



TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

BOOK OF TENDER DRAWINGS
CONTRACT No.:KLM/MIG/FS1192/2021

APRIL 2024



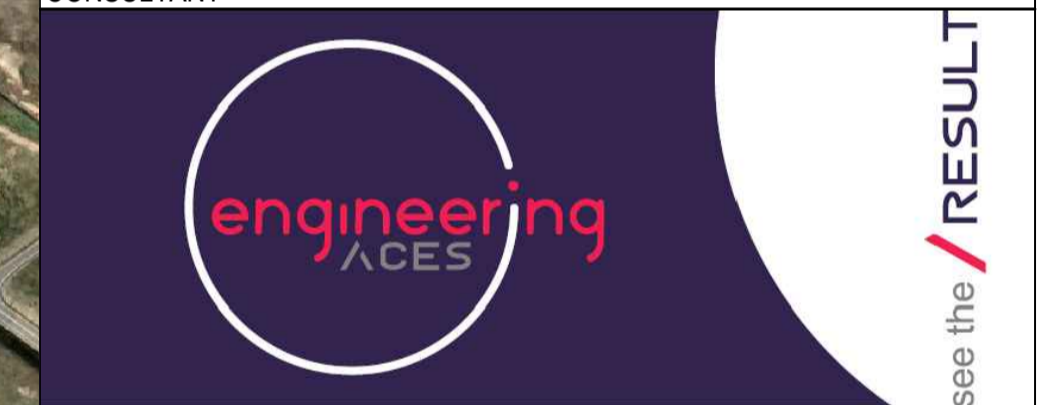
Drawing signed for approval held at Engineering Aces offices

DRAWN: M MHLTSHANEKAZI	ISSUED FOR TENDER	
DESIGNED: SS MNTAMBO		DATE
CHECKED: EM MAPHUTHA	OS MOTHIBI Pr Tech Eng - 201570157	
APPROVED: OS MOTHIBI	SCALE:	

AMENDMENTS

REV	DATE	DESCRIPTION	APPROVED
T0	17/04/2024	TENDER DRAWINGS	OS MOTHIBI

CONSULTANT



CLIENT



Kopanong Municipality

KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

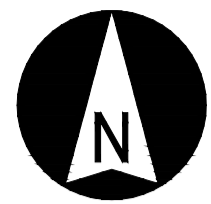
LAYOUT:
LOCALITY PLAN AND LIST OF DRAWINGS

LIST OF DRAWINGS

- 1012-CIV-DRG-100 : LAYOUT: LOCALITY PLAN AND LIST OF DRAWINGS
- 1012-CIV-DRG-203a : LAYOUT: PLAN LAYOUT: LANDFILL SITE
- 1012-CIV-DRG-203b : LAYOUT: LANDFILL SECTIONS
- 1012-CIV-DRG-203c : LAYOUT: LANDFILL SITE FILLING CONCEPT
- 1012-CIV-DRG-203d : LAYOUT: LANDFILL TYPICAL DETAILS (1 OF 2)
- 1012-CIV-DRG-203e : LAYOUT: LANDFILL TYPICAL DETAILS (2 OF 2)
- 1012-CIV-DRG-204 : LAYOUT: RECYCLABLE STORAGE AREA
- 1012-CIV-DRG-205 : LAYOUT: ACCESS CONTROL BUILDING LAYOUT AND DETAILS
- 1012-CIV-DRG-206 : LAYOUT: CLEAR VU FENCE DETAILS
- 1012-CIV-DRG-207 : LAYOUT: SINGLE LEAF SLIDING GATE DETAILS
- 1012-CIV-DRG-208 : LAYOUT: TYPICAL MANHOLE DETAILS

DRAWING NO.
1012-CIV-DRG-100

REVISION
T0

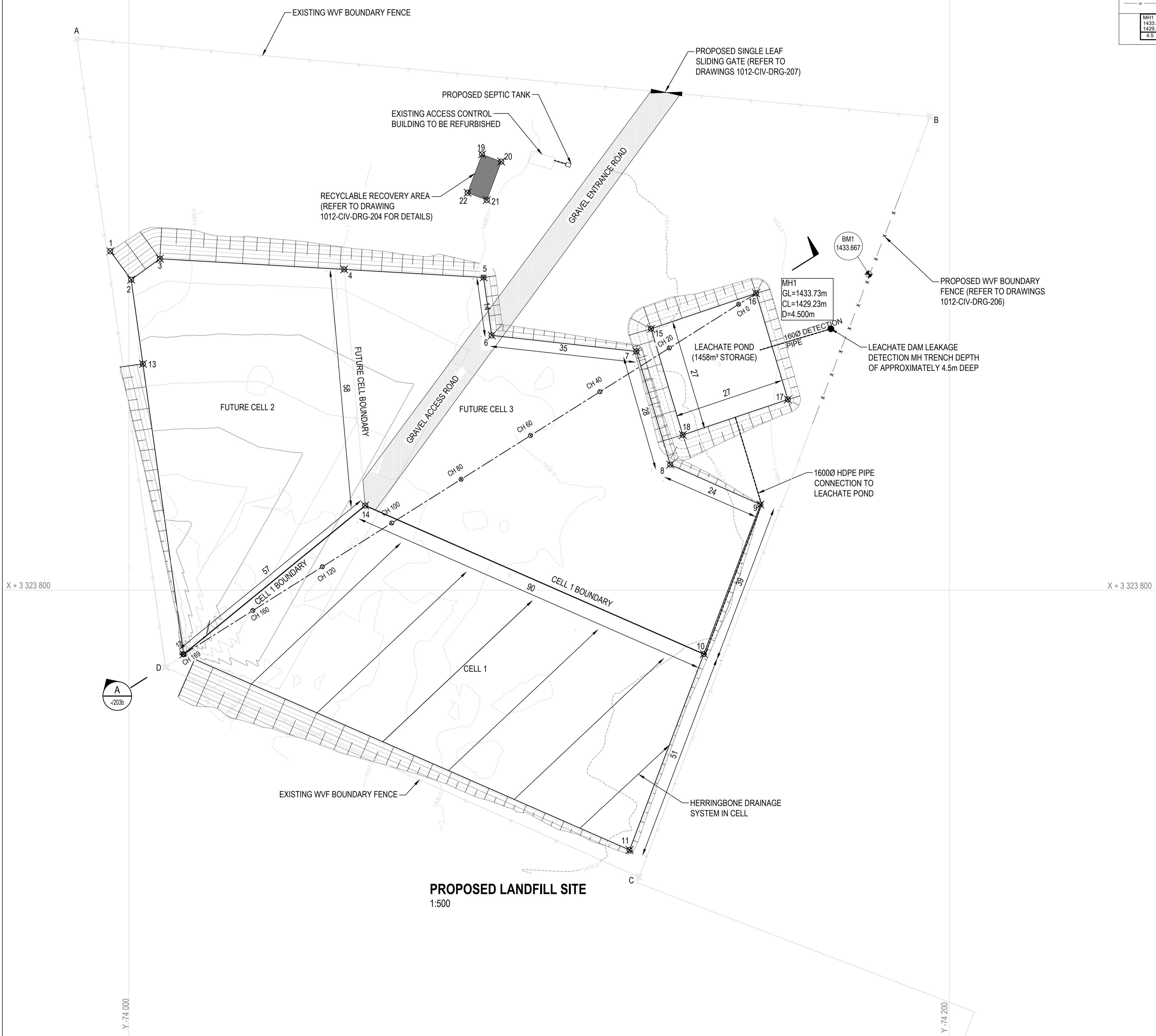


Y -74 000

Y -74 200

Y -74 000

Y -74 200



PROPOSED LANDFILL SITE
1:500

LEGEND

---	PROPOSED FENCE
---	PROPOSED DRAINAGE PIPE
●	PROPOSED MANHOLE
□	PROPOSED ENDCAP
---	PROPOSED SUB SURFACE DRAIN
MH1 1433.73 1429.23 4.5	MANHOLE NO COVER LEVEL INVERT LEVEL DEPTH

RECYCLABLE RECOVERY AREA WG 25°

NO.	Y	X
19	-74 086.1205	+ 3 323 693.7595
20	-74 090.7992	+ 3 323 695.5230
21	-74 087.2722	+ 3 323 704.8804
22	-74 082.5935	+ 3 323 703.1169

BENCHMARKS LIST WG 25°

POINT	Y	X	LEVEL
BM2	-74 180.40	+ 3 323 722.97	1433.667
BM3	-73 961.26	+ 3 323 964.70	1440.637

LANDFILL CELLS WG 25°

POINT	Y	X	LEVEL
1	-73 995.5121	+ 3 323 717.3680	1438.60
2	-74 000.5847	+ 3 323 724.3156	1438.24
3	-74 007.5868	+ 3 323 719.2031	1438.19
4	-74 052.5169	+ 3 323 721.7991	1436.93
5	-74 086.5063	+ 3 323 723.7629	1435.86
6	-74 088.4768	+ 3 323 737.9016	1435.85
7	-74 123.7449	+ 3 323 741.7892	1435.05
8	-74 132.0071	+ 3 323 769.4042	1434.54
9	-74 153.9815	+ 3 323 779.1388	1434.38
10	-74 140.1677	+ 3 323 815.5986	1434.93
11	-74 122.0746	+ 3 323 863.3532	1434.83
12	-74 013.3522	+ 3 323 815.6488	1439.00
13	-74 003.4532	+ 3 323 744.8354	1437.98
14	-74 057.6217	+ 3 323 779.3797	1437.37

LEACHATE POND WG 25°

POINT	Y	X	LEVEL
15	-74 127.3260	+ 3 323 736.2673	1435.04
16	-74 152.9267	+ 3 323 727.6364	1434.16
17	-74 160.6600	+ 3 323 753.5224	1433.19
18	-74 135.0593	+ 3 323 762.1533	1435.25

FENCE BOUNDARY WG 25°

NO.	Y	X
A	-73 987.3543	+ 3 323 713.3650
B	-74 195.3368	+ 3 323 684.5660
C	-74 124.3256	+ 3 323 869.9057
D	-74 008.9260	+ 3 323 818.7840

RECYCLABLE RECOVERY AREA WG 25°

NO.	Y	X
19	-74 086.1205	+ 3 323 693.7595
20	-74 090.7992	+ 3 323 695.5230
21	-74 087.2722	+ 3 323 704.8804
22	-74 082.5935	+ 3 323 703.1169

	AREA (m²)	VOLUME (m³)	LIFESPAN(years)
CELL 1	3 885	19 425	±5
CELL 2	2 992.4	14 962	±5
CELL 3	4 242	21 212	±5
TOTAL	11 119.4	55 599	±15

NOTES
GENERAL:
1. LEVELS BASED ON MSL DATUM.
2. CO-ORDINATES BASED ON WG25
3. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH SANS 1200 STANDARDISED SPECIFICATIONS AND THE RELEVANT PROJECT SPECIFICATIONS

GEOSYNTHETIC CLAY LINER
1. G.C.L. TO COMPRISE A LAYER OF SODIUM MONTMORILLITE CLAY EVENLY DISTRIBUTED BETWEEN TWO GEOTEXTILES.
2. G.C.L. TO COMPLY WITH THE NOMINAL SPECIFICATIONS INCLUDED IN PART C3 OF THE CONTRACT DOCUMENT.
3. G.C.L. LINER TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.

GEOMEMBRANE LINER
1. GEOMEMBRANE LINER SHALL BE EITHER A 1.5mm OR 2.0mm HDPE PRODUCT THAT COMPLIES WITH THE NOMINAL SPECIFICATIONS INCLUDED IN PART C3 OF THE CONTRACT DOCUMENT AND SHALL MEET THE REQUIREMENTS OF GR1 TEST METHOD GM93, "TEST METHODS, TEST PROPERTIES AND TESTING FREQUENCY FOR HDPE SMOOTHER AND TEXTURED GEOMEMBRANES."

CUSPATED GEODRAIN
1. CUSPATED GEODRAIN TO BE SUPPLIED AND INSTALLED PER MANUFACTURERS SPECIFICATIONS AND IS TO COMPLY WITH THE NOMINAL SPECIFICATIONS DETAILED IN SECTION C3 OF THE CONTRACT DOCUMENT.

DRAINAGE
1. ALL PIPES TO BE HDPE PN80 UNLESS OTHERWISE STATED.

Drawing signed for approval held at Engineering Aces offices

DRAWN:	M MHLTSHANEKAZI	ISSUED FOR TENDER
DESIGNED:	SS MNTAMBO	DATE
CHECKED:	EM MAPHUTHA	OS MOTHIBI Pr Tech Eng - 201570157
APPROVED:	OS MOTHIBI	SCALE:

AMENDMENTS

REV	DATE	DESCRIPTION	APPROVED
T0	17/04/2024	TENDER DRAWINGS	OS MOTHIBI



KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

PLAN LAYOUT: LANDFILL SITE

DRAWING NO.	1012-CIV-DRG-203a	REVISION	T0
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NOTES

GENERAL:

1. LEVELS BASED ON MSL DATUM.
2. CO-ORDINATES BASED ON WGS84, Lo 25.
3. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH SANS 1200 STANDARDISED SPECIFICATIONS AND THE RELEVANT PROJECT SPECIFICATIONS

GEOSYNTHETIC CLAY LINER

1. G.C.L. TO COMPRISE A LAYER OF SODIUM MONTMORRILLITE CLAY EVENLY DISTRIBUTED BETWEEN TWO GEOTEXTILES.
2. G.C.L. TO COMPLY WITH THE NOMINAL SPECIFICATIONS INCLUDED IN PART C3 OF THE CONTRACT DOCUMENT (PSDK 5.4).
3. G.C.L. LINER TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.

GEOMEMBRANE LINER

1. GEOMEMBRANE LINER SHALL BE EITHER A 1.5mm OR 2.0mm HDPE PRODUCT THAT COMPLIES WITH THE NOMINAL SPECIFICATIONS INCLUDED IN PART C3 OF THE CONTRACT DOCUMENT (PSDK 5.5) AND SHALL MEET THE REQUIREMENTS OF GR1 TEST METHOD GM93, "TEST METHODS, TEST PROPERTIES AND TESTING FREQUENCY FOR HDPE SMOOTHERD AND TEXTURED GEOMEMBRANES."

