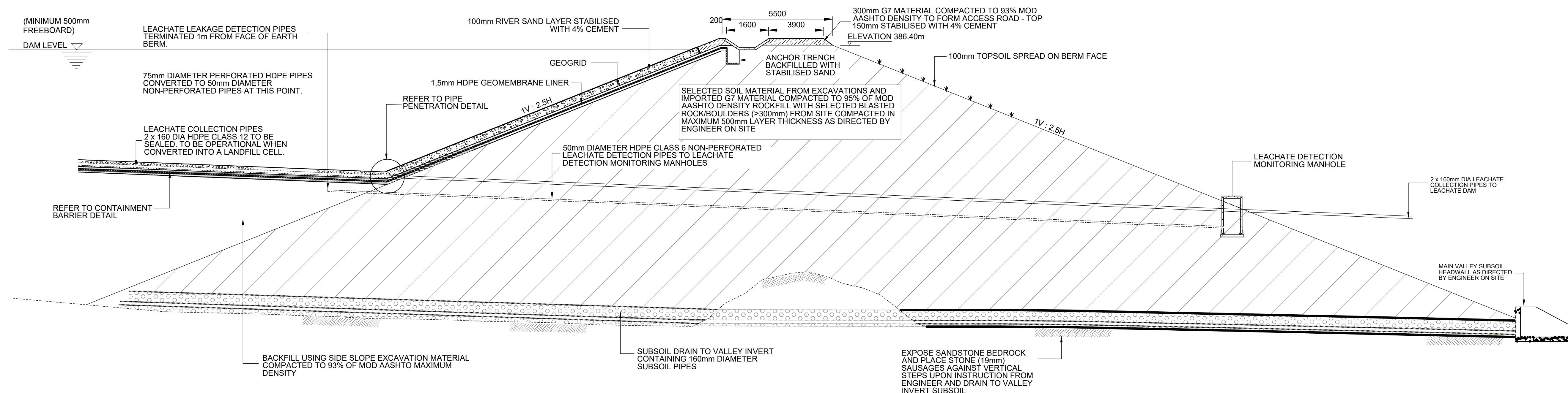


PROPOSED CONTAMINATED STORMWATER DAM LAYOUT

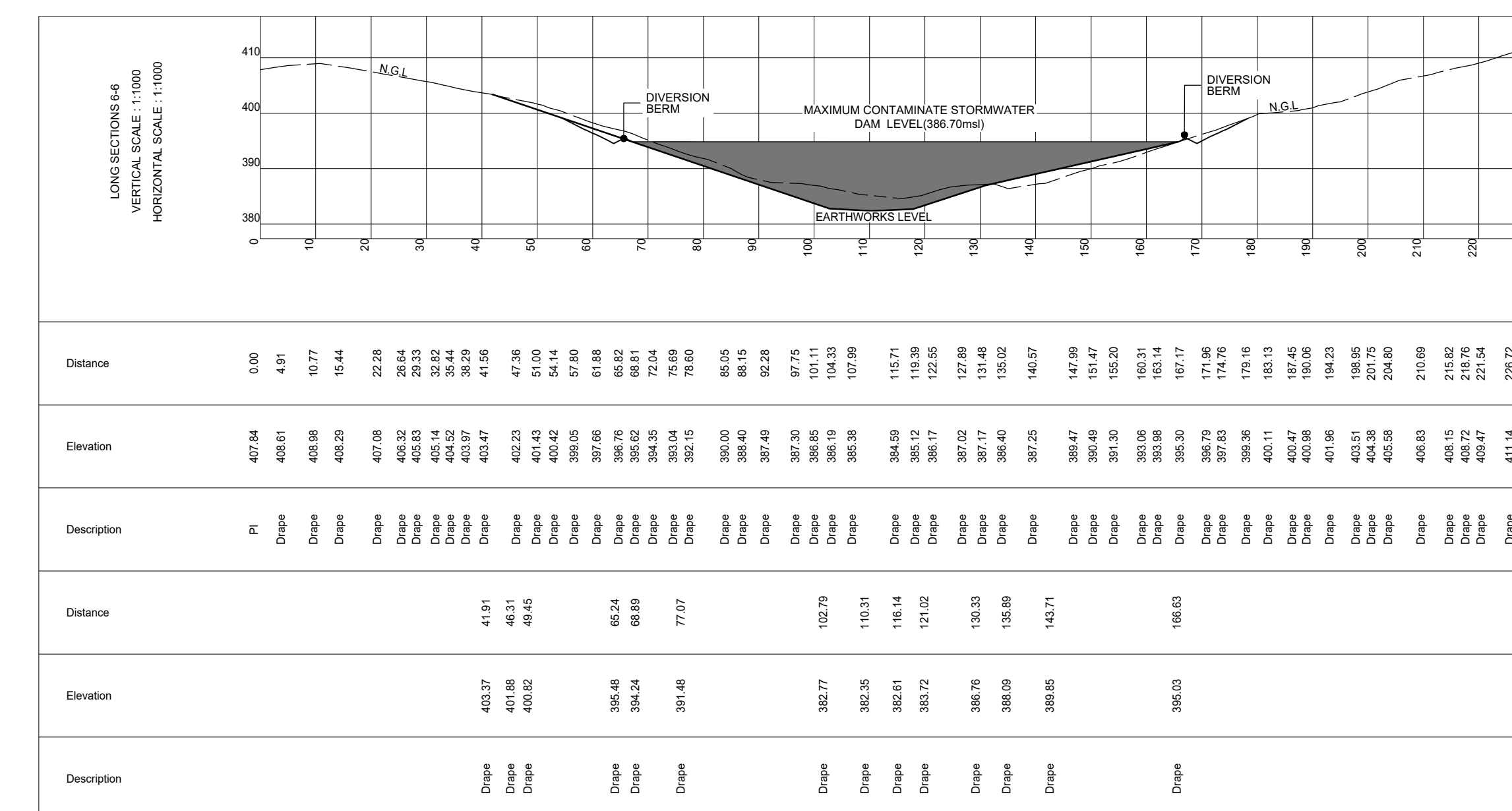
SCALE 1:500



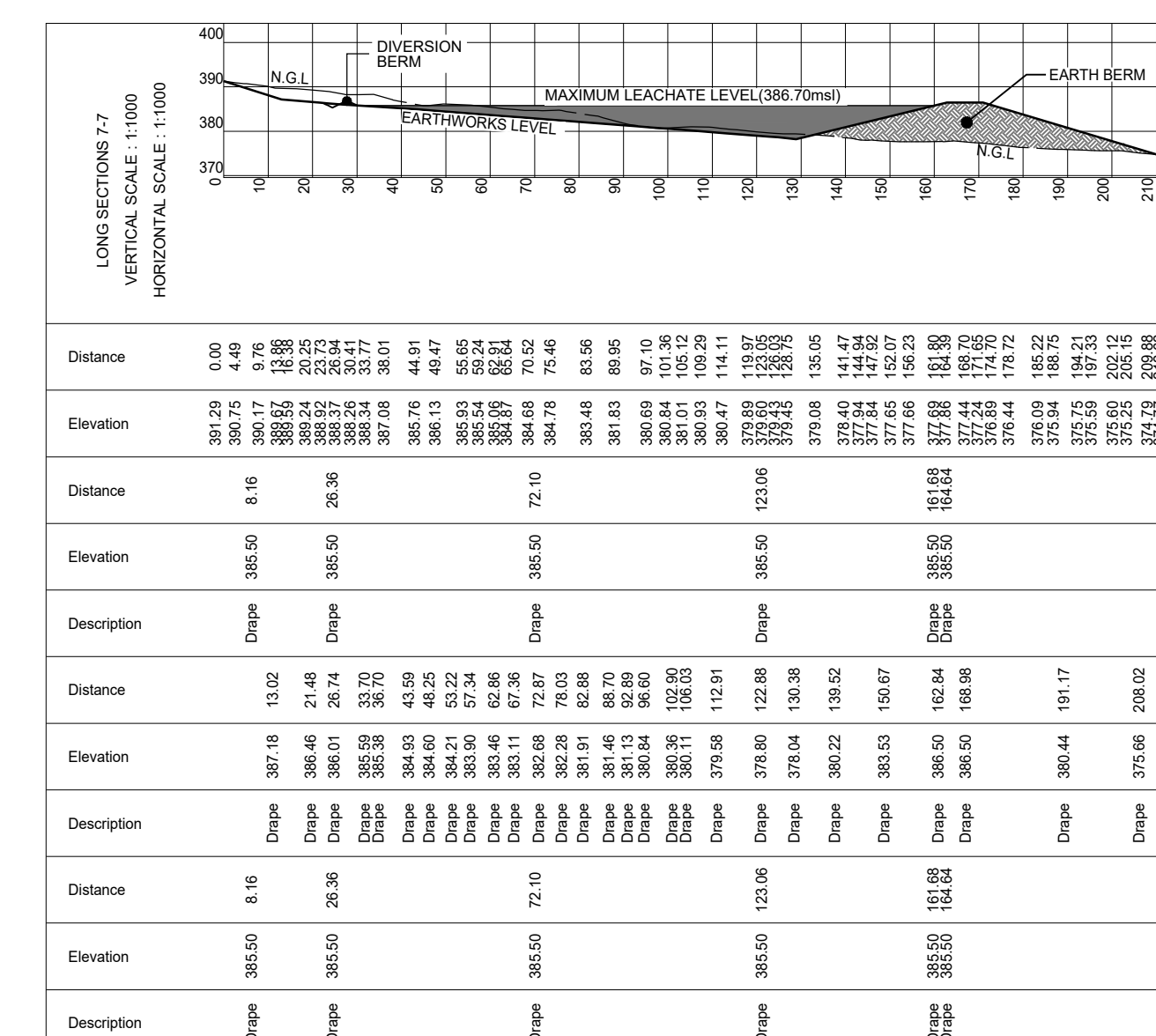
CONTAMINATED STORMWATER DAM EARTH BERM AND PIPEWORK DETAILS

FOR PIPE, MANHOLE AND HEADWALL CONFIGURATION AND LAYOUT,
REFER TO TYPICAL DETAILS DRAWINGS
NOT TO SCALE






- EARTHWORKS NOTES:
- 1.1 FINISHED BULK EARTHWORKS SHALL BE SMOOTH AND FREE FROM PROTRUSIONS THAT COULD PUNCTURE THE GEOMEMBRANE LINER. ALL EARTHWORKS SHALL BE APPROVED BY THE ENGINEER BEFORE ANY GEOSYNTHETICS ARE LAID.
 - 1.2 BASE PREPARATION SHALL INCLUDE SCARIFYING AND COMPACTING IN situ MATERIAL TO 95% OF MOD - AGSTHO MAXIMUM DENSITY.
 - 1.3 UNLESS OTHERWISE SPECIFIED ELSEWHERE, ALL EMBANKMENT FILL MATERIAL SHALL BE SOIL MATERIAL CLASSIFYING AS G9 COMPACTED TO 95% OF MOD - AGSTHO MAXIMUM DENSITY IN LAYERS NOT EXCEEDING 150mm THICK.
 - 1.4 ALL TYPE 2 GEOSYNTHETIC ANCHOR TRENCHES SHALL BE BACKFILLED AS SHOWN.
 - 1.5 ALL PROTECTION LAYERS ON TOP OF BERMS AND IN DRAINS SHALL BE STABILISED SAND.
- GEOSYNTHETICS NOTES:
- 2.1 THE GEOMEMBRANE TO BE CLEAN AND DRY BEFORE SEAMING COMMENCES.
 - 2.2 TRIAL SEAM TO BE DONE BEFORE THE MAJOR WORKS COMMENCE TO CHECK THE CALIBRATION OF THE EQUIPMENT.

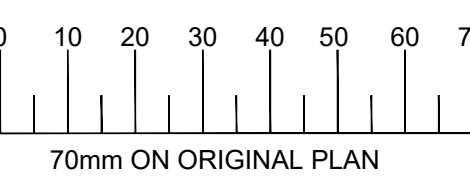


LONG SECTION 6-6



LONG SECTION 7-7

	eThekweni Municipality CLEANSING & SOLID WASTE
	DSDW
<p>REDUCED PLAN USE SCALE BELOW</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="flex-grow: 1; position: relative;"> 0 70 <div style="height: 10px; background: linear-gradient(to right, black 1%, white 1% 49%, white 49% 49%, black 49% 51%, white 51% 51%, white 51% 99%, black 99% 100%);"></div> <div style="position: absolute; bottom: -10px; width: 100%;">70mm ON ORIGINAL PLAN</div> </div> </div>	
Design Consultants	
IX / Wilson & Pass Inc JV e-engineering Eastern Office Reg. 17000 Hazele 270 Lynnwood Service Road Lynnwood Ridge Pretoria 0001 Tel.: +27 12 749 2000 Local Manager Tel: +27 31 254 5700	
