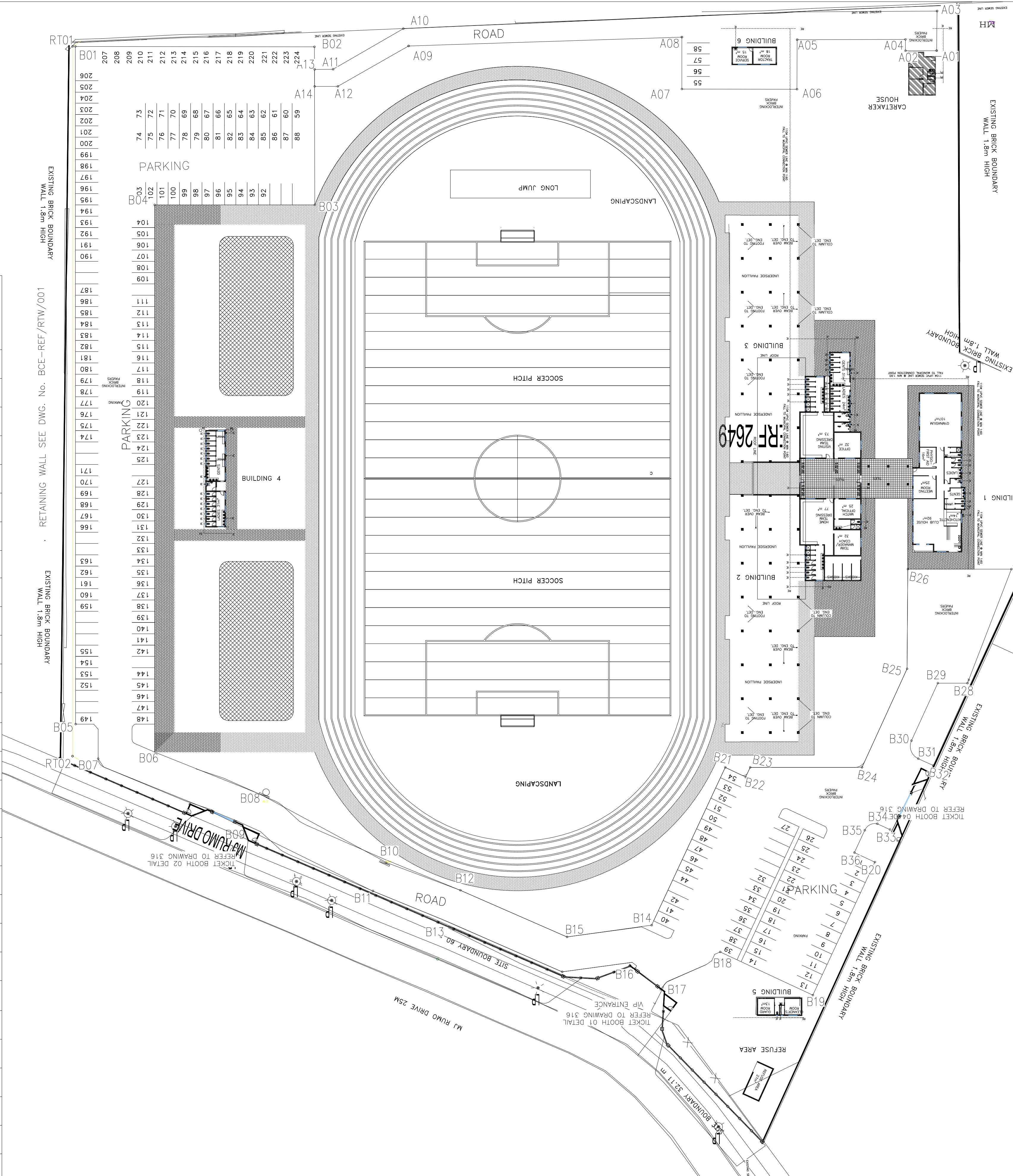


1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENT OF THE LATEST RELEVANT SANS 1200 REQUIREMENTS
2. DO NOT SCALE FROM THIS DRAWING
3. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE
4. CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATION AND THE STANDARD JW DESIGN SPECIFICATION
5. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD DRAWINGS
6. FINAL POSITION OF SERVICES TO BE DETERMINE ON SITE
7. FINAL POSITION OF PIPES TO BE DETERMINE ON SITE



KI 1

NAME	YLo	XLo	ZLo.
B01	46479.221	2837354.378	1428.010
B02	46532.365	2837354.485	1428.160
B03	46532.155	2837319.369	1428.320
B04	46496.300	2837319.906	1428.240
B05	46479.334	2837204.378	1428.860
B06	46496.278	2837197.805	1428.860
B07	46487.171	2837195.512	1428.980
B08	46521.388	2837189.268	1428.980
B09	46519.299	2837184.653	1429.276
B10	46547.957	2837173.605	1429.400
B11	46545.721	2837169.054	1429.700
B12	46562.961	2837167.709	1429.660
B13	46561.919	2837162.831	1429.960
B14	46605.802	2837164.777	1430.800
B15	46599.962	2837160.111	1430.210
B16	46603.146	2837150.173	1430.503
B17	46609.848	2837146.743	1430.503
B18	46622.633	2837153.337	1430.763
B19	46642.837	2837143.737	1431.100
B20	46659.573	2837177.024	1431.200
B21	46622.522	2837196.107	1431.118
B22	46627.573	2837192.587	1431.057
B23	46628.607	2837194.762	1431.060
B24	46657.721	2837194.762	1431.028
B25	46663.537	2837207.235	1430.210
B26	46663.537	2837238.672	1431.190
B27	46686.472	2837238.672	1431.420
B28	46676.732	2837213.438	1430.765



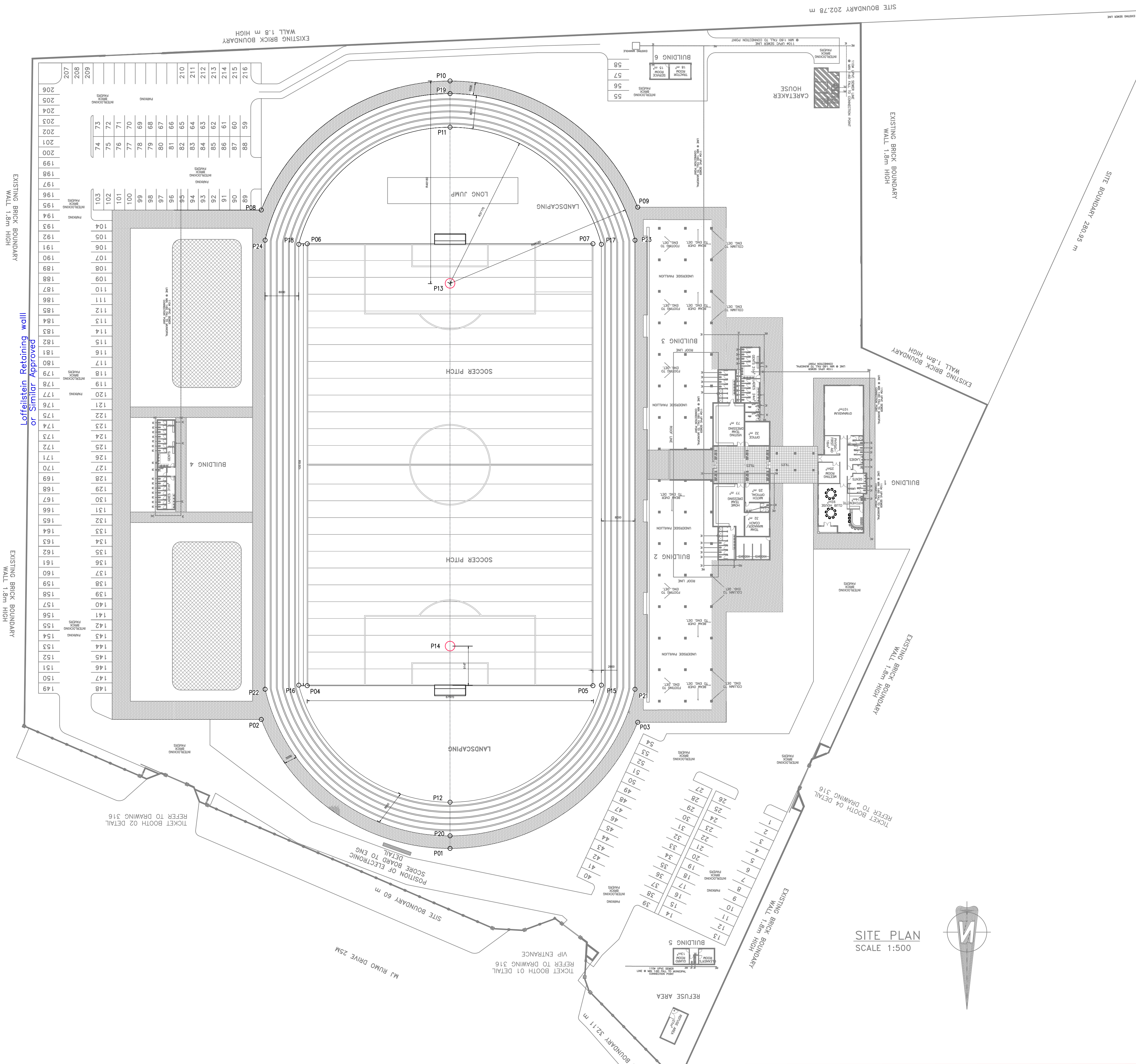
NAME	YLo	XLo	ZLo.
A01	46669.908	2837353.525	1430.303
A02	46663.665	2837353.560	1430.026
A03	46669.798	2837362.273	1430.303
A04	46661.701	2837358.531	1430.175
A05	46643.336	2837358.613	1429.730
A06	46640.839	2837345.613	1429.925
A07	46615.043	2837345.567	1429.820
A08	46612.709	2837357.350	1429.564
A09	46552.960	2837354.634	1429.485
A10	46552.808	2837358.394	1429.358
A11	46531.913	2837349.292	1428.284
A12	46531.776	2837345.816	1428.312
A11	46531.913	2837349.292	1428.284
A12	46531.776	2837345.816	1428.312