CUSPATED GEODRAIN

1. CUSPATED GEODRAIN TO BE SUPPLIED AND INSTALLED PER MANUFACTURERS SPECIFICATIONS AND IS TO COMPLY WITH THE NOMINAL SPECIFICATIONS DETAILED IN SECTION C3 OF THE CONTRACT DOCUMENT (PSDK 5.6)

DRAINAGE

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held at Engineering Aces offices*

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DESIGNED:	SS MNTAMBO	DATE
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APPROVED:	OS MOTHIBI	SCALE:

AMENDMENTS

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TO	17/04/2024	TENDER DRAWINGS	OS MOTHIBI

CONSULTANT



CLIENT



KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

**LAYOUT:
LANDFILL SECTIONS**

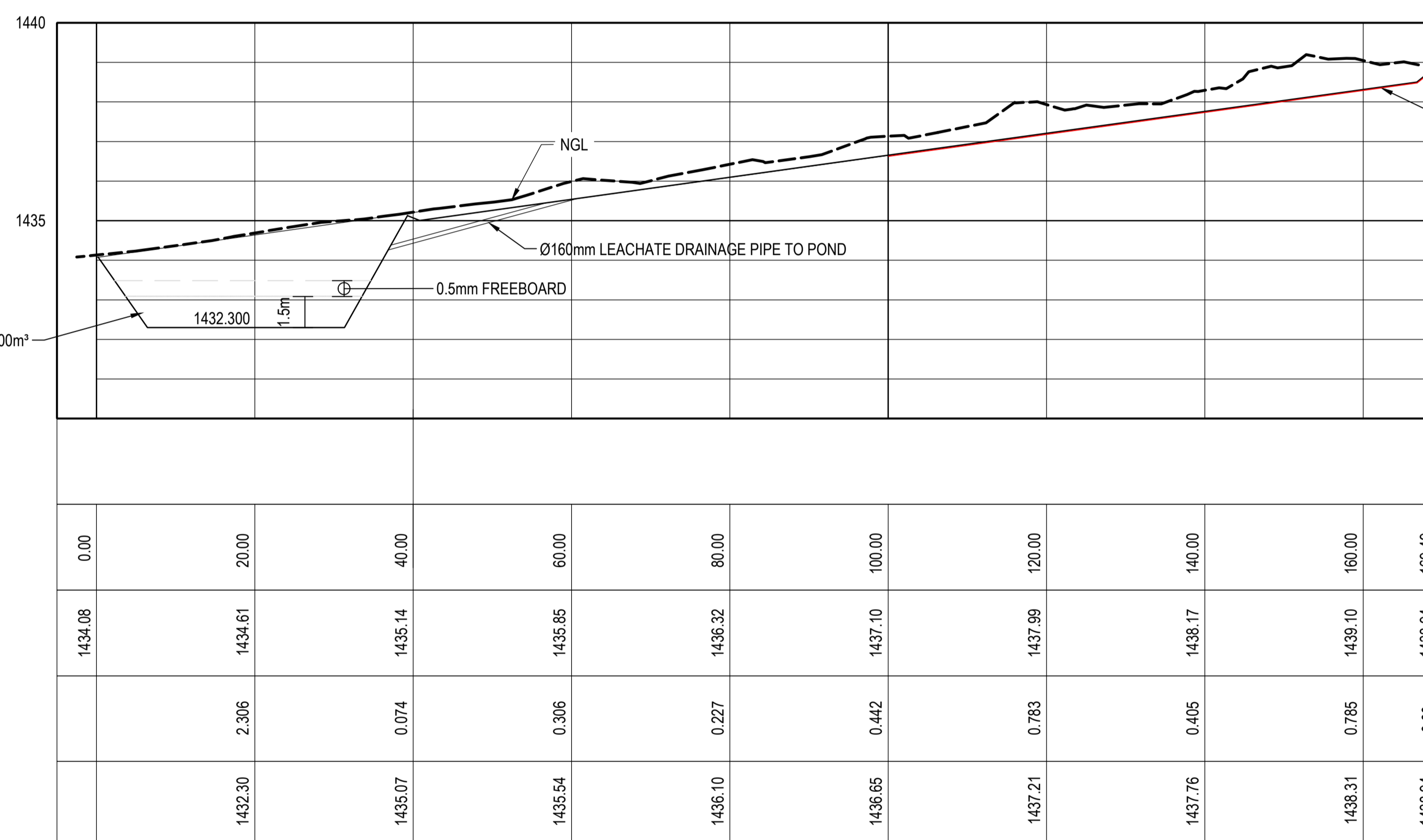
DRAWING NO.
1012-CIV-DRG-203b

REVISION
T0

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1430.000

REFERENCE
CHAINAGE (m)
GROUND LEVEL (mamsl)
CUT / FILL (m)
INVERT LEVEL (amsl)

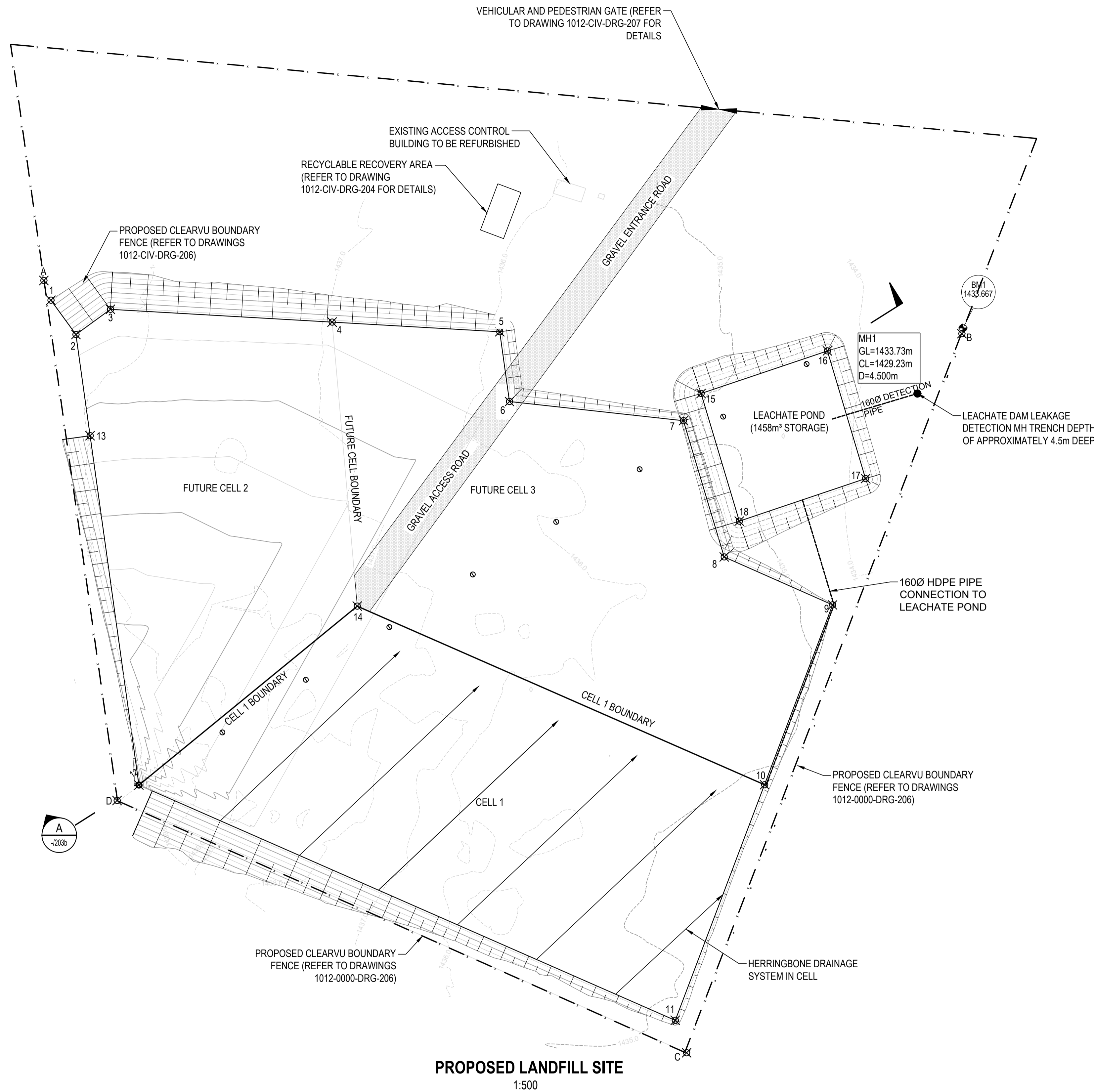
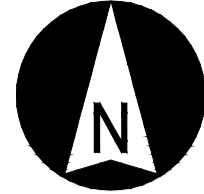
CAPACITY ±800m³



LONGITUDINAL SECTION THROUGH LANDFILL SITE

SECTION A
1:50
-203a

LANDFILL BARREL SYSTEM (CLASS B LANDFILL)



NOTES

GENERAL:

- LEVELS BASED ON MSL DATUM.
- CO-ORDINATES BASED ON WGS84, Lo 25.
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH SANS 1200 STANDARDISED SPECIFICATIONS AND THE RELEVANT PROJECT SPECIFICATIONS

GEOSYNTHETIC CLAY LINER

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DRAINAGE

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APPROVED:	OS MOTHIBI	SCALE:

AMENDMENTS			
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TO	17/04/2024	TENDER DRAWINGS	OS MOTHIBI



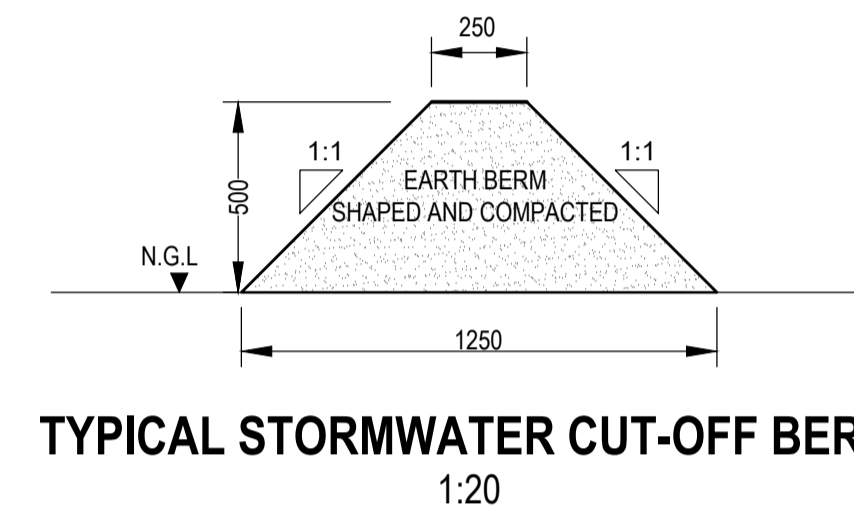
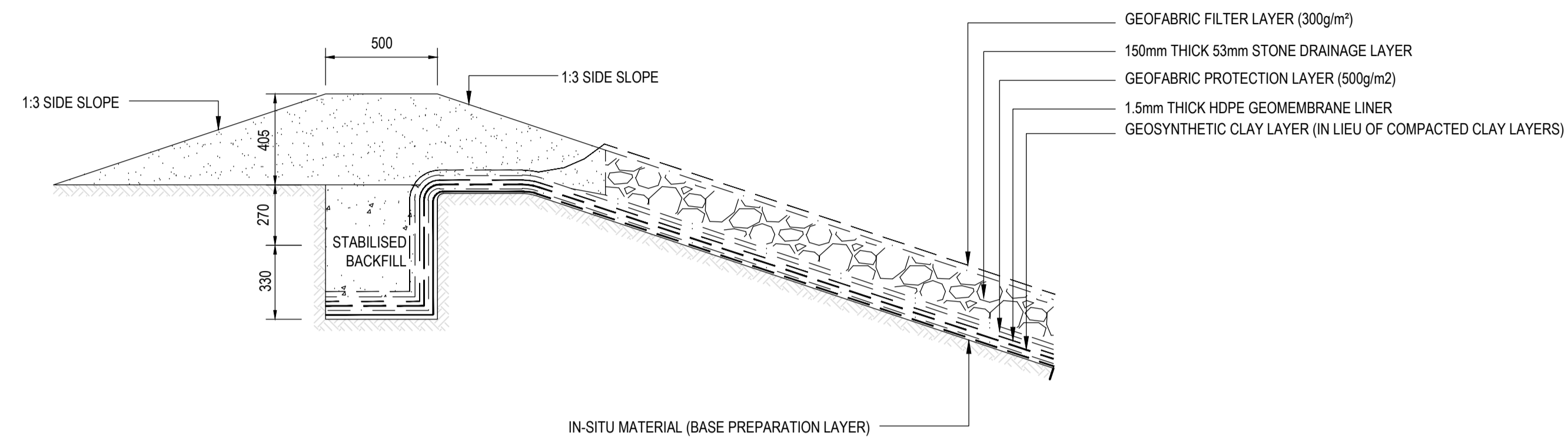
KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

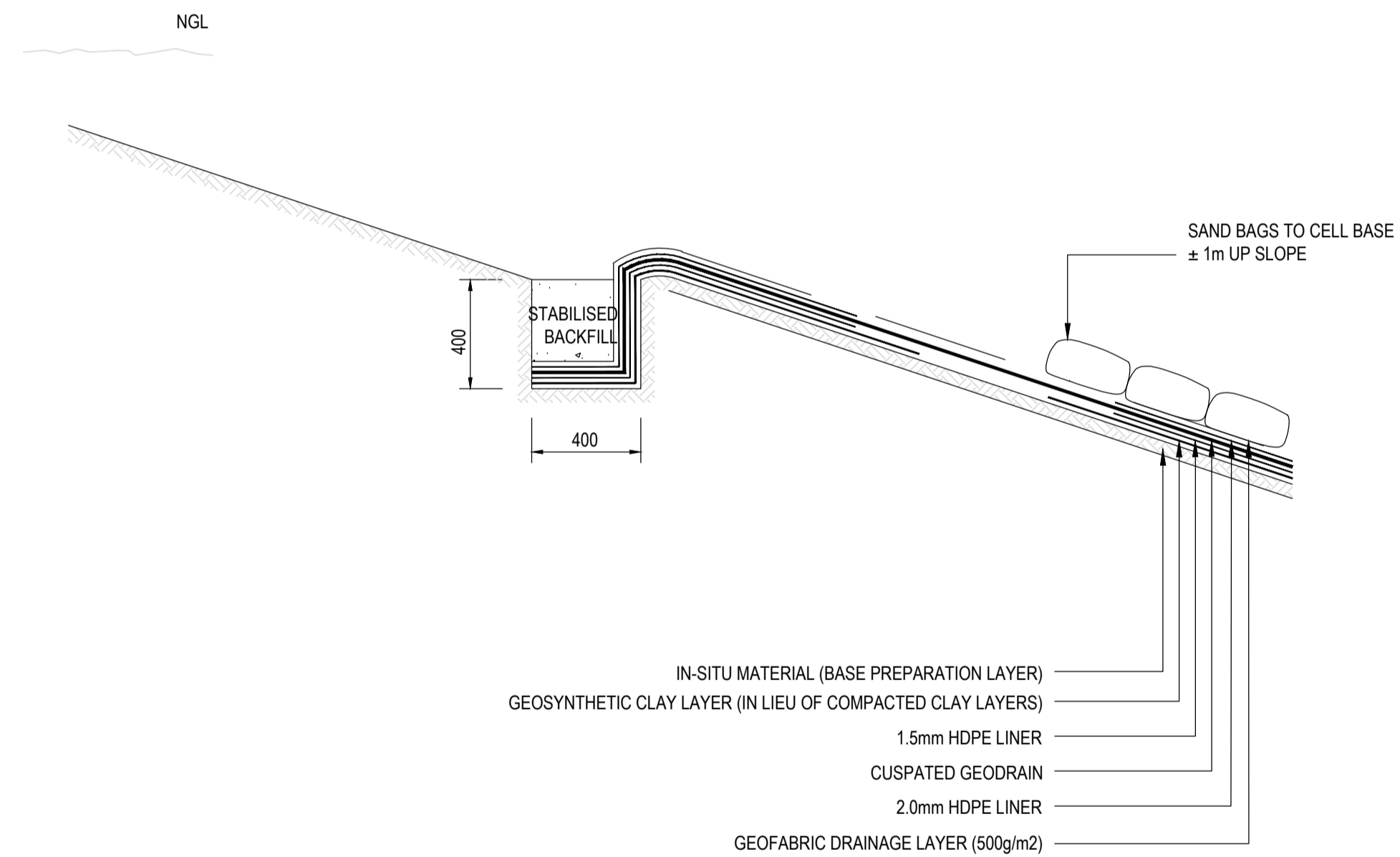
**LAYOUT:
LANDFILL SITE
FILLING CONCEPT**

DRAWING NO. 1012-CIV-DRG-203c	REVISION T0
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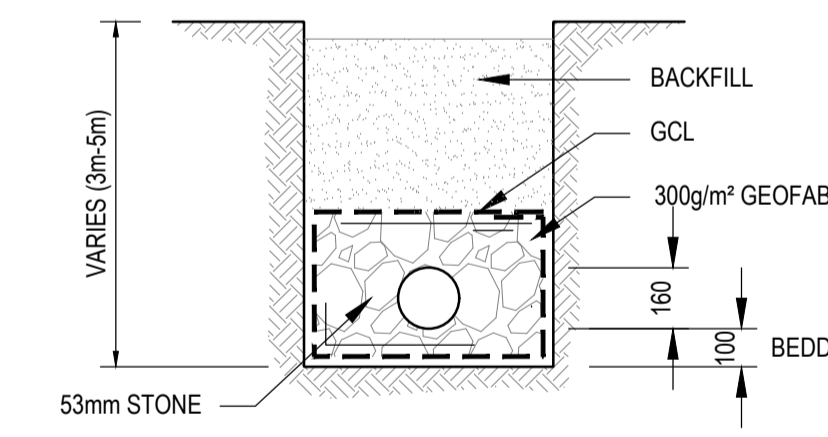
NOTE:
ALL DETAILS TO BE CONFIRMED ONCE DETAIL DESIGN HAS BEEN FINALISED