 Approved _____ <small>Date</small>	 <i>Infrastructure Excellence</i> Co No. 2016/251430/OT MSA DISCIPLINARY CONSULTING ENGINEERS Western Office Reg 12 The Boulevard Thornhill Durban 3630 Tel: +27 31 254 5700 Fax: 031 537 7383 www.ixengineers.co.za Wilson & Pass Inc P O Box 641 Vventer's 3630 SA email: gp@wilsonandpass.co.za Tel: +27 31 843 1127
<small>Approved By</small> _____ <small>Date</small>	<small>Reviewed By</small> _____ <small>Date</small>
B A	27/10/2023 06/03/2023
FOR TENDER ONLY FOR APPROVAL	
Revision	Description
NOTE: No construction work to commence until land and servitude acquisitions have been completed. <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> Acquisitions completed <small>DATE:</small> _____ <small>SIGNATURE:</small> _____ </div> <div style="text-align: center;">  NORTH POINT </div> </div>	
UNDERGROUND SERVICES CHECKED	
SERVICE	DATE
S.W DRAINS SEWERS WATER MAINS C.P.O CABLES ELECTRIC CABLES S.A.R. CABLES E.S.C. CABLES OIL PIPELINE	
NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc., to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Wherever possible these must be located before work proceeds.	
L. Moodley Deputy Head: Cleansing & Solid Waste – DSW <small>(Date)</small>	
PSC 2015/010	
Contract No. _____ Status _____	
FOR TENDER	
Project Title	
WESTERN WASTE MANAGEMENT FACILITY (SHONGWENI)	
Drawing Title	
CONTAMINATED STORMWATER DAM LAYOUT & SECTIONS	
Scales AS SHOWN	Reference _____
Designed N. DOOKHUIJ PASS	Date 06/03/2023
Checked M. RICHMOND	Drawn by L. DU PLESSIS
Drawing No. 301837-02-WS-LA-001-003	Revision B

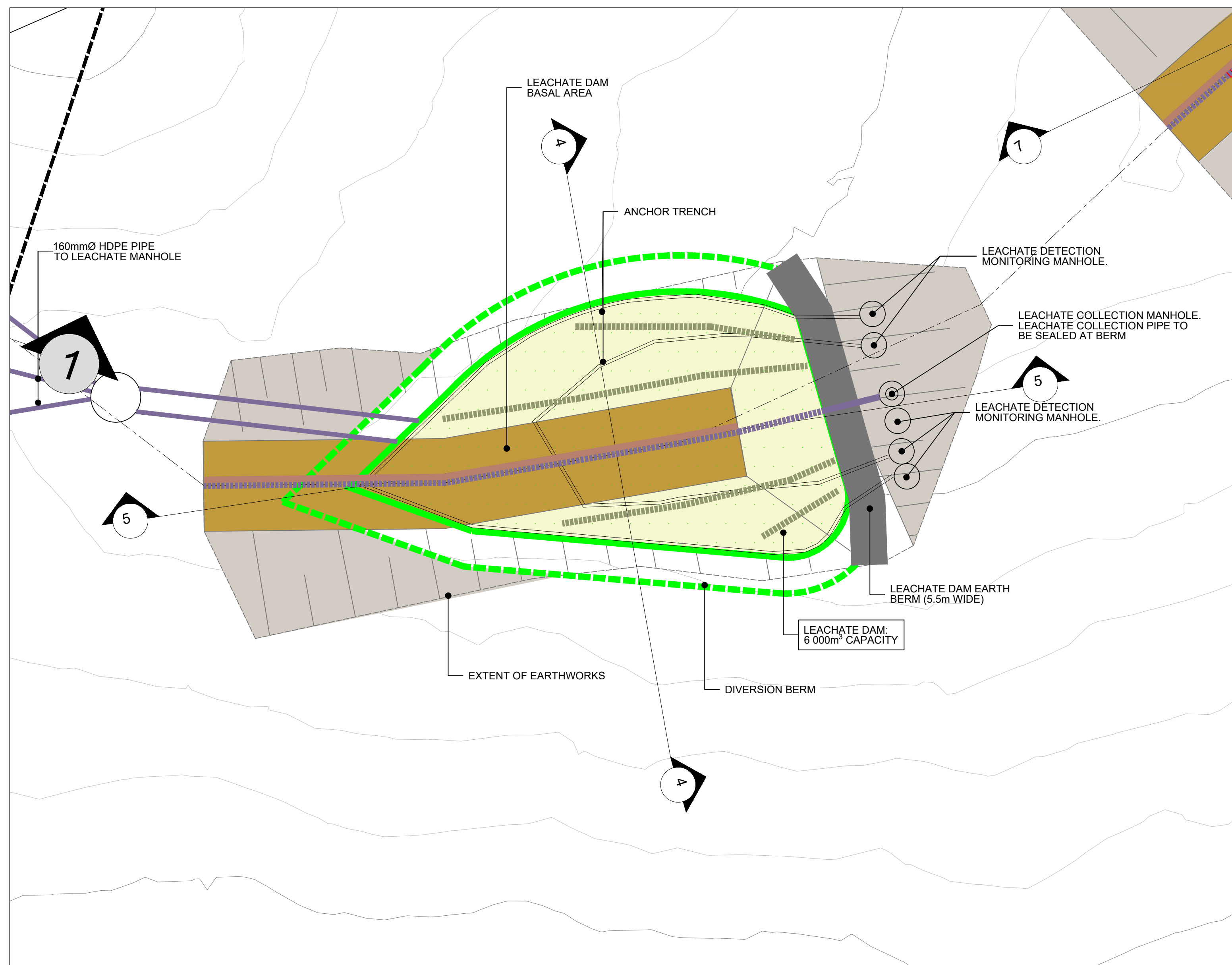


EARTHWORKS NOTES:

- 1.1 FINISHED BULK EARTHWORKS SHALL BE SMOOTH AND FREE FROM PROTRUSIONS THAT COULD PUNCTURE THE GEOMEMBRANE LINER. ALL EARTHWORKS SHALL BE APPROVED BY THE ENGINEER BEFORE ANY GEOSYNTHETICS ARE LAID.
- 1.2 BASE PREPARATION SHALL INCLUDE SCARIFYING AND COMPACTING INSITU MATERIAL TO 93% OF MOD - AASHTO MAXIMUM DENSITY.
- 1.3 UNLESS OTHERWISE SPECIFIED ELSEWHERE, ALL EMBANKMENT FILL MATERIAL SHALL BE SOIL MATERIAL CLASSIFYING AS G9 COMPACTED TO 93% OF MOD - AASHTO MAXIMUM DENSITY IN LAYERS NOT EXCEEDING 150mm THICK.
- 1.4 ALL TYPE 2 GEOSYNTHETICS ANCHOR TRENCHES SHALL BE BACKFILLED AS SHOWN.
- 1.5 ALL PROTECTION LAYERS ON TOP OF BERMS AND IN DRAINS SHALL BE STABILISED SAND.

