	60	700	500	200
50 - 60	Urban	2000	4000	1200	800	800	100	1800	500	200
70 - 90	Urban Arterial/Urban Expressway	4000	8400	1200	1440	1200	160	2400	500	200
100 - 120	Rural and Freeway	5200	8000	1200	1920	1800	200	3800	500	200

Marking	Area m ²			
	a	Area	a'	Area
WM1	4000	1.84		
	7500	6.00		
GM 1/ GM 2(*)	1200	0.56	2200	1.05
	2500	1.17	4000	2.10
WM5	4000	1.88	8400	3.38
	5000	2.35	8000	4.20
GM7	400	0.20		
	850	0.83		
GM7	1100	2.16		
	6000	6.90		

NOTES:
 1. THIS DRAWING DETAILS A RANGE OF GENERAL WARNING OR GUIDANCE SYMBOLS. APPLICATION SHALL BE IN ACCORDANCE WITH THE SOUTH AFRICAN ROAD TRAFFIC SIGNS MANUAL.
 2. MARKING WM5 - YIELD CONTROL AHEAD MAY BE REPEATED 1m FROM THE YIELD LINE MARKING.



Typical Applications	DIMENSIONS (mm)						
	a	b	c	d	e	f	g
Urban	4000	2500	1700	200	1135	115	200
Rural	7500	2500	2000	740	1040	200	400

REGULATORY/WARNING /GUIDANCE SYMBOLS

NOTES: (URBAN LONGITUDINAL LINE TYPES)

1. DIRECTION OF TRAFFIC MOVEMENT WITH RESPECT TO LINE MARKING INDICATED THIS > OR <.
2. A NO CROSSING LINE MAY BE USED AS A FORM OF DIVIDING LINE MARKING, IN PLACE OF A NO OVERTAKING LINE, TO PROHIBIT ACCESS TO OR FROM PROPERTIES AT THE SIDE OF AN URBAN ROAD. A PAINTED ISLAND MAY BE USED AS AN ALTERNATIVE MARKING FOR THIS PURPOSE.
3. A NO OVERTAKING LINE MAY BE USED TO REPLACE A DIVIDING LINE MARKING TO PROHIBIT OVERTAKING IN THE PATH OF ON-COMING TRAFFIC. A NO OVERTAKING LINE MAY BE USED IN COMBINATION WITH A LANE LINE.
4. LEFT EDGE LINE MARKING SHALL NOT BE EXTENDED ACROSS THE POINT OF DEPARTURE FROM A THROUGH PORTION OF ROADWAY.
5. A RIGHT EDGE LINE MARKING IS ONLY REQUIRED TO DEMARCATATE AN UNBERMED MEDIAN (A MEDIAN GUARDRAIL OR CONCRETE SEPARATOR BARRIER DOES NOT CONSTITUTE A KERBED MEDIAN).
6. THE DIVIDING LINE MARKING REPLACES THE PREVIOUS 'CENTRE LINE' MARKING AND SHALL ONLY BE USED BETWEEN LANES CARRYING OPPOSING TRAFFIC FLOWS WHERE OVERTAKING IS PERMITTED.
7. A CONTINUITY LINE MAY BE SPECIFIED IN ONE OR THREE DENSITIES - 1. REDUCED, 2. STANDARD OR 3. EXTRA. THROUGH PORTION OF A ROADWAY EITHER AT A HIGH SPEED EXIT (OFF-RAMP OR SLIP ROAD), A DEDICATED EXIT LINE ON A FREEWAY, OR AT-GRADE ROAD (RIGHT OR LEFT TURN).
8. A CHANNELIZING LINE MAY BE USED AS AN EXTENSION OF A CONTINUITY LINE OR INSTEAD OF A PAINTED ISLAND TO CHANNELIZE TRAFFIC MOVEMENT WHERE SPACE IS LIMITED.
9. A LANE LINE, CONTINUITY LINE OR CHANNELIZING LINE SHALL NOT BE USED BETWEEN OPPOSING TRAFFIC MOVEMENTS.
10. THE WIDTHS OF LINES SHOWN ARE RECOMMENDATIONS ONLY. (SEE LONGITUDINAL LINE COMBINATIONS).

WM5 YIELD CONTROL AHEAD

Operating Speed km/h	Typical Applications	Distance from Yield line	DIMENSIONS (mm)			
			a	b	c	d
30 - 40	City Centre	80m	450	200	100	1200
50 - 60	Urban	120m	600	450	140	2500
70 - 120	Rural	150m	1300	700	200	4000

NO.	DATE	AMENDMENTS

CONSULTANT
T2-Tech
 Consulting Engineers
 14 A CHURCH STREET
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 TEL: (011) 291 3320
 FAX: (011) 291 2114

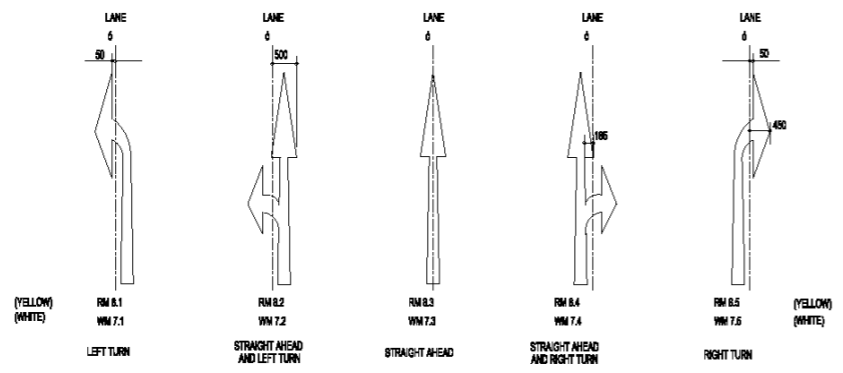
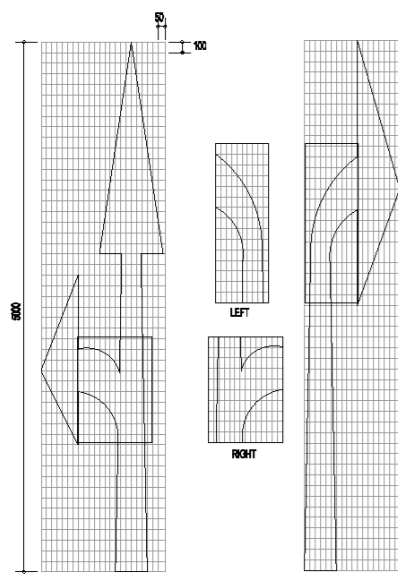
DESIGNED BY:
 NAME: IRYOBA
 PROF. REG. NO.: 201480249-CD
 CHECKED BY:
 NAME: P. MANYOWA
 PROF. REG. NO.: 20160191