TYPICAL STORMWATER CUT-OFF BERM
1:20



TYPICAL LEACHATE POND ANCHOR TRENCH DETAIL
1:20



PIPE BACKFILL AND BEDDING DETAIL (TO ALL PIPES IN VIRGIN GROUND)
1:20

NOTES

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH SANS 1200 STANDARDISED SPECIFICATIONS AND THE RELEVANT PROJECT SPECIFICATIONS

2. SURVEY BASED ON MSL AND WGS84

GEOSYNTHETIC CLAY LINER

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DRAINAGE

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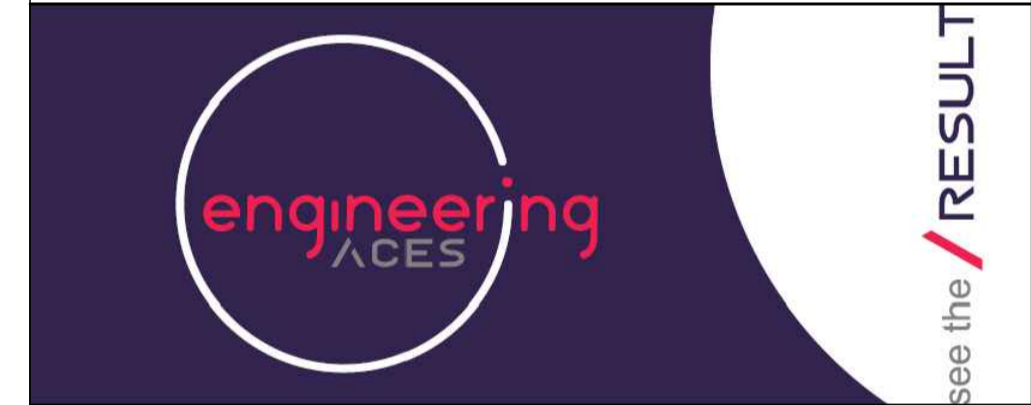
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APPROVED: OS MOTHIBI	SCALE:

AMENDMENTS

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CONSULTANT



CLIENT



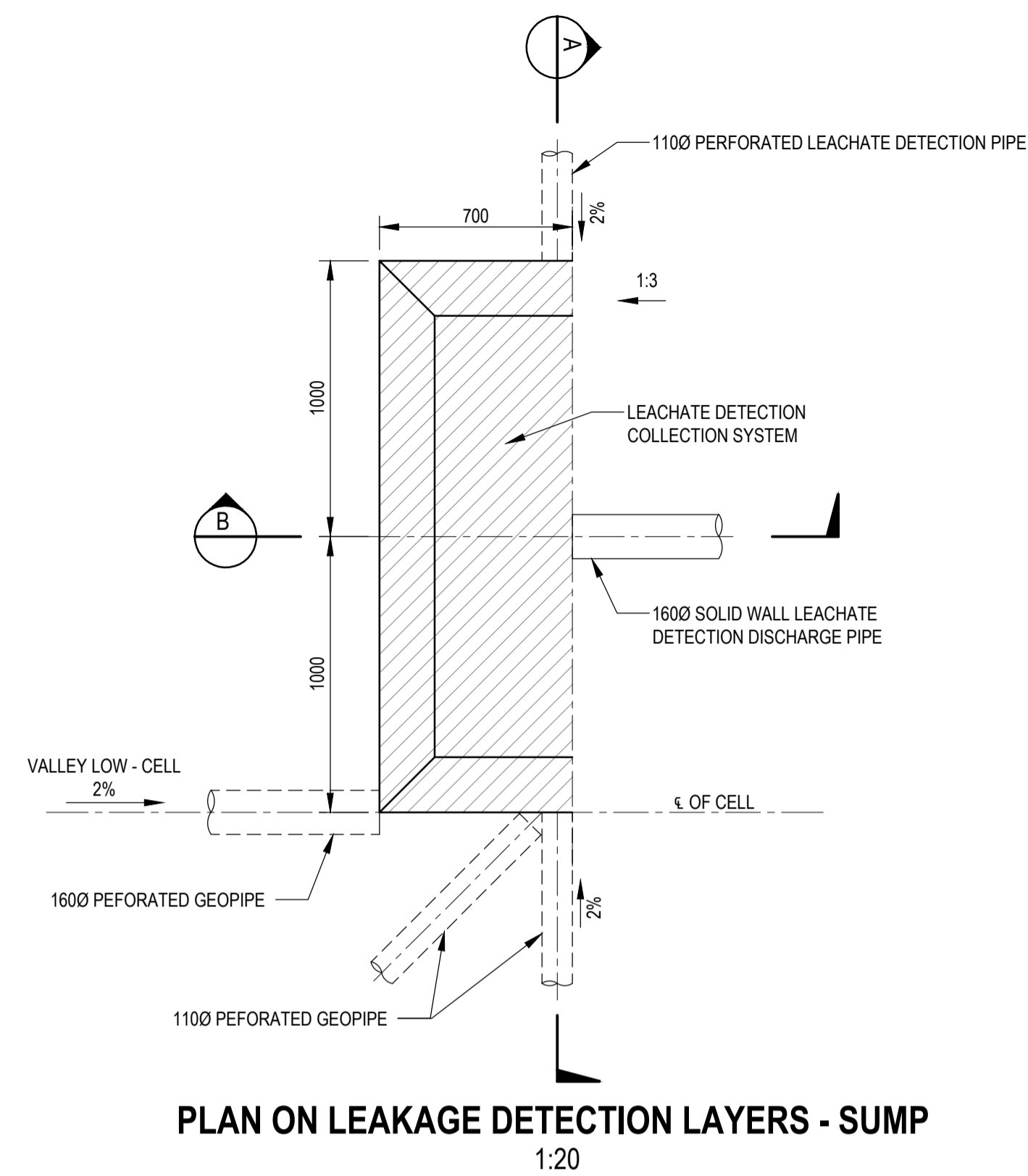
KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