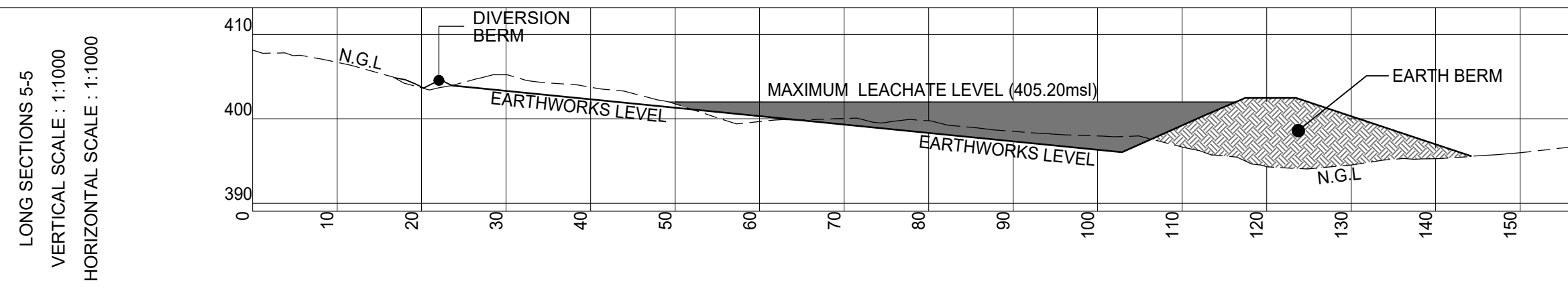
GEOSYNTHETICS NOTES:

- 2.1 THE GEOMEMBRANE TO BE CLEAN AND DRY BEFORE SEAMING COMMENCES.
- 2.2 TRIAL SEAM TO BE DONE BEFORE THE MAJOR WORKS COMMENCE TO CHECK THE CALIBRATION OF THE EQUIPMENT.



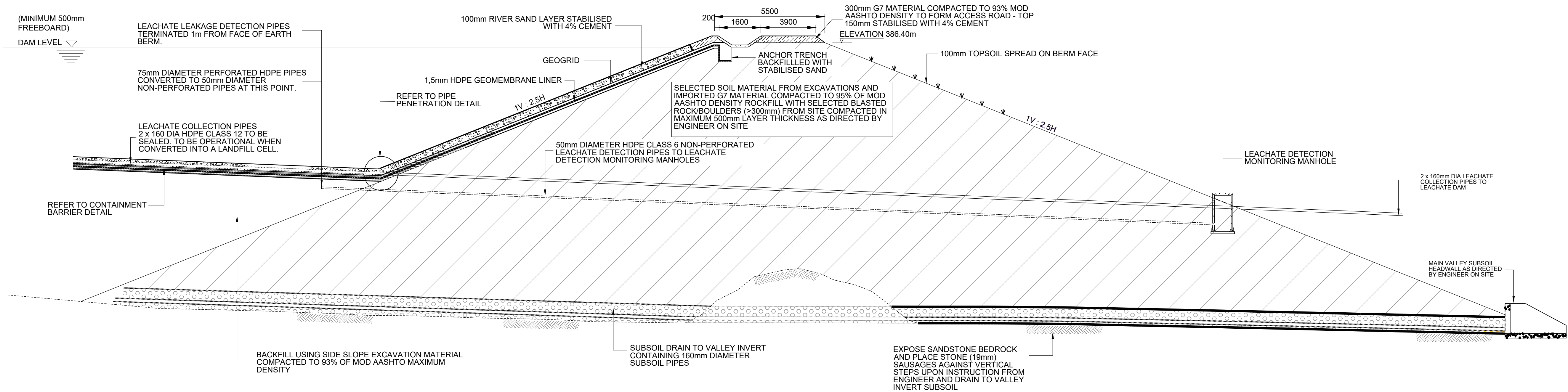
PROPOSED LEACHATE DAM LAYOUT

SCALE 1:500



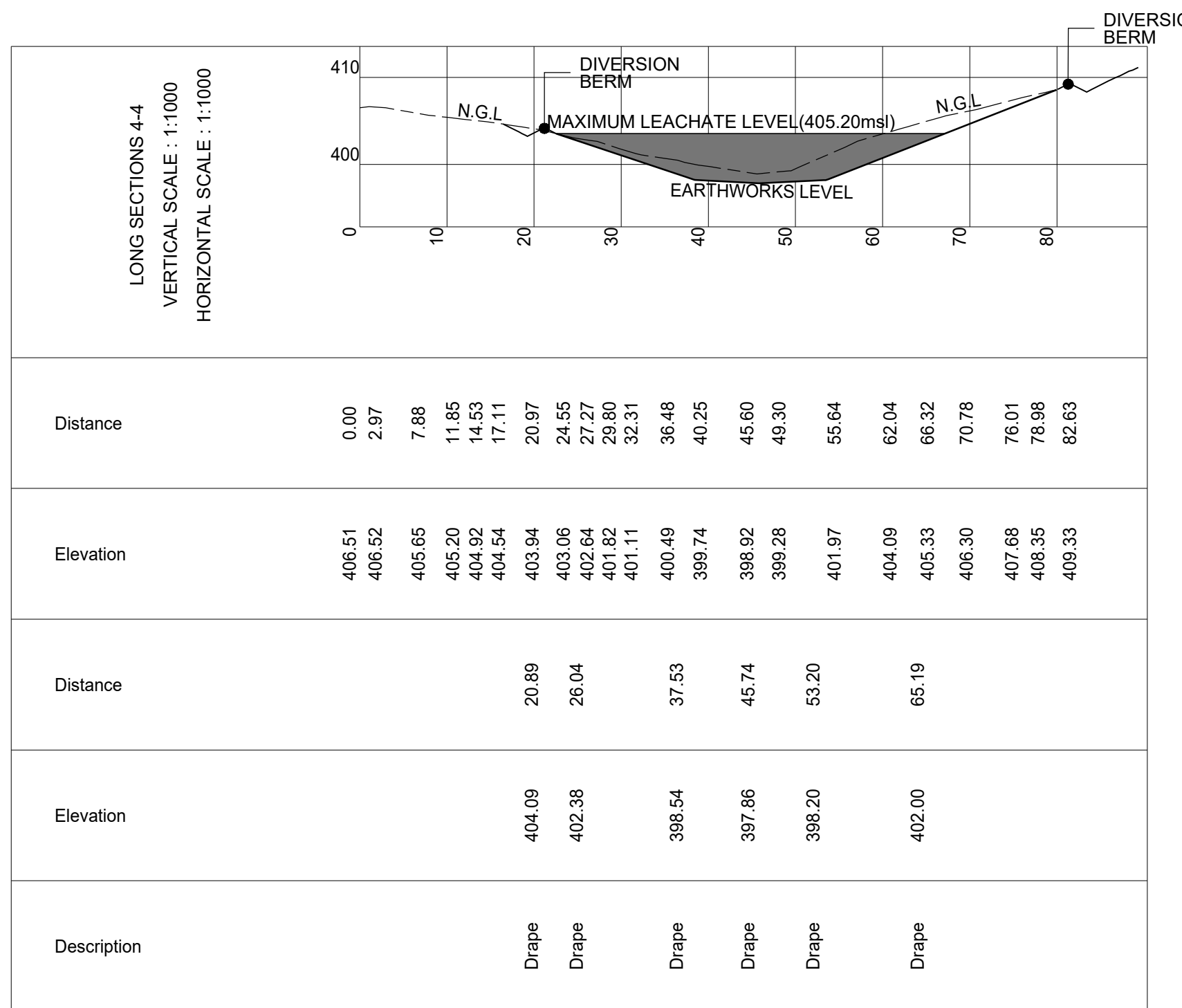
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Elevation	408.13	407.81	407.06	406.36	404.94	403.43	401.71	400.22	398.40	396.02	393.51	390.28	386.25	381.47	376.87	372.48	368.31	364.36	360.62	357.10	353.80	350.72	347.86	345.22	342.80	340.50	338.32	336.26	334.32	332.50	330.79	329.29	327.99	326.89	325.98	325.26	324.72
Distance		13.63	18.52	23.74	28.95	33.85	38.40	43.04	47.91	52.24	57.02	61.79	64.50	71.51	74.39	77.76	82.39	85.85	93.45	98.13	102.49	112.61	117.46	123.49	129.74	136.56	143.10										
Elevation	404.99	404.48	403.93	403.34	402.67	401.91	401.08	400.19	399.26	398.31	397.34	396.36	395.36	394.34	393.30	392.24	391.16	390.06	388.94	387.80	386.64	385.46	384.26	383.04	381.80	380.54	379.26	377.96	376.64	375.30	373.94	372.56	371.16	369.74	368.30	366.85	
Description	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape	Drape

LONG SECTION 5-5



LEACHATE DAM: TYPICAL EARTH BERM AND PIPEWORK DETAILS

FOR PIPE, MANHOLE AND HEADWALL CONFIGURATION AND LAYOUT,
REFER TO TYPICAL DETAILS DRAWINGS
NOT TO SCALE



LONG SECTION 4-4

Design Consultants

iX / Wilson & Pass Inc JV

iX engineers Eastern Office Park (Phone House)
270 Lumwood Service Road (Lumwood Ridge)
Pretoria 0081 | Tel: +27 12 745 2000
Local Manager Tel: +27 31 244 5700

Wilson & Pass Inc

Wilson & Pass Inc
P.O. Box 541 (Meyerton) 1960 | SA
email: jon.p@wilsonandpass.co.za
Tel: +27 62 483 1127

Acquisitions completed

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches, etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Wherever possible these must be located before work proceeds.