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 PROF. REG. NO.: 20087055
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 NAME: _____
 POSITION: _____
 SIGNATURE: _____
 DATE: _____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD
 CONTRACT NO.: BM 01/20/21
 ROAD MARKINGS DETAILS
 SCALE: ON A0
 INTERNAL PROJECT No.: T1508 F - BM
 DRAWING No.: T2004TD01SDRM01
 VER No: _____
 SHEET OF _____



APPLICATIONS

Operating Speed km/h	Typical Applications	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
30-40	City Centre	2500	600	550	450	664	200	417	1000	1700	250	550	1250	700	380	1450	58	30	29
50-90	Urban/Rural Expressway	4000	900	600	720	1408	320	666	1800	2720	400	880	2000	1120	606	2320	95	48	48
100-120	Rural and Freeways	5000	1200	700	800	1767	400	823	2000	3400	500	1108	2500	1400	780	2900	116	60	58
ALL	Special Applications	7500	1800	1050	1350	2651	600	1350	3000	5100	750	1650	3750	2100	1140	4260	174	90	87

Dimensions (mm)

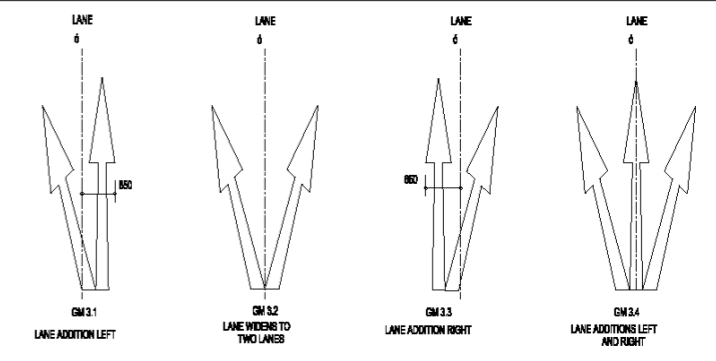
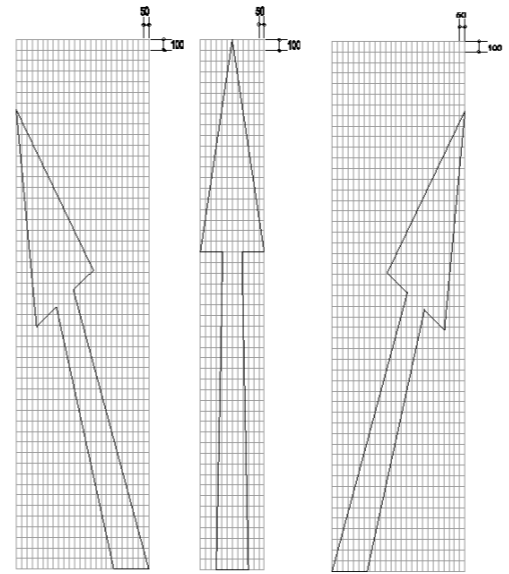
Operating Speeds and Applications	H	O	P	Q	R	S	T
	215	180	350	300	500	400	600

Arrow Area (m²)

a	RM 8.1/RM 8.5 WM 7.1/WM 7.5	RM 8.2/RM 8.4 WM 7.2/WM 7.4	RM 8.3 WM 7.3	RM 8.4 WM 7.4	RM 8.5 WM 7.5
2300	0.67	0.88	0.68	1.03	
4000	1.14	1.43	1.06	1.58	
6000	1.45	1.78	1.32	2.12	
7500	2.23	2.86	1.98	3.20	

NOTES: (MANDATORY DIRECTION ARROWS)

- THESE ARROWS MAY BE USED IN LANES TO INDICATE THAT DRIVERS SHALL PROCEED ONLY IN THE DIRECTION OR DIRECTIONS SHOWN. THEY SHOULD ONLY BE USED IF THE JUNCTION CONCERNED REQUIRES TURNING MOVEMENT CONTROL BY LANE.
- THE FINAL ARROW NEAREST TO THE POINT OF TURN OR STRAIGHT ON MOVEMENT SHALL BE YELLOW. ANY ARROWS MARKED IN ADVANCE OF THIS POINT TO WARN DRIVERS OF THE MANDATORY MOVEMENT AHEAD SHALL BE WHITE.
- A MANDATORY OR WARNING DIRECTION ARROW SHALL NOT BE USED IN ADVANCE OF A WIDENING OF THE ROADWAY TO A GREATER NUMBER OF LANES. THIS SHALL BE INDICATED IF NECESSARY, BY USING FURCATION ARROWS.