NAME	YLo	XLo	ZLo.
B29	46670.161	2837213.438	1430.250
B30	46664.344	2837200.690	1430.130
B31	46665.828	2837196.715	1430.631
B32	46669.174	2837195.189	1430.750
B33	46659.577	2837180.996	1430.650
B34	46656.769	2837182.277	1430.550
B35	46653.995	2837180.857	1430.120
B36	46651.688	2837175.910	1430.118

[illegible]

EARTHWORKS LEVELS (SOCCER PITCH, ATHLETIC TRACK AND LANDSCAPING) SETTING OUT DATA

NAME	YLo	XLo	ZLo
P01	46577.096	2837167.412	1429.990
P02	46532.195	2837198.155	1429.990
P03	46621.657	2837197.482	1429.990
P04	46543.140	2837206.179	1429.830
P05	46611.081	2837206.179	1429.830
P06	46543.140	2837311.312	1429.830
P07	46611.081	2837311.335	1429.830
P08	46532.195	2837319.359	1429.990
P09	46621.718	2837320.032	1429.990
P10	46577.096	2837350.056	1429.990
P11	46577.096	2837339.054	1429.830
P12	46577.096	2837178.460	1429.830
P13	46577.096	2837301.913	1430.340
P14	46577.096	2837215.601	1430.340
P15	46613.081	2837206.305	1429.830
P16	46541.140	2837206.306	1429.830
P17	46613.081	2837311.209	1429.830
P18	46541.140	2837311.201	1429.830
P19	46577.096	2837347.059	1429.990
P20	46577.096	2837170.459	1429.990
P21	46621.081	2837205.336	1429.990
P22	46533.140	2837205.336	1429.990
P23	46621.081	2837312.178	1429.990
P24	46533.140	2837312.178	1430.990

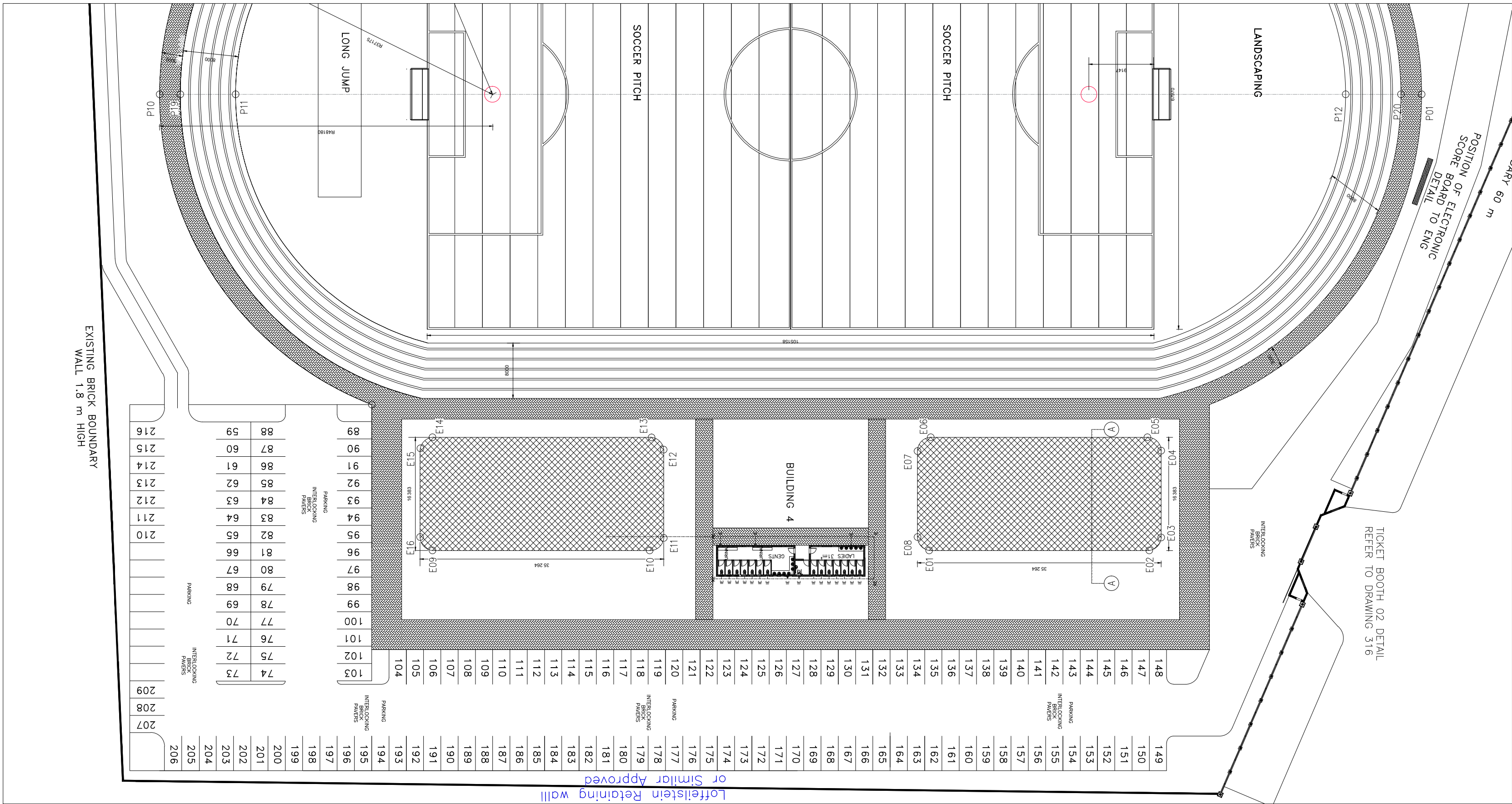


1. ALL SETTING OUT SHALL BE DONE BY THE SURVEYOR ON SITE. SHOULD THERE BE ANY SIGNIFICANT DISCREPANCIES, THESE MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER OR HIS REPRESENTATIVE ON SITE.
2. THE CONTRACTOR MUST CHECK THAT THE GROUND LEVELS INDICATED ON THE DRAWINGS ARE A TRUE REFLECTION OF ACTUAL SITE CONDITIONS. THE ENGINEER MUST BE INFORMED IMMEDIATELY IF THERE IS ANY SIGNIFICANT DISCREPANCY.
3. ALL WORK TO BE CARRIED OUT IN COMPLIANCE WITH SABS 1200 STANDARDIZED SPECIFICATION AND THE PROJECT SPECIFICATIONS.
4. ALL DIMENSIONS TO BE CHECKED PRIOR TO THE START OF CONSTRUCTION. THE ENGINEER MUST BE INFORMED IMMEDIATELY IF THERE IS ANY SIGNIFICANT DISCREPANCY.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
6. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTS DRAWING.
7. THIS DRAWING NOT TO BE SCALED.
8. PRIOR TO THE START OF CONSTRUCTION, ALL EXISTING SERVICES WHICH ARE TO BE CROSSED MUST BE EXPOSED TO CONFIRM THEIR POSITIONS.