DATE: 27/10/2023 FOR TENDER ONLY

DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL

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DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL

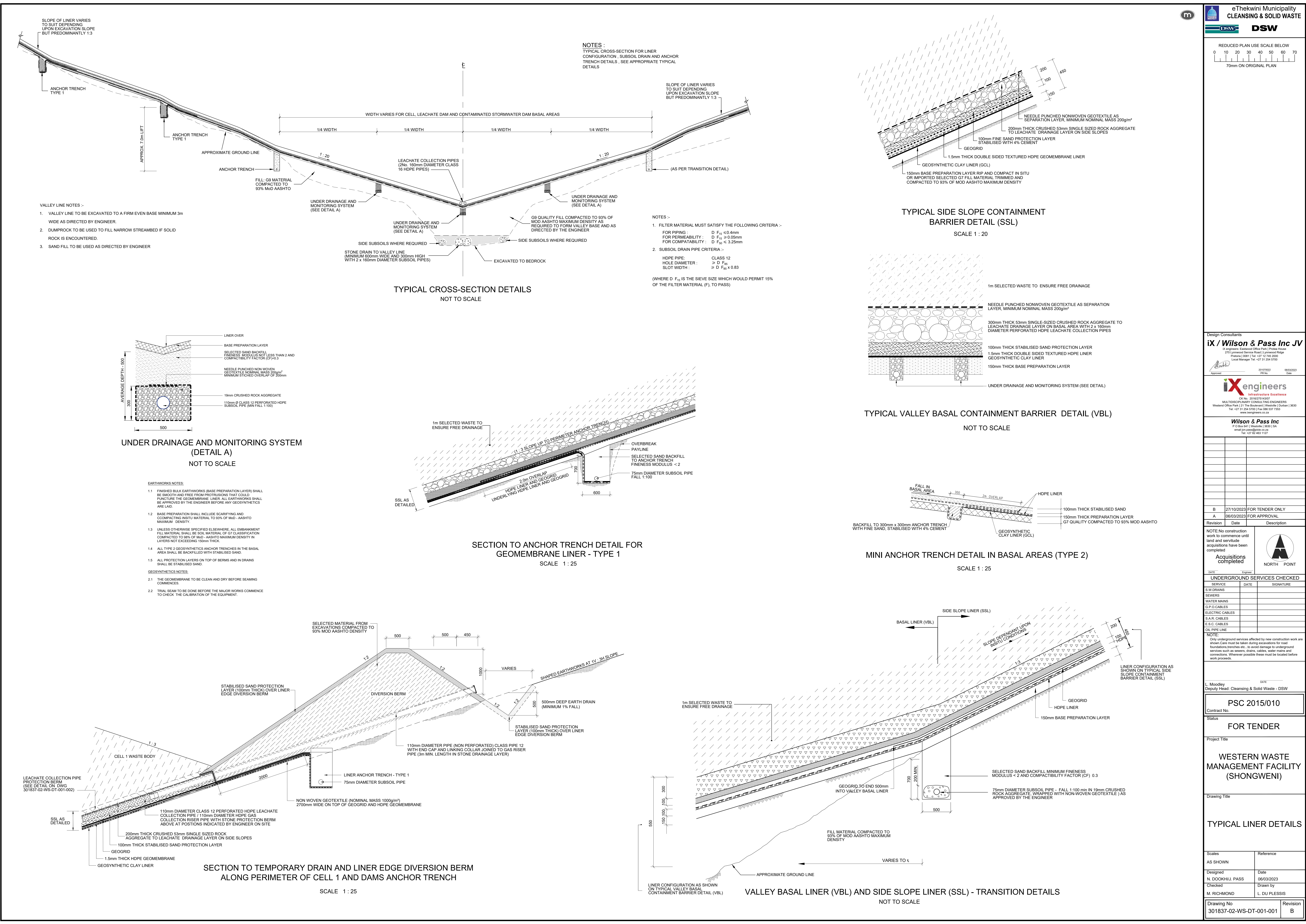
DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL

DATE: 03/06/2023 FOR APPROVAL



eThekwin Municipality

CLEANSING & SOLID WASTE

DSW

DESIGN SERVICES WASTE

REDUCED PLAN USE SCALE BELOW

010203040506070

70mm ON ORIGINAL PLAN

Design Consultants

iX / Wilson & Pass Inc JV

ix engineers

Infrastructure Excellence

MULTIDISCIPLINARY CONSULTING ENGINEERS

Western Office Park | 21 The Boulevard | Waverley | Durban | 40130

Tel: +27 31 254 5700 | Fax: 085 537 7353

www.ixengineers.co.za

Wilson & Pass Inc

P.O. Box 611 | Waverley | 40130 | SA

email: jon.pass@wilson.co.za

Tel: +27 31 254 5700

Revision	Date	Description
B	27/10/2023	FOR TENDER ONLY
A	06/03/2023	FOR APPROVAL

Acquisitions completed

NORTH POINT

SERVICE	DATE	SIGNATURE
S.W. DRAINS		
SEWERS		
WATER MAINS		
G.P. CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

NOTE:

Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches, etc., to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Wherever possible these must be located before work proceeds.

DATE

L. Moodley

Deputy Head: Cleansing & Solid Waste - DSW

Contract No.

PSC 2015/010

Status

FOR TENDER

Project Title

WESTERN WASTE MANAGEMENT FACILITY (SHONGWENI)