APPLICATIONS
SCALE 1:50

DIMENSIONS (mm)

Operating Speed km/h	Typical Applications	a	b	c	d	e	f	g	h	i	j
30-40	City Centre	2500	600	1000	2170	1141	288	761	1236	81	655
50-90	Urban Roads	4000	2600	1800	3472	1826	428	1215	1978	129	1387
70-90	Urban Arterial Roads/ Rural Expressway	5000	3000	2000	4340	2282	506	1922	2470	181	1708
100-120	Rural Roads and Freeways	7500	4500	3000	6516	3425	854	2263	3708	242	2594

All Operating Speeds and Applications

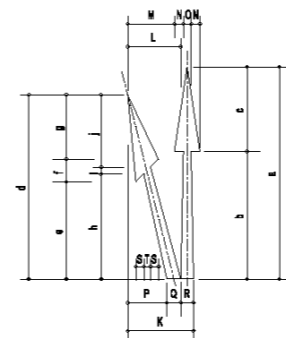
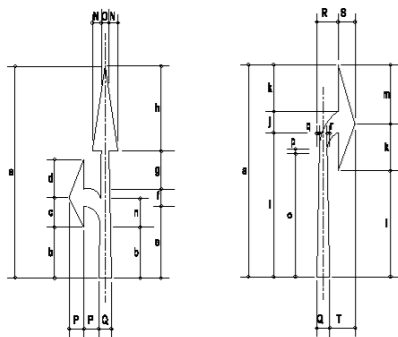
	K	L	M	N	O	P	Q	R	S	T
	1700	1250	1100	210	180	821	328	500	198	161

NOTES: (FURCATION ARROWS)

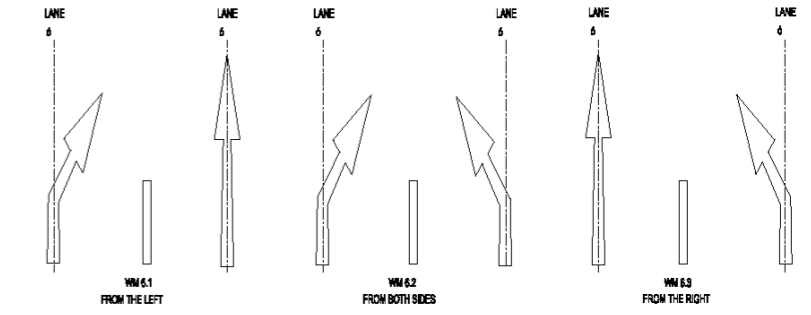
- THESE ARROWS MAY BE USED TO INDICATE THAT THE NUMBER OF LANES IS INCREASING AHEAD. ONLY ONE SET OF ARROWS SHOULD BE USED UNLESS A LEFT AND RIGHT TURN LANE ARE ADDED TO A MULTI-LANE ROADWAY AT THE SAME POINT WHERE TWO SETS MAY BE USED.
- DIRECTION ARROWS AHEAD SHALL NOT BE USED TO INDICATE THE ADDITION OF LANES AHEAD.
- AS A GENERAL RULE FURCATION ARROWS SHOULD BE LOCATED TWO TO THREE MARKING MODULES BEFORE THE START OF THE LANE GENERATING TAPER OR CURVE.

Arrow Area (m²)

a	GM 3.1/GM 3.3	GM 3.2	GM 3.4
2500	1.30	1.27	1.58
4000	2.07	2.04	3.08
5000	2.68	2.65	3.87
7500	3.88	3.82	5.80



FURCATION ARROWS



APPLICATIONS

DIMENSIONS (mm)

Operating Speed km/h	Typical Applications	a	b	c	d	e	f	g	h	i	j	k
30-40	City Centre	4000	2400	1600	3200	1271	647	227	666	1586	1277	1126
50-90	Urban Roads	5000	3000	2000	4000	1596	1026	254	1089	2120	1566	1487
70-90	Urban Arterial Roads/ Rural Expressway	7500	4800	3000	6000	2284	1687	428	1803	3180	2284	2111
100-120	Rural Roads and Freeways	12000	7200	4800	9600	3614	2538	661	2568	5026	3620	3377

All Operating Speeds and Applications

	M	N	O	P	Q	R	S	T	U	V
	300	210	180	1300	866	492	155	370	32	380

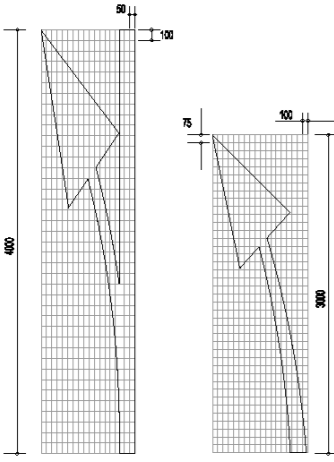
NOTES: (LANE REDUCTION ARROWS)

- IT IS RECOMMENDED THAT THREE SETS OF ARROWS BE USED ON HIGH SPEED ROADS, SPACED AT FOUR MODULE INTERVALS BEFORE THE END OF THE LANE LINE. SINGLE ARROWS SETS MAY BE USED ON LOWER SPEED ROADS.
- THE BENT ARROWS MAY BE USED IN ADDITION TO THE THREE-ARROW SETS ALONG THE LENGTH OF THE LANE REDUCTION TAPER.

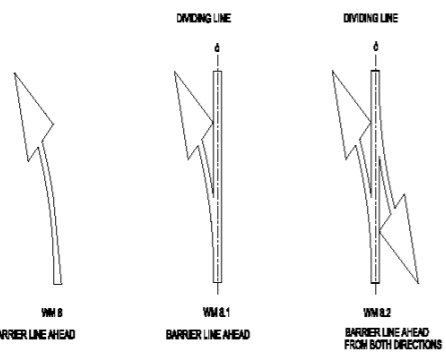
Arrow Area (m²)

a	WM 6.1/WM 6.3	WM 6.2
4000	2.08	2.06
5000	2.81	2.58
7500	3.82	3.88
12000	6.68	8.20

LANE REDUCTION ARROWS



MANDATORY DIRECTION ARROWS

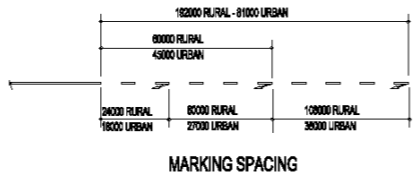


Dimensions (mm)

Typical Applications	a	b	c	d	e	f	g	h	i	r	r'
Urban	3000	1941	85	978	1741	628	751	1206	620	6620	6620
Rural	4000	2600	111	1291	2321	704	876	1626	890	10008	