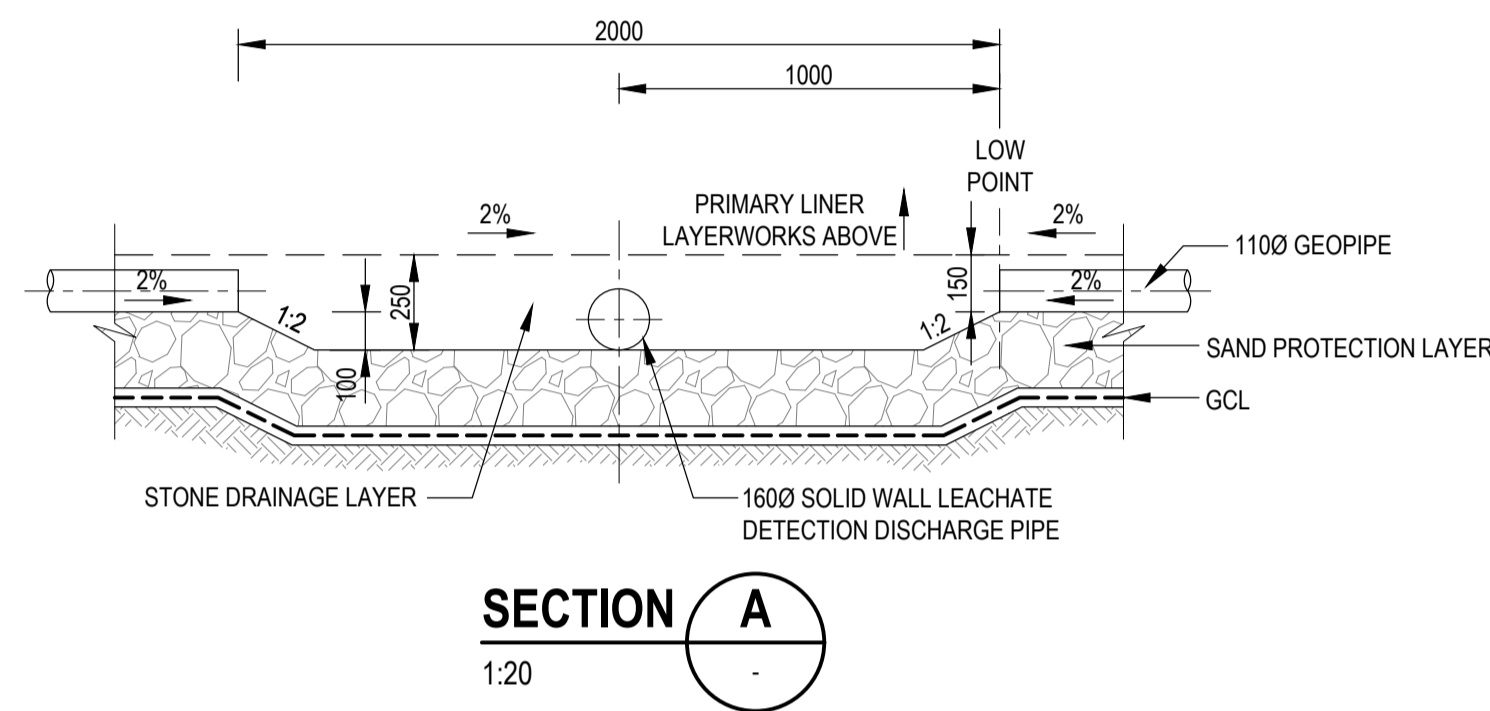
**LAYOUT:
LANDFILL TYPICAL DETAILS
1 OF 2**

DRAWING NO.
1012-CIV-DRG-203d

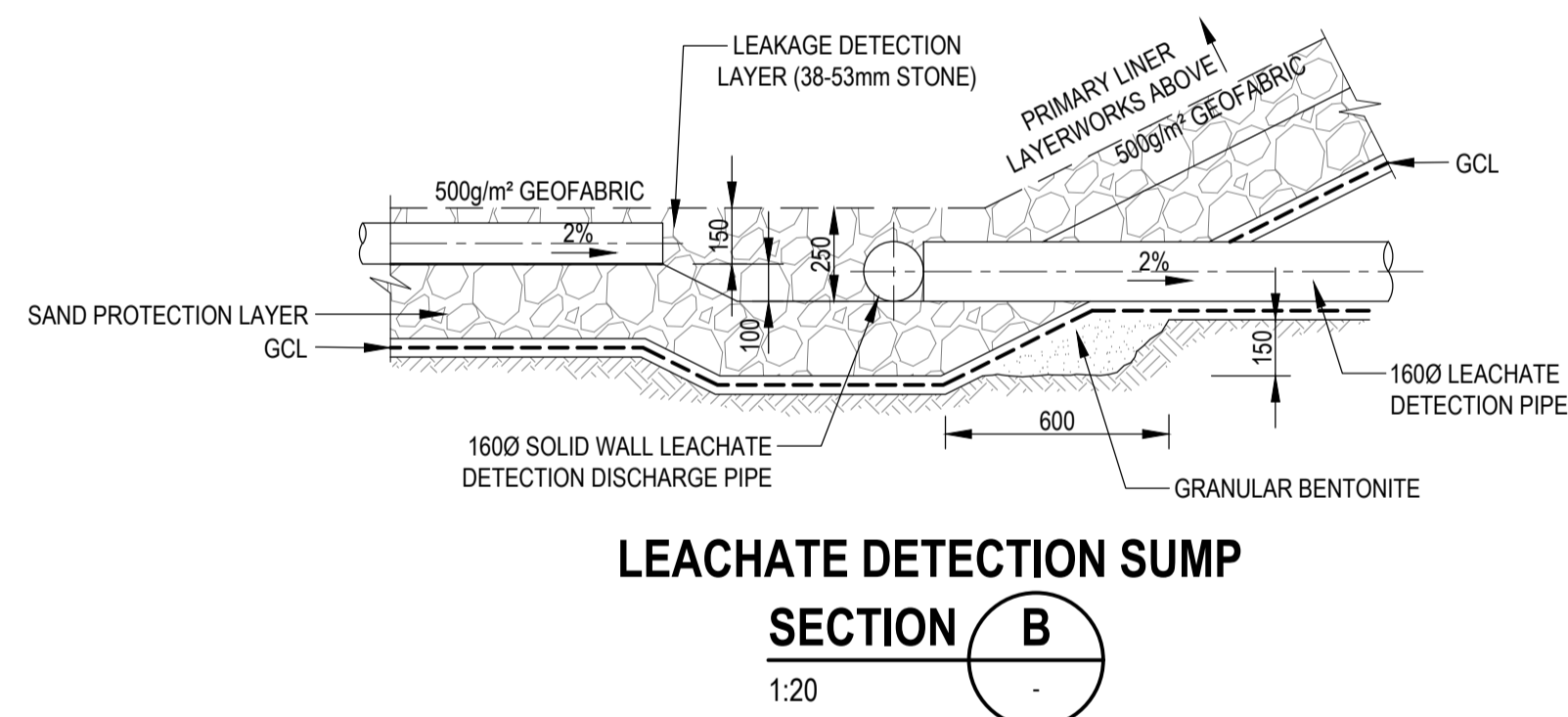
REVISION
T0



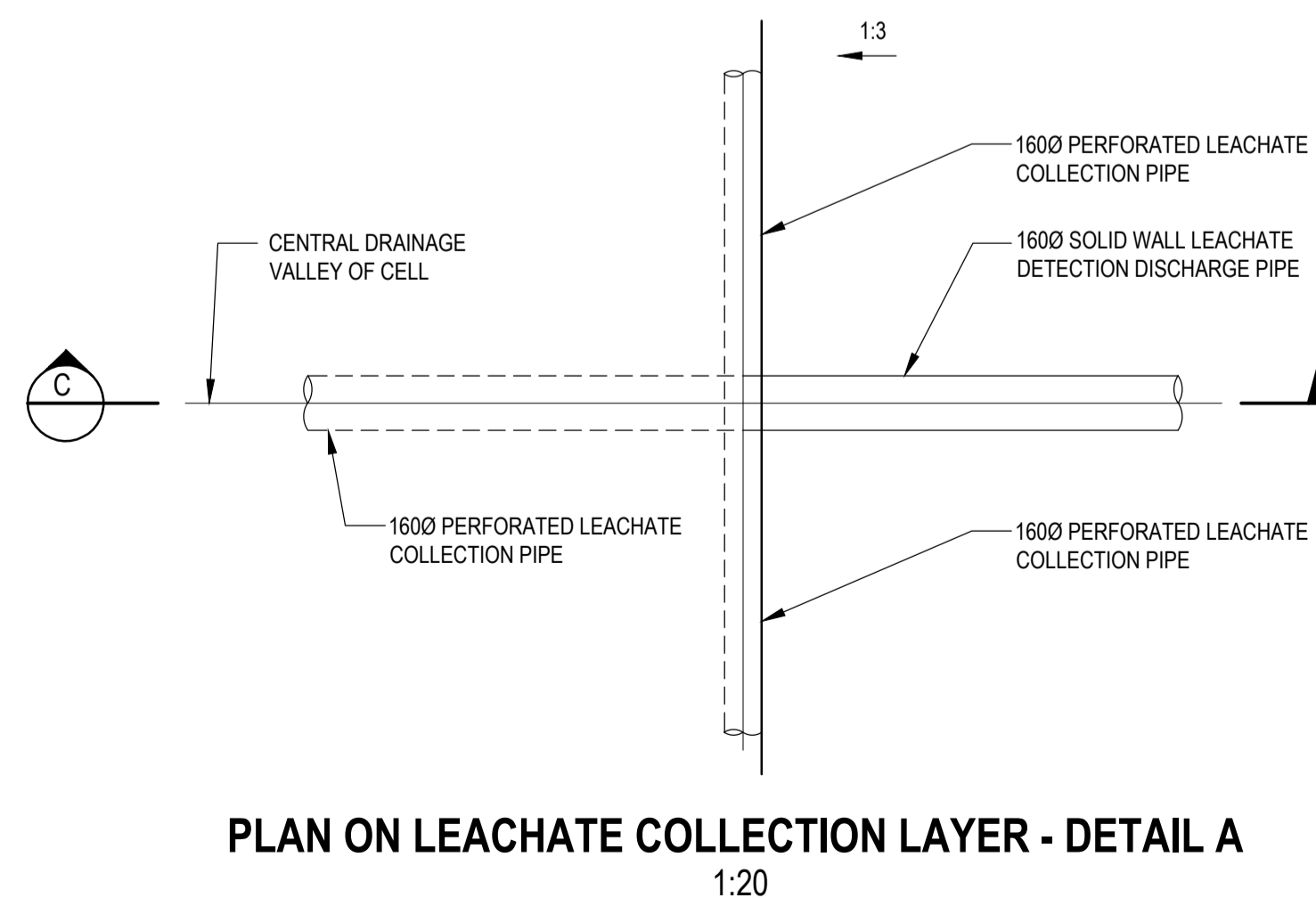
PLAN ON LEAKAGE DETECTION LAYERS - SUMP
1:20



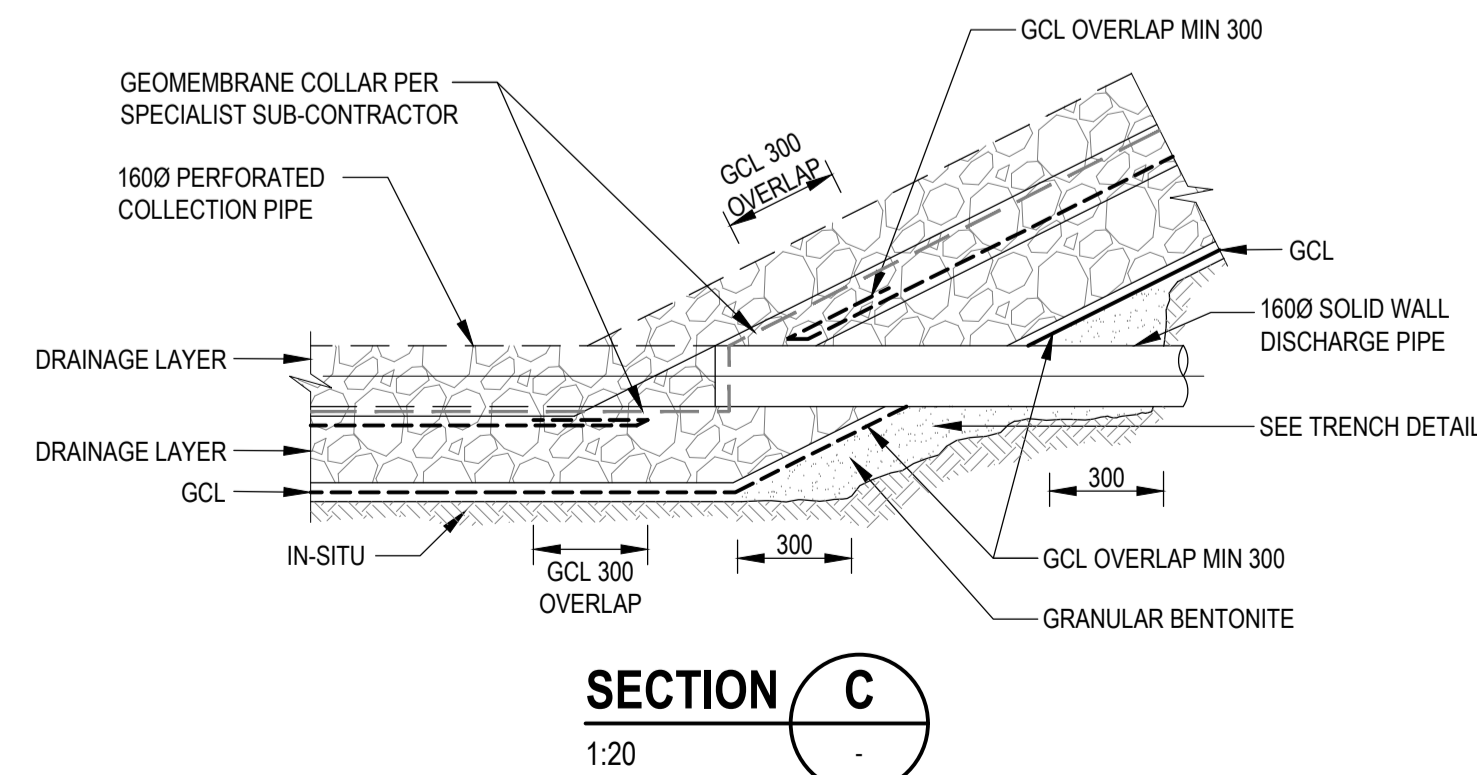
SECTION A
1:20



LEACHATE DETECTION SUMP SECTION B
1:20

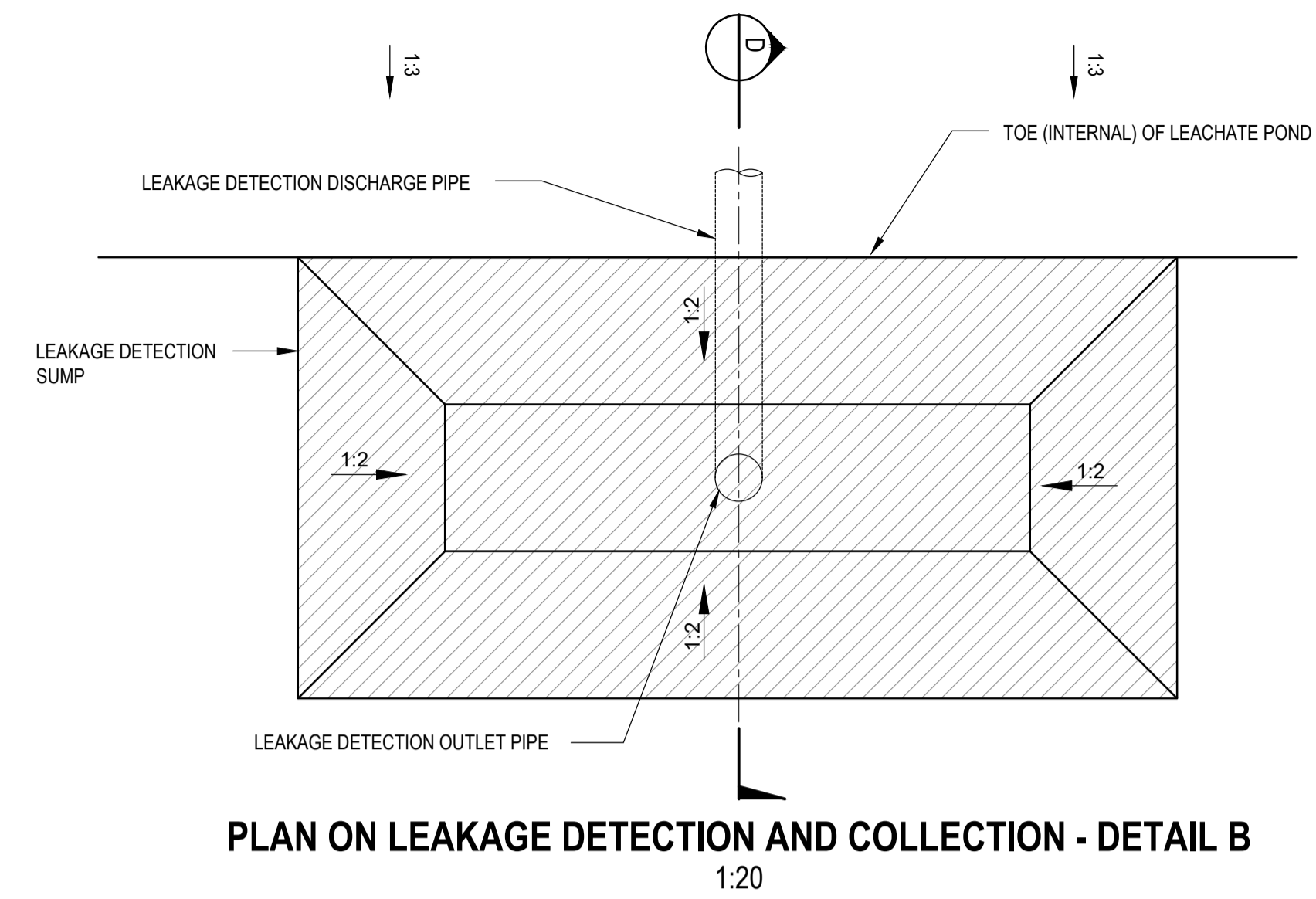


PLAN ON LEACHATE COLLECTION LAYER - DETAIL A
1:20

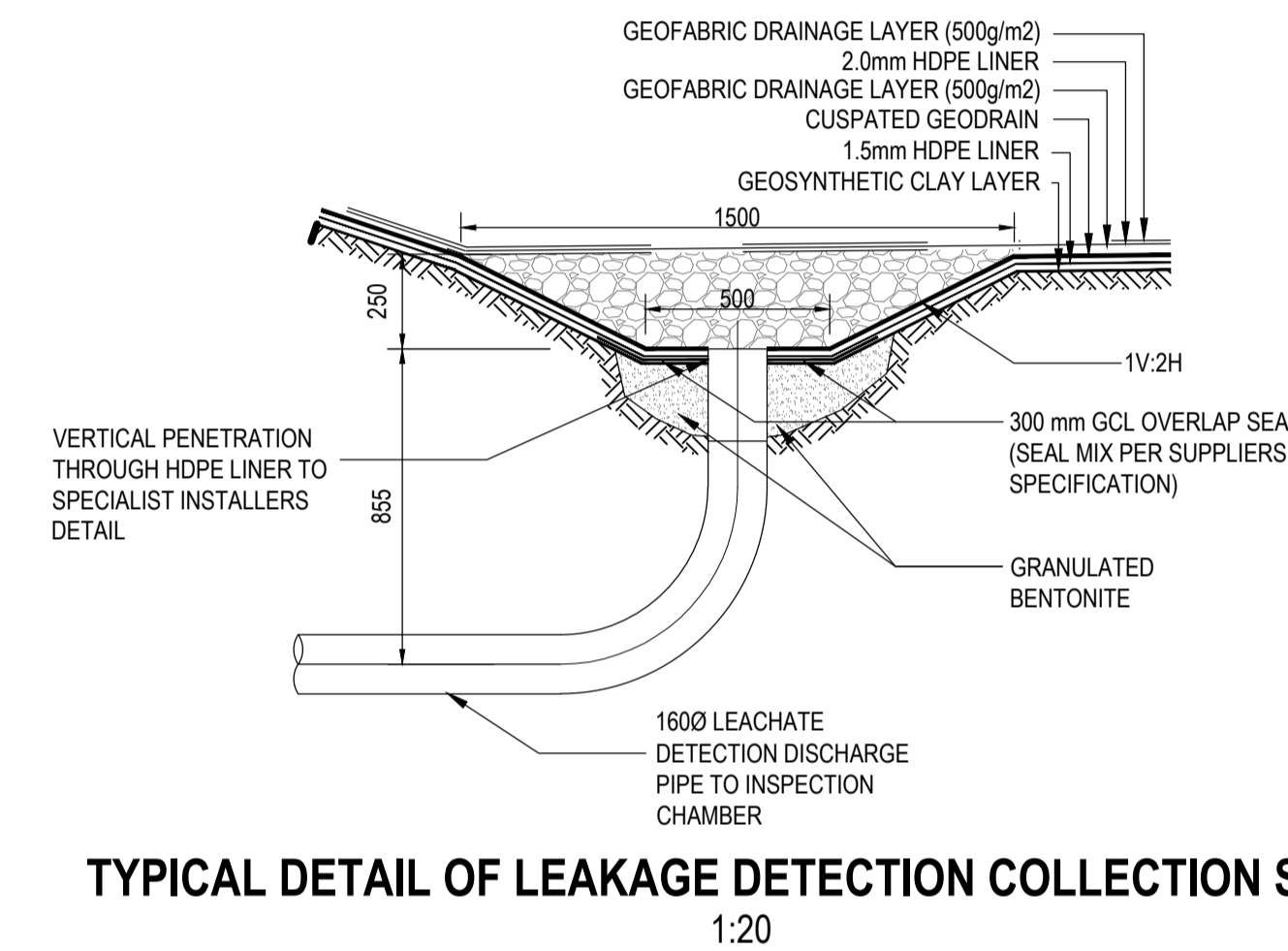


SECTION C
1:20

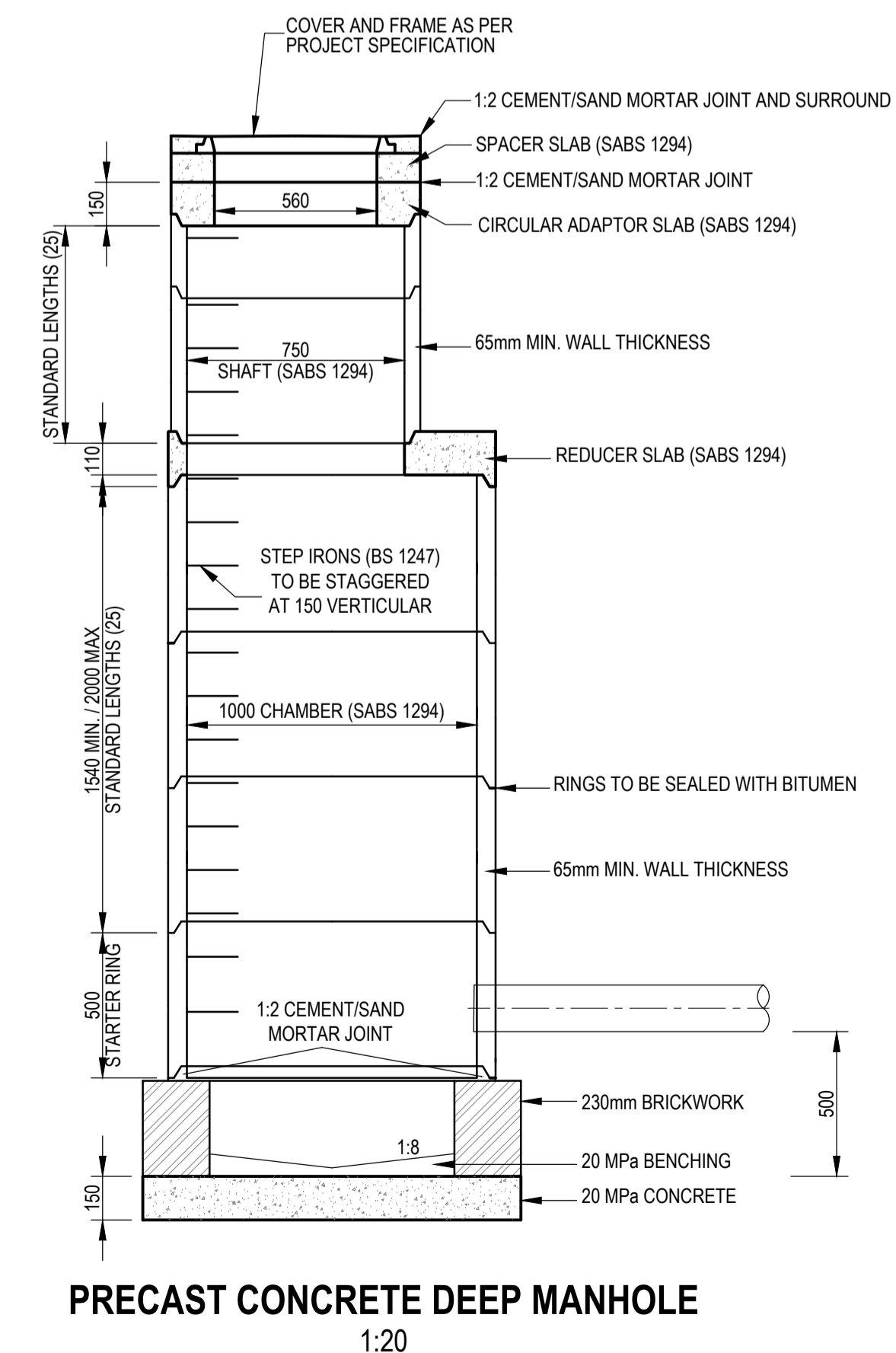
NOTE:
ALL DETAILS TO BE CONFIRMED ONCE DETAIL DESIGN HAS BEEN FINALISED



PLAN ON LEAKAGE DETECTION AND COLLECTION - DETAIL B
1:20



TYPICAL DETAIL OF LEAKAGE DETECTION COLLECTION SUMP
1:20



PRECAST CONCRETE DEEP MANHOLE
1:20

NOTES

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH SANS 1200 STANDARDISED SPECIFICATIONS AND THE RELEVANT PROJECT SPECIFICATIONS
2. SURVEY BASED ON MSL AND WGS84

GEO SYNTHETIC CLAY LINER

1. G.C.L. TO COMPRISE A LAYER OF SODIUM MONTMORILLITE CLAY EVENLY DISTRIBUTED BETWEEN TWO GEOTEXTILES.
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CUSPATED GEODRAIN

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DRAINAGE

1. ALL PIPES TO BE HDPE PN80 UNLESS OTHERWISE STATED.

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DESIGNED: SS MNTAMBO	DATE
CHECKED: EM MAPHUTHA	OS MOTHIBI Pr Tech-Eng - 201570157
APPROVED: OS MOTHIBI	SCALE:

AMENDMENTS

REV	DATE	DESCRIPTION	APPROVED
T0	17/04/2024	TENDER DRAWINGS	OS MOTHIBI

CONSULTANT



CLIENT



KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

LAYOUT: LANDFILL TYPICAL DETAILS 2 OF 2

DRAWING NO.
1012-CIV-DRG-203e

REVISION
T0

NOTES:

1. THE CONTRACTOR TO COMPLETE THE REFURBISHMENTS OF THE EXISTING BUILDING AND INSTALLATION OF THE TOILET SYSTEM AND WASH BASIN.
2. THE CONTRACTOR IS TO INSTALL THE JOJO TANK ON THE EXISTING STEEL FRAME AS SHOWN.