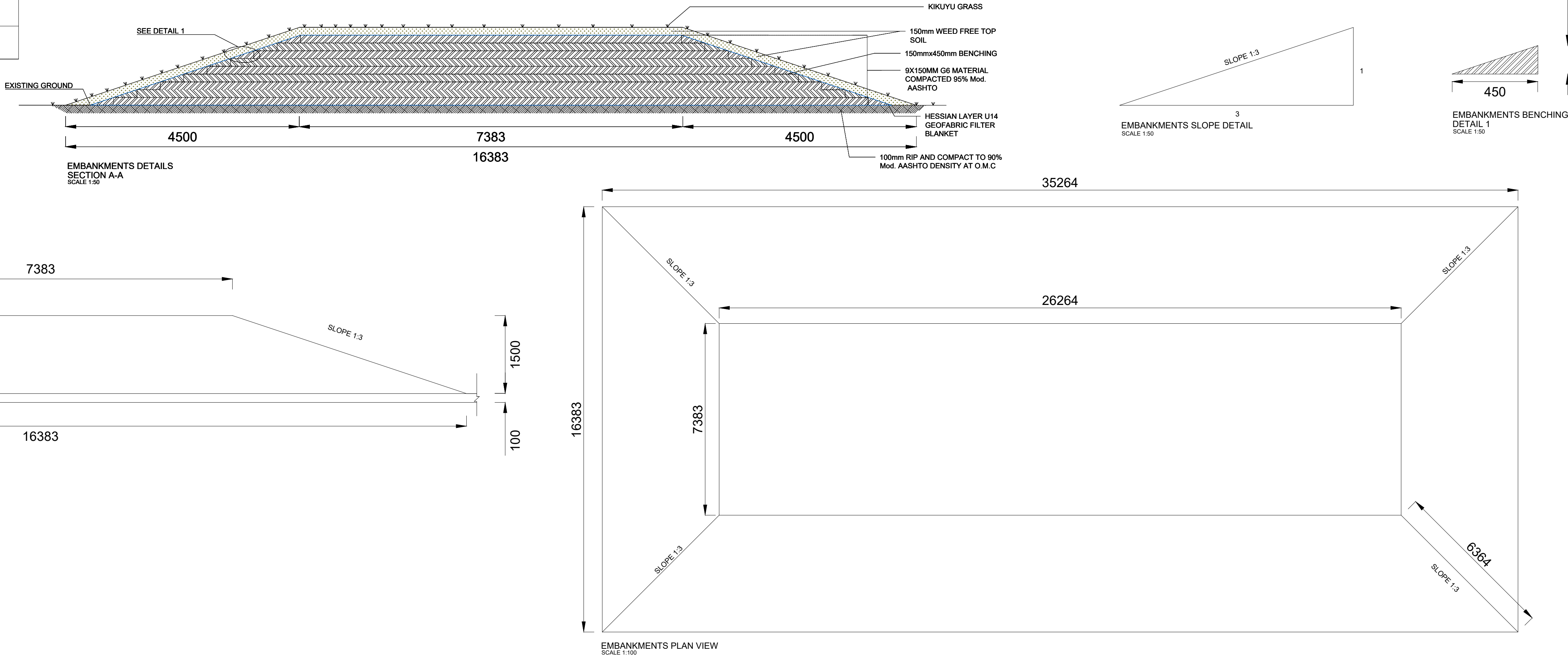
SPECIFICATION FOR MARKINGS ON SOCCER FIELD AND ATHLETIC TRACK

1. THE LIME SLURRY, APPLIED WITH A MECHANICAL MARKER MACHINE ON WELL ESTABLISHED AND MOWED GRASS SURFACES.
2. ATHLETIC TRACK LINES - 75mm WIDE.
3. SOCCER FIELD LINES - 100mm WIDE.

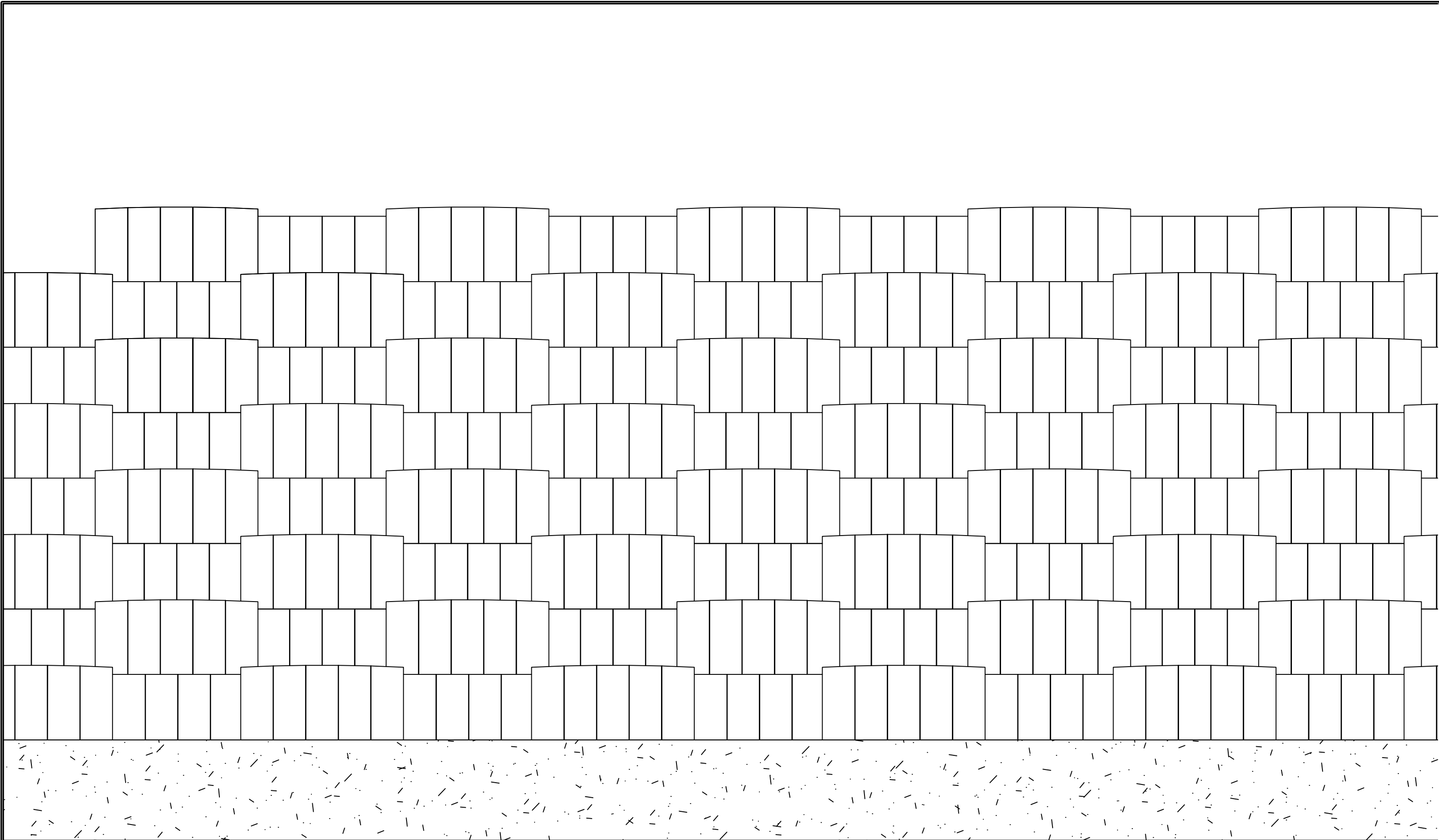
EARTHWORKS LEVELS EMBANKMENTS SETTING OUT DATA			
NAME	YLo	XLo	ZLo
E01	46511.072	2837238.402	1429.674
E02	46511.072	2837207.137	1429.674
E03	46513.072	2837205.137	1429.674
E04	46525.455	2837205.137	1429.674
E05	46527.453	2837207.060	1429.674
E06	46527.453	2837238.491	1429.674
E07	46525.455	2837240.402	1429.674
E08	46513.072	2837240.402	1429.674
E09	46511.082	2837310.582	1429.318
E10	46511.072	2837279.113	1429.318
E11	46513.072	2837277.113	1429.318
E12	46525.455	2837277.113	1429.318
E13	46527.455	2837279.113	1429.318
E14	46527.455	2837310.374	1429.318
E15	46525.522	2837312.377	1429.318
E16	46513.072	2837312.378	1429.318