Application

	H	I	J	K	L	M
	735	280	181	218	75	100 or 150



Arrow Area (m²)

a	Per Arrow
2000	0.82
4000	0.82

BARRIER LINE AHEAD ARROWS

NOTES: (BARRIER LINE AHEAD ARROWS)

- THESE ARROWS SHOULD BE USED IN MULTIPLES OF THREE (AT LEAST) IN ADVANCE OF THE START OF A SECTION OF NO OVERTAKING LINE, NO CROSSING LINE OR PAINTED ISLAND WHEN SUCH BARRIER LINES REPLACE A DIVIDING LINE.
- THE ARROWS MAY BE MARKED ON TOP OF EXISTING DIVIDING LINE MARKINGS IF THE EXISTING LINE IS A CENTRE LINE TO A 12m OR 7.2m MODULE THE POINT OF THE ARROW SHOULD BE LINED UP WITH THE FORWARD END OF THE LINE.
- WHEN OVERTAKING SECTIONS ARE REGULARLY INTERSPERSED WITH NO OVERTAKING SECTIONS AND ARE SHORT IN LENGTH MARKING WM 8.2 MAY BE USED AT THE CENTRE OF THE OVERTAKING SECTION.

NO.	DATE	AMENDMENTS

CONSULTANT

T2 TECH CONSULTING ENG.
14 A CHURCH STREET
POLOKwane 0700
TEL: (015) 291 3200
FAX: (015) 291 2114

DESIGNED BY:

NAME: LUYISA
PROF. REG. NO.: 20148594-CD

CHECKED BY:

NAME: P. MANYOWA
PROF. REG. NO.: 20160191

CONSULTANT APPROVAL

NAME: TPV NDOU
PROF. REG. NO.: 20067055

DATE: _____

THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CLIENT:

BLERBERG MUNICIPALITY
P.O. BOX 1003
SENWABARWANA, 0796
TEL: (015) 855 7100
FAX: (015) 855 5868

APPROVAL BY CLIENT

NAME: _____
POSITION: _____
SIGNATURE: _____
DATE: _____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD

CONTRACT NO.: BM 01/20/21

ROAD MARKINGS DETAILS

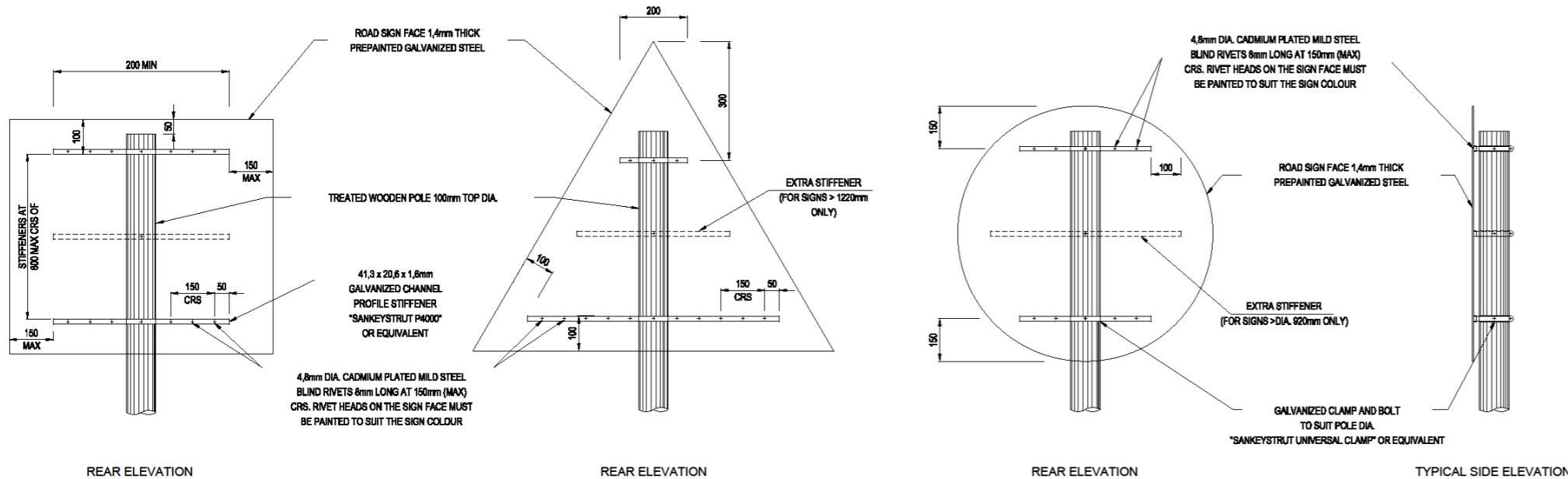
SCALE: ON A4

INTERNAL PROJECT No.: T1508 F - BM

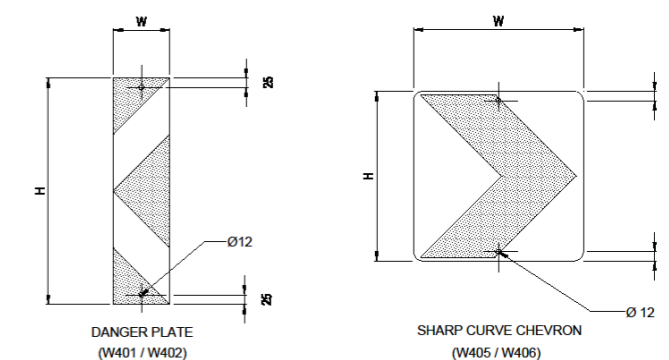
DRAWING No.: T2004TD01SDRM02

VER No: _____

SHEET OF _____

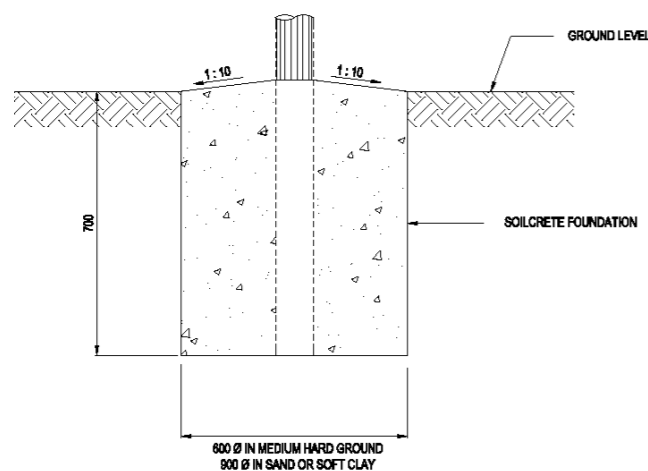


MOUNTING DETAILS SIGNS < 1.5m²
N.T.S.