Drawing Title

TYPICAL LINER DETAILS

Scales

AS SHOWN

Reference

Designed

N. DOOKHUIJ, PASS

Date

06/03/2023

Checked

M. RICHMOND

Drawn by

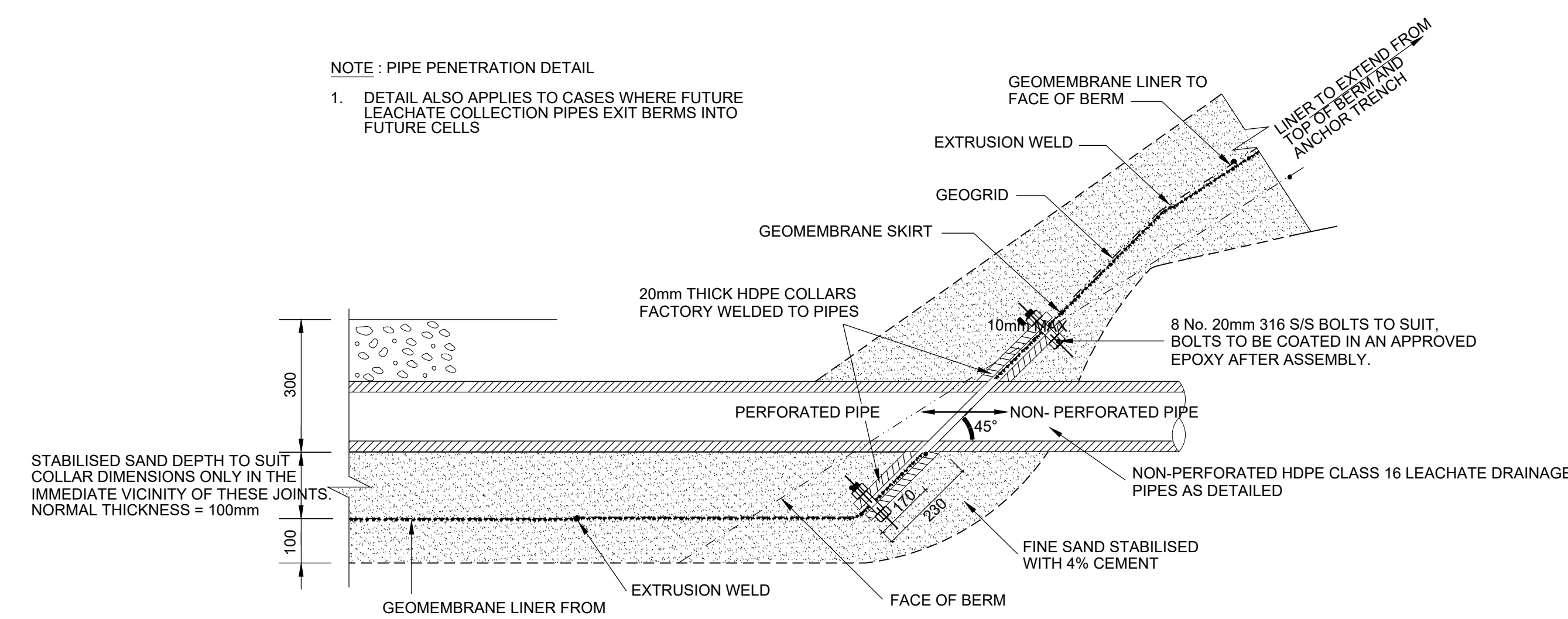
L. DU PLESSIS

Drawing No

301837-02-WS-DT-001-001

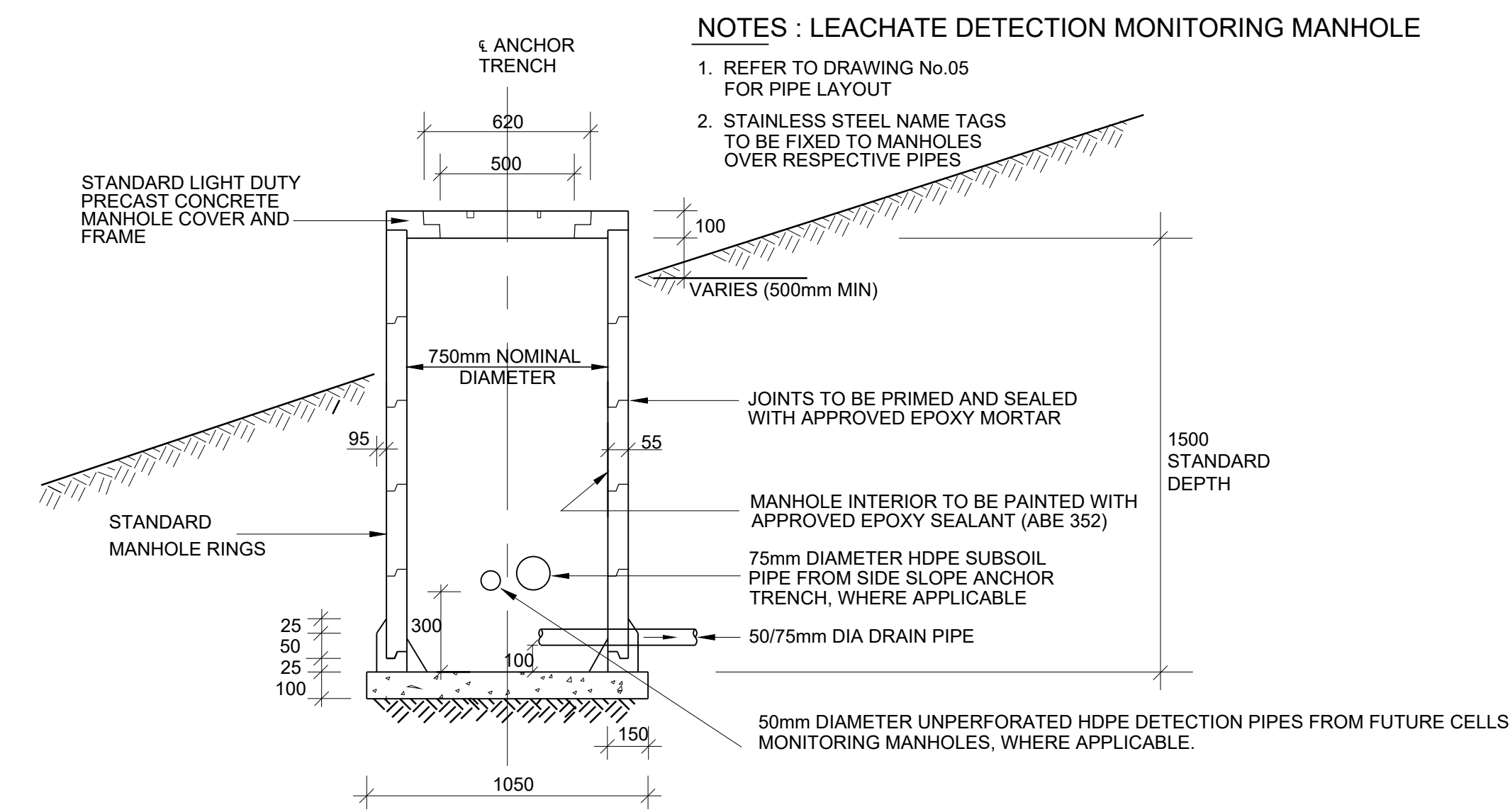
Revision

B



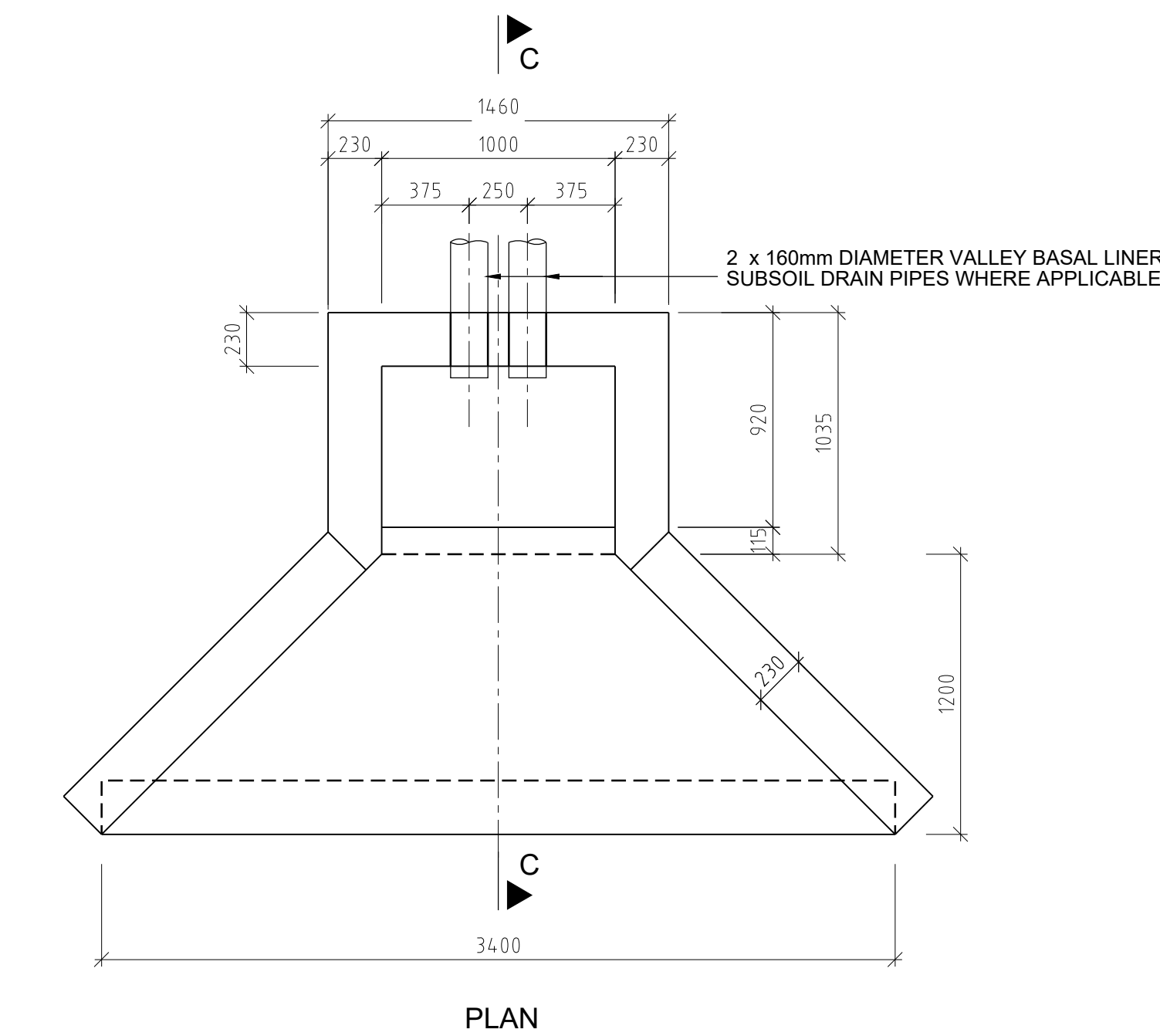
PIPE PENETRATION
FOR 160mm AND 110mm DIAMETER - HDPE CLASS 16 PIPES