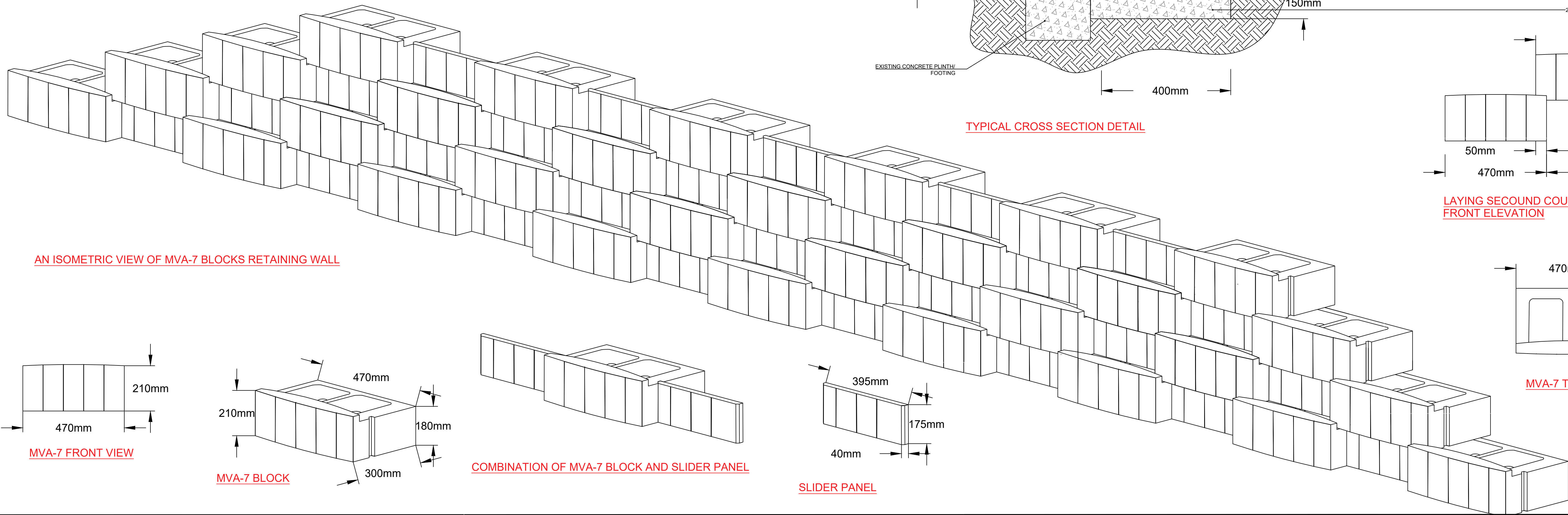
- GENERAL NOTES:
- ALL SETTING OUT SHALL BE DONE BY THE SURVEYOR ON SITE. SHOULD THERE BE ANY SIGNIFICANT DISCREPANCIES, THESE MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER OR HIS REPRESENTATIVE ON SITE.
 - THE CONTRACTOR MUST CHECK THAT THE GROUND LEVELS INDICATED ON THE DRAWINGS ARE A TRUE REFLECTION OF ACTUAL SITE CONDITIONS. THE ENGINEER MUST BE INFORMED IMMEDIATELY IF THERE IS ANY SIGNIFICANT DISCREPANCY.
 - ALL WORK TO BE CARRIED OUT IN COMPLIANCE WITH SABS 1200 STANDARDIZED SPECIFICATION AND THE PROJECT SPECIFICATIONS.
 - ALL DIMENSIONS TO BE CHECKED PRIOR TO THE START OF CONSTRUCTION. THE ENGINEER MUST BE INFORMED IMMEDIATELY IF THERE IS ANY SIGNIFICANT DISCREPANCY.
 - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTS DRAWING.
 - THIS DRAWING NOT TO BE SCALED.
 - PRIOR TO THE START OF CONSTRUCTION, ALL EXISTING SERVICES WHICH ARE TO BE CROSSED MUST BE EXPOSED TO CONFIRM THEIR POSITIONS.



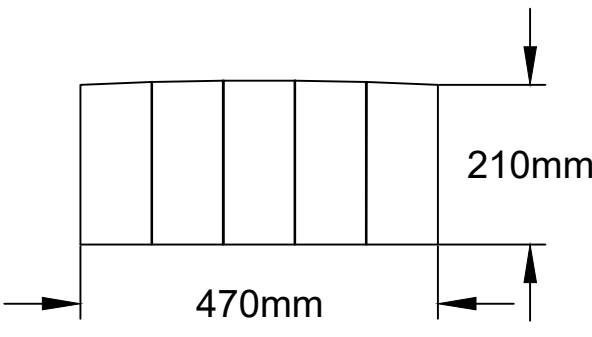
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