MOUNTING HOLES FOR HAZARD MARKER SIGNS WITHOUT FRAMEWORK
SCALE 1:10

HAZARD MARKER SIGNS		
OPERATING SPEED (km/h)	DANGER PLATE SIGN	SHARP CURVE CHEVRON
	W401-RIGHT W402-LEFT	W405-RIGHT W406-LEFT
	SIZE H x W (mm)	
120	800 x 200	600 x 600
100	800 x 200	600 x 600
80	600 x 150	450 x 450
60	600 x 150	450 x 450



TYPICAL FOUNDATION DETAIL
N.T.S.

NOTES :
THE ROAD SIGN FACES SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS :

- DETAILS ON THIS DRAWING ARE APPLICABLE TO ROAD SIGNS SMALLER THAN 1,5m² REQUIRING DOUBLE / SINGLE SUPPORTS.
- BOLTS, WASHERS AND NUTS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 1700-5-1 AND SHALL BE GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).
- BLIND RIVETS SHALL BE 4.8mm DIA CADMIUM PLATED MILD STEEL.
- REFERENCE MUST BE MADE TO THE RELEVANT ROAD SIGNS DETAIL DRAWING FOR DETAILS OF THE ROAD SIGN SYMBOLS AND LEGEND FOR EACH INDIVIDUAL SIGN.

MINIMUM REGULATORY SIGN SIZES			
	OPERATING SPEED (km/h)		
	100 - 120	70 - 90	60
CIRCULAR SIGN DIAMETER (mm)	1200	900	600
RECTANGULAR SIGN WxH (mm)	1200 x 900	900 x 675	600 x 450
TRIANGULAR SIGN SIDE LENGTH (mm)	1500	1200	900

ADVANCE WARNING SIGN LOCATION AND SIZE		
OPERATING SPEED (km/h)	LOCATION (DISTANCE FROM HAZARD) (m)	SIZE (mm)
120	330	1500
100	240	1500
80	160	1200
60	120	900

NO.	DATE	AMENDMENTS

CONSULTANT

T2 TECH CONSULTING ENG.
14 A CHURCH STREET
POLKOVANE
CRD

TEL: (015) 291 3222
FAX: (015) 292 2114

DESIGNED BY:		CONSULTANT APPROVAL	
NAME:	LUYISA	NAME:	TPV NDOU
PROF. REG. NO.:	201482549-CD	PROF. REG. NO.:	200670135
CHECKED BY:		SIGNATURE:	_____
NAME:	P. MANYOWA	DATE:	_____
PROF. REG. NO.:	20160191	THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING	

CLIENT:

BLOBERG MUNICIPALITY
P.O. BOX 1193
SENWABARWANA,
DPPE

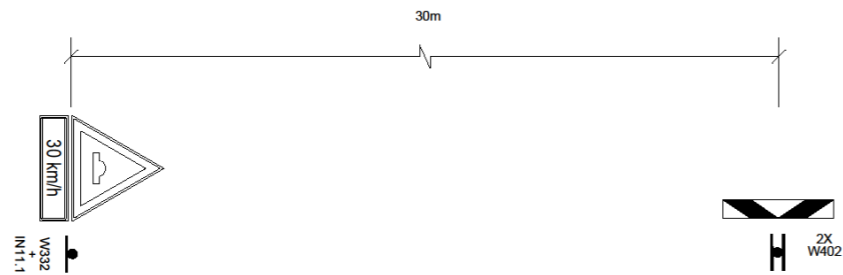
TEL: (015) 809 7100
FAX: (015) 809 0568

APPROVAL BY CLIENT	
NAME:	_____
POSITION:	_____
SIGNATURE:	_____
DATE:	_____

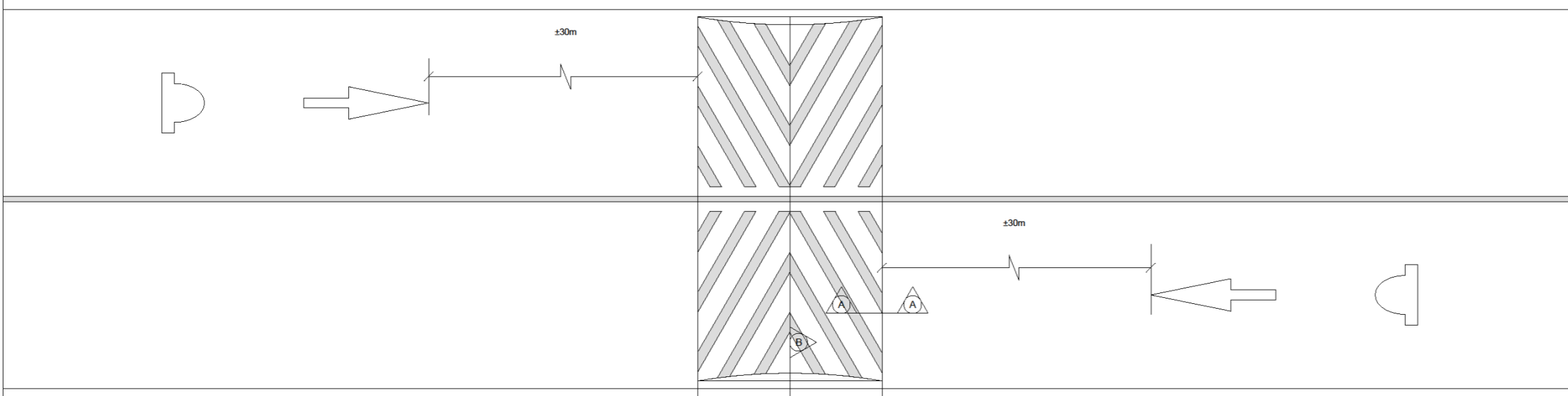
CONSTRUCTION OF SENWABARWANA BYPASS ROAD
CONTRACT NO.: BM 01/20/21

ROAD SIGNS INSTALLATION DETAILS

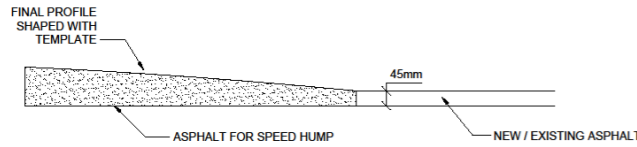
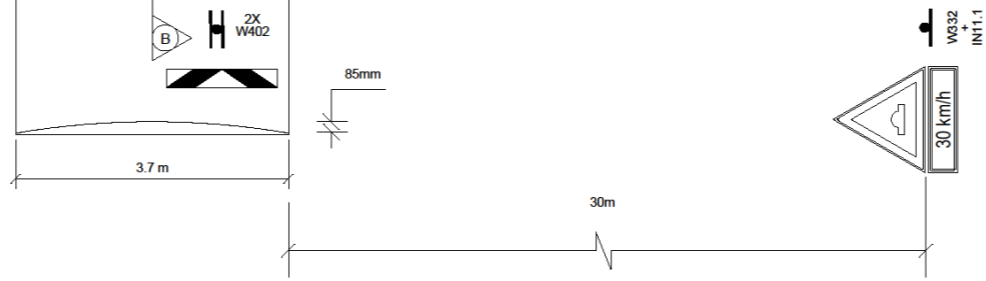
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ON A3	T1508 F - BM DRAWING No.: T2004TD01SDRS01	
SHEET OF		



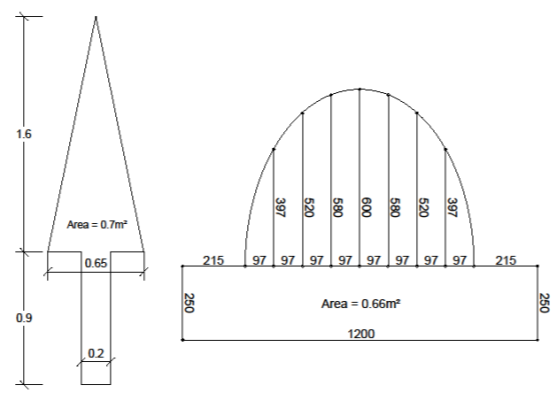
- CONSTRUCTION METHOD:**
1. Setting out of hump - few days before construction.
 2. Saw cuts one to two days before construction.
- ON CONSTRUCTION DAY:**
3. Remove 500 mm asphalt strips.
 4. Start erecting road signs and paint warning road markings.
 5. Place asphalt in strips and compact with two passes without vibrator.
 6. Place templates - both sides of one lane at a time.
 7. Place asphalt and rake till slightly higher than templates.
 8. Shape asphalt with straight edge (channel section 6 m long).
 9. Remove templates and compact without vibrator (three passes).
 10. Measure profile and rectify if necessary.
 11. Final compaction with three to four passes with vibrator.
 12. Place road studs.
 13. Paint speed hump the next day.



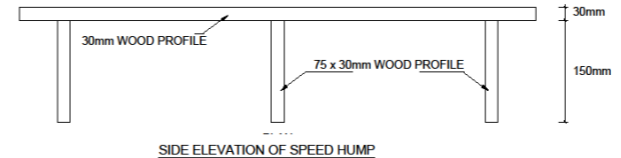
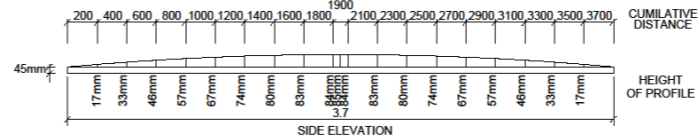
PLAN OF SPEED HUMP
SCALE 1:50



SECTION A-A:
CONSTRUCTION DETAIL OF SPEED HUMP
SCALE 1:100

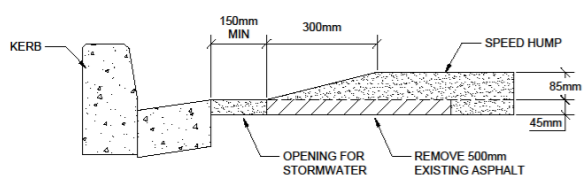


DETAIL OF SPEED HUMP ROAD MARKING

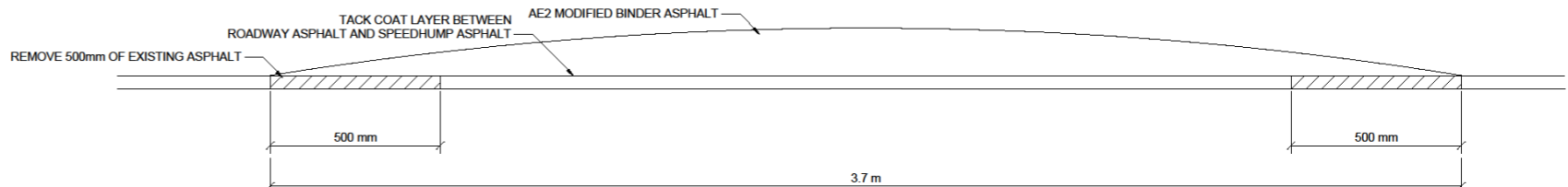


SIDE ELEVATION OF SPEED HUMP

DETAIL OF SPEEDHUMP TYPE AND REMOVAL OF EXISTING ASPHALT



SECTION B-B:
CONSTRUCTION DETAIL OF SPEED HUMP
SCALE 1:100



NO.	DATE	AMENDMENTS

CONSULTANT

T2 TECH CONSULTING ENG.
14 A CHECKERS DRIVE
POLOKwane
0700
TEL: (015) 291 3020
FAX: (015) 295 2114

DESIGNED BY:

NAME: LUYOBA
PROF. REG. NO.: 201480549-CD

CHECKED BY:

NAME: P. MANYOWA
PROF. REG. NO.: 20160191

CONSULTANT APPROVAL

NAME: TPN NDOU
PROF. REG. NO.: 200678155

SIGNATURE: _____
DATE: _____

THE ABOVE SIGNATORY CERTIFY THAT THE DESIGNER AND CHECKER HAVE SEEN AND APPROVED THE DRAWING

CLIENT:

BLOSBERG MUNICIPALITY
P.O. BOX 1819
SENWABARWANA,
0700
TEL: (015) 805 7100
TSM: (015) 805 0868

APPROVAL BY CLIENT

NAME: _____
POSITION: _____
SIGNATURE: _____
DATE: _____

CONSTRUCTION OF SENWABARWANA BYPASS ROAD
CONTRACT NO.: BM 01/20/21

SPEED HUMP DETAILS

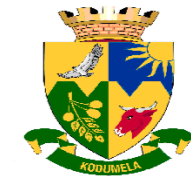
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AS SHOWN	T1508 F - BM	VD1
ON A0	DRAWING No.:	1 SHEET OF 1
	T2004TD01SC04CD01	



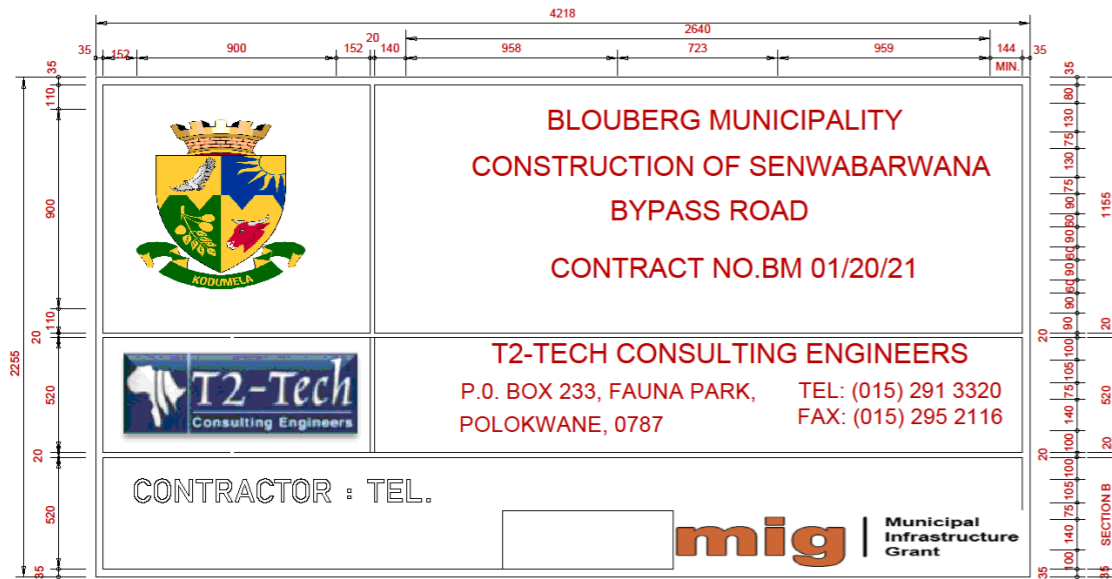
T2 Tech Consulting Engineers

16 A Church street
Polokwane
P O Box 233
Fauna Park
POLOKWANE
0787

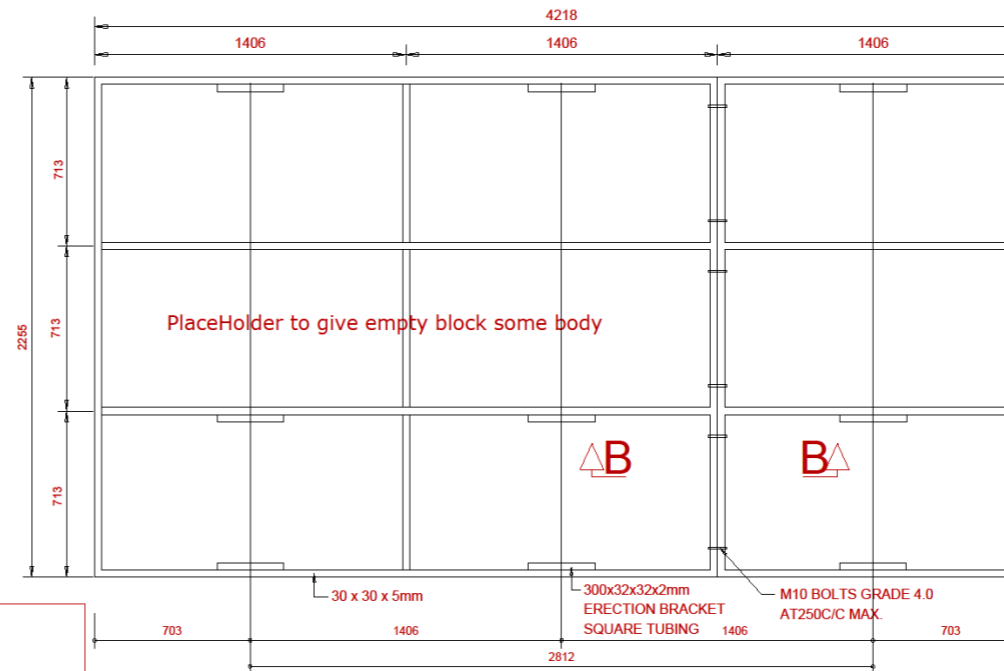
TEL: 015 291 3320
TEL: 076 920 8739
FAX: 015 295 2116
E-MAIL: magodip@t2tech.co.za