SCALE 1 : 10

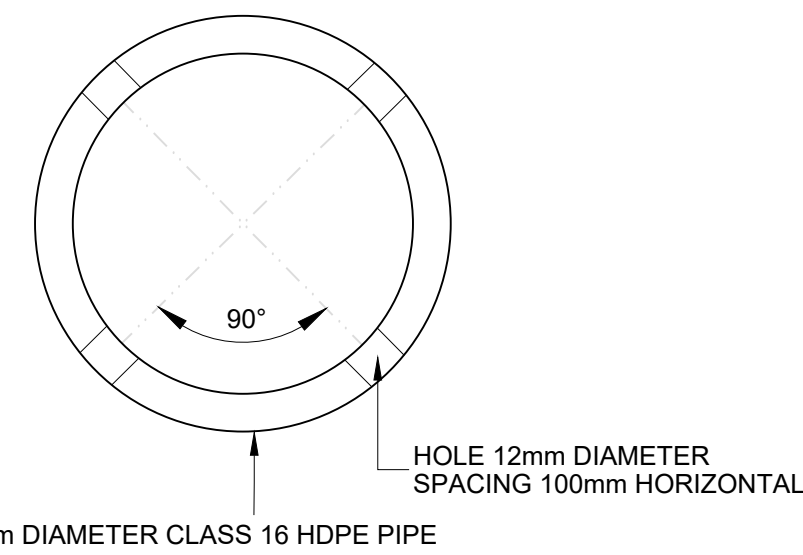


LEACHATE DETECTION / COLLECTION
MONITORING MANHOLE DETAILS

SCALE 1 : 20

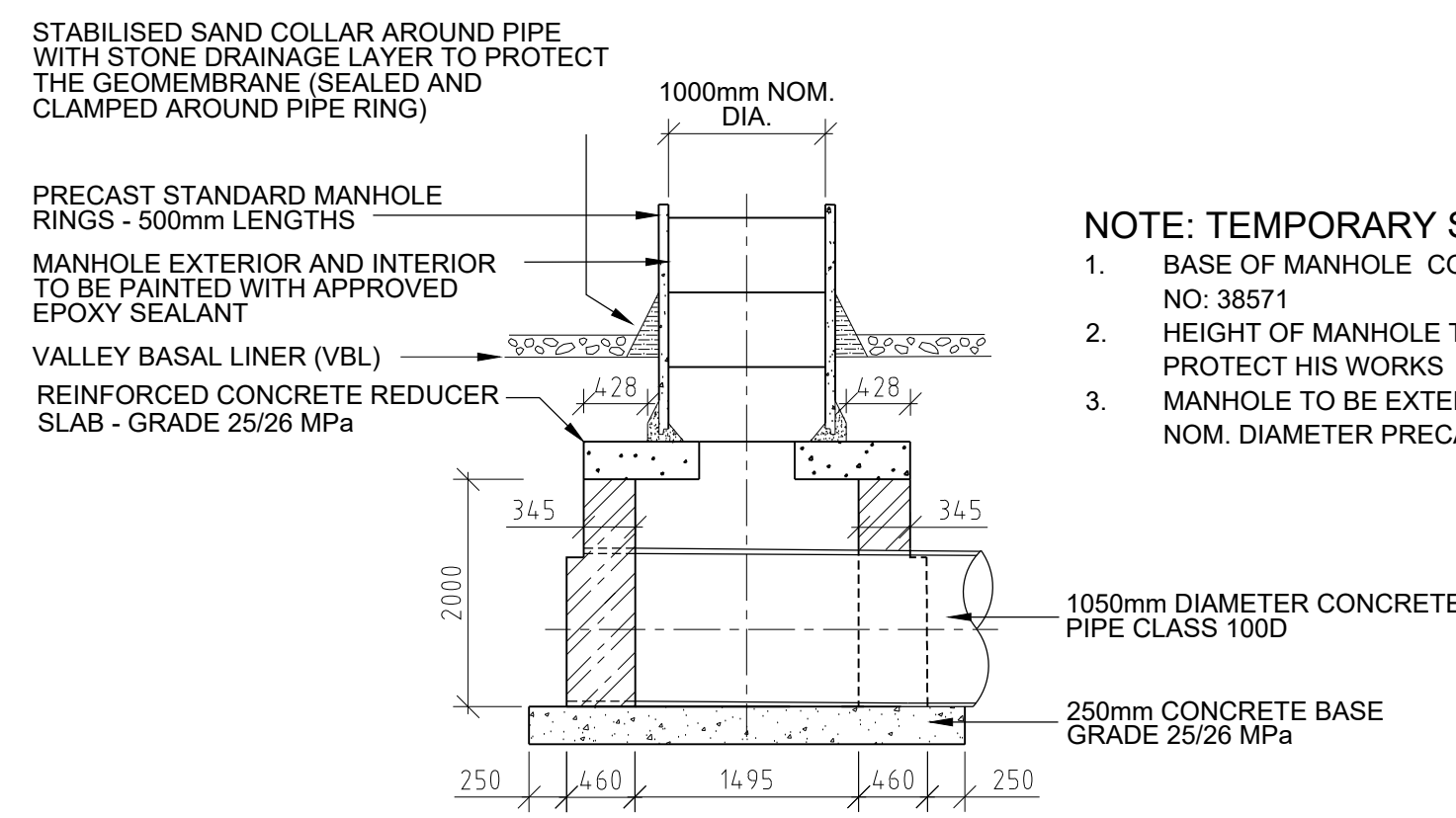


BASAL SUBSOIL DRAIN HEADWALL
SCALE 1 : 25



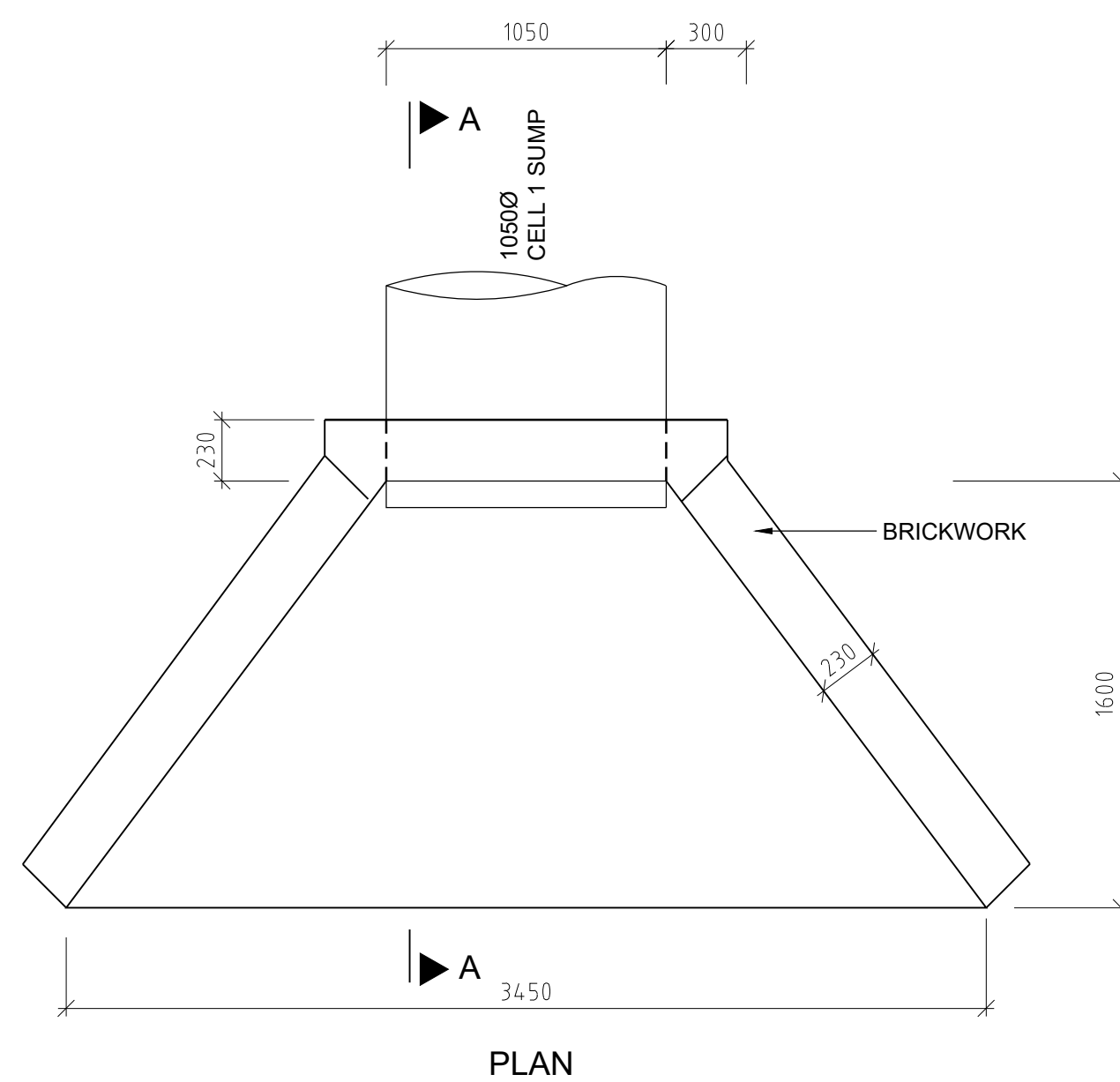
PERFORATED LEACHATE
COLLECTION PIPE

SCALE 1 : 2



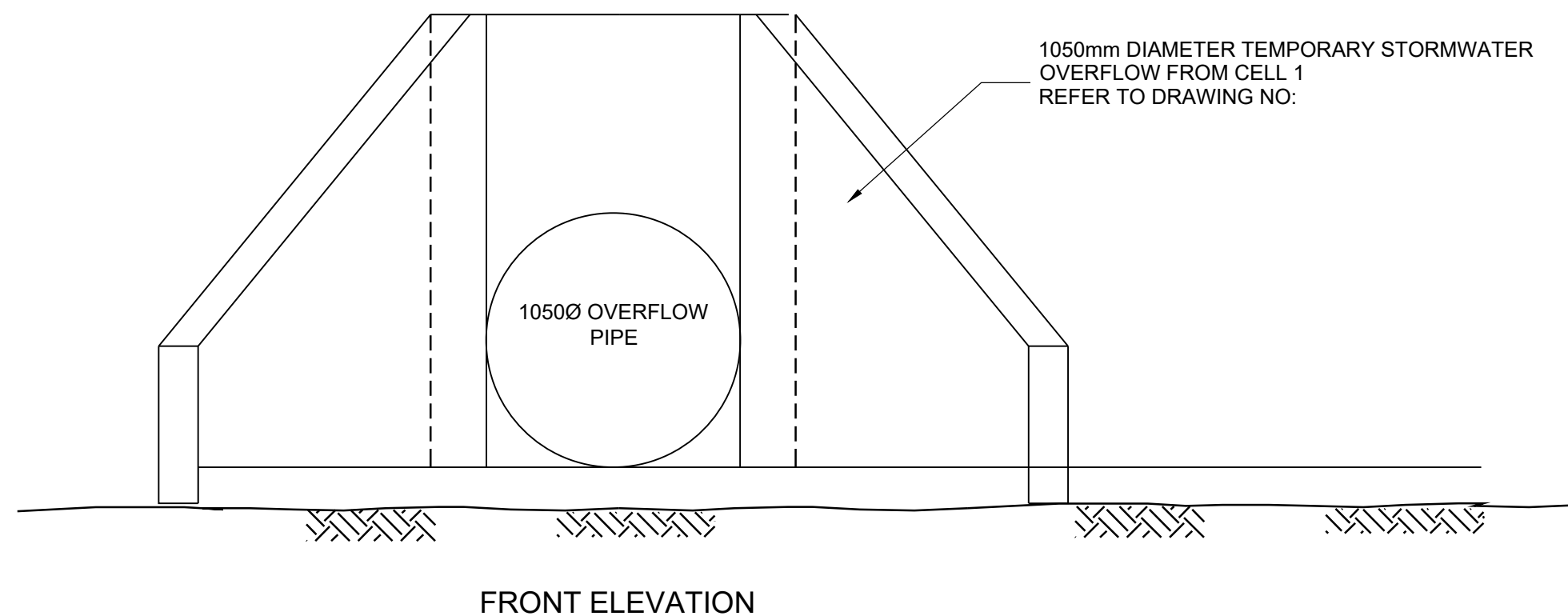
TEMPORARY STORMWATER OVERFLOW
MANHOLE - TYPE B

NOT TO SCALE