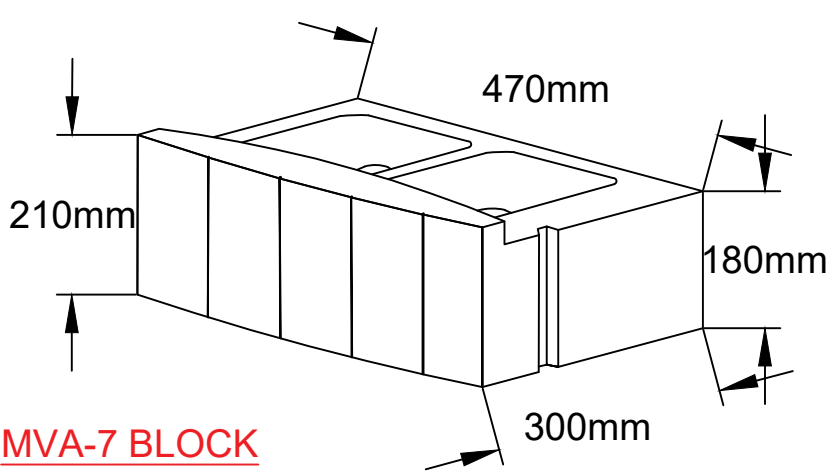
FRONT ELEVATION OF THE MVA-7 RETAINING WALL



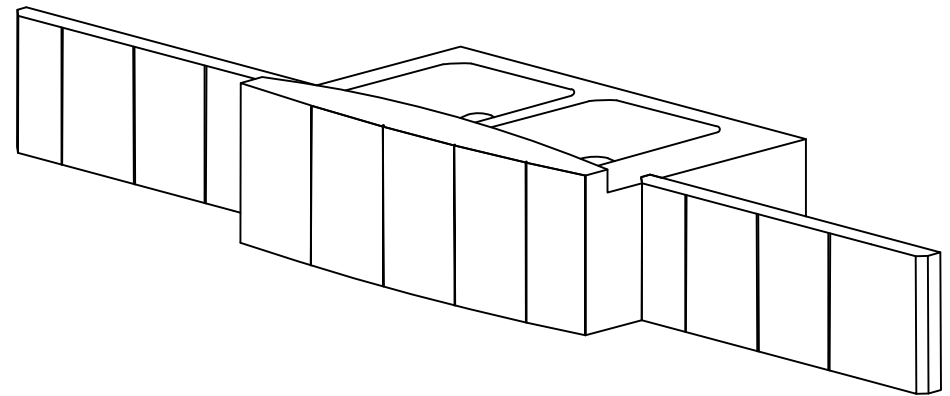
AN ISOMETRIC VIEW OF MVA-7 BLOCKS RETAINING WALL



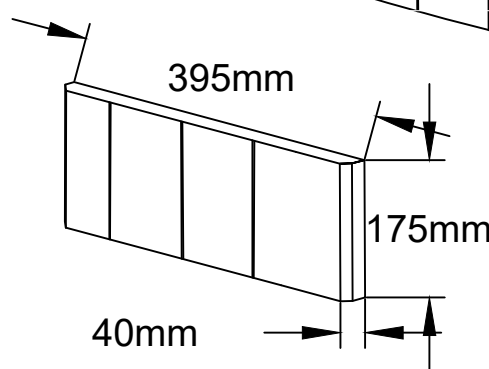
MVA-7 FRONT VIEW



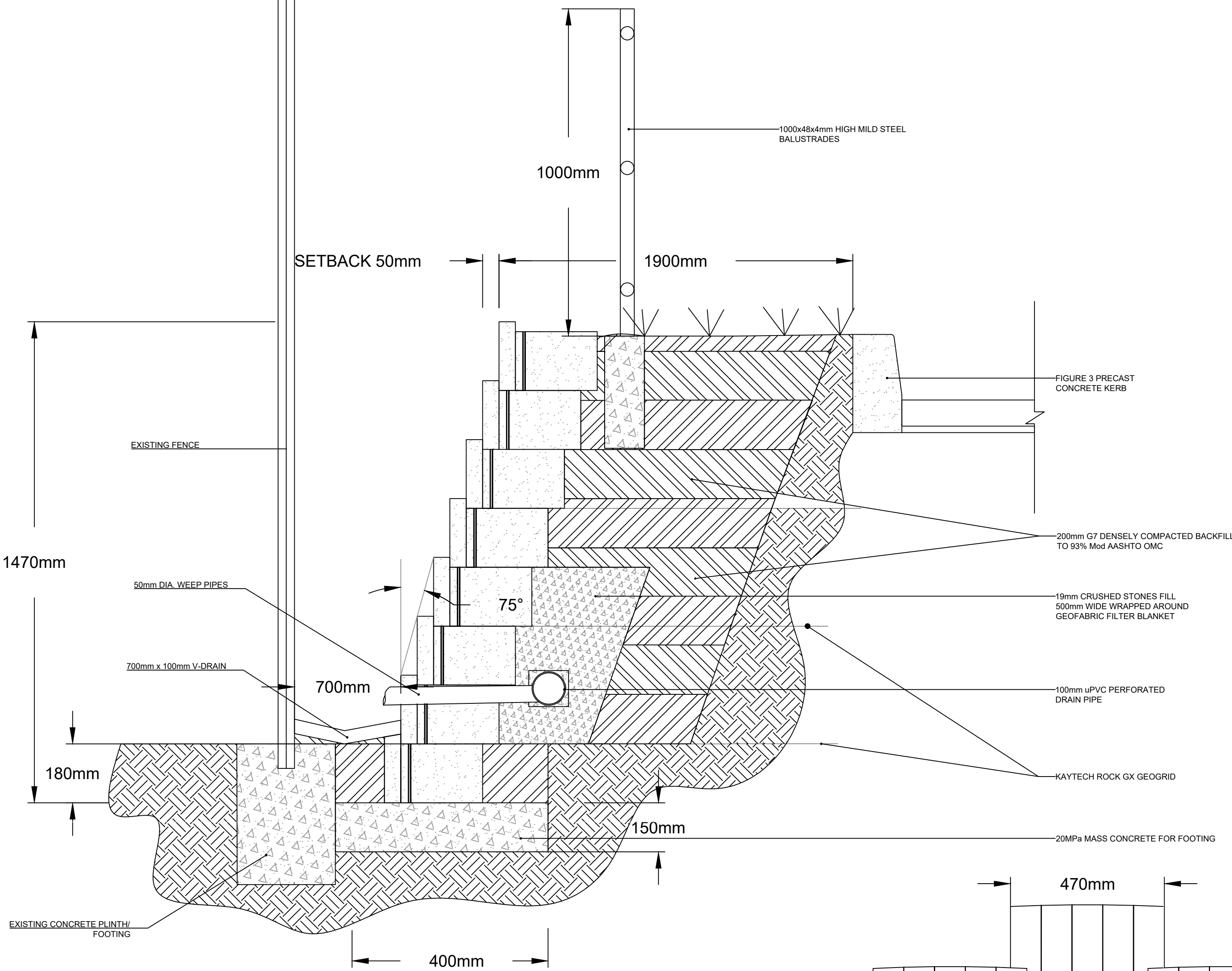
MVA-7 BLOCK



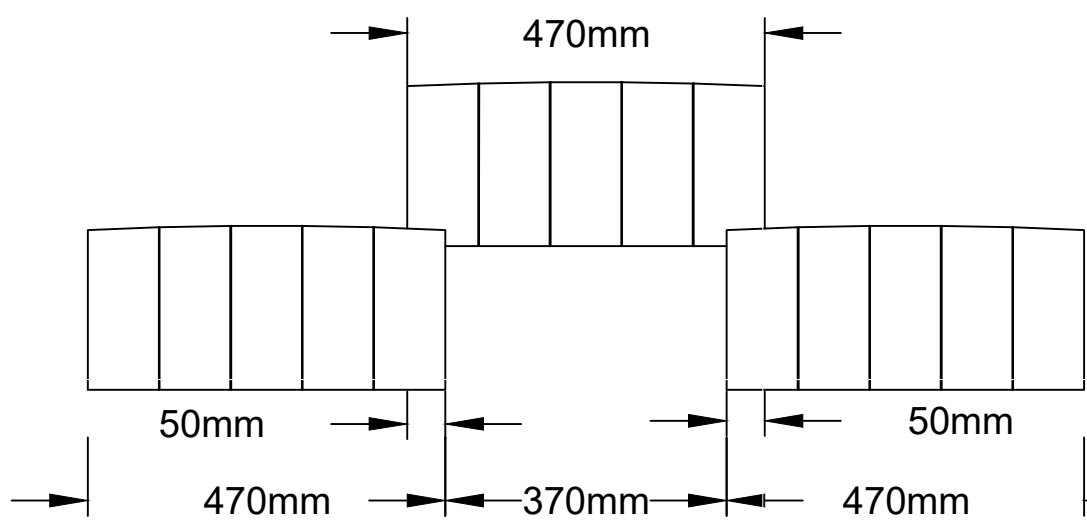
COMBINATION OF MVA-7 BLOCK AND SLIDER PANEL



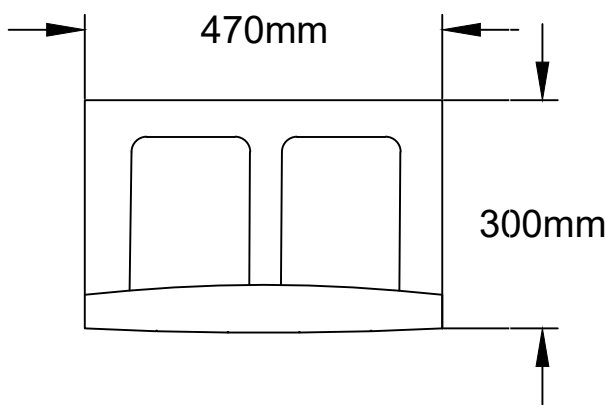
SLIDER PANEL



TYPICAL CROSS SECTION DETAIL



LAYING SECOUND COURSE TO OVERLAP WITH 50MM FRONT ELEVATION



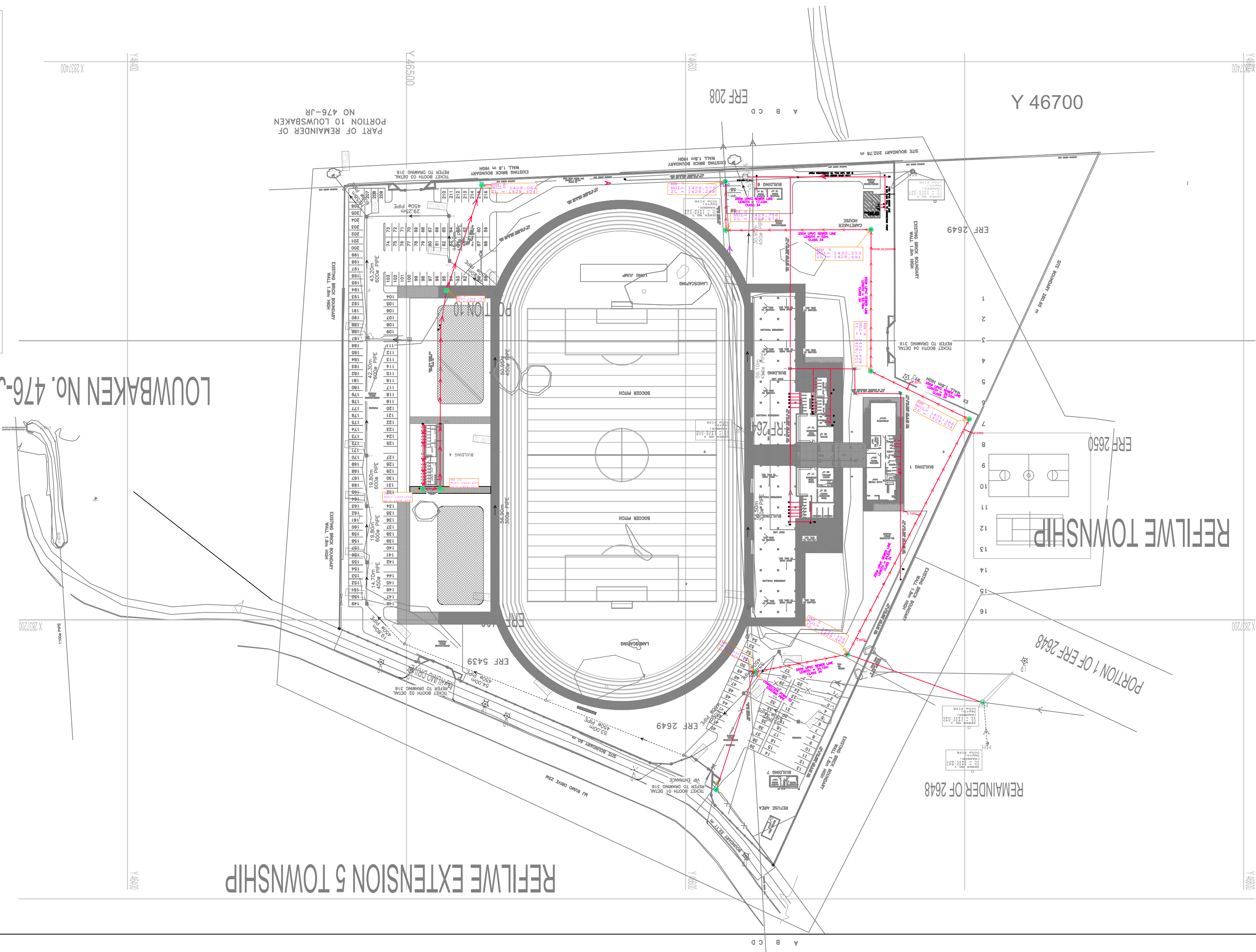
MVA-7 TOP VIEW

				FOR CONSTRUCTION		DESIGNED BY FT MOGOBOYA		CITY OF TSHWANE REIMAGINING EXCELLENCE Tshwane House,320 Madiba Street Pretoria P.O BOX: 440, Pretoria, 0001 Tel: (012) 358 9999 Fax.: (012) 358 4896		BATATISE CONSULTING ENGINEERS Building N0.4 Cnr Witkoppen & Stonehaven Road Sandton, 2197 Cell.: 068 309 9320 Tel: 010 442 6759 Fax.: 086 763 9587 E-mail:freedom@batatiseconsulting.com		UPGRADING OF REFILWE STADIUM REFERENCE No : HHSO1 2018/19		For: CLIENT APPROVAL (Full signature)		SHEET1 OF 1 SCALE 1:10	
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08m						CHECKED BY W MASANGO						EARTH RETAINING WALL		CLIENT DRAWING NUMBER		CONSULTANT DRAWING NUMBER	
SCALE ON REDUCED DRAWING												TYPICAL DETAILS-ELEVATIONS AND SECTIONS				BCE-COT/REF/RTW/01	
01 19/09/2022 ISSUED FOR CONSTRUCTION																	
00 15/03/2021 ISSUED FOR CONSTRUCTION																	
No DATE REVISION						CONSULT		DIR									