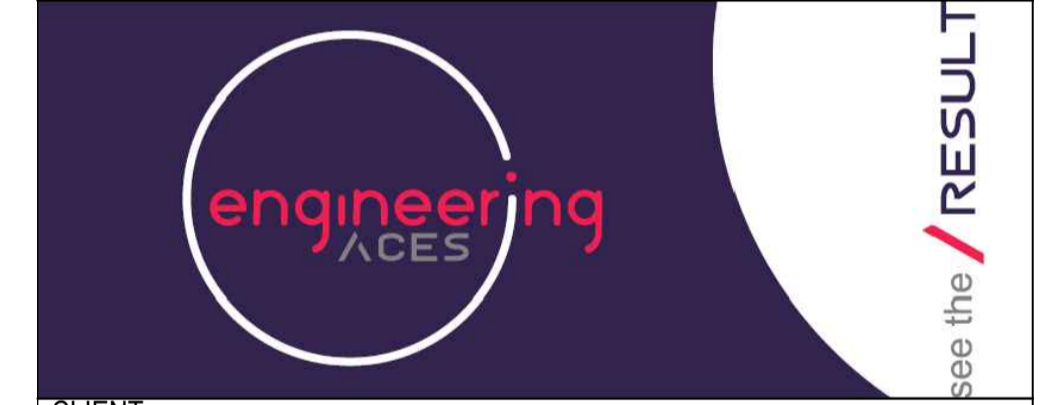
Drawing signed for approval held at Engineering Aces offices

DRAWN: M MHLTSHANEKAZI	ISSUED FOR TENDER	
DESIGNED: LST SEROBE		DATE
CHECKED: EM MAPHUTHA	T LITABE Pr Eng - 20130335	
APPROVED: T LITABE	SCALE:	

AMENDMENTS

REV	DATE	DESCRIPTION	APPROVED
T0	17/04/2024	TENDER DRAWINGS	T LITABE

CONSULTANT



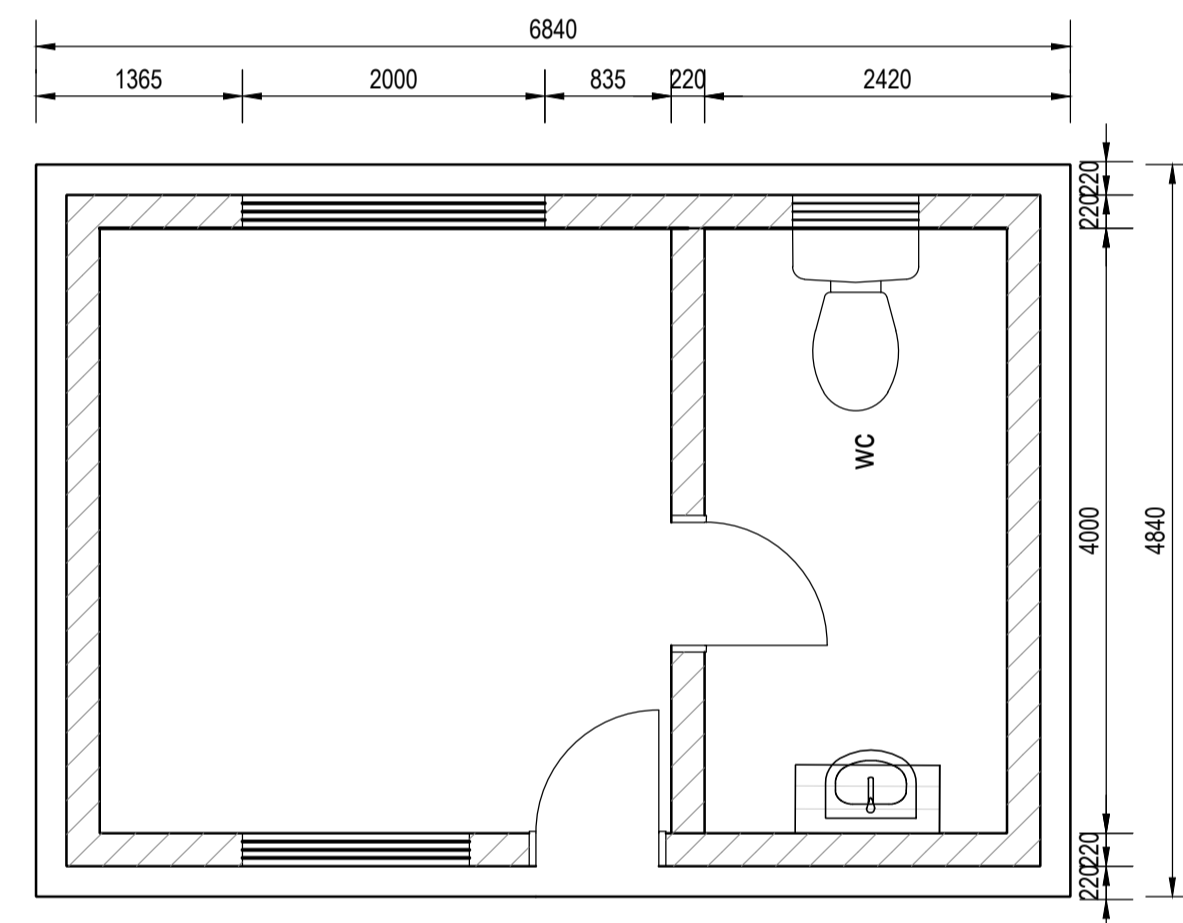
CLIENT



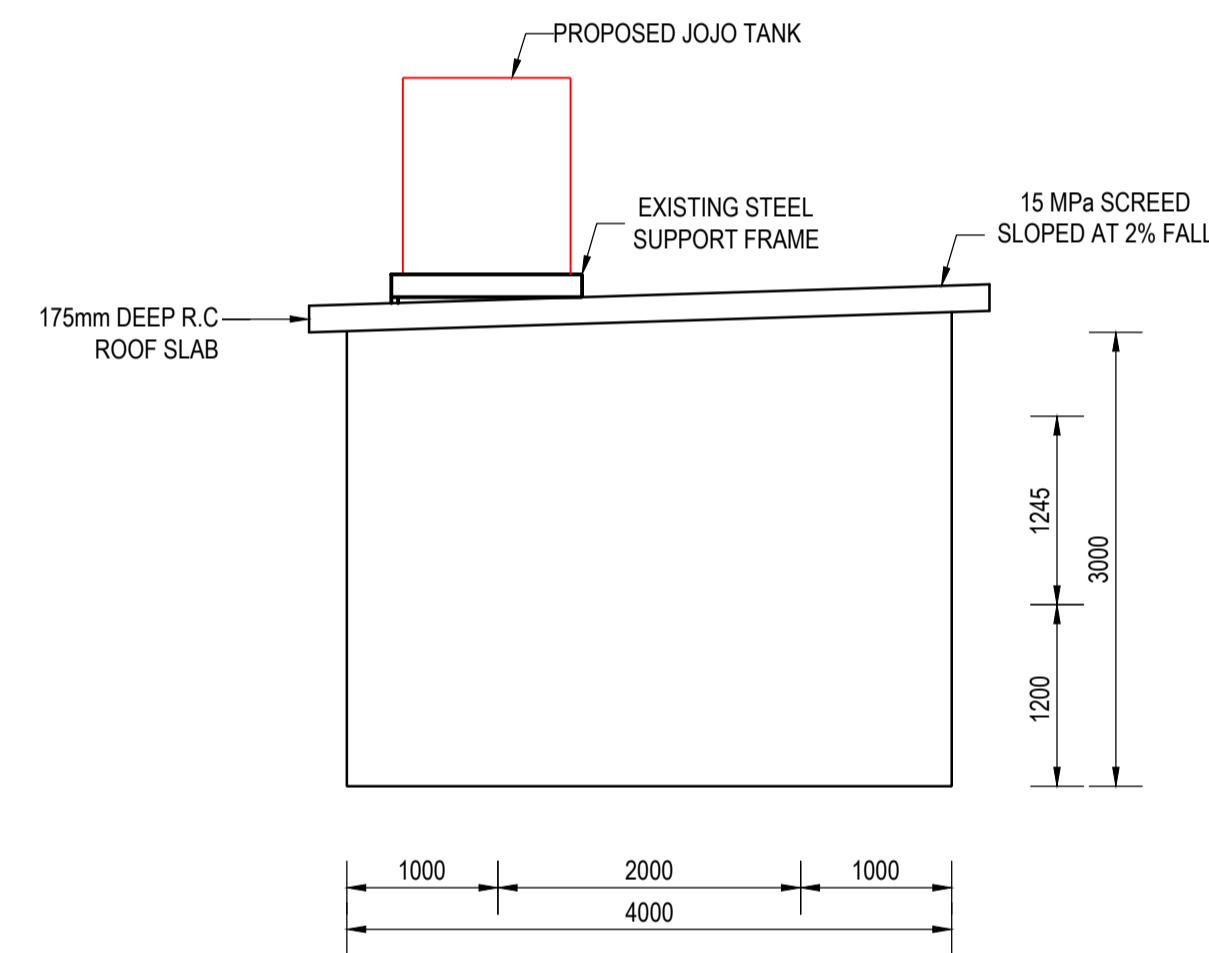
KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

**LAYOUT:
ACCESS CONTROL BUILDING
LAYOUT AND DETAILS**



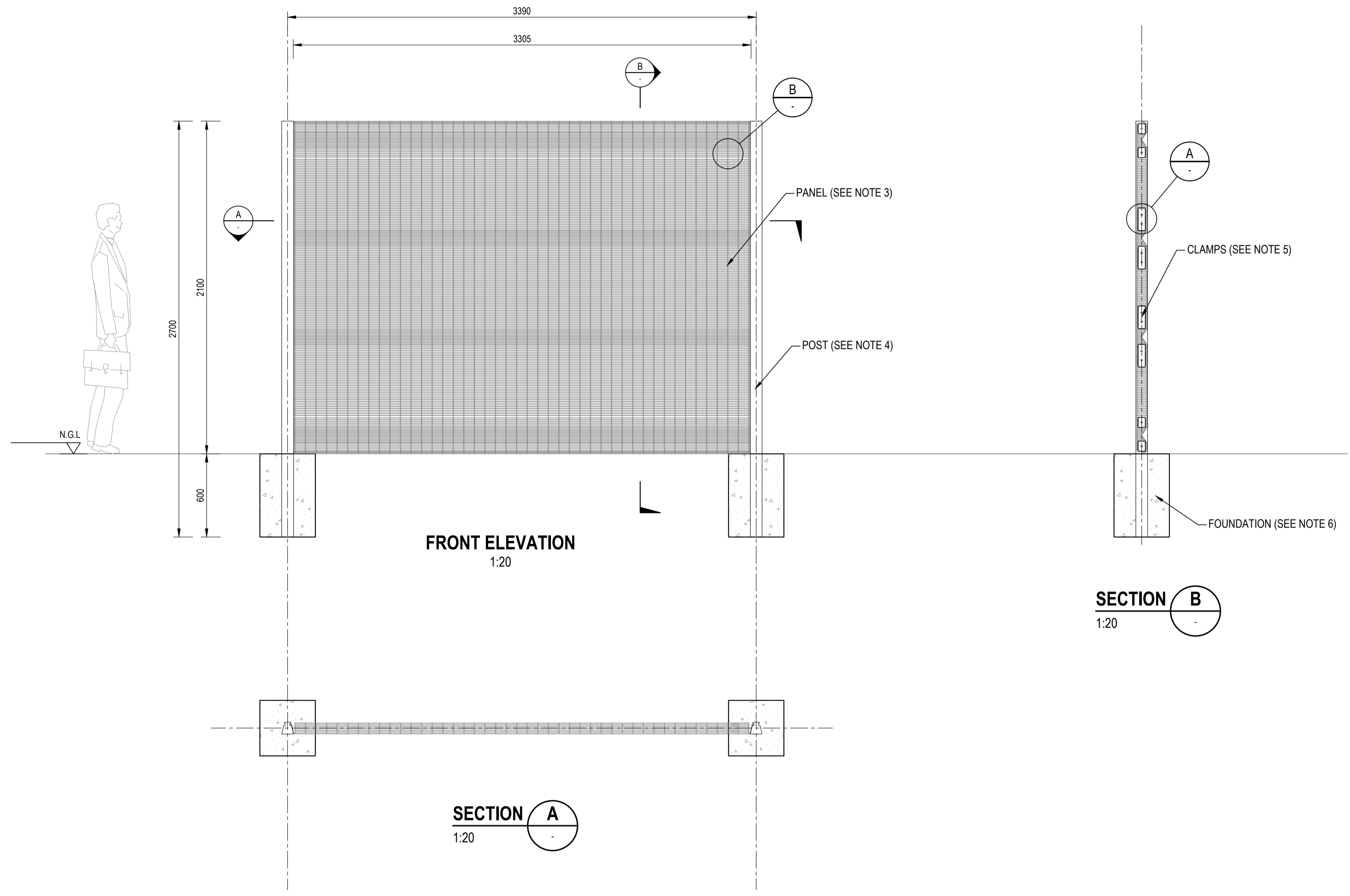
**EXISTING ACCESS CONTROL
BUILDING PLAN VIEW**
1:50



ELEVATION 7
1:50

DRAWING NO.
1012-CIV-DRG-205

REVISION
T0



NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH SANS 1200 STANDARDIZED SPECIFICATIONS AND THE RELEVANT PROJECT SPECIFICATIONS.
2. FOR FULL FENCE DETAILS PLEASE REFER TO THE SUPPLIER DRAWINGS AND SPECIFICATIONS (COMPLETE PERIMETER SECURITY)
3. CLEARVU MESH PANELS 3305mm WIDE x 2400mm HIGH GALVANIZED DN 4mm WIRE WITH APERTURE SIZE (CENTERS) AT 76.2mm x 12.7mm. PANEL FORMATION : PANEL REINFORCED WITH 4 x 50mm DEEP 'V' FORMATION HORIZONTAL RECESSED BANDS (RIGIDITY), 2 x 75mm 70° FLANGES ALONG SIDES (INTERNAL FIXTURES - ANTI VANDAL, ALLOWING FOR FLUSH POST AND PANEL FINISH, 48 LINE WIRE SECURE CONNECTION, LOCKING RECESS MECHANISM) AND 2 x 30° FLANGES ALONG TOP AND TOE. (ARROW - STRAIGHT EDGES, INTEGRATED ANGLE). COATING: MESH GALVANIZED, THEN MARINE FUSION BOND COATED.
4. COCHRAINE TAPER LOCKING POST 85mm x 45mm x 85mm, THEN SEALED WITH UV STABILIZED POLYMER CAP. COATING: HOT DIPPED GALVANIZED, THEN MARINE FUSION BOND COATED
5. 8 x SINGLE BOLT COMB CLAMPS.
8 x DOUBLE BOLT COMB CLAMPS.
COATING : GALVANIZED , THEN MARINE FUSION BOND COATED.
6. 400 x 400 x 600mm CONCRETE FOUNDATION