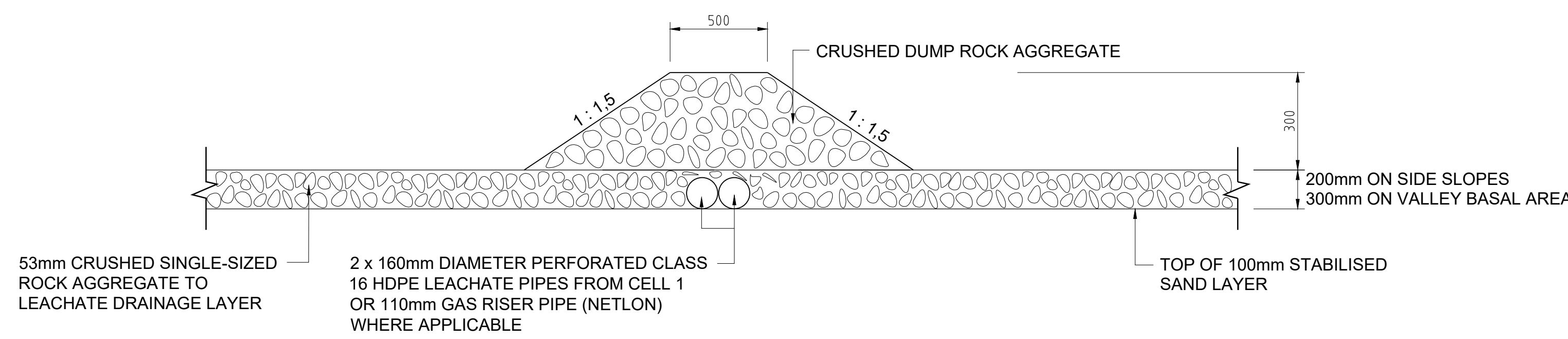


NOTES : HEADWALLS

1. CONCRETE MIX 15/19
2. MIN. COVER TO REINFORCEMENT = 40mm
3. WOODFLOAT FINISH TO ALL EXPOSED CONCRETE SURFACES.
4. ALL EXPOSED BRICKWORK TO BE FACEBRICK (SATIN HORIZON VARIATION OR SIMILAR).
5. GALVANISED BRICKFORCE TO BE PROVIDED TO EVERY SECOND COURSE OF BRICKWORK.
6. DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS EDM301-02 AND EDM301-03 FOR PIPE LAYOUTS