REFILWE EXTENSION TOWNSHIP

DATE OF SURVEY: MAY 2020 REGION: 0 REF: 2420 P.O. BOX 1553 BUCHECH 2006 TEL: 011 021 9626 FAX: 086 636 3886 CELL: 082 445 6974	PROJECT TITLE PROJECT DESCRIPTION: REFILWE TOWNSHIP PROPERTY DESCRIPTION: ERVEN 2649 AND 2649 CONTR AND DETAIL SURVEY OF THE TOWNSHIP OF REFILWE TOWNSHIP	SCALE 1: 1000 Z DATUM: NSL CONTOUR INTERVAL: 0.50m BASE STATION: VERBODENING COORDINATE REF STATION: TRIGNET	LEGEND TREE Road Sign Water Meter Manhole Bench Mark Valve Fire Hydrant MH: MANHOLE SB: SIGN BOARD RS: ROAD SIGN TMH: TELKOM MH CMH: CABLE MH SMH: SEWER MH SWMH: STORMWATER MH LP: LIGHT POLE F: FLOOD LIGHT V: VALVE FH: FIRE HYDRANT SWG: GRID INLET LI: INVERT LEVEL CI: NO. LEVEL KI: KERB INLET WM: WATER METER
--	--	--	--

STRUCTURES SETTING OUT DATA NETWORK MH1 - MH21			
STRUCTURE NAME	X	Y	INVERT LEVEL
MH 1	2837180.970	46624.460	1429.611
MH 2	2837187.374	46658.002	1429.469
MH 3	2837271.605	46701.574	1429.074
MH 4	2837288.803	46666.330	1428.911
MH 5	2837339.560	46666.390	1428.691
MH 6	2837339.299	46614.392	1428.474
MH 7	2837356.722	46814.203	1428.401
1. THE X AND Y CO-ORDINATES OF THE INFORMATION INDICATED ON THIS DRAWING ARE BASED ON THE WORLD GEOIDETIC SYSTEM 1984 ELLIPSOID (WGS84) 2. ALL Z CO-ORDINATES SHOWN ON THE DRAWING ARE BASED ON THE LOCAL ORTHOMETRIC HEIGHT SYSTEM AND ON THE DATUM PEG WITH AN ELEVATION AS INDICATED IN WRITING TO THE CONTRACTOR AT THE COMMENCEMENT OF THE WORKS			



NOTES AND SPECIFICATIONS

GENERAL

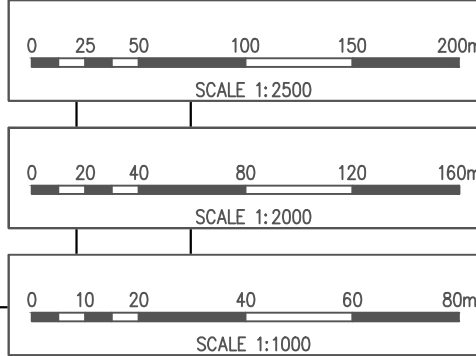
- ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
- ALL DIMENSIONS ARE IN MILLIMETERS. (UNLESS OTHERWISE SPECIFIED).
- DO NOT SCALE FROM THESE DRAWINGS.
- ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
- ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD COT DETAIL DRAWINGS.
- THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE STANDARD DRAWINGS (IF APPLICABLE).
- THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
- THE SIGNATURE OR INITIALS ON THIS DRAWING, OF ANY DIRECTOR OF THE WATER AND SANITATION DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
- THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL THE GUIDELINES, STANDARD DRAWINGS, STANDARDS AND SPECIFICATIONS OF WATER AND SANITATION DEPARTMENT HAVE BEEN MET AND ARE COMPLIED WITH.
- FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.

LEGEND WATER

- NEW HYDRANT
- PROPOSED / NEW PIPE
- NEW VALVE
- NEW VALVE ON EXISTING PIPE
- NEW HYDRANT ON EXISTING PIPE
- NEW END CAP
- NEW AIR VALVE
- NEW WATER METER
- EXISTING PIPE CAPPED
- EXISTING END CAP
- EXISTING NETWORK PIPE
- EXISTING BULK PIPELINE
- EXISTING HYDRANT
- NODE NUMBER
- CLOSED VALVE
- EXISTING VALVE
- EXISTING COMMUNICATION PIPES
- EXISTING AIRVALVE
- EXISTING WATER METER
- EXISTING PRV
- EXISTING PUMP
- PIPE TO BE ABANDONED
- REDUNDANT PIPE
- EXISTING RES DISTRIBUTION ZONE
- PROPOSED RES DISTRIBUTION ZONE
- EXISTING RAND WATER PIPE
- SUBURB BOUNDARY
- SASOL GAS LINE
- PETRONET PIPE
- NEW PIPE IN NEW SLEEVE

SANITATION

- MANHOLE
- CE / LH
- NEW CCTV INSPECTION
- EXIST. LINE INSPECTED BY CCTV
- NEW SEWER LINE
- EXISTING SEWER LINE
- HOUSE CONNECTION



CITY OF TSHWANE
UTILITY SERVICES
DEPARTMENT

WATER AND SANITATION

AMENDMENTS				
NR	DATE	APPROVED	DESCRIPTION	PAR
01	07/07/2021		ISSUED APPROVAL	

WATER AND SANITATION FOR INTERNAL APPROVAL - RECEIVED SIGN WHEN APPLICABLE			
DIRECTOR: WATER AND SANITATION - PLANNING			
NAME	Prof. Reg. No.	SIGNATURE	DATE
REGIONAL DIRECTOR: (1,2,3,4,5,6 or 7)			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: SYSTEM DEVELOPMENT			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: BULK WATER			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: INFRASTRUCTURE PROVISION			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: WASTE WATER TREATMENT			
NAME	Prof. Reg. No.	SIGNATURE	DATE

CONSULTANT DETAIL	
BATATISE CONSULTING ENGINEERS	
I, W MASANGO Prof Reg No: 201370287 HEREBY CERTIFY THAT THE SERVICES WILL HAVE BEEN INSTALLED ACCORDING TO NOTE 9 OF THE ABOVE NOTES AND TO THE DRAWING SIGNATURE: _____ DATE: 07/07/2021	
CONSULTANT DRAWING NUMBER: _____	

DESIGNED	
NAME: S NGAMBA Pr Eng. Prof Reg No: 201370287	DATE: 07/07/2021
SIGNATURE: _____	
DRAWN	
NAME: A S NGAMBA	DATE: 07/07/2021
SIGNATURE: _____	
CHECKED	
NAME: W MASANGO Pr Eng. Prof Reg No: 201370287	DATE: 07/07/2021
SIGNATURE: _____	
INFORMATION OFFICE CHECKED	
NAME: _____ Pr Eng. Prof Reg No: _____	DATE: _____
SIGNATURE: _____	
DESIGN OFFICE APPROVAL	
NAME: _____ Pr Eng. Prof Reg No: _____	DATE: _____
SIGNATURE: _____	

CONTRACT No: _____
PROJECT No: _____
SHEET No: _____
PAPER SIZE: A1
SCALE: 1:1000
DATE: _____

PROJECT STATUS RECEIVED SIGN WHEN APPLICABLE	
☐ CONCEPT DRAWING	☐ TENDER DRAWING
☒ APPROVED CONSTRUCTION DRAWING	☐ AS BUILT DRAWING
PROJECT ENGINEER OF COT:	
NAME: _____ Pr Eng.	Prof Reg No: _____
SIGNATURE: _____	
DATE: _____	
INSPECTOR OF WORKS OF COT:	
NAME: _____	Prof Reg No: _____
SIGNATURE: _____	
DATE: _____	

LOCATION OF PROJECT:	
REFILWE EXTENSION 5 TOWNSHIP	
DESCRIPTION OF PROJECT:	
SEWER LAYOUT	
WBS No. : _____	
COT DRAWING NUMBER: _____	