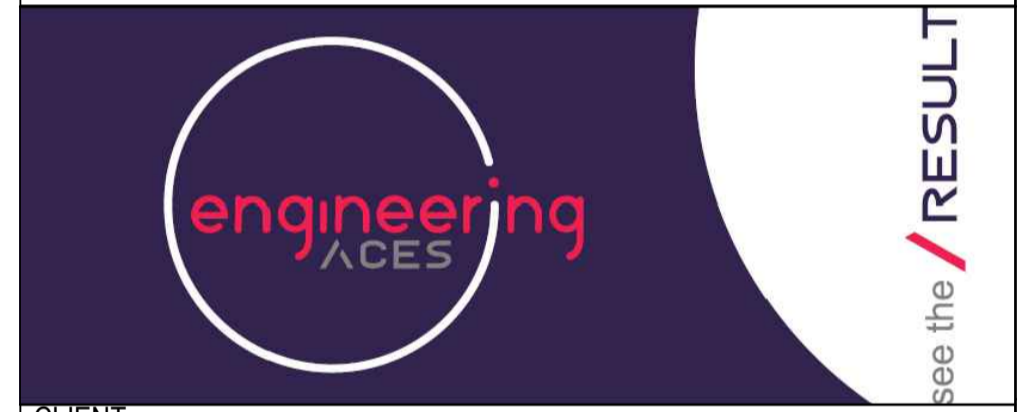
Drawing signed for approval held at Engineering Aces offices

DRAWN: M MHLOTSHANEKAZI	ISSUED FOR TENDER	
DESIGNED: LST SEROBE		DATE
CHECKED: EM MAPHUTHA	T LITABE Pr Eng - 20190335	
APPROVED: T LITABE	SCALE: AS SHOWN	

AMENDMENTS

REV	DATE	DESCRIPTION	APPROVED
T0	17/04/2024	TENDER DRAWINGS	T LITABE

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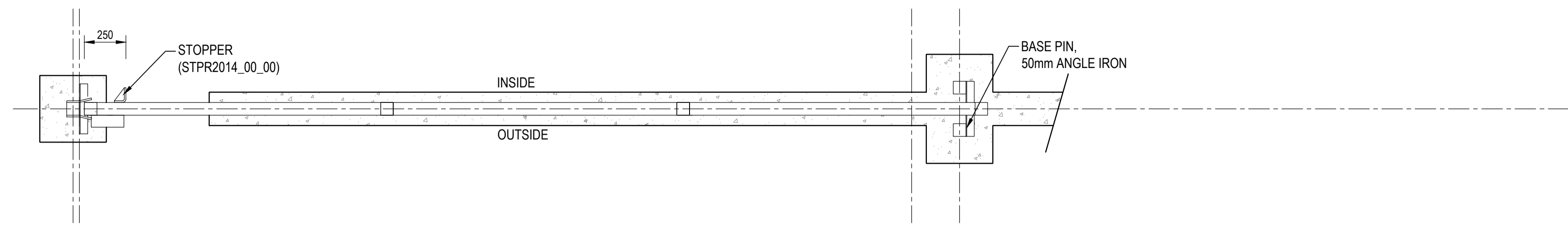
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TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