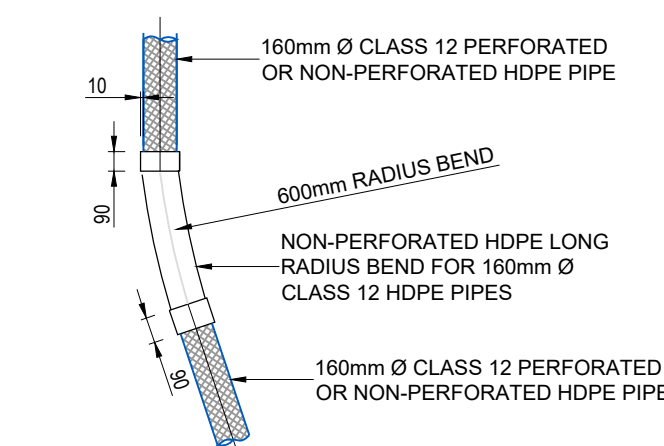


CELL 1 TEMPORARY STORMWATER OVERFLOW SUBSOIL HEADWALL
SCALE 1 : 25

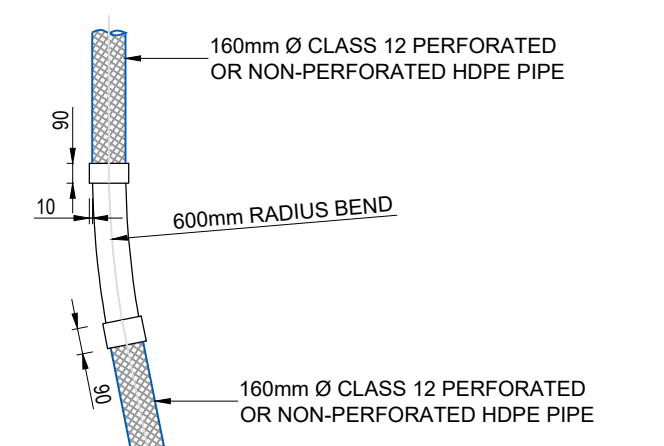


LEACHATE COLLECTION PIPE / GAS RISER PIPE PROTECTION BERM

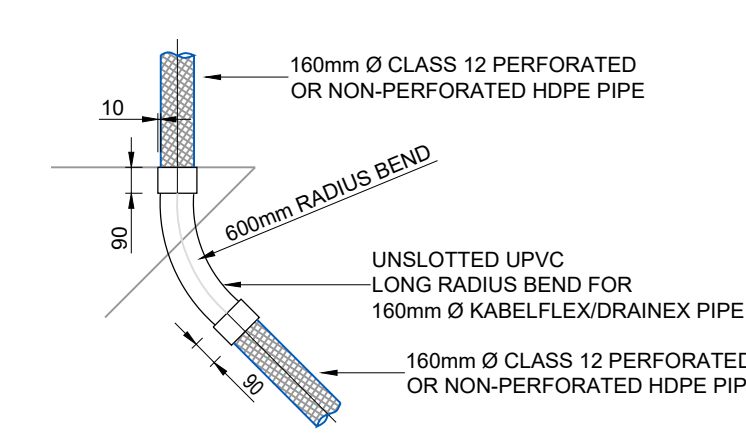
NOT TO SCALE



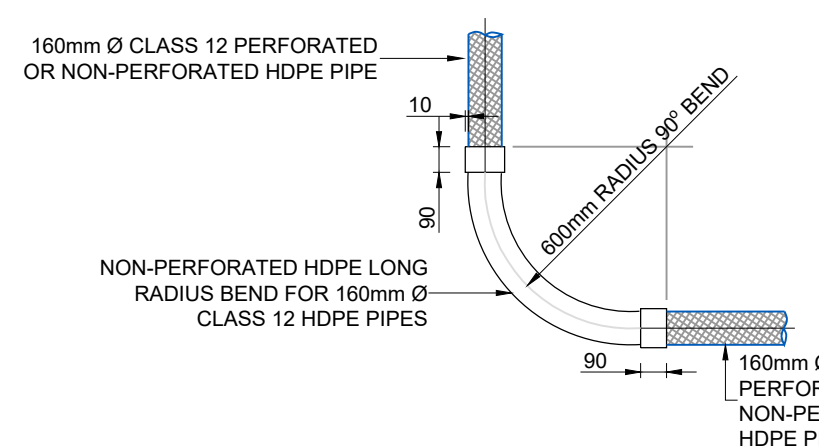
PLAN OF 22.5° CONNECTION
160mm Ø PIPE



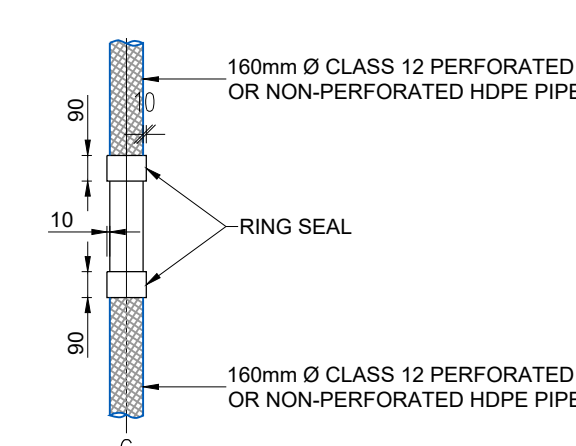
PLAN OF 11.25° CONNECTION
160mm Ø PIPE



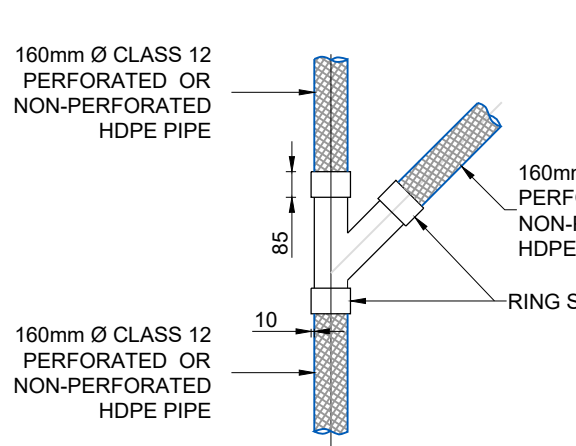
PLAN OF 45° CONNECTION
160mm Ø PIPE



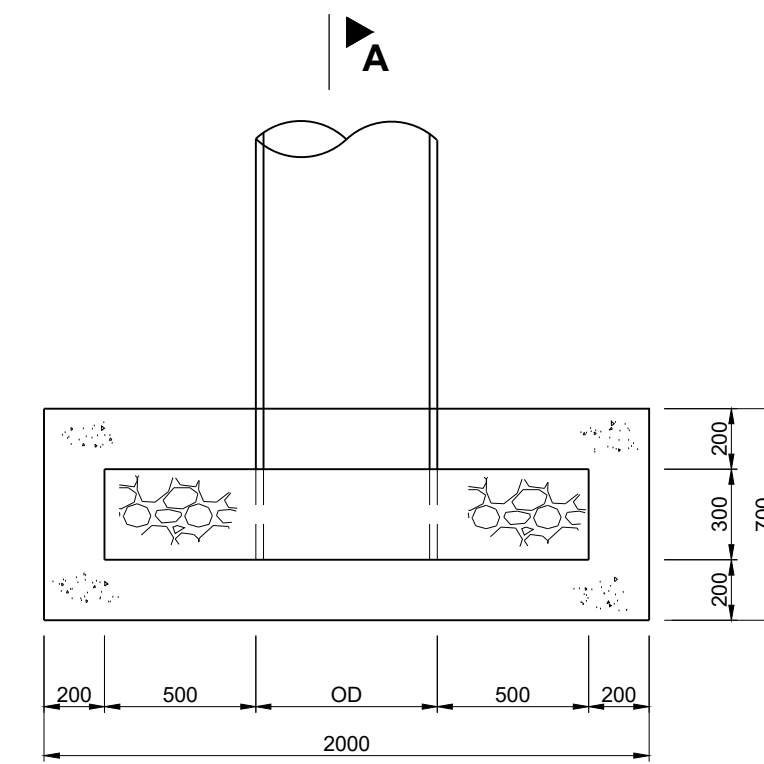
PLAN OF 90° CONNECTION
160mm Ø PIPE



PLAN OF NORMAL STRAIGHT
CONNECTION - 160mm Ø PIPE

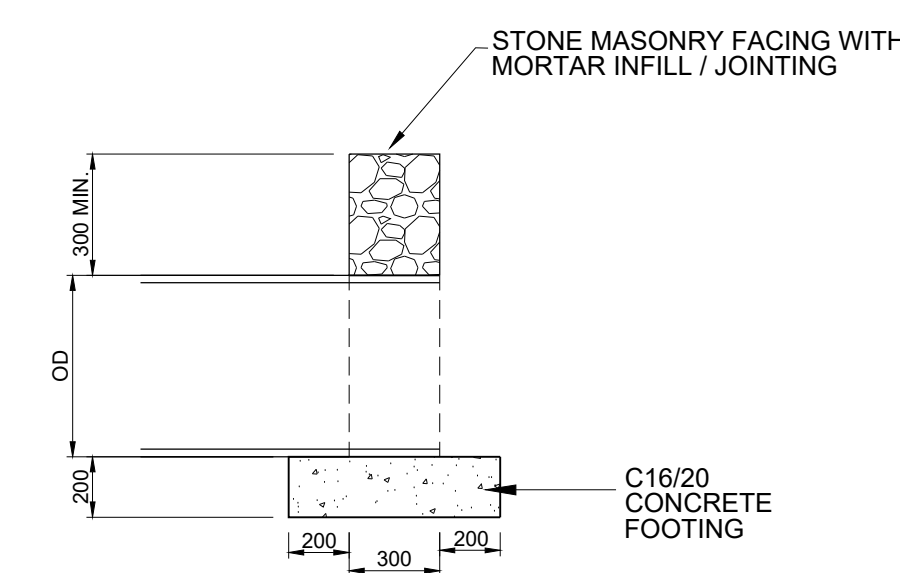


PLAN OF 45° Y - JUNCTION CONNECTION
160mm Ø PIPE



FRONT ELEVATION

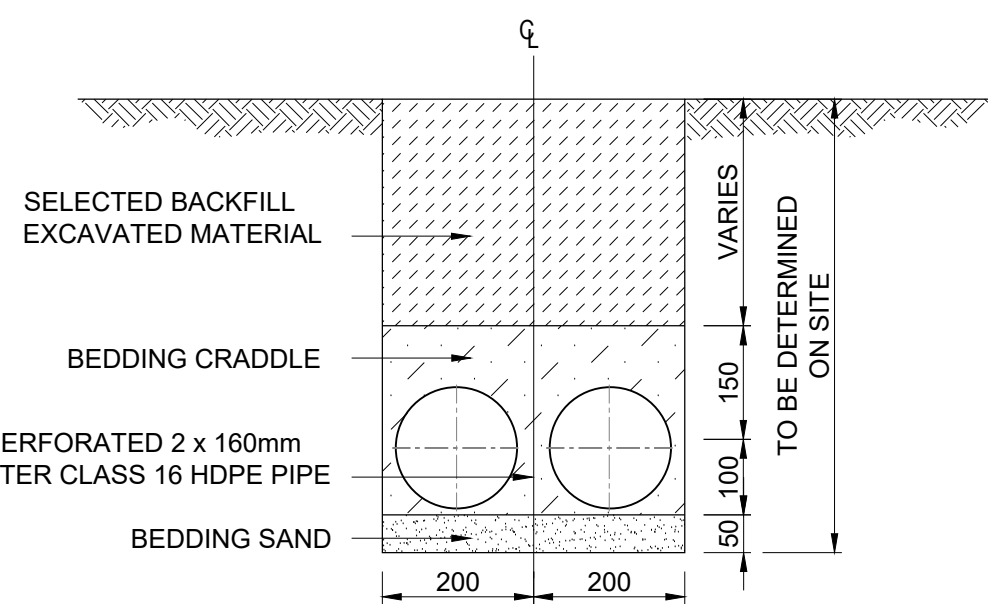
MASONRY PIPE HEADWALL DETAIL
SCALE 1 : 25



SECTION A-A

TYPICAL SECTION THROUGH LEACHATE COLLECTION
PIPE OUTSIDE BERMS

SCALE 1 : 10



eThekweni Municipality
CLEANSING & SOLID WASTE



REDUCED PLAN USE SCALE BELOW
0 10 20 30 40 50 60 70
70mm ON ORIGINAL PLAN

Design Consultants

ix / Wilson & Pass Inc JV

ix-engineers, Eastwood Office Park | Phoenix House
270 Lynnwood Service Road | Lynnwood Ridge
Pretoria 16011 Tel: +27 12 785 2000
Local Manager Tel: +27 31 254 5700

Approved: 05/10/2022 06/03/2023
PSC No. Date

ixengineers

Infrastructure Excellence
CR No. 2016/275143/07
MULTIDISCIPLINARY CONSULTING ENGINEERS
Western Office Park | 21 The Boulevard | Westville | Durban | 3630
Tel: +27 31 254 5700 | Fax: 086 107 1753
www.ixengineers.co.za

Wilson & Pass Inc

P.O. Box 641 | Midrand | 2008 | SA
Email: gpass@wilsonpass.co.za
Tel: +27 82 483 1127

B 27/10/2023 FOR TENDER ONLY

A 06/03/2023 FOR APPROVAL

Revision Date Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed

Acquisitions completed

DATE: 06/03/2023

Engineer: L. Moodley

Deputy Head: Cleansing & Solid Waste - DSW

UNDERGROUND SERVICES CHECKED

SERVICE DATE SIGNATURE

S.W. DRAINS

SEWERS

WATER MAINS

G.P.O. CABLES

ELECTRIC CABLES

S.A.R. CABLES

E.S.C. CABLES

OIL PIPE LINE

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Whenever possible these must be located before work proceeds.

DATE: 06/03/2023

L. Moodley Deputy Head: Cleansing & Solid Waste - DSW

PSC 2015/010

Contract No.

Status

FOR TENDER

Project Title

WESTERN WASTE MANAGEMENT FACILITY (SHONGWENI)

Drawing Title

TYPICAL LEACHATE DETECTION MAHOLE AND COLLECTION MANHOLE DETAILS

Scales

AS SHOWN Reference

Designed: N. DOOKHUIJ PASS Date: 06/03/2023

Checked: M. RICHMOND Drawn by: L. DU PLESSIS

Drawing No. 301837-02-WS-DT-001-002

Revision B