NOTES AND SPECIFICATIONS

GENERAL

- ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SANS STANDARD
- ALL DIMENSIONS ARE IN MILLIMETRES (UNLESS OTHERWISE SPECIFIED)
- DO NOT SCALE FROM THESE DRAWINGS
- ALL DIMENSIONS TO BE CHECKED AND APPROVED ON SITE
- ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD COT DETAIL DRAWINGS
- THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD DRAWINGS (IF APPLICABLE)
- THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATION FOR MUNICIPAL CIVIL ENGINEERING WORKS
- THE SIGNATURE OR INITIALS ON THIS DRAWING OF ANY DIRECTOR OF WATER AND SANITATION DEPARTMENT, IN NO WAY, REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT
- THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL GUIDELINES, STANDARDS AND SPECIFICATIONS OF THE WATER AND SANITATION DEPARTMENT HAVE BEEN MET
- FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE
- SEWERS INSTALLED WITHIN THE ROAD RESERVE BOUNDARY MUST BE POSITIONED IN ACCORDANCE WITH THE APPLICABLE SERVICES LAYOUT DRAWINGS

PARTICULAR:

- MANHOLE NUMBERS ON AS-BUILT DRAWINGS TO BE IN ACCORDANCE WITH APPROVED COT MANHOLE NUMBERING SYSTEM, AS ALLOCATED BY CES CONSULTING ENGINEERS

STRUCTURES SETTING OUT DATA FOR STORMWATER NETWORKING

STRUCTURE NAME	XL _o	YL _o	INVERT LEVEL
GI 1	2837188.334	46633.389	1429.380
GI 2	2837167.286	46642.825	1429.430
GI 3	2837173.276	46620.734	1429.140
GI 4	2837205.131	46621.733	1429.590
GI 5	2837258.662	46622.918	1428.910
GI 6	2837317.735	46621.614	1428.170
GI 7	2837348.627	46599.309	1427.840
GI 8	2837203.935	46531.580	1428.700
GI 9	2837206.821	46531.580	1427.990
GI 10	2837316.623	46531.712	1427.350
GI 11	2837328.276	46515.327	1427.100
GI 12	2837344.479	46515.069	1426.900
GI 13	2837205.630	46485.674	1428.270
GI 14	2837240.517	46485.649	1428.090
GI 15	2837220.202	46485.774	1427.840
GI 16	2837258.591	46485.662	1427.600
GI 17	2837301.049	46485.750	1427.070
GI 18	2837344.221	46485.690	1426.530
GI 19	2837348.728	46622.941	1427.500
GI 20	2837337.454	46577.111	1428.140
GI 21	2837179.960	46577.077	1428.610

FOR CONSTRUCTION

0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08m

SCALE ON REDUCED DRAWING

DESIGNED BY

FT MOGOBOYA

CHECKED BY

W MASANGO

CITY OF TSHWANE METROPOLITAN



Tshwane House, 320 Madiba Street
Pretoria
P.O BOX: 440, Pretoria, 0001

Tel: (012) 358 9999
Fax: (012) 358 4896

CONSULTANT



BATATISE
CONSULTING ENGINEERS
Building N0.4
Cnr Witkoppen
& Stonehaven Road
Sandton, 2197
Cell: 068 309 9320
Tel: 010 442 6759
Fax: 096 763 9587
E-mail: freedom@batatiseconsulting.com

UPGRADING OF REFILWE STADIUM
REFERENCE No : HHSO1 2018/19

STORMWATER NETWORK 1 AND 2
LAYOUT PLAN

For: CLIENT APPROVAL
(Full signature)

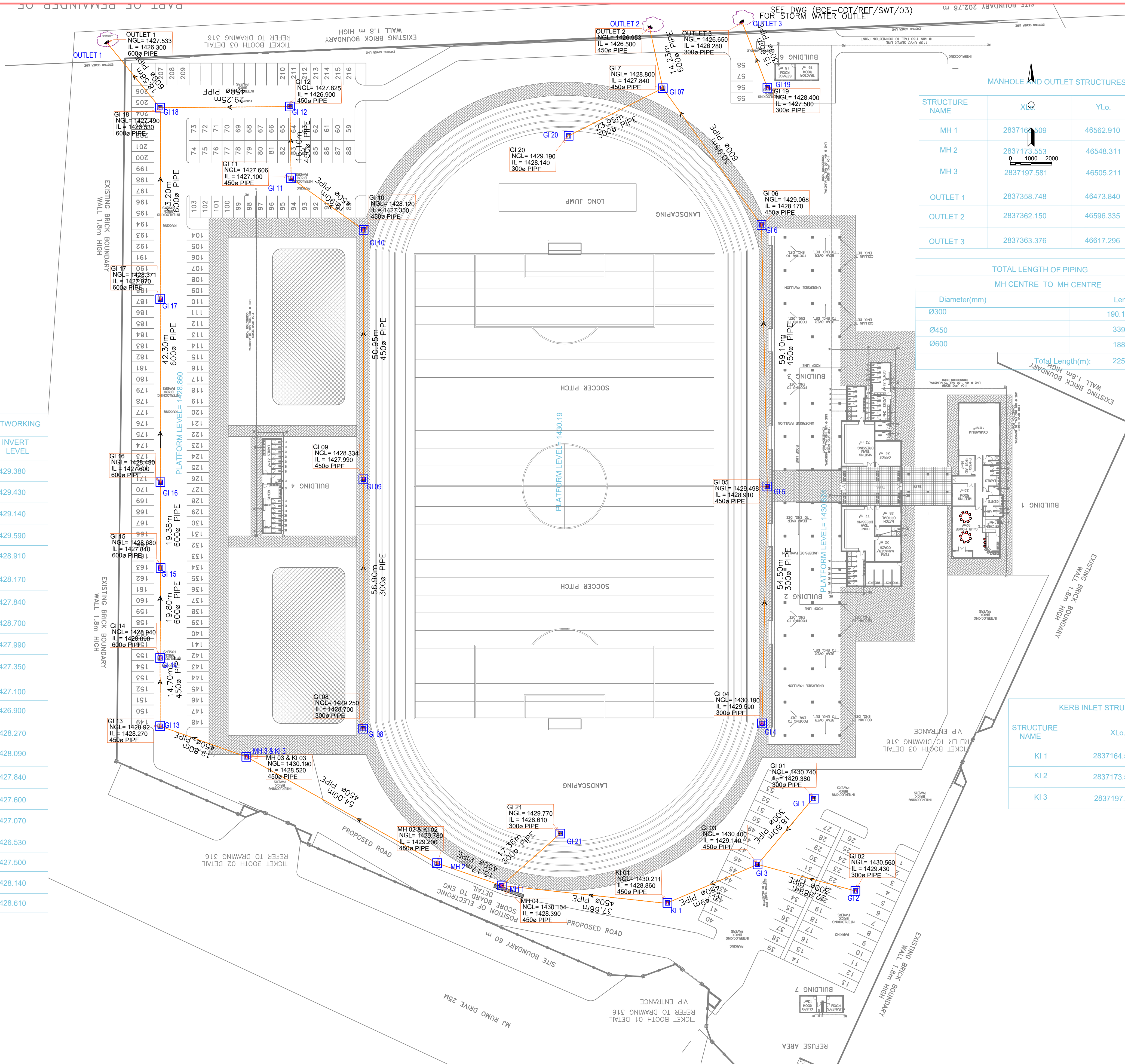
CLIENT
DRAWING NUMBER

FOR CONSTRUCTION

SHEET 1 OF 1

SCALE
AS SHOWN

CONSULTANT DRAWING NUMBER
BCE-COT/REF/SWT/01



MANHOLE AND OUTLET STRUCTURES SETTING OUT DATA

STRUCTURE NAME	XL _o	YL _o	INVERT LEVEL
MH 1	2837164.590	46562.910	1428.390
MH 2	2837173.553	46548.311	1429.200
MH 3	2837197.581	46505.211	1428.520
OUTLET 1	2837358.748	46473.840	1426.300
OUTLET 2	2837362.150	46596.335	1426.500
OUTLET 3	2837363.376	46617.296	1426.280

TOTAL LENGTH OF PIPING

MH CENTRE TO MH CENTRE	
Diameter(mm)	Length(m)
Ø300	190.13m
Ø450	339.12m
Ø600	188.44m
Total Length(m):	225.23m

KERB INLET STRUCTURES SETTING OUT DATA

STRUCTURE NAME	XL _o	YL _o	INVERT LEVEL
KI 1	2837164.590	46600.363	1428.860
KI 2	2837173.553	46548.311	1429.200
KI 3	2837197.581	46505.211	1428.520

GENERAL NOTES

- ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENT OF THE LATEST RELEVANT SANS 1200 REQUIREMENTS
- DO NOT SCALE FROM THIS DRAWING
- ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE
- CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATION AND THE STANDARD JW DESIGN SPECIFICATION
- THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD DRAWINGS
- FINAL POSITION OF SERVICES TO BE DETERMINE ON SITE
- FINAL POSITION OF PIPES TO BE DETERMINE ON SITE

LEGEND

- Proposed Stormwater Line
- Stormwater Manhole
- Stormwater Grid Inlet(GI)

EARTHWORKS LEVELS
SETTING OUT DATA

NAME	YLo	XLo	ZLo.
P01	46577.792	2837167.464	1430.900
P02	46533.096	2837198.155	1430.900
P03	46621.718	2837197.482	1430.900
P04	46543.110	2837206.179	1430.780
P05	46611.081	2837206.179	1430.780
P06	46543.140	2837311.335	1430.780
P07	46611.081	2837311.335	1430.780
P08	46532.195	2837319.359	1430.900
P09	46621.718	2837320.032	1430.900
P10	46576.704	2837350.053	1430.900
P11	46577.096	2837339.054	1430.780
P12	46577.096	2837311.281	1431.290
P13	46577.096	2837258.757	1431.290
P14	46577.096	2837206.233	1431.290
P15	46577.096	2837178.460	1430.780

SETTING OUT DATA

NAME	YLo	XLo	ZLo.
KI 1	46598.772	2837165.018	1429.600
KI 2	46547.670	2837173.498	1428.400
KI 3	46521.008	2837188.338	1428.000

FOR CONSTRUCTION

SCALE ON REDUCED DRAWING

DESIGNED BY

FT MOGOBOYA

CHECKED BY

AS NGAMA

CITY OF TSHWANE METROPOLITAIN



Tshwane House,320 Madiba Street
Pretoria
P.O BOX: 440, Pretoria, 0001

Tel: (012) 358 9999
Fax: (012) 358 4896

CONSULTANT



BATATISE
CONSULTANT ENGINEERS
Building N0.4
Cnr Witkoppen
& Stonehaven Road
Sandton, 2197
Cell: 078 138 1392
Tel: 010 442 6759
Fax: 086 763 9587
E-mail: serge@batatiseconsulting.com

UPGRADING OF REFILWE STADIUM
REFERENCE No : HH01 2018/19

BULK EARTHWORKS
LAYOUT

For: CLIENT APPROVAL
(Full signature)

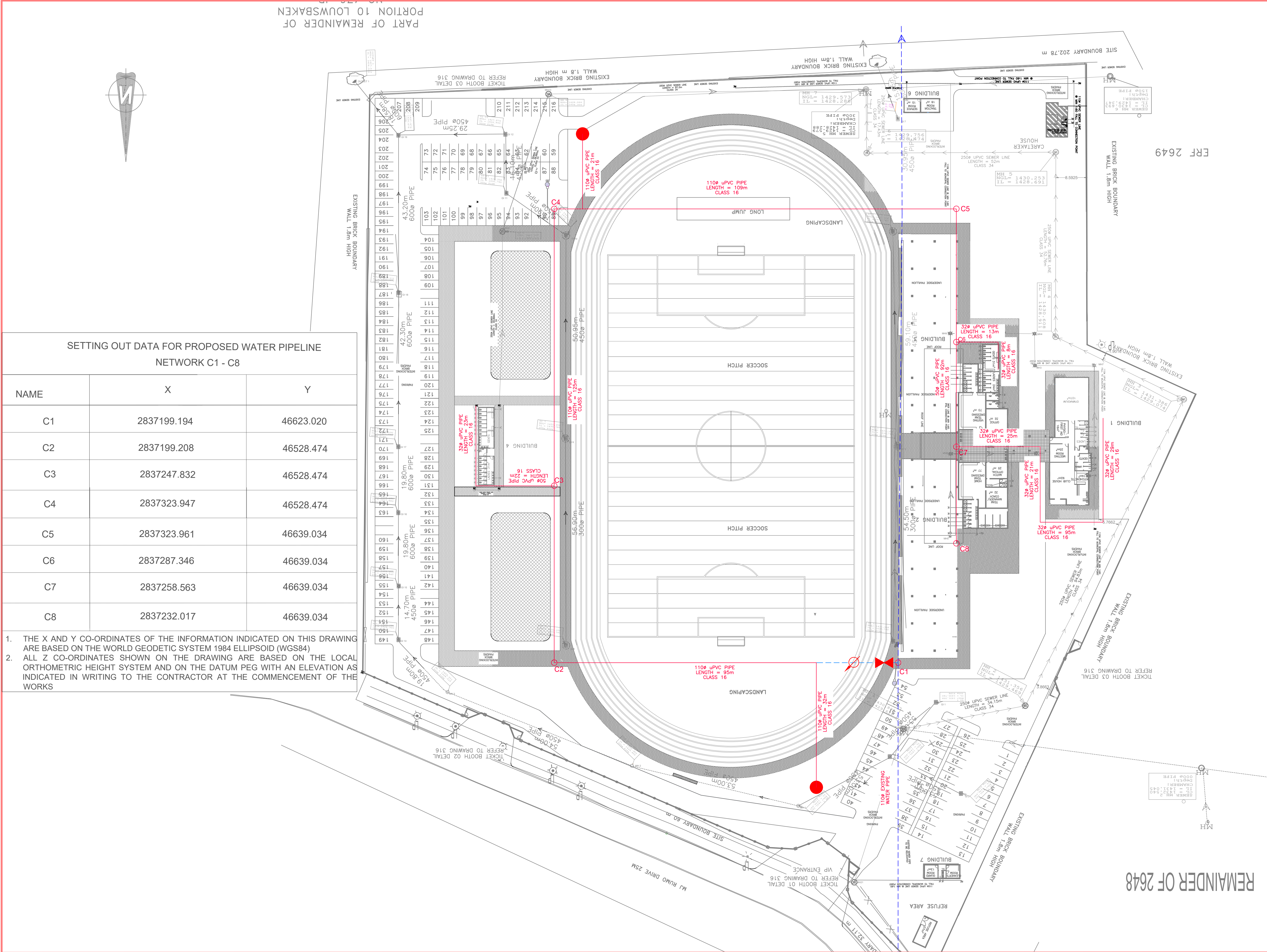
CLIENT
DRAWING NUMBER

SHEET1 OF 1

SCALE
AS SHOWN

CONSULTANT DRAWING NUMBER

BCE-COT/REF/BE/01



NOTES AND SPECIFICATIONS

GENERAL

1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SANS STANDARD.
2. ALL DIMENSIONS ARE IN MILLIMETRES (UNLESS OTHERWISE SPECIFIED).
3. DO NOT SCALE FROM THESE DRAWINGS.
4. ALL DIMENSIONS TO BE CHECKED AND APPROVED ON SITE BEFORE WORK COMMENCE.
5. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD COT DETAIL DRAWINGS.
6. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD DRAWINGS (IF APPLICABLE).
7. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATION FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
8. THE SIGNATURE OR INITIALS ON THIS DRAWING OF ANY DIRECTOR OF WATER AND SANITATION DEPARTMENT, IN NO WAY, REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
9. THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL GUIDELINES, STANDARDS DRAWINGS, STANDARD AND SPECIFICATIONS OF WATER AND SANITATION DEPARTMENT HAVE BEEN MET AND ARE COMPLIED WITH.
10. FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.

LEGEND

- WATER
- NEW FIRE HYDRANT
 - PROPOSED / NEW WATER PIPE LINE
 - NEW VALVE
 - NEW VALVE ON EXISTING WATER PIPELINE
 - NEW FIRE HYDRANT ON EXISTING WATER PIPELINE
 - NEW END CAP ON EXISTING WATER PIPELINE
 - NEW PRESSURE REDUCING VALVE (PRV)
 - NEW WATER METER
 - EXISTING PIPE CAPPED
 - END CAP
 - EXISTING WATER PIPELINE.
 - EXISTING FIRE HYDRANT
 - NODE NUMBER
 - EXISTING CLOSED VALVE
 - EXISTING OPEN VALVE
 - EXISTING WATER METER
 - EXISTING PRV
 - EXISTING PUMP
 - PIPELINE TO BE ABANDONED

					FOR CONSTRUCTION		DESIGNED BY F.T MOGOBOYA		CITY OF TSHWANE METROPOLITAN Tshwane House,320 Madiba Street Pretoria P.O BOX: 440, Pretoria, 0001 Tel: (012) 358 9999 Fax: (012) 358 4896		CONSULTANT BATATISE CONSULTING ENGINEERS Building N0.4 Cnr Witkoppen & Stonehaven Road Sandton, 2197 Cell: 068 309 9320 Tel: 010 442 6759 Fax: 086 763 9587 E-mail:freedom@batatiseconsulting.com		UPGRADING OF REFILWE STADIUM REFERENCE No : HHSO1 2018/19		For: CLIENT APPROVAL (Full signature)		SHEET 1 of 3 SCALE AS SHOWN	
					0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08m SCALE ON REDUCED DRAWING		CHECKED BY W MASANGO						CLIENT DRAWING NUMBER		CONSULTANT DRAWING NUMBER BCE-COT/REF/WT/01/01			
													WATER LAYOUT PLAN					