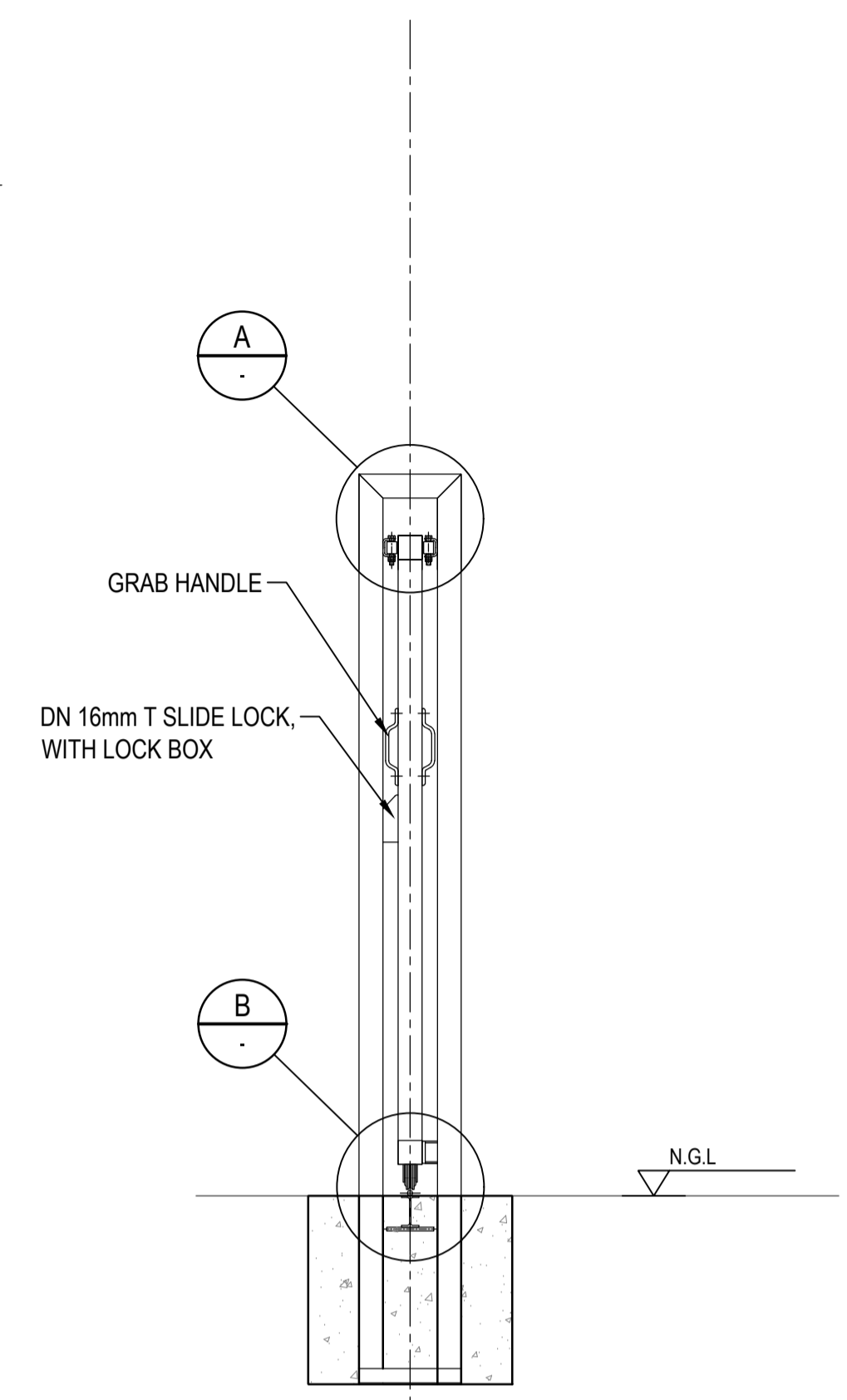
**LAYOUT:
WVF FENCE DETAILS**

DRAWING NO.
1012-CIV-DRG-206

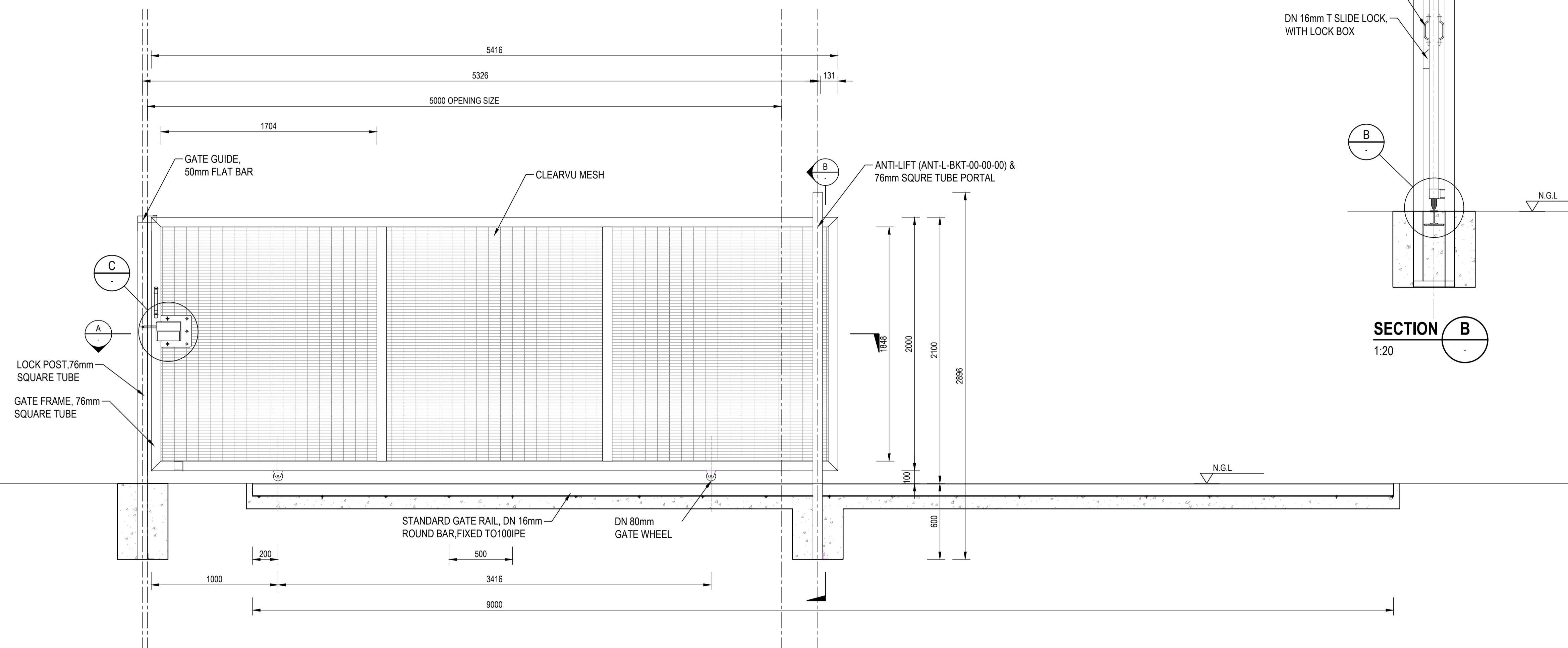
REVISION
T0



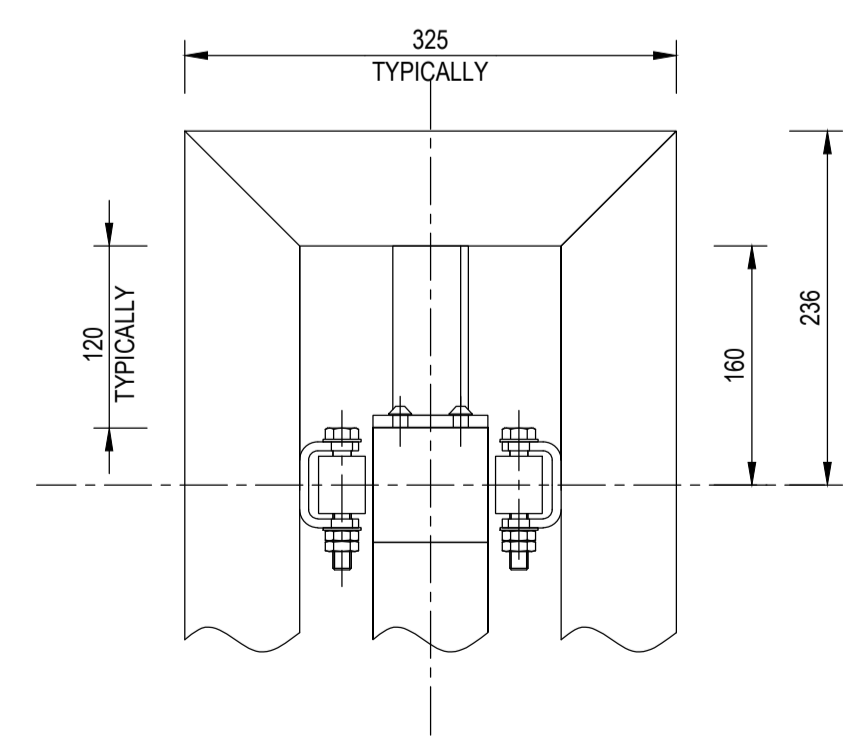
SECTION A
1:20



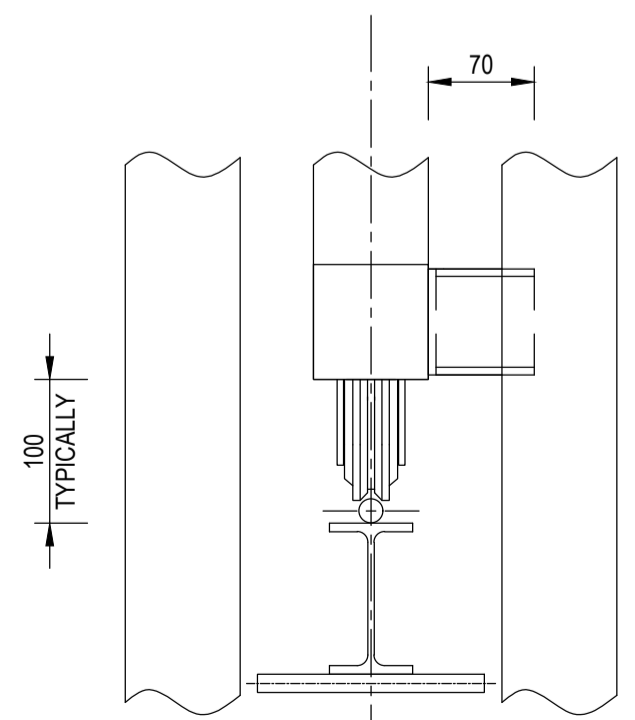
SECTION B
1:20



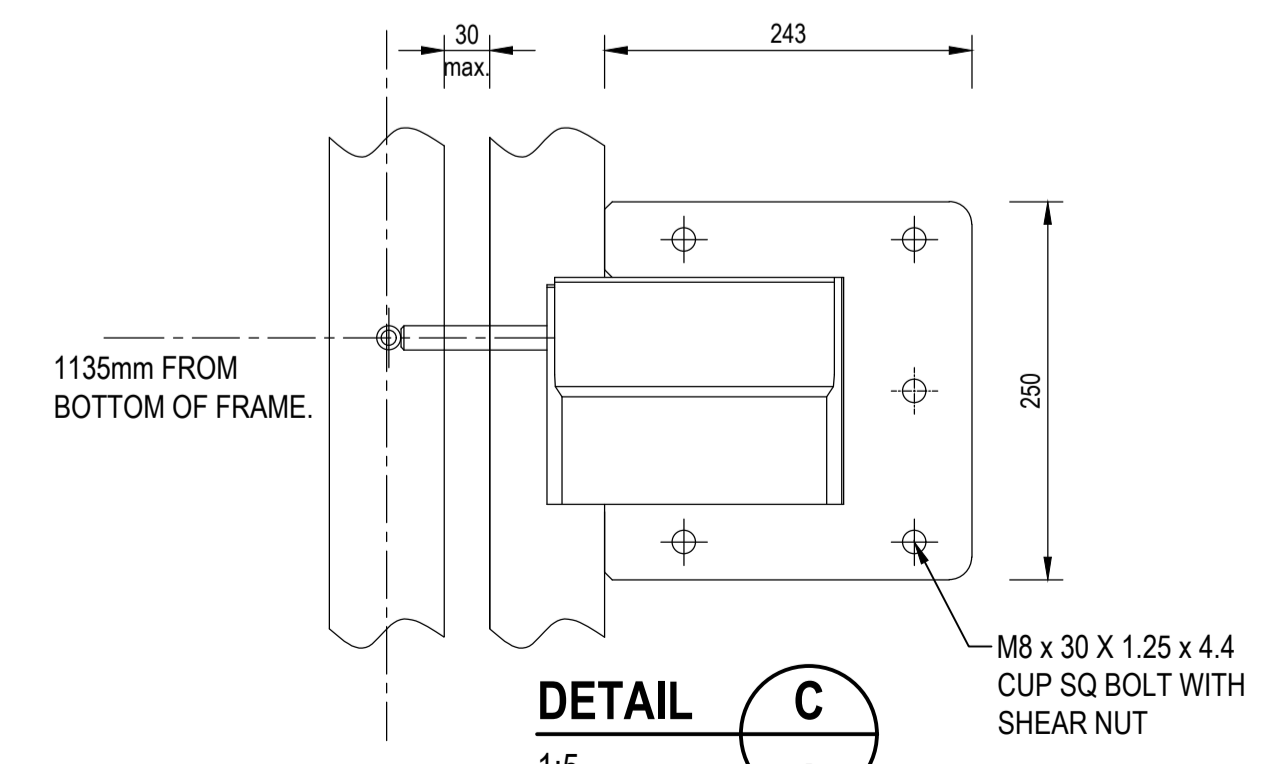
FRONT ELEVATION
1:20



DETAIL A
1:5



DETAIL B
1:5



DETAIL C
1:5

- NOTES:**
1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH SANS 1200 STANDARDIZED SPECIFICATIONS AND THE RELEVANT PROJECT SPECIFICATIONS.
 2. FOR FULL FENCE DETAILS PLEASE REFER TO THE SUPPLIER DRAWINGS AND SPECIFICATIONS (COMPLETE PERIMETER SECURITY)
 3. THE OPENING DIRECTION SHOULD BE CLEARLY INDICATED TO THE SUPPLIER

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DRAWN: M MHLTSHANEKAZI	ISSUED FOR TENDER
DESIGNED: SS MNTAMBO	DATE
CHECKED: EM MAPHUTHA	OS.MOTHIBI Pr Tech Eng -201570157
APPROVED: OS MOTHIBI	SCALE:

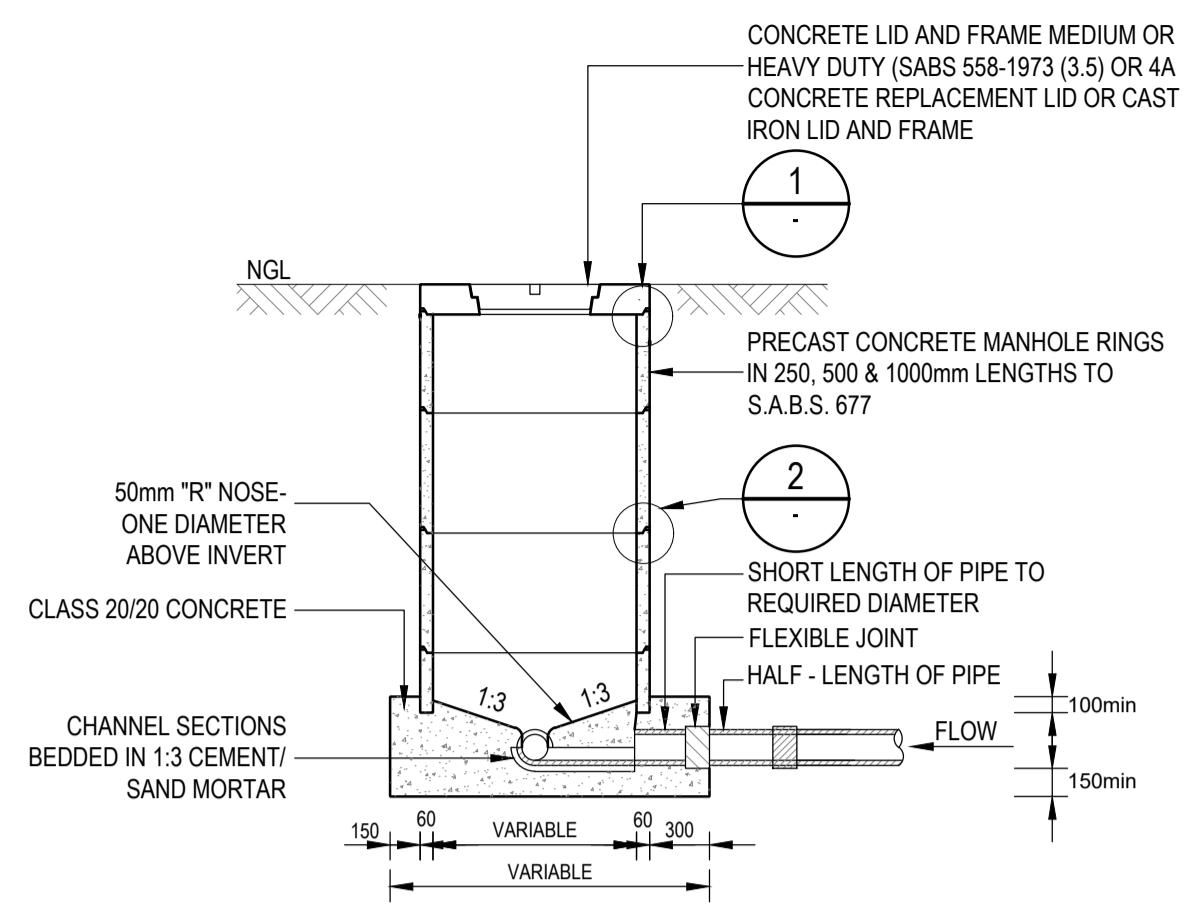
AMENDMENTS			
REV	DATE	DESCRIPTION	APPROVED
TO	17/04/2024	TENDER DRAWINGS	OS MOTHIBI



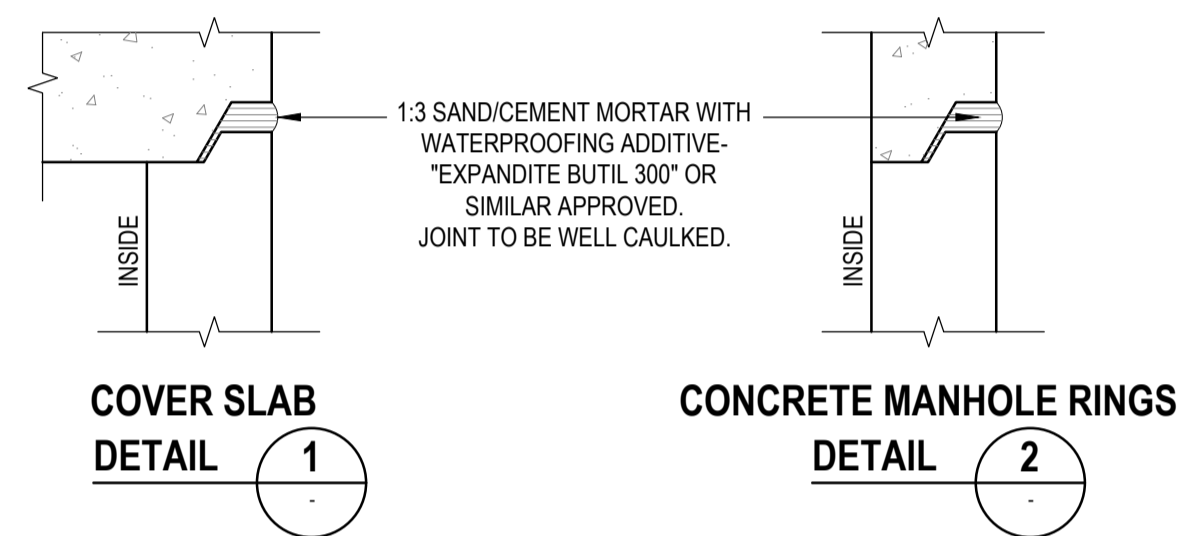
KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

DETAILS: SINGLE LEAF SLIDING GATE

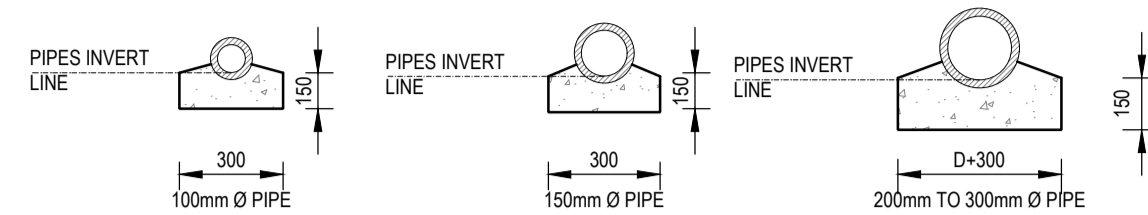


TYPICAL SECTION : MANHOLE CHAMBER

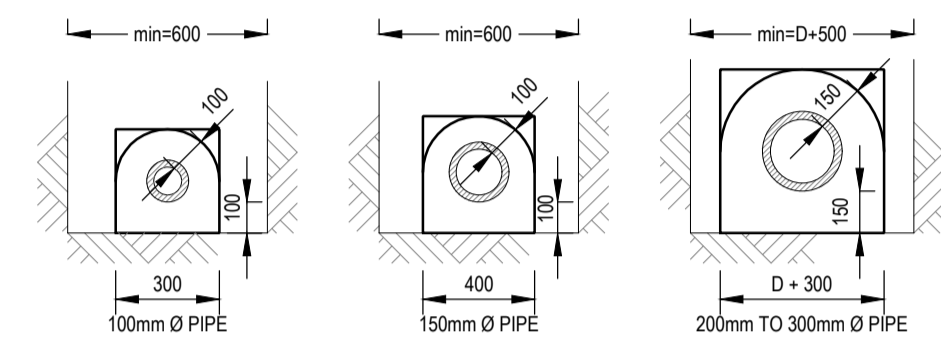


COVER SLAB DETAIL 1 CONCRETE MANHOLE RINGS DETAIL 2

TYPICAL SECTIONS THROUGH MANHOLE

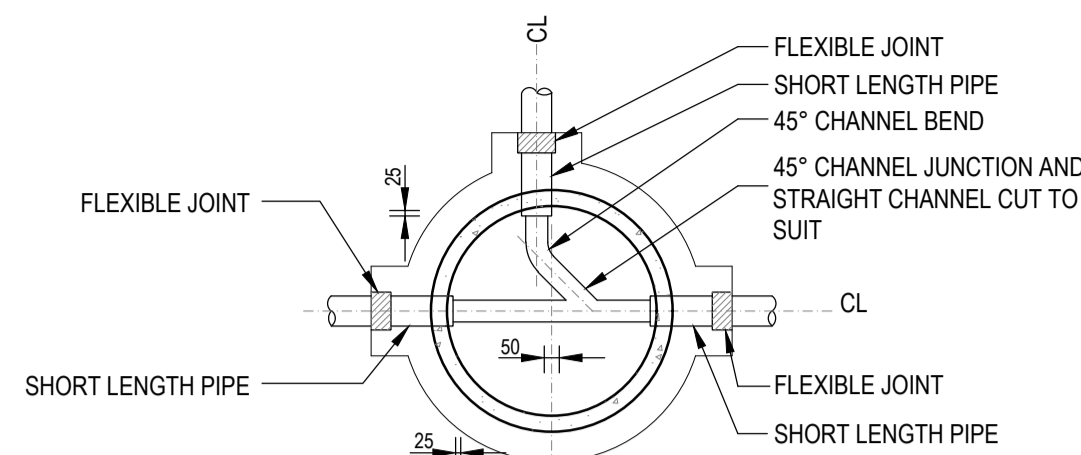


SECTION OF SEWER PIPES ON CONCRETE BEDDING (ONLY WHERE SPECIFIED) CLASS 20MPa/20 CONCRETE

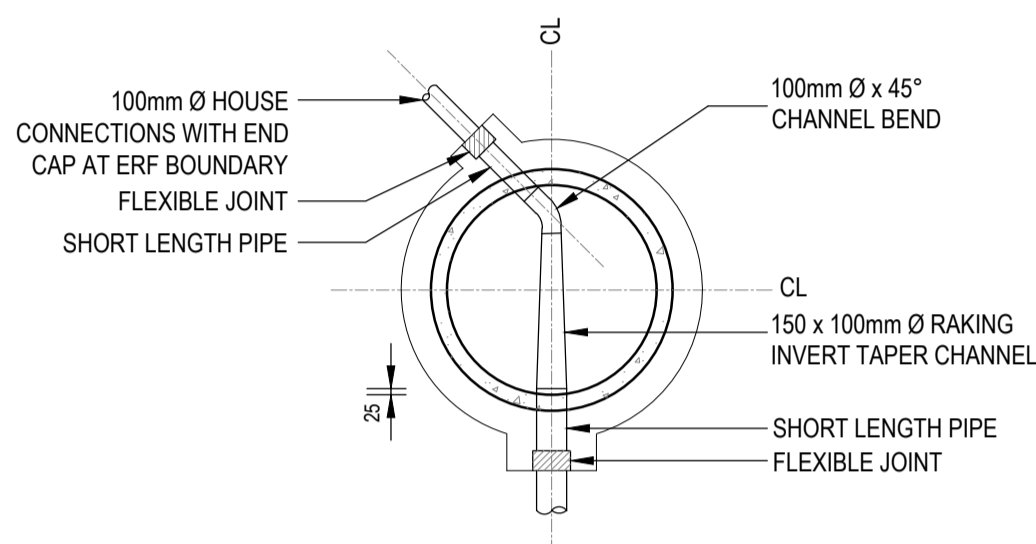


SECTION OF SEWER PIPES ON CONCRETE ENCASING (ONLY WHERE SPECIFIED) CLASS 20/20 CONCRETE

MANHOLE DETAIL - CONCRETE BEDDING AND ENCASING

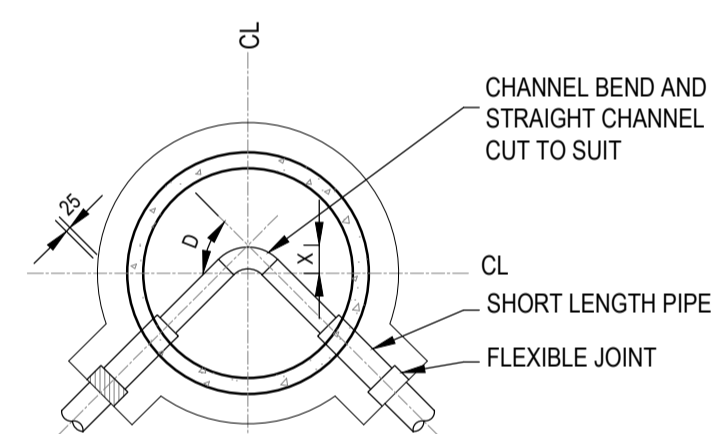


PLAN OF 90° BRANCH AND CONNECTION



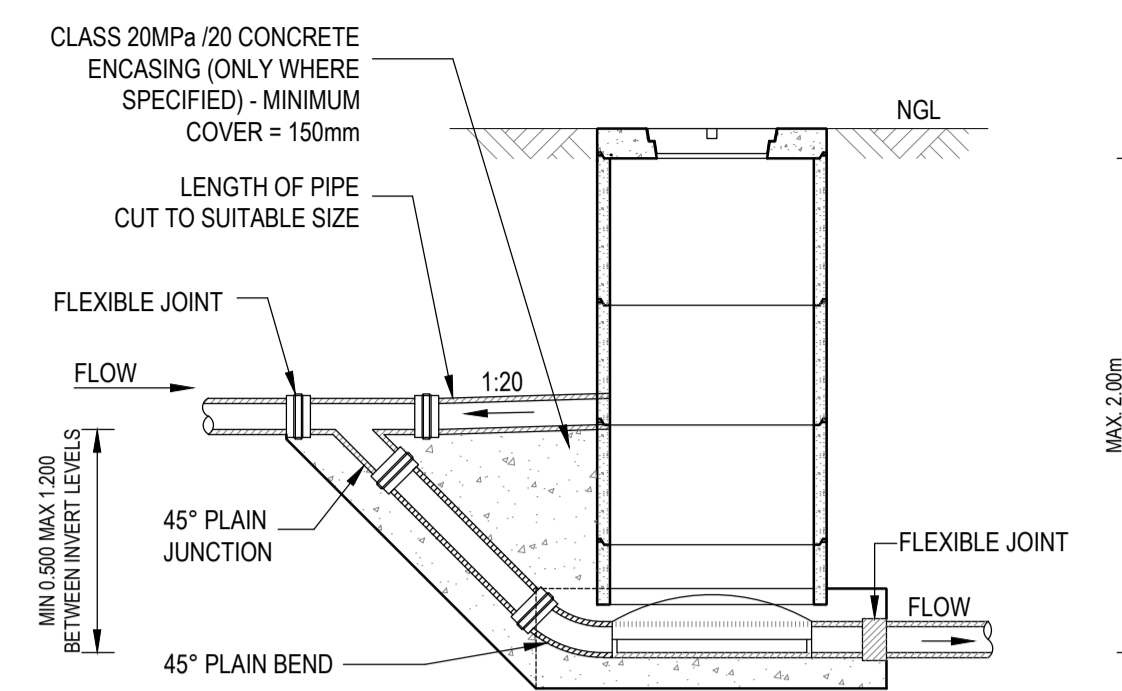
PLAN OF TERMINAL MANHOLES

DEF. ANGLE D	DISTANCE X
11.25°	50
22.5°	100
45°	140
67.5°	190
90°	230

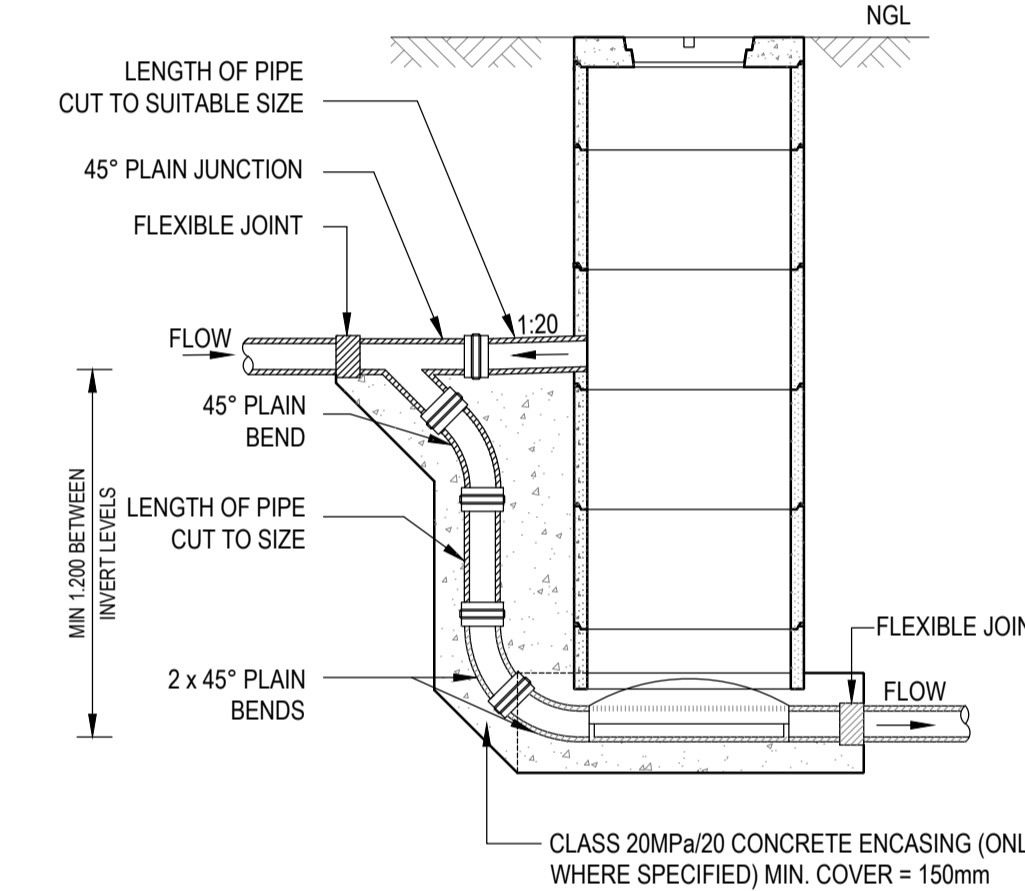


PLAN OF MANHOLE AT BENDS

TYPICAL CHANNEL LAYOUTS

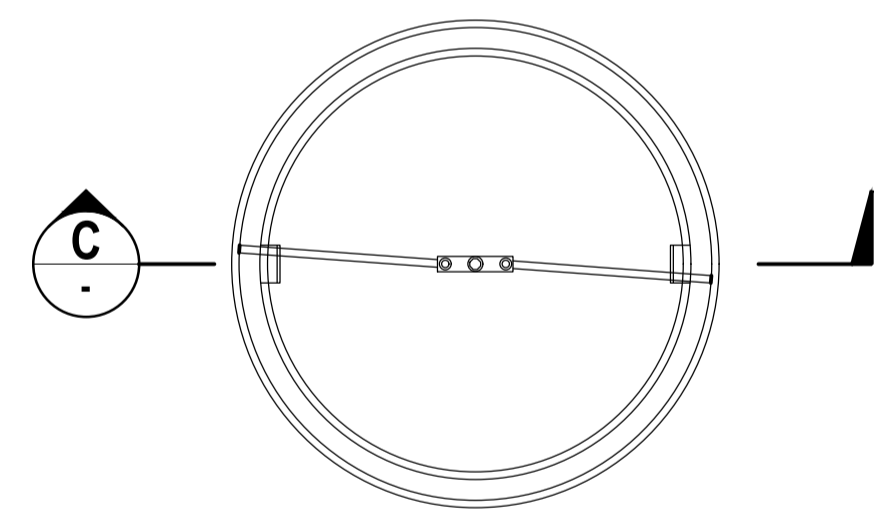


DETAIL OF RAMP AT MANHOLE

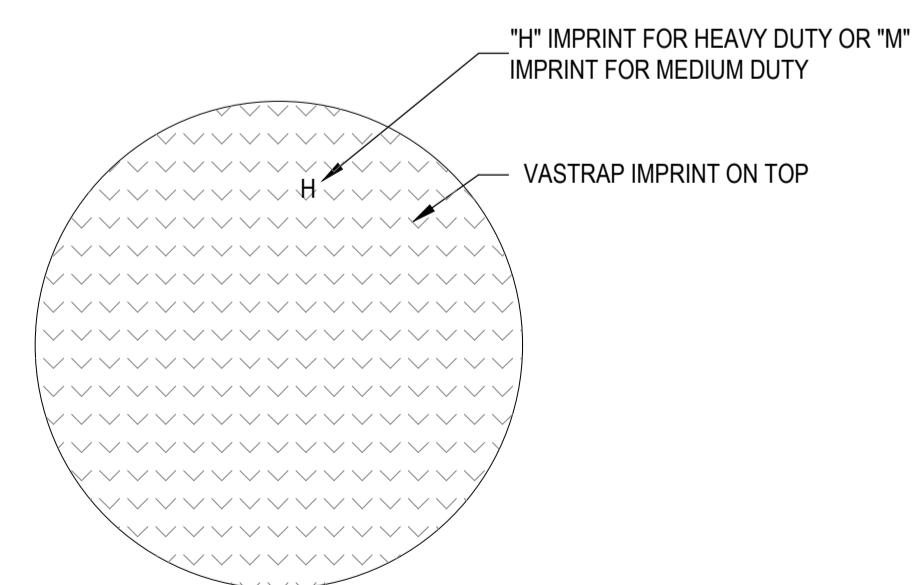


DETAIL OF DROP PIPE AT MANHOLE

DETAILS OF RAMP AND BACKDROPS

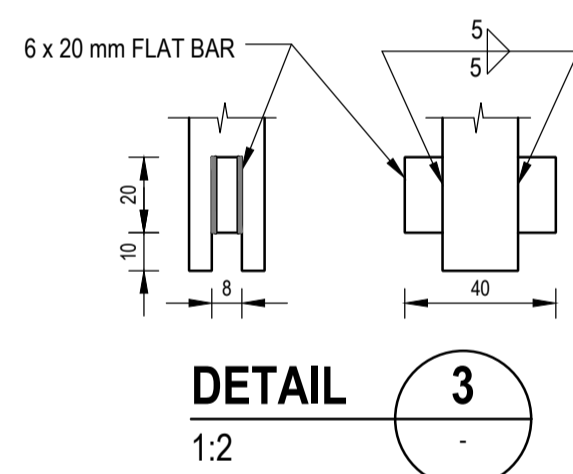


BOTTOM VIEW SCALE 1:10

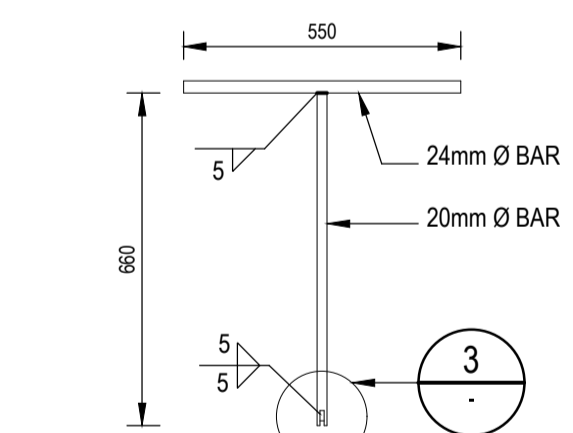


TOP VIEW SCALE 1:10

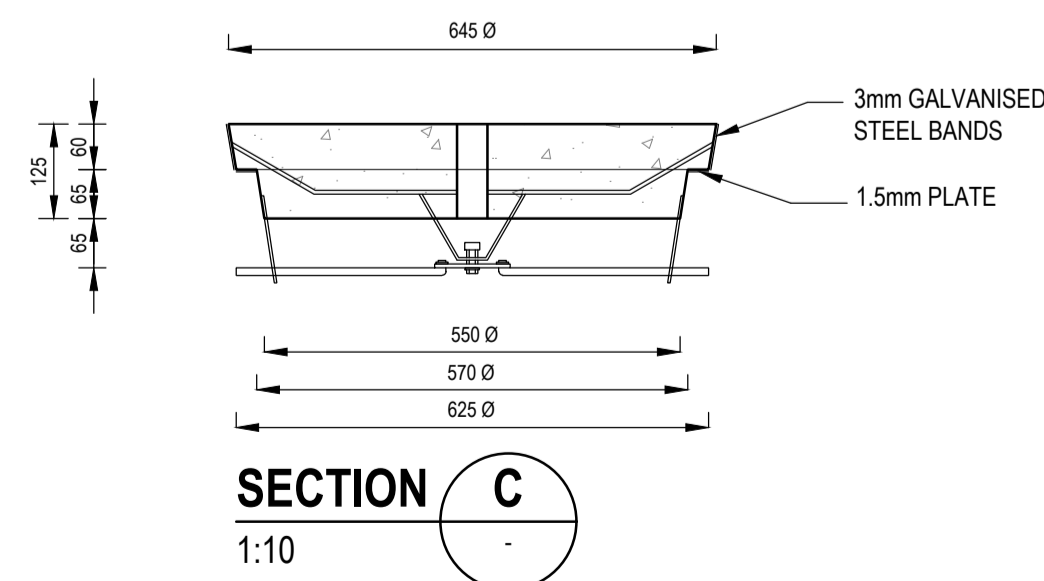
DETAIL OF MANHOLE LID WITH LOCKING DEVICE



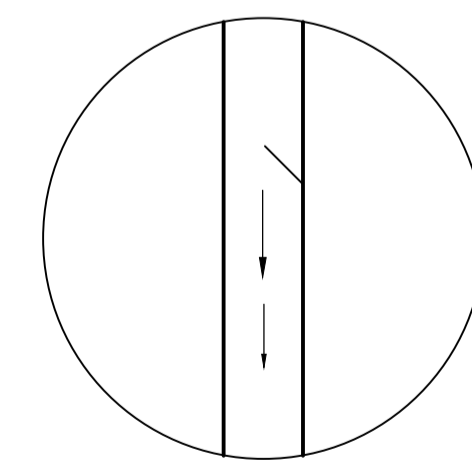
DETAIL 3 SCALE 1:2



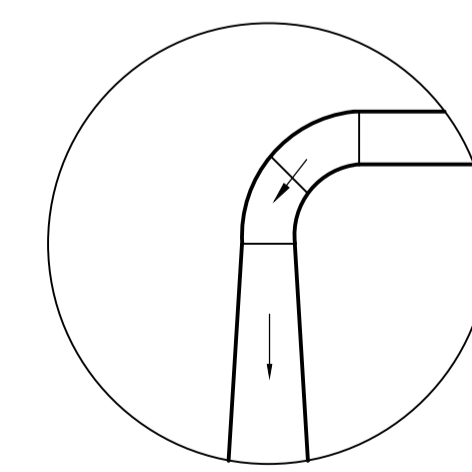
LOCKING AND LIFTING KEY SCALE 1:15



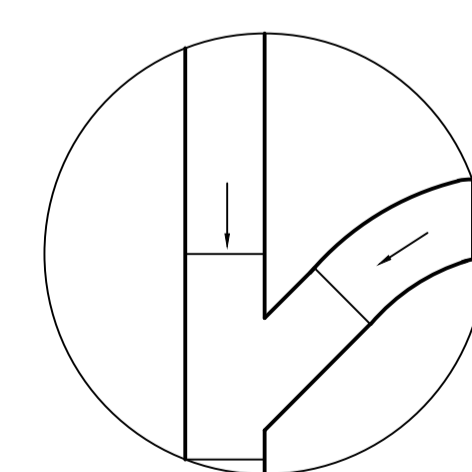
SECTION C SCALE 1:10



0° - 10° STRAIGHT TYPE S



90° SINGLE HOUSE CONNECTION TYPE 4RC



80° - 90° JUNCTION TYPE 9R

DETAILS OF ERF CONNECTIONS

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DRAWN: M MHLTSHANEKAZI	ISSUED FOR TENDER
DESIGNED: SS MNTAMBO	DATE
CHECKED: EM MAPHUTHA	OS MOTHIBI Pr Tech Eng - 2015/0157
APPROVED: OS MOTHIBI	SCALE:

AMENDMENTS

REV	DATE	DESCRIPTION	APPROVED
T0	17/04/2024	TENDER DRAWINGS	OS MOTHIBI

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KOPANAONG LOCAL MUNICIPALITY

TROMPSBURG: PERMITTING AND CLOSURE OF EXISTING DISPOSAL SITE AND CONSTRUCTION OF A NEW DISPOSAL SITE

LAYOUT: TYPICAL MANHOLE DETAILS