BLOUBERG MUNICIPALITY
P.O.Box 1593
Senwabarwana, 0790
Tell: (015) 505 7100
Fax: (015) 505 0568/0296



FRONT ELEVATION



REAR SIDE BRACING

DETERMINATION OF BREAK-AWAY HOLES	
POLE DIA (mm)	HOLE DIA (mm)
< 140	NONE
141 - 170	40
171 - 200	50
201 - 225	65

NOTES:

EMBLEME:
1. ALL EMBLEMS TO BE DISPLAYED IN FULL COLOUR ON A SEMI-MATT BACKGROUND.

LETTERS AND NUMBERS:
2. DESCRIPTION - MATT-BLACK, SERIES DIN B LETTERS AND NUMBERS ON A SEMI-MATT SMOKE-GRAY BACKGROUND.

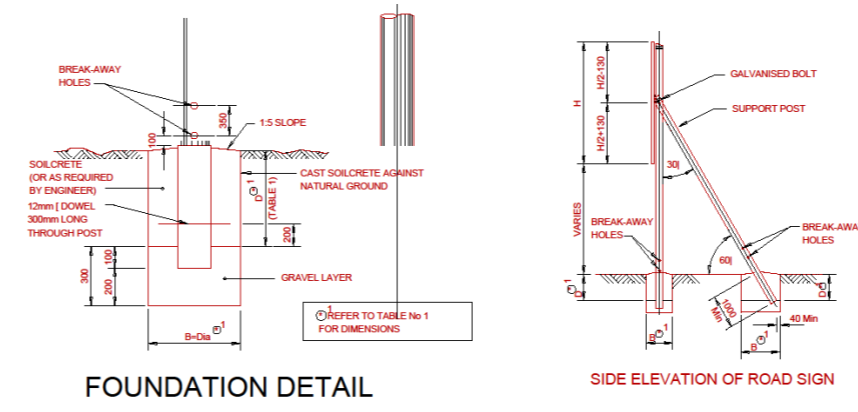
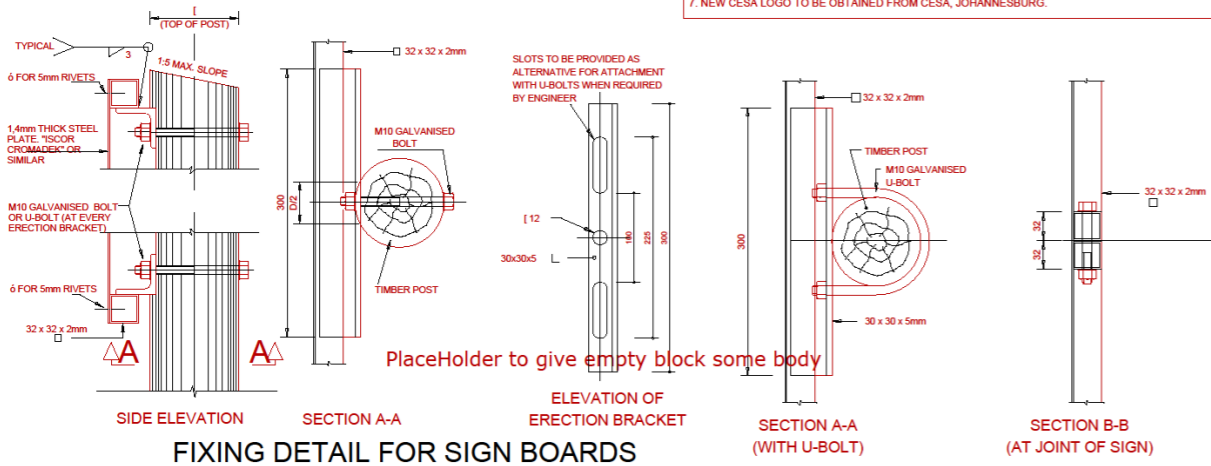
BORDERS:
3. BORDER : GREEN NON-REFLECTORIZED.

QUANTITY:
4. FIVE SIGN BOARDS, SHALL BE ERECTED AT POSITIONS AS DETERMINED BY THE ENGINEER.

DESCRIPTION:
5. DESCRIPTION OF WORK (eg. AGINCOURT AND IREAGH BULK WATER SUPPLY: 1.4M AT AGINCOURT LCH)
DESCRIPTION STARTS CENTERED ON THE LEFT-HAND
6. SAFCEC EMBLEM ONLY IF CONTRACTOR IS A MEMBER OTHERWISE BLANK.
SIDE AND THE FIRST 105mm-DIMENSION BELOW "NORTHERN"
7. NEW CESA LOGO TO BE OBTAINED FROM CESA, JOHANNESBURG.

TABLE 1: DETERMINATION OF POSTS & FOOTINGS ERECTION DETAILS

TYPE OF POST	UPRIGHT	STAY	D	B(DIA)
TIMBER POST AND STAY	100mm	80mm	600mm	850mm
TIMBER POST	100mm	-	1000mm	1450mm
D SECTION STEEL POST	100mm x 4mm	-	1000mm	1450mm



No.	NOTES	No.

PROJECT:	CONTRACT NUMBER: BM 01/20/21
LOCATION:	SENWABARWANA TOWN
CLIENT:	BLOUBERG MUNICIPALITY
DRAWING TITLE:	CONTRACT NAME BOARD

DESIGNED: RICHARD ZISAH	DRAWN: RICHARD ZISAH	CHECKED: VALENTINE NDOU & PATRICK MARYOTWA	DATE: 20/01/2021	SCALE: AS SHOWN
COMPANY NUMBER: T2004TD01CNB01	SHEET NUMBER: 1 of